

04



Industria y Comercio
SUPERINTENDENCIA

República de Colombia
Unidad de Comercio Industrial

INVENTARIO

Delegatura de Propiedad Industrial
División de Nuevas Creaciones

PGT

SOLICITUD DE

PATENTE DE INVENCION
PCT ENTRADA EN FASE NACIONAL

21. EXPEDIENTE No.

10-12629

54. TITULO: NUEVOS HERBICIDAS

52. CLASIFICACION INTERNACIONAL: C07D 493/08, A01N 43/08

71. SOLICITANTE: SYNGENTA LIMITED

DOMICILIO: European Regional Centre, Priestly Road,
Surrey Research Park, Guildford, Surrey GU2
7YH, REINO UNIDO

74. APODERADO: Dra. MARGARITA CASTELLANOS A.

22. BOGOTA, D.C., 05 FEB. 2010

7.1.1.1. C...
08-03-2010



No. 10-012629- -00000-0000

Fecha: 2010-02-05 15:16:40
Ira. 11 PATENTE IYII
Act. 411 PRESENTACION

Dep. 2020 DIR.NULVASCR
Lve: 378 FASENACIONALI
Folios: 522



Industria y Comercio
SUPERINTENDENCIA

LISTA DE CHEQUEO
ADMISION A TRAMITE - NUEVAS CREACIONES

PATENTE DE INVENCION ☐

MODELO DE UTILIDAD ☐

Art. 33 Decisión 486/00

☐

Indicación que se solicita una patente

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Descripción de la invención

☐

Dibujos de ser estos pertinentes

☐

Comprobante de pago de las tasas establecidas (de ser el caso formato de descuento)

Completa ☐

Incompleta ☐

PATENTE DE INVENCION PCT ☒

MODELO DE UTILIDAD PCT ☐

Art. 33 Decisión 486/00
Circular Única

☒

Indicación que se solicita una PCT

☒

Datos de identificación del solicitante o de la persona que presenta la solicitud

☒

Copia de la solicitud en español, tal como fue presentada inicialmente (capítulo descriptivo, reivindicatorio, resumen)

☐

Dibujos de ser estos pertinentes

☒

Comprobante de pago de las tasas establecidas (de ser el caso formato de descuento)

Completa ☒

Incompleta ☐

DISEÑO INDUSTRIAL ☐

(Art. 119 Decisión 486/00)

☐

Indicación que se solicita diseño industrial

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Representación gráfica y fotográfica del Diseño Industrial o muestra del material que incorpora el diseño

☐

Comprobante de pago de las tasas establecidas

Completa ☐

Incompleta ☐

ESQUEMA DE TRAZADO ☐

(Art. 92 Decisión 486/00)

☐

Indicación que se solicita un esquema de trazado

☐

Datos de identificación del solicitante o de la persona que presenta la solicitud

☐

Representación gráfica de un esquema de trazado

☐

Comprobante de pago de las tasas establecidas

Completa ☐

Incompleta ☐



Industria y Comercio
SUPERINTENDENCIA

PETIT

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 10-012629- -00000-0000

le radicación

Fecha: 2010-02-05 15:16:40 Dep: 2020 DIP NULVASCR
Tra: 11 PATENTEIYII Eje: 378 FASENACIONALI
Act: 411 PRESENTACION Folios: 522

FORMULARIO UNICO DE SOLICITUD DE PATENTES
PCT
ENTRADA EN FASE NACIONAL

SOLICITUD DE:

①

☒ Patente de Invención.

☐ Patente de Modelo de Utilidad.

☒ Capítulo I

☐ Capítulo II

②

SOLICITANTE (71)

Nombre: SYNGENTA LIMITED

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Nacionalidad o Domicilio: Surrey - REINO UNIDO

Lugar de Constitución: REINO UNIDO

Teléfono: Fax:
E-mail:

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C.C. ☐ NIT ☐

C.E. ☐ Otro ☐

Número Cual

③

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O APODERADO

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Número 39'779.654 TPA 70.819

④

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VER ANEXO # 1

⑤

PCT (86)

Solicitud Internacional No. PCT/EP2008/006467

Fecha 06/08/2008

Publicación Internacional No. WO 2009/019005 A2

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⑥

Título (54)

NUEVOS HERBICIDAS (Folios 52A)

⑦

Clasificación Internacional (51)

C07D 493/08, A01N 43/08

⑧

Prioridad

(33) País de Origen

(32) Fecha

(31) Número de Solicitud

SI ☒ NO ☐

GB

08/08/2007

0715454,5

⑨

Comprobante de pago No.

10-8,774 y 10-8,777

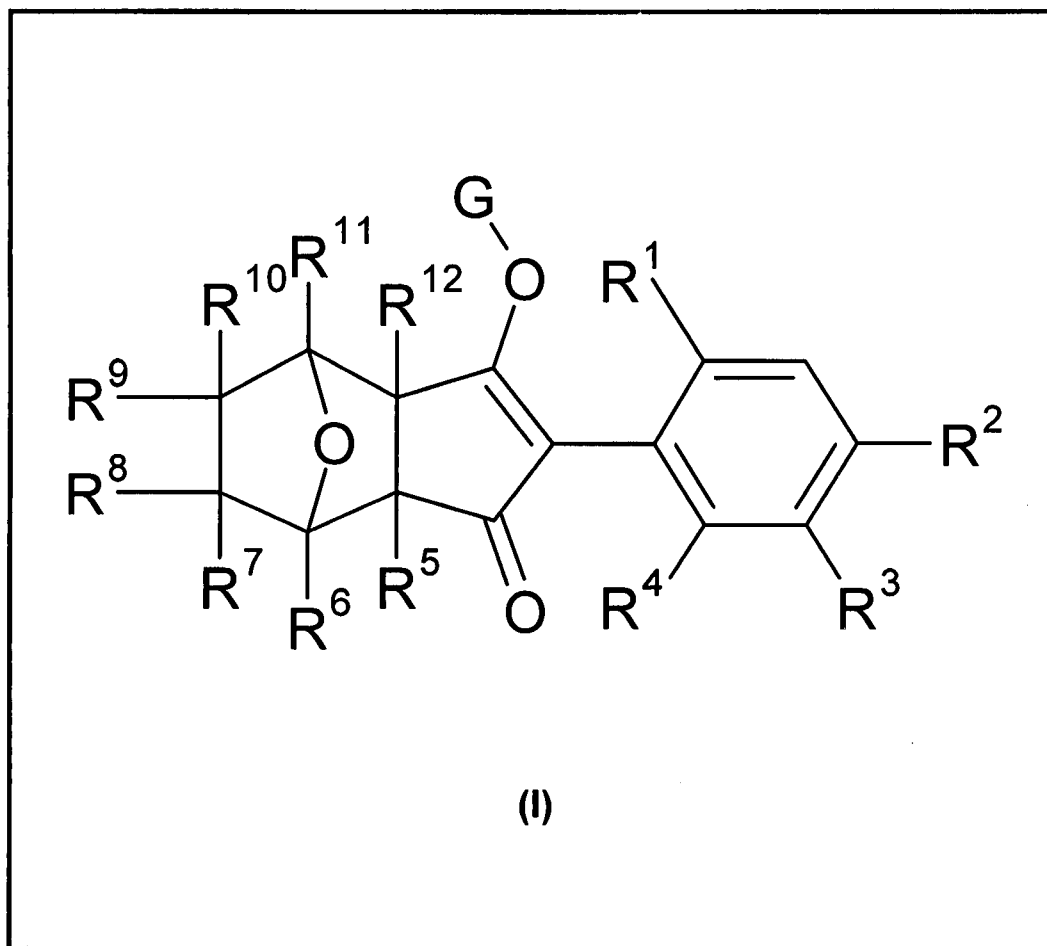
Fecha Febrero 4 de 2010

Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.

10 Anexos

- ☒ Comprobante de pago de la tasa de presentación de la solicitud.
☒ Documento que acredite la existencia y representación legal cuando el solicitante sea persona jurídica.
☒ Poderes, si fuere el caso, junto con la sustitución del mismo a mi favor
☐ Documento de cesión del inventor al solicitante o a su causante.
☐ Declaraciones.
☒ Copia de la solicitud internacional (Resumen, descripción, reivindicaciones, dibujos).
☒ Traducción de la solicitud internacional al castellano (Resumen, descripción, reivindicaciones, dibujos).
☐ Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
☐ Traducción del examen preliminar internacional efectuado por la IPEA.
☐ De ser el caso, copia del contrato de acceso.
☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
☐ De ser el caso, certificado de depósito del material biológico.
☒ Arte final 12x12
☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
☐ De ser el caso, modificaciones efectuadas a la solicitud internacional.
☒ Otros: Tarjeta Propietario, Extracto para la publicación

11 FIGURA CARACTERISTICA:



12 Solicito la concesión de la patente,

NOMBRE:

MARGARITA CASTELLANOS ABONDANO

FIRMA:

C.C. No. 39.779.654 Usaquén - TPA 70.819 C.S.J.

05 FEB. 2010

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P1892
4

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

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RECIBO OFICIAL DE CAJA : 10 - 8,774
FECHA : FEBRERO 4 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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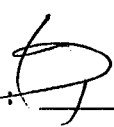
***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
ALVARO CASTELLANOS	CONSIGNACION	BANCO DE BOGOTA	062754387	175518232	04/02/2010	11,514,610.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	1 TRAMITES DE SOL. DE PATENTE DE IN	554,000.00
TOTAL :			\$ 554,000.00

SON: QUINIENTOS CINCUENTA Y CUATRO MIL PESOS

RESPONSABLE: 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

CERTIFICACION DE EXCEDENTE : 10 - @.777
 FECHA : FEBRERO 4 DE 2010

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
ALVARO CASTELLANOS	CONSIGNACION	BANCO DE BOGOTA	062754387	175518232	04/02/2010	11,514,610.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-09	OTROS SERVICIOS DE PROPIEDAD I	
		99 OTROS SERVICIOS ADMINISTRATIVOS	104,000.00
		TOTAL :	\$ 104,000.00

SON: CIENTO CUATRO MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

ESTA CERTIFICACION DE EXCEDENTE DE PAGO SOLO PODRA SER UTILIZADA
 COMO PARTE DE LA CANCELACION DE UNA TARIFA VIGENTE Y NO PODRA SER
 SUSTITUIDA POR NINGUN RECIBO.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
12 February 2009 (12.02.2009)

PCT

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WO 2009/019005 A2

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(25) Filing Language: English

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(30) Priority Data:

0715454.5 8 August 2007 (08.08.2007) GB

(71) Applicant (for all designated States except US): **SYNGENTA LIMITED** [GB/GB]; European Regional Centre, Priestley Road, Surrey Research Park, Guildford, Surrey GU2 7YH (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TYTE, Melloney** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **MATHEWS, Christopher, John** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **HALL, Gavin, John** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **WHITTINGHAM, William, Guy** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **WAILES, Jeffrey, Steven** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **SCUTT, James, Nicholas** [GB/GB]; SyngentaLimited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **JEANMART, Stephane, André, Marie** [BE/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB). **VINER, Russell** [GB/GB]; Syngenta Limited, Jealotts Hill International Research Center, Bracknell, Berkshire RG42 6EY (GB).(74) Common Representative: **HÖLSCHER, Ingo**; Syngenta Crop Protection Münchwilen AG, Intellectual Property, Schaffhauserstrasse, CH-4332 Stein (CH).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CP, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GE, GR, GU, HK, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LE, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

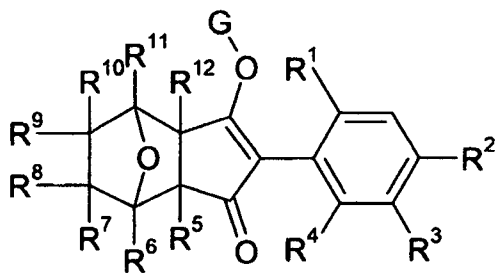
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, EG, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GE, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

(54) Title: NOVEL HERBICIDES

(57) Abstract: Compounds of formula (I) wherein the substituents are as defined in claim 1, are suitable for use as herbicides.



(I)

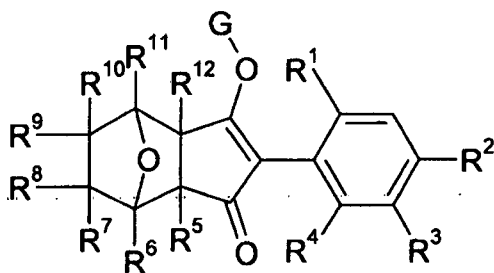
Novel herbicides

The present invention relates to novel, herbicidally active cyclopentanedione compounds, and derivatives thereof, to processes for their preparation, to compositions comprising those compounds, and to their use in controlling weeds, especially in crops of useful plants, or in inhibiting undesired plant growth.

Cyclopentanedione compounds having herbicidal action are described, for example, in WO 01/74770 and WO 96/03366.

Novel cyclopentanedione compounds, and derivatives thereof, having herbicidal and growth-inhibiting properties have now been found.

The present invention accordingly relates to compounds of formula I



(I),

wherein

G is hydrogen or an alkali metal, alkaline earth metal, sulfonium, ammonium or a latentating group,

R¹ is methyl, ethyl, *n*-propyl, isopropyl, cyclopropyl, halomethyl, haloethyl, vinyl, ethynyl, halogen, C₁-C₂alkoxy or C₁-C₂haloalkoxy,

R², R³ and R⁴ are independently of each other hydrogen, methyl, ethyl, *n*-propyl, isopropyl, cyclopropyl, halomethyl, haloethyl, vinyl, ethynyl, halogen, C₁-C₂alkoxy or C₁-C₂ haloalkoxy,

R⁵ and R¹² are independently of each other hydrogen, C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃alkylthio, halogen or C₁-C₆alkoxycarbonyl, or

R⁵ and R¹² join together to form a 3-7 membered carbocyclic ring, optionally containing an oxygen or sulfur atom, and

- 2 -

R^6 , R^7 , R^8 , R^9 , R^{10} and R^{11} are independently of each other hydrogen or a substituent, or R^7 and R^8 , or R^9 and R^{10} , together with the carbon atoms to which they are attached form a keto, an optionally substituted alkenyl or optionally substituted imino unit, or any two of R^7 , R^8 , R^9 and R^{10} together form a 3-8 membered carbocyclic ring optionally containing a heteroatom selected from O, S or N and optionally substituted, or R^7 and R^{10} together form a bond.

In the substituent definitions of the compounds of the formula I, each alkyl moiety either alone or as part of a larger group (such as alkoxy, alkylthio, alkoxycarbonyl, alkylcarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl) is a straight or branched chain and is, for example, methyl, ethyl, *n*-propyl, *n*-butyl, *n*-pentyl, *n*-hexyl, isopropyl, *n*-butyl, *sec*-butyl, isobutyl, *tert*-butyl or neopentyl. The alkyl groups are suitably C_1 - C_6 alkyl groups, but are preferably C_1 - C_4 alkyl or C_1 - C_3 alkyl groups, and, more preferably, C_1 - C_2 alkyl groups.

When present, the optional substituents on an alkyl moiety (alone or as part of a larger group such as alkoxy, alkoxycarbonyl, alkylcarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl) include one or more of halogen, nitro, cyano, C_{3-7} cycloalkyl (itself optionally substituted with C_{1-6} alkyl or halogen), C_{5-7} cycloalkenyl (itself optionally substituted with C_{1-6} alkyl or halogen), hydroxy, C_{1-10} alkoxy, C_{1-10} alkoxy(C_{1-10})alkoxy, tri(C_{1-4})alkylsilyl(C_{1-6})alkoxy, C_{1-6} alkoxycarbonyl(C_{1-10})alkoxy, C_{1-10} haloalkoxy, aryl(C_{1-4})-alkoxy (where the aryl group is optionally substituted), C_{3-7} cycloalkyloxy (where the cycloalkyl group is optionally substituted with C_{1-6} alkyl or halogen), C_{3-10} alkenyloxy, C_{3-10} alkynyloxy, mercapto, C_{1-10} alkylthio, C_{1-10} haloalkylthio, aryl(C_{1-4})alkylthio (where the aryl group is optionally substituted), C_{3-7} cycloalkylthio (where the cycloalkyl group is optionally substituted with C_{1-6} alkyl or halogen), tri(C_{1-4})alkylsilyl(C_{1-6})alkylthio, arylthio (where the aryl group is optionally substituted), C_{1-6} alkylsulfonyl, C_{1-6} haloalkylsulfonyl, C_{1-6} alkylsulfinyl, C_{1-6} haloalkylsulfinyl, arylsulfonyl (where the aryl group may be optionally substituted), tri(C_{1-4})alkylsilyl, aryl(C_{1-4})alkylsilyl, (C_{1-4})alkyldiarylsilyl, triarylsilyl, aryl(C_{1-4})alkylthio(C_{1-4})alkyl, aryloxy(C_{1-4})alkyl, formyl, C_{1-10} alkylcarbonyl, HO_2C , C_{1-10} alkoxycarbonyl, aminocarbonyl, C_{1-6} alkylaminocarbonyl, di(C_{1-6} alkyl)aminocarbonyl, *N*-(C_{1-3} alkyl)-*N*-(C_{1-3} alkoxy)aminocarbonyl, C_{1-6} alkylcarbonyloxy, arylcarbonyloxy (where the aryl group is optionally substituted), di(C_{1-6})alkylaminocarbonyloxy, C_{1-6} alkyliminoxy, C_{3-6} alkenyloxyimino, aryloxyimino, aryl (itself optionally substituted), heteroaryl (itself optionally substituted), heterocyclyl (itself optionally substituted with C_{1-6} alkyl or halogen), aryloxy (where the aryl group is optionally substituted), heteroaryloxy, (where the heteroaryl group is optionally substituted), heterocyclyloxy (where the heterocyclyl group is optionally substituted with C_{1-6} alkyl or halogen), amino, C_{1-6} alkylamino, di(C_{1-6})alkylamino, C_{1-6} alkylcarbonylamino, *N*-(C_{1-6})alkylcarbonyl-*N*-(C_{1-6})alkylamino, C_{2-6} alkenylcarbonyl, C_{2-6} alkynylcarbonyl, C_{3-6} alkenyloxycarbonyl, C_{3-6} alkynyloxycarbonyl,

- 3 -

aryloxycarbonyl (where the aryl group is optionally substituted) and arylcarbonyl (where the aryl group is optionally substituted).

Alkenyl and alkynyl moieties can be in the form of straight or branched chains, and the alkenyl moieties, where appropriate, can be of either the (*E*)- or (*Z*)-configuration. Examples are vinyl, allyl and propargyl. Alkenyl and alkynyl moieties can contain one or more double and/or triple bonds in any combination. It is understood, that allenyl and alkylinylenyl are included in these terms. It is to be understood that the alkenyl units formed by R^7 together with R^8 are directly attached to the bridged cyclohexane ring by a double bond.

When present, the optional substituents on alkenyl or alkynyl include those optional substituents given above for an alkyl moiety.

Halogen is fluorine, chlorine, bromine or iodine.

Haloalkyl groups are alkyl groups which are substituted with one or more of the same or different halogen atoms and are, for example, CF_3 , CF_2Cl , CF_2H , CCl_2H , FCH_2 , $ClCH_2$, $BrCH_2$, CH_3CHF , $(CH_3)_2CF$, CF_3CH_2 or CHF_2CH_2 .

In the context of the present specification the term "aryl" refers to ring systems which may be mono-, bi- or tricyclic. Examples of such rings include phenyl, naphthyl, anthracenyl, indenyl or phenanthrenyl. A preferred aryl group is phenyl.

The term "heteroaryl" preferably refers to an aromatic ring system containing at least one heteroatom and consisting either of a single ring or of two or more fused rings. Preferably, single rings will contain up to three and bicyclic systems up to four heteroatoms which will preferably be chosen from nitrogen, oxygen and sulphur. Examples of such groups include furyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, 1,2,4-oxadiazolyl, 1,3,4-oxadiazolyl, 1,2,5-oxadiazolyl, 1,2,3-thiadiazolyl, 1,2,4-thiadiazolyl, 1,3,4-thiadiazolyl, 1,2,5-thiadiazolyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, 1,2,3-triazinyl, 1,2,4-triazinyl, 1,3,5-triazinyl, benzofuryl, benzisofuryl, benzothienyl, benzisothienyl, indolyl, isoindolyl, indazolyl, benzothiazolyl, benzisothiazolyl, benzoxazolyl, benzisoxazolyl, benzimidazolyl, 2,1,3-benzoxadiazole, quinolinyl, isoquinolinyl, cinnolinyl, phthalazinyl, quinazolinyl, quinoxalinyl, naphthyridinyl, benzotriazinyl, purinyl, pteridinyl and indolizinyl.

Preferred examples of heteroaromatic radicals include pyridyl, pyrimidinyl, triazinyl, thienyl, furyl, oxazolyl, isoxazolyl, 2,1,3-benzoxadiazolyl and thiazolyl.

- 4 -

Another group of preferred heteroaryls comprises furyl, thienyl, pyrazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, quinoliny, isoquinoliny, cinnoliny, quinazoliny or quinoxaliny.

The term "heterocyclyl" preferably refers to a non-aromatic preferably monocyclic or bicyclic ring systems containing up to 7 atoms including one or more (preferably one or two) heteroatoms selected from O, S and N. Examples of such rings include 1,3-dioxolane, oxetane, tetrahydrofuran, morpholine, thiomorpholin and piperazine. When present, the optional substituents on heterocyclyl include C₁₋₆ alkyl and C₁₋₆ haloalkyl as well as those optional substituents given above for an alkyl moiety.

Cycloalkyl includes preferably cyclopropyl, cyclobutyl, cyclopentyl and cyclohexyl. Cycloalkylalkyl is preferentially cyclopropylmethyl. Cycloalkenyl includes preferably cyclopentenyl and cyclohexenyl. When present, the optional substituents on cycloalkyl or cycloalkenyl include C₁₋₃ alkyl as well as those optional substituents given above for an alkyl moiety.

Carbocyclic rings such as those formed by R⁷ together with R⁸ include aryl, cycloalkyl or carbocyclic groups, and cycloalkenyl groups.

When present, the optional substituents on aryl, heteroaryl and carbocycles are preferably selected independently, from halogen, nitro, cyano, rhodano, isothiocyanato, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy-(C₁₋₃)alkyl, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl, C₃₋₇ cycloalkyl (itself optionally substituted with C₁₋₆ alkyl or halogen), C₅₋₇ cycloalkenyl (itself optionally substituted with C₁₋₆ alkyl or halogen), hydroxy, C₁₋₁₀ alkoxy, C₁₋₁₀ alkoxy(C₁₋₁₀)alkoxy, tri(C₁₋₄)alkylsilyl(C₁₋₆)alkoxy, C₁₋₆ alkoxy carbonyl(C₁₋₁₀)alkoxy, C₁₋₁₀ haloalkoxy, aryl(C₁₋₄)alkoxy (where the aryl group is optionally substituted with halogen or C₁₋₆ alkyl), C₃₋₇ cycloalkyloxy (where the cycloalkyl group is optionally substituted with C₁₋₆ alkyl or halogen), C₃₋₁₀ alkenyloxy, C₃₋₁₀ alkynyloxy, mercapto, C₁₋₁₀ alkylthio, C₁₋₁₀ haloalkylthio, aryl(C₁₋₄)alkylthio, C₃₋₇ cycloalkylthio (where the cycloalkyl group is optionally substituted with C₁₋₆ alkyl or halogen), tri(C₁₋₄)-alkylsilyl(C₁₋₆)alkylthio, arylthio, C₁₋₆ alkylsulfonyl, C₁₋₆ haloalkylsulfonyl, C₁₋₆ alkylsulfinyl, C₁₋₆ haloalkylsulfinyl, arylsulfonyl, tri(C₁₋₄)alkylsilyl, aryl di(C₁₋₄)-alkylsilyl, (C₁₋₄)alkyl diarylsilyl, triarylsilyl, C₁₋₁₀ alkyl carbonyl, HO₂C, C₁₋₁₀ alkoxy carbonyl, aminocarbonyl, C₁₋₆ alkyl aminocarbonyl, di(C₁₋₆ alkyl)-aminocarbonyl, N-(C₁₋₃ alkyl)-N-(C₁₋₃ alkoxy)aminocarbonyl, C₁₋₆ alkyl carbonyloxy, aryl carbonyloxy, di(C₁₋₆)alkyl amino-carbonyloxy, aryl (itself optionally substituted with C₁₋₆ alkyl or halogen), heteroaryl (itself optionally substituted with C₁₋₆ alkyl or halogen), heterocyclyl (itself optionally substituted with C₁₋₆ alkyl or halogen), aryloxy (where the

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aryl group is optionally substituted with C₁₋₆ alkyl or halogen), heteroaryloxy (where the heteroaryl group is optionally substituted with C₁₋₆ alkyl or halogen), heterocyclyloxy (where the heterocyclyl group is optionally substituted with C₁₋₆ alkyl or halogen), amino, C₁₋₆ alkylamino, di(C₁₋₆)alkylamino, C₁₋₆ alkylcarbonylamino, *N*-(C₁₋₆)alkylcarbonyl-*N*-(C₁₋₆)alkylamino, arylcarbonyl, (where the aryl group is itself optionally substituted with halogen or C₁₋₆ alkyl) or two adjacent positions on an aryl or heteroaryl system may be cyclised to form a 5, 6 or 7 membered carbocyclic or heterocyclic ring, itself optionally substituted with halogen or C₁₋₆ alkyl. Further substituents for aryl or heteroaryl include arylcarbonylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), (C₁₋₆)alkoxycarbonylamino (C₁₋₆)alkoxycarbonyl-*N*-(C₁₋₆)alkylamino, aryloxy carbonylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), aryloxy carbonyl-*N*-(C₁₋₆)alkylamino, (where the aryl group is substituted by C₁₋₆ alkyl or halogen), arylsulphonylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), arylsulphonyl-*N*-(C₁₋₆)alkylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), aryl-*N*-(C₁₋₆)alkylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), arylamino (where the aryl group is substituted by C₁₋₆ alkyl or halogen), heteroaryl amino (where the heteroaryl group is substituted by C₁₋₆ alkyl or halogen), heterocyclylamino (where the heterocyclyl group is substituted by C₁₋₆ alkyl or halogen), aminocarbonylamino, C₁₋₆ alkylaminocarbonylamino, di(C₁₋₆)alkylaminocarbonylamino, arylaminocarbonylamino where the aryl group is substituted by C₁₋₆ alkyl or halogen), aryl-*N*-(C₁₋₆)alkylamino-carbonylamino where the aryl group is substituted by C₁₋₆ alkyl or halogen), C₁₋₆ alkylaminocarbonyl-*N*-(C₁₋₆)alkylamino, di(C₁₋₆)alkylaminocarbonyl-*N*-(C₁₋₆)alkylamino, arylaminocarbonyl-*N*-(C₁₋₆)alkylamino where the aryl group is substituted by C₁₋₆ alkyl or halogen) and aryl-*N*-(C₁₋₆)alkylaminocarbonyl-*N*-(C₁₋₆)alkylamino where the aryl group is substituted by C₁₋₆ alkyl or halogen).

For substituted heterocyclyl groups it is preferred that one or more substituents are independently selected from halogen, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, C₁₋₆ alkylthio, C₁₋₆ alkylsulfinyl, C₁₋₆ alkylsulfonyl, nitro and cyano. It is to be understood that dialkylamino substituents include those where the dialkyl groups together with the N atom to which they are attached form a five, six or seven-membered heterocyclic ring which may contain one or two further heteroatoms selected from O, N or S and which is optionally substituted by one or two independently selected (C₁₋₆)alkyl groups. When heterocyclic rings are formed by joining two groups on an N atom, the resulting rings are suitably pyrrolidine, piperidine, thiomorpholine and morpholine each of which may be substituted by one or two independently selected (C₁₋₆) alkyl groups.

It should be understood that the term "substituent" in the definitions of R^6 to R^{11} comprises preferably all substituents given above for "aryl", "heteroaryl" and "heterocyclyl".

The invention relates also to the salts which the compounds of formula I are able to form with amines, alkali metal and alkaline earth metal bases or quaternary ammonium bases.

Among the alkali metal and alkaline earth metal hydroxides as salt formers, special mention should be made of the hydroxides of lithium, sodium, potassium, magnesium and calcium, but especially the hydroxides of sodium and potassium. The compounds of formula I according to the invention also include hydrates which may be formed during the salt formation.

Examples of amines suitable for ammonium salt formation include ammonia as well as primary, secondary and tertiary C_1 - C_{18} alkylamines, C_1 - C_4 hydroxyalkylamines and C_2 - C_4 -alkoxyalkylamines, for example methylamine, ethylamine, *n*-propylamine, isopropylamine, the four butylamine isomers, *n*-amylamine, isoamylamine, hexylamine, heptylamine, octylamine, nonylamine, decylamine, pentadecylamine, hexadecylamine, heptadecylamine, octadecylamine, methylethylamine, methylisopropylamine, methylhexylamine, methylnonylamine, methylpentadecylamine, methyloctadecylamine, ethylbutylamine, ethylheptylamine, ethyloctylamine, hexylheptylamine, hexyloctylamine, dimethylamine, diethylamine, di-*n*-propylamine, diisopropylamine, di-*n*-butylamine, di-*n*-amylamine, diisoamylamine, dihexylamine, diheptylamine, dioctylamine, ethanolamine, *n*-propanolamine, isopropanolamine, *N,N*-diethanolamine, *N*-ethylpropanolamine, *N*-butylethanolamine, allylamine, *n*-but-2-enylamine, *n*-pent-2-enylamine, 2,3-dimethylbut-2-enylamine, dibut-2-enylamine, *n*-hex-2-enylamine, propylenediamine, trimethylamine, triethylamine, tri-*n*-propylamine, triisopropylamine, tri-*n*-butylamine, triisobutylamine, tri-*sec*-butylamine, tri-*n*-amylamine, methoxyethylamine and ethoxyethylamine; heterocyclic amines, for example pyridine, quinoline, isoquinoline, morpholine, piperidine, pyrrolidine, indoline, quinuclidine and azepine; primary arylamines, for example anilines, methoxyanilines, ethoxyanilines, *o*-, *m*- and *p*-toluidines, phenylenediamines, benzidines, naphthylamines and *o*-, *m*- and *p*-chloroanilines; but especially triethylamine, isopropylamine and diisopropylamine.

Preferred quaternary ammonium bases suitable for salt formation correspond, for example, to the formula $[N(R_a R_b R_c R_d)]OH$ wherein R_a , R_b , R_c and R_d are each independently of the others C_1 - C_4 alkyl. Further suitable tetraalkylammonium bases with other anions can be obtained, for example, by anion exchange reactions.

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The latentating groups G are selected to allow its removal by one or a combination of biochemical, chemical or physical processes to afford compounds of formula I where G is H before, during or following application to the treated area or plants. Examples of these processes include enzymatic cleavage, chemical hydrolysis and photolysis. Compounds bearing such groups G may offer certain advantages, such as improved penetration of the cuticula of the plants treated, increased tolerance of crops, improved compatibility or stability in formulated mixtures containing other herbicides, herbicide safeners, plant growth regulators, fungicides or insecticides, or reduced leaching in soils.

Preferably, in the compounds of the formula I, R⁶ and R¹¹ are independently of each other hydrogen, halogen, formyl, cyano or nitro or

R⁶ and R¹¹ are independently of each other C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₁-C₈alkoxy, C₃-C₇ cycloalkyl, C₃-C₇ cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R⁶ and R¹¹ are independently of each other a group COR¹³, CO₂R¹⁴ or CONR¹⁵R¹⁶, CR¹⁷=NOR¹⁸, CR¹⁹=NNR²⁰R²¹, NHR²², NR²²R²³ or OR²⁴, wherein

R¹³ is C₁-C₈alkyl, C₂-C₈alkenyl, C₂-C₈alkynyl, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R¹⁴ is hydrogen, C₁-C₈alkyl, C₃-C₈alkenyl, C₃-C₈alkynyl, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, phenyl, heteroaryl or is 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R¹⁵ is hydrogen, C₁-C₈alkyl, C₃-C₈alkenyl, C₃-C₈alkynyl, C₁-C₈alkoxy, C₁-C₈haloalkoxy, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R¹⁶ is hydrogen, C₁-C₈alkyl, C₃-C₈alkenyl, C₃-C₈alkynyl, C₁-C₈alkoxy, C₁-C₈haloalkoxy, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, C₁-C₆alkylsulfonyl, phenylsulfonyl, heteroarylsulfonyl, amino, C₁-C₆alkylamino, diC₁-C₆alkylamino, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R¹⁵ and R¹⁶ may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom,

R¹⁷ and R¹⁹ are independently of each other hydrogen, C₁-C₃alkyl or C₃-C₆cycloalkyl,

R¹⁸, R²⁰ and R²¹ are independently of each other hydrogen, C₁-C₈alkyl, C₃-C₈alkenyl, C₃-C₈alkynyl, C₃-C₇ cycloalkyl, C₁-C₈alkylcarbonyl, C₁-C₈alkoxycarbonyl, C₁-C₈alkylthiocarbonyl, aminocarbonyl, C₁-C₆alkylaminocarbonyl, diC₁-C₆alkylaminocarbonyl, phenyl or heteroaryl, where all these substituents are optionally substituted,

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R^{22} is C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, phenylcarbonyl, phenoxy carbonyl, phenylaminocarbonyl, phenylthiocarbonyl, phenylsulfonyl, heteroarylcarbonyl, heteroaryloxy carbonyl, heteroarylaminocarbonyl, heteroarylthiocarbonyl or heteroarylsulfonyl, where all these substituents are optionally substituted,

R^{23} is C_1 - C_8 alkyl, C_3 - C_6 alkenyl, C_3 - C_8 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, phenyl or heteroaryl, where all these substituents are optionally substituted, or R^{22} and R^{23} may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom, where all these substituents are optionally substituted, and

R^{24} is C_3 - C_6 alkenyl, C_3 - C_8 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, aminocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, tri(C_1 - C_6 alkyl)silyl, phenyl or heteroaryl, where all these substituents are optionally substituted.

More preferably, R^6 and R^{11} are independently of each other hydrogen, halogen, cyano, optionally substituted C_1 - C_6 alkyl or a group COR^{13} , CO_2R^{14} or $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$ or $CR^{19}=NNR^{20}R^{21}$, wherein

R^{13} , R^{14} , R^{15} and R^{16} are C_1 - C_6 alkyl,

R^{17} and R^{19} are hydrogen or C_1 - C_3 alkyl,

R^{18} is C_1 - C_3 alkyl, and

R^{20} and R^{21} are independently of each other hydrogen or C_1 - C_3 alkyl.

In particular, R^6 and R^{11} are independently of each other hydrogen, methyl or methyl substituted by C_1 - C_3 alkoxy.

Preferably, R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, halogen, hydroxyl, formyl, amino, cyano or nitro, or

R^7 , R^8 , R^9 and R^{10} are independently of each other C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_8 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy- C_1 - C_6 alkyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylthio- C_1 - C_6 alkyl, C_1 - C_6 alkylsulfinyl- C_1 - C_6 alkyl, C_1 - C_6 alkylsulfonyl- C_1 - C_6 alkyl, C_3 - C_7 cycloalkyl, C_4 - C_7 cycloalkenyl, tri(C_1 - C_6 alkyl)silyl, aryl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^7 , R^8 , R^9 and R^{10} are independently of each other a group COR^{13} , CO_2R^{14} or $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, $NR^{22}R^{23}$ or OR^{24} , wherein

R^{13} is C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_8 alkynyl, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

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R¹⁴ is hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, phenyl, heteroaryl or is 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R¹⁵ is hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R¹⁶ is hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₇ cycloalkyl, C₅-C₇cycloalkenyl, C₁-C₆alkylsulfonyl, amino, C₁-C₆alkylamino, diC₁-C₆alkylamino, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R¹⁵ and R¹⁶ may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom,

R¹⁷ and R¹⁹ are independently of each other hydrogen, C₁-C₃alkyl or C₃-C₆cycloalkyl,

R¹⁸, R²⁰ and R²¹ are independently of each other hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₃-C₇ cycloalkyl, C₁-C₆alkylcarbonyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylthiocarbonyl, C₁-C₆alkylaminocarbonyl, diC₁-C₆alkylaminocarbonyl, phenyl or heteroaryl, where all these substituents are optionally substituted,

R²² and R²³ are independently of each other C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₃-C₇ cycloalkyl, C₁-C₆alkylcarbonyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylthiocarbonyl, C₁-C₆alkylaminocarbonyl, diC₁-C₆alkylaminocarbonyl, C₁-C₆alkylsulfonyl, phenyl or heteroaryl or R²² and R²³ may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom, where all these substituents are optionally substituted, and

R²⁴ is C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₃-C₇ cycloalkyl, C₁-C₆alkylcarbonyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylthiocarbonyl, C₁-C₆alkylaminocarbonyl, diC₁-C₆alkylaminocarbonyl, C₁-C₆alkylsulfonyl, tri(C₁-C₆alkyl)silyl, phenyl or heteroaryl, where all these substituents are optionally substituted.

More preferably, R⁷, R⁸, R⁹ and R¹⁰ are hydrogen.

It is also preferred that one of R⁷, R⁸, R⁹ and R¹⁰ is methyl or ethyl.

It is also preferred that one of R⁷, R⁸, R⁹ and R¹⁰ is an optionally substituted aryl or heteroaryl and more preferably optionally substituted phenyl, naphthyl, furyl, thienyl, pyrazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, quinoliny, isoquinoliny, cinnoliny, quinazolinyl or quinoxalinyl.

In particular, one of R⁷, R⁸, R⁹ and R¹⁰ is pyridyl or pyridyl substituted by trifluoromethyl or halogen.

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It is also preferred that R^7 and R^{10} form a bond.

Preferably, R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, cyano, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_1 - C_6 alkylthio C_1 - C_6 alkyl, C_1 - C_6 alkylsulfinyl C_1 - C_6 alkyl, C_1 - C_6 alkylsulfonyl C_1 - C_6 alkyl, 3-7 membered heterocyclyl, optionally substituted phenyl or optionally substituted heteroaryl, or $CR^{17}=NOR^{18}$, wherein

R^{17} is hydrogen or C_1 - C_3 alkyl and

R^{18} is C_1 - C_3 alkyl.

In another group of preferred compounds of the formula I, R^7 and R^8 , or R^9 and R^{10} , together form a unit =O, or form a unit $=CR^{25}R^{26}$, or form a unit $=NR^{27}$, or any two of R^7 , R^8 , R^9 and R^{10} form a 3-8 membered ring, optionally containing a heteroatom selected from O, S or N and optionally substituted by C_1 - C_3 alkyl, C_1 - C_3 alkoxy, C_1 - C_3 alkylthio, C_1 - C_3 alkylsulfinyl, C_1 - C_3 alkylsulfonyl, C_1 - C_3 haloalkyl, halogen, phenyl, phenyl substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, aminocarbonyl, C_1 - C_6 alkylaminocarbonyl, di C_1 - C_6 alkylaminocarbonyl, halogen, cyano or by nitro, heteroaryl or heteroaryl substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylcarbonyl, halogen, cyano or by nitro, wherein

R^{25} and R^{26} are independently of each other hydrogen, halogen, cyano or nitro, or

R^{25} and R^{26} are independently of each other C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylamino, di C_1 - C_6 alkylamino, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylaminocarbonyl, di C_1 - C_6 alkylaminocarbonyl, *N*-phenyl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-phenyl C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-heteroaryl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-heteroaryl C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylaminocarbonyl, phenyl, heteroaryl, C_3 - C_6 cycloalkyl or 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^{25} and R^{26} may be joined together to form a 5-8 membered ring optionally containing a heteroatom selected from O, S or N and optionally substituted by C_1 - C_2 alkyl or C_1 - C_2 alkoxy,

R^{27} is nitro or cyano, or

R^{27} is C_1 - C_6 alkylamino, di C_1 - C_6 alkylamino, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, phenoxy, phenylamino, *N*-phenyl-*N*- C_1 - C_6 alkylamino, *N*-phenyl C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylamino, heteroaryloxy, heteroarylamino, *N*-heteroaryl-*N*- C_1 - C_6 alkylamino or *N*-heteroaryl C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylamino, where all these substituents are optionally substituted,

where, more preferably, R^7 and R^8 , or R^9 and R^{10} , together form a unit =O or $=NR^{27}$,

wherein R^{27} is C_1 - C_3 alkoxy or C_2 - C_3 alkenyloxy.

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More preferably, R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, cyano, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy C_1 - C_6 alkyl, 3-7 membered heterocyclyl, optionally substituted phenyl or optionally substituted heteroaryl.

In particular, R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, methyl, ethyl or optionally substituted phenyl.

In particular, one of R^7 , R^8 , R^9 and R^{10} is optionally substituted heteroaryl, preferably optionally substituted furyl, thienyl, pyrazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, quinolinyl, isoquinolinyl, cinnolinyl, quinazolinyl or quinoxaliny, and more preferably pyridyl substituted once or twice by trifluoromethyl or halogen.

In another group of preferred compounds of the formula I, R^1 , R^2 and R^4 are methyl and R^3 is hydrogen.

In another group of preferred compounds of the formula I, R^1 , R^2 and R^4 are methyl and R^3 is hydrogen, and

R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, cyano, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy C_1 - C_6 alkyl, 3-7 membered heterocyclyl, optionally substituted aryl or optionally substituted heteroaryl, preferably optionally substituted heteroaryl, and in particular pyridyl substituted once or twice by trifluoromethyl or halogen.

In another group of preferred compounds of the formula I, R^5 and R^{12} are independently of each other hydrogen or C_1 - C_3 alkyl, where hydrogen is more preferred.

In another group of preferred compounds of the formula I, R^1 is methyl, ethyl, vinyl, ethynyl, cyclopropyl, difluoromethoxy, trifluoromethoxy or C_1 - C_2 alkoxy and

R^2 , R^3 and R^4 are independently of each other hydrogen, methyl, ethyl, vinyl or ethynyl.

Preferably in this group, R^1 is ethyl and R^2 , R^3 and R^4 are independently of each other hydrogen, methyl or ethyl.

Preferably in this group, R^1 , R^2 and R^4 are methyl and R^3 is hydrogen.

The latentating group G is preferably selected from the groups C_1 - C_8 alkyl, C_2 - C_8 haloalkyl, phenyl C_1 - C_8 alkyl (wherein the phenyl may optionally be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, C_1 - C_3 alkylthio, C_1 - C_3 alkylsulfinyl, C_1 - C_3 alkylsulfonyl, halogen, cyano or by nitro), heteroaryl C_1 - C_8 alkyl (wherein the heteroaryl may optionally be substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, C_1 - C_3 alkylthio, C_1 - C_3 alkylsulfinyl, C_1 - C_3 alkylsulfonyl, halogen, cyano or by nitro), C_3 - C_8 alkenyl, C_3 - C_8 haloalkenyl, C_3 - C_8 alkynyl,

C₅alkylsulfinylC₁-C₅alkyl, C₁-C₅alkylsulfonylC₁-C₅alkyl, C₂-C₈alkylideneaminoxyC₁-C₅alkyl, C₁-C₅alkylcarbonylC₁-C₅alkyl, C₁-C₅alkoxycarbonylC₁-C₅alkyl, aminocarbonylC₁-C₅alkyl, C₁-C₅alkylaminocarbonylC₁-C₅alkyl, C₂-C₈dialkylaminocarbonylC₁-C₅alkyl, C₁-C₅alkylcarbonylaminoC₁-C₅alkyl, *N*-C₁-C₅alkylcarbonyl-*N*-C₂-C₅alkylaminoalkyl, C₃-C₆trialkylsilylC₁-C₅alkyl, phenylC₁-C₅alkyl (wherein the phenyl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano, or by nitro), heteroarylC₁-C₅alkyl, (wherein the heteroaryl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano, or by nitro), C₂-C₅haloalkenyl, C₃-C₈cycloalkyl, phenyl or phenyl substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or nitro, heteroaryl or heteroaryl substituted by C₁-C₂ alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or nitro, heteroaryl amino or heteroaryl amino substituted by C₁-C₃ alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or nitro, diphenyl amino or diphenyl amino substituted by C₁-C₃ alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro, C₃-C₇cycloalkyl amino, di-C₃-C₇cycloalkyl amino or C₃-C₇cycloalkoxy or R^e and R^d may join together to form a 3-7 membered ring, optionally containing one heteroatom selected from O or S,

R^e is C₁-C₁₀alkyl, C₂-C₁₀alkenyl, C₂-C₁₀alkynyl, C₁-C₁₀haloalkyl, C₁-C₁₀cyanoalkyl, C₁-C₁₀nitroalkyl, C₁-C₁₀aminoalkyl, C₁-C₅alkylaminoC₁-C₅alkyl, C₂-C₈dialkylaminoC₁-C₅alkyl, C₃-C₇cycloalkylC₁-C₅alkyl, C₁-C₅alkoxyC₁-C₅alkyl, C₃-C₅alkenyloxyC₁-C₅alkyl, C₃-C₅alkynyloxyC₁-C₅alkyl, C₁-C₅alkylthioC₁-C₅alkyl, C₁-C₅alkylsulfinylC₁-C₅alkyl, C₁-C₅alkylsulfonylC₁-C₅alkyl, C₂-C₈alkylideneaminoxyC₁-C₅alkyl, C₁-C₅alkylcarbonylC₁-C₅alkyl, C₁-C₅alkoxycarbonylC₁-C₅alkyl, aminocarbonylC₁-C₅alkyl, C₁-C₅alkylaminocarbonylC₁-C₅alkyl, C₂-C₈dialkylaminocarbonylC₁-C₅alkyl, C₁-C₅alkylcarbonylaminoC₁-C₅alkyl, *N*-C₁-C₅alkylcarbonyl-*N*-C₁-C₅alkylaminoC₁-C₅alkyl, C₃-C₆trialkylsilylC₁-C₅alkyl, phenylC₁-C₅alkyl (wherein the phenyl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano, or by nitro), heteroarylC₁-C₅alkyl (wherein the heteroaryl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano, or by nitro), C₂-C₅haloalkenyl, C₃-C₈cycloalkyl, phenyl or phenyl substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or nitro, heteroaryl or heteroaryl substituted by C₁-C₃ alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro, heteroaryl amino or heteroaryl amino substituted by C₁-C₃ alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy,

halogen, cyano or by nitro, diheteroaryl amino or diheteroaryl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, phenyl amino or phenyl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, diphenyl amino, or diphenyl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, or C₃-C₇ cycloalkyl amino, diC₃-C₇ cycloalkyl amino or C₃-C₇ cycloalkoxy, C₁-C₁₀ alkoxy, C₁-C₁₀ haloalkoxy, C₁-C₅ alkyl amino or C₂-C₆ dialkyl amino

R^f and R^g are each independently of each other C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₁-C₁₀ alkoxy, C₁-C₁₀ haloalkyl, C₁-C₁₀ cyanoalkyl, C₁-C₁₀ nitroalkyl, C₁-C₁₀ aminoalkyl, C₁-C₅ alkyl amino C₁-C₅ alkyl, C₂-C₆ dialkyl amino C₁-C₅ alkyl, C₃-C₇ cycloalkyl C₁-C₅ alkyl, C₁-C₅ alkoxy C₁-C₅ alkyl, C₃-C₅ alkenyloxy C₁-C₅ alkyl, C₃-C₅ alkynyloxy C₁-C₅ alkyl, C₁-C₅ alkylthio C₁-C₅ alkyl, C₁-C₅ alkylsulfinyl C₁-C₅ alkyl, C₁-C₅ alkylsulfonyl C₁-C₅ alkyl, C₂-C₆ alkylideneaminoxy C₁-C₅ alkyl, C₁-C₅ alkylcarbonyl C₁-C₅ alkyl, C₁-C₅ alkoxy carbonyl C₁-C₅ alkyl, aminocarbonyl C₁-C₅ alkyl, C₁-C₅ alkylaminocarbonyl C₁-C₅ alkyl, C₂-C₆ dialkylaminocarbonyl C₁-C₅ alkyl, C₁-C₅ alkylcarbonylamino C₁-C₅ alkyl, *N*-C₁-C₅ alkylcarbonyl-*N*-C₂-C₅ alkyl aminoalkyl, C₃-C₆ trialkylsilyl C₁-C₅ alkyl, phenyl C₁-C₅ alkyl (wherein the phenyl may optionally be substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, C₁-C₃ alkylthio, C₁-C₃ alkylsulfinyl, C₁-C₃ alkylsulfonyl, halogen, cyano, or by nitro), heteroaryl C₁-C₅ alkyl (wherein the heteroaryl may optionally be substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, C₁-C₃ alkylthio, C₁-C₃ alkylsulfinyl, C₁-C₃ alkylsulfonyl, halogen, cyano, or by nitro), C₂-C₅ haloalkenyl, C₃-C₆ cycloalkyl, phenyl or phenyl substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, heteroaryl or heteroaryl substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or by nitro, heteroaryl amino or heteroaryl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or by nitro, diheteroaryl amino or diheteroaryl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, phenyl amino or phenyl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, diphenyl amino, or diphenyl amino substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, or C₃-C₇ cycloalkyl amino, diC₃-C₇ cycloalkyl amino or C₃-C₇ cycloalkoxy, C₁-C₁₀ haloalkoxy, C₁-C₅ alkyl amino or C₂-C₆ dialkyl amino, benzyloxy or phenoxy, wherein the benzyl and phenyl groups may in turn be substituted by C₁-C₃ alkyl, C₁-C₃ haloalkyl, C₁-C₃ alkoxy, C₁-C₃ haloalkoxy, halogen, cyano or nitro, and

R^h is C₁-C₁₀ alkyl, C₃-C₁₀ alkenyl, C₂-C₁₀ alkynyl, C₁-C₁₀ haloalkyl, C₁-C₁₀ cyanoalkyl, C₁-C₁₀ nitroalkyl, C₂-C₁₀ aminoalkyl, C₁-C₅ alkyl amino C₁-C₅ alkyl, C₂-C₆ dialkyl amino C₁-C₅ alkyl, C₃-C₇ cycloalkyl C₁-C₅ alkyl, C₁-C₅ alkoxy C₁-C₅ alkyl, C₃-C₅ alkenyloxy C₁-C₅ alkyl, C₃-C₅ alkynyloxy C₁-C₅ alkyl, C₁-C₅ alkylthio C₁-C₅ alkyl, C₁-C₅ alkylsulfinyl C₁-C₅ alkyl, C₁-C₅ alkylsulfonyl C₁-C₅ alkyl, C₂-C₆ alkylideneaminoxy C₁-C₅ alkyl, C₁-C₅ alkylcarbonyl C₁-C₅ alkyl, C₁-C₅ alkoxy carbonyl C₁-C₅ alkyl,

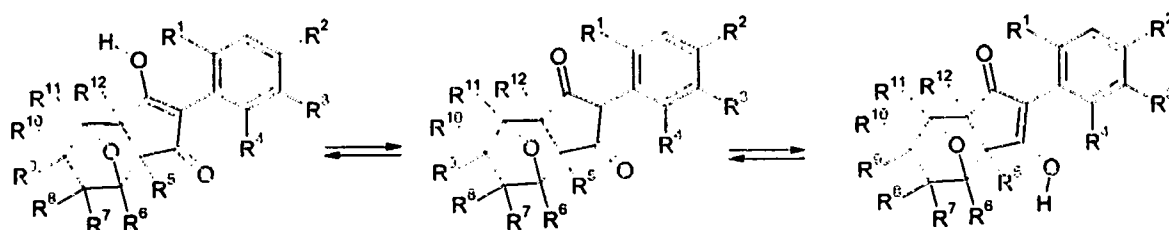
aminocarbonylC₁-C₅alkyl, C₁-C₅alkylaminocarbonylC₁-C₅alkyl, C₂-C₈dialkylaminocarbonylC₁-C₅alkyl, C₁-C₅alkylcarbonylaminoC₁-C₅alkyl, *N*-C₁-C₅alkylcarbonyl-*N*-C₁-C₅alkylaminoC₁-C₅alkyl, C₃-C₆trialkylsilylC₁-C₅alkyl, phenylC₁-C₅alkyl (wherein wherein the phenyl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano or by nitro), heteroarylC₁-C₅alkyl (wherein the heteroaryl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano or by nitro), phenoxyC₁-C₅alkyl (wherein wherein the phenyl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano or by nitro), heteroaryloxyC₁-C₅alkyl (wherein the heteroaryl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, halogen, cyano or by nitro), C₃-C₅haloalkenyl, C₃-C₈cycloalkyl, phenyl or phenyl substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen or by nitro, or heteroaryl, or heteroaryl substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, halogen, cyano or by nitro.

In particular, the latentating group G is a group -C(X^a)-R^a or -C(X^b)-X^c-R^b, and the meanings of X^a, R^a, X^b, X^c and R^b are as defined above.

It is preferred that G is hydrogen, an alkali metal or alkaline earth metal, where hydrogen is especially preferred.

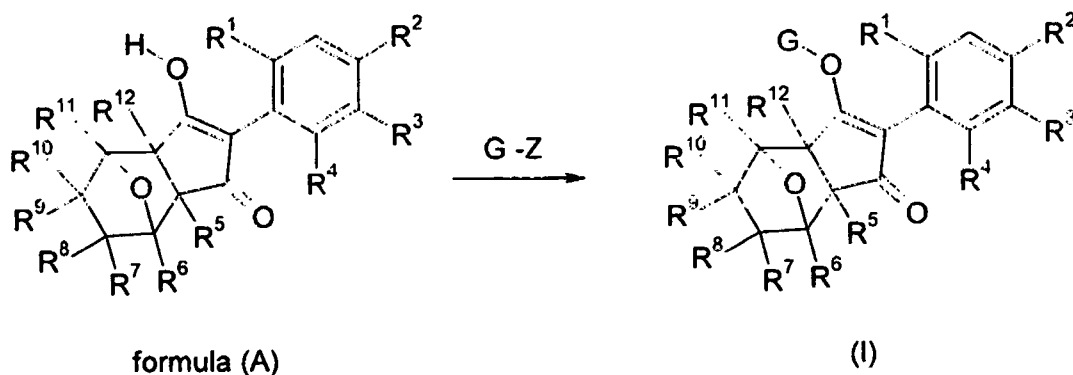
It should be understood that in those compounds of formula I where G is a metal, ammonium (such as NH₄⁺; N(alkyl)₄⁺) or sulfonium (such as S(alkyl)₃⁺) cation, the corresponding negative charge is largely delocalised across the O-C=C-C=O unit.

Depending on the nature of the substituents, compounds of formula I may exist in different isomeric forms. When G is hydrogen, for example, compounds of formula I may exist in different tautomeric forms.

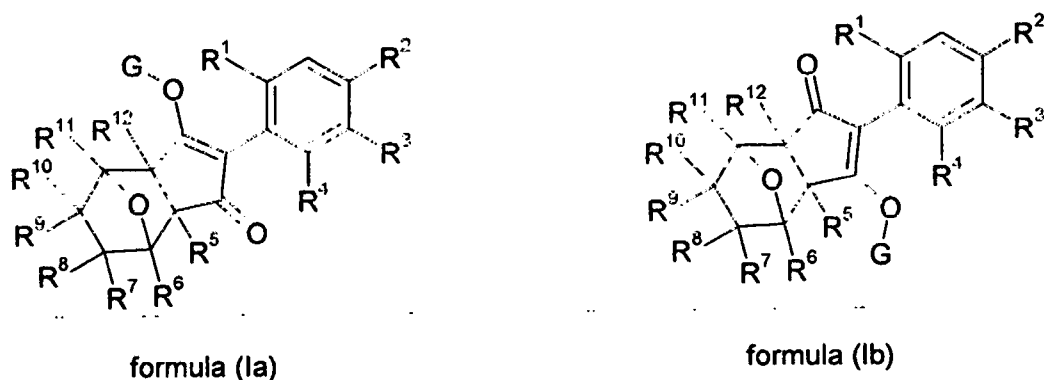


This invention covers all such isomers and tautomers and mixtures thereof in all proportions. Also, when substituents contain double bonds, *cis*- and *trans*-isomers can exist. These isomers, too, are within the scope of the claimed compounds of the formula I.

A compound of formula I wherein G is C₁-C₈ alkyl, C₂-C₈ haloalkyl, phenylC₁-C₆alkyl (wherein the phenyl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃ alkylsulfonyl, halogen, cyano or by nitro), heteroarylC₁-C₈alkyl (wherein the heteroaryl may optionally be substituted by C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃ alkylsulfonyl, halogen, cyano or by nitro), C₃-C₈ alkenyl, C₃-C₈ haloalkenyl, C₃-C₈ alkynyl, C(X^a)-R^a, C(X^b)-X^c-R^b, C(X^d)-N(R^c)-R^d, -SO₂-R^e, -P(X^e)(R^f)-R^g or CH₂-X^f-R^h where X^a, X^b, X^c, X^d, X^e, X^f, R^a, R^b, R^c, R^d, R^e, R^f, R^g and R^h are as defined above may be prepared by treating a compound of formula (A), which is a compound of formula I wherein G is H, with a reagent G-Z, wherein G-Z is alkylating agent such as an alkyl halide (the definition of alkyl halides includes simple C₁-C₈ alkyl halides such as methyl iodide and ethyl iodide, substituted alkyl halides such as phenylC₁-C₆alkyl, chloromethyl alkyl ethers, Cl-CH₂-X^f-R^h, wherein X^f is oxygen, and chloromethyl alkyl sulfides Cl-CH₂-X^f-R^h, wherein X^f is sulfur), a C₁-C₈ alkyl sulfonate, or a di-C₁-C₈-alkyl sulfate, or with a C₃-C₈ alkenyl halide, or with a C₃-C₈ alkynyl halide, or with an acylating agent such as a carboxylic acid, HO-C(X^a)R^a, wherein X^a is oxygen, an acid chloride, Cl-C(X^a)R^a, wherein X^a is oxygen, or acid anhydride, [R^aC(X^a)]₂O, wherein X^a is oxygen, or an isocyanate, R^cN=C=O, or a carbamoyl chloride, Cl-C(X^d)-N(R^c)-R^d (wherein X^d is oxygen and with the proviso that neither R^c or R^d is hydrogen), or a thiocarbamoyl chloride, Cl-C(X^d)-N(R^c)-R^d (wherein X^d is sulfur and with the proviso that neither R^c or R^d is hydrogen) or a chloroformate, Cl-C(X^b)-X^c-R^b, (wherein X^b and X^c are oxygen), or a chlorothioformate Cl-C(X^b)-X^c-R^b (wherein X^b is oxygen and X^c is sulfur), or a chlorodithioformate Cl-C(X^b)-X^c-R^b, (wherein X^b and X^c are sulfur), or an isothiocyanate, R^cN=C=S, or by sequential treatment with carbon disulfide and an alkylating agent, or with a phosphorylating agent such as a phosphoryl chloride, Cl-P(X^e)(R^f)-R^g or with a sulfonylating agent such as a sulfonyl chloride Cl-SO₂-R^e, preferably in the presence of at least one equivalent of base.



Depending on the nature of the substituents R^1 to R^{12} , and of the group G, isomeric compounds of formula I may be formed. For example, a compound of formula (A) wherein R^5 and R^{12} are different may give rise to a compound of formula (1a) or to a compound of formula (1b), or to a mixture of compounds of formula (1a) and formula (1b).



The O-alkylation of cyclic 1,3-diones is known; suitable methods are described, for example, by T. Wheeler US4436666. Alternative procedures have been reported by M. Pizzorno and S. Albonico, *Chem. Ind. (London)*, (1972), 425; H. Born *et al.*, *J. Chem. Soc.*, (1953), 1779; M. Constantino *et al.*, *Synth. Commun.*, (1992), 22 (19), 2859; Y. Tian *et al.*, *Synth. Commun.*, (1997), 27 (9), 1577; S. Chandra Roy *et al.*, *Chem. Letters*, (2006), 35 (1), 16, and P. Zubaidha *et al.*, *Tetrahedron Lett.*, (2004), 45, 7187.

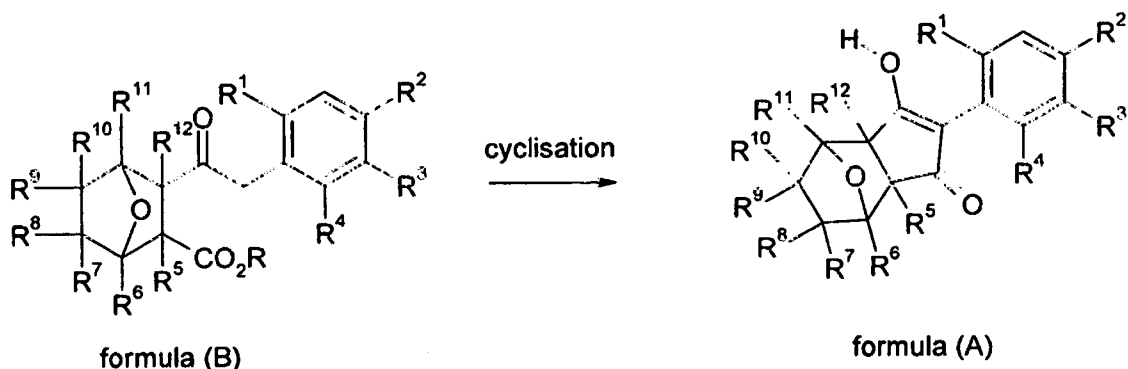
The O-acylation of cyclic 1,3-diones may be effected by procedures similar to those described, for example, by R. Haines, US4175135, and by T. Wheeler, US4422870, US4659372 and US4436666. Typically diones of formula (A) may be treated with the acylating agent in the presence of at least one equivalent of a suitable base, optionally in the presence of a suitable solvent. The base may be inorganic, such as an alkali metal carbonate or hydroxide, or a metal hydride, or an organic base such as a tertiary amine or metal alkoxide. Examples of suitable inorganic bases include sodium carbonate, sodium or potassium hydroxide, sodium hydride, and

suitable organic bases include trialkylamines, such as trimethylamine and triethylamine, pyridines or other amine bases such as 1,4-diazobicyclo[2.2.2]octane and 1,8-diazabicyclo[5.4.0]undec-7-ene. Preferred bases include triethylamine and pyridine. Suitable solvents for this reaction are selected to be compatible with the reagents and include ethers such as tetrahydrofuran and 1,2-dimethoxyethane and halogenated solvents such as dichloromethane and chloroform. Certain bases, such as pyridine and triethylamine, may be employed successfully as both base and solvent. For cases where the acylating agent is a carboxylic acid, acylation is preferably effected in the presence of a coupling agent such as 2-chloro-1-methylpyridinium iodide, *N,N'*-dicyclohexylcarbodiimide, 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide and *N,N'*-carbodiimidazole, and optionally a base such as triethylamine or pyridine in a suitable solvent such as tetrahydrofuran, dichloromethane or acetonitrile. Suitable procedures are described, for example, by W. Zhang and G. Pugh, *Tetrahedron Lett.*, (1999), 40 (43), 7595-7598 and T. Isobe and T. Ishikawa, *J. Org. Chem.*, (1999), 64 (19), 6984.

Phosphorylation of cyclic 1,3-diones may be effected using a phosphoryl halide or thiophosphoryl halide and a base by procedures analogous to those described by L. Hodakowski, US4409153.

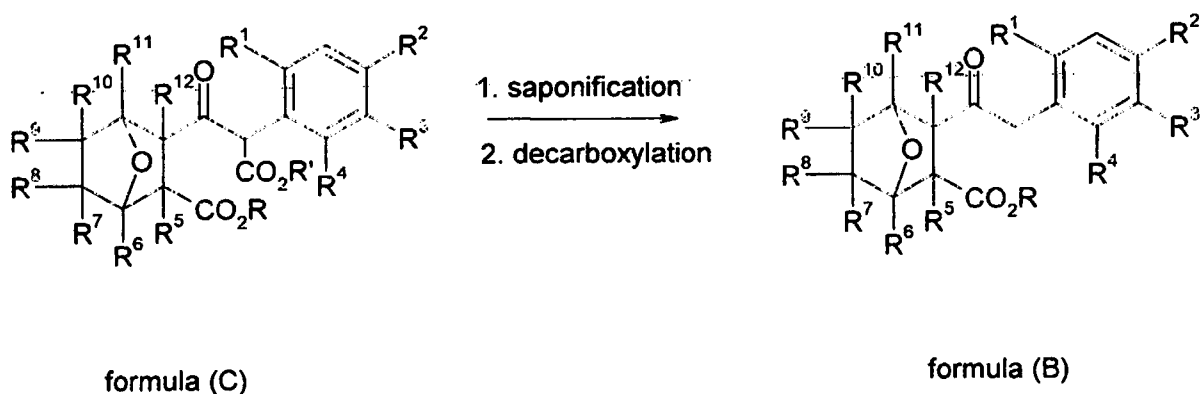
Sulfonylation of a compound of formula (A) may be achieved using an alkyl or aryl sulfonyl halide, preferably in the presence of at least one equivalent of base, for example by the procedure of C. Kowalski and K. Fields, *J. Org. Chem.*, (1981), 46, 197.

A compound of formula (A) may be prepared by the cyclisation of a compound of formula (B), wherein R is hydrogen or an alkyl group, preferably in the presence of an acid or base, and optionally in the presence of a suitable solvent, by analogous methods to those described by T. Wheeler, US4209532. The compounds of formula (B) have been particularly designed as intermediates in the synthesis of the compounds of the formula I. A compound of formula (B) wherein R is hydrogen may be cyclised under acidic conditions, preferably in the presence of a strong acid such as sulfuric acid, polyphosphoric acid or Eaton's reagent, optionally in the presence of a suitable solvent such as acetic acid, toluene or dichloromethane.



A compound of formula (B) wherein R is alkyl (preferably methyl or ethyl), may be cyclised under acidic or basic conditions, preferably in the presence of at least one equivalent of a strong base such as potassium *tert*-butoxide, lithium diisopropylamide or sodium hydride and in a solvent such as tetrahydrofuran, toluene, dimethylsulfoxide or *N,N*-dimethylformamide.

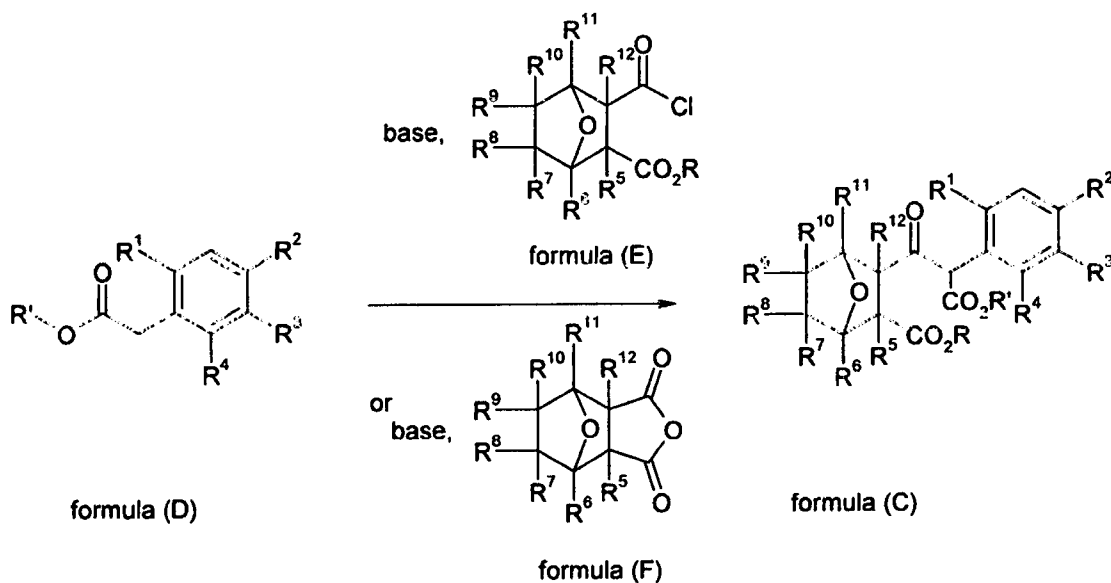
A compound of formula (B), wherein R is H, may be prepared by saponification of a compound of formula (C) wherein R' is alkyl (preferably methyl or ethyl), under standard conditions, followed by acidification of the reaction mixture to effect decarboxylation, by similar processes to those described, for example, by T. Wheeler, US4209532.



A compound of formula (B), wherein R is H, may be esterified to a compound of formula (B), wherein R is alkyl, under standard conditions, for example by heating with an alkyl alcohol, ROH, in the presence of an acid catalyst.

A compound of formula (C), wherein R is alkyl, may be prepared by treating a compound of formula (D) with a suitable carboxylic acid chloride of formula (E) under basic conditions. Suitable bases include potassium *tert*-butoxide, sodium bis(trimethylsilyl)amide and lithium diisopropylamide and the reaction is preferably conducted in a suitable solvent (such as

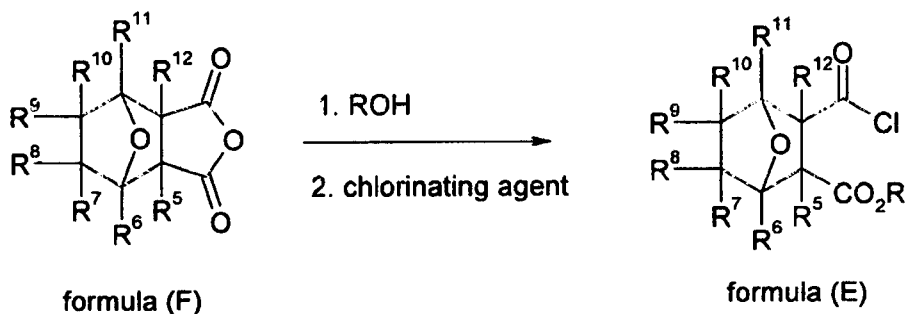
tetrahydrofuran or toluene) at a temperature of between -80°C and 30°C . Alternatively, a compound of formula (C), wherein R is H, may be prepared by treating a compound of formula (D) with a suitable base (such as potassium *tert*-butoxide, sodium bis(trimethylsilyl)amide and lithium diisopropylamide) in a suitable solvent (such as tetrahydrofuran or toluene) at a suitable temperature (between -80°C and 30°C) and reacting the resulting anion with a suitable anhydride of formula (F):



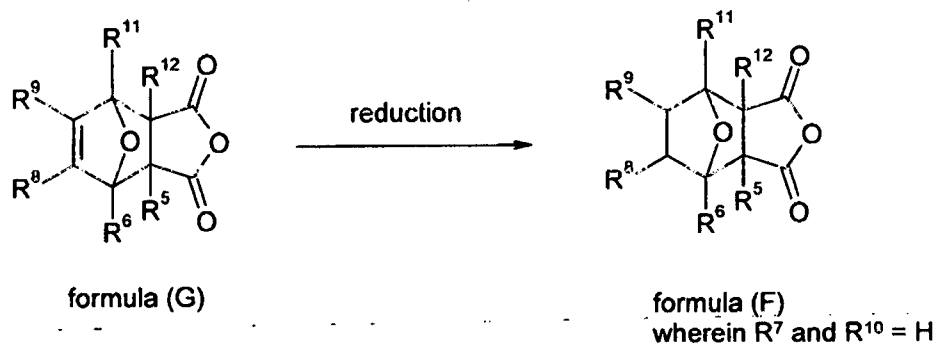
Compounds of formula (D) are known compounds, or may be prepared from known compounds by known methods.

A compound of formula (E) may be prepared from a compound of formula (F) by treatment with an alkyl alcohol, $\text{R}-\text{OH}$, in the presence of a base, such as dimethylaminopyridine or an alkaline metal alkoxide (see, for example, S. Buser and A. Vasella, *Helv. Chim. Acta*, (2005), 88, 3151, M. Hart *et al.*, *Bioorg. Med. Chem. Letters*, (2004), 14, 1969), followed by treatment of the resulting acid with a chlorinating reagent such as oxalyl chloride or thionyl chloride under known conditions (see, for example, C. Santelli-Rouvier, *Tetrahedron Lett.*, (1984), 25 (39), 4371; D. Walba and M. Wand, *Tetrahedron Lett.*, (1982), 23 (48), 4995; J. Cason, *Org. Synth. Coll. Vol. III*, (169), 1955).

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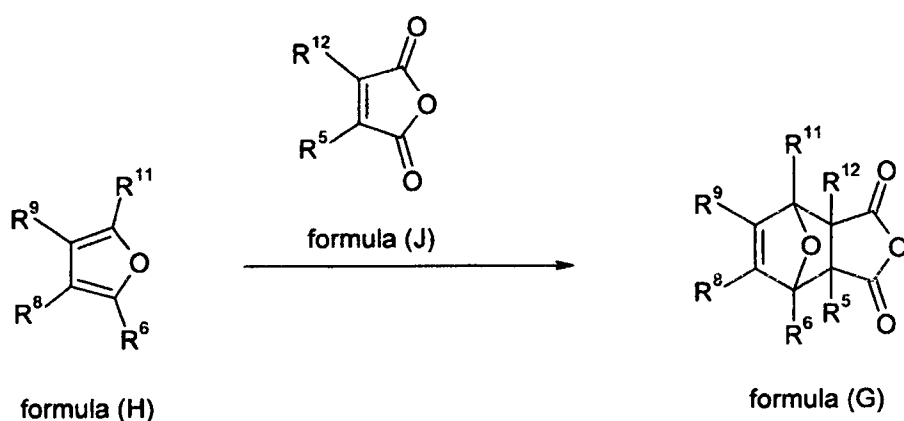


A compound of formula (F) wherein R^7 and R^{10} are hydrogen may be prepared by the reduction of a compound of formula (G) under known conditions (see, for example, Y. Baba, N. Hirukawa and M. Sodeoka, *Bioorg. Med. Chem.* (2005), 13 (17), 5164, M. Hart *et al.*, *Bioorg. Med. Chem. Letters*, (2004), 14 (18), 1969, Y. Baba, N. Hirukawa, N. Tanohira and M. Sodeoka, *J. Am. Chem. Soc.*, (2003), 125, 9740).



A compound of formula (G) may be prepared by reacting a compound of formula (H) with an anhydride of formula (J), optionally in the presence of a Lewis acid catalyst, and according to procedures described, for example, by O. Diels and K. Alder, *Liebigs Ann. Chem.*, (1931), 490, 257, K. Potts and E. Walsh, *J. Org. Chem.*, (1984), 49 (21), 4099, J. Jurczak, T. Kozluk, S. Filipek and S. Eugster, *Helv. Chim. Acta*, (1982), 65, 1021, W. Dauben, C. Kessel and K. Takemura, *J. Am. Chem. Soc.*, (1980), 102, 6893, A. Pelter and B. Singaram, *Tetrahedron Lett.*, (1982), 23, 245, M. Lee and C. Herndon, *J. Org. Chem.*, (1978), 43, 518, B. Fisher and J. Hodge, *J. Org. Chem.* (1964), 29, 776, G. D'Alelio, C. Williams and C. Wilson, *J. Org. Chem.*, (1960), 25, 1028, Z. Song, M. Ho and H. Wong, *J. Org. Chem.*, (1994), 59 (14), 3917-3926, W. Tochtermann, S. Bruhn and C. Wolff, *Tetrahedron Lett.*, (1994), 35(8), 1165, W. Dauben, J. Lam and Z. Guo, *J. Org. Chem.*, (1996), 61 (14), 4816, M. Sodeoka, Y. Baba, S. Kobayashi and N. Hirukawa, *Bioorg. Med. Chem. Lett.*, (1997), 7 (14), 1833, M. Avalos, R. Babiano, J. Bravo, P. Cintas, J. Jiménez and J. Palacios, *Tetrahedron Lett.*, (1998), 39(50), 9301, J. Auge, R. Gil, S. Kalsey and N. Lubin-Germain, *Synlett*, (2000), 6, 877, I. Hemeon, C. Deamicis, H. Jenkins, P.

Scammells and R. Singer, *Synlett*, (2002), 11, 1815, M. Essers, B. Wibbeling and G. Haufe, *Tetrahedron Lett.*, (2001), 42 (32), 5429, P. Vogel *et al.*, *Tetrahedron Asymmetry*, (1996), 7 (11), 3153, Y. Baba, N. Hirukawa, N. Tanohira and M. Sodeoka, *J. Am. Chem. Soc.*, (2003), 125, 9740, L. Ghosez *et al.*, *Tetrahedron Lett.*, (1988), 29 (36), 4573, H. Kotsuki, S. Kitagawa and H. Nishizawa, *J. Org. Chem.*, (1978), 43 (7), 1471, Y. Li *et al.*, *J. Org. Chem.*, (1997), 62 (23), 7926, M. Drew *et al.*, *J. Chem. Soc. Perkin Trans. 1*, (1985), 1277, R. McDonald and C. Reineke, *J. Org. Chem.*, (1967), 32, 1878, R. Fleming and B. Murray, *J. Org. Chem.*, (1979), 44 (13), 2280, M. Goldstein and G. Thayer Jr. *J. Am. Chem. Soc.*, (1965), 87 (9), 1925 and G. Keglevich *et al.*, *J. Organomet. Chem.*, (1999), 579, 182, and references therein.

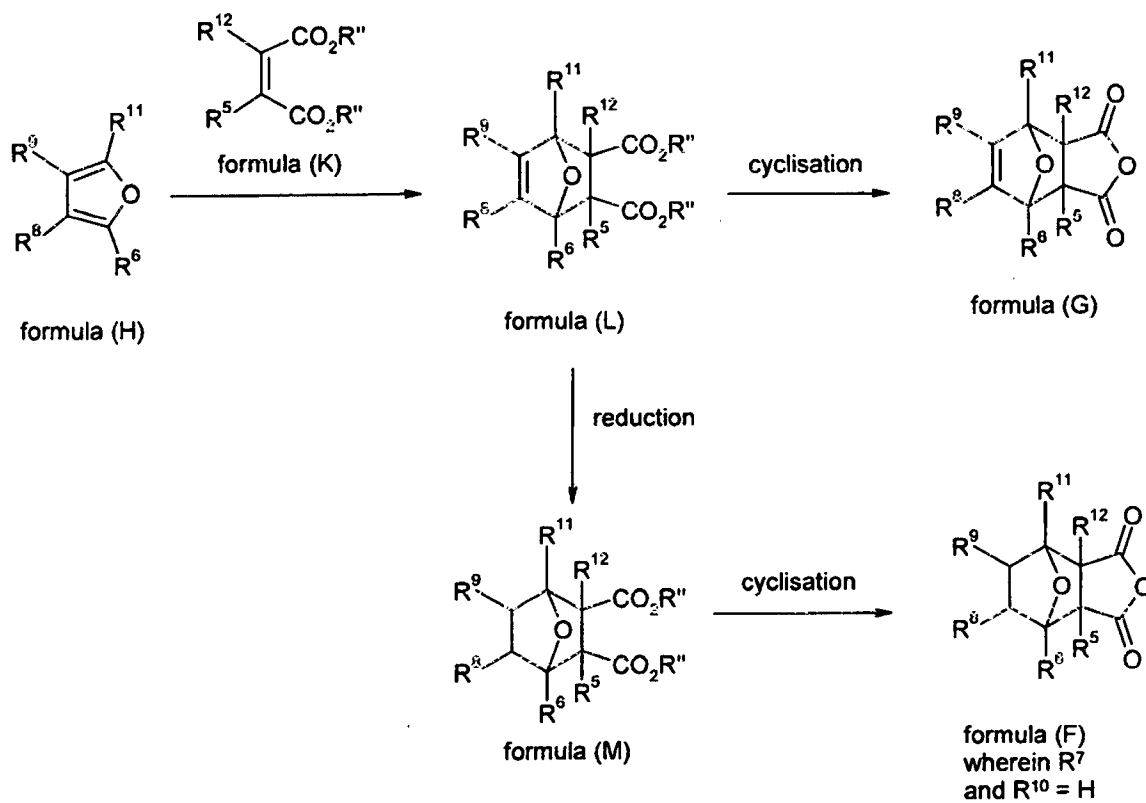


Compounds of formula (H) and formula (J) are known compounds, or may be made from known compounds by known methods.

Compounds of formula (G) are alkenes, and as such undergo further reactions typical of alkenes to give additional compounds of formula (F) according to known procedures. Examples of such reactions include, but are not restricted to, halogenation, epoxidation, cyclopropanation, dihydroxylation, hydroarylation, hydrovinylation and hydration of alkenes. In turn, the products from these reactions may be transformed into additional compounds of formula (F) by methods described, for example by J. March, *Advanced Organic Chemistry*, third edition, John Wiley and Sons. Compounds of formula (G) wherein R^8 or R^9 are C_1 - C_3 alkoxy are enol ethers, and these may be hydrolysed to the corresponding ketone using standard procedures to give additional compounds of formula (F). Certain compounds of formula (F), for example where R^7 is a halogen, may be converted into compounds of formula (G) by known methods.

A compound of formula (G) may also be prepared by reacting a compound of formula (H) with a compound of formula (K), wherein R'' is hydrogen or an alkyl group, to give a compound of formula (L) and cyclising a compound of formula (L) under known conditions (see, for example,

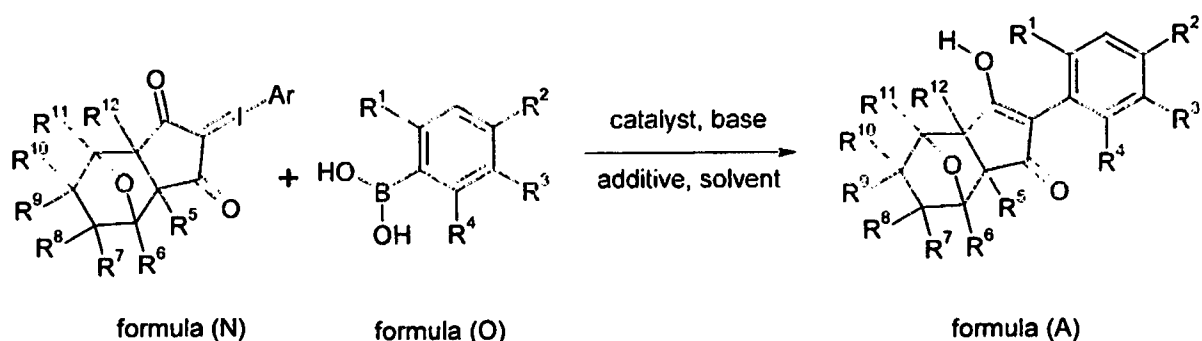
P. Sprague *et al.*, J. Med. Chem., (1985), 28, 1580, A. Guzaev and M. Manoharan, J. Am. Chem. Soc., (2003), 125, 2380, and A. Marchand and R. Allen, J. Org. Chem., (1975), 40 (17), 2551.



A compound of formula (L) may also be reduced to a compound of formula (M), and a compound of formula (M) cyclised to a compound of formula (F) wherein R^7 and R^{10} are hydrogen, under conditions similar to those described previously.

Compounds of formula (K) are known compounds, or may be prepared from known compounds by known methods.

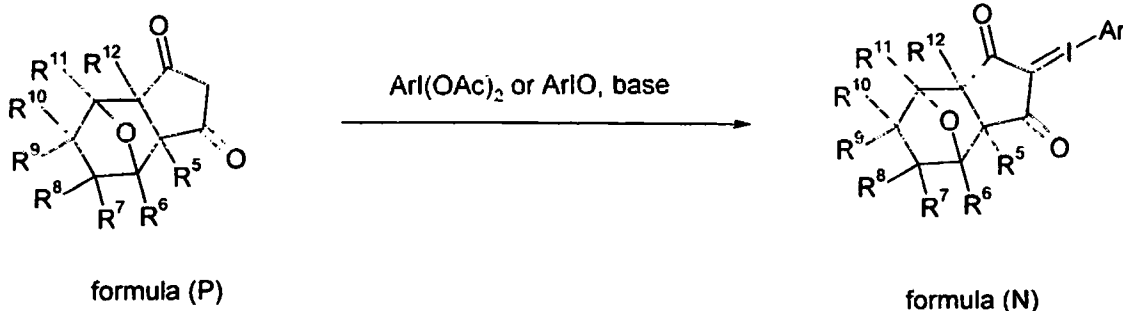
Additional compounds of formula (A) may be prepared by reacting an iodonium ylide of formula (N), wherein Ar is an optionally substituted phenyl group, and an aryl boronic acid of formula (O), in the presence of a suitable palladium catalyst, a base and in a suitable solvent.



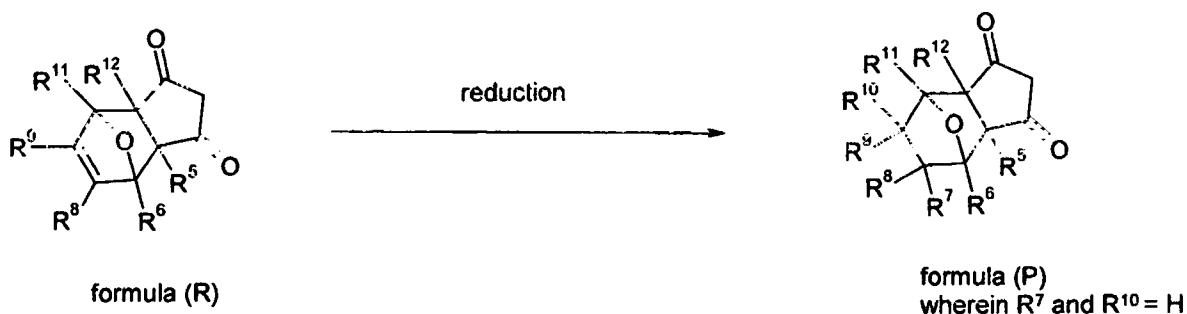
Suitable palladium catalysts are generally palladium(II) or palladium(0) complexes, for example palladium(II) dihalides, palladium(II) acetate, palladium(II) sulfate, bis(triphenylphosphine)-palladium(II) dichloride, bis(tricyclopentylphosphine)palladium(II) dichloride, bis(tricyclohexylphosphine)palladium(II) dichloride, bis(dibenzylideneacetone)palladium(0) or tetrakis-(triphenylphosphine)palladium(0). The palladium catalyst can also be prepared "*in situ*" from palladium(II) or palladium(0) compounds by complexing with the desired ligands, by, for example, combining the palladium(II) salt to be complexed, for example palladium(II) dichloride (PdCl₂) or palladium(II) acetate (Pd(OAc)₂), together with the desired ligand, for example triphenylphosphine (PPh₃), tricyclopentylphosphine, tricyclohexylphosphine, 2-dicyclohexylphosphino-2',6'-dimethoxybiphenyl or 2-dicyclohexylphosphino-2',4',6'-trisopropylbiphenyl and the selected solvent, with a compound of formula (N), the arylboronic acid of formula (O), and a base. Also suitable are bidendate ligands, for example 1,1'-bis(diphenylphosphino)ferrocene or 1,2-bis(diphenylphosphino)ethane. By heating the reaction medium, the palladium(II) complex or palladium(0) complex desired for the C-C coupling reaction is thus formed "*in situ*", and then initiates the C-C coupling reaction.

The palladium catalysts are used in an amount of from 0.001 to 50 mol %, preferably in an amount of from 0.1 to 15 mol %, based on the compound of formula (N). The reaction may also be carried out in the presence of other additives, such as tetralkylammonium salts, for example, tetrabutylammonium bromide. Preferably the palladium catalyst is palladium acetate, the base is lithium hydroxide and the solvent is aqueous 1,2-dimethoxyethane.

A compound of formula (N) may be prepared from a compound of formula (P) by treatment with a hypervalent iodine reagent such as a (diacetoxy)iodobenzene or an iodosylbenzene and a base such as aqueous sodium carbonate, lithium hydroxide or sodium hydroxide in a solvent such as water or an aqueous alcohol such as aqueous ethanol according to the procedures of K. Schank and C. Lick, *Synthesis*, (1983), 392, R. M. Moriarty *et al.*, *J. Am. Chem. Soc.*, (1985), 107, 1375, or of Z. Yang *et al.*, *Org. Lett.*, (2002), 4 (19), 3333.



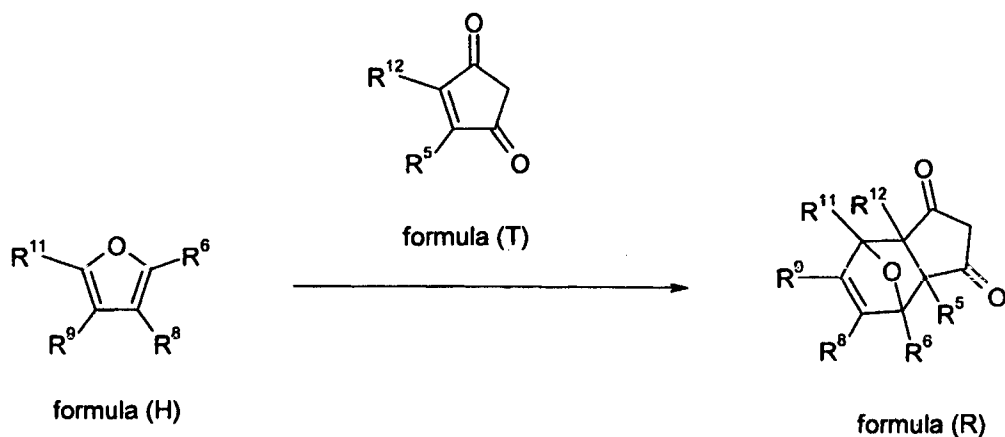
A compound of formula (P) wherein R^7 and R^{10} are hydrogen may be prepared by reduction of a compound of formula (Q) under known conditions.



Compounds of formula (R) are alkenes, and as such undergo further reactions typical of alkenes to give additional compounds of formula (P) according to known procedures. Examples of such reactions include, but are not restricted to, halogenation, epoxidation, cyclopropanation, dihydroxylation, hydroarylation, hydrovinylation and hydration of alkenes. In turn, the products of these reactions may be transformed into additional compounds of formula (P) by methods described, for example by J. March, *Advanced Organic Chemistry*, third edition, John Wiley and Sons. Compounds of formula (R) wherein R^8 or R^9 are $\text{C}_1\text{-C}_6$ alkoxy are enol ethers, and these may be hydrolysed to the corresponding ketone using standard procedures. In turn, the ketone may be further transformed, for example by ketalisation, oximation, reduction and the like under known conditions to give additional compounds of formula (P).

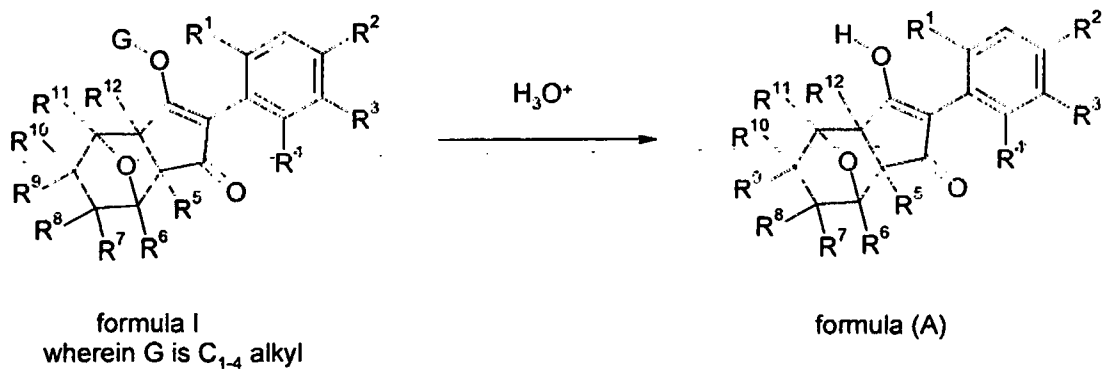
A compound of formula (R) may be prepared by reacting a compound of formula (S) with a cyclopentenedione of formula (T), optionally in the presence of a Lewis acid catalyst, according to procedures described, for example by B. Zwanenburg *et al.*, *Tetrahedron* (1989), 45 (22), 7109 and by M. Oda *et al.*, *Chem. Lett.*, (1977), 307.

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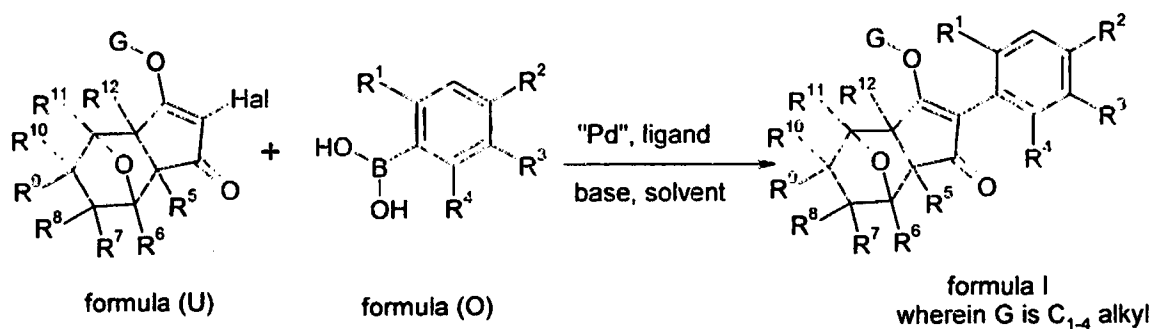


Compounds of formula (H) and formula (T) are known compounds or may be made from known compounds by known methods.

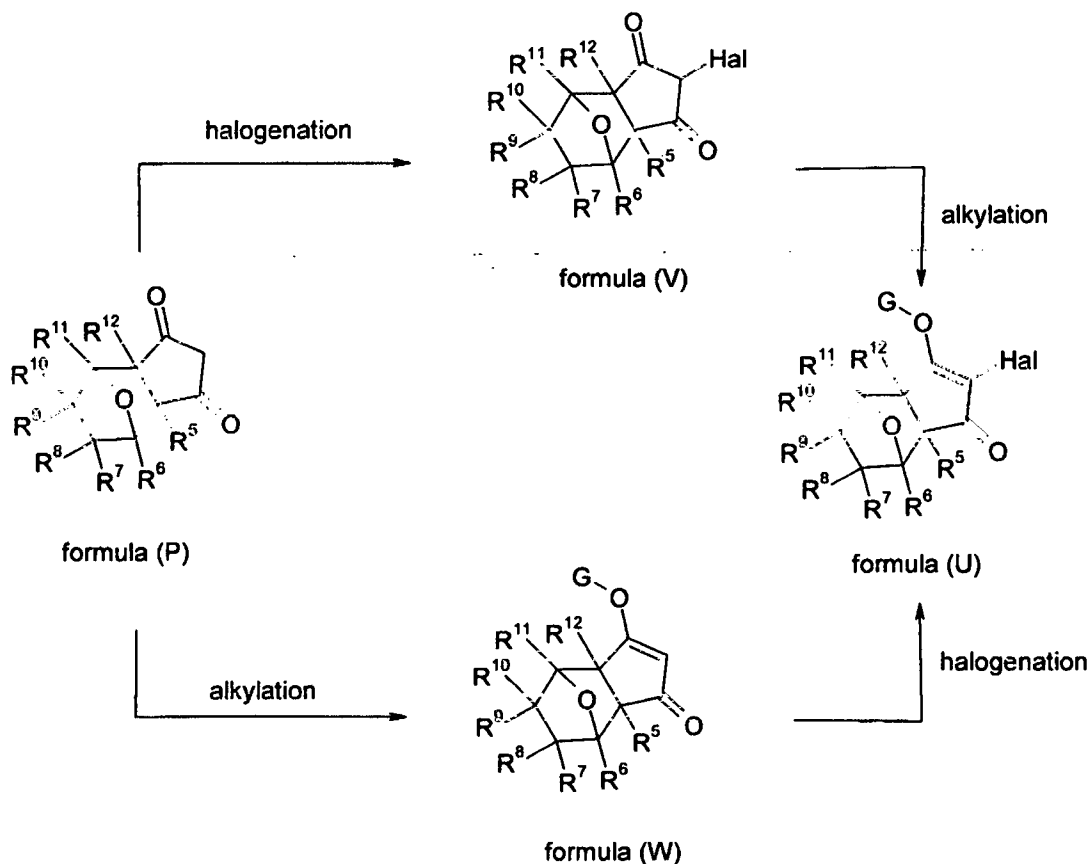
In a further approach, a compound of formula (A) may be prepared from a compound of formula I, wherein G is C₁₋₄ alkyl, by hydrolysis, preferably in the presence of an acid catalyst such as hydrochloric acid and optionally in the presence of a suitable solvent such as tetrahydrofuran, acetone or 4-methylpentan-2-one.



A compound of formula I wherein G is C₁₋₄ alkyl, may be prepared from a compound of formula (U), wherein G is C₁₋₄ alkyl, and Hal is a halogen (preferably bromine or iodine), by coupling with an aryl boronic acid of formula (O), in the presence of a suitable palladium catalyst and a base and preferably in the presence of a suitable ligand, and in a suitable solvent. Preferably the palladium catalyst is palladium acetate, the base is potassium phosphate, the ligand is 2-dicyclohexylphosphino-2',6'-dimethoxybiphenyl and the solvent is toluene.

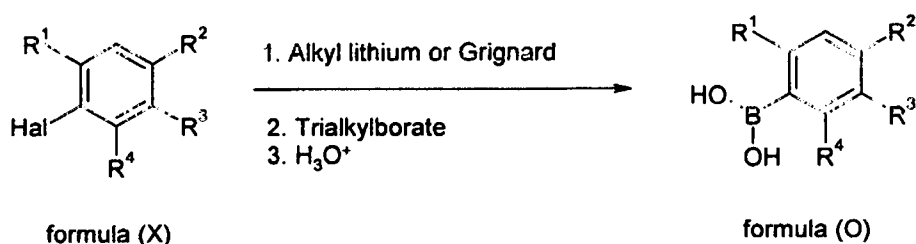


A compound of formula (U) may be prepared by halogenation of a compound of formula (P), followed by reaction of the resulting halide of formula (V) with a C₁₋₄ alkyl halide or tri-C₁₋₄-alkylorthoformate under known conditions (for example by the procedures of R. Shepherd and A. White, *J. Chem. Soc. Perkin Trans. 1* (1987), 2153, and Y.-L. Lin *et al.*, *Bioorg. Med. Chem.* (2002), 10, 685). Alternatively, a compound of formula (U) may be prepared by reaction of a compound of formula (P) with a C₁₋₄ alkyl halide or a tri-C₁₋₄-alkylorthoformate, and halogenation of the resulting enone of formula (W) under known conditions.



A compound of formula (O) may be prepared from an aryl halide of formula (X), wherein Hal is bromine or iodine, by known methods (see, for example, W. Thompson and J. Gaudino, *J. Org. Chem.*, (1984), 49, 5237 and R. Hawkins *et al.*, *J. Am. Chem. Soc.*, (1960), 82, 3053). For

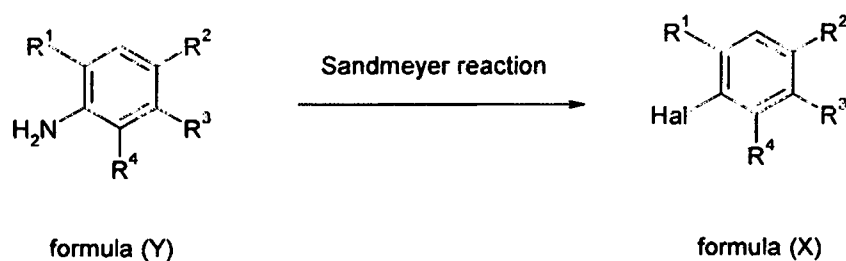
example, an aryl halide of formula (X) may be treated with an alkyl lithium or alkyl magnesium halide in a suitable solvent, preferably diethyl ether or tetrahydrofuran, at a temperature of between -80°C and 30°C , and the aryl magnesium or aryl lithium reagent obtained may then be reacted with a trialkyl borate (preferably trimethylborate) to give an aryl dialkylboronate which may be hydrolysed to provide a boronic acid of formula (O) under acidic conditions.



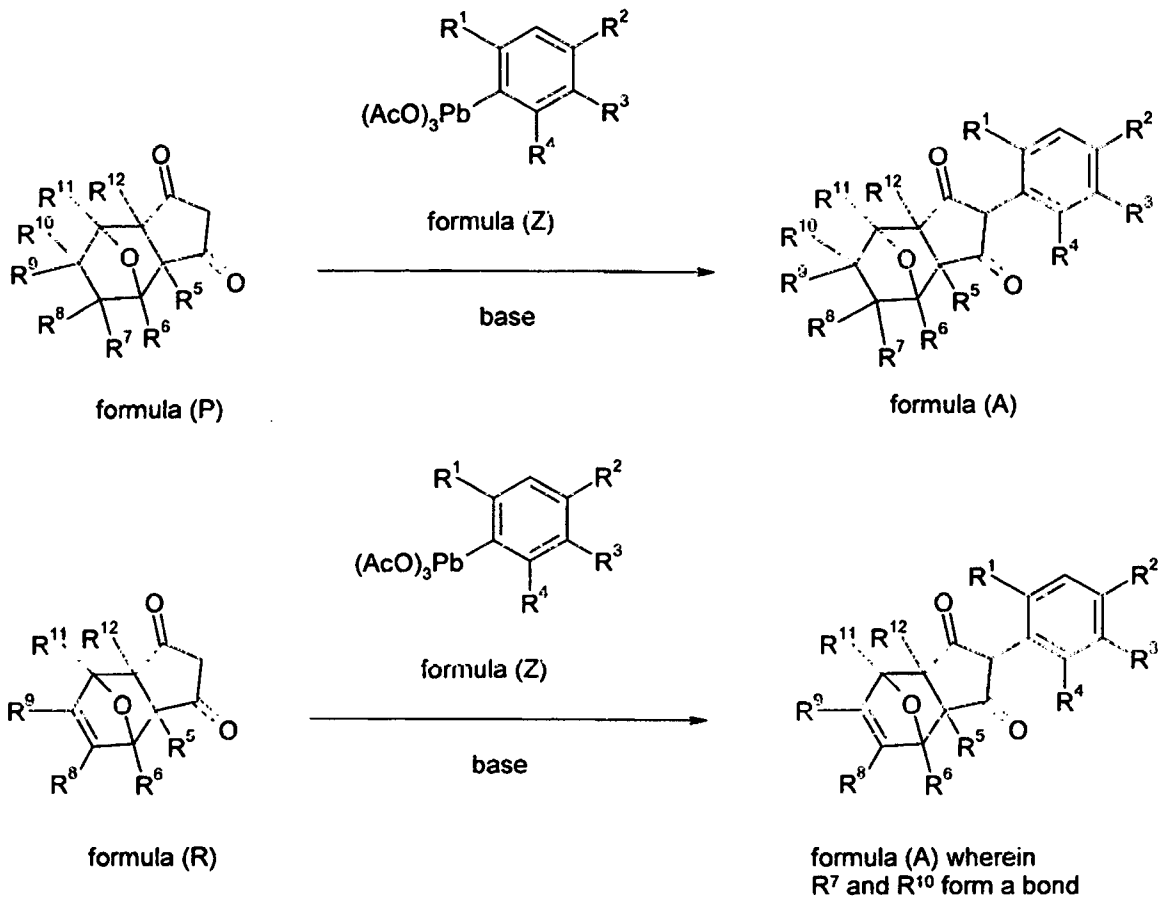
Alternatively a compound of formula (X) may be reacted with a cyclic boronate ester derived from a 1,2- or a 1,3-alkanediol such as pinacol, 2,2-dimethyl-1,3-propanediol and 2-methyl-2,4-pentanediol) under known conditions (see, for example, N. Miyaura *et al.*, J. Org. Chem., (1995), 60, 7508, and W. Zhu and D. Ma, Org. Lett., (2006), 8 (2), 261), and the resulting boronate ester may be hydrolysed under acidic conditions to give a boronic acid of formula (O).

An aryl halide of formula (X) may be prepared from an aniline of formula (Y) by known methods, for example the Sandmeyer reaction, *via* the corresponding diazonium salts.

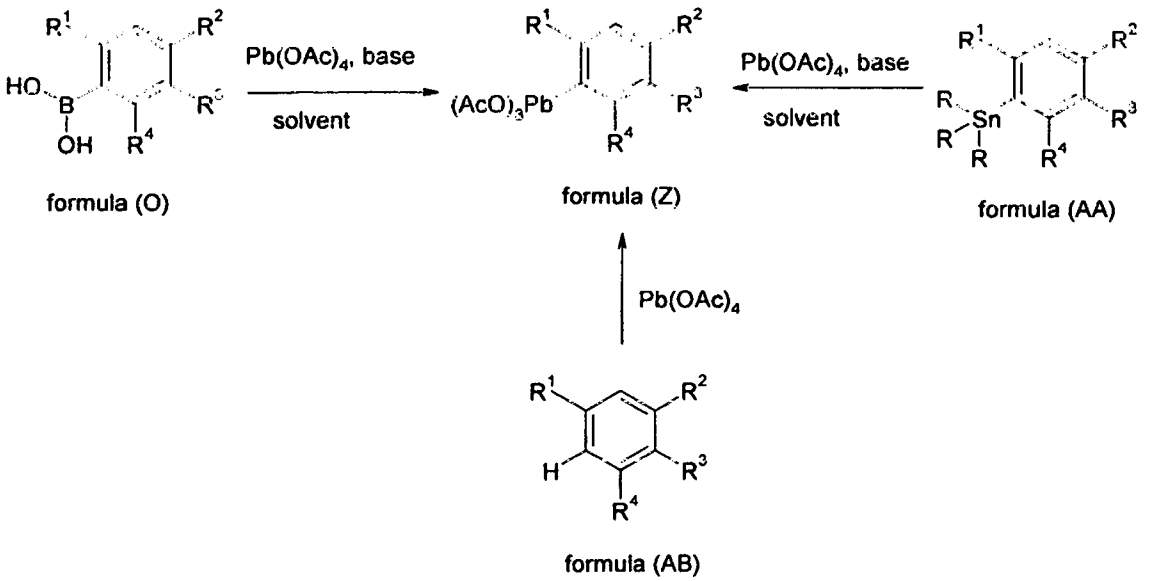
Anilines of formula (Y) are known compounds, or may be made from known compounds, by known methods.



Additional compounds of formula (A) may be prepared by reacting a compound of formula (P), or a compound of formula (R) with an organolead reagent of formula (Z) under conditions described, for example, by J. Pinhey, Pure and Appl. Chem., (1996), 68 (4), 819 and by M. Moloney *et al.*, Tetrahedron Lett., (2002), 43, 3407.

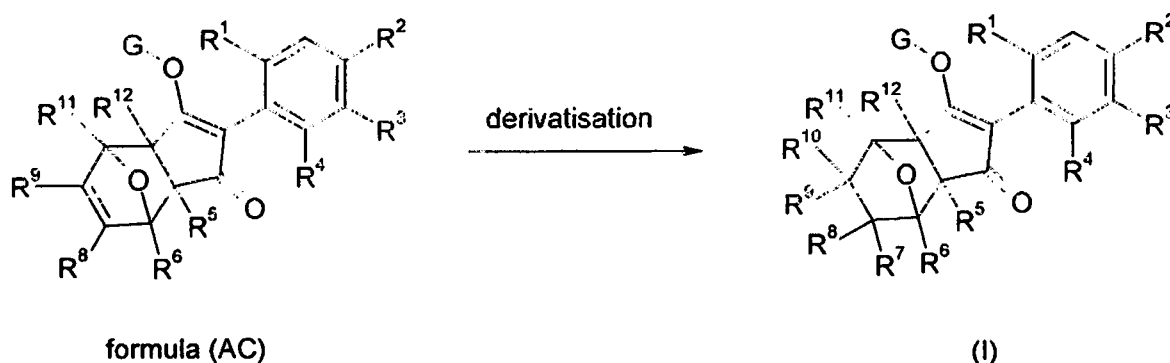


The organolead reagent of formula (Z) may be prepared from a boronic acid of formula (O), a stannane of formula (AA), wherein R is C₁-C₄ alkyl or by direct plumbation of a compound of formula (AB) with lead tetraacetate according to known procedures.



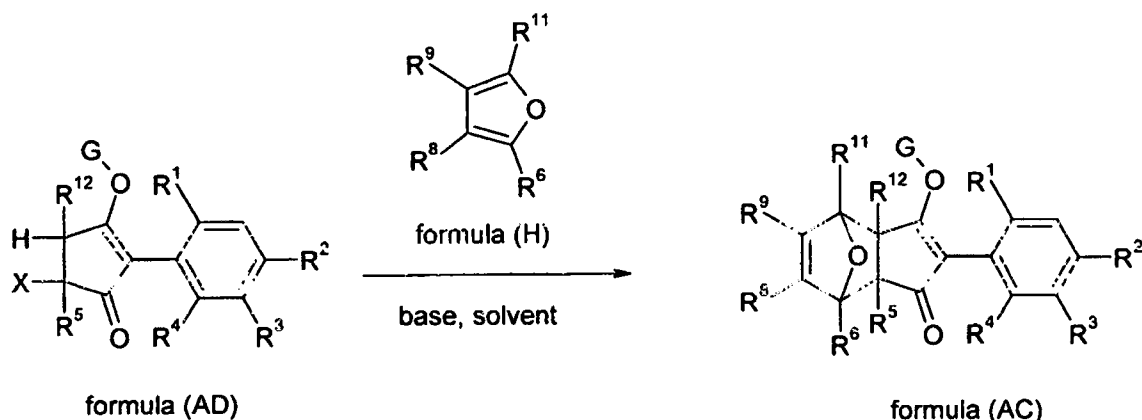
Further compounds of formula (A) may be prepared by reacting a compound of formula (P) or a compound of formula (R) with suitable triaryl bismuth compound under conditions described, for example, by A. Yu. Fedorov *et al.*, Russ. Chem. Bull. Int. Ed., (2005), 54 (11), 2602, and by P. Koech and M. Krische, J. Am. Chem. Soc., (2004), 126 (17), 5350 and references therein.

In a further approach, a compound of formula I may be prepared from a compound of formula (AC) by suitable derivatisation under standard conditions.



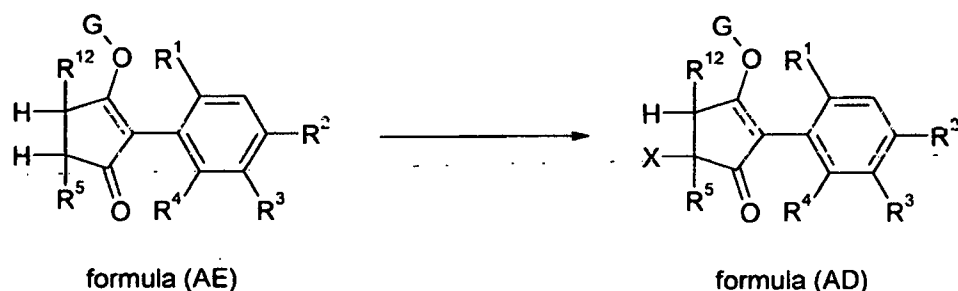
For example, compounds of formula (AC) are alkenes, and as such undergo further reactions typical of alkenes to give compounds of formula I according to known procedures. Examples of such reactions include, but are not restricted to, reduction, halogenation, epoxidation, cyclopropanation, dihydroxylation, hydroarylation, hydrovinylation and hydration. Compounds of formula (AC) wherein R⁸ or R⁹ is bromine or iodine are vinyl halides, and undergo known reactions of vinyl halides such as Suzuki-Miyaura, Sonogashira, Stille and related reactions. Certain other compounds of formula (AC), wherein R⁸ or R⁹ is C₁-C₆alkoxy, are enol ethers, and these may be hydrolysed to the corresponding ketone using standard procedures. In turn, the ketone produced may be further transformed, for example by ketalisation, oximation, reduction and the like under known conditions to give additional compounds of formula I. Similarly, compounds of formula (AC) wherein R⁸ or R⁹ is C₁-C₆amino or di-C₁-C₆amino are enamines, and these also may be hydrolysed to the corresponding ketone using standard procedures.

A compound of formula (AC), wherein G is C₁-C₄ alkyl, may be prepared from a compound of formula (AD), wherein G is C₁-C₄ alkyl and X is halogen or other suitable leaving group (such as an alkyl or arylsulfonate, or an arylselenoxide), by reaction with a compound of formula (H), optionally in a suitable solvent, and optionally in the presence of a suitable base.



Suitable solvents include toluene, dichloromethane and chloroform and suitable bases include organic bases such as triethylamine, Hunig's base and 1,8-diazabicyclo[5.4.0]undec-7-ene. Preferably the solvent is toluene and the base is 1,8-diazabicyclo[5.4.0]undec-7-ene.

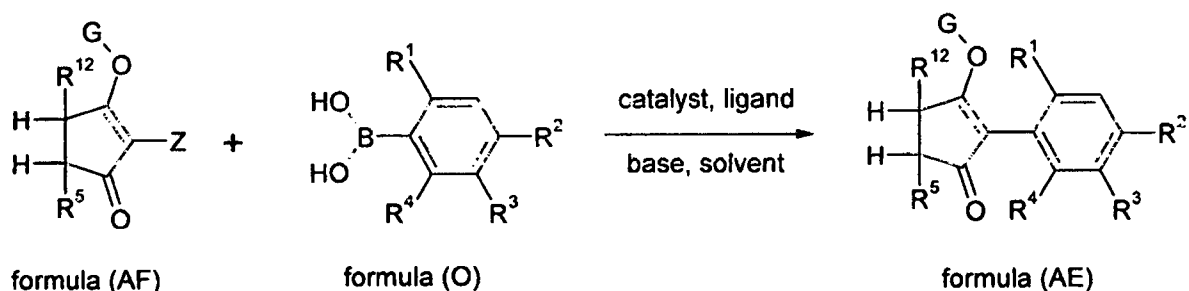
A compound of formula (AD) may be prepared from a compound of formula (AE), under known conditions.



For example, a compound of formula (AD) wherein X is chlorine may be prepared by reacting a compound of formula (AE) with copper(II) chloride and lithium chloride according to the procedure of E. Kosower *et al.*, J. Org. Chem., (1963), 28, 630.

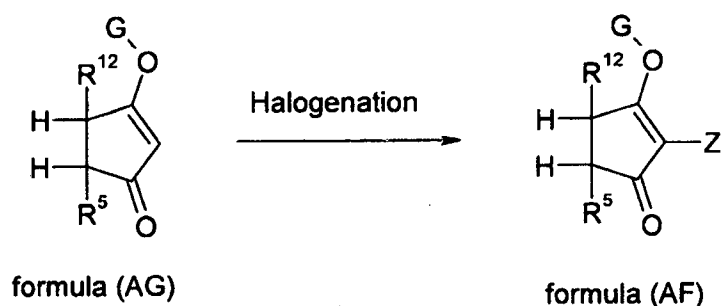
Compounds of formula (AE) are known compounds or may be made from known compounds by known methods (see, for example, Y. Song, B. Kim and J-N Heo, Tetrahedron Lett., (2005), 46, 5977). Alternatively, a compound of formula (AE) wherein G is C₁-C₄alkyl may be prepared from a compound of formula (AE), wherein G is hydrogen, for example by reaction with a C₁₋₄ alkyl halide or a tri-C₁₋₄-alkylorthoformate. Compounds of formula (AE), wherein G is hydrogen, are known, or may be prepared from known compounds by known methods (see, for example, T. Wheeler, US4338122, US4283348, J. T. Kueth *et al.*, J. Org. Chem., (2002), 67, 5993, S. Buchwald *et al.*, J. Am. Chem. Soc., (2003), 125, 11818).

Alternatively, a compound of formula (AE), wherein G is C₁₋₄alkyl, may be prepared by reacting a compound of formula (AF), wherein G is C₁₋₄alkyl and Z is a halogen, preferably bromine or iodine, with a boronic acid of formula (O) in the presence of a suitable metal catalyst, a suitable base, and optionally a suitable ligand, in a suitable solvent.



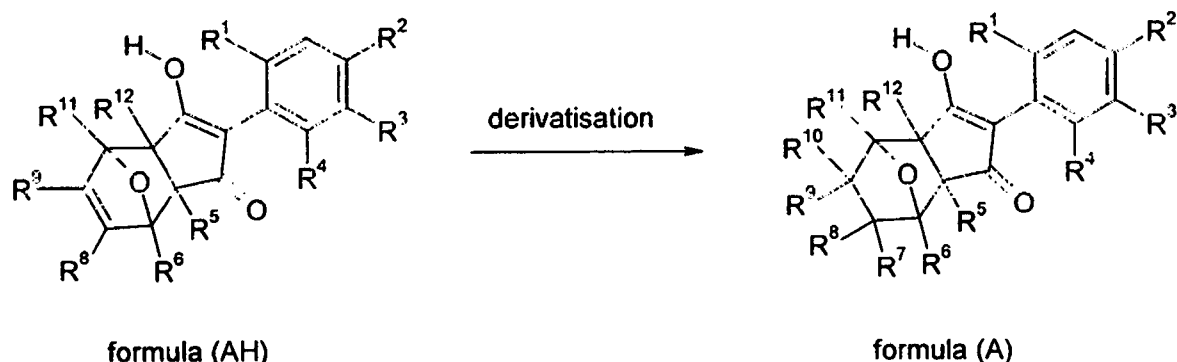
Suitable solvents include toluene and *n*-butanol, suitable bases include inorganic bases such as potassium phosphate, a suitable metal catalyst is a palladium catalyst, for example in the form of palladium(II) acetate, and suitable ligands include substituted phosphines, for example 2-dicyclohexylphosphino-2',6'-dimethoxybiphenyl.

Compounds of formula (AF) are known compounds, or may be prepared by methods known in the literature. For example a compound of formula (AF) wherein G is C₁₋₄alkyl and Z is a bromine atom may be prepared by reacting a compound of formula (AG), wherein G is C₁₋₄alkyl, with a suitable brominating agent, such as *N*-bromosuccinimide, in a suitable solvent, such as 1,2-dichloroethane, as described by R. Shepherd and A. White, J. Chem. Soc. Perkin Trans. 1 (1987), 10, 2153.



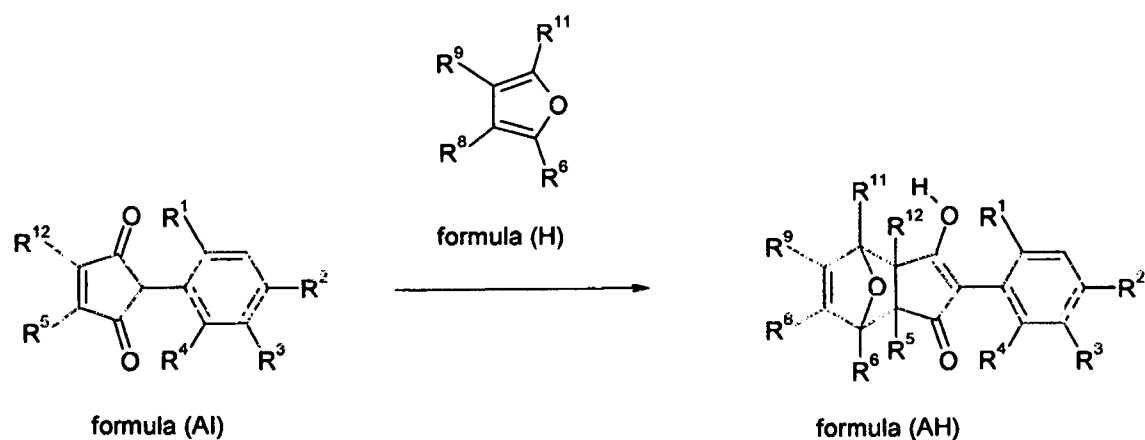
In a similar manner, a compound of formula (A) may be prepared from a compound of formula (AH) by suitable derivatisation under standard conditions.

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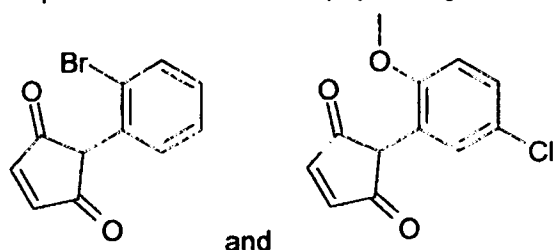
For example, compounds of formula (AH) are alkenes, and as such undergo further reactions typical of alkenes to give compounds of formula (A) according to known procedures. Examples of such reactions include, but are not restricted to, reduction, halogenation, epoxidation, cyclopropanation, dihydroxylation, hydroarylation, hydrovinylation and hydration. Compounds of formula (AH) wherein R⁸ or R⁹ is bromine or iodine are vinyl halides, and undergo known reactions of vinyl halides such as Suzuki-Miyaura, Sonogashira, Stille and related reactions. Certain other compounds of formula (AH), wherein R⁸ or R⁹ is C₁-C₆alkoxy, are enol ethers, and these may be hydrolysed to the corresponding ketone using standard procedures. In turn, the ketone produced may be further transformed, for example by ketalisation, oximation, reduction and the like under known conditions to give additional compounds of formula (A). Similarly, compounds of formula (AH) wherein R⁸ or R⁹ is C₁-C₆amino or di-C₁-C₆amino are enamines, and these also may be hydrolysed to the corresponding ketone using standard procedures.

A compound of formula (AH) may be prepared from a compound of formula (AI) by reaction with a compound of formula (H), optionally in a suitable solvent, and optionally in the presence of a suitable catalyst. The compounds of formula (AI) have been particularly designed as intermediates in the synthesis of the compounds of the formula I.



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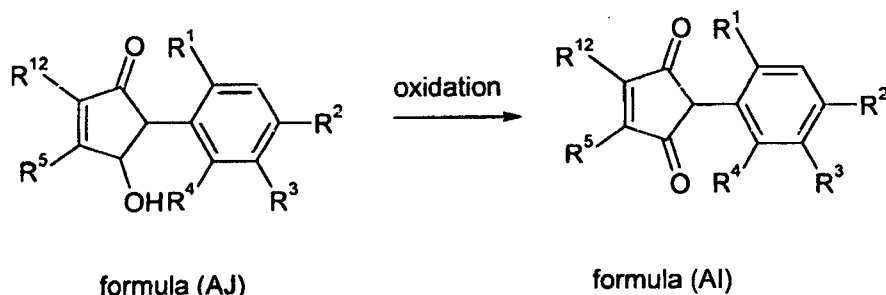
Compounds of the formula (AI) having the specific formulae



are known under the CAS registry numbers 299968-82-4 and 528833-96-7, respectively.

Preferably the catalyst is a Lewis acid catalyst such as aluminium chloride, bismuth (III) chloride, bismuth (III) trifluoromethanesulfonate, boron trifluoride, cerium (III) chloride, copper (I) trifluoromethanesulfonate, diethylaluminium chloride, hafnium (IV) chloride, iron (III) chloride, lithium perchlorate, lithium trifluoromethanesulfonate, magnesium bromide, magnesium iodide, scandium (III) trifluoromethanesulfonate, tin (IV) chloride, titanium (IV) chloride, titanium (IV) isopropoxide, trimethyl aluminium, *N*-trimethylsilyl-bis(trifluoromethanesulfonyl)imide, trimethylsilyl trifluoromethane-sulfonate, ytterbium (III) trifluoromethanesulfonate, zinc iodide and zirconium (IV) chloride. Magnesium iodide is particularly preferred. Suitable solvents include those which are known to be effective solvents for conducting Diels-Alder reactions, among them, for example, chloroform, dichloromethane, diethyl ether, ethanol, methanol, perfluorinated alkanes, such as perfluorohexane, toluene, water, and ionic liquids such as 1-butyl-3-methylimidazolium tetrafluoroborate and 1-butyl-3-methylimidazolium hexafluorophosphate. Dichloromethane is particularly preferred as a solvent.

A compound of formula (AI), may be prepared by oxidising a compound of formula (AJ) in a suitable solvent such as toluene, acetone, chloroform, dichloromethane or 1,4-dioxane. A wide range of oxidants are suitable for effecting this transformation, including inorganic oxidants such as chromium trioxide, pyridinium dichromate, manganese dioxide and aluminium alkoxides such as aluminium isopropoxide, as well as organic oxidants such as 2,3-dichloro-5,6-dicyano-*p*-benzoquinone and hypervalent iodine oxidants such as 1,1,1-tris(acetyloxy)-1,1-dihydro-1,2-benziodoxol-3-(1H)-one (Dess-Martin periodinane). Suitable procedures are described, for example, by K. Saito and H. Yamachika, US4371711. and by G. Piancatelli *et al.*, Tetrahedron (1978), 34, 2775. The use of chromium trioxide in a mixture of sulfuric acid and acetone (Jones reagent) is preferred.

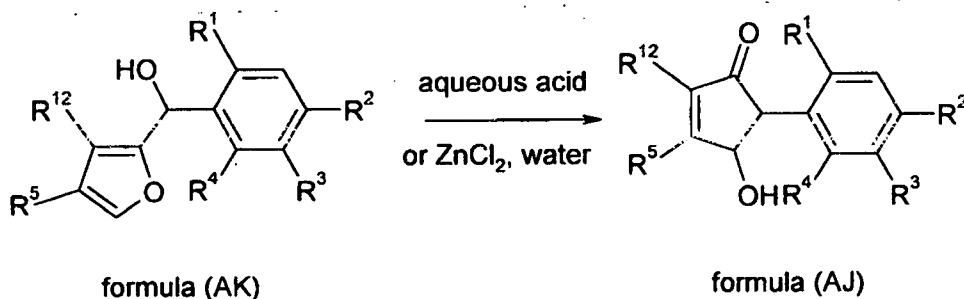


The compounds of the formula AI have been particularly designed as intermediates for the synthesis of the compounds of the formula I.

Particularly useful compounds of the formula AI are those, wherein R^5 and R^{12} are hydrogen. In another group of useful compounds of the formula I, R^1 , R^2 and R^4 are independently of each other methyl or ethyl.

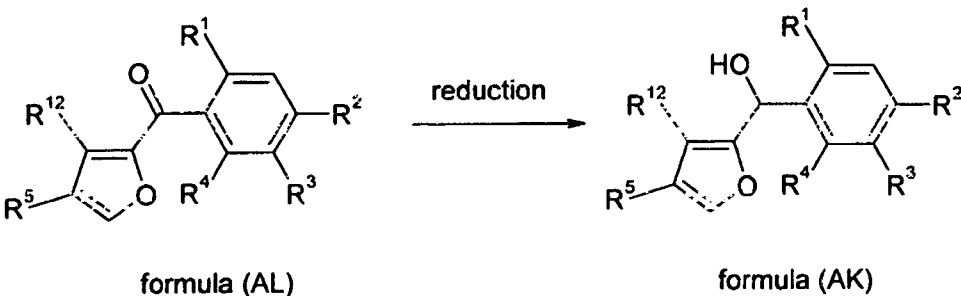
In another group of useful compounds of the formula I, R^1 , R^2 and R^4 are independently of each other methyl or ethyl, and R^3 , R^5 and R^{12} are hydrogen.

A compound of formula (AJ) may be prepared from a compound of formula (AK) by treatment with a suitable acid catalyst in the presence of water and optionally in the presence of a suitable solvent, according to known procedures.



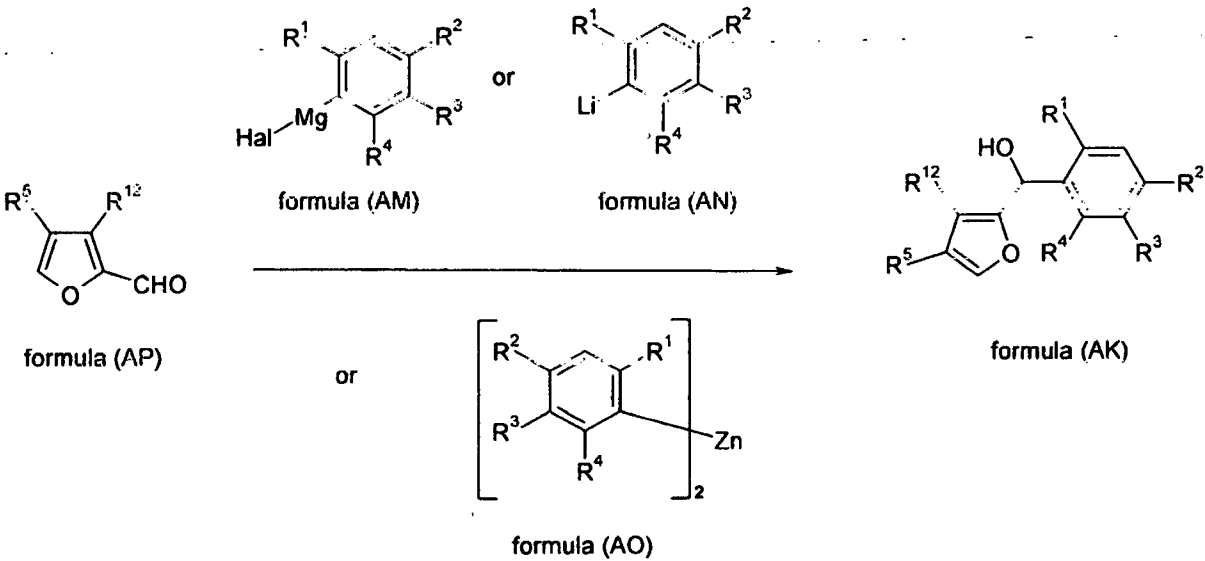
For example, a compound of formula (AK) may be converted to a compound of formula (AJ) in the presence of an aqueous solution of an acid such as phosphoric acid or polyphosphoric acid as described, for example by K. Saito and H. Yamachika, US4371711. Alternatively a compound of formula (AJ) may be prepared from a compound of formula (AK) by rearrangement in the presence of a Lewis acid catalyst such as zinc chloride according to the procedure of G. Piancatelli *et al.*, *Tetrahedron*, (1978), 34, 2775.

A compound of formula (AK) may be prepared by the reduction of a compound of formula (AI) by known conditions (see, for example R Silvestri *et al.*, *J. Med. Chem.*, 2005, 48, 4378-4388).



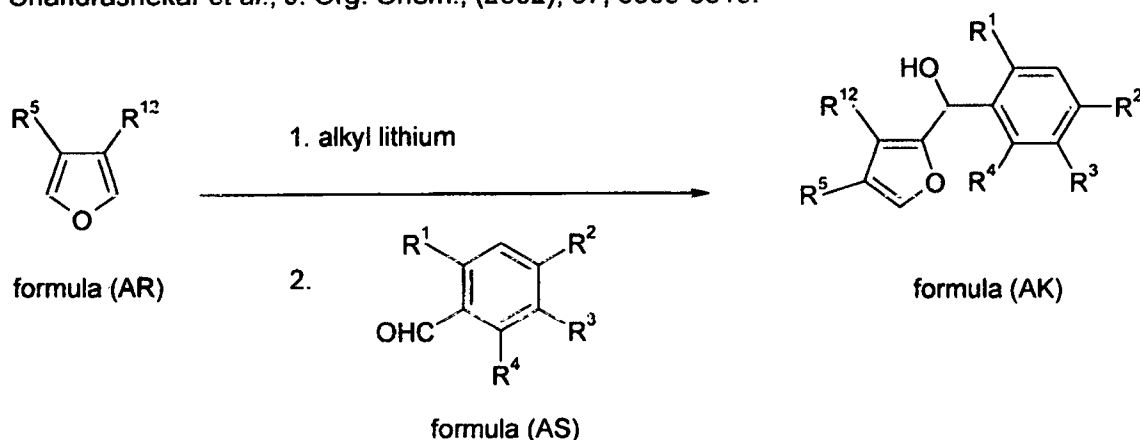
Compounds of formula (AL) are known, or may be made by known methods from known compounds (see, for example, L. Liebeskind *et al.*, *Org. Lett.*, (2003), 5 (17), 3033-3035, H. Firouzabadi, N. Iranpoor and F. Nowrouzi, *Tetrahedron*, (2004), 60,10843, R. Silvestri *et al.*, *J. Med. Chem.*, (2005), 48, 4378 and references therein).

Alternatively a compound of formula (AK) may be prepared by the addition of a suitable organometallic reagent such as an arylmagnesium halide of formula (AM) wherein Hal is a halide such as chloride, bromide or iodide, or an aryllithium reagent of formula (AN) or a diarylzinc reagent of formula (AO) to a furan-2-carboxaldehyde of formula (AP) according to known procedures (see, for example G. Panda *et al.*, *Tetrahedron Lett.*, (2005), 46, 3097).



Additional compounds of formula (AK) may be prepared from compounds of formula (AR) by reaction with a strong base, for a example an alkyl lithium reagent such as *n*-butyllithium, optionally in the presence of an additive such as tetramethylethylenediamine, and in a suitable solvent such as diethyl ether or tetrahydrofuran, followed by reaction with a benzaldehyde of

formula (AS) as described, for example by I. Gupta and M. Ravikanth, J. Org. Chem., (2004), 69, 6796, A. M. Echavarren *et al.*, J. Am. Chem. Soc., (2003), 125 (19), 5757, and by T. K. Chandrashekar *et al.*, J. Org. Chem., (2002), 67, 6309-6319.



The organometallic reagents of formula (AM), formula (AN) and formula (AO) are known compounds or may be made by known methods from known compounds. Compounds of formula (AP), formula (AR) and formula (AS) are known compounds, or may be prepared from known compounds by known methods.

The compounds of formula I according to the invention can be used as herbicides in unmodified form, as obtained in the synthesis, but they are generally formulated into herbicidal compositions in a variety of ways using formulation adjuvants, such as carriers, solvents and surface-active substances. The formulations can be in various physical forms, for example in the form of dusting powders, gels, wettable powders, water-dispersible granules, water-dispersible tablets, effervescent compressed tablets, emulsifiable concentrates, microemulsifiable concentrates, oil-in-water emulsions, oil flowables, aqueous dispersions, oily dispersions, suspoemulsions, capsule suspensions, emulsifiable granules, soluble liquids, water-soluble concentrates (with water or a water-miscible organic solvent as carrier), impregnated polymer films or in other forms known, for example, from the Manual on Development and Use of FAO Specifications for Plant Protection Products, 5th Edition, 1999. Such formulations can either be used directly or are diluted prior to use. Diluted formulations can be prepared, for example, with water, liquid fertilisers, micronutrients, biological organisms, oil or solvents.

The formulations can be prepared, for example, by mixing the active ingredient with formulation adjuvants in order to obtain compositions in the form of finely divided solids, granules, solutions, dispersions or emulsions. The active ingredients can also be formulated with other adjuvants, for example finely divided solids, mineral oils, vegetable oils, modified vegetable oils, organic

solvents, water, surface-active substances or combinations thereof. The active ingredients can also be contained in very fine microcapsules consisting of a polymer. Microcapsules contain the active ingredients in a porous carrier. This enables the active ingredients to be released into their surroundings in controlled amounts (e.g. slow release). Microcapsules usually have a diameter of from 0.1 to 500 microns. They contain active ingredients in an amount of about from 25 to 95 % by weight of the capsule weight. The active ingredients can be present in the form of a monolithic solid, in the form of fine particles in solid or liquid dispersion or in the form of a suitable solution. The encapsulating membranes comprise, for example, natural and synthetic gums, cellulose, styrene-butadiene copolymers, polyacrylonitrile, polyacrylate, polyester, polyamides, polyureas, polyurethane or chemically modified polymers and starch xanthates or other polymers that are known to the person skilled in the art in this connection. Alternatively it is possible for very fine microcapsules to be formed wherein the active ingredient is present in the form of finely divided particles in a solid matrix of a base substance, but in that case the microcapsule is not encapsulated.

The formulation adjuvants suitable for the preparation of the compositions according to the invention are known *per se*. As liquid carriers there may be used: water, toluene, xylene, petroleum ether, vegetable oils, acetone, methyl ethyl ketone, cyclohexanone, acid anhydrides, acetonitrile, acetophenone, amyl acetate, 2-butanone, butylenes carbonate, chlorobenzene, cyclohexane, cyclohexanol, alkyl esters of acetic acid, diacetone alcohol, 1,2-dichloropropane, diethanolamine, p-diethylbenzene, diethylene glycol, diethylene glycol abietate, diethylene glycol butyl ether, diethylene glycol ethyl ether, diethylene glycol methyl ether, N,N-dimethylformamide, dimethyl sulfoxide, 1,4-dioxane, dipropylene glycol, dipropylene glycol methyl ether, dipropylene glycol dibenzoate, diproxitol, alkylpyrrolidone, ethyl acetate, 2-ethyl hexanol, ethylene carbonate, 1,1,1-trichloroethane, 2-heptanone, alpha-pinene, d-limonene, ethyl lactate, ethylene glycol, ethylene glycol butyl ether, ethylene glycol methyl ether, gamma-butyrolactone, glycerol, glycerol acetate, glycerol diacetate, glycerol triacetate, hexadecane, hexylene glycol, isoamyl acetate, isobornyl acetate, isooctane, isophorone, isopropylbenzene, isopropyl myristate, lactic acid, laurylamine, mesityl oxide, methoxypropanol, methyl isoamyl ketone, methyl isobutyl ketone, methyl laurate, methyl octanoate, methyl oleate, methylene chloride, m-xylene, n-hexane, n-octylamine, octadecanoic acid, octylamine acetate, oleic acid, oleylamine, o-xylene, phenol, polyethylene glycol (PEG 400), propionic acid, propyl lactate, propylene carbonate, propylene glycol, propylene glycol methyl ether, p-xylene, toluene, triethyl phosphate, triethylene glycol, xylenesulfonic acid, paraffin, mineral oil, trichloroethylene, perchloroethylene, ethyl acetate, amyl acetate, butyl acetate, propylene glycol methyl ether, diethylene glycol methyl ether, methanol, ethanol, isopropanol, and higher molecular weight alcohols, such as amyl alcohol,

tetrahydrofurfuryl alcohol, hexanol, octanol, ethylene glycol, propylene glycol, glycerol, N-methyl-2-pyrrolidone and the like. Water is generally the carrier of choice for the dilution of the concentrates. Suitable solid carriers are, for example, talc, titanium dioxide, pyrophyllite clay, silica, attapulgite clay, kieselguhr, limestone, calcium carbonate, bentonite, calcium montomorillonite, cottonseed husks, wheatmeal, soybean flour, pumice, wood flour, ground walnut shells, lignin and similar materials, as described, for example, in CFR 180.1001. (c) & (d).

A large number of surface-active substances can advantageously be used both in solid and in liquid formulations, especially in those formulations which can be diluted with a carrier prior to use. Surface-active substances may be anionic, cationic, non-ionic or polymeric and they may be used as emulsifying, wetting or suspending agents or for other purposes. Typical surface-active substances include, for example, salts of alkyl sulfates, such as diethanolammonium lauryl sulfate; salts of alkylarylsulfonates, such as calcium dodecylbenzenesulfonate; alkylphenol-alkylene oxide addition products, such as nonylphenol ethoxylate; alcohol-alkylene oxide addition products, such as tridecyl alcohol ethoxylate; soaps, such as sodium stearate; salts of alkylnaphthalenesulfonates, such as sodium dibutylnaphthalenesulfonate; dialkyl esters of sulfosuccinate salts, such as sodium di(2-ethylhexyl)sulfosuccinate; sorbitol esters, such as sorbitol oleate; quaternary amines, such as lauryl trimethylammonium chloride, polyethylene glycol esters of fatty acids, such as polyethylene glycol stearate; block copolymers of ethylene oxide and propylene oxide; and salts of mono- and di-alkyl phosphate esters; and also further substances described e.g. in "McCutcheon's Detergents and Emulsifiers Annual", MC Publishing Corp., Ridgewood, New Jersey, 1981.

Further adjuvants which can usually be used in pesticidal formulations include crystallisation inhibitors, viscosity-modifying substances, suspending agents, dyes, anti-oxidants, foaming agents, light absorbers, mixing aids, anti-foams, complexing agents, neutralising or pH-modifying substances and buffers, corrosion-inhibitors, fragrances, wetting agents, absorption improvers, micronutrients, plasticisers, glidants, lubricants, dispersants, thickeners, anti-freezes, microbiocides, and also liquid and solid fertilisers.

The formulations may also comprise additional active substances, for example further herbicides, herbicide safeners, plant growth regulators, fungicides or insecticides.

The compositions according to the invention can additionally include an additive comprising an oil of vegetable or animal origin, a mineral oil, alkyl esters of such oils or mixtures of such oils and oil derivatives. The amount of oil additive used in the composition according to the invention

is generally from 0.01 to 10 %, based on the spray mixture. For example, the oil additive can be added to the spray tank in the desired concentration after the spray mixture has been prepared. Preferred oil additives comprise mineral oils or an oil of vegetable origin, for example rapeseed oil, olive oil or sunflower oil, emulsified vegetable oil, such as AMIGO® (Rhône-Poulenc Canada Inc.), alkyl esters of oils of vegetable origin, for example the methyl derivatives, or an oil of animal origin, such as fish oil or beef tallow. A preferred additive contains, for example, as active components essentially 80 % by weight alkyl esters of fish oils and 15 % by weight methylated rapeseed oil, and also 5 % by weight of customary emulsifiers and pH modifiers. Especially preferred oil additives comprise alkyl esters of C₈-C₂₂ fatty acids, especially the methyl derivatives of C₁₂-C₁₈ fatty acids, for example the methyl esters of lauric acid, palmitic acid and oleic acid, being important. Those esters are known as methyl laurate (CAS-111-82-0), methyl palmitate (CAS-112-39-0) and methyl oleate (CAS-112-62-9). A preferred fatty acid methyl ester derivative is Emery® 2230 and 2231 (Cognis GmbH). Those and other oil derivatives are also known from the Compendium of Herbicide Adjuvants, 5th Edition, Southern Illinois University, 2000.

The application and action of the oil additives can be further improved by combining them with surface-active substances, such as non-ionic, anionic or cationic surfactants. Examples of suitable anionic, non-ionic and cationic surfactants are listed on pages 7 and 8 of WO 97/34485.

- Preferred surface-active substances are anionic surfactants of the dodecylbenzylsulfonate type, especially the calcium salts thereof, and also non-ionic surfactants of the fatty alcohol ethoxylate type. Special preference is given to ethoxylated C₁₂-C₂₂ fatty alcohols having a degree of ethoxylation of from 5 to 40. Examples of commercially available surfactants are the Genapol types (Clariant AG). Also preferred are silicone surfactants, especially polyalkyl-oxide-modified heptamethyltrisiloxanes, which are commercially available e.g. as Silwet L-77®, and also perfluorinated surfactants. The concentration of surface-active substances in relation to the total additive is generally from 1 to 30 % by weight. Examples of oil additives that consist of mixtures of oils or mineral oils or derivatives thereof with surfactants are Edenor ME SU®, Turbocharge® (Syngenta AG, CH) and Actipron® (BP Oil UK Limited, GB).

The said surface-active substances may also be used in the formulations alone, that is to say without oil additives.

Furthermore, the addition of an organic solvent to the oil additive/surfactant mixture can contribute to a further enhancement of action. Suitable solvents are, for example, Solvesso® (ESSO) and Aromatic Solvent® (Exxon Corporation). The concentration of such solvents can be

from 10 to 80 % by weight of the total weight. Such oil additives, which may be in admixture with solvents, are described, for example, in US-A-4 834 908. A commercially available oil additive disclosed therein is known by the name MERGE® (BASF Corporation). Further oil additives that are preferred according to the invention are SCORE® (Syngenta Crop Protection Canada) and Adigor® (Syngenta Crop Protection Canada).

In addition to the oil additives listed above, in order to enhance the activity of the compositions according to the invention it is also possible for formulations of alkylpyrrolidones, (e.g. Agrimax®) to be added to the spray mixture. Formulations of synthetic latices, such as, for example, polyacrylamide, polyvinyl compounds or poly-1-p-menthene (e.g. Bond®, Courier® or Emerald®) can also be used. Solutions that contain propionic acid, for example Eurogkem Pen-e-trate®, can also be mixed into the spray mixture as activity-enhancing agents.

The herbicidal formulations generally contain from 0.1 to 99 % by weight, especially from 0.1 to 95 % by weight, of a compound of formula I and from 1 to 99.9 % by weight of a formulation adjuvant, which preferably includes from 0 to 25 % by weight of a surface-active substance. Whereas commercial products will preferably be formulated as concentrates, the end user will normally employ dilute formulations.

The rate of application of the compounds of formula I may vary within wide limits and depends upon the nature of the soil, the method of application (pre- or post-emergence; seed dressing; application to the seed furrow; no tillage application etc.), the crop plant, the weed or grass to be controlled, the prevailing climatic conditions, and other factors governed by the method of application, the time of application and the target crop. The compounds of formula I according to the invention are generally applied at a rate of 1- 2000 g/ha, preferably 1- 1000 g / ha and most preferably at 1- 500 g / ha.

Preferred formulations have especially the following compositions:
(% = percent by weight):

Emulsifiable concentrates:

active ingredient:	1 to 95 %, preferably 60 to 90 %
surface-active agent:	1 to 30 %, preferably 5 to 20 %
liquid carrier:	1 to 80 %, preferably 1 to 35 %

Dusts:

active ingredient:	0.1 to 10 %, preferably 0.1 to 5 %
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solid carrier:	99.9 to 90 %, preferably 99.9 to 99 %
<u>Suspension concentrates:</u>	
active ingredient:	5 to 75 %, preferably 10 to 50 %
water:	94 to 24 %, preferably 88 to 30 %
surface-active agent:	1 to 40 %, preferably 2 to 30 %
<u>Wettable powders:</u>	
active ingredient:	0.5 to 90 %, preferably 1 to 80 %
surface-active agent:	0.5 to 20 %, preferably 1 to 15 %
solid carrier:	5 to 95 %, preferably 15 to 90 %
<u>Granules:</u>	
active ingredient:	0.1 to 30 %, preferably 0.1 to 15 %
solid carrier:	99.5 to 70 %, preferably 97 to 85 %

The following Examples further illustrate, but do not limit, the invention.

<u>F1. Emulsifiable concentrates</u>	a)	b)	c)	d)
active ingredient	5 %	10 %	25 %	50 %
calcium dodecylbenzene-sulfonate	6 %	8 %	6 %	8 %
castor oil polyglycol ether (36 mol of ethylene oxide)	4 %	-	4 %	4 %
octylphenol polyglycol ether (7-8 mol of ethylene oxide)	-	4 %	-	2 %
NMP	-	-	10 %	20 %
arom. hydrocarbon mixture C ₉ -C ₁₂	85 %	78 %	55 %	16 %

Emulsions of any desired concentration can be prepared from such concentrates by dilution with water.

<u>F2. Solutions</u>	a)	b)	c)	d)
active ingredient	5 %	10 %	50 %	90 %
1-methoxy-3-(3-methoxy-propoxy)-propane	-	20 %	20 %	-
polyethylene glycol MW 400	20 %	10 %	-	-
NMP	-	-	30 %	10 %
arom. hydrocarbon mixture C ₉ -C ₁₂	75 %	60 %	-	-

The solutions are suitable for application in the form of microdrops.

<u>F3. Wettable powders</u>	a)	b)	c)	d)
active ingredient	5 %	25 %	50 %	80 %
sodium lignosulfonate	4 %	-	3 %	-
sodium lauryl sulfate	2 %	3 %	-	4 %
sodium diisobutyl-naphthalene-sulfonate	-	6 %	5 %	6 %
octylphenol polyglycol ether (7-8 mol of ethylene oxide)	-	1 %	2 %	-
highly disperse silicic acid	1 %	3 %	5 %	10 %
kaolin	88 %	62 %	35 %	-

The active ingredient is thoroughly mixed with the adjuvants and the mixture is thoroughly ground in a suitable mill, yielding wettable powders which can be diluted with water to give suspensions of any desired concentration.

<u>F4. Coated granules</u>	a)	b)	c)
active ingredient	0.1 %	5 %	15 %
highly disperse silicic acid	0.9 %	2 %	2 %
inorg. carrier	99.0 %	93 %	83 %

(diameter 0.1 - 1 mm)

e.g. CaCO₃ or SiO₂

The active ingredient is dissolved in methylene chloride, the solution is sprayed onto the carrier and the solvent is subsequently evaporated off *in vacuo*.

<u>F5. Coated granules</u>	a)	b)	c)
active ingredient	0.1 %	5 %	15 %
polyethylene glycol MW 200	1.0 %	2 %	3 %
highly disperse silicic acid	0.9 %	1 %	2 %
inorg. carrier	98.0 %	92 %	80 %

(diameter 0.1 - 1 mm)

e.g. CaCO₃ or SiO₂

The finely ground active ingredient is applied uniformly, in a mixer, to the carrier moistened with polyethylene glycol. Non-dusty coated granules are obtained in this manner.

<u>F6. Extruder granules</u>	a)	b)	c)	d)
active ingredient	0.1 %	3 %	5 %	15 %
sodium lignosulfonate	1.5 %	2 %	3 %	4 %
carboxymethylcellulose	1.4 %	2 %	2 %	2 %
kaolin	97.0 %	93 %	90 %	79 %

The active ingredient is mixed and ground with the adjuvants and the mixture is moistened with water. The resulting mixture is extruded and then dried in a stream of air.

<u>F7. Dusts</u>	a)	b)	c)
active ingredient	0.1 %	1 %	5 %
talcum	39.9 %	49 %	35 %
kaolin	60.0 %	50 %	60 %

Ready-to-use dusts are obtained by mixing the active ingredient with the carriers and grinding the mixture in a suitable mill.

<u>F8. Suspension concentrates</u>	a)	b)	c)	d)
active ingredient	3 %	10 %	25 %	50 %
ethylene glycol	5 %	5 %	5 %	5 %
nonylphenol polyglycol ether (15 mol of ethylene oxide)	-	1 %	2 %	-
sodium lignosulfonate	3 %	3 %	4 %	5 %
carboxymethylcellulose	1 %	1 %	1 %	1 %
37 % aqueous formaldehyde solution	0.2 %	0.2 %	0.2 %	0.2 %
silicone oil emulsion	0.8 %	0.8 %	0.8 %	0.8 %
water	87 %	79 %	62 %	38 %

The finely ground active ingredient is intimately mixed with the adjuvants, yielding a suspension concentrate from which suspensions of any desired concentration can be prepared by dilution with water.

The invention relates also to a method for the selective control of grasses and weeds in crops of useful plants, and for non-selective weed control, which comprises treating the useful plants or the area under cultivation or the locus thereof with a compound of formula I.

Crops of useful plants in which the compositions according to the invention can be used include especially cereals, in particular wheat and barley, rice, corn, rape, sugarbeet, sugarcane, soybean, cotton, sunflower, peanut and plantation crops.

The term "crops" is to be understood as also including crops that have been rendered tolerant to herbicides or classes of herbicides (for example ALS, GS, EPSPS, PPO and HPPD inhibitors) as a result of conventional methods of breeding or genetic engineering. An example of a crop that has been rendered tolerant e.g. to imidazolinones, such as imazamox, by conventional methods of breeding is Clearfield® summer rape (Canola). Examples of crops that have been rendered

tolerant to herbicides by genetic engineering methods include e.g. glyphosate- and glufosinate-resistant maize varieties commercially available under the trade names RoundupReady® and LibertyLink®. The weeds to be controlled may be both monocotyledonous and dicotyledonous weeds, such as, for example, *Stellaria*, *Nasturtium*, *Agrostis*, *Digitaria*, *Avena*, *Setaria*, *Sinapis*, *Lolium*, *Solanum*, *Echinochloa*, *Scirpus*, *Monochoria*, *Sagittaria*, *Bromus*, *Alopecurus*, *Sorghum*, *Rottboellia*, *Cyperus*, *Abutilon*, *Sida*, *Xanthium*, *Amaranthus*, *Chenopodium*, *Ipomoea*, *Chrysanthemum*, *Galium*, *Viola* and *Veronica*. Control of monocotyledonous weeds, in particular *Agrostis*, *Avena*, *Setaria*, *Lolium*, *Echinochloa*, *Bromus*, *Alopecurus* and *Sorghum* is very extensive.

Crops are also to be understood as being those which have been rendered resistant to harmful insects by genetic engineering methods, for example Bt maize (resistant to European corn borer), Bt cotton (resistant to cotton boll weevil) and also Bt potatoes (resistant to Colorado beetle). Examples of Bt maize are the Bt-176 maize hybrids of NK® (Syngenta Seeds). The Bt toxin is a protein that is formed naturally by *Bacillus thuringiensis* soil bacteria. Examples of toxins and transgenic plants able to synthesise such toxins are described in EP-A-451 878, EP-A-374 753, WO 93/07278, WO 95/34656, WO 03/052073 and EP-A-427 529. Examples of transgenic plants that contain one or more genes which code for an insecticidal resistance and express one or more toxins are KnockOut® (maize), Yield Gard® (maize), NuCOTIN33B® (cotton), Bollgard® (cotton), NewLeaf® (potatoes), NatureGard® and Protexcta®. Plant crops and their seed material can be resistant to herbicides and at the same time also to insect feeding ("stacked" transgenic events). Seed can, for example, have the ability to express an insecticidally active Cry3 protein and at the same time be glyphosate-tolerant. The term "crops" is to be understood as also including crops obtained as a result of conventional methods of breeding or genetic engineering which contain so-called output traits (e.g. improved flavour, storage stability, nutritional content).

Areas under cultivation are to be understood as including land where the crop plants are already growing as well as land intended for the cultivation of those crop plants.

The compounds of formula I according to the invention can also be used in combination with further herbicides. Preferably, in these mixtures, the compound of the formula I is one of those compounds listed in Tables 1 to 146 below. The following mixtures of the compound of formula I are especially important:

compound of formula I + acetochlor, compound of formula I + acifluorfen, compound of formula I + acifluorfen-sodium, compound of formula I + aclonifen, compound of formula I + acrolein,

compound of formula I + alachlor, compound of formula I + alloxydim, compound of formula I + allyl alcohol, compound of formula I + ametryn, compound of formula I + amicarbazone, compound of formula I + amidosulfuron, compound of formula I + aminopyralid, compound of formula I + amitrole, compound of formula I + ammonium sulfamate, compound of formula I + anilofos, compound of formula I + asulam, compound of formula I + atraton, compound of formula I + atrazine, compound of formula I + azimsulfuron, compound of formula I + BCPC, compound of formula I + beflubutamid, compound of formula I + benazolin, compound of formula I + benfluralin, compound of formula I + benfuresate, compound of formula I + bensulfuron, compound of formula I + bensulfuron-methyl, compound of formula I + bensulide, compound of formula I + bentazone, compound of formula I + benzfendizone, compound of formula I + benzobicyclon, compound of formula I + benzofenap, compound of formula I + bifenox, compound of formula I + bilanafos, compound of formula I + bispyribac, compound of formula I + bispyribac-sodium, compound of formula I + borax, compound of formula I + bromacil, compound of formula I + bromobutide, compound of formula I + bromoxynil, compound of formula I + butachlor, compound of formula I + butafenacil, compound of formula I + butamifos, compound of formula I + butralin, compound of formula I + butroxydim, compound of formula I + butylate, compound of formula I + cacodylic acid, compound of formula I + calcium chlorate, compound of formula I + cafenstrole, compound of formula I + carbetamide, compound of formula I + carfentrazone, compound of formula I + carfentrazone-ethyl, compound of formula I + CDEA, compound of formula I + CEPC, compound of formula I + chlorflurenol, compound of formula I + chlorflurenol-methyl, compound of formula I + chloridazon, compound of formula I + chlorimuron, compound of formula I + chlorimuron-ethyl, compound of formula I + chloroacetic acid, compound of formula I + chlorotoluron, compound of formula I + chlorpropham, compound of formula I + chlorsulfuron, compound of formula I + chlorthal, compound of formula I + chlorthal-dimethyl, compound of formula I + cinidon-ethyl, compound of formula I + cinmethylin, compound of formula I + cinosulfuron, compound of formula I + cisanilide, compound of formula I + clethodim, compound of formula I + clodinafop, compound of formula I + clodinafop-propargyl, compound of formula I + clomazone, compound of formula I + clomeprop, compound of formula I + clopyralid, compound of formula I + cloransulam, compound of formula I + cloransulam-methyl, compound of formula I + CMA, compound of formula I + 4-CPB, compound of formula I + CPMF, compound of formula I + 4-CPP, compound of formula I + CPPC, compound of formula I + cresol, compound of formula I + cumyluron, compound of formula I + cyanamide, compound of formula I + cyanazine, compound of formula I + cycloate, compound of formula I + cyclosulfamuron, compound of formula I + cycloxydim, compound of formula I + cyhalofop, compound of formula I + cyhalofop-butyl, compound of formula I + 2,4-D, compound of formula I + 3,4-DA, compound of formula I + daimuron, compound of formula I + dalapon, compound of

formula I + dazomet, compound of formula I + 2,4-DB, compound of formula I + 3,4-DB,
 compound of formula I + 2,4-DEB, compound of formula I + desmedipham, compound of formula
 I + dicamba, compound of formula I + dichlobenil, compound of formula I + ortho-
 dichlorobenzene, compound of formula I + para-dichlorobenzene, compound of formula I +
 dichlorprop, compound of formula I + dichlorprop-P, compound of formula I + diclofop, compound
 of formula I + diclofop-methyl, compound of formula I + diclosulam, compound of formula I +
 difenzoquat, compound of formula I + difenzoquat metilsulfate, compound of formula I +
 diflufenican, compound of formula I + diflufenzopyr, compound of formula I + dimefuron,
 compound of formula I + dimepiperate, compound of formula I + dimethachlor, compound of
 formula I + dimethametryn, compound of formula I + dimethenamid, compound of formula I +
 dimethenamid-P, compound of formula I + dimethipin, compound of formula I + dimethylarsinic
 acid, compound of formula I + dinitramine, compound of formula I + dinoterb, compound of
 formula I + diphenamid, compound of formula I + diquat, compound of formula I + diquat
 dibromide, compound of formula I + dithiopyr, compound of formula I + diuron, compound of
 formula I + DNOC, compound of formula I + 3,4-DP, compound of formula I + DSMA, compound
 of formula I + EBEP, compound of formula I + endothal, compound of formula I + EPTC,
 compound of formula I + esprocarb, compound of formula I + ethalfluralin, compound of formula I
 + ethametsulfuron, compound of formula I + ethametsulfuron-methyl, compound of formula I +
 ethofumesate, compound of formula I + ethoxyfen, compound of formula I + ethoxysulfuron,
 compound of formula I + etobenzanid, compound of formula I + fenoxaprop-P, compound of
 formula I + fenoxaprop-P-ethyl, compound of formula I + fentrazamide, compound of formula I +
 ferrous sulfate, compound of formula I + flamprop-M, compound of formula I + flazasulfuron,
 compound of formula I + florasulam, compound of formula I + fluazifop, compound of formula I +
 fluazifop-butyl, compound of formula I + fluazifop-P, compound of formula I + fluazifop-P-butyl,
 compound of formula I + flucarbazone, compound of formula I + flucarbazone-sodium,
 compound of formula I + flucetosulfuron, compound of formula I + fluchloralin, compound of
 formula I + flufenacet, compound of formula I + flufenpyr, compound of formula I + flufenpyr-
 ethyl, compound of formula I + flumetsulam, compound of formula I + flumiclorac, compound of
 formula I + flumiclorac-pentyl, compound of formula I + flumioxazin, compound of formula I +
 fluometuron, compound of formula I + fluoroglycofen, compound of formula I + fluoroglycofen-
 ethyl, compound of formula I + flupropanate, compound of formula I + flupyrsulfuron, compound
 of formula I + flupyrsulfuron-methyl-sodium, compound of formula I + flurenol, compound of
 formula I + fluridone, compound of formula I + flurochloridone, compound of formula I +
 fluroxypyr, compound of formula I + flurtamone, compound of formula I + fluthiacet, compound of
 formula I + fluthiacet-methyl, compound of formula I + fomesafen, compound of formula I +
 foramsulfuron, compound of formula I + fosamine, compound of formula I + glufosinate,

compound of formula I + glufosinate-ammonium, compound of formula I + glyphosate, compound of formula I + halosulfuron, compound of formula I + halosulfuron-methyl, compound of formula I + haloxyfop, compound of formula I + haloxyfop-P, compound of formula I + HC-252, compound of formula I + hexazinone, compound of formula I + imazamethabenz, compound of formula I + imazamethabenz-methyl, compound of formula I + imazamox, compound of formula I + imazapic, compound of formula I + imazapyr, compound of formula I + imazaquin, compound of formula I + imazethapyr, compound of formula I + imazosulfuron, compound of formula I + indanofan, compound of formula I + iodomethane, compound of formula I + iodosulfuron, compound of formula I + iodosulfuron-methyl-sodium, compound of formula I + ioxynil, compound of formula I + isoproturon, compound of formula I + isouron, compound of formula I + isoxaben, compound of formula I + isoxachlortole, compound of formula I + isoxaflutole, compound of formula I + karbutilate, compound of formula I + lactofen, compound of formula I + lenacil, compound of formula I + linuron, compound of formula I + MAA, compound of formula I + MAMA, compound of formula I + MCPA, compound of formula I + MCPA-thioethyl, compound of formula I + MCPB, compound of formula I + mecoprop, compound of formula I + mecoprop-P, compound of formula I + mefenacet, compound of formula I + mefluidide, compound of formula I + mesosulfuron, compound of formula I + mesosulfuron-methyl, compound of formula I + mesotrione, compound of formula I + metam, compound of formula I + metamifop, compound of formula I + metamitron, compound of formula I + metazachlor, compound of formula I + methabenzthiazuron, compound of formula I + methylarsonic acid, compound of formula I + methyldymron, compound of formula I + methyl isothiocyanate, compound of formula I + metobenzuron, compound of formula I + metolachlor, compound of formula I + S-metolachlor, compound of formula I + metosulam, compound of formula I + metoxuron, compound of formula I + metribuzin, compound of formula I + metsulfuron, compound of formula I + metsulfuron-methyl, compound of formula I + MK-616, compound of formula I + molinate, compound of formula I + monolinuron, compound of formula I + MSMA, compound of formula I + naproanilide, compound of formula I + napropamide, compound of formula I + naptalam, compound of formula I + neburon, compound of formula I + nicosulfuron, compound of formula I + nonanoic acid, compound of formula I + norflurazon, compound of formula I + oleic acid (fatty acids), compound of formula I + orbencarb, compound of formula I + orthosulfamuron, compound of formula I + oryzalin, compound of formula I + oxadiargyl, compound of formula I + oxadiazon, compound of formula I + oxasulfuron, compound of formula I + oxaziclonefone, compound of formula I + oxyfluorfen, compound of formula I + paraquat, compound of formula I + paraquat dichloride, compound of formula I + pebulate, compound of formula I + pendimethalin, compound of formula I + penoxsulam, compound of formula I + pentachlorophenol, compound of formula I + pentanochlor, compound of formula I + pentoxazone, compound of formula I + pethoxamid, compound of formula I + petroleum oils,

compound of formula I + phenmedipham, compound of formula I + phenmedipham-ethyl,
 compound of formula I + picloram, compound of formula I + picolinafen, compound of formula I +
 pinoxaden, compound of formula I + piperophos, compound of formula I + potassium arsenite,
 compound of formula I + potassium azide, compound of formula I + pretilachlor, compound of
 formula I + primisulfuron, compound of formula I + primisulfuron-methyl, compound of formula I +
 prodiamine, compound of formula I + profluazol, compound of formula I + profoxydim, compound
 of formula I + prometon, compound of formula I + prometryn, compound of formula I +
 propachlor, compound of formula I + propanil, compound of formula I + propaquizafop,
 compound of formula I + propazine, compound of formula I + propham, compound of formula I +
 propisochlor, compound of formula I + propoxycarbazone, compound of formula I +
 propoxycarbazone-sodium, compound of formula I + propyzamide, compound of formula I +
 prosulfocarb, compound of formula I + prosulfuron, compound of formula I + pyraclostrobin,
 compound of formula I + pyraflufen, compound of formula I + pyraflufen-ethyl, compound of
 formula I + pyrazolynate, compound of formula I + pyrazosulfuron, compound of formula I +
 pyrazosulfuron-ethyl, compound of formula I + pyrazoxyfen, compound of formula I +
 pyribenzoxim, compound of formula I + pyributicarb, compound of formula I + pyridafol,
 compound of formula I + pyridate, compound of formula I + pyriftalid, compound of formula I +
 pyriminobac, compound of formula I + pyriminobac-methyl, compound of formula I +
 pyrimisulfan, compound of formula I + pyrithiobac, compound of formula I + pyrithiobac-sodium,
 compound of formula I + quinclorac, compound of formula I + quinmerac, compound of formula I
 + quinclamine, compound of formula I + quizalofop, compound of formula I + quizalofop-P,
 compound of formula I + rimsulfuron, compound of formula I + sethoxydim, compound of formula
 I + siduron, compound of formula I + simazine, compound of formula I + simetryn, compound of
 formula I + SMA, compound of formula I + sodium arsenite, compound of formula I + sodium
 azide, compound of formula I + sodium chlorate, compound of formula I + sulcotrione, compound
 of formula I + sulfentrazon, compound of formula I + sulfometuron, compound of formula I +
 sulfometuron-methyl, compound of formula I + sulfosate, compound of formula I + sulfosulfuron,
 compound of formula I + sulfuric acid, compound of formula I + tar oils, compound of formula I +
 2,3,6-TBA, compound of formula I + TCA, compound of formula I + TCA-sodium, compound of
 formula I + tebuthiuron, compound of formula I + tepraloxym, compound of formula I + terbacil,
 compound of formula I + terbutylazone, compound of formula I + terbutylazine, compound of
 formula I + terbutryn, compound of formula I + thenylchlor, compound of formula I + thiazopyr,
 compound of formula I + thifensulfuron, compound of formula I + thifensulfuron-methyl,
 compound of formula I + thiobencarb, compound of formula I + tiocarbamil, compound of formula
 I + topramezone, compound of formula I + tralkoxydim, compound of formula I + tri-allate,
 compound of formula I + triasulfuron, compound of formula I + triaziflam, compound of formula I

+ tribenuron, compound of formula I + tribenuron-methyl, compound of formula I + tricamba, compound of formula I + triclopyr, compound of formula I + trietazine, compound of formula I + trifloxysulfuron, compound of formula I + trifloxysulfuron-sodium, compound of formula I + trifluralin, compound of formula I + triflusulfuron, compound of formula I + triflusulfuron-methyl, compound of formula I + trihydroxytriazine, compound of formula I + tritosulfuron, compound of formula I + [3-[2-chloro-4-fluoro-5-(1-methyl-6-trifluoromethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidin-3-yl)phenoxy]-2-pyridyloxy]acetic acid ethyl ester (CAS RN 353292-31-6), compound of formula I + 4-[(4,5-dihydro-3-methoxy-4-methyl-5-oxo)-1H-1,2,4-triazol-1-ylcarbonylsulfamoyl]-5-methylthiophene-3-carboxylic acid (BAY636), compound of formula I + BAY747 (CAS RN 335104-84-2), compound of formula I + topramezone (CAS RN 210631-68-8), compound of formula I + 4-hydroxy-3-[[2-[(2-methoxyethoxy)methyl]-6-(trifluoromethyl)-3-pyridinyl]carbonyl]-bicyclo[3.2.1]oct-3-en-2-one (CAS RN 352010-68-5), and compound of formula I + 4-hydroxy-3-[[2-(3-methoxypropyl)-6-(difluoromethyl)-3-pyridinyl]carbonyl]-bicyclo[3.2.1]oct-3-en-2-one.

The mixing partners for the compound of formula I may also be in the form of esters or salts, as mentioned e.g. in The Pesticide Manual, 12th Edition (BCPC) 2000.

The compounds of formula I according to the invention can also be used in combination with safeners. Preferably, in these mixtures, the compound of the formula I is one of those compounds listed in Tables 1 to 146 below. The following mixtures with safeners, especially, come into consideration:

compound of formula I + cloquintocet-mexyl, compound of formula I + cloquintocet acid and salts thereof, compound of formula I + fenclorazole-ethyl, compound of formula I + fenclorazole acid and salts thereof, compound of formula I + mefenpyr-diethyl, compound of formula I + mefenpyr diacid, compound of formula I + isoxadifen-ethyl, compound of formula I + isoxadifen acid, compound of formula I + furilazole, compound of formula I + furilazole R isomer, compound of formula (I) + N-(2-methoxybenzoyl)-4-[(methylaminocarbonyl)amino]benzenesulfonamide, compound of formula I + benoxacor, compound of formula I + dichlormid, compound of formula I + AD-67, compound of formula I + oxabetrinil, compound of formula I + cyometrinil, compound of formula I + cyometrinil Z-isomer, compound of formula I + fenclorim, compound of formula I + cyprosulfamide, compound of formula I + naphthalic anhydride, compound of formula I + flurazole, compound of formula I + CL 304,415, compound of formula I + dicyclonon, compound of formula I + fluxofenim, compound of formula I + DKA-24, compound of formula I + R-29148 and compound of formula I + PPG-1292. A safening effect can also be observed for the mixtures

compound of the formula I + dymron, compound of the formula I + MCPA, compound of the formula I + mecoprop and compound of the formula I + mecoprop-P.

The above-mentioned safeners and herbicides are described, for example, in the Pesticide Manual, Twelfth Edition, British Crop Protection Council, 2000. R-29148 is described, for example by P.B. Goldsbrough *et al.*, Plant Physiology, (2002), Vol. 130 pp. 1497-1505 and references therein, PPG-1292 is known from WO9211761 and N-(2-methoxybenzoyl)-4-[(methylaminocarbonyl)amino]benzenesulfonamide is known from EP365484.

Benoxacor, cloquintocet-mexyl, cyprosulfamide, mefenpyr-diethyl and N-(2-methoxybenzoyl)-4-[(methylaminocarbonyl)amino]benzenesulfonamide are especially preferred, where cloquintocet-mexyl is particularly valuable.

It is preferred to apply the other herbicide together with one of the safeners mentioned above.

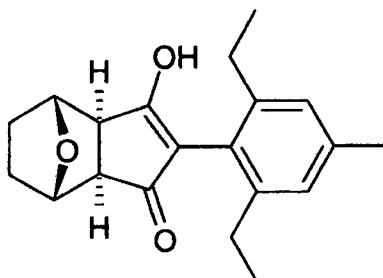
The following Examples illustrate the invention further but do not limit the invention.

Preparation Examples:

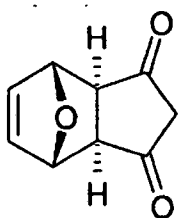
Those skilled in the art will appreciate that certain compounds described below are β -ketoenols, and as such may exist as a single tautomer or as a mixture of keto-enol and diketone tautomers, as described, for example by J. March, Advanced Organic Chemistry, third edition, John Wiley and Sons. The compounds shown below, and in Table T1 are drawn as an arbitrary single enol tautomer, but it should be inferred that this description covers both the diketone form and any possible enols which could arise through tautomerism. Where more than one tautomer is observed in proton NMR, the data shown are for the mixture of tautomers. Furthermore, some of the compounds shown below are drawn as single enantiomers for the purposes of simplicity, but unless specified as single enantiomers, these structures should be construed as representing a mixture of enantiomers. Additionally, some of the compounds can exist as diastereoisomers, and it should be inferred that these can be present as a mixture of diastereoisomers or as any possible single diastereoisomer. Within the detailed experimental section the diketone tautomer is chosen for naming purposes, even if the predominant tautomer is the enol form.

Example 1

Preparation of (1RS,2SR,6RS,7SR)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

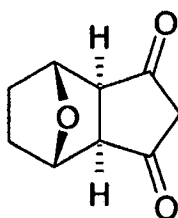


Step 1: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-ene-3,5-dione.



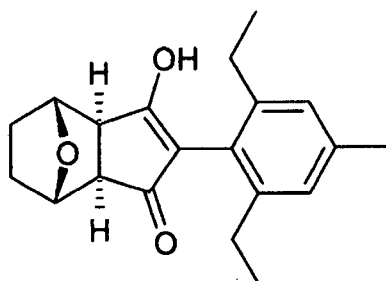
Furan (13.9 ml, 0.19 mol) is added to cyclopentene-1,4-dione (18.4 g, 0.19 mol) and the reaction mixture is stirred at room temperature for 5 days. The mixture is diluted with methanol and (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-ene-3,5-dione is collected by filtration, and used without further purification in the next step.

Step 2: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.



(1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-ene-3,5-dione (2.1 g, 12.8 mmol), prepared in Step 1, is dissolved in warm methanol (180 ml) and the mixture is allowed to cool to room temperature. The mixture is then hydrogenated in the presence of 5% palladium on carbon (approx. 50 mg) at 3.5 bar for 4 hours. The catalyst is removed by filtration through diatomaceous earth and the filtrate is concentrated under reduced pressure to afford (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

Step 3: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.



Iodobenzene diacetate (10.3 g, 32.0 mol) and sodium carbonate (3.38 g, 32.0 mmol) are suspended in water (100 ml) and the resultant yellow suspension is stirred at room temperature for 30 minutes. Meanwhile, (1R,2SR,6RS,7SR)-10-oxatricyclo[5.2.1.0^{2,6}]decan-3,5-dione (5.3 g, 32.0 mol) is added to a solution of sodium carbonate (3.38 g, 32.0 mol) in water (50 ml) and ethanol (50 ml) and the mixture is stirred at room temperature to produce an orange solution. The two mixtures are combined and stirred for 3 hours at room temperature, then the mixture is poured into water and extracted with dichloromethane. The organic extracts are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate evaporated under reduced pressure to give an iodonium ylide, used without further purification in the next step.

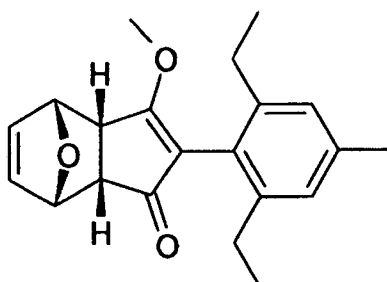
The iodonium ylide (3 g, 8.15 mmol), prepared above, is added to a solution of 2,6-diethyl-4-methylphenylboronic acid (1.57 g, 8.15 mmol), tetrabutylammonium bromide (2.63 g, 8.15 mmol), lithium hydroxide monohydrate (1.03 g, 24.5 mmol) and palladium (II) acetate (92 mg, 0.41 mmol) in 1,2-dimethoxyethane (80 ml) and water (20 ml) and the reaction mixture is heated at 50°C for 5 hours under an atmosphere of nitrogen. The reaction mixture is cooled to room temperature and partitioned between dilute aqueous hydrochloric acid and ethyl acetate. The organic phase is then extracted into 0.5 M aqueous potassium carbonate solution and the organic phase discarded. The aqueous phase is acidified with concentrated hydrochloric acid and extracted with ethyl acetate. The organic extract is dried over anhydrous magnesium sulfate, filtered and the filtrate concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to afford (1R,2SR,6RS,7SR)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decan-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 6.88 – 6.87 (2H, m), 4.55 – 4.54 (2H, m), 2.62 (2H, s), 2.36 – 2.27 (7H, m), 1.69 – 1.67 (2H, m), 1.40 – 1.39 (2H, m), 1.03 (6H, q).

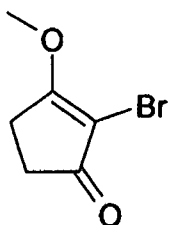
Example 2

Preparation of (1R,2RS,6SR,7SR)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one.

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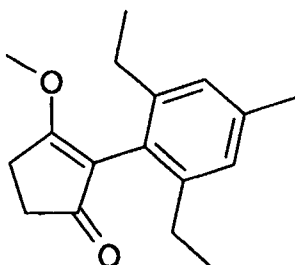


Step 1: Preparation of 2-bromo-3-methoxycyclopent-2-enone.



N-Bromosuccinimide (24.92 g, 0.140 mol) is added, portionwise, over 1 hour to a stirred solution of 3-methoxycyclopent-2-enone (14.95 g, 0.133 mol) in 1,2-dichloroethane (300 ml) at 0°C in an amber flask. The reaction mixture is stirred at 0°C for a further 90 minutes and then any remaining solid is removed by filtration. The filtrate is evaporated to dryness under reduced pressure, the resultant solid is dissolved in warm toluene (600 ml) and washed quickly with ice-cold water (2 x 100 ml). The organic phase is dried over anhydrous magnesium sulfate, filtered and the filtrate evaporated under reduced pressure until approximately 150 ml remains. The residue is cooled with an ice bath and left for 30 minutes. The resultant solid is removed by filtration, washed with hexane (50 ml) and air-dried to give 2-bromo-3-methoxycyclopent-2-enone.

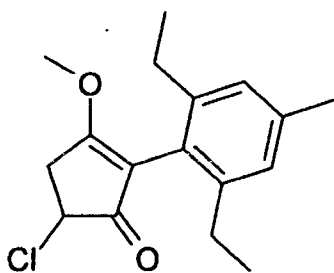
Step 2: Preparation of 2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone.



To a stirred suspension of 2-bromo-3-methoxycyclopent-2-enone (17.5 g, 91.6 mmol), 2,6-diethyl-4-methylphenyl boronic acid (26.4 g, 137 mmol) and freshly powdered potassium phosphate (38.9 g, 183 mmol) in anhydrous, degassed toluene (450 ml) under a nitrogen atmosphere are added palladium (II) acetate (0.411 g, 1.83 mmol) and 2-dicyclohexylphosphino-

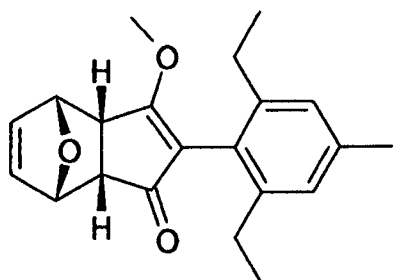
2,6'-dimethoxybiphenyl (1.51 g, 3.67 mmol). The reaction mixture is heated at 90°C for 6.5 hours and then allowed to cool to room temperature overnight. The reaction is diluted with water (400 ml) and extracted with ethyl acetate (3 x 150 ml). The combined organic extracts are washed with brine (50 ml), dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated to dryness under reduced pressure to give a brown oil. The crude product is purified by column chromatography on silica gel to give 2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone.

Step 3: Preparation of 5-chloro-2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone.



To a stirred solution of 2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone (0.715 g, 2.77 mmol) in 1,4-dioxane (45 ml), and under an atmosphere of nitrogen, are added copper (II) chloride (0.743 g, 5.53 mmol) and lithium chloride (0.176 g, 4.15 mmol). The reaction is heated at reflux for 7 hours and allowed to cool to room temperature overnight. The remaining solid is removed by filtration and washed with ethyl acetate (50 ml). The filtrate is washed with water (2 x 25 ml) and the aqueous washings re-extracted with ethyl acetate (15 ml). The combined organic phases are washed with brine (15 ml), dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure to give a brown oil. The crude product is purified by column chromatography on silica gel to give 5-chloro-2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone.

Step 4: Preparation of (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one.



To a stirred solution of 5-chloro-2-(2,6-diethyl-4-methylphenyl)-3-methoxycyclopent-2-enone (0.530 g, 1.81 mmol) in furan (40 ml) at room temperature is added by syringe pump over two

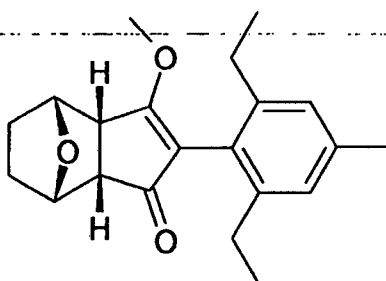
hours a solution of 1,8-diazabicyclo[5.4.0]undec-7-ene (0.540 ml, 3.62 mmol) in furan (10 ml). The reaction is stirred at room temperature for a further 30 minutes and then evaporated to dryness under reduced pressure. The residue is diluted with water (50 ml), 2 M aqueous hydrochloric acid (25 ml) is added and the mixture is extracted with ethyl acetate (3 x 50 ml). The combined organic extracts are washed with brine (20 ml), dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated to dryness under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxa-tricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one.

¹H NMR (400MHz, CDCl₃) δ_H 6.90 (2H, s), 6.45 (1H, dd), 6.35 (1H, dd), 5.30 (1H, d), 5.25 (1H, d), 3.65 (3H, s), 3.65 (1H, dd), 3.45 (1H, dd), 2.35 (4H, m), 2.30 (3H, s), 1.10 (6H, m).

Note: A quantity of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one is also formed during the course of this reaction.

Example 3

Preparation of (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

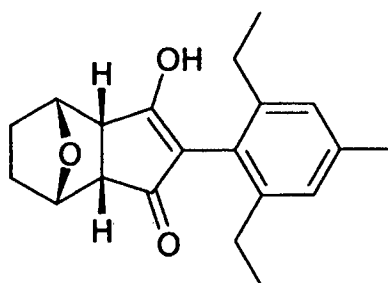


To a solution of (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one (0.052 g, 0.16 mmol) in methanol (10 ml) is added 5% palladium on carbon (10 mg). The reaction is stirred under an atmosphere of hydrogen for 90 minutes. The reaction is filtered through diatomaceous earth and the filter pad is washed with ethyl acetate (10 ml). The solvent is removed under reduced pressure to yield (1*RS*,2*RS*,6-*SR*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxa-tricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

¹H NMR (400MHz, CDCl₃) δ_H 6.90 (2H, m), 4.85 (2H, m), 3.70 (3H, s), 3.60 (1H, m), 3.35 (1H, dd), 2.50 (2H, m), 2.35 (2H, m), 2.30 (3H, s), 1.90-1.75 (4H, m), 1.20 (3H, t), 1.10 (3H, t).

Example 4

Preparation of (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

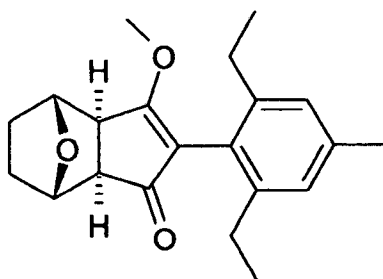


To a solution of (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one (0.049 g, 0.15 mmol) in THF (1 ml) in a 5 ml microwave vial is added 2 M aqueous hydrochloric acid (4 ml). The reaction mixture is at 140 °C under microwave irradiation for 50 minutes. The reaction mixture is cooled to room temperature, diluted with 2 M aqueous potassium carbonate solution (20 ml) and washed with diethyl ether (2 x 5 ml). The pH of the aqueous phase is adjusted to approx. 2 by addition of 5 M aqueous hydrochloric acid and then extracted with ethyl acetate (3 x 10 ml). The combined organic extracts are washed with brine (10 ml), dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated to dryness under reduced pressure to give a yellow oil. The crude product is purified by column chromatography on-silica gel to give (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

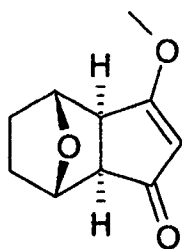
¹H NMR (400MHz, CDCl₃) δ_H 6.95 (2H, s), 4.75 (2H, br), 3.40 (2H, br), 2.45 (2H, q), 2.35 (2H, q), 2.30 (3H, s), 1.80 (4H, m), 1.15 (3H, t), 1.05 (3H, t).

Example 5

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

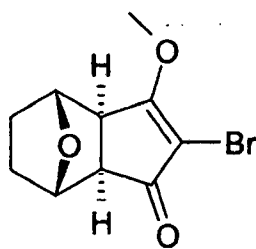


Step 1: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.



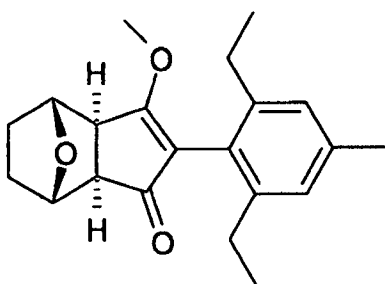
Iodine (0.10 g, 0.38 mmol) is added to a solution of (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione (2.1 g, 12.65 mmol) in methanol (50 ml) and the reaction mixture is stirred for 2 hours at room temperature. The solvent is then removed under reduced pressure, dichloromethane is added and the organic layer is washed with saturated aqueous sodium thiosulfate solution, water and brine. The organic layer is dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure to give (1*RS*,2*SR*,6*RS*,7*SR*)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one and used without further purification in the next step.

Step 2: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-bromo-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.



A solution of bromine (0.14 ml, 2.8 mmol) in dichloromethane (5 ml) is added dropwise to a solution of the enol ether (0.48 g, 2.6 mmol) prepared in step 1 in dichloromethane (40 ml) at 0° C and the reaction mixture is stirred for 1 hour. Triethylamine (0.64 ml, 4.6 mmol) is then added and the reaction mixture is allowed to warm to room temperature and then stirred for 3 hours. The reaction mixture is washed with 2M aqueous hydrochloric acid and brine, dried over anhydrous magnesium sulfate, filtered and the filtrate evaporated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-bromo-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

Step 3: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

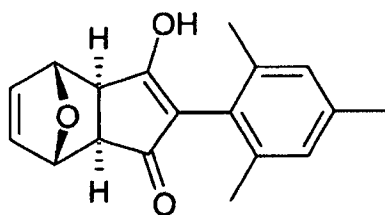


A mixture of (1*RS*,2*SR*,6*RS*,7*SR*)-4-bromo-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one (0.315 g, 1.2 mmol), 2,6-diethyl-4-methylphenylboronic acid (0.35 g, 1.8 mmol), 2-dicyclohexylphosphino-2',6'-dimethoxybiphenyl (20 mg, 0.048 mmol), palladium (II) acetate (5.5 mg, 0.024 mmol) and potassium phosphate (0.51 g, 2.4 mmol) are heated in degassed toluene at 95 °C for 24 hours. The reaction mixture is partitioned between dichloromethane and water, and the organic phase is dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-5-methoxy-10-oxatricyclo[5.2.1.0^{2,6}]dec-4-en-3-one.

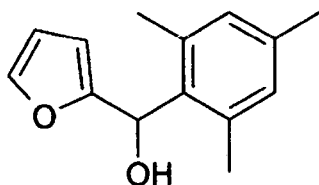
¹H NMR (400MHz, CDCl₃) δ_H 6.90 (1H, s), 6.80 (1H, s), 4.73 (1H, d), 4.66 (1H, d), 3.58 (3H, s), 2.91 (1H, d), 2.66 (1H, d), 2.50 – 2.36 (4H, m), 2.30 (3H, s), 1.88 -1.81 (2H, m), 1.62 – 1.56 (2H, m), 1.12 – 1.09 (6H, m).

Example 6

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

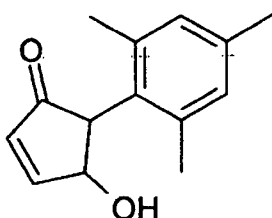


Step 1: Preparation of (2,4,6-trimethylphenyl)furan-2-ylmethanol.



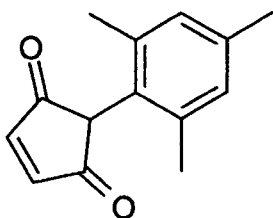
A solution of 2,4,6-trimethyl-1-bromobenzene (30.9 g, 155 mmol) in tetrahydrofuran (100 ml) is added slowly to magnesium turnings (3.77 g, 155 mmol), until the magnesium is just covered. A small quantity of iodine is added and the mixture is allowed to stand at room temperature for 25 minutes and then heated and stirred until the brown colour is lost. The remainder of the aryl bromide solution is added dropwise over a 20 minute period, with occasional heating to maintain the formation of the Grignard reagent solution. The reaction is stirred at room temperature for 1 hour. A solution of furfural (12.8 ml, 155 mmol) in tetrahydrofuran (70 ml) is added dropwise, and once the addition is complete, the reaction is stirred at room temperature for 2 hours. The reaction is quenched by cautious addition of excess saturated ammonium chloride solution, then extracted into ethyl acetate, washed with brine, dried over anhydrous magnesium sulfate, filtered and concentrated under reduced pressure. Purification by column chromatography on silica gel affords (2,4,6-trimethylphenyl)furan-2-ylmethanol.

Step 2: Preparation of 5-(2,4,6-trimethylphenyl)-4-hydroxycyclopent-2-enone.



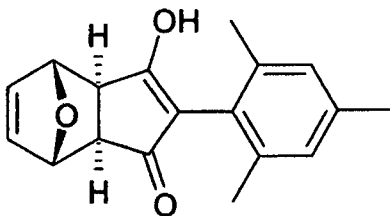
A solution of (2,4,6-trimethylphenyl)furan-2-ylmethanol (27.8 g, 129 mmol) in acetone (730 ml) and water (100 ml) is heated to 55 °C and polyphosphoric acid (2 g) is added. The mixture is stirred at 55 °C for 7 hours, then cooled to room temperature overnight. The reaction mixture is concentrated under reduced pressure to remove most of the acetone then ethyl acetate (500 ml) is added, and the reaction mixture is partitioned. The aqueous phase is extracted into ethyl acetate and the organic solutions are combined, washed with saturated aqueous sodium bicarbonate solution and brine, dried over anhydrous magnesium sulfate, filtered and the filtrate is concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give 5-(2,4,6-trimethylphenyl)-4-hydroxycyclopent-2-enone.

Step 3: Preparation of 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione.



Jones' reagent (138 ml of 1.67 M solution, 230 mmol) is added dropwise over 40 minutes to a cooled (ice-bath) solution of 5-(2,4,6-trimethylphenyl)-4-hydroxycyclopent-2-enone (49.66 g, 230 mmol) in acetone (600 ml). The mixture is stirred for 1 hour. Isopropanol (100 ml) is added and the mixture is stirred at room temperature for 2 hours. The mixture is diluted with ethyl acetate and washed with brine, dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure to give 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione.

Step 4: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.



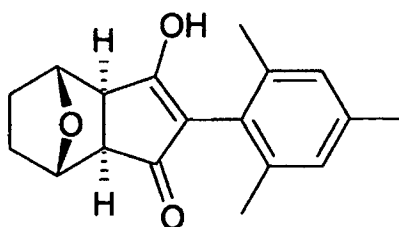
Furan (214 ml, 3.15 mol) and magnesium iodide (7.0 g, 0.025 mol) are added to 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione (27.0 g, 0.126 mol) and the mixture is stirred at room temperature for 4 days. The reaction mixture is concentrated under reduced pressure and the residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 6.86 (2H, s), 6.47 (2H, s), 5.01 (2H, s), 2.74 (2H, s), 2.23 (3H, s), 2.08 (3H, s), 2.06 (3H, s).

Example 7

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

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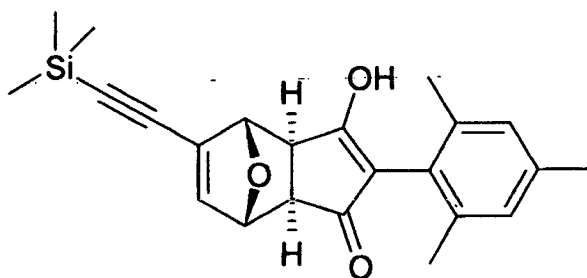


A solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (205 mg, 0.66 mmol) in methanol (250 ml) is hydrogenated at 2 bar over 5% palladium on carbon (approximately 20 mgs) for 1 hour at room temperature. The catalyst is removed by filtration through diatomaceous earth and the solvent is evaporated under reduced pressure. Trituration with diethyl ether gives (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 6.88 (2H, s), 4.61 (2H, s), 2.87 (2H, s), 2.27 (3H, s), 2.06 (6H, s), 1.84 – 1.82 (2H, m), 1.71 – 1.66 (2H, m).

Example 8

Preparation of (1*RS*,2*SR*,6*RS*,7*RS*)-4-(2,4,6-trimethylphenyl)-8-trimethylsilylethynyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

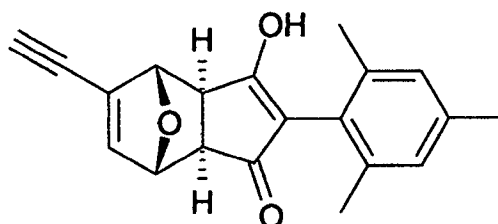


3-(Trimethylsilylethynyl)furan (10.0 g, 61 mmol) and magnesium iodide (1.11 g, 4 mmol) are added to 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione (4.34 g, 20 mmol) and the mixture is stirred at room temperature for 3 days. The reaction mixture is concentrated under reduced pressure and the residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*RS*)-4-(2,4,6-trimethylphenyl)-8-trimethylsilylethynyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 6.65 (2H, s), 6.26 (1H, s), 4.75 (1H, s), 4.67 (1H, s), 2.62 (1H, d), 2.52 (1H, d), 2.03 (3H, s), 1.84 (3H, s), 1.80 (3H, s), 0.00 (9H, s).

Example 9

Preparation of (1*RS*,2*SR*,6*RS*,7*RS*)-8-ethynyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

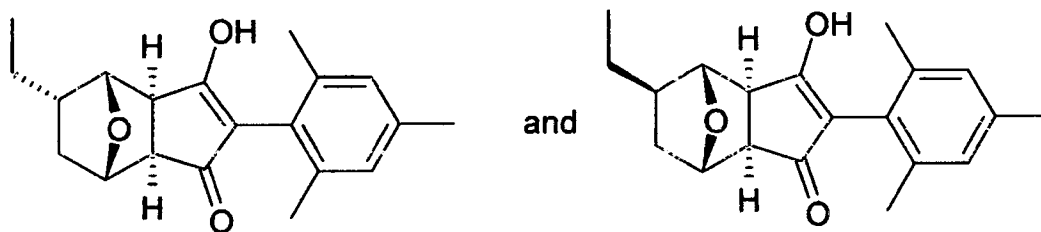


Potassium carbonate (2.58 g, 19 mmol) is added to a stirred solution of (1*RS*,2*SR*,6*RS*,7*RS*)-4-(2,4,6-trimethylphenyl)-8-trimethylsilylethynyl-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione (6.43 g, 17 mmol) in methanol (100 ml). The reaction mixture is stirred at room temperature for 2 hours and 30 minutes, then dilute aqueous hydrochloric acid is added and the mixture is extracted with ethyl acetate. The organic extracts are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure to give (1*RS*,2*SR*,6*RS*,7*RS*)-8-ethynyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 6.85 (2H, s), 6.72 (1H, d), 5.03 (1H, d), 3.96 (1H, s), 2.92 - 2.88 (2H, m), 2.24 (3H, s), 2.06 (3H, s), 2.01 (3H, s).

Example 10

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione and (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione



A solution of (1*RS*,2*SR*,6*RS*,7*RS*)-8-ethynyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione (1.0 g, 3.3 mmol) in methanol (100 ml) and dichloromethane (100 ml) is hydrogenated at 3.5 bar over 5% palladium on carbon (approximately 50 mg) until the reaction is judged to be complete by mass spectrometry. The catalyst is removed by filtration through diatomaceous earth and the solvent is evaporated under reduced pressure. Purification by column chromatography on silica gel gives an approximately 1:1 mixture of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-

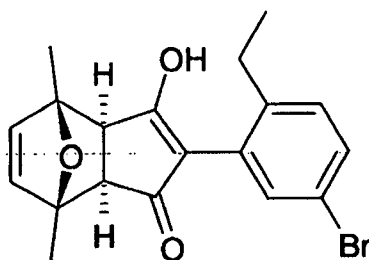
dione and (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

(1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione: ¹H NMR (400MHz, CDCl₃) δ_H 6.82 (2H, s), 4.44 (1H, d), 4.24 (1H, s), 2.45 - 2.40 (2H, m), 2.22 (3H, s), 2.02 (6H, s), 1.58 - 1.52 (2H, m), 1.38 - 1.33 (1H, m), 1.25 - 1.16 (2H, m), 0.85 - 0.82 (3H, m).

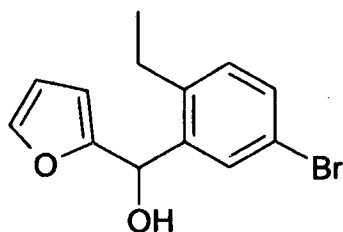
(1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-ethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione: ¹H NMR (400MHz, CDCl₃) δ_H 6.85 (2H, s), 4.51 (1H, d), 4.43 (1H, d), 3.07 (1H, d), 2.82 - 2.81 (1H, m), 2.24 (3H, s), 2.10 - 2.05 (2H, m), 2.04 (6H, s), 1.87 - 1.79 (1H, m), 1.53 - 1.46 (2H, m), 1.00 (3H, t).

Example 11

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.



Step 1: Preparation of (5-bromo-2-ethylphenyl)furan-2-ylmethanol

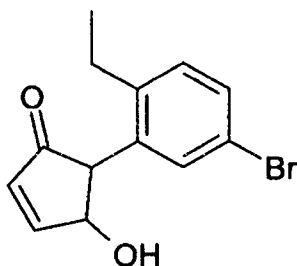


4-Bromo-2-iodoethyl benzene (50.0 g, 0.161 mol) is dissolved in anhydrous tetrahydrofuran (250 ml) and cooled to -70 °C under an atmosphere of nitrogen. Isopropylmagnesium chloride (2 M solution in THF, 100 ml, 0.200 mmol) is added dropwise with vigorous stirring over 40 minutes, maintaining the internal temp below -60 °C by external cooling. When the addition is complete, the reaction is stirred at -70 °C for 20 minutes then allowed to warm to room temperature over 1 hour and 20 minutes. The reaction mixture is then cooled to -70 °C and a solution of 2-

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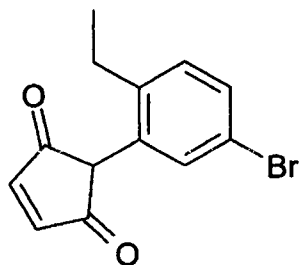
furaldehyde (16 ml, 18.6 g, 190 mmol) in tetrahydrofuran (50 ml) is added dropwise over 40 minutes. On completion of the addition, the reaction is allowed to warm to room temperature and stirred at room temperature for 3 hours. Saturated aqueous ammonium chloride solution (~500 ml) is added and the mixture is extracted into ethyl acetate. The organic solutions are combined, washed with brine, dried over anhydrous magnesium sulfate and concentrated under reduced pressure. The residue is further purified by column chromatography on silica gel to give (5-bromo-2-ethylphenyl)-furan-2-ylmethanol.

Step 2: Preparation of 5-(5-bromo-2-ethylphenyl)-4-hydroxycyclopent-2-enone.



A solution of (5-bromo-2-ethylphenyl)furan-2-ylmethanol (40.73 g, 0.145 mol) in acetone (1150 ml) and water (170 ml) is heated to 55 °C and 30 drops of polyphosphoric acid are added. The mixture is stirred at 55 °C for 44 hours, then cooled to room temperature. The reaction mixture is concentrated under reduced pressure to remove most of the acetone then ethyl acetate (500 ml) is added, and the reaction mixture is partitioned. The aqueous phase is extracted into ethyl acetate and the organic solutions are combined, washed with saturated aqueous sodium bicarbonate solution and brine, dried over anhydrous magnesium sulfate, filtered and the filtrate is concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give 5-(5-bromo-2-ethylphenyl)-4-hydroxycyclopent-2-enone.

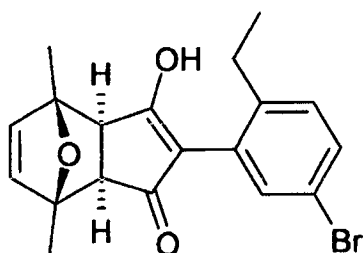
Step 3: Preparation of 2-(5-bromo-2-ethylphenyl)cyclopent-4-ene-1,3-dione.



Jones' reagent (75 ml of 1.67 M solution, 125 mmol) is added dropwise over 30 minutes to a cooled (ice-bath) solution of 5-(5-bromo-2-ethylphenyl)-4-hydroxycyclopent-2-enone (33 g, 117

mmol) in acetone (400 ml). The mixture is stirred for 20 minutes, then the cooling bath is removed and the mixture is stirred for 1 hour at room temperature. Isopropanol (150 ml) is added to the yellow slurry and the mixture is stirred at room temperature for 2 hours. The mixture is diluted with ethyl acetate and washed with brine, dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated under reduced pressure to give 2-(5-bromo-2-ethylphenyl)cyclopent-4-ene-1,3-dione.

Step 4: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

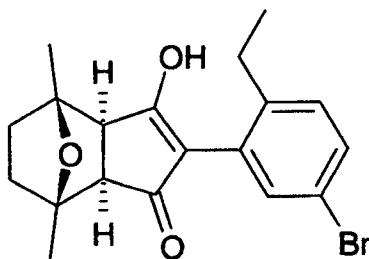


2,5-Dimethylfuran (2.3 ml, 21.6 mmol) and magnesium iodide (0.40 g, 1.4 mmol) are added to a solution of 2-(5-bromo-2-ethylphenyl)cyclopent-4-ene-1,3-dione (2.0 g, 7.2 mmol) in dichloromethane (10 ml) and the mixture is stirred at room temperature for 3 days. The reaction mixture is concentrated under reduced pressure and the residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 7.39 (1H, dd), 7.18 (1H, d), 7.16 (1H, d), 6.35 (2H, s), 2.79 (2H, s), 2.46 (2H, q), 1.61 (6H, s), 1.07 (3H, t).

Example 12

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.



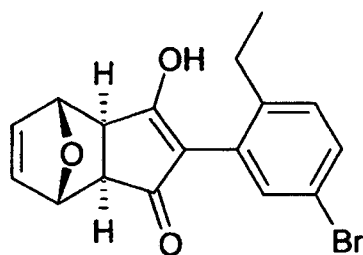
A solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (1.63 g, 4.3 mmol) in methanol (200 ml) is hydrogenated at 3.5 bar over 5% palladium on carbon for 1 hour and 30 minutes at room

temperature. The catalyst is removed by filtration through diatomaceous earth and the solvent is evaporated under reduced pressure. Trituration with diethyl ether gives (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-1,7-dimethyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 7.36 (1H, dd), 7.17 (1H, d), 7.15 (1H, d), 2.81 (2H, s), 2.48 – 2.43 (2H, m), 1.84 – 1.79 (2H, m), 1.69 – 1.65 (2H, m), 1.51 (6H, s), 1.08 (3H, t).

Example 13

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

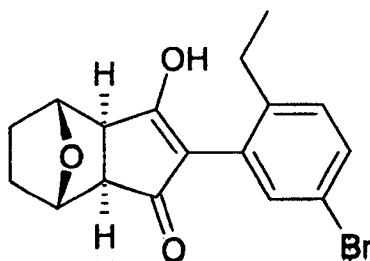


Furan (4.0 ml, 55.0 mmol) and magnesium iodide (1.00 g, 3.6 mmol) are added to a solution of 2-(5-bromo-2-ethylphenyl)cyclopent-4-ene-1,3-dione (5.0 g, 17.9 mmol) in dichloromethane (20 ml) and the mixture is stirred at room temperature for 3 days. A further quantity of furan (1.3 ml, 17.8 mmol) is added and stirring continued for 18 hours, and then a further quantity of furan (1.3 ml, 17.8 mmol) is added and the mixture is stirred for 48 hours, and then allowed to stand at room temperature for 5 days. The reaction mixture is dissolved in methanol and concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 7.37 (1H, dd), 7.17 (1H, d), 7.14 (1H, d), 6.54 (2H, s), 4.96 (2H, s), 2.79 (2H, s), 2.44 (2H, q), 1.06 (3H, t)

Example 14

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

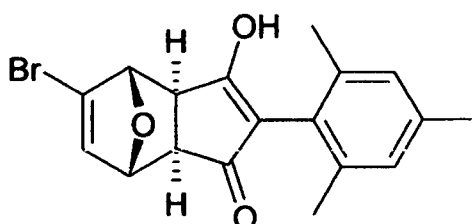


A solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]-dec-8-en-3,5-dione (3.00 g, 8.6 mmol) in methanol (250 ml) is hydrogenated at 3.5 bar over 5% palladium on carbon for 2 hours at room temperature. The catalyst is removed by filtration through diatomaceous earth and the solvent is evaporated under reduced pressure to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-ethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, d₄-MeOH) δ_H 7.34 (1H, dd), 7.15 (2H, d), 4.59 (2H, s), 2.78 (2H, s), 2.43 (2H, q), 1.81 – 1.78 (2H, m), 1.66 – 1.61 (2H, m), 1.06 (3H, t).

Example 15

Preparation of (1*RS*,2*RS*,6*SR*,7*SR*)-8-bromo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

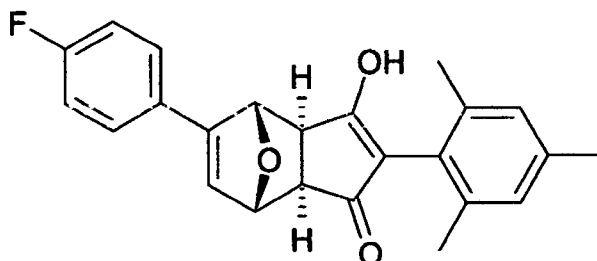


3-Bromofuran (5.2 g, 56 mmol) and magnesium iodide (1.5 g, 5.6 mmol) are added to 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione (4.0 g, 18.7 mmol) and the mixture is stirred at room temperature for 2 days; small quantities of dichloromethane are added when required to aid stirring. The reaction mixture is allowed to stand at room temperature for 17 hours, then concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*RS*,6*SR*,7*SR*)-8-bromo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 6.87 (2H, s), 6.40 (1H, d), 4.95 (1H, s), 4.82 (1H, s), 2.90 (1H, d), 2.81 (1H, d), 2.25 (3H, s), 2.07 (3H, s), 2.03 (3H, s).

Example 16

Preparation of (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

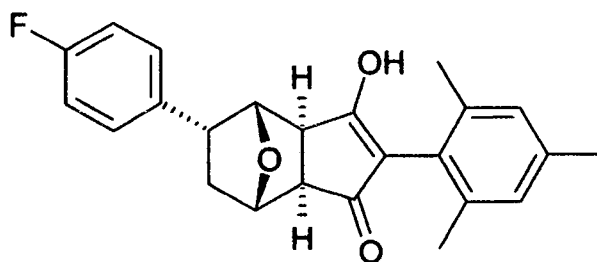


A mixture of (1*RS*,2*RS*,6*SR*,,7*SR*)-8-bromo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (300 mg, 0.82 mmol), 4-fluorophenylboronic acid (171 mg, 1.22 mmol), sodium 2'-dicyclohexylphosphino-2,6-dimethoxy-1,1'-biphenyl-3-sulfonate hydrate (17 mg, 0.03 mmol), potassium phosphate (522 mg, 2.5 mmol) and palladium acetate (4 mg, 0.02 mmol) in water (8 ml) are heated for 150°C for 25 minutes under microwave irradiation. The mixture is cooled to room temperature and dilute aqueous hydrochloric acid is added. The mixture is filtered and the filtrate is extracted with ethyl acetate. The organic extracts are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate is concentrated under reduced pressure. Purification by column chromatography on silica gel gives (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 7.35 - 7.32 (2H, m), 6.86 (1H, s), 6.85 (1H, s), 6.82 - 6.77 (2H, m), 6.37 (1H, d), 5.31 (1H, s), 5.03 (1H, d), 2.82 - 2.78 (2H, m), 2.25 (3H, s), 2.07 (3H, s), 2.05 (3H, s).

Example 17

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-(4-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.



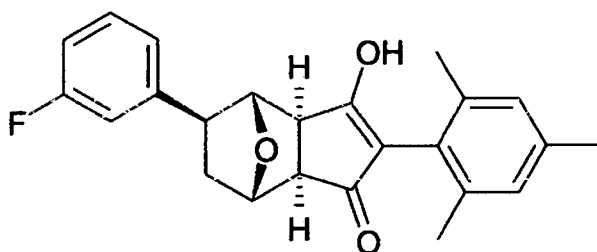
A suspension of (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (99 mg, 0.26 mmol) in methanol (20 ml) is hydrogenated at 3 bar over 5% palladium on carbon for 5 hours at room temperature. The catalyst is removed by filtration through diatomaceous earth and the solvent is evaporated under reduced pressure to

give (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-(4-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 7.39 (2H, dd), 7.11 (2H, t), 6.86 (1H, s), 6.85 (1H, s), 4.73 (1H, d), 4.68 (1H, d), 3.63 - 3.58 (1H, m), 2.94 (1H, d), 2.75 (1H, d), 2.38 - 2.30 (1H, m), 2.25 (3H, s), 2.08 (3H, s), 2.03 (3H, s), 1.92 (1H, dd).

Example 18

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-(3-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

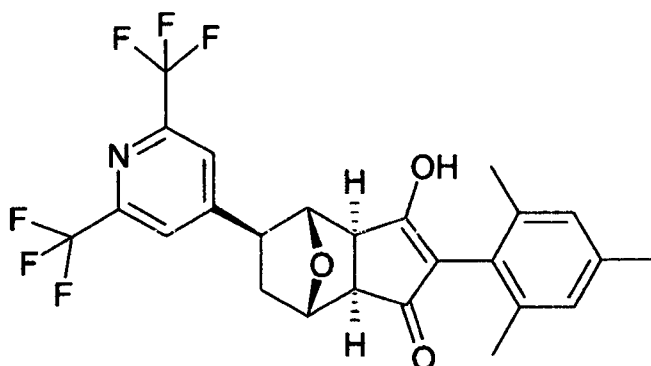


Bis(triphenylphosphine)palladium diacetate (20 mg, 0.024 mmol), 1-fluoro-3-iodo-benzene (104 mg, 0.47 mmol) and piperidine (0.16 ml, 1.6 mmol) are added to a solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (0.20 g, 0.71 mmol) in dry *N,N*-dimethylformamide (2 ml). Formic acid (0.06 ml, 1.6 mmol) is added and the reaction mixture is heated at 50 °C for 2 hours. The reaction mixture is cooled to room temperature, water (1ml) and dichloromethane (1 ml) are added, and the mixture is stirred for 1 hour. The two phases are separated, the organic phase collected and the solvent is evaporated. The residue is purified by preparative reverse-phase HPLC to give (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-(3-fluorophenyl)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 7.75 - 7.66 (1H, m), 7.25 - 7.21 (1H, m), 7.06 - 7.02 (2H, m), 6.88 (1H, s), 6.87 (1H, s), 4.83 (1H, br. s), 4.59 (1H, s), 3.00 - 2.98 (1H, m), 2.83 - 2.70 (2H, br. s), 2.25 (3H, s), 2.20 - 2.16 (1H, m), 2.09 (3H, s), 2.08 (3H, s), 1.92 - 1.89 (1H, m).

Example 19

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-[2,6-bis(trifluoromethyl)pyridin-4-yl]-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione

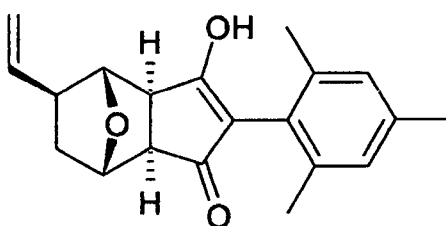


A mixture of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]dec-8-en-3,5-dione (400 mg, 1.4 mmol), 2,6-bis(trifluoromethyl)-4-chloropyridine (531 mg, 1.4 mmol), palladium acetate (16 mg, 0.07 mmol), 2'-dicyclohexylphosphino-2,6-dimethoxy-1,1'-biphenyl (67 mg, 0.14 mmol), potassium formate (353 mg, 4.2 mmol), tetrabutylammonium chloride (389 mg, 1.4 mmol) and copper iodide (53 mg, 0.28 mmol) in dry *N,N*-dimethylformamide (6 ml) are heated at 150 °C for 30 minutes under microwave irradiation. Purification by preparative reverse-phase HPLC gives (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-[2,6-bis(trifluoromethyl)pyridin-4-yl]-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz d₄-MeOH) δ_H 7.81 (1H, s), 7.26 (1H, s), 6.92 (1H, s), 6.90 (1H, s), 4.91 (1H, d), 4.64 (1H, s), 3.19 - 3.17 (1H, m), 2.99 - 2.95 (2H, m), 2.32 - 2.27 (1H, m), 2.26 (3H, s), 2.09 (3H, s), 2.07 (3H, s), 1.93 - 1.90 (1H, m).

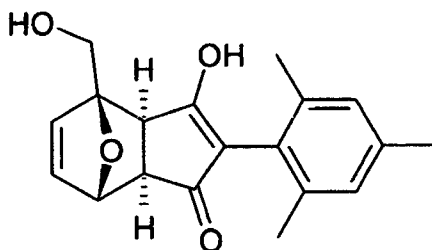
Example 20

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-4-(2,4,6-trimethylphenyl)-8-vinyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.



A mixture of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-3,5-dione (510 mg, 1.8 mmol), vinyl iodide (280 mg, 1.8 mmol), palladium acetate (20 mg, 0.09 mmol), sodium formate (454 mg, 5.4 mmol) and tetrabutylammonium chloride (500 mg, 1.8 mmol) in dry *N,N*-dimethylformamide (15 ml) are heated at 150 °C for 20 minutes under microwave irradiation. The mixture is cooled to room temperature and partitioned between water and ethyl acetate. The organic extracts are combined, dried over anhydrous magnesium sulfate, filtered

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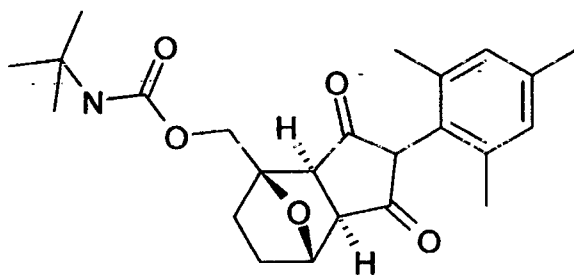


Furfuryl alcohol (4 ml, 46.7 mmol) is added to 2-(2,4,6-trimethylphenyl)cyclopent-4-ene-1,3-dione (2.0 g, 9.3 mmol) and MgI_2 (520 mg, 1.86 mmol) and the reaction is stirred for 17 hours. The reaction mixture is adsorbed onto silica gel and purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-ene-3,5-dione.

^1H NMR (400MHz, CDCl_3) δ_{H} 6.87 (2H, s), 6.49 (1H, d), 6.44 (1H, d), 4.96 (1H, d), 3.98 (1H, d), 3.85 (1H, d), 2.82-2.78 (2H, m), 2.24 (3H, s), 2.08 (3H, s), 2.05 (3H, s).

Example 23

Preparation of *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-3,5-dioxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-1-yl]methyl ester.



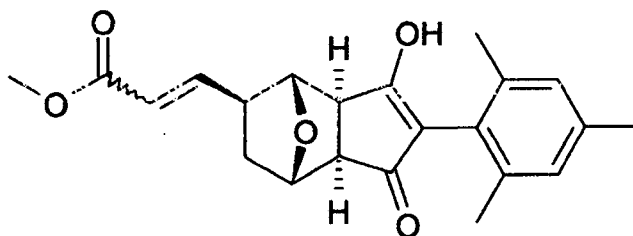
Step 1: Preparation of (1*RS*,2*SR*,6*SR*,7*SR*)-5-benzyloxy-7-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one and (1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one

and the filtrate is evaporated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-4-(2,4,6-trimethylphenyl)-8-vinyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 6.90 - 6.89 (2H, m), 5.80 - 5.71 (1H, m), 5.05 - 4.97 (2H, m), 4.68 (1H, d), 4.44 (1H, s), 2.81 - 2.76 (2H, m), 2.51 - 2.46 (1H, m), 2.26 (3H, s), 2.07 (3H, s), 2.06 (3H, s), 1.89 - 1.84 (1H, m), 1.67 - 1.62 (1H, m).

Example 21

Preparation of methyl [(1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-3,5-dioxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-yl]acrylate.



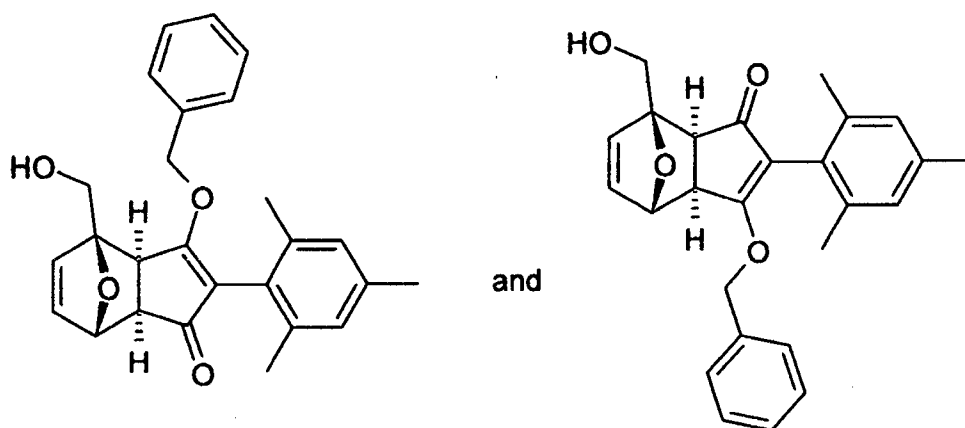
Benzylidene[1,3-bis(2,4,6-trimethylphenyl)-2-imidazolidinylidene]dichloro(tricyclohexylphosphine)ruthenium (14 mg, 0.016 mmol) is added to a suspension of (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-4-(2,4,6-trimethylphenyl)-8-vinyl-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione (100 mg, 0.32 mmol) and methyl acrylate (0.03 ml, 0.35 mmol) in dichloromethane (1 ml) and the mixture is stirred at reflux for 2 hours. The reaction mixture is cooled to room temperature, the solvent evaporated under reduced pressure and the residue is purified by column chromatography on silica gel to give methyl [(1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-3,5-dioxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-yl]acrylate. Proton NMR indicates the product comprises a mixture of *E*- and *Z*-isomers.

E-Isomer: ¹H NMR (400MHz, CDCl₃) δ_H 6.80 (2H, s), 6.74 (1H, dd), 5.91 (1H, d), 4.58 (1H, d), 4.30 (1H, s), 3.33 (3H, s), 2.85 - 2.77 (3H, m), 2.21 (3H, s), 1.97 (3H, s), 1.94 (3H, s), 1.94 - 1.91 (1H, m), 1.59 - 1.54 (1H, m).

Example 22

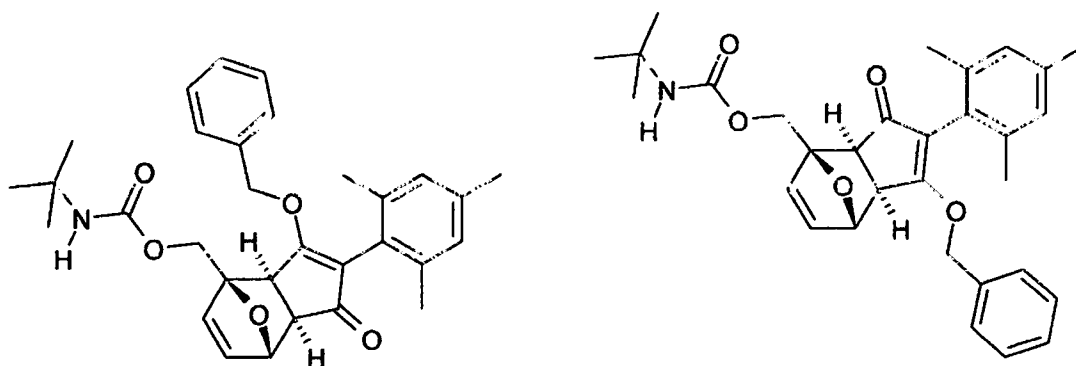
Preparation of (1*RS*,2*SR*,6*SR*,7*SR*)-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-ene-3,5-dione.

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Benzyl bromide (0.72 ml, 6.1 mmol) is added to a mixture of potassium carbonate (840 mg, 6.1 mmol) and (1*RS*,2*SR*,6*RS*,7*SR*)-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-8-ene-3,5-dione (1.80 g, 5.8 mmol) in acetone (80 ml), and the reaction mixture is heated at reflux for 4 hours. The reaction mixture is cooled to room temperature, diluted with water and extracted with ethyl acetate. The organic extracts are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate is concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give a mixture of (1*RS*,2*SR*,6*SR*,7*SR*)-5-benzyloxy-7-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one and (1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one.

Step 2: Preparation of *tert*-butyl carbamic acid [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benzyloxy-5-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester and *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-3-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester.

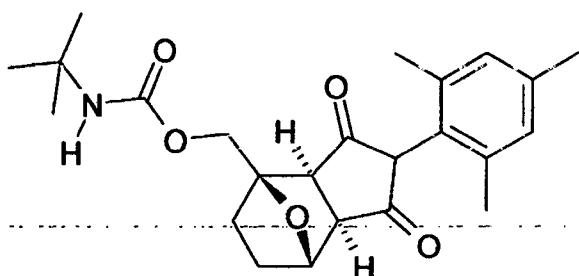


Sodium hydride (60 mg, 1.97 mmol) is added to a cooled (0 °C) mixture of (1*RS*,2*SR*,6*SR*,7*SR*)-5-benzyloxy-7-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-

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one and (1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-1-hydroxymethyl-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-3-one (265 mg, 0.66 mmol) in tetrahydrofuran (10 ml). The mixture is stirred for a few minutes and then *tert*-butyl isocyanate (0.15 ml, 1.32 mmol) is added. The reaction is allowed warm to room temperature and stirred for 17 hours. The mixture is partitioned between water and ethyl acetate, and the organic solutions are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate is evaporated. The residue is purified by column chromatography on silica gel to give a mixture of *tert*-butyl carbamic acid [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benzyloxy-5-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester and *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-3-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester.

Step 3: Preparation of *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-3,5-dioxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-1-yl]methyl ester.

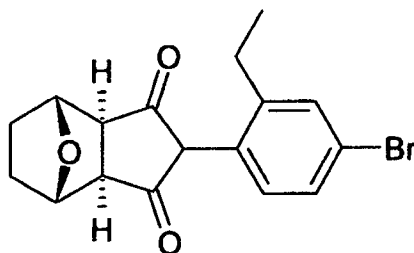


A suspension of a mixture of [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benzyloxy-5-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester and *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-5-benzyloxy-3-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]deca-4,8-dien-1-yl]methyl ester (147 mg, 0.29 mmol) in methanol (20 ml) is hydrogenated at 3 bar over 5% palladium on carbon for 5 hours. The catalyst is removed by filtration and the filtrate is concentrated under reduced pressure to give *tert*-butyl carbamic acid [(1*RS*,2*SR*,6*RS*,7*SR*)-3,5-dioxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-8-en-1-yl]methyl.

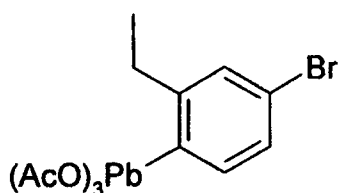
¹H NMR (400MHz, CDCl₃) δ_H 6.83 (2H, s), 5.02 (1H, s), 4.72 (1H, d), 4.65 (1H, d), 4.12 (1H, d), 2.83 (1H, d), 2.70 (1H, d), 2.23 (3H, s), 2.07 (3H, s), 2.06 (3H, s), 1.86 - 1.80 (2H, m), 1.57 - 1.45 (2H, m), 1.29 (9H, s).

Example 24

Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-ethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

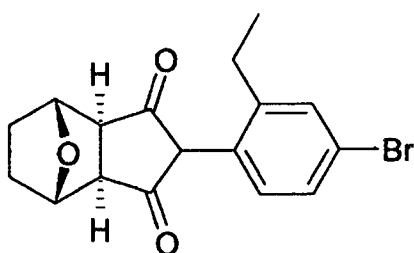


Step 1: Preparation of 4-bromo-2-ethylphenyllead triacetate.



Dry chloroform (30 ml) is added to a mixture of lead tetraacetate (8.52 g, 19.3 mmol) and mercuric diacetate (0.28 g, 0.875 mmol) under an atmosphere of nitrogen, and the reaction mixture is stirred and heated to 40 °C. 4-Bromo-2-ethylphenylboronic acid (4.0 g, 17.5 mmol) is added in one portion and the mixture is stirred at 40 °C for 4 hours. The reaction mixture is cooled to 0 °C, and potassium carbonate (2.66 g, 19.3 mmol) is added portionwise. The mixture is stirred for 5 minutes, then filtered through a small plug of diatomaceous earth, washing with chloroform. The filtrate concentrated under reduced pressure to give 4-bromo-2-ethylphenyllead triacetate.

Step 2: Preparation of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-ethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.



4-Dimethylaminopyridine (3.67 g, 30.0 mmol) and toluene (10 ml) are added to a solution of (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione (1.0 g, 6.0 mmol) in chloroform (40 ml) and the reaction mixture is heated to 80 °C. 4-Bromo-2-ethylphenyllead triacetate (5.13 g,

9.04 mmol) is added portionwise over 20 minutes, and once the addition is complete the reaction mixture is stirred at 80 °C for a further 4 hours. The mixture is cooled to room temperature, 2 M aqueous hydrochloric acid (40 ml) is added, and the mixture is stirred vigorously for 15 minutes, then filtered through a small plug of diatomaceous earth, washing with 40ml dichloromethane. The organic phase is separated, and the aqueous phase is extracted with dichloromethane (2 x 20 ml). The organic solutions are combined, dried over anhydrous magnesium sulfate, filtered and the filtrate is concentrated under reduced pressure. The residue is purified by column chromatography on silica gel to give (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-ethylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]decane-3,5-dione.

¹H NMR (400MHz, CDCl₃) δ_H 7.39 (1H, dd), 7.27-7.33 (1H, m), 6.97 (1H, dd), 4.68 (2H, m), 2.74 (2H, br. s), 2.48 (2H, q), 1.78-1.87 (2H, m), 1.56 (2H, m), 1.11 (3H, t).

Additional compounds in Table T1 below were prepared by similar methods using appropriate starting materials. It should be noted that certain compounds of the invention exist as a mixture of isomers noted above, under the conditions used to obtain the ¹H NMR data. Where this has occurred, the characterising data are reported for all isomers present at ambient temperature in the specified solvent. Unless otherwise stated, proton NMR spectra were recorded at ambient temperature. Compounds characterised by HPLC-MS were analysed using one of two methods described below.

Method A

Compounds characterised by HPLC-MS were analysed using an Waters 2777 injector with a 1525 micro pump HPLC equipped with a Waters Atlantis dC18 IS column (column length 20 mm, internal diameter of column 3 mm, particle size 3 micron), Waters 2996 photodiode array, Waters 2420 ELSD and Micromass ZQ2000. The analysis was conducted using a three minute run time, according to the following gradient table:

Time (mins)	Solvent A (%)	Solvent B (%)	Flow (ml / mn)
0.00	95.0	5	1.300
2.50	0.0	100	1.300
2.80	0.00	100	1.300
2.90	95.0	5	1.300

Solvent A: H₂O with 0.05% TFA

Solvent B: CH₃CN with 0.05% TFA

Method B

Compounds characterised by HPLC-MS were analysed using a Waters 2795 HPLC equipped with a Waters Atlantis dC18 column (column length 20 mm, internal diameter of column 3 mm, particle size 3 micron, temperature 40 °C), Waters photodiode array and Micromass ZQ2000. The analysis was conducted using a three minute run time, according to the following gradient table:

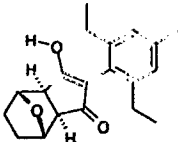
Time (mins)	Solvent A (%)	Solvent B (%)	Flow (ml / mn)
0.00	90.0	10.0	2.00
0.25	90.0	100	2.00
2.00	10.0	90.0	2.00
2.50	10.0	90.0	2.00
2.60	90.0	10.0	2.00
3.0	90.0	10.0	2.00

Solvent A: H₂O containing 0.1% HCOOH

Solvent B: CH₃CN containing 0.1% HCOOH

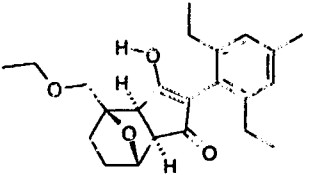
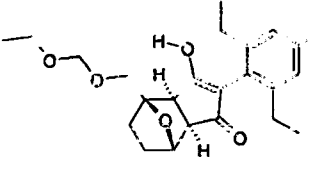
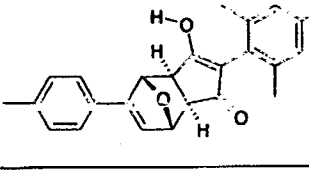
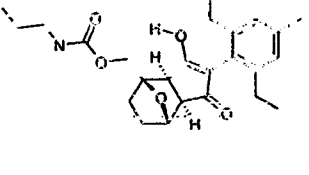
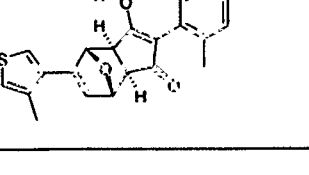
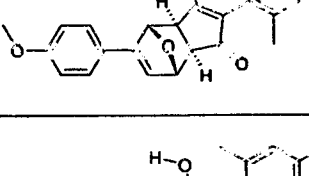
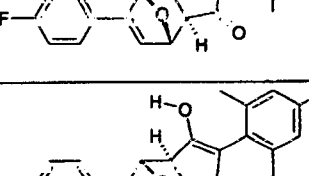
The characteristic values obtained for each compound were the retention time (rt, recorded in minutes) and the molecular ion (typically the cation MH⁺), as listed in Table T1.

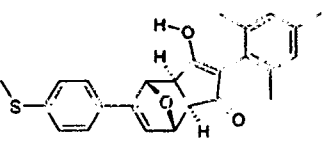
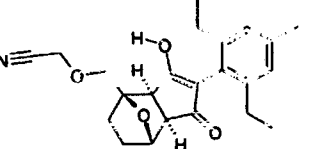
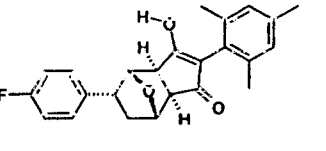
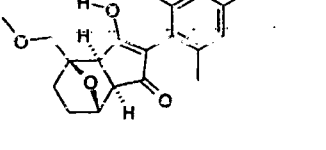
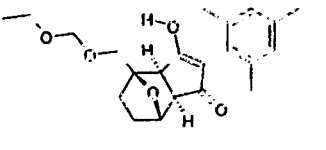
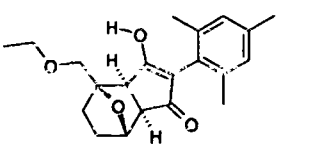
Table T1

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T1		δ _H 6.88 – 6.87 (2H, m), 4.55 – 4.54 (2H, m), 2.62 (2H, s), 2.36 – 2.27 (7H, m), 1.69 – 1.67 (2H, m), 1.40 – 1.39 (2H, m), 1.03 (6H, q).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T2		δ_H 6.88 (2H, m), 4.58 (2H, s), 2.65 (2H, m), 2.38 – 2.32 (2H, m), 2.26 (3H, s), 2.02 (3H, s), 1.76 – 1.71 (2H, m), 1.45 (2H, m), 1.04 (3H, q).
T3		δ_H 6.86 (1H, s), 6.85 (1H, s), 4.68 – 4.67 (2H, m), 2.74 (2H, s), 2.24 (3H, s), 2.10 (3H, s), 2.08 (3H, s), 1.83 – 1.80 (2H, m), 1.58 – 1.54 (2H, m).
T4		δ_H 6.94 (2H, s), 6.44 (2H, s), 5.04 (2H, s), 2.81 – 2.73 (2H, m), 2.41 – 2.35 (4H, m), 2.30 (3H, s), 1.10 – 1.02 (6H, m).
T5		δ_H 6.94 (1H, s), 6.93 (1H, s), 4.64 – 4.63 (2H, m), 2.73 (2H, s), 2.59 (2H, q), 2.41 – 2.31 (4H, m), 1.77 (2H, m), 1.48 (2H, m), 1.22 (3H, t), 1.06 (6H, m).
T6		δ_H 6.98 (1H, s), 6.97 (1H, s), 2.64 – 2.59 (2H, brs), 2.25 (3H, s), 2.03 (6H, s), 1.66 (4H, s), 1.50 (6H, br s).
T7		δ_H 6.95 (1H, s), 6.47 (1H, br s), 3.00 (1H, d), 2.68 – 2.66 (1H, m), 2.44 – 2.31 (7H, m), 1.77 – 1.71 (4H, m), 1.58 (3H, s), 1.55 (3H, s), 1.08 (6H, q).
T8		δ_H 6.95 (s), 4.69 (d), 4.64 (d), 3.05 (d), 2.91 (d), 2.81 (d), 2.59 (d), 2.44 – 2.32 (m), 2.31 (s), 2.00 – 1.93 (m), 1.67 – 1.62 (m), 1.61 (s), 1.58 (s), 1.10 – 1.05 (m).
T9		δ_H 6.92 (2H, s), 6.47 (1H, s), 6.32 (0.5H, s), 6.28 (0.5H, s), 5.14 (0.5H, s), 4.97 (0.5H, br s), 3.06 (0.5H, br s), 2.86 (0.5H, s), 2.80 (0.5H, br s), 2.50 (0.5H, br s), 2.28 (3H, s), 2.12 (6H, s), 1.70 (3H, br s).

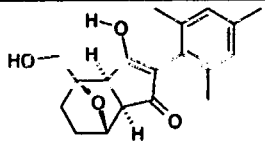
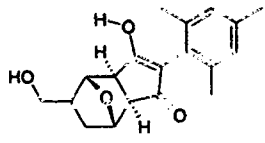
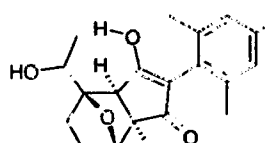
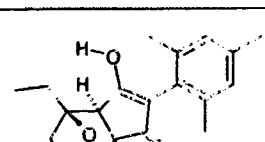
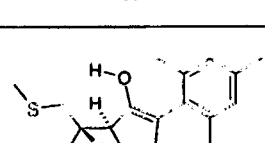
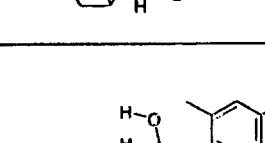
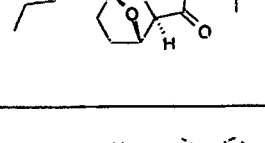
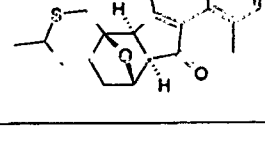
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T10		δ_H 6.95 (2H, s), 4.75 (2H, br), 3.40 (2H, br), 2.45 (2H, q), 2.35 (2H, q), 2.30 (3H, s), 1.80 (4H, m), 1.15 (3H, t), 1.05 (3H, t).
T11		δ_H 6.70 (2H, s), 6.24 (1H, s), 4.79 (1H, s), 4.73 (1H, s), 2.67 (1H, br s), 2.56 (1H, d), 2.17 - 2.08 (7H, m), 0.87 - 0.77 (6H, m), 0.00 (9H, s).
T12		δ_H 6.94 (2H, s), 6.66 (0.5H, s), 6.62 (0.5H, s), 5.14 - 5.02 (2H, m), 3.42 (1H, s), 3.10 (0.5H, s), 3.00 (0.5H, s), 2.86 (0.5H, s), 2.77 (0.5H, s), 2.38 - 2.31 (7H, m), 1.10 - 1.01 (6H, m).
T13		δ_H 6.95 (2H, s), 6.60 (1H, s), 6.53 - 6.51 (1H, m), 5.07 (1H, s), 4.14 - 4.00 (2H, m), 3.10 - 2.90 (br m, 2H), 2.42 - 2.28 (7H, m), 1.11 - 1.04 (6H, m).
T14		δ_H 6.88 (2H, s), 4.57 (1H, d), 3.86 (1H, d), 3.73 (1H, d), 3.23 (1H, s), 2.35 - 2.27 (7H, m), 1.86 - 1.53 (4H, m), 1.06 - 1.00 (6H, m).
T15		δ_H 6.94 (1H, s), 6.93 (1H, s), 4.86 (1H, s), 4.79 (1H, d), 4.76 (1H, s), 3.50 (1H, d), 2.96 (1H, s), 2.78 (1H, s), 2.50 - 2.25 (9H, m), 1.24 - 1.18 (3H, m), 1.09 - 1.02 (6H, m).
T16		δ_H 6.92 (2H, s), 5.00 (1H, d), 4.96 (1H, s), 4.93 (1H, s), 4.37 - 4.32 (2H, m), 3.78 (1H, d), 2.96 (1H, s), 2.61 (1H, s), 2.34 - 2.30 (7H, m), 1.39 - 1.35 (3H, m), 1.07 - 1.00 (6H, m).
T17		δ_H 8.40 (1H, s), 6.93 (1H, s), 6.92 (1H, s), 4.78 (1H, d), 4.01 (1H, d), 3.75 (1H, d), 3.52 (3H, s), 3.11 (1H, d), 2.81 (1H, d), 2.44 - 2.31 (4H, m), 2.30 (3H, s), 2.00 - 1.93 (2H, m), 1.75 - 1.70 (2H, m), 1.09 - 1.05 (6H, m).

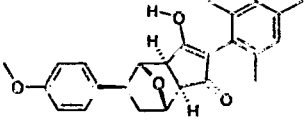
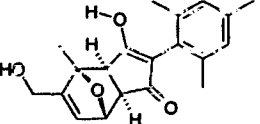
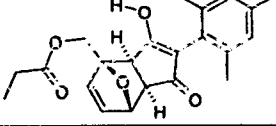
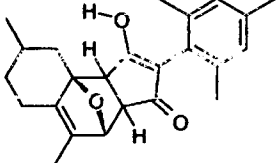
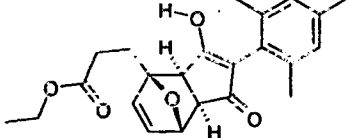
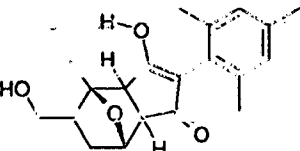
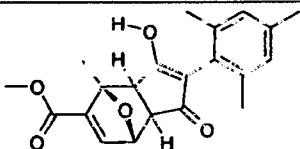
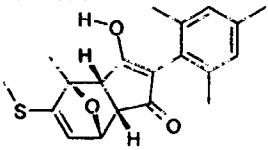
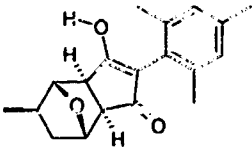
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T18		δ_H 6.88 (1H, s), 6.87 (1H, s), 4.66 (1H, d), 3.94 (1H, d), 3.77 (1H, d), 3.65 - 3.52 (2H, m), 2.88 (1H, s), 2.80 (1H, d), 2.39 - 2.26 ((7H, m), 1.94 - 1.90 (2H, m), 1.65 - 1.60 (4H, m), 1.20 (3H, t), 1.05 - 1.00 (6H, m).
T19		δ_H 6.92 (1H, s), 6.91 (1H, s), 4.75 (2H, s), 4.69 (1H, s), 4.04 - 3.96 (2H, m), 3.64 - 3.61 (2H, m), 2.94 (1H, br s), 2.81 (1H, d), 2.42 - 2.30 (4H, m), 2.30 (3H, s), 2.00 - 1.86 (2H, m), 1.69 - 1.54 (2H, m), 1.22 - 1.19 (3H, m), 1.08 - 1.04 (8H, m).
T20		δ_H 7.29 - 7.26 (2H, m), 7.05 (2H, d), 6.85 (1H, s), 6.84 (1H, s), 6.39 (1H, d), 5.32 (1H, s), 5.02 (1H, d), 2.79 - 2.75 (2H, m), 2.33 (3H, s), 3.23 (3H, s), 2.07 (3H, s), 2.04 (3H, s).
T21		δ_H 6.87 (2H, s), 5.44 (1H, v. br s), 4.71 - 4.64 (2H, m), 4.26 - 4.23 (1H, m), 3.11 - 3.06 (2H, m), 2.90 (1H, br s), 2.81 (1H, d), 2.38 - 2.27 (4H, m), 2.25 (3H, s), 1.93 - 1.82 (2H, m), 1.66 - 1.52 (2H, m), 1.50 - 1.43 (2H, m), 1.01 (6H, t), 0.87 (3H, t).
T22		δ_H 7.21 (1H, d), 6.93 (1H, dd), 6.84 (2H, s), 6.30 (1H, s), 5.24 (1H, s), 5.04 (1H, s), 2.82 - 2.81 (1H, m), 2.78 - 2.77 (1H, m), 2.28 (3H, s with fine splitting) 2.22 (3H, s), 2.07 (3H, s), 2.04 (3H, s).
T23		δ_H 7.33 (2H, d), 6.86 - 6.81 (4H, m), 6.35 (1H, s), 5.32 (1H, s), 5.04 (1H, s), 3.80 (3H, s), 2.83 - 2.82 (1H, m), 2.77 (1H, br s), 2.24 (3H, s), 2.07 (3H, s), 2.05 (3H, s).
T24		δ_H 7.35 - 7.32 (2H, m), 6.86 (1H, s), 6.85 (1H, s), 6.82 - 6.77 (2H, m), 6.37 (1H, d), 5.31 (1H, s), 5.03 (1H, d), 2.82 - 2.73 (2H, m), 2.25 (3H, s), 2.07 (3H, s), 2.05 (3H, s).
T25		δ_H 7.25 - 7.17 (4H, m), 6.86 (1H, s), 6.84 (1H, s), 4.73 (1H, d), 4.68 (1H, d), 3.61 - 3.56 (1H, m), 2.90 (1H, d), 2.80 (1H, d), 2.35 - 2.20 (4H, m),

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		2.24 (3H, s), 2.07 (3H, s), 2.02 (3H, s), 1.92 (1H, dd).
T26		δ _H 7.38 - 7.36 (2H, m), 7.22 - 7.20 (2H, m), 6.86 (2H, s), 6.58 (1H, d), 5.38 (1H, d), 5.11 (1H, s), 2.90 (1H, m), 2.84 (1H, m), 2.47 (3H, s), 2.24 (3H, s), 2.08 (6H, s).
T27		δ _H 6.92 (2H, s), 4.62 (1H, d), 4.29 - 4.27 (1H, m), 4.10 - 4.03 (2H, m), 3.93 - 3.90 (1H, m), 2.84 (1H, d), 2.77 (1H, d), 2.38 - 2.29 (4H, m), 2.30 (3H, s), 1.96 - 1.88 (2H, m), 1.59 - 1.51 (2H, m), 1.07 - 1.03 (6H, m).
T28		δ _H 7.39 (2H, dd), 7.11 (2H, t), 6.86 (1H, s), 6.85 (1H, s), 4.73 (1H, d), 4.68 (1H, d), 3.63 - 3.58 (1H, m), 2.94 (1H, d), 2.75 (1H, d), 2.38 - 2.30 (1H, m), 2.25 (3H, s), 2.08 (3H, s), 2.03 (3H, s), 1.92 (1H, dd).
T29		δ _H 6.82 (2H, s), 4.54 (1H, d), 3.85 (1H, d), 3.67 (1H, d), 3.30 (3H, s), 2.90 (1H, d), 2.78 (1H, d), 2.20 (3H, s), 2.03 (3H, s), 1.99 (3H, s), 1.93 (1H, dd), 1.87 - 1.81 (1H, m), 1.70 - 1.63 (1H, m), 1.58 - 1.54 (1H, m).
T30		δ _H 6.87 (1H, s), 6.86 (1H, s), 4.87 - 4.81 (1H, m), 4.67 - 4.65 (1H, m), 4.08 - 3.93 (2H, m), 3.66 - 3.58 (2H, m), 2.89 - 2.84 (1H, m), 2.76 - 2.73 (1H, m), 2.25 (3H, s), 2.09 (3H, s), 2.06 (3H, s), 1.95 - 1.84 (2H, m), 1.71 - 1.59 (2H, m), 1.26 - 1.17 (3H, m).
T31		δ _H 6.88 (1H, s), 6.87 (1H, s), 4.67 (1H, t), 3.97 (1H, d), 3.81 (1H, d), 3.70 - 3.62 (1H, m), 3.60 - 3.54 (1H, m), 2.87 - 2.82 (2H, m), 2.25 (3H, s), 2.10 (3H, s), 2.06 (3H, s), 1.99 - 1.94 (2H, m), 1.69 - 1.64 (2H, m), 1.23 (3H, t).

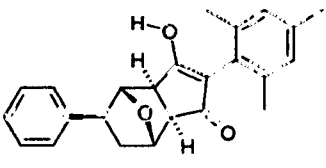
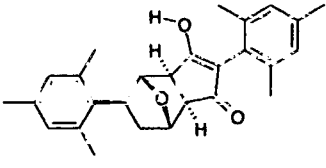
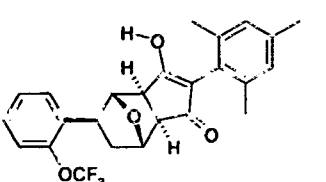
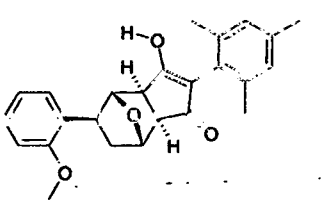
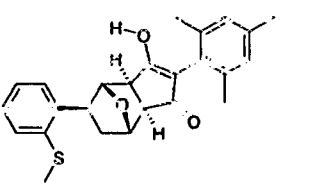
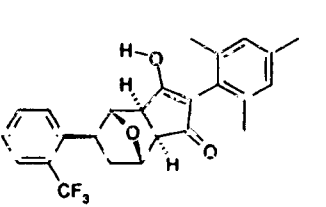
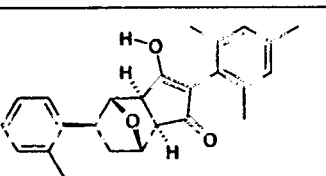
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T32		δ_H 7.20 - 7.18 (2H, m), 7.12 - 7.10 (2H, m), 6.88 (1H, s), 6.85 (1H, s), 4.71 (2H, t), 3.55 - 3.50 (1H, m), 2.77 (1H, d), 2.73 (1H, d), 2.48 (3H, s), 2.32 - 2.25 (1H, m), 2.23 (3H, s), 2.07 (3H, s), 2.01 (3H, s), 1.72 (1H, dd).
T33		δ_H 6.93 (2H, s), 6.88 (2H, s), 6.36 (1H, d), 5.13 (1H, d), 5.01 (1H, s), 3.13 (1H, d), 2.96 (1H, d), 2.29 (12H, s), 2.11 (3H, s), 2.09 (3H, s).
T34		δ_H 2.82 (2H, s), 6.19 (2H, s), 2.51 (2H, br s), 2.22 (3H, s), 2.05 (3H, s), 2.04 (3H, s), 1.57 (6H, s).
T35		δ_H 6.88 (1H, s), 6.87 (1H, s), 4.73 - 4.69 (2H, m), 4.29 (1H, d), 3.14 - 3.09 (2H, m), 2.93 (1H, d), 2.85 (1H, d), 2.25 (3H, s), 2.09 (3H, s), 2.06 (3H, s), 1.97 - 1.86 (2H, m), 1.71 - 1.59 (2H, m), 1.54 - 1.47 (2H, m), 0.91 (3H, t).
T36		δ_H 6.83 (2H, s), 5.02 (1H, s), 4.72 (1H, d), 4.65 (1H, d), 4.12 (1H, d), 2.83 (1H, d), 2.70 (1H, d), 2.23 (3H, s), 2.07 (3H, s), 2.06 (3H, s), 1.86 - 1.80 (2H, m), 1.57 - 1.45 (2H, m), 1.29 (9H, s).
T37		LC-MS (Method A) ES ⁺ : MH ⁺ = 313; rt = 1.07 mins
T38		LC-MS (Method A) ES ⁺ : MH ⁺ = 313; rt = 1.07 mins
T39		LC-MS (Method A) ES ⁺ : MH ⁺ = 327; rt = 1.23 mins

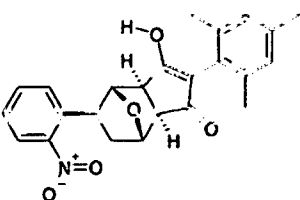
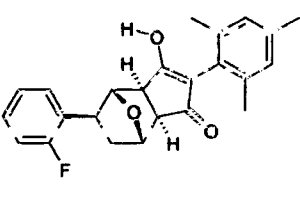
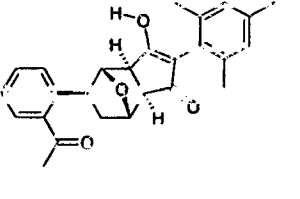
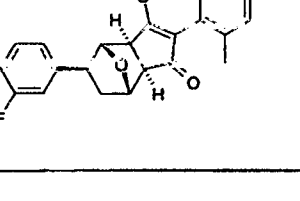
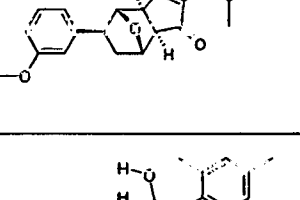
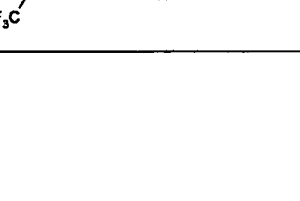
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T40		LC-MS (Method A) ES ⁺ : MH ⁺ = 311; rt = 1.34 mins
T41		LC-MS (Method A) ES ⁺ : MH ⁺ = 343; rt = 1.35 mins
T42		LC-MS (Method A) ES ⁺ : MH ⁺ = 353; rt = 1.79 mins
T43		LC-MS (Method A) ES ⁺ : MH ⁺ = 371; rt = 1.50 mins
T44		LC-MS (Method A) ES ⁺ : MH ⁺ = 297; rt = 1.25 mins
T45		δ_H 6.86 (2H, s), 4.61 - 4.58 (2H, m), 4.43 (1H, d), 4.07 (1H, d), 3.95 (1H, d), 2.98 - 2.85 (2H, m), 2.24 (3H, s), 2.08 (3H, s), 2.06 (3H, s), 1.91 - 1.87 (2H, m), 1.76 - 1.70 (1H, m), 1.65 - 1.59 (1H, m).
T46		δ_H 6.93 (2H, s), 4.75 (1H, d), 4.72 (1H, s), 4.38 (1H, dd), 3.93 (1H, d), 3.68 (1H, d), 2.90 (1H, d), 2.38 - 2.31 (7H, m), 1.08 - 1.01 (6H, m).
T47		δ_H 6.82 (2H, s), 4.50 - 4.45 (2H, m), 3.36 - 3.34 (1H, m), 3.26 - 3.24 (4H, m), 2.92 (1H, d), 2.47 (1H, d), 2.41 - 2.36 (1H, m), 2.23 (3H, s), 2.02 (6H, s), 1.95 - 1.88 (1H, m), 1.00 (1H, dd).
T48		δ_H 6.84 - 6.83 (2H, m), 4.47 (1H, d), 2.63 (1H, d), 2.41 (1H, d), 2.23 (3H, s), 2.04 (3H, s), 2.01 (3H, s), 1.86 - 1.83 (1H, m), 1.55 - 1.46 (3H, m), 1.48 (3H, s).

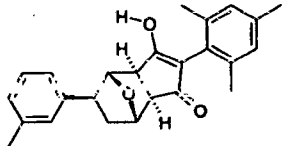
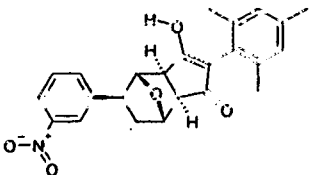
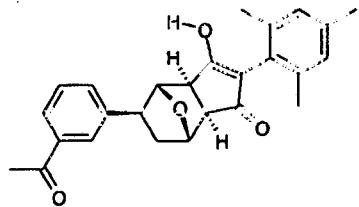
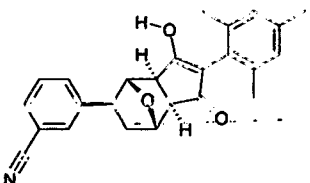
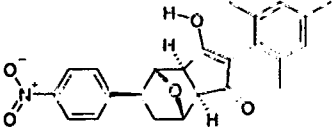
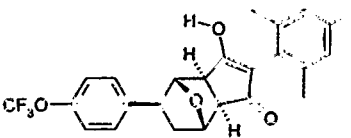
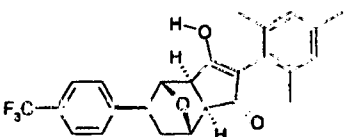
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T49		δ_H 6.85 (2H, s), 4.55 (1H, d), 3.84 (1H, d), 3.75 (1H, d), 2.76 – 2.70 (2H, m), 2.23 (3H, s), 2.03 (6H, s).
T50		δ_H 6.83 – 6.82 (2H, m), 4.48 – 4.45 (2H, m), 3.35 – 3.34 (1H, m), 3.26 – 3.24 (1H, m), 2.93 (1H, d), 2.48 (1H, d), 2.23 (3H, s), 2.02 (6H, s), 2.42 – 2.36 (1H, m), 1.94 – 1.88 (1H, m), 1.01 (1H, dd).
T51		δ_H 6.85 (2H, s), 4.55 (1H, d), 4.03 (1H, q), 2.76 (1H, d), 2.72 (1H, d), 2.23 (3H, s), 2.04 (3H, s), 2.03 (3H, s), 1.84 – 1.70 (2H, m), 1.58 – 1.41 (2H, m), 1.24 (3H, d).
T52		δ_H 6.82 (1H, s), 6.81 (1H, s), 4.42 (1H, d), 2.53 – 2.48 (2H, m), 2.22 (3H, s), 2.00 (3H, s), 1.98 (3H, s), 1.93 – 1.86 (1H, m), 1.77 – 1.70 (2H, m), 1.54 – 1.41 (3H, m), 1.03 (3H, t).
T53		δ_H 6.83 (2H, s), 4.49 (1H, d), 3.00 – 2.92 (2H, m), 2.62 – 2.58 (2H, m), 2.23 (3H, s), 2.14 (3H, s), 2.02 (3H, s), 2.00 (3H, s), 2.00 – 1.85 (2H, m), 1.52 – 1.47 (2H, m).
T54		δ_H 6.84 (1H, s), 6.83 (1H, s), 4.45 (1H, d), 2.60 – 2.56 (2H, m), 2.23 (3H, s), 2.04 (3H, s), 2.00 (3H, s), 1.93 – 1.88 (1H, m), 1.80 – 1.76 (1H, m), 1.69 – 1.46 (4H, m), 1.35 – 1.26 (6H, m), 0.88 – 0.85 (3H, m).
T55		δ_H 6.86 (2H, m), 3.11 – 3.00 (4H, m), 2.72 (1H, d), 2.25 (3H, s), 2.09 (3H, s), 2.05 (3H, s), 1.98 – 1.89 (1H, m), 1.79 – 1.56 (3H, m), 1.33 – 1.25 (6H, m).
T56		δ_H 7.28 – 7.17 (5H, m), 6.89 (1H, s), 6.88 (1H, s), 4.72 (1H, d), 4.53 (1H, s), 2.89 (1H, dd), 3.02 (1H, d), 2.96 (1H, d), 2.32 – 2.30 (1H, m), 2.27 (3H, s), 2.07 (6H, s), 1.90 – 1.85 (1H, m).

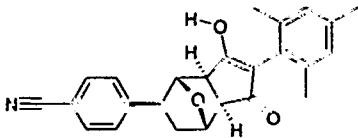
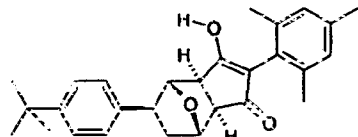
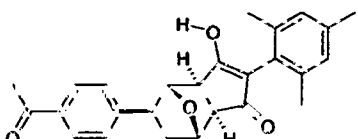
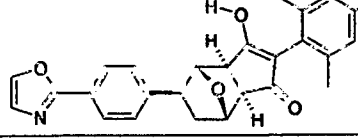
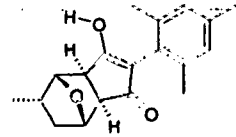
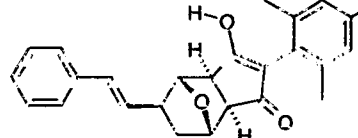
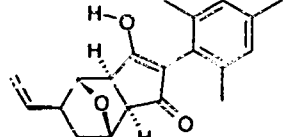
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T57		δ_H 7.26 – 7.23 (2H, m), 6.88 – 6.85 (4H, m), 4.74 (1H, d), 4.40 (1H, s), 3.79 (3H, s), 3.10 (1H, dd), 3.02 (1H, d), 2.96 (1H, d), 2.32 – 2.30 (1H, m), 2.27 (3H, s), 2.07 (6H, s), 1.90 – 1.85 (1H, m).
T58		LC-MS (Method A) ES ⁺ : MH ⁺ = 327; rt = 1.10 mins
T59		LC-MS (Method A) ES ⁺ : MH ⁺ = 369; rt = 1.33 mins
T60		LC-MS (Method A) ES ⁺ : MH ⁺ = 365; rt = 1.77 mins
T61		LC-MS (Method A) ES ⁺ : MH ⁺ = 383; rt = 1.36 mins
T62		δ_H 6.86 (2H, s), 4.48 (1H, d), 3.68 – 3.48 (2H, m), 2.81 – 2.74 (1H, m), 2.67 (1H, d), 2.23 (3H, s), 2.07 (3H, s), 2.04 (3H, s), 1.54 (3H, s), 1.27 – 1.26 (1H, m), 1.04 – 1.01 (2H, m).
T63		LC-MS (Method A) ES ⁺ : MH ⁺ = 355; rt = 1.36 mins
T64		LC-MS (Method A) ES ⁺ : MH ⁺ = 343; rt = 1.37 mins
T65		d ₄ -MeOH δ_H 6.85 (2H, m), 4.51 (1H, d), 4.37 (1H, d), 3.14 (1H, d), 2.84 (1H, d), 2.28 – 2.24 (1H, m), 2.24 (3H, s), 2.13 (1H, dd), 2.04 (3H, s), 2.03 (3H, s), 1.13 (3H, d), 1.11 – 1.06 (1H, m).

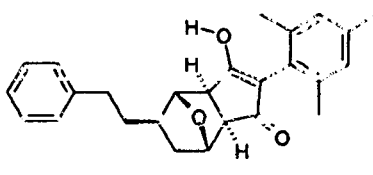
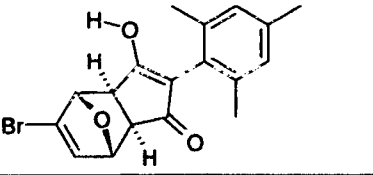
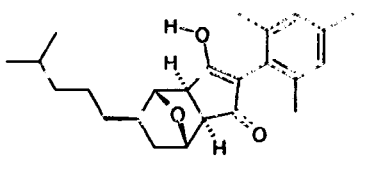
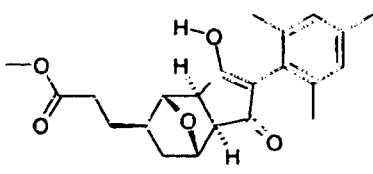
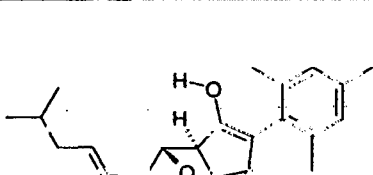
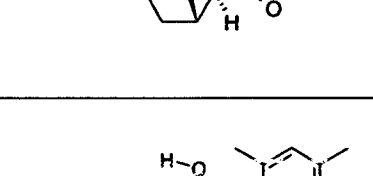
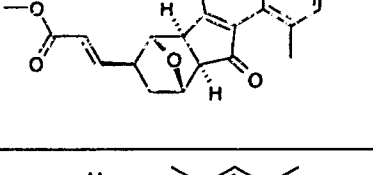
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T66		δ _H 7.26 - 7.18 (4H, m), 6.85 (2H, s), 4.72 (1H, d), 4.40 (1H, s), 3.09 (1H, dd), 3.00 (1H, d), 2.94 (1H, d), 2.44 (3H, s), 2.29 - 2.24 (1H, m), 2.24 (3H, s), 2.05 (6H, s), 1.88 - 1.82 (1H, m).
T67		δ _H 7.24 - 7.21 (1H, m), 6.94 - 6.93 (2H, m), 6.88 (2H, s), 4.75 (1H, d), 4.45 (1H, s), 3.52 (1H, dd), 3.05 (1H, d), 2.96 (1H, d), 2.35 - 2.29 (1H, m), 2.27 (3H, s), 2.08 (6H, s), 2.01 - 1.95 (1H, m).
T68	 Isomer A Isomer B	Approximately 3:2 Mixture of Isomer A: Isomer B Isomer A: δ _H 6.86 (1H, s), 6.85 (1H, s), 4.55 (1H, d), 4.53 (1H, d), 3.50 - 3.42 (3H, m), 3.36 - 3.33 (1H, m), 3.02 (1H, d), 2.49 - 2.43 (2H, m), 2.25 (3H, s), 2.05 (6H, s), 2.01 - 1.94 (1H, m), 1.19 (3H, t), 1.06 (1H, dd).
T69		δ _H 6.85 (2H, s), 4.69 (2H, s), 4.56 - 4.54 (2H, m), 3.76 - 3.55 (5H, m), 3.12 (1H, d), 2.83 (1H, d), 2.55 - 2.45 (1H, m), 2.24 (3H, s), 2.04 (3H, s), 1.24 - 1.15 (4H, m).
T70		δ _H 7.34 - 7.31 (2H, m), 7.00 (2H, t), 6.85 (2H, s), 4.73 (1H, d), 4.39 (1H, s), 3.13 (1H, dd), 3.01 (1H, d), 2.95 (1H, d), 2.30 - 2.27 (1H, m), 2.24 (3H, s), 2.05 (6H, s), 1.87 - 1.81 (1H, m).
T71		δ _H 7.21 (2H, d), 7.11 (2H, d), 6.88 (2H, s), 4.74 (1H, d), 4.42 (1H, s), 3.09 (1H, dd), 3.02 (1H, d), 2.96 (1H, d), 2.32 (3H, s), 2.29 - 2.24 (1H, m), 2.27 (3H, s), 2.08 (6H, s), 1.91 - 1.85 (1H, m).
T72		δ _H 7.25 - 7.18 (4H, m), 6.86 (1H, s), 6.84 (1H, s), 4.73 (1H, d), 4.68 (1H, d), 3.61 - 3.56 (1H, m), 2.90 (1H, d), 2.80 (1H, d), 2.35 (3H, s), 2.32 - 2.28 (1H, m), 2.24 (3H, s), 2.07 (3H, s), 2.02 (3H, s), 1.92 (1H, dd).

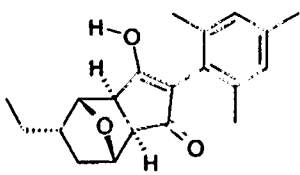
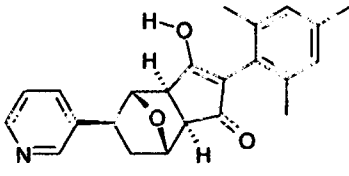
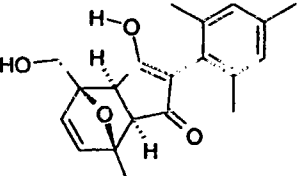
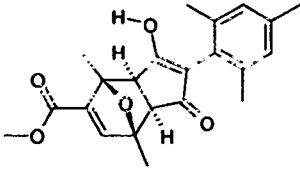
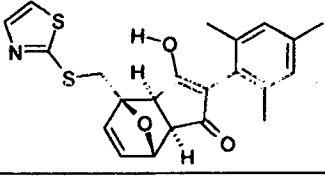
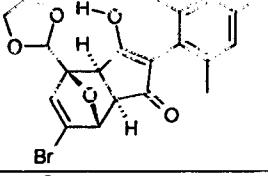
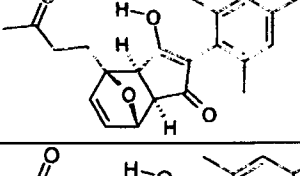
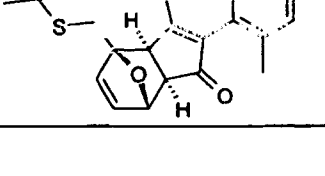
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T73		δ _H 7.29 - 7.27 (3H, m), 7.22 - 7.19 (2H, m), 6.89 (1H, s), 6.88 (1H, s), 4.85 (1H, d), 4.61 (1H, s), 3.01 (1H, dd), 2.26 (3H, s), 2.19 (1H, dd), 2.10 (3H, s), 2.09 (3H, s), 2.00 - 1.96 (1H, m).
T74		δ _H 6.90 (1H, s), 6.88 (1H, s), 6.86 - 6.82 (2H, m), 4.82 - 4.77 (2H, m), 3.12 - 3.05 (2H, m), 2.28 - 2.86 (1H, m), 2.41 - 2.39 (1H, m), 2.26 (3H, s), 2.23 (3H, s), 2.11 (6H, s), 2.08 (3H, s), 2.01 - 1.97 (1H, m).
T75		δ _H 7.79 - 7.76 (1H, m), 7.59 - 7.56 (1H, m), 7.28 - 7.20 (2H, m), 6.90 (1H, s), 6.89 (1H, s), 4.88 - 4.86 (1H, m), 4.67 (1H, s), 3.47 - 3.42 (1H, m), 3.14 - 3.00 (2H, m), 2.26 (3H, s), 2.25 - 2.21 (1H, m), 2.11 (3H, s), 2.09 (3H, s), 1.88 - 1.84 (1H, m).
T76		δ _H 7.39 - 7.35 (1H, m), 7.19 - 7.16 (1H, m), 6.93 - 6.83 (4H, m), 4.82 (1H, brs), 4.62 (1H, s), 3.48 (3H, s), 3.54 (1H, dd), 3.13 - 3.02 (2H, brm), 2.26 (3H, s), 2.17 - 2.13 (1H, m), 2.10 (3H, s), 2.09 (3H, s), 1.90 - 1.84 (1H, m).
T77		δ _H 7.42 (1H, d), 7.21 - 7.12 (3H, m), 6.88 (1H, s), 6.87 (1H, s), 4.82 (1H, s), 4.82 (1H, d), 4.68 (1H, s), 3.51 (1H, dd), 2.47 (3H, s), 2.25 (3H, s), 2.23 - 2.20 (1H, m), 2.10 (3H, s), 2.08 (3H, s), 1.85 - 1.81 (1H, m).
T78		δ _H 7.73 - 7.70 (2H, m), 7.59 (1H, d), 7.52 - 7.50 (1H, m), 7.31 - 7.28 (1H, m), 6.89 (1H, s), 6.88 (1H, s), 4.86 (1H, br s), 4.64 (1H, s), 3.42 (1H, br s), 3.13 - 3.05 (2H, m), 2.26 (3H, s), 2.66 - 2.24 (1H, m), 2.11 (3H, s), 2.08 (3H, s), 1.92 - 1.88 (1H, m).
T79		δ _H 7.42 - 7.39 (1H, m), 7.18 - 7.11 (3H, m), 6.91 (1H, s), 6.90 (1H, s), 4.87 - 4.85 (1H, m), 4.74 (1H, s), 3.24 - 3.22 (1H, m), 3.13 - 3.07 (2H, m), 2.36 (3H, s), 2.34 (3H, s), 2.24 - 2.22 (1H, m), 2.19

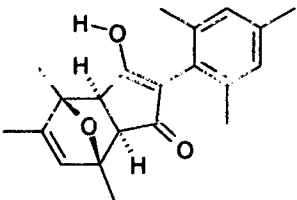
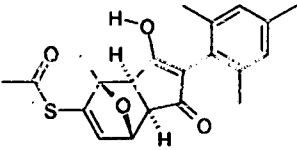
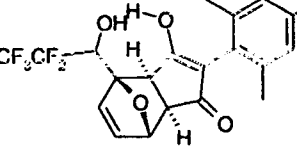
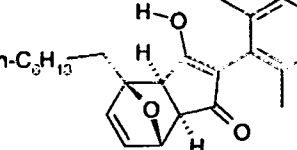
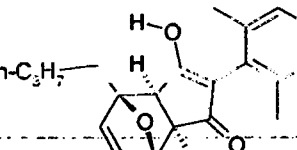
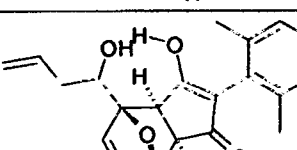
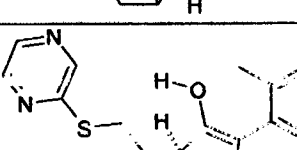
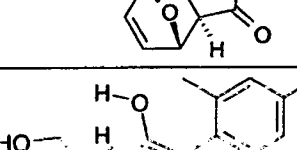
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		(3H, s), 2.09 (3H, s), 1.88 - 1.86 (1H, m).
T80		δ _H 7.79 - 7.73 (2H, m), 7.56 (1H, t), 7.35 (1H, t), 6.90 (1H, s), 6.89 (1H, s), 4.87 (1H, br s), 4.71 (1H, s), 3.47 (1H, br. s), 3.13 - 3.06 (2H, m), 2.42 - 2.30 (1H, m), 2.26 (3H, s), 2.11 (3H, s), 2.09 (3H, s), 1.98 - 1.97 (1H, m).
T81		δ _H 7.45 - 7.43 (1H, m), 7.18 - 7.16 (1H, m), 7.11 - 7.08 (1H, m), 7.02 - 6.98 (1H, m), 6.89 (1H, s), 6.88 (1H, s), 4.85 (1H, d), 4.65 (1H, s), 3.44 (1H, br. s), 3.15 - 3.00 (2H, br. s), 2.26 (3H, s), 2.22 - 2.17 (1H, m), 2.10 (3H, s), 2.09 (3H, s), 1.92 - 1.88 (1H, s).
T82		δ _H 7.47 - 7.96 (2H, m), 7.14 - 7.11 (2H, m), 6.90 (2H, s), 4.88 (1H, s), 4.57 (1H, s), 3.21 (1H, s), 2.94 - 2.74 (2H, br. s), 2.62, (3H, s), 2.26 (3H, s), 2.25 - 2.23 (1H, m), 2.11 (3H, s), 2.10 (3H, s), 2.01 - 1.93 (1H, m).
T83		δ _H 7.75 - 7.66 (1H, m), 7.25 - 7.21 (1H, m), 7.06 - 7.02 (2H, m), 6.88 (1H, s), 6.87 (1H, s), 4.83 (1H, br. s), 4.59 (1H, s), 3.00 - 2.98 (1H, m), 2.83 - 2.70 (2H, br. s), 2.25 (3H, s), 2.20 - 2.16 (1H, m), 2.09 (3H, s), 2.08 (3H, s), 1.92 - 1.89 (1H, m).
T84		δ _H 7.79 - 7.77 (1H, m), 7.21 - 7.18 (1H, m), 6.89 - 6.86 (3H, m), 6.76 - 6.74 (1H, m), 4.83 (1H, d), 4.62 (1H, s), 3.80 (3H, s), 2.99 (1H, dd), 2.80 - 2.70 (2H, br. s), 2.26 (3H, s), 2.18 (1H, dd), 2.10 (3H, s), 2.09 (3H, s), 1.97 - 1.95 (1H, m).
T85		δ _H 7.54 - 7.46 (3H, m), 7.41 - 7.38 (1H, m), 6.87 (1H, s), 6.88 (1H, s), 4.85 (1H, d), 4.60 (1H, s), 3.06 (1H, dd), 2.25 (3H, s), 2.21 (1H, dd), 2.10 (3H, s), 2.08 (3H, s), 1.93 - 1.90 (1H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T86		δ_H 7.19 - 7.08 (3H, m), 7.03 - 7.07 (1H, m), 6.89 (1H, s), 6.88 (1H, s), 4.84 (1H, d), 4.60 (1H, s), 2.98 (1H, dd), 2.33 (3H, s), 2.26 (3H, s), 2.17 (1H, dd), 2.10 (3H, s), 2.08 (3H, s), 1.97 - 1.95 (1H, br. m).
T87		δ_H 8.09 - 8.07 (1H, m), 7.68 - 7.67 (2H, m), 7.46 (1H, t), 6.89 (1H, s), 6.88 (1H, s), 4.89 (1H, d), 4.62 (1H, s), 3.13 (1H, dd), 2.28 - 2.24 (1H, m), 2.25 (3H, s), 2.10 (3H, s), 2.08 (3H, s), 1.95 - 1.95 (1H, m).
T88		δ_H 7.88 - 7.86 (1H, m), 7.79 (1H, d), 7.55 - 7.53 (1H, m), 7.39 (1H, t), 6.88 (1H, s), 6.87 (1H, s), 4.87 (1H, d), 4.61 (1H, s), 3.09 (1H, dd), 2.60 (3H, s), 2.25 (3H, s), 2.23 - 2.20 (1H, m), 2.10 (3H, s), 2.08 (3H, s), 1.96 - 1.94 (1H, m).
T89		δ_H 7.62 - 7.60 (1H, m), 7.56 - 7.50 (2H, m), 7.39 (1H, t), 6.90 (1H, s), 6.88 (1H, s), 4.88 (1H, br. s), 4.59 (1H, s), 3.05 - 3.03 (1H, m), 2.26 (3H, s), 2.24 - 2.20 (1H, m), 2.10 (3H, s), 2.08 (3H, s), 1.92 - 1.89 (1H, m).
T90		δ_H 8.14 (2H, d), 7.47 (2H, d), 6.89 (1H, s), 6.87 (1H, s), 4.89 (1H, d), 4.63 (1H, s), 3.12 (1H, dd), 2.27 - 2.23 (1H, m), 2.26 (3H, s), 2.10 (3H, s), 2.08 (3H, s), 1.95 - 1.91 (1H, m).
T91		δ_H 7.35 - 7.31 (2H, m), 7.15 - 7.12 (2H, m), 6.91 (1H, s), 6.90 (1H, s), 4.87 (1H, br. s), 4.61 (1H, s), 3.07 - 3.05 (1H, m), 2.27 (3H, s), 2.22 - 2.20 (1H, m), 2.10 (3H, s), 2.09 (3H, s), 1.93 - 1.91 (1H, m).
T92		δ_H 7.54 (2H, d), 7.43 - 7.41 (2H, m), 6.89 (1H, s), 6.88 (1H, s), 4.87 (1H, d), 4.61 (1H, s), 3.07 (1H, dd), 2.26 (3H, s), 2.23 (1H, dd), 2.10 (3H, s), 2.08 (3H, s), 1.95 - 1.91 (1H, m).

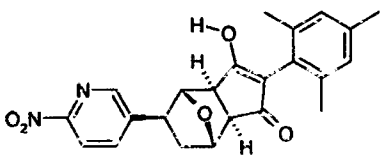
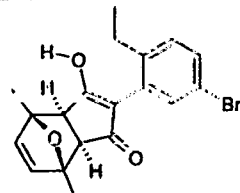
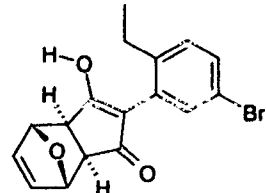
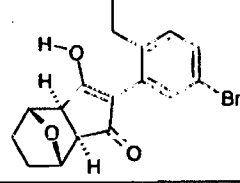
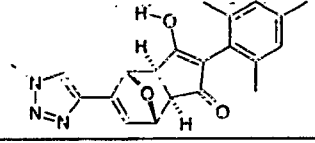
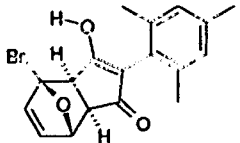
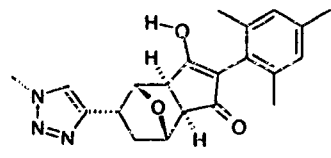
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T93		δ_H 7.57 (2H, d), 7.41 (2H, d), 6.88 (1H, s), 6.87 (1H, s), 4.86 (1H, d), 4.60 (1H, s), 3.05 (1H, dd), 2.25 (3H, s), 2.23 - 2.20 (1H, m), 2.09 (3H, s), 2.08 (3H, s), 1.95 - 1.91 (1H, m).
T94		δ_H 7.31 - 7.29 (2H, m), 7.24 - 7.22 (2H, m), 6.89 (1H, s), 6.88 (1H, s), 4.85 (1H, d), 4.59 (1H, s), 3.00 (1H, dd), 2.26 (3H, s), 2.17 (1H, dd), 2.10 (3H, s), 2.09 (3H, s), 1.99 - 1.96 (1H, m), 1.30 (9H, s).
T95		δ_H 7.88 (2H, d), 7.41 - 7.38 (2H, m), 6.90 (1H, s), 6.88 (1H, s), 4.88 (1H, br. s), 4.63 (1H, s), 3.08 (1H, br. s), 2.58 (3H, s), 2.26 (3H, s), 2.23 - 2.21 (1H, m), 2.11 (3H, s), 2.09 (3H, s), 1.95 - 1.93 (1H, m).
T96		LC-MS (Method A) ES ⁺ : MH ⁺ = 428; rt = 1.52 mins
T97		δ_H 6.85 (2H, s), 4.50 (1H, d), 4.37 (1H, d), 3.31 - 3.29 (1H, m), 3.12 (1H, d), 2.81 (1H, d), 2.24 (3H, s), 2.14 - 2.07 (1H, m), 2.05 (3H, s), 2.03 (3H, s), 1.12 (3H, d), 1.07 (1H, dd).
T98		δ_H 7.33 - 7.18 (5H, m), 6.84 - 6.81 (2H, m), 6.35 (1H, d), 6.08 (1H, dd), 4.63 (1H, d), 4.42 (1H, s), 2.68 - 2.63 (2H, m), 2.55 - 2.48 (1H, m), 2.22 (3H, s), 2.04 (3H, s), 2.02 (3H, s), 1.85 - 1.80 (1H, m), 1.64 - 1.60 (1H, m).
T99		δ_H 6.90 - 6.89 (2H, m), 5.80 - 5.71 (1H, m), 5.05 - 4.97 (2H, m), 4.68 (1H, d), 4.44 (1H, s), 2.81 - 2.76 (2H, m), 2.51 - 2.46 (1H, m), 2.26 (3H, s), 2.07 (3H, s), 2.06 (3H, s), 1.89 - 1.84 (1H, m), 1.67 - 1.62 (1H, m).

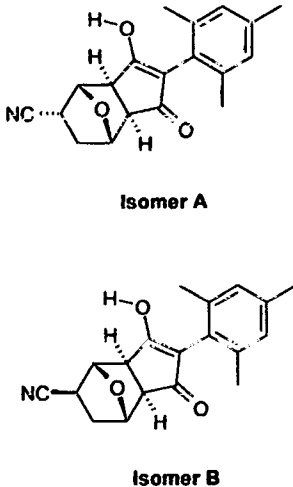
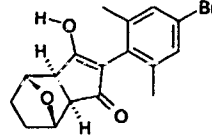
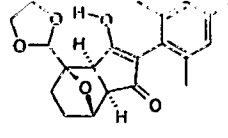
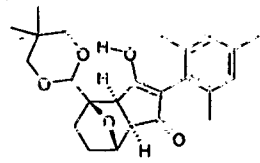
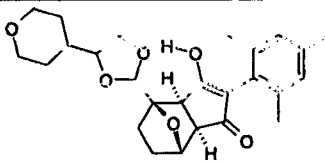
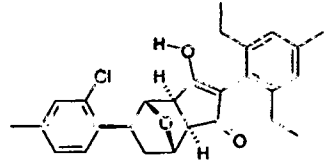
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T100		δ_H 7.27 - 7.12 (5H, m), 6.83 (2H, br. s), 4.55 (1H, d), 4.33 (1H, s), 2.75 - 2.71 (2H, m), 2.64 (2H, t), 2.23 (3H, s), 2.04 (6H, s), 1.74 - 1.68 (3H, m), 1.57 - 1.50 (1H, m), 1.44 - 1.41 (1H, m).
T101		δ_H 6.87 (2H, s), 6.40 (1H, d), 4.95 (1H, s), 4.82 (1H, s), 2.90 (1H, d), 2.81 (1H, d), 2.25 (3H, s), 2.07 (3H, s), 2.03 (3H, s).
T102		δ_H 6.82 (2H, s), 4.47 (1H, d), 4.25 (1H, s), 2.50 - 2.46 (2H, m), 2.22 (3H, s), 2.02 (3H, s), 2.01 (3H, s), 1.69 - 1.50 (4H, m), 1.34 - 1.12 (6H, m), 0.88 - 0.86 (6H, m).
T103		δ_H 6.81 (2H, s), 4.47 (1H, d), 4.24 (1H, s), 3.64 (3H, s), 2.52 - 2.47 (2H, m), 2.28 - 2.20 (5H, m), 2.00 (6H, s), 1.70 - 1.48 (4H, m), 1.27 - 1.24 (1H, m).
T104		Approximately 85 : 15 mixture of E- and Z-isomers. E-Isomer: δ_H 6.84 (2H, s), 5.42 - 5.26 (2H, m), 4.53 (1H, d), 4.29 (1H, s), 2.58 (1H, m), 2.37 - 2.29 (1H, m), 2.23 (3H, s), 2.02 (3H, s), 2.01 (3H, s), 1.86 - 1.83 (2H, m), 1.75 - 1.70 (1H, m), 1.63 - 1.47 (3H, m), 0.89 - 0.86 (6H, m).
T105		Approximately 3 : 2 mixture of E- and Z-isomers. E-Isomer δ_H 6.80 (2H, s), 6.74 (1H, dd), 5.91 (1H, d), 4.58 (1H, d), 4.30 (1H, s), 3.33 (3H, s), 2.85 - 2.77 (3H, m), 2.21 (3H, s), 1.97 (3H, s), 1.94 (3H, s), 1.94 - 1.91 (1H, m), 1.59 - 1.54 (1H, m).
T106		δ_H 6.82 (2H, s), 4.44 (1H, d), 4.24 (1H, s), 2.45 - 2.40 (2H, m), 2.22 (3H, s), 2.02 (6H, s), 1.58 - 1.52 (2H, m), 1.38 - 1.33 (1H, m), 1.25 - 1.16 (2H, m), 0.85 - 0.82 (3H, m).

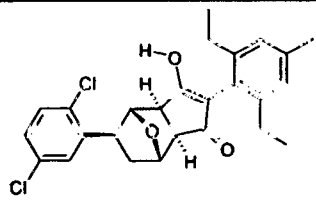
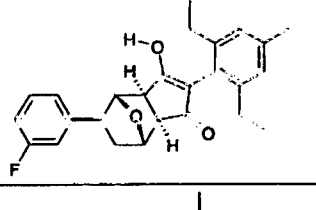
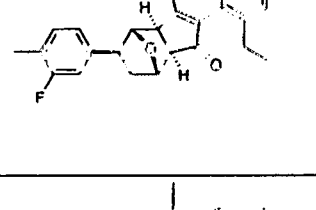
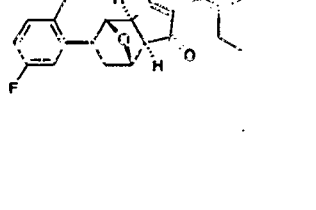
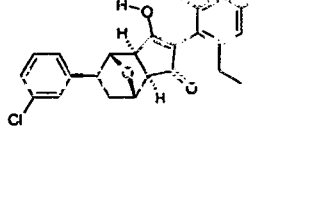
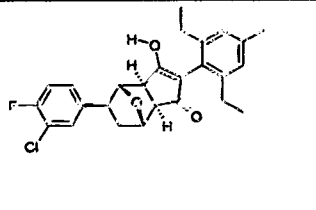
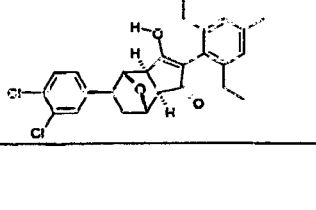
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T107		δ_H 6.85 (2H, s), 4.51 (1H, d), 4.43 (1H, d), 3.07 (1H, d), 2.82 - 2.81 (1H, m), 2.24 (3H, s), 2.10 - 2.05 (2H, m), 2.04 (6H, s), 1.87 - 1.79 (1H, m), 1.53 - 1.46 (2H, m), 1.00 (3H, t).
T108		δ_H 8.82 (1H, s), 8.76 (1H, d), 8.03 (1H, dd), 6.82 (2H, s), 4.90 (1H, d), 4.63 (1H, s), 3.55 (1H, dd), 3.16 (1H, d), 3.08 (1H, d), 2.46 - 2.40 (1H, m), 2.23 (3H, s), 2.08 (6H, s), 2.02 - 1.96 (1H, m).
T109		LC-MS (Method A) ES ⁺ : MH ⁺ = 327; rt = 4.97 mins
T110		LC-MS (Method A) ES ⁺ : MH ⁺ = 369; rt = 4.98 mins
T111		LC-MS (Method A) ES ⁺ : MH ⁺ = 412; rt = 5.70 mins
T112		LC-MS (Method A) ES ⁺ : MH ⁺ = 435; rt = 4.23 mins
T113		LC-MS (Method A) ES ⁺ : MH ⁺ = 353; rt = 4.48 mins
T114		LC-MS (Method A) ES ⁺ : MH ⁺ = 371; rt = 5.23 mins

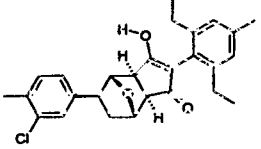
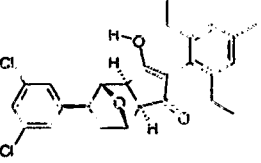
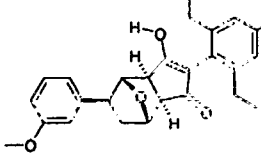
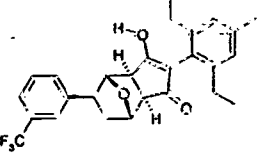
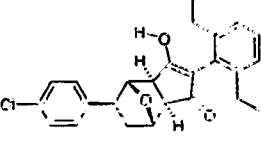
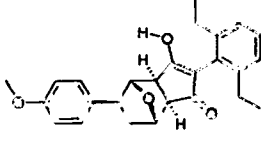
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T115		LC-MS (Method A) ES ⁺ : MH ⁺ = 325; rt = 4.22 mins
T116		LC-MS (Method A) ES ⁺ : MH ⁺ = 371; rt = 5.51 mins
T117		LC-MS (Method A) ES ⁺ : MH ⁺ = 431; rt = 4.98 mins
T118		LC-MS (Method A) ES ⁺ : MH ⁺ = 381; rt = 7.34 mins
T119		LC-MS (Method A) ES ⁺ : MH ⁺ = 339; rt = 6.54 mins
T120		LC-MS (Method A) ES ⁺ : MH ⁺ = 353; rt = 5.23 mins
T121		LC-MS (Method A) ES ⁺ : MH ⁺ = 407; rt = 5.04 mins
T122		LC-MS (Method B) ES ⁺ : MH ⁺ = 329; rt = 1.18 mins

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T123		LC-MS (Method B) ES ⁺ : MH ⁺ = 355; rt = 1.32 mins
T124		LC-MS (Method B) ES ⁺ : MH ⁺ = 43; rt = 1.58 mins
T125		LC-MS (Method B) ES ⁺ : MH ⁺ = 327; rt = 1.45 mins
T126		LC-MS (Method B) ES ⁺ : MH ⁺ = 383; rt = 1.93 mins
T127		d ₄ -MeOH δ _H 6.84 (2H, s), 4.50 (2H, s), 3.56 (2H, s), 2.88 (2H, s), 2.23 (3H, s), 2.05 (3H, s), 2.02 (3H, s).
T128		d ₄ -MeOH δ _H 8.68 (1H, d), 8.03 (1H, dd), 7.78 (1H, d), 6.89 (2H, s), 4.83 (1H, d), 4.52 (1H, s), 3.36 - 3.34 (1H, m), 3.10 (1H, d), 3.03 (1H, d), 2.83 (1H, dd), 2.27 (3H, s), 2.09 (3H, s), 2.08 (3H, s), 1.93 - 1.88 (1H, m).
T129		d ₄ -MeOH δ _H 8.10 (1H, d), 7.95 - 7.90 (1H, m), 7.00 (1H, dd), 6.85 (2H, s), 4.77 (1H, d), 4.41 (1H, s), 3.21 (1H, dd), 3.03 (1H, d), 2.96 (1H, d), 2.30 (1H, dd), 2.23 (3H, s), 2.05 (6H, s), 1.85 - 1.80 (1H, m).
T130		d ₄ -MeOH δ _H 8.65 (1H, d), 7.97 (1H, dd), 7.81 (1H, d), 6.85 (2H, s), 4.80 (1H, d), 4.48 (1H, s), 3.34 - 3.31 (1H, m), 3.06 (1H, d), 2.99 (1H, d), 2.35 (1H, dd), 2.24 (3H, s), 2.05 (3H, s), 2.04 (3H, s), 1.91 - 1.86 (1H, m).

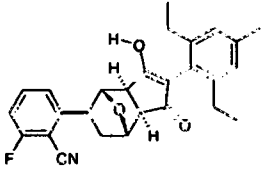
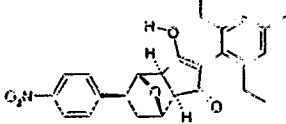
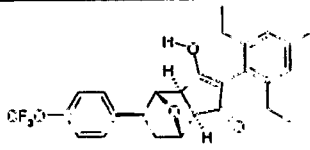
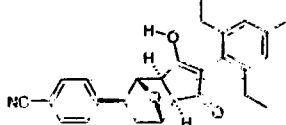
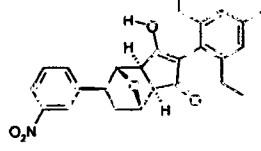
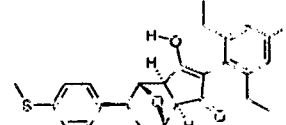
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T131		d ₄ -MeOH δ _H 8.63 (1H, d), 8.34 (1H, d), 8.22 (1H, dd), 6.92 (2H, s), 4.88 (1H, d), 4.56 (1H, s), 3.48 (1H, dd), 3.14 (1H, d), 3.06 (1H, d), 2.43 (1H, dd), 2.31 (3H, s), 2.12 (3H, s), 2.11 (3H, s), 2.00 - 1.94 (1H, m).
T132		d ₅ -MeOH δ _H 7.39 (1H, dd), 7.18 (1H, d), 7.16 (1H, d), 6.35 (2H, s), 2.79 (2H, s), 2.46 (2H, q), 1.61 (6H, s), 1.07 (3H, t)
T133		d ₄ -MeOH δ _H 7.37 (1H, dd), 7.17 (1H, d), 7.14 (1H, d), 6.54 (2H, s), 4.96 (2H, s), 2.79 (2H, s), 2.44 (2H, q), 1.06 (3H, t)
T134		d ₄ -MeOH δ _H 7.34 (1H, dd), 7.15 (2H, d), 4.59 (2H, s), 2.78 (2H, s), 2.43 (2H, q), 1.81 - 1.78 (2H, m), 1.66 - 1.61 (2H, m), 1.06 (3H, t)
T135		d ₄ -MeOH δ _H 8.13 (1H, s), 6.80 (2H, s), 6.76 (1H, d), 5.28 (1H, s), 5.06 (1H, d), 4.11 (3H, s), 2.71 (1H, d), 2.60 (1H, d), 2.21 (3H, s), 2.08 (6H, s).
T136		δ _H 6.82 (2H, s), 6.48 - 6.44 (2H, m), 4.98 (1H, s), 2.93 - 2.87 (2H, m), 2.19 (3H, s), 2.05 (3H, s), 2.02 (3H, s).
T137		d ₄ -MeOH δ _H 7.93 (1H, s), 6.82 (1H, s), 6.80 (1H, s), 4.72 (1H, d), 4.71 (1H, d), 4.12 (3H, s), 3.59 - 3.54 (1H, m), 2.76 (1H, d), 2.66 (1H, d), 2.41 - 2.32 (1H, m), 2.23 (3H, s), 2.10 (3H, s), 2.06 (3H, s), 2.00 - 1.95 (1H, m).

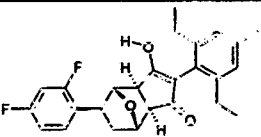
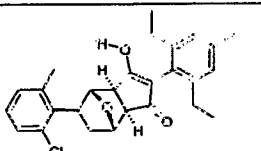
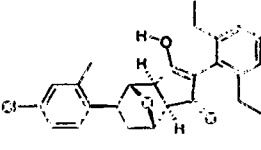
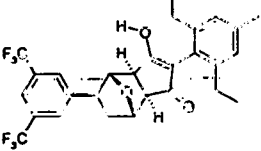
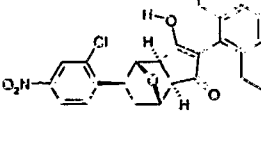
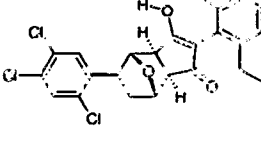
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T138	 Isomer A Isomer B	Approximately 9 : 1 mixture of Isomer A : Isomer B. Isomer A: d₄-MeOH δ_H 6.83 (2H, s), 4.77 (1H, d.), 4.69 (1H, d), 3.22 (1H, d), 3.16 - 3.13 (1H, m), 2.85 (1H, d), 2.35 - 2.29 (1H, m), 2.23 (3H, s), 2.07 (3H, s), 2.03 (3H, s), 1.87 (1H, dd).
T139		d₆-DMSO δ_H 7.17 (1H, s), 7.18 (1H, s), 6.50 (2H, s), 4.86 (2H, s), 2.7 (2H, br. s), 2.00 (3H, s), 1.95 (3H, s)
T140		d₄-MeOH δ_H 6.83 (2H, s), 5.35 (1H, s), 4.64 (1H, d), 4.05 - 3.93 (4H, m), 2.84 - 2.80 (2H, m), 2.24 (3H, s), 2.10 (3H, s), 2.08 (3H, s), 1.93 - 1.85 (2H, m), 1.73 - 1.68 (1H, m), 1.58 - 1.54 (1H, m).
T141		d₃-MeOH δ_H 6.82 (1H, s), 6.80 (1H, s), 5.04 (1H, s), 4.62 (1H, d), 3.66 - 3.49 (4H, m), 2.72 - 2.67 (2H, m), 2.23 (3H, s), 2.12 (3H, s), 2.10 (3H, s), 2.11 - 2.08 (1H, m), 1.94 - 1.83 (1H, m), 1.70 - 1.62 (2H, m), 1.21 (3H, s), 0.74 (3H, s).
T142		LC-MS (Method B) ES⁺: MH⁺ = 439; rt = 1.35 mins
T143		δ_H 7.32 (1H, d), 7.15 (1H, s), 7.02 (1H, d), 6.91 - 6.90 (2H, m), 4.75 - 4.73 (1H, br. m), 4.62 (1H, s), 3.46 - 3.44 (1H, m), 2.95 - 2.84 (2H, m), 2.37 - 2.28 (10H, m), 2.16 - 2.11 (1H, m), 1.76 - 1.73 (1H, m), 1.06 - 1.02 (6H, m).

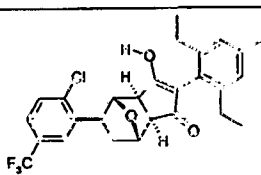
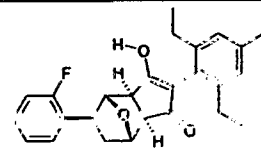
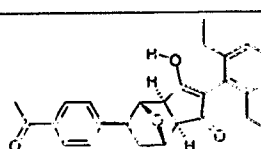
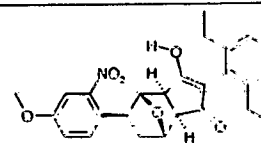
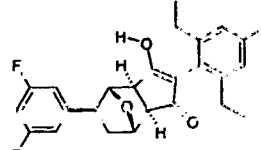
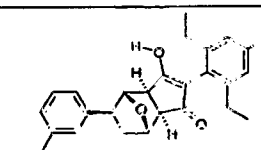
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T144		δ_H 7.48 (1H, s), 7.28 (1H, s), 7.13 (1H, d), 6.96 - 6.94 (2H, m), 4.86 (1H, s), 4.68 (1H, s), 3.52 (1H, s with fine splitting), 3.11 - 2.90 (2H, m), 2.40 - 2.23 (8H, m), 1.83 - 1.80 (1H, m), 1.10 - 1.06 (6H, m).
T145		δ_H 7.26 - 7.21 (2H, m), 7.05 - 7.02 (2H, m), 6.94 - 6.88 (3H, m), 4.81 (1H, s), 4.59 (1H, s), 2.99 - 2.85 (3H, m), 2.40 - 2.30 (7H, m), 2.19 - 2.14 (1H, m), 1.91 - 1.89 (1H, m), 1.06 (6H, t).
T146		δ_H 7.08 - 7.05 (1H, m), 6.97 - 6.92 (4H, m), 4.80 (1H, br. s), 4.56 (1H, s), 3.10 - 2.82 (3H, m), 2.38 - 2.33 (4H, m), 2.30 (3H, s), 2.23 (3H, s), 2.18 - 2.11 (1H, m), 1.90 - 1.86 (1H, m), 1.08 - 1.05 (6H, m).
T147		δ_H 7.16 - 7.13 (1H, m), 7.08 - 7.05 (1H, m), 6.96 (1H, s), 6.94 (1H, s), 6.81 - 6.78 (1H, m), 4.86 (1H, br. s), 4.67 (1H, s), 3.18 (1H, br. s), 3.10 (1H, br. s), 2.85 (1H, br. s), 2.40 - 2.36 (4H, m), 2.31 (3H, s), 2.28 (3H, s), 2.23 - 2.18 (1H, m), 1.81 (1H, br. s), 1.10 - 1.06 (6H, m).
T148		δ_H 7.34 - 7.31 (1H, m), 7.25 - 7.15 (3H, m), 6.96 (1H, s), 6.94 (1H, s), 4.87 - 4.85 (1H, m), 4.65 (1H, s), 3.11 - 3.08 (1H, m), 3.02 - 2.98 (1H, m), 2.86 - 2.80 (1H, m), 2.43 - 2.33 (4H, m), 2.31 (3H, s), 2.23 - 2.18 (1H, m), 2.00 - 1.92 (1H, m), 1.09 - 1.06 (6H, m).
T149		δ_H 7.36 (1H, d), 7.16 - 7.13 (1H, m), 7.04 (1H, t), 6.95 (1H, s), 6.94 (1H, s), 4.83 (1H, br. s), 4.56 (1H, s), 2.96 - 2.83 (3H, m), 2.39 - 2.35 (4H, m), 2.31 (3H, s), 2.21 - 2.16 (1H, m), 1.88 - 1.85 (1H, m), 1.08 - 1.05 (6H, m).
T150		δ_H 7.41 - 7.39 (1H, m), 7.35 - 7.33 (1H, m), 7.12 - 7.10 (1H, m), 6.94 (1H, s), 6.93 (1H, s), 4.82 - 4.80 (1H, m), 4.56 (1H, s), 2.98 - 2.80 (3H, m),

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		2.37 - 2.33 (4H, m), 2.30 (3H, s), 2.19 - 2.15 (1H, m), 1.87 - 1.83 (1H, m), 1.08 - 1.04 (6H, m).
T151		δ _H 7.28 (1H, br. s), 7.13 - 7.11 (1H, m), 7.07 - 7.05 (1H, m), 6.94 (1H, s), 6.92 (1H, s), 4.79 - 4.78 (1H, m), 4.55 (1H, s), 2.95 - 2.80 (3H, m), 2.39 - 2.34 (4H, m), 2.33 (3H, s), 2.30 (3H, s), 2.15 - 2.10 (1H, m), 1.89 - 1.84 (1H, m), 1.07 - 1.04 (6H, m).
T152		δ _H 7.22 - 7.18 (3H, m), 6.93 (1H, s), 6.92 (1H, s), 4.79 (1H, s), 4.56 (1H, s), 2.93 - 2.88 (2H, m), 2.37 - 2.32 (5H, m), 2.29 (3H, s), 2.13 (1H, br. m), 1.85 (1H, br. m), 1.07 - 1.04 (6H, m).
T153		δ _H 7.21 - 7.18 (1H, m), 6.94 (1H, s), 6.93 (1H, s), 6.90 - 6.84 (2H, m), 6.76 - 6.74 (1H, m), 4.81 (1H, br. s), 4.60 (1H, s), 3.80 (3H, s), 2.97 - 2.83 (2H, m), 2.83 - 2.35 (5H, m), 2.30 (3H, s), 2.16 - 2.14 (1H, m), 2.00 - 1.96 (1H, m), 1.09 - 1.04 (6H, m).
T154		δ _H 7.53 - 7.39 (4H, m), 6.94 - 6.93 (2H, m), 4.82 (1H, br. s), 4.59 (1H, d), 3.04 - 3.02 (1H, m), 2.93 - 2.89 (2H, br. m), 2.38 - 2.33 (4H, m), 2.30 (3H, s), 2.18 (3H, s), 2.16 (3H, s), 1.92 - 1.90 (1H, m), 1.08 - 1.04 (6H, m).
T155		δ _H 7.26 - 7.25 (4H, m), 6.95 - 6.94 (2H, m), 4.84 (1H, s), 4.60 - 4.57 (1H, m), 3.09 - 3.06 (1H, m), 2.99 - 2.97 (1H, m), 2.85 - 2.80 (1H, m), 2.40 - 2.36 (4H, m), 2.31 (3H, s), 2.22 - 2.17 (1H, m), 1.93 - 1.89 (1H, m), 1.09 - 1.05 (6H, m).
T156		δ _H 7.22 - 7.20 (2H, m), 6.95 - 6.93 (2H, m), 6.84 - 6.82 (2H, m), 4.83 - 4.82 (1H, br. m), 4.56 (1H, s), 3.78 (3H, s), 2.98 - 2.95 (1H, m), 2.90 - 2.75 (2H, br. s), 2.39 - 2.35 (4H, m), 2.30 (3H, s), 2.19 - 2.13 (1H, m), 1.95 - 1.89 (1H, m), 1.09 - 1.05 (6H, m).

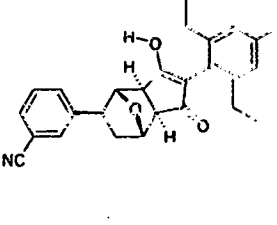
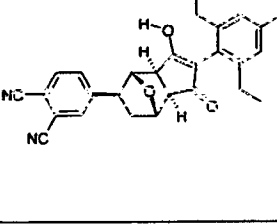
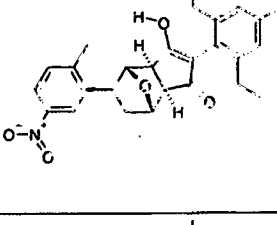
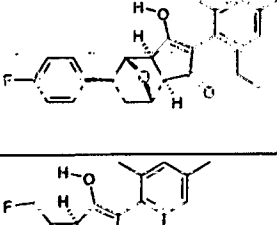
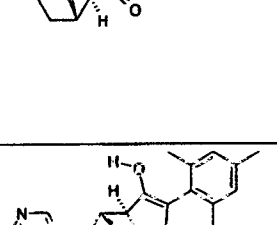
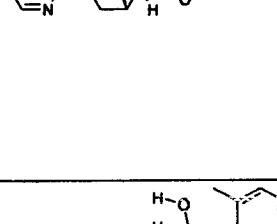
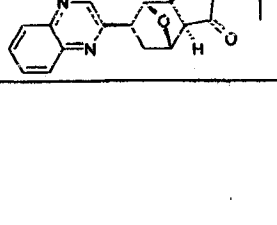
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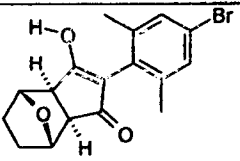
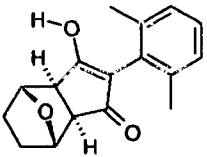
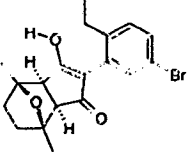
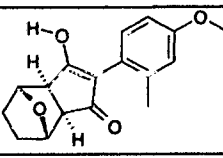
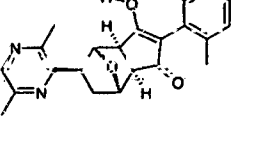
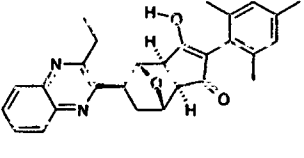
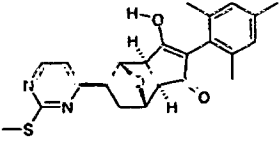
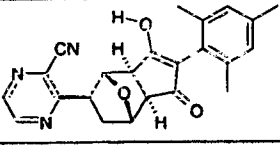
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T157		δ_H 7.57 - 7.53 (1H, m), 7.44 - 7.42 (1H, m), 7.09 - 7.05 (1H, m), 6.93 (2H, s), 4.84 (1H, br. s), 4.70 (1H, br. s), 3.45 - 3.33 (1H, m), 3.10 - 2.90 (2H, m), 2.37 - 2.32 (4H, m), 2.29 (3H, s), 1.85 - 1.83 (2H, m), 1.09 - 1.04 (6H, m).
T158		δ_H 8.15 (2H, d), 7.46 (2H, dd), 6.95 (1H, s), 6.94 (1H, s), 4.88 (1H, s with fine splitting), 4.62 (1H, s), 4.62 (1H, s), 3.12 - 3.10 (1H, m), 2.99 - 2.90 (2H, br. m), 2.40 - 2.35 (4H, m), 2.31 (3H, s), 2.25 - 2.22 (1H, m), 1.93 - 1.89 (1H, m), 1.08 - 1.05 (6H, m).
T159		δ_H 7.31 - 7.28 (2H, m), 7.13 - 7.12 (2H, m), 6.94 - 6.93 (2H, m), 4.84 - 4.81 (1H, m), 4.57 (1H, d), 3.00 - 2.99 (4H, m), 2.98 - 2.85 (2H, br. m), 2.38 - 2.33 (4H, m), 2.30 (3H, s), 2.17 - 2.14 (1H, m), 1.90 - 1.87 (1H, m), 1.08 - 1.04 (6H, m).
T160		δ_H 7.58 (2H, dd), 7.41 - 7.40 (2H, m), 6.95 (1H, s), 4.87 - 4.85 (1H, m), 4.60 (1H, d), 3.06 - 3.03 (1H, m), 3.04 - 2.95 (2H, br. m), 2.40 - 2.33 (4H, m), 2.30 (3H, s), 2.25 - 2.20 (1H, m), 1.93 - 1.88 (1H, m), 1.09 - 1.05 (6H, m).
T161		δ_H 8.18 (1H, s), 8.10 - 8.08 (1H, m), 7.69 - 7.67 (1H, m), 7.48 (1H, t), 6.97 (1H, s), 6.95 (1H, s), 4.91 (1H, d), 4.64 (1H, s), 3.18 - 3.13 (1H, m), 3.10 - 2.95 (2H, br. m), 2.40 - 2.36 (4H, m), 2.31 (3H, s), 1.08 (6H, t).
T162		δ_H 7.25 - 7.15 (4H, m), 6.96 (1H, s), 6.94 (1H, s), 4.85 (1H, s), 4.58 (1H, br. s), 3.10 - 3.05 (1H, br. m), 3.00 - 2.97 (1H, m), 2.87 - 2.85 (1H, m), 2.47 (3H, s), 2.42 - 2.34 (4H, m), 2.31 (3H, s), 2.21 - 2.17 (1H, m), 1.96 - 1.91 (1H, m), 1.00 - 1.05 (6H, m).

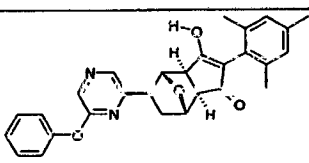
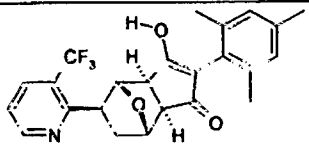
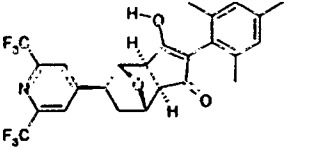
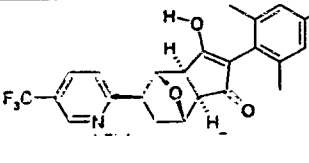
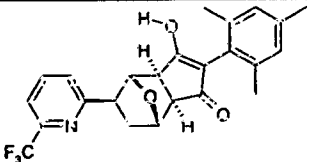
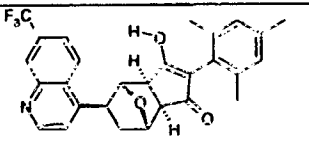
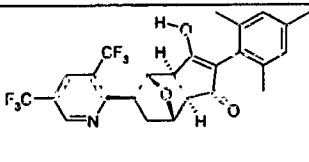
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T163		δ_H 7.42 - 7.38 (1H, m), 6.94 - 6.92 (2H, m), 6.85 - 6.83 (1H, m), 6.77 - 6.73 (1H, m), 4.82 - 4.80 (1H, m), 4.59 (1H, d), 3.38 - 3.34 (1H, m), 3.05 - 2.91 (2H, br. m), 2.37 - 2.34 (4H, m), 2.30 (3H, s), 2.19 - 2.15 (1H, m), 1.85 - 1.80 (1H, m), 1.08 - 1.04 (6H, m).
T164		δ_H 7.22 - 7.20 (1H, m), 7.05 - 7.00 (2H, m), 6.94 (1H, s), 6.92 (1H, s), 4.83 (1H, s), 4.79 (1H, br. s), 3.85 - 3.82 (1H, m), 3.06 - 2.89 (2H, br. m), 2.51 (3H, s), 2.39 - 2.33 (4H, m), 2.30 (3H, s), 2.18 - 2.14 (1H, m), 1.99 - 1.95 (1H, m), 1.05 (6H, t).
T165		δ_H 7.35 (1H, t), 7.16 - 7.12 (1H, m), 6.96 (1H, s), 6.61 - 6.53 (1H, m), 4.86 (1H, br. s), 4.66 (1H, s), 3.17 - 3.09 (2H, m), 2.87 - 2.85 (1H, m), 2.42 - 2.35 (4H, m), 2.32 (6H, s), 2.26 - 2.18 (1H, m), 1.83 - 1.76 (1H, m), 1.08 (6H, t).
T166		δ_H 7.76 - 7.74 (3H, m), 6.96 (1H, s), 6.94 (1H, s), 4.89 (1H, br. s), 4.62 (1H, s), 3.15 - 3.13 (1H, m), 3.12 - 3.07 (1H, br. m), 2.87 (1H, br. s), 2.43 - 2.36 (4H, m), 2.30 (3H, s), 2.28 - 2.25 (1H, m), 1.92 - 1.90 (1H, m), 1.09 - 1.06 (6H, m).
T167		δ_H 8.26 - 8.24 (1H, m), 8.10 (1H, dd), 7.71 (1H, d), 6.96 (1H, s), 9.95 (1H, s), 4.89 (1H, br. s), 4.73 (1H, br. s), 3.62 (1H, br. s), 3.13 (1H, br. s), 2.94 (1H, br. s), 2.39 - 2.33 (4H, m), 2.31 (3H, s), 1.82 - 1.80 (1H, m), 1.67 - 1.65 (1H, m), 1.08 (6H, t).
T168		δ_H 7.58 (1H, s), 7.46 (1H, d), 6.97 (1H, s), 6.95 (1H, s), 4.88 (1H, br. s), 4.64 (1H, s), 3.49 - 3.47 (1H, m), 3.17 - 2.86 (2H, br. m), 2.40 - 2.35 (4H, m), 2.32 (3H, s), 1.81 - 1.79 (1H, m), 1.58 - 1.56 (1H, m), 1.10 - 1.06 (6H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T169		δ_H 7.73 (1H, s), 7.48 - 7.41 (2H, m), 6.96 (1H, s), 6.93 (1H, s), 4.84 (1H, br. s), 4.69 (1H, s), 3.58 (1H, br. s), 3.08 - 2.93 (2H, br. m), 2.38 - 2.32 (4H, m), 2.31 (3H, s), 2.27 - 2.35 (1H, m), 1.84 - 1.80 (1H, m), 1.10 - 1.05 (6H, m).
T170		δ_H 7.43 - 7.38 (1H, m), 7.19 - 7.14 (1H, m), 7.11 - 7.07 (1H, m), 7.01 - 6.96 (1H, m), 6.90 - 6.89 (2H, m), 4.75 (1H, d), 4.60 (1H, s), 3.35 (1H, dd), 2.90 - 2.83 (2H, m), 2.37 - 2.29 (4H, m), 2.28 (3H, s), 2.12 - 2.07 (1H, m), 1.84 - 1.78 (1H, m), 1.06 - 1.01 (6H, m).
T171		δ_H 7.86 (2H, d), 7.34 (2H, d), 6.91 - 6.90 (2H, m), 4.76 (1H, d), 4.57 (1H, s), 2.97 (1H, dd), 2.87 - 2.83 (2H, m), 2.58 (3H, s), 2.42 - 2.32 (4H, m), 2.28 (3H, s), 2.10 - 2.02 (1H, m), 1.87 - 1.82 (1H, m), 1.09 - 1.05 (6H, m).
T172		δ_H 7.61 (1H, d), 7.30 (1H, d), 7.12 (1H, dd), 6.94 - 6.93 (2H, m), 4.81 (1H, d), 4.67 (1H, s), 3.85 (3H, s), 3.40 (1H, dd), 3.04 - 2.88 (2H, br. s), 2.40 - 2.31 (4H, m), 2.30 (3H, s), 2.29 - 2.26 (1H, m), 1.89 - 1.86 (1H, m), 1.06 (6H, t).
T173		δ_H 6.89 (1H, s), 6.88 (1H, s), 6.78 - 6.73 (2H, m), 6.67 - 6.61 (1H, m), 4.66 (1H, d), 4.48 (1H, s), 2.81 (1H, dd), 2.74 (2H, br. s), 2.33 - 2.27 (4H, m), 2.26 (3H, s), 2.05 - 1.98 (1H, m), 1.77 - 1.71 (1H, m), 1.02 (6H, t).
T174		δ_H 7.78 - 7.73 (2H, m), 7.44 - 7.42 (1H, m), 7.35 (1H, t), 6.84 (2H, s), 4.69 (1H, d), 4.50 (1H, s), 2.93 (1H, dd), 2.79 - 2.76 (2H, m), 2.54 (3H, s), 2.35 - 2.26 (4H, m), 2.22 (3H, s), 2.05 - 2.00 (1H, m), 1.82 - 1.76 (1H, m), 1.04 - 0.99 (6H, m).

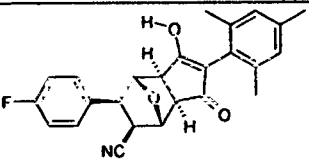
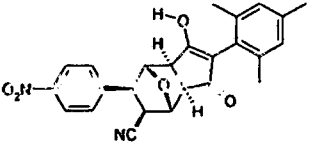
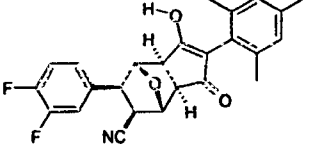
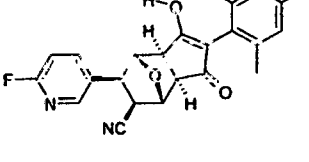
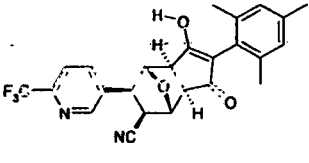
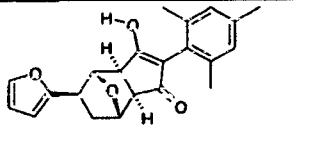
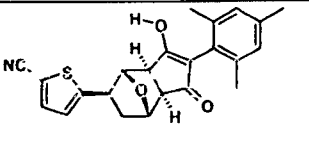
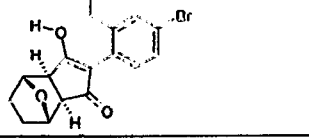
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T175		δ_H 7.95 (2H, d), 7.28 (2H, d), 6.91 - 6.90 (2H, m), 4.69 (1H, d), 4.53 (1H, s), 4.38 (2H, q), 2.91 (1H, dd), 2.79 - 2.76 (2H, m), 2.40 - 2.31 (4H, m), 2.30 (3H, s), 2.03 - 1.97 (1H, m), 1.83 - 1.77 (1H, m), 1.43 (2H, t), 1.06 (6H, t).
T176		δ_H 7.94 (2H, d), 7.33 (2H, d), 6.92 - 6.91 (2H, m), 4.81 (1H, d), 4.60 (1H, s), 3.89 (3H, s), 3.02 (1H, dd), 2.97 - 2.80 (2H, br. m), 2.38 - 2.30 (4H, m), 2.29 (3H, s), 2.16 (1H, dd), 1.93 - 1.87 (1H, m), 1.07 - 1.03 (6H, m).
T177		δ_H 7.78 (1H, dd), 7.71 (1H, dd), 7.59 - 7.54 (1H, m), 7.37 - 7.33 (1H, m), 6.91 - 6.90 (2H, m), 4.79 (1H, d), 4.69 (1H, s), 3.42 (1H, dd), 2.93 (1H, br. s), 2.88 - 2.86 (1H, m), 2.39 - 2.30 (4H, m), 2.28 (3H, s), 2.28 - 2.26 (1H, m), 1.91 - 1.85 (1H, m), 1.05 (6H, t).
T178		δ_H 7.05 - 6.97 (2H, m), 6.87 - 6.83 (3H, m), 4.62 (1H, d), 4.41 (1H, s), 2.76 (1H, dd), 2.70 (2H, br. s), 2.34 - 2.24 (5H, m), 2.26 (3H, s), 1.97 - 1.92 (1H, m), 1.71 - 1.66 (1H, m), 1.00 (6H, t).
T179		δ_H 7.15 (1H, t), 7.07 (1H, s), 7.02 - 7.00 (2H, m), 6.89 (1H, s), 6.88 (1H, s), 4.70 (1H, d), 4.51 (1H, s), 2.85 (1H, dd), 2.80 - 2.76 (2H, m), 2.37 - 2.31 (4H, m), 2.32 (3H, s), 2.27 (3H, s), 2.04 - 1.98 (1H, m), 1.87 - 1.82 (1H, m), 1.05 - 1.01 (6H, m).
T180		δ_H 7.11 - 7.05 (4H, m), 6.88 - 6.87 (2H, m), 4.67 (1H, d), 4.47 (1H, s), 2.84 (1H, dd), 2.77 - 2.73 (2H, m), 2.36 - 2.28 (4H, m), 2.30 (3H, s), 2.27 (3H, s), 2.01 - 1.96 (1H, m), 1.84 - 1.79 (1H, m), 1.05 - 1.00 (6H, m).
T181		δ_H 6.90 (1H, s), 6.89 (1H, s), 6.47 (2H, s), 4.70 (1H, d), 4.51 (1H, s), 3.84 (6H, s), 3.80 (3H, s), 2.84 - 2.79 (3H, m), 2.37 - 2.30 (4H, m), 2.28 (3H, s), 2.07 - 2.02 (1H, m), 1.86 - 1.80 (1H, m), 1.07 -

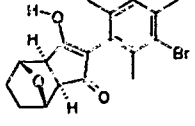
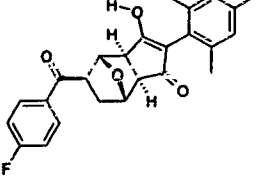
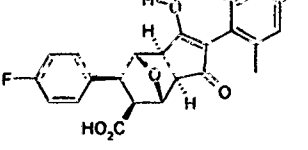
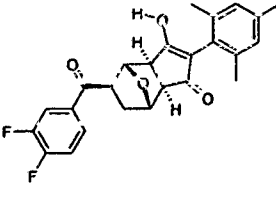
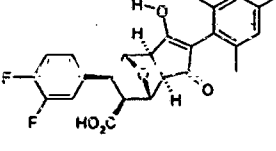
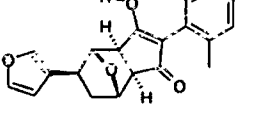
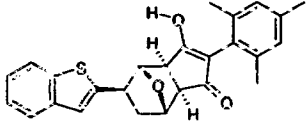
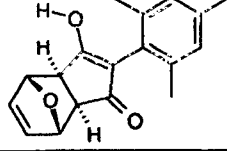
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		1.02 (6H, m).
T182		δ _H 7.53 (1H, s), 7.49 - 7.43 (2H, m), 7.38 - 7.34 (1H, m), 6.89 (1H, s), 6.88 (1H, s), 4.71 (1H, d), 4.47 (1H, s), 2.89 (1H, dd), 2.82 - 2.78 (2H, m), 2.36 - 2.26 (4H, m), 2.25 (3H, s), 2.05 (1H, dd), 1.78 - 1.72 (1H, m), 1.02 (6H, t)
T183		δ _H 7.79 (1H, d), 7.74 - 7.72 (1H, m), 7.69 - 7.66 (1H, m), 6.96 (1H, s), 6.95 (1H, s), 4.90 (1H, d), 4.60 (1H, s), 3.11 (1H, dd), 2.99 (2H, br. s), 2.40 - 2.32 (4H, m), 2.30 (3H, s), 2.29 - 2.26 (1H, m), 1.90 - 1.84 (1H, m), 1.09 - 1.05 (6H, m).
T184		δ _H 8.29 (1H, d), 7.97 (1H, dd), 7.29 (1H, d), 6.97 (1H, s), 6.95 (1H, s), 4.92 (1H, d), 4.72 (1H, s), 3.26 (1H, dd), 3.03 (2H, br. s), 2.43 (3H, s), 2.40 - 2.33 (4H, m), 2.32 (3H, s), 2.26 (1H, dd), 1.87 - 1.85 (1H, m), 1.12 - 1.06 (6H, m).
T185		δ _H 7.19 - 7.16 (2H, m), 6.97 - 6.90 (4H, m), 4.71 (1H, d), 4.48 (1H, s), 2.88 (1H, dd), 2.82 - 2.78 (2H, m), 2.37 - 2.30 (4H, m), 2.28 (3H, s), 2.05 (1H, dd), 1.83 - 1.77 (1H, m), 1.05 - 1.01 (6H, m).
T186		d ₄ -MeOH δ _H 6.82 (1H, s), 6.80 (1H, s), 4.87 (1H, d), 4.77 (1H, d), 4.63 (1H, d), 2.72 (1H, d), 2.65 (1H, d), 2.23 (3H, s), 2.12 (3H, s), 2.08 (3H, s), 2.07 - 2.03 (1H, m), 1.95 - 1.86 (1H, m), 1.76 - 1.70 (1H, m), 1.62 - 1.55 (1H, m).
T187		d ₄ -MeOH δ _H 8.65 (1H, s), 8.54 (1H, br. s), 8.46 (1H, br. s), 6.87 (2H, s), 4.82 (1H, d), 4.72 (1H, s), 3.48 - 3.46 (1H, m), 3.13 (1H, d), 3.04 (1H, d), 2.25 (3H, s), 2.25 - 2.18 (2H, m), 2.09 (3H, s), 2.07 (3H, s), 1.79 - 1.74 (1H, m), 1.72 - 1.67 (1H, m).
T188		d ₄ -MeOH δ _H 8.93 (1H, s), 8.09 - 8.06 (2H, m), 7.85 - 7.78 (2H, m), 6.87 (2H, s), 4.90 (1H, s), 4.87 (1H, d), 3.66 (1H, dd), 3.19 (1H, d), 3.09 (1H, s).

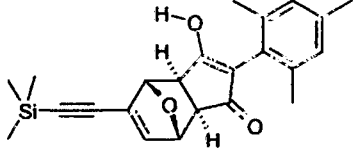
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		d), 2.44 - 2.33 (2H, m), 2.25 (3H, s), 2.09 (3H, s), 2.08 (3H, s).
T189		d ₄ -MeOH δ _H 7.23 (2H, s), 4.61 (2H, t), 2.88 (2H, s), 2.09 (6H, s), 1.83 (2H, m), 1.69 (2H, m)
T190		d ₄ -MeOH δ _H 7.14-7.04 (3H, m), 4.61 (2H, t), 2.88 (2H, s), 2.11 (6H, s), 1.83 (2H, m), 1.69 (2H, m)
T191		d ₄ -MeOH δ _H 7.36 (1H, dd), 7.17 (1H, d), 7.15 (1H, d), 2.81 (2H, s), 2.48 - 2.43 (2H, m), 1.84 - 1.79 (2H, m), 1.69 - 1.65 (2H, m), 1.51 (6H, s), 1.08 (3H, t).
T192		d ₄ -MeOH δ _H 6.94 (1H, d), 6.78 (1H, d), 6.73 (1H, dd), 4.59 (2H, s), 3.77 (3H, s), 2.82 (2H, s), 2.10 (3H, s), 1.84-1.79 (2H, m), 1.69-1.62 (2H, m).
T193		d ₄ -MeOH δ _H 7.84 (1H, br. s), 6.78 (2H, s), 4.89 (1H, br. s), 4.84 (1H, s), 3.28 (1H, br. s), 3.02 (1H, br. s), 2.94 (1H, br. s), 2.57 - 2.46 (2H, m), 2.53 (3H, s), 2.18 (3H, s), 2.05 (3H, s), 2.03 (3H, s), 2.02 (3H, s).
T194		d ₄ -MeOH δ _H 8.09 - 8.06 (1H, m), 8.00 - 7.98 (1H, m), 7.73 - 7.70 (2H, m), 6.86 (2H, s), 4.99 (1H, s), 4.80 (1H, d), 3.19 - 3.10 (3H, m), 2.49 - 2.43 (1H, m), 2.34 - 2.28 (1H, m), 2.25 (3H, s), 2.07 (3H, s), 2.06 (3H, s), 1.46 (3H, t).
T195		d ₄ -MeOH δ _H 7.04 (1H, br. s), 6.86 (2H, s), 5.93 (1H, br. s), 4.86 (1H, br. s), 4.78 (1H, s), 3.18 (1H, br. s), 3.02 (1H, br. s), 2.94 (1H, br. s), 2.59 (3H, s), 2.37 (3H, s), 2.24 (3H, s), 2.16 (3H, s), 2.07 (6H, m).
T196		d ₄ -MeOH δ _H 8.79 (1H, s), 8.59 (1H, s), 6.87 (1H, s), 4.95 (1H, s), 4.92 (1H, d), 3.74 - 3.71 (1H, m), 2.87 (2H, m), 2.26 (2H, m), 2.18 (3H, s), 2.10 (3H, s).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
		s), 2.07 (3H, s).
T197		d ₄ -MeOH δ _H 7.45 - 7.42 (3H, m), 7.29 - 7.23 (2H, m), 7.17 - 7.15 (2H, m), 6.80 (2H, s), 4.82 (1H, br. s), 4.73 (1H, br. s), 3.21 (1H, br. s), 2.90 (1H, br. s), 2.84 (1H, br. s), 2.20 (3H, s), 2.09 - 2.07 (2H, m), 2.05 (6H, s).
T198		d ₄ -MeOH δ _H 8.78 (1H, br. s), 7.96 (1H, br. s), 6.84 (3H, s), 4.82 (2H, br. s), 3.51 (1H, br. s), 2.98 (1H, br. s), 2.90 (1H, br. s), 2.35 (1H, br. s), 2.22 (3H, s), 2.04 - 2.02 (7H, m).
T199		d ₄ -MeOH δ _H 7.81 (1H, s), 7.26 (1H, s), 6.92 (1H, s), 6.90 (1H, s), 4.91 (1H, d), 4.64 (1H, s), 3.19 - 3.17 (1H, m), 2.99 - 2.95 (2H, m), 2.32 - 2.27 (1H, m), 2.26 (3H, s), 2.09 (3H, s), 2.07 (3H, s), 1.93 - 1.90 (1H, m).
T200		d ₄ -MeOH δ _H 7.95 (1H, br. s), 7.86 (1H, br. s), 7.44 (1H, br. s), 6.88 (1H, s), 6.84 (1H, s), 4.86 (1H, br. s), 4.71 (1H, br. s), 3.44 - 3.40 (1H, br. s), 3.07 (1H, br. s), 2.85 (1H, br. s), 2.22 (3H, s), 2.15 - 2.11 (2H, m), 2.10 (3H, s), 2.05 (3H, s).
T201		d ₄ -MeOH δ _H 7.79 (1H, t), 7.53 (2H, d), 6.86 (2H, s), 4.78 (1H, s), 4.71 (1H, s), 3.35 - 3.31 (1H, m), 2.88 (1H, br. s), 2.79 (1H, br. s), 2.22 (3H, s), 2.17 - 2.09 (2H, m), 2.04 (3H, s), 2.02 (3H, s).
T202		d ₄ -MeOH δ _H 8.76 (1H, br. s), 8.61 (1H, d), 8.32 (1H, d), 7.96 (1H, d), 7.85 (1H, d), 6.86 (2H, s), 4.84 (1H, s), 4.11 (1H, dd), 3.24 (1H, d), 3.13 (1H, d), 2.58 - 2.54 (1H, m), 2.24 (3H, s), 2.07 (6H, s), 1.95 - 1.91 (1H, m).
T203		d ₄ -MeOH δ _H 9.07 (1H, s), 8.38 (1H, s), 6.87 (2H, s), 4.77 (1H, s), 3.77 - 3.74 (1H, m), 3.04 (2H, br. s), 2.40 - 2.37 (1H, m), 2.29 - 2.25 (1H, m), 2.25 (3H, s), 2.06 (3H, s), 2.04 (3H, s).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T204		d ₄ -MeOH δ _H 6.85 (2H, s), 6.72 (1H, d), 5.03 (1H, d), 3.96 (1H, s), 2.92 - 2.88 (2H, m), 2.24 (3H, s), 2.06 (3H, s), 2.01 (3H, s).
T205		d ₆ -DMSO δ _H 11.92 (1H, s), 7.05 (1H, d), 6.96 (1H, d), 6.77 (1H, s), 4.50 (2H, s), 2.74 (2H, br. s), 2.23 (3H, s), 2.03 (3H, s), 1.71-1.65 (2H, m), 1.57-1.53 (2H, m).
T206		d ₆ -DMSO δ _H 12.21 (1H, s), 7.20 (1H, dd), 6.99 (1H, td), 6.75 (1H, dd), 4.51 (2H, s), 2.76 (2H, br. s), 2.04 (3H, s), 1.71-1.65 (2H, m), 1.60-1.52 (2H, m).
T207		d ₆ -DMSO δ _H 12.27 (1H, s), 7.21 (2H, s), 6.97 (1H, s), 4.51 (2H, s), 2.78 (2H, br. s), 2.05 (3H, s), 1.73-1.63 (2H, m), 1.60-1.51 (2H, m).
T208		d ₄ -MeOH δ _H 6.61 (2H, s), 4.64-4.50 (2H, m), 3.74 (3H, s), 2.83 (2H, s), 2.04 (6H, d), 1.87-1.77 (2H, m), 1.70-1.59 (2H, m).
T209		d ₄ -MeOH δ _H 8.30 (1H, s), 6.86 (2H, s), 4.89 (1H, s), 4.73 (1H, d), 3.47 (1H, dd), 3.09 (1H, d), 3.04 (1H, d), 2.55 (3H, s), 2.39 - 2.35 (1H, m), 2.30 (3H, s), 2.25 (3H, s), 2.17 (1H, dd), 2.06 (3H, s), 2.04 (3H, s).
T210		d ₄ -MeOH δ _H 8.72 (1H, d), 7.72 (1H, s), 7.58 (1H, d), 6.86 (2H, s), 4.81 (1H, d), 4.68 (1H, s), 3.51 (1H, dd), 3.10 (1H, d), 3.03 (1H, d), 2.33 (1H, dd), 2.25 (3H, s), 2.16 - 2.11 (1H, m), 2.06 (3H, s), 2.05 (3H, s).
T211		d ₃ -MeOH δ _H 7.21 - 7.19 (1H, m), 6.92 - 6.90 (2H, m), 6.86 (2H, s), 4.72 (1H, d), 4.43 (1H, s), 3.49 (1H, dd), 3.02 (1H, d), 2.93 (1H, d), 2.29 (1H, dd), 2.25 (3H, s), 2.05 (6H, s), 1.98 - 1.93 (1H, m).
T212		d ₄ -MeOH δ _H 7.41 (1H, d), 7.29 (1H, dd), 7.19 (1H, d), 4.65 - 4.60 (2H, m), 2.87 (2H, s), 1.86-1.79 (2H, m), 1.70-1.63 (2H, m).

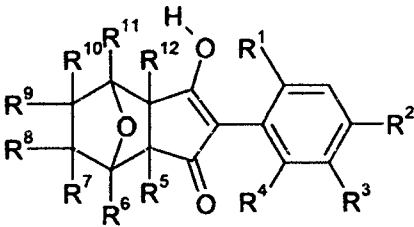
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T213		d ₄ -MeOH δ _H 7.44 - 7.41 (2H, m), 7.08 (2H, t), 6.88 (1H, s), 6.87 (1H, s), 4.89 (1H, s), 4.73 (1H, s), 3.68 (1H, d), 3.59 (1H, d), 3.10 - 3.06 (2H, m), 2.25 (3H, s), 2.07 (3H, s), 2.5 (3H, s).
T214		d ₄ -MeOH δ _H 8.24 (2H, d), 7.66 (2H, d), 6.88 (2H, s), 4.93 (1H, s), 4.68 (1H, s), 3.76 (2H, s), 3.13 - 3.11 (2H, m), 2.25 (3H, s), 2.07 (3H, s), 2.05 (3H, s).
T215		d ₄ -MeOH δ _H 7.34 - 7.30 (1H, m), 7.25 - 7.18 (2H, m), 6.89 (1H, s), 6.87 (1H, s), 4.90 (1H, s), 4.75 (1H, s), 3.67 (1H, d), 3.58 (1H, d), 3.10 - 3.05 (2H, m), 2.26 (3H, s), 2.07 (3H, s), 2.05 (3H, s).
T216		d ₄ -MeOH δ _H 8.53 (1H, s), 7.83 (1H, d), 7.64 (1H, d), 6.91 (2H, s), 3.12 (1H, dd), 2.97 (2H, br. s), 2.47 (1H, dd), 2.27 (3H, s), 1.84 - 1.79 (1H, m), 2.11 (3H, s), 2.08 (3H, s), 1.71 (3H, s), 1.10 (3H, s).
T217		d ₄ -MeOH δ _H 7.92 (1H, d), 7.77 - 7.73 (1H, m), 6.91 - 6.88 (3H, m), 3.04 (1H, dd), 2.96 - 2.92 (2H, m), 2.43 (1H, dd), 2.25 (3H, s), 2.11 (3H, s), 2.08 (3H, s), 1.76 (1H, dd), 1.70 (3H, s), 1.09 (3H, s).
T218		d ₄ -MeOH δ _H 7.41 (1H, d), 6.88 (2H, s), 6.35 - 6.34 (1H, m), 6.14 (1H, d), 4.72 (1H, d), 4.59 (1H, s), 3.26 (1H, dd), 3.02 (1H, d), 2.94 (1H, d), 2.27 (3H, s), 2.18 - 2.12 (1H, m), 2.08 (3H, s), 2.06 (3H, s), 2.05 - 2.01 (1H, m).
T219		d ₄ -MeOH δ _H 7.60 (1H, d), 7.06 (1H, d), 6.89 (2H, s), 4.79 (1H, d), 4.47 (1H, s), 3.63 (1H, dd), 3.06 (1H, d), 3.00 (1H, d), 2.36 (1H, dd), 2.27 (3H, s), 2.07 (6H, s), 1.97 - 1.91 (1H, m).
T220		δ _H 7.39 (1H, dd), 7.27-7.33 (1H, m), 6.97 (1H, dd), 4.68 (2H, m), 2.74 (2H, br. s), 2.48 (2H, q), 1.78-1.87 (2H, m), 1.56 (2H, m), 1.11 (3H, t).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T221		δ_H 7.05-6.99 (1H, m), 4.76-4.67 (2H, m), 2.84 (2H, br. s), 2.38 (3H, s), 2.24 (3H, d), 2.05 (3H, d), 1.88-1.85 (2H, m), 1.64-1.58 (2H, m).
T222		d_4 -MeOH δ_H 8.11 (2H, dd), 8.61 (2H, t), 6.86 (2H, s), 4.81 (1H, s), 4.67 (1H, d), 3.81 (1H, dd), 3.14 (1H, d), 3.03 (1H, d), 2.24 (3H, s), 2.23 - 2.19 (1H, m), 2.11 - 2.09 (1H, m), 2.06 (3H, s), 2.02 (3H, s).
T223		d_4 -MeOH δ_H 7.39 - 7.36 (2H, m), 6.98 - 6.94 (2H, m), 6.88 (1H, s), 6.86 (1H, s), 4.95 (1H, s), 4.53 (1H, s), 3.63 (1H, d), 3.08 (1H, d), 3.03 (1H, d), 2.88 - 2.86 (1H, m), 2.25 (3H, s), 2.09 (3H, s), 2.06 (3H, s).
T224		d_4 -MeOH δ_H 7.81 - 7.76 (1H, m), 7.73 - 7.70 (1H, m), 7.29 - 7.23 (1H, m), 6.88 (2H, s), 4.96 (1H, s), 4.79 (1H, d), 3.47 (1H, dd), 3.04 - 2.92 (2H, m), 2.25 (3H, s), 2.11 - 2.07 (1H, m), 2.07 (3H, s), 2.04 (3H, s), 1.96 - 1.88 (1H, m).
T225		d_4 -MeOH δ_H 7.16 - 7.12 (1H, m), 7.01 - 6.90 (2H, m), 6.78 (1H, s), 6.76 (1H, s), 4.94 (1H, s), 4.54 (1H, s), 3.39 (1H, d), 3.12 (1H, d), 2.28 - 2.80 (2H, br. m), 2.14 (3H, s), 2.00 (3H, s), 1.96 (3H, s).
T226		d_4 -MeOH δ_H 7.43 (1H, s), 7.38 (1H, s), 6.88 (2H, s), 6.42 (1H, d), 4.93 (1H, s), 4.71 (1H, d), 3.09 (1H, dd), 2.99 (1H, d), 2.93 (1H, d), 2.27 (3H, s), 2.17 (1H, dd), 2.08 (6H, m), 1.85 - 1.80 (1H, m).
T227		δ_H 7.92 - 7.81 (3H, m), 7.42 - 7.29 (2H, m), 6.85 (2H, s), 4.78 (1H, d), 4.59 (1H, s), 3.57 (1H, dd), 3.14 (1H, d), 3.00 (1H, d), 2.31 (1H, dd), 2.24 (3H, s), 2.07 (3H, s), 2.05 (3H, s), 2.04 - 1.98 (1H, m).
T228		δ_H 6.86 (2H, s), 6.47 (2H, s), 5.01 (2H, s), 2.74 (2H, s), 2.23 (3H, s), 2.08 (3H, s), 2.06 (3H, s).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
T229		δ_H 6.65 (2H, s), 6.26 (1H, s), 4.75 (1H, s), 4.67 (1H, s), 2.62 (1H, d), 2.52 (1H, d), 2.03 (3H, s), 1.84 (3H, s), 1.80 (3H, s), 0.00 (9H, s).

The compounds of the following Tables 1 to 146 can be obtained in an analogous manner.

Table 1 covers compounds of formula (A)



(I)

wherein R¹, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 1

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.001	H	H	H	H	H	H
1.002	H	H	H	H	H	CH ₃
1.003	H	H	H	H	H	CH ₂ OH
1.004	H	H	H	H	H	CH ₂ OCH ₃
1.005	H	H	H	H	H	CH ₂ OCH ₂ CH ₃
1.006	H	H	H	H	H	CH ₂ OCH ₂ OCH ₃
1.007	H	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃
1.007	H	H	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₃
1.008	H	H	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₂ CH ₃
1.009	H	H	H	H	H	CH ₂ OCH ₂ CN
1.010	H	H	H	H	H	CH(OH)CH ₃
1.011	H	H	H	H	H	CH(CH ₃)OCH ₃
1.012	H	H	H	H	H	CH(CH ₃)OCH ₂ CH ₃
1.013	H	H	H	H	H	CHO
1.014	H	H	H	H	H	COCH ₃
1.015	H	H	H	H	H	CH ₂ COCH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.016	H	H	H	H	H	CH ₂ CH ₂ COCH ₃
1.017	H	H	H	H	H	CO ₂ H
1.018	H	H	H	H	H	CO ₂ CH ₃
1.019	H	H	H	H	H	CO ₂ CH ₂ CH ₃
1.020	H	H	H	H	H	CH ₂ CO ₂ CH ₃
1.021	H	H	H	H	H	CH ₂ CO ₂ CH ₂ CH ₃
1.022	H	H	H	H	H	CH ₂ CH ₂ CO ₂ CH ₃
1.023	H	H	H	H	H	CH ₂ CH ₂ CO ₂ CH ₂ CH ₃
1.024	H	H	H	H	H	CONH ₂
1.025	H	H	H	H	H	CONHCH ₃
1.026	H	H	H	H	H	CONHCH ₂ CH ₃
1.027	H	H	H	H	H	CON(CH ₃) ₂
1.030	H	H	H	H	H	CON(CH ₂ CH ₃) ₂
1.031	H	H	H	H	H	CON(CH ₃)OCH ₃
1.032	H	H	H	H	H	CH=NOH
1.033	H	H	H	H	H	CH=NOCH ₃
1.034	H	H	H	H	H	CH=NOCH ₂ CH ₃
1.035	H	H	H	H	H	C(CH ₃)=NOH
1.036	H	H	H	H	H	C(CH ₃)=NOCH ₃
1.037	H	H	H	H	H	CH ₂ OC(O)CH ₃
1.038	H	H	H	H	H	CH ₂ OC(O)CH ₂ CH ₃
1.039	H	H	H	H	H	CH ₂ OC(O)CH(CH ₃) ₂
1.040	H	H	H	H	H	CH ₂ OC(O)C(CH ₃) ₃
1.039	H	H	H	H	H	CH ₂ OC(O)NHCH ₃
1.040	H	H	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₃
1.041	H	H	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₂ CH ₃
1.042	H	H	H	H	H	CH ₂ OC(O)NHC(CH ₃) ₃
1.043	H	H	H	H	H	CH ₂ NH ₂
1.044	H	H	H	H	H	CH ₂ NHCHO
1.045	H	H	H	H	H	CH ₂ NHC(O)CH ₃
1.046	H	H	H	H	H	CH ₂ NHC(O)OCH ₃
1.047	H	H	H	H	H	NHCO ₂ CH ₃
1.048	H	H	H	H	H	NHCO ₂ C(CH ₃) ₃
1.049	H	H	H	H	H	CN
1.050	H	H	H	H	H	CH ₂ SCH ₃
1.051	H	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.052	H	H	H	H	H	CH ₂ SCH ₂ CH ₂ CH ₃
1.053	H	H	H	H	H	CH ₂ SCH(CH ₃) ₂
1.054	H	H	H	H	H	CH ₂ S(O)CH ₃
1.055	H	H	H	H	H	CH ₂ SO ₂ CH ₃
1.056	H	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.057	H	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃

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	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.058	H	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃
1.059	H	H	H	H	H	OCH ₃
1.060	H	H	H	H	H	OCH ₂ CH ₃
1.061	H	H	H	H	H	CH(OCH ₃) ₂
1.062	H	H	H	H	H	CH(OCH ₂ CH ₃) ₂
1.063	H	H	H	H	H	1,3-dioxolan-2-yl
1.064	H	H	H	H	H	1,3-dioxan-2-yl
1.065	H	H	H	H	H	5,5-dimethyl-1,3-dioxan-2-yl
1.066	H	H	H	H	H	CH ₂ CH ₃
1.067	H	H	H	H	H	<i>n</i> -propyl
1.068	H	H	H	H	H	isopropyl
1.069	H	H	H	H	H	<i>n</i> -butyl
1.070	H	H	H	H	H	isobutyl
1.071	H	H	H	H	H	<i>sec</i> -butyl
1.072	H	H	H	H	H	<i>tert</i> -butyl
1.073	H	H	H	H	H	<i>n</i> -pentyl
1.074	H	H	H	H	H	neopentyl
1.075	H	H	H	H	H	<i>n</i> -hexyl
1.076	H	H	H	H	H	<i>n</i> -heptyl
1.077	H	H	H	H	H	CH ₂ CN
1.078	H	H	H	H	H	cyclopropyl
1.079	H	H	H	H	H	cyclobutyl
1.080	H	H	H	H	H	cyclopentyl
1.081	H	H	H	H	H	cyclohexyl
1.082	H	H	H	H	H	CH ₂ -cyclopropyl
1.083	H	H	H	H	H	benzyl
1.084	H	H	H	H	H	CH ₂ CF ₃
1.085	H	H	H	H	H	CH ₂ F
1.086	H	H	H	H	H	CHF ₂
1.087	H	H	H	H	H	CF ₃
1.088	H	H	H	H	CH ₃	H
1.089	H	H	H	H	CH ₂ CH ₃	H
1.090	H	H	H	H	<i>n</i> -propyl	H
1.091	H	H	H	H	isopropyl	H
1.092	H	H	H	H	<i>n</i> -butyl	H
1.093	H	H	H	H	isobutyl	H
1.094	H	H	H	H	<i>sec</i> -butyl	H
1.095	H	H	H	H	<i>tert</i> -butyl	H
1.096	H	H	H	H	vinyl	H
1.097	H	H	H	H	ethynyl	H
1.098	H	H	H	H	trimethylsilylethynyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.099	H	H	H	H	CH ₂ OH	H
1.100	H	H	H	H	CH ₂ OCH ₃	H
1.101	H	H	H	H	CH ₂ OCH ₂ CH ₃	H
1.102	H	H	H	H	CH ₂ OCH ₂ OCH ₃	H
1.103	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
1.104	H	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
1.105	H	H	H	H	CHO	H
1.106	H	H	H	H	COCH ₃	H
1.107	H	H	H	H	CO ₂ H	H
1.108	H	H	H	H	CO ₂ CH ₃	H
1.109	H	H	H	H	CO ₂ CH ₂ CH ₃	H
1.110	H	H	H	H	CONH ₂	H
1.111	H	H	H	H	CONHCH ₃	H
1.112	H	H	H	H	CONHCH ₂ CH ₃	H
1.113	H	H	H	H	CON(CH ₃) ₂	H
1.114	H	H	H	H	CON(CH ₂ -CH ₃) ₂	H
1.115	H	H	H	H	CON(CH ₃)OCH ₃	H
1.116	H	H	H	H	CH=NOH	H
1.117	H	H	H	H	CH=N-OCH ₃	H
1.118	H	H	H	H	CH=N-OCH ₂ CH ₃	H
1.119	H	H	H	H	C(CH ₃)=N-OH	H
1.120	H	H	H	H	C(CH ₃)=N-OCH ₃	H
1.121	H	H	H	H	CH ₂ OC(O)-NHCH ₃	H
1.122	H	H	H	H	CH ₂ NH ₂	H
1.123	H	H	H	H	CH ₂ NHCHO	H
1.124	H	H	H	H	CH ₂ NHC(O)CH ₃	H
1.125	H	H	H	H	CH ₂ NHC(O)OCH ₃	H
1.126	H	H	H	H	NHCO ₂ CH ₃	H
1.127	H	H	H	H	NHCO ₂ C(CH ₃) ₃	H
1.128	H	H	H	H	CH(OH)CH ₃	H
1.129	H	H	H	H	CH(CH ₃)OCH ₃	H
1.130	H	H	H	H	CN	H
1.131	H	H	H	H	CH ₂ SCH ₃	H
1.132	H	H	H	H	CH ₂ S(O)CH ₃	H
1.133	H	H	H	H	CH ₂ SO ₂ CH ₃	H
1.134	H	H	H	H	CH ₂ SCH ₂ CH ₃	H
1.135	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃	H
1.136	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H
1.137	H	H	H	H	OCH ₃	H
1.138	H	H	H	H	OCH ₂ CH ₃	H
1.139	H	H	H	H	CH(OCH ₃) ₂	H
1.140	H	H	H	H	CH(OCH ₂ CH ₃) ₂	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.141	H	H	H	H	cyclopropyl	H
1.142	H	H	H	H	cyclobutyl	H
1.143	H	H	H	H	cyclopentyl	H
1.144	H	H	H	H	cyclohexyl	H
1.145	H	H	H	H	F	H
1.146	H	H	H	H	Cl	H
1.147	H	H	H	H	Br	H
1.148	H	H	H	H	I	H
1.149	H	H	H	H	OH	H
1.150	H	H	H	H	phenyl	H
1.151	H	H	H	H	2-acetylphenyl	H
1.152	H	H	H	H	3-acetylphenyl	H
1.153	H	H	H	H	4-acetylphenyl	H
1.154	H	H	H	H	2-chlorophenyl	H
1.155	H	H	H	H	3-chlorophenyl	H
1.156	H	H	H	H	4-chlorophenyl	H
1.157	H	H	H	H	2-cyanophenyl	H
1.158	H	H	H	H	3-cyanophenyl	H
1.159	H	H	H	H	4-cyanophenyl	H
1.160	H	H	H	H	2-fluorophenyl	H
1.161	H	H	H	H	3-fluorophenyl	H
1.162	H	H	H	H	4-fluorophenyl	H
1.163	H	H	H	H	2-methoxyphenyl	H
1.164	H	H	H	H	3-methoxyphenyl	H
1.165	H	H	H	H	4-methoxyphenyl	H
1.166	H	H	H	H	2-methylphenyl	H
1.167	H	H	H	H	3-methylphenyl	H
1.168	H	H	H	H	4-methylphenyl	H
1.169	H	H	H	H	2-nitrophenyl	H
1.170	H	H	H	H	3-nitrophenyl	H
1.171	H	H	H	H	4-nitrophenyl	H
1.172	H	H	H	H	2-thiomethylphenyl	H
1.173	H	H	H	H	3-thiomethylphenyl	H
1.174	H	H	H	H	4-thiomethylphenyl	H
1.175	H	H	H	H	2-trifluoromethoxyphenyl	H
1.176	H	H	H	H	3-trifluoromethoxyphenyl	H
1.177	H	H	H	H	4-trifluoromethoxyphenyl	H
1.178	H	H	H	H	2-trifluoromethylphenyl	H
1.179	H	H	H	H	3-trifluoromethylphenyl	H
1.180	H	H	H	H	4-trifluoromethylphenyl	H
1.181	H	H	H	H	2,3-dichlorophenyl	H
1.182	H	H	H	H	2,4-dichlorophenyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.183	H	H	H	H	2,5-dichlorophenyl	H
1.184	H	H	H	H	2,6-dichlorophenyl	H
1.185	H	H	H	H	3,4-dichlorophenyl	H
1.186	H	H	H	H	3,5-dichlorophenyl	H
1.187	H	H	H	H	2,3-difluorophenyl	H
1.188	H	H	H	H	2,4-difluorophenyl	H
1.189	H	H	H	H	2,5-difluorophenyl	H
1.190	H	H	H	H	2,6-difluorophenyl	H
1.191	H	H	H	H	3,4-difluorophenyl	H
1.192	H	H	H	H	3,5-difluorophenyl	H
1.193	H	H	H	H	2,4,6-trifluorophenyl	H
1.194	H	H	H	H	2,4-dimethylphenyl	H
1.195	H	H	H	H	2,4,6-trimethylphenyl	H
1.196	H	H	H	H	3,4,5-trimethoxyphenyl	H
1.197	H	H	H	H	2-chloro-3-cyanophenyl	H
1.198	H	H	H	H	2-chloro-4-cyanophenyl	H
1.199	H	H	H	H	2-chloro-5-cyanophenyl	H
1.200	H	H	H	H	2-chloro-6-cyanophenyl	H
1.201	H	H	H	H	3-chloro-2-cyanophenyl	H
1.202	H	H	H	H	3-chloro-4-cyanophenyl	H
1.203	H	H	H	H	3-chloro-5-cyanophenyl	H
1.204	H	H	H	H	5-chloro-2-cyanophenyl	H
1.205	H	H	H	H	4-chloro-2-cyanophenyl	H
1.206	H	H	H	H	4-chloro-3-cyanophenyl	H
1.207	H	H	H	H	2-chloro-3-fluorophenyl	H
1.208	H	H	H	H	2-chloro-4-fluorophenyl	H
1.209	H	H	H	H	2-chloro-5-fluorophenyl	H
1.210	H	H	H	H	2-chloro-6-fluorophenyl	H
1.211	H	H	H	H	3-chloro-2-fluorophenyl	H
1.212	H	H	H	H	3-chloro-4-fluorophenyl	H
1.213	H	H	H	H	3-chloro-5-fluorophenyl	H
1.214	H	H	H	H	5-chloro-2-fluorophenyl	H
1.215	H	H	H	H	4-chloro-2-fluorophenyl	H
1.216	H	H	H	H	4-chloro-3-fluorophenyl	H
1.217	H	H	H	H	2-chloro-3-methylphenyl	H
1.218	H	H	H	H	2-chloro-4-methylphenyl	H
1.219	H	H	H	H	2-chloro-5-methylphenyl	H
1.220	H	H	H	H	2-chloro-6-methylphenyl	H
1.221	H	H	H	H	3-chloro-2-methylphenyl	H
1.222	H	H	H	H	3-chloro-4-methylphenyl	H
1.223	H	H	H	H	3-chloro-5-methylphenyl	H
1.224	H	H	H	H	5-chloro-2-methylphenyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.225	H	H	H	H	4-chloro-2-methylphenyl	H
1.226	H	H	H	H	4-chloro-3-methylphenyl	H
1.227	H	H	H	H	2-cyano-3-fluorophenyl	H
1.228	H	H	H	H	2-cyano-4-fluorophenyl	H
1.229	H	H	H	H	2-cyano-5-fluorophenyl	H
1.230	H	H	H	H	2-cyano-6-fluorophenyl	H
1.231	H	H	H	H	3-cyano-2-fluorophenyl	H
1.232	H	H	H	H	3-cyano-4-fluorophenyl	H
1.233	H	H	H	H	3-cyano-5-fluorophenyl	H
1.234	H	H	H	H	5-cyano-2-fluorophenyl	H
1.235	H	H	H	H	4-cyano-2-fluorophenyl	H
1.236	H	H	H	H	4-cyano-3-fluorophenyl	H
1.237	H	H	H	H	2-fluoro-3-methylphenyl	H
1.238	H	H	H	H	2-fluoro-4-methylphenyl	H
1.239	H	H	H	H	2-fluoro-5-methylphenyl	H
1.240	H	H	H	H	2-fluoro-6-methylphenyl	H
1.241	H	H	H	H	3-fluoro-2-methylphenyl	H
1.242	H	H	H	H	3-fluoro-4-methylphenyl	H
1.243	H	H	H	H	3-fluoro-5-methylphenyl	H
1.244	H	H	H	H	5-fluoro-2-methylphenyl	H
1.245	H	H	H	H	4-fluoro-2-methylphenyl	H
1.246	H	H	H	H	4-fluoro-3-methylphenyl	H
1.247	H	H	H	H	pyridin-2-yl	H
1.248	H	H	H	H	pyridin-3-yl	H
1.249	H	H	H	H	pyridin-4-yl	H
1.250	H	H	H	H	3-chloropyridin-2-yl	H
1.251	H	H	H	H	4-chloropyridin-2-yl	H
1.252	H	H	H	H	5-chloropyridin-2-yl	H
1.253	H	H	H	H	6-chloropyridin-2-yl	H
1.254	H	H	H	H	2-chloropyridin-3-yl	H
1.255	H	H	H	H	4-chloropyridin-3-yl	H
1.256	H	H	H	H	5-chloropyridin-3-yl	H
1.257	H	H	H	H	2-chloropyridin-4-yl	H
1.258	H	H	H	H	3-chloropyridin-4-yl	H
1.259	H	H	H	H	2-chloropyridin-5-yl	H
1.260	H	H	H	H	3-cyanopyridin-2-yl	H
1.261	H	H	H	H	4-cyanopyridin-2-yl	H
1.262	H	H	H	H	5-cyanopyridin-2-yl	H
1.263	H	H	H	H	6-cyanopyridin-2-yl	H
1.264	H	H	H	H	2-cyanopyridin-3-yl	H
1.265	H	H	H	H	4-cyanopyridin-3-yl	H
1.266	H	H	H	H	5-cyanopyridin-3-yl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.267	H	H	H	H	2-cyanopyridin-5-yl	H
1.268	H	H	H	H	3-fluoropyridin-2-yl	H
1.269	H	H	H	H	4-fluoropyridin-2-yl	H
1.270	H	H	H	H	5-fluoropyridin-2-yl	H
1.271	H	H	H	H	6-fluoropyridin-2-yl	H
1.272	H	H	H	H	2-fluoropyridin-3-yl	H
1.273	H	H	H	H	4-fluoropyridin-3-yl	H
1.274	H	H	H	H	5-fluoropyridin-3-yl	H
1.275	H	H	H	H	2-fluoropyridin-5-yl	H
1.276	H	H	H	H	3-nitropyridin-2-yl	H
1.277	H	H	H	H	4-nitropyridin-2-yl	H
1.278	H	H	H	H	5-nitropyridin-2-yl	H
1.279	H	H	H	H	6-nitropyridin-2-yl	H
1.280	H	H	H	H	2-nitropyridin-3-yl	H
1.281	H	H	H	H	4-nitropyridin-3-yl	H
1.282	H	H	H	H	5-nitropyridin-3-yl	H
1.283	H	H	H	H	2-nitropyridin-5-yl	H
1.284	H	H	H	H	3-trifluoromethylpyridin-2-yl	H
1.285	H	H	H	H	4-trifluoromethylpyridin-2-yl	H
1.286	H	H	H	H	5-trifluoromethylpyridin-2-yl	H
1.287	H	H	H	H	6-trifluoromethylpyridin-2-yl	H
1.288	H	H	H	H	2-trifluoromethylpyridin-3-yl	H
1.289	H	H	H	H	4-trifluoromethylpyridin-3-yl	H
1.290	H	H	H	H	5-trifluoromethylpyridin-3-yl	H
1.291	H	H	H	H	2-trifluoromethylpyridin-5-yl	H
1.292	H	H	H	H	2,6-bis(trifluoromethyl)- pyridin-3-yl	H
1.293	H	H	H	H	2,6-bis(trifluoromethyl)- pyridin-4-yl	H
1.294	H	H	H	H	3,5-bis(trifluoromethyl)- pyridin-2-yl	H
1.295	H	H	H	H	2-thienyl	H
1.296	H	H	H	H	3-thienyl	H
1.297	H	H	H	H	5-cyanothien-2-yl	H
1.298	H	H	H	H	2-furyl	H
1.299	H	H	H	H	3-furyl	H
1.300	H	H	H	H	1-methyl-1,2,3-triazol-4-yl	H
1.301	H	H	H	H	2-methylthiopyrimidin-4-yl	H
1.302	H	H	H	H	5-methyl-2-methyl- thiopyrimidin-4-yl	H
1.303	H	H	H	H	pyrazin-2-yl	H
1.304	H	H	H	H	3,6-dimethylpyrazin-2-yl	H
1.305	H	H	H	H	3-cyanopyrazin-2-yl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.306	H	H	H	H	quinolin-2-yl	H
1.307	H	H	H	H	3-ethylquinolin-2-yl	H
1.308	H	H	H	H	benzyl	H
1.309	H	H	H	H	4-fluorobenzyl	H
1.310	H	H	H	H	4-chlorobenzyl	H
1.311	H	H	H	H	4-methylbenzyl	H
1.312	H	H	H	H	2,4-dimethylbenzyl	H
1.313	H	H	H	H	2,4,6-trimethylbenzyl	H
1.314	H	H	H	H	CH ₃	CH ₃
1.315	H	H	H	H	CH ₂ CH ₃	CH ₃
1.316	H	H	H	H	<i>n</i> -propyl	CH ₃
1.317	H	H	H	H	isopropyl	CH ₃
1.318	H	H	H	H	<i>n</i> -butyl	CH ₃
1.319	H	H	H	H	isobutyl	CH ₃
1.320	H	H	H	H	<i>sec</i> -butyl	CH ₃
1.321	H	H	H	H	<i>tert</i> -butyl	CH ₃
1.322	H	H	H	H	vinyl	CH ₃
1.323	H	H	H	H	ethynyl	CH ₃
1.324	H	H	H	H	trimethylsilylethynyl	CH ₃
1.325	H	H	H	H	CH ₂ OH	CH ₃
1.326	H	H	H	H	CH ₂ OCH ₃	CH ₃
1.327	H	H	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
1.328	H	H	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
1.329	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
1.330	H	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
1.331	H	H	H	H	CHO	CH ₃
1.332	H	H	H	H	COCH ₃	CH ₃
1.333	H	H	H	H	CO ₂ H	CH ₃
1.337	H	H	H	H	CO ₂ CH ₃	CH ₃
1.335	H	H	H	H	CO ₂ CH ₂ CH ₃	CH ₃
1.336	H	H	H	H	CONH ₂	CH ₃
1.337	H	H	H	H	CONHCH ₃	CH ₃
1.338	H	H	H	H	CONHCH ₂ CH ₃	CH ₃
1.339	H	H	H	H	CON(CH ₃) ₂	CH ₃
1.340	H	H	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
1.341	H	H	H	H	CON(CH ₃)OCH ₃	CH ₃
1.342	H	H	H	H	CH=NOH	CH ₃
1.343	H	H	H	H	CH=N-OCH ₃	CH ₃
1.344	H	H	H	H	CH=N-OCH ₂ CH ₃	CH ₃
1.345	H	H	H	H	C(CH ₃)=N-OH	CH ₃
1.346	H	H	H	H	C(CH ₃)=N-OCH ₃	CH ₃
1.347	H	H	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.348	H	H	H	H	CH ₂ NH ₂	CH ₃
1.349	H	H	H	H	CH ₂ NHCHO	CH ₃
1.350	H	H	H	H	CH ₂ NHC(O)CH ₃	CH ₃
1.351	H	H	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
1.352	H	H	H	H	NHCO ₂ CH ₃	CH ₃
1.353	H	H	H	H	NHCO ₂ C(CH ₃) ₃	CH ₃
1.354	H	H	H	H	CH(OH)CH ₃	CH ₃
1.355	H	H	H	H	CH(CH ₃)OCH ₃	CH ₃
1.356	H	H	H	H	CN	CH ₃
1.357	H	H	H	H	CH ₂ SCH ₃	CH ₃
1.358	H	H	H	H	CH ₂ S(O)CH ₃	CH ₃
1.359	H	H	H	H	CH ₂ SO ₂ CH ₃	CH ₃
1.360	H	H	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
1.361	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
1.362	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
1.363	H	H	H	H	OCH ₃	CH ₃
1.364	H	H	H	H	OCH ₂ CH ₃	CH ₃
1.365	H	H	H	H	CH(OCH ₃) ₂	CH ₃
1.366	H	H	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
1.367	H	H	H	H	cyclopropyl	CH ₃
1.368	H	H	H	H	cyclobutyl	CH ₃
1.369	H	H	H	H	cyclopentyl	CH ₃
1.370	H	H	H	H	cyclohexyl	CH ₃
1.371	H	H	H	H	F	CH ₃
1.372	H	H	H	H	Cl	CH ₃
1.373	H	H	H	H	Br	CH ₃
1.374	H	H	H	H	I	CH ₃
1.375	H	H	H	H	OH	CH ₃
1.376	H	H	H	H	phenyl	CH ₃
1.377	H	H	H	H	2-acetylphenyl	CH ₃
1.378	H	H	H	H	3-acetylphenyl	CH ₃
1.379	H	H	H	H	4-acetylphenyl	CH ₃
1.380	H	H	H	H	2-chlorophenyl	CH ₃
1.381	H	H	H	H	3-chlorophenyl	CH ₃
1.382	H	H	H	H	4-chlorophenyl	CH ₃
1.383	H	H	H	H	2-cyanophenyl	CH ₃
1.384	H	H	H	H	3-cyanophenyl	CH ₃
1.385	H	H	H	H	4-cyanophenyl	CH ₃
1.386	H	H	H	H	2-fluorophenyl	CH ₃
1.387	H	H	H	H	3-fluorophenyl	CH ₃
1.388	H	H	H	H	4-fluorophenyl	CH ₃
1.389	H	H	H	H	2-methoxyphenyl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.390	H	H	H	H	3-methoxyphenyl	CH ₃
1.391	H	H	H	H	4-methoxyphenyl	CH ₃
1.392	H	H	H	H	2-methylphenyl	CH ₃
1.393	H	H	H	H	3-methylphenyl	CH ₃
1.394	H	H	H	H	4-methylphenyl	CH ₃
1.395	H	H	H	H	2-nitrophenyl	CH ₃
1.396	H	H	H	H	3-nitrophenyl	CH ₃
1.397	H	H	H	H	4-nitrophenyl	CH ₃
1.398	H	H	H	H	2-thiomethylphenyl	CH ₃
1.399	H	H	H	H	3-thiomethylphenyl	CH ₃
1.400	H	H	H	H	4-thiomethylphenyl	CH ₃
1.401	H	H	H	H	2-trifluoromethoxyphenyl	CH ₃
1.402	H	H	H	H	3-trifluoromethoxyphenyl	CH ₃
1.403	H	H	H	H	4-trifluoromethoxyphenyl	CH ₃
1.404	H	H	H	H	2-trifluoromethylphenyl	CH ₃
1.405	H	H	H	H	3-trifluoromethylphenyl	CH ₃
1.406	H	H	H	H	4-trifluoromethylphenyl	CH ₃
1.407	H	H	H	H	2,3-dichlorophenyl	CH ₃
1.408	H	H	H	H	2,4-dichlorophenyl	CH ₃
1.409	H	H	H	H	2,5-dichlorophenyl	CH ₃
1.410	H	H	H	H	2,6-dichlorophenyl	CH ₃
1.411	H	H	H	H	3,4-dichlorophenyl	CH ₃
1.412	H	H	H	H	3,5-dichlorophenyl	CH ₃
1.413	H	H	H	H	2,3-difluorophenyl	CH ₃
1.414	H	H	H	H	2,4-difluorophenyl	CH ₃
1.415	H	H	H	H	2,5-difluorophenyl	CH ₃
1.416	H	H	H	H	2,6-difluorophenyl	CH ₃
1.417	H	H	H	H	3,4-difluorophenyl	CH ₃
1.418	H	H	H	H	3,5-difluorophenyl	CH ₃
1.419	H	H	H	H	2,4,6-trifluorophenyl	CH ₃
1.420	H	H	H	H	2,4-dimethylphenyl	CH ₃
1.421	H	H	H	H	2,4,6-trimethylphenyl	CH ₃
1.422	H	H	H	H	3,4,5-trimethoxyphenyl	CH ₃
1.423	H	H	H	H	2-chloro-3-cyanophenyl	CH ₃
1.424	H	H	H	H	2-chloro-4-cyanophenyl	CH ₃
1.425	H	H	H	H	2-chloro-5-cyanophenyl	CH ₃
1.426	H	H	H	H	2-chloro-6-cyanophenyl	CH ₃
1.427	H	H	H	H	3-chloro-2-cyanophenyl	CH ₃
1.428	H	H	H	H	3-chloro-4-cyanophenyl	CH ₃
1.429	H	H	H	H	3-chloro-5-cyanophenyl	CH ₃
1.430	H	H	H	H	5-chloro-2-cyanophenyl	CH ₃
1.431	H	H	H	H	4-chloro-2-cyanophenyl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.432	H	H	H	H	4-chloro-3-cyanophenyl	CH ₃
1.433	H	H	H	H	2-chloro-3-fluorophenyl	CH ₃
1.434	H	H	H	H	2-chloro-4-fluorophenyl	CH ₃
1.435	H	H	H	H	2-chloro-5-fluorophenyl	CH ₃
1.436	H	H	H	H	2-chloro-6-fluorophenyl	CH ₃
1.437	H	H	H	H	3-chloro-2-fluorophenyl	CH ₃
1.438	H	H	H	H	3-chloro-4-fluorophenyl	CH ₃
1.439	H	H	H	H	3-chloro-5-fluorophenyl	CH ₃
1.440	H	H	H	H	5-chloro-2-fluorophenyl	CH ₃
1.441	H	H	H	H	4-chloro-2-fluorophenyl	CH ₃
1.442	H	H	H	H	4-chloro-3-fluorophenyl	CH ₃
1.443	H	H	H	H	2-chloro-3-methylphenyl	CH ₃
1.444	H	H	H	H	2-chloro-4-methylphenyl	CH ₃
1.445	H	H	H	H	2-chloro-5-methylphenyl	CH ₃
1.446	H	H	H	H	2-chloro-6-methylphenyl	CH ₃
1.447	H	H	H	H	3-chloro-2-methylphenyl	CH ₃
1.448	H	H	H	H	3-chloro-4-methylphenyl	CH ₃
1.449	H	H	H	H	3-chloro-5-methylphenyl	CH ₃
1.450	H	H	H	H	5-chloro-2-methylphenyl	CH ₃
1.451	H	H	H	H	4-chloro-2-methylphenyl	CH ₃
1.452	H	H	H	H	4-chloro-3-methylphenyl	CH ₃
1.453	H	H	H	H	2-cyano-3-fluorophenyl	CH ₃
1.454	H	H	H	H	2-cyano-4-fluorophenyl	CH ₃
1.455	H	H	H	H	2-cyano-5-fluorophenyl	CH ₃
1.456	H	H	H	H	2-cyano-6-fluorophenyl	CH ₃
1.457	H	H	H	H	3-cyano-2-fluorophenyl	CH ₃
1.458	H	H	H	H	3-cyano-4-fluorophenyl	CH ₃
1.459	H	H	H	H	3-cyano-5-fluorophenyl	CH ₃
1.460	H	H	H	H	5-cyano-2-fluorophenyl	CH ₃
1.461	H	H	H	H	4-cyano-2-fluorophenyl	CH ₃
1.462	H	H	H	H	4-cyano-3-fluorophenyl	CH ₃
1.463	H	H	H	H	2-fluoro-3-methylphenyl	CH ₃
1.464	H	H	H	H	2-fluoro-4-methylphenyl	CH ₃
1.465	H	H	H	H	2-fluoro-5-methylphenyl	CH ₃
1.466	H	H	H	H	2-fluoro-6-methylphenyl	CH ₃
1.467	H	H	H	H	3-fluoro-2-methylphenyl	CH ₃
1.468	H	H	H	H	3-fluoro-4-methylphenyl	CH ₃
1.469	H	H	H	H	3-fluoro-5-methylphenyl	CH ₃
1.470	H	H	H	H	5-fluoro-2-methylphenyl	CH ₃
1.471	H	H	H	H	4-fluoro-2-methylphenyl	CH ₃
1.472	H	H	H	H	4-fluoro-3-methylphenyl	CH ₃
1.473	H	H	H	H	pyridin-2-yl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.474	H	H	H	H	pyridin-3-yl	CH ₃
1.475	H	H	H	H	pyridin-4-yl	CH ₃
1.476	H	H	H	H	3-chloropyridin-2-yl	CH ₃
1.477	H	H	H	H	4-chloropyridin-2-yl	CH ₃
1.478	H	H	H	H	5-chloropyridin-2-yl	CH ₃
1.479	H	H	H	H	6-chloropyridin-2-yl	CH ₃
1.480	H	H	H	H	2-chloropyridin-3-yl	CH ₃
1.481	H	H	H	H	4-chloropyridin-3-yl	CH ₃
1.482	H	H	H	H	5-chloropyridin-3-yl	CH ₃
1.483	H	H	H	H	2-chloropyridin-4-yl	CH ₃
1.484	H	H	H	H	3-chloropyridin-4-yl	CH ₃
1.485	H	H	H	H	2-chloropyridin-5-yl	CH ₃
1.486	H	H	H	H	3-cyanopyridin-2-yl	CH ₃
1.487	H	H	H	H	4-cyanopyridin-2-yl	CH ₃
1.488	H	H	H	H	5-cyanopyridin-2-yl	CH ₃
1.489	H	H	H	H	6-cyanopyridin-2-yl	CH ₃
1.490	H	H	H	H	2-cyanopyridin-3-yl	CH ₃
1.491	H	H	H	H	4-cyanopyridin-3-yl	CH ₃
1.492	H	H	H	H	5-cyanopyridin-3-yl	CH ₃
1.493	H	H	H	H	2-cyanopyridin-5-yl	CH ₃
1.494	H	H	H	H	3-fluoropyridin-2-yl	CH ₃
1.495	H	H	H	H	4-fluoropyridin-2-yl	CH ₃
1.496	H	H	H	H	5-fluoropyridin-2-yl	CH ₃
1.497	H	H	H	H	6-fluoropyridin-2-yl	CH ₃
1.498	H	H	H	H	2-fluoropyridin-3-yl	CH ₃
1.499	H	H	H	H	4-fluoropyridin-3-yl	CH ₃
1.500	H	H	H	H	5-fluoropyridin-3-yl	CH ₃
1.501	H	H	H	H	2-fluoropyridin-5-yl	CH ₃
1.502	H	H	H	H	3-nitropyridin-2-yl	CH ₃
1.503	H	H	H	H	4-nitropyridin-2-yl	CH ₃
1.504	H	H	H	H	5-nitropyridin-2-yl	CH ₃
1.505	H	H	H	H	6-nitropyridin-2-yl	CH ₃
1.506	H	H	H	H	2-nitropyridin-3-yl	CH ₃
1.507	H	H	H	H	4-nitropyridin-3-yl	CH ₃
1.508	H	H	H	H	5-nitropyridin-3-yl	CH ₃
1.509	H	H	H	H	2-nitropyridin-5-yl	CH ₃
1.510	H	H	H	H	3-trifluoromethylpyridin-2-yl	CH ₃
1.511	H	H	H	H	4-trifluoromethylpyridin-2-yl	CH ₃
1.512	H	H	H	H	5-trifluoromethylpyridin-2-yl	CH ₃
1.513	H	H	H	H	6-trifluoromethylpyridin-2-yl	CH ₃
1.514	H	H	H	H	2-trifluoromethylpyridin-3-yl	CH ₃
1.515	H	H	H	H	4-trifluoromethylpyridin-3-yl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.516	H	H	H	H	5-trifluoromethylpyridin-3-yl	CH ₃
1.517	H	H	H	H	2-trifluoromethylpyridin-5-yl	CH ₃
1.518	H	H	H	H	2,6-bis(trifluoromethyl)-pyridin-3-yl	CH ₃
1.519	H	H	H	H	2,6-bis(trifluoromethyl)-pyridin-4-yl	CH ₃
1.520	H	H	H	H	3,5-bis(trifluoromethyl)-pyridin-2-yl	CH ₃
1.521	H	H	H	H	2-thienyl	CH ₃
1.522	H	H	H	H	3-thienyl	CH ₃
1.523	H	H	H	H	5-cyanothien-2-yl	CH ₃
1.524	H	H	H	H	2-furyl	CH ₃
1.525	H	H	H	H	3-furyl	CH ₃
1.526	H	H	H	H	1-methyl-1,2,3-triazol-4-yl	CH ₃
1.527	H	H	H	H	2-methylthiopyrimidin-4-yl	CH ₃
1.528	H	H	H	H	5-methyl-2-methyl-thiopyrimidin-4-yl	CH ₃
1.529	H	H	H	H	pyrazin-2-yl	CH ₃
1.530	H	H	H	H	3,6-dimethylpyrazin-2-yl	CH ₃
1.531	H	H	H	H	3-cyanopyrazin-2-yl	CH ₃
1.532	H	H	H	H	quinolin-2-yl	CH ₃
1.533	H	H	H	H	3-ethylquinolin-2-yl	CH ₃
1.534	H	H	H	H	benzyl	CH ₃
1.535	H	H	H	H	4-fluorobenzyl	CH ₃
1.536	H	H	H	H	4-chlorobenzyl	CH ₃
1.537	H	H	H	H	4-methylbenzyl	CH ₃
1.538	H	H	H	H	2,4-dimethylbenzyl	CH ₃
1.539	H	H	H	H	2,4,6-trimethylbenzyl	CH ₃
1.540	CH ₃	H	H	H	CH ₃	H
1.541	CH ₃	H	H	H	CH ₂ CH ₃	H
1.542	CH ₃	H	H	H	<i>n</i> -propyl	H
1.543	CH ₃	H	H	H	isopropyl	H
1.544	CH ₃	H	H	H	<i>n</i> -butyl	H
1.545	CH ₃	H	H	H	isobutyl	H
1.546	CH ₃	H	H	H	<i>sec</i> -butyl	H
1.547	CH ₃	H	H	H	<i>tert</i> -butyl	H
1.548	CH ₃	H	H	H	vinyl	H
1.549	CH ₃	H	H	H	ethynyl	H
1.550	CH ₃	H	H	H	trimethylsilylethynyl	H
1.551	CH ₃	H	H	H	CH ₂ OH	H
1.552	CH ₃	H	H	H	CH ₂ OCH ₃	H
1.553	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₃	H
1.554	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₃	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.555	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
1.556	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
1.557	CH ₃	H	H	H	CHO	H
1.558	CH ₃	H	H	H	COCH ₃	H
1.559	CH ₃	H	H	H	CO ₂ H	H
1.560	CH ₃	H	H	H	CO ₂ CH ₃	H
1.561	CH ₃	H	H	H	CO ₂ CH ₂ CH ₃	H
1.562	CH ₃	H	H	H	CONH ₂	H
1.563	CH ₃	H	H	H	CONHCH ₃	H
1.564	CH ₃	H	H	H	CONHCH ₂ CH ₃	H
1.565	CH ₃	H	H	H	CON(CH ₃) ₂	H
1.566	CH ₃	H	H	H	CON(CH ₂ -CH ₃) ₂	H
1.567	CH ₃	H	H	H	CON(CH ₃)OCH ₃	H
1.568	CH ₃	H	H	H	CH=NOH	H
1.569	CH ₃	H	H	H	CH=N-OCH ₃	H
1.570	CH ₃	H	H	H	CH=N-OCH ₂ CH ₃	H
1.571	CH ₃	H	H	H	C(CH ₃)=N-OH	H
1.572	CH ₃	H	H	H	C(CH ₃)=N-OCH ₃	H
1.573	CH ₃	H	H	H	CH ₂ OC(O)-NHCH ₃	H
1.574	CH ₃	H	H	H	CH ₂ NH ₂	H
1.575	CH ₃	H	H	H	CH ₂ NHCHO	H
1.576	CH ₃	H	H	H	CH ₂ NHC(O)CH ₃	H
1.577	CH ₃	H	H	H	CH ₂ NHC(O)OCH ₃	H
1.578	CH ₃	H	H	H	NHCO ₂ CH ₃	H
1.579	CH ₃	H	H	H	NHCO ₂ C(CH ₃) ₃	H
1.580	CH ₃	H	H	H	CH(OH)CH ₃	H
1.581	CH ₃	H	H	H	CH(CH ₃)OCH ₃	H
1.582	CH ₃	H	H	H	CN	H
1.583	CH ₃	H	H	H	CH ₂ SCH ₃	H
1.584	CH ₃	H	H	H	CH ₂ S(O)CH ₃	H
1.585	CH ₃	H	H	H	CH ₂ SO ₂ CH ₃	H
1.586	CH ₃	H	H	H	CH ₂ SCH ₂ CH ₃	H
1.587	CH ₃	H	H	H	CH ₂ S(O)CH ₂ CH ₃	H
1.588	CH ₃	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H
1.589	CH ₃	H	H	H	OCH ₃	H
1.590	CH ₃	H	H	H	OCH ₂ CH ₃	H
1.591	CH ₃	H	H	H	CH(OCH ₃) ₂	H
1.592	CH ₃	H	H	H	CH(OCH ₂ CH ₃) ₂	H
1.593	CH ₃	H	H	H	cyclopropyl	H
1.594	CH ₃	H	H	H	cyclobutyl	H
1.595	CH ₃	H	H	H	cyclopentyl	H
1.596	CH ₃	H	H	H	cyclohexyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.597	CH ₃	H	H	H	F	H
1.598	CH ₃	H	H	H	Cl	H
1.599	CH ₃	H	H	H	Br	H
1.600	CH ₃	H	H	H	I	H
1.601	CH ₃	H	H	H	OH	H
1.602	CH ₃	H	H	H	phenyl	H
1.603	CH ₃	H	H	H	2-acetylphenyl	H
1.604	CH ₃	H	H	H	3-acetylphenyl	H
1.605	CH ₃	H	H	H	4-acetylphenyl	H
1.606	CH ₃	H	H	H	2-chlorophenyl	H
1.607	CH ₃	H	H	H	3-chlorophenyl	H
1.608	CH ₃	H	H	H	4-chlorophenyl	H
1.609	CH ₃	H	H	H	2-cyanophenyl	H
1.610	CH ₃	H	H	H	3-cyanophenyl	H
1.611	CH ₃	H	H	H	4-cyanophenyl	H
1.612	CH ₃	H	H	H	2-fluorophenyl	H
1.613	CH ₃	H	H	H	3-fluorophenyl	H
1.614	CH ₃	H	H	H	4-fluorophenyl	H
1.615	CH ₃	H	H	H	2-methoxyphenyl	H
1.616	CH ₃	H	H	H	3-methoxyphenyl	H
1.617	CH ₃	H	H	H	4-methoxyphenyl	H
1.618	CH ₃	H	H	H	2-methylphenyl	H
1.619	CH ₃	H	H	H	3-methylphenyl	H
1.620	CH ₃	H	H	H	4-methylphenyl	H
1.621	CH ₃	H	H	H	2-nitrophenyl	H
1.622	CH ₃	H	H	H	3-nitrophenyl	H
1.623	CH ₃	H	H	H	4-nitrophenyl	H
1.624	CH ₃	H	H	H	2-thiomethylphenyl	H
1.625	CH ₃	H	H	H	3-thiomethylphenyl	H
1.626	CH ₃	H	H	H	4-thiomethylphenyl	H
1.627	CH ₃	H	H	H	2-trifluoromethoxyphenyl	H
1.628	CH ₃	H	H	H	3-trifluoromethoxyphenyl	H
1.629	CH ₃	H	H	H	4-trifluoromethoxyphenyl	H
1.630	CH ₃	H	H	H	2-trifluoromethylphenyl	H
1.631	CH ₃	H	H	H	3-trifluoromethylphenyl	H
1.632	CH ₃	H	H	H	4-trifluoromethylphenyl	H
1.633	CH ₃	H	H	H	2,3-dichlorophenyl	H
1.634	CH ₃	H	H	H	2,4-dichlorophenyl	H
1.635	CH ₃	H	H	H	2,5-dichlorophenyl	H
1.636	CH ₃	H	H	H	2,6-dichlorophenyl	H
1.637	CH ₃	H	H	H	3,4-dichlorophenyl	H
1.638	CH ₃	H	H	H	3,5-dichlorophenyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.639	CH ₃	H	H	H	2,3-difluorophenyl	H
1.640	CH ₃	H	H	H	2,4-difluorophenyl	H
1.641	CH ₃	H	H	H	2,5-difluorophenyl	H
1.642	CH ₃	H	H	H	2,6-difluorophenyl	H
1.643	CH ₃	H	H	H	3,4-difluorophenyl	H
1.644	CH ₃	H	H	H	3,5-difluorophenyl	H
1.645	CH ₃	H	H	H	2,4,6-trifluorophenyl	H
1.646	CH ₃	H	H	H	2,4-dimethylphenyl	H
1.647	CH ₃	H	H	H	2,4,6-trimethylphenyl	H
1.648	CH ₃	H	H	H	3,4,5-trimethoxy-phenyl	H
1.649	CH ₃	H	H	H	2-chloro-3-cyanophenyl	H
1.650	CH ₃	H	H	H	2-chloro-4-cyanophenyl	H
1.651	CH ₃	H	H	H	2-chloro-5-cyanophenyl	H
1.652	CH ₃	H	H	H	2-chloro-6-cyanophenyl	H
1.653	CH ₃	H	H	H	3-chloro-2-cyanophenyl	H
1.654	CH ₃	H	H	H	3-chloro-4-cyanophenyl	H
1.655	CH ₃	H	H	H	3-chloro-5-cyanophenyl	H
1.656	CH ₃	H	H	H	5-chloro-2-cyanophenyl	H
1.657	CH ₃	H	H	H	4-chloro-2-cyanophenyl	H
1.658	CH ₃	H	H	H	4-chloro-3-cyanophenyl	H
1.659	CH ₃	H	H	H	2-chloro-3-fluorophenyl	H
1.660	CH ₃	H	H	H	2-chloro-4-fluorophenyl	H
1.661	CH ₃	H	H	H	2-chloro-5-fluorophenyl	H
1.662	CH ₃	H	H	H	2-chloro-6-fluorophenyl	H
1.663	CH ₃	H	H	H	3-chloro-2-fluorophenyl	H
1.664	CH ₃	H	H	H	3-chloro-4-fluorophenyl	H
1.665	CH ₃	H	H	H	3-chloro-5-fluorophenyl	H
1.666	CH ₃	H	H	H	5-chloro-2-fluorophenyl	H
1.667	CH ₃	H	H	H	4-chloro-2-fluorophenyl	H
1.668	CH ₃	H	H	H	4-chloro-3-fluorophenyl	H
1.669	CH ₃	H	H	H	2-chloro-3-methylphenyl	H
1.670	CH ₃	H	H	H	2-chloro-4-methylphenyl	H
1.671	CH ₃	H	H	H	2-chloro-5-methylphenyl	H
1.672	CH ₃	H	H	H	2-chloro-6-methylphenyl	H
1.673	CH ₃	H	H	H	3-chloro-2-methylphenyl	H
1.674	CH ₃	H	H	H	3-chloro-4-methylphenyl	H
1.675	CH ₃	H	H	H	3-chloro-5-methylphenyl	H
1.676	CH ₃	H	H	H	5-chloro-2-methylphenyl	H
1.677	CH ₃	H	H	H	4-chloro-2-methylphenyl	H
1.678	CH ₃	H	H	H	4-chloro-3-methylphenyl	H
1.679	CH ₃	H	H	H	2-cyano-3-fluorophenyl	H
1.680	CH ₃	H	H	H	2-cyano-4-fluorophenyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.681	CH ₃	H	H	H	2-cyano-5-fluorophenyl	H
1.682	CH ₃	H	H	H	2-cyano-6-fluorophenyl	H
1.683	CH ₃	H	H	H	3-cyano-2-fluorophenyl	H
1.684	CH ₃	H	H	H	3-cyano-4-fluorophenyl	H
1.685	CH ₃	H	H	H	3-cyano-5-fluorophenyl	H
1.686	CH ₃	H	H	H	5-cyano-2-fluorophenyl	H
1.687	CH ₃	H	H	H	4-cyano-2-fluorophenyl	H
1.688	CH ₃	H	H	H	4-cyano-3-fluorophenyl	H
1.689	CH ₃	H	H	H	2-fluoro-3-methylphenyl	H
1.690	CH ₃	H	H	H	2-fluoro-4-methylphenyl	H
1.691	CH ₃	H	H	H	2-fluoro-5-methylphenyl	H
1.692	CH ₃	H	H	H	2-fluoro-6-methylphenyl	H
1.693	CH ₃	H	H	H	3-fluoro-2-methylphenyl	H
1.694	CH ₃	H	H	H	3-fluoro-4-methylphenyl	H
1.695	CH ₃	H	H	H	3-fluoro-5-methylphenyl	H
1.696	CH ₃	H	H	H	5-fluoro-2-methylphenyl	H
1.697	CH ₃	H	H	H	4-fluoro-2-methylphenyl	H
1.698	CH ₃	H	H	H	4-fluoro-3-methylphenyl	H
1.699	CH ₃	H	H	H	pyridin-2-yl	H
1.700	CH ₃	H	H	H	pyridin-3-yl	H
1.701	CH ₃	H	H	H	pyridin-4-yl	H
1.702	CH ₃	H	H	H	3-chloropyridin-2-yl	H
1.703	CH ₃	H	H	H	4-chloropyridin-2-yl	H
1.704	CH ₃	H	H	H	5-chloropyridin-2-yl	H
1.705	CH ₃	H	H	H	6-chloropyridin-2-yl	H
1.706	CH ₃	H	H	H	2-chloropyridin-3-yl	H
1.707	CH ₃	H	H	H	4-chloropyridin-3-yl	H
1.708	CH ₃	H	H	H	5-chloropyridin-3-yl	H
1.709	CH ₃	H	H	H	2-chloropyridin-4-yl	H
1.710	CH ₃	H	H	H	3-chloropyridin-4-yl	H
1.711	CH ₃	H	H	H	2-chloropyridin-5-yl	H
1.712	CH ₃	H	H	H	3-cyanopyridin-2-yl	H
1.713	CH ₃	H	H	H	4-cyanopyridin-2-yl	H
1.714	CH ₃	H	H	H	5-cyanopyridin-2-yl	H
1.715	CH ₃	H	H	H	6-cyanopyridin-2-yl	H
1.716	CH ₃	H	H	H	2-cyanopyridin-3-yl	H
1.717	CH ₃	H	H	H	4-cyanopyridin-3-yl	H
1.718	CH ₃	H	H	H	5-cyanopyridin-3-yl	H
1.719	CH ₃	H	H	H	2-cyanopyridin-5-yl	H
1.720	CH ₃	H	H	H	3-fluoropyridin-2-yl	H
1.721	CH ₃	H	H	H	4-fluoropyridin-2-yl	H
1.722	CH ₃	H	H	H	5-fluoropyridin-2-yl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.723	CH ₃	H	H	H	6-fluoropyridin-2-yl	H
1.724	CH ₃	H	H	H	2-fluoropyridin-3-yl	H
1.725	CH ₃	H	H	H	4-fluoropyridin-3-yl	H
1.726	CH ₃	H	H	H	5-fluoropyridin-3-yl	H
1.727	CH ₃	H	H	H	2-fluoropyridin-5-yl	H
1.728	CH ₃	H	H	H	3-nitropyridin-2-yl	H
1.729	CH ₃	H	H	H	4-nitropyridin-2-yl	H
1.730	CH ₃	H	H	H	5-nitropyridin-2-yl	H
1.731	CH ₃	H	H	H	6-nitropyridin-2-yl	H
1.732	CH ₃	H	H	H	2-nitropyridin-3-yl	H
1.733	CH ₃	H	H	H	4-nitropyridin-3-yl	H
1.734	CH ₃	H	H	H	5-nitropyridin-3-yl	H
1.735	CH ₃	H	H	H	2-nitropyridin-5-yl	H
1.736	CH ₃	H	H	H	3-trifluoromethylpyridin-2-yl	H
1.737	CH ₃	H	H	H	4-trifluoromethylpyridin-2-yl	H
1.738	CH ₃	H	H	H	5-trifluoromethylpyridin-2-yl	H
1.739	CH ₃	H	H	H	6-trifluoromethylpyridin-2-yl	H
1.740	CH ₃	H	H	H	2-trifluoromethylpyridin-3-yl	H
1.741	CH ₃	H	H	H	4-trifluoromethylpyridin-3-yl	H
1.742	CH ₃	H	H	H	5-trifluoromethylpyridin-3-yl	H
1.743	CH ₃	H	H	H	2-trifluoromethylpyridin-5-yl	H
1.744	CH ₃	H	H	H	2,6-bis(trifluoromethyl)- pyridin-3-yl	H
1.745	CH ₃	H	H	H	2,6-bis(trifluoromethyl)- pyridin-4-yl	H
1.746	CH ₃	H	H	H	3,5-bis(trifluoromethyl)- pyridin-2-yl	H
1.747	CH ₃	H	H	H	2-thienyl	H
1.748	CH ₃	H	H	H	3-thienyl	H
1.749	CH ₃	H	H	H	5-cyanothien-2-yl	H
1.750	CH ₃	H	H	H	2-furyl	H
1.751	CH ₃	H	H	H	3-furyl	H
1.752	CH ₃	H	H	H	1-methyl-1,2,3-triazol-4-yl	H
1.753	CH ₃	H	H	H	2-methylthiopyrimidin-4-yl	H
1.754	CH ₃	H	H	H	5-methyl-2-methyl- thiopyrimidin-4-yl	H
1.755	CH ₃	H	H	H	pyrazin-2-yl	H
1.756	CH ₃	H	H	H	3,6-dimethylpyrazin-2-yl	H
1.757	CH ₃	H	H	H	3-cyanopyrazin-2-yl	H
1.758	CH ₃	H	H	H	quinolin-2-yl	H
1.759	CH ₃	H	H	H	3-ethylquinolin-2-yl	H
1.760	CH ₃	H	H	H	benzyl	H
1.761	CH ₃	H	H	H	4-fluorobenzyl	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.762	CH ₃	H	H	H	4-chlorobenzyl	H
1.763	CH ₃	H	H	H	4-methylbenzyl	H
1.764	CH ₃	H	H	H	2,4-dimethylbenzyl	H
1.765	CH ₃	H	H	H	2,4,6-trimethylbenzyl	H
1.766	CH ₃	H	H	H	H	CH ₃
1.767	CH ₃	H	H	H	CH ₃	CH ₃
1.768	CH ₃	H	H	H	CH ₂ CH ₃	CH ₃
1.769	CH ₃	H	H	H	<i>n</i> -propyl	CH ₃
1.770	CH ₃	H	H	H	isopropyl	CH ₃
1.771	CH ₃	H	H	H	<i>n</i> -butyl	CH ₃
1.772	CH ₃	H	H	H	isobutyl	CH ₃
1.773	CH ₃	H	H	H	sec-butyl	CH ₃
1.774	CH ₃	H	H	H	<i>tert</i> -butyl	CH ₃
1.775	CH ₃	H	H	H	vinyl	CH ₃
1.776	CH ₃	H	H	H	ethynyl	CH ₃
1.777	CH ₃	H	H	H	trimethylsilylethynyl	CH ₃
1.778	CH ₃	H	H	H	CH ₂ OH	CH ₃
1.779	CH ₃	H	H	H	CH ₂ OCH ₃	CH ₃
1.780	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
1.781	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
1.782	CH ₂	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
1.783	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
1.784	CH ₃	H	H	H	CHO	CH ₃
1.785	CH ₃	H	H	H	COCH ₃	CH ₃
1.786	CH ₃	H	H	H	CO ₂ H	CH ₃
1.787	CH ₃	H	H	H	CO ₂ CH ₃	CH ₃
1.788	CH ₃	H	H	H	CO ₂ CH ₂ CH ₃	CH ₃
1.789	CH ₃	H	H	H	CONH ₂	CH ₃
1.790	CH ₃	H	H	H	CONHCH ₃	CH ₃
1.791	CH ₃	H	H	H	CONHCH ₂ CH ₃	CH ₃
1.792	CH ₃	H	H	H	CON(CH ₃) ₂	CH ₃
1.793	CH ₂	H	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
1.794	CH ₃	H	H	H	CON(CH ₃)OCH ₃	CH ₃
1.795	CH ₃	H	H	H	CH=NOH	CH ₃
1.796	CH ₃	H	H	H	CH=N-OCH ₃	CH ₃
1.797	CH ₃	H	H	H	CH=N-OCH ₂ CH ₃	CH ₃
1.798	CH ₃	H	H	H	C(CH ₃)=N-OH	CH ₃
1.799	CH ₃	H	H	H	C(CH ₃)=N-OCH ₃	CH ₃
1.800	CH ₃	H	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃
1.801	CH ₃	H	H	H	CH ₂ NH ₂	CH ₃
1.802	CH ₃	H	H	H	CH ₂ NHCHO	CH ₃
1.803	CH ₃	H	H	H	CH ₂ NHC(O)CH ₃	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.804	CH ₃	H	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
1.805	CH ₃	H	H	H	NHCO ₂ CH ₃	CH ₃
1.806	CH ₃	H	H	H	NHCO ₂ C(CH ₃) ₃	CH ₃
1.807	CH ₃	H	H	H	CH(OH)CH ₃	CH ₃
1.808	CH ₃	H	H	H	CH(CH ₃)OCH ₃	CH ₃
1.809	CH ₃	H	H	H	CN	CH ₃
1.810	CH ₃	H	H	H	CH ₂ SCH ₃	CH ₃
1.811	CH ₃	H	H	H	CH ₂ S(O)CH ₃	CH ₃
1.812	CH ₃	H	H	H	CH ₂ SO ₂ CH ₃	CH ₃
1.813	CH ₃	H	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
1.814	CH ₃	H	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
1.815	CH ₃	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
1.816	CH ₃	H	H	H	OCH ₃	CH ₃
1.817	CH ₃	H	H	H	OCH ₂ CH ₃	CH ₃
1.818	CH ₃	H	H	H	CH(OCH ₃) ₂	CH ₃
1.819	CH ₃	H	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
1.820	CH ₃	H	H	H	Cyclopropyl	CH ₃
1.821	CH ₃	H	H	H	Cyclobutyl	CH ₃
1.822	CH ₃	H	H	H	Cyclopentyl	CH ₃
1.823	CH ₃	H	H	H	Cyclohexyl	CH ₃
1.824	CH ₃	H	H	H	F	CH ₃
1.825	CH ₃	H	H	H	Cl	CH ₃
1.826	CH ₃	H	H	H	Br	CH ₃
1.827	CH ₃	H	H	H	I	CH ₃
1.828	CH ₃	H	H	H	OH	CH ₃
1.829	CH ₃	H	H	H	phenyl	CH ₃
1.830	CH ₃	H	H	H	2-acetylphenyl	CH ₃
1.831	CH ₃	H	H	H	3-acetylphenyl	CH ₃
1.832	CH ₃	H	H	H	4-acetylphenyl	CH ₃
1.833	CH ₃	H	H	H	2-chlorophenyl	CH ₃
1.834	CH ₃	H	H	H	3-chlorophenyl	CH ₃
1.835	CH ₃	H	H	H	4-chlorophenyl	CH ₃
1.836	CH ₃	H	H	H	2-cyanophenyl	CH ₃
1.837	CH ₃	H	H	H	3-cyanophenyl	CH ₃
1.838	CH ₃	H	H	H	4-cyanophenyl	CH ₃
1.839	CH ₃	H	H	H	2-fluorophenyl	CH ₃
1.840	CH ₃	H	H	H	3-fluorophenyl	CH ₃
1.841	CH ₃	H	H	H	4-fluorophenyl	CH ₃
1.842	CH ₃	H	H	H	2-methoxyphenyl	CH ₃
1.843	CH ₃	H	H	H	3-methoxyphenyl	CH ₃
1.844	CH ₃	H	H	H	4-methoxyphenyl	CH ₃
1.845	CH ₃	H	H	H	2-methylphenyl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.846	CH ₃	H	H	H	3-methylphenyl	CH ₃
1.847	CH ₃	H	H	H	4-methylphenyl	CH ₃
1.848	CH ₃	H	H	H	2-nitrophenyl	CH ₃
1.849	CH ₃	H	H	H	3-nitrophenyl	CH ₃
1.850	CH ₃	H	H	H	4-nitrophenyl	CH ₃
1.851	CH ₃	H	H	H	2-thiomethylphenyl	CH ₃
1.852	CH ₃	H	H	H	3-thiomethylphenyl	CH ₃
1.853	CH ₃	H	H	H	4-thiomethylphenyl	CH ₃
1.854	CH ₃	H	H	H	2-trifluoromethoxyphenyl	CH ₃
1.855	CH ₃	H	H	H	3-trifluoromethoxyphenyl	CH ₃
1.856	CH ₃	H	H	H	4-trifluoromethoxyphenyl	CH ₃
1.857	CH ₃	H	H	H	2-trifluoromethylphenyl	CH ₃
1.858	CH ₃	H	H	H	3-trifluoromethylphenyl	CH ₃
1.859	CH ₃	H	H	H	4-trifluoromethylphenyl	CH ₃
1.860	CH ₃	H	H	H	2,3-dichlorophenyl	CH ₃
1.861	CH ₃	H	H	H	2,4-dichlorophenyl	CH ₃
1.862	CH ₃	H	H	H	2,5-dichlorophenyl	CH ₃
1.863	CH ₃	H	H	H	2,6-dichlorophenyl	CH ₃
1.864	CH ₃	H	H	H	3,4-dichlorophenyl	CH ₃
1.865	CH ₃	H	H	H	3,5-dichlorophenyl	CH ₃
1.866	CH ₃	H	H	H	2,3-difluorophenyl	CH ₃
1.867	CH ₃	H	H	H	2,4-difluorophenyl	CH ₃
1.868	CH ₃	H	H	H	2,5-difluorophenyl	CH ₃
1.869	CH ₃	H	H	H	2,6-difluorophenyl	CH ₃
1.870	CH ₃	H	H	H	3,4-difluorophenyl	CH ₃
1.871	CH ₃	H	H	H	3,5-difluorophenyl	CH ₃
1.872	CH ₃	H	H	H	2,4,6-trifluorophenyl	CH ₃
1.873	CH ₃	H	H	H	2,4-dimethylphenyl	CH ₃
1.874	CH ₃	H	H	H	2,4,6-trimethylphenyl	CH ₃
1.875	CH ₃	H	H	H	3,4,5-trimethoxyphenyl	CH ₃
1.876	CH ₃	H	H	H	2-chloro-3-cyanophenyl	CH ₃
1.877	CH ₃	H	H	H	2-chloro-4-cyanophenyl	CH ₃
1.878	CH ₃	H	H	H	2-chloro-5-cyanophenyl	CH ₃
1.879	CH ₃	H	H	H	2-chloro-6-cyanophenyl	CH ₃
1.880	CH ₃	H	H	H	3-chloro-2-cyanophenyl	CH ₃
1.881	CH ₃	H	H	H	3-chloro-4-cyanophenyl	CH ₃
1.882	CH ₃	H	H	H	3-chloro-5-cyanophenyl	CH ₃
1.883	CH ₃	H	H	H	5-chloro-2-cyanophenyl	CH ₃
1.884	CH ₃	H	H	H	4-chloro-2-cyanophenyl	CH ₃
1.885	CH ₃	H	H	H	4-chloro-3-cyanophenyl	CH ₃
1.886	CH ₃	H	H	H	2-chloro-3-fluorophenyl	CH ₃
1.887	CH ₃	H	H	H	2-chloro-4-fluorophenyl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.888	CH ₃	H	H	H	2-chloro-5-fluorophenyl	CH ₃
1.889	CH ₃	H	H	H	2-chloro-6-fluorophenyl	CH ₃
1.890	CH ₃	H	H	H	3-chloro-2-fluorophenyl	CH ₃
1.891	CH ₃	H	H	H	3-chloro-4-fluorophenyl	CH ₃
1.892	CH ₃	H	H	H	3-chloro-5-fluorophenyl	CH ₃
1.893	CH ₃	H	H	H	5-chloro-2-fluorophenyl	CH ₃
1.894	CH ₃	H	H	H	4-chloro-2-fluorophenyl	CH ₃
1.895	CH ₃	H	H	H	4-chloro-3-fluorophenyl	CH ₃
1.896	CH ₃	H	H	H	2-chloro-3-methylphenyl	CH ₃
1.897	CH ₃	H	H	H	2-chloro-4-methylphenyl	CH ₃
1.898	CH ₃	H	H	H	2-chloro-5-methylphenyl	CH ₃
1.899	CH ₃	H	H	H	2-chloro-6-methylphenyl	CH ₃
1.900	CH ₃	H	H	H	3-chloro-2-methylphenyl	CH ₃
1.901	CH ₃	H	H	H	3-chloro-4-methylphenyl	CH ₃
1.902	CH ₃	H	H	H	3-chloro-5-methylphenyl	CH ₃
1.903	CH ₃	H	H	H	5-chloro-2-methylphenyl	CH ₃
1.904	CH ₃	H	H	H	4-chloro-2-methylphenyl	CH ₃
1.905	CH ₃	H	H	H	4-chloro-3-methylphenyl	CH ₃
1.906	CH ₃	H	H	H	2-cyano-3-fluorophenyl	CH ₃
1.907	CH ₃	H	H	H	2-cyano-4-fluorophenyl	CH ₃
1.908	CH ₃	H	H	H	2-cyano-5-fluorophenyl	CH ₃
1.909	CH ₃	H	H	H	2-cyano-6-fluorophenyl	CH ₃
1.910	CH ₃	H	H	H	3-cyano-2-fluorophenyl	CH ₃
1.911	CH ₃	H	H	H	3-cyano-4-fluorophenyl	CH ₃
1.912	CH ₃	H	H	H	3-cyano-5-fluorophenyl	CH ₃
1.913	CH ₃	H	H	H	5-cyano-2-fluorophenyl	CH ₃
1.914	CH ₃	H	H	H	4-cyano-2-fluorophenyl	CH ₃
1.915	CH ₃	H	H	H	4-cyano-3-fluorophenyl	CH ₃
1.916	CH ₃	H	H	H	2-fluoro-3-methylphenyl	CH ₃
1.917	CH ₃	H	H	H	2-fluoro-4-methylphenyl	CH ₃
1.918	CH ₃	H	H	H	2-fluoro-5-methylphenyl	CH ₃
1.919	CH ₃	H	H	H	2-fluoro-6-methylphenyl	CH ₃
1.920	CH ₃	H	H	H	3-fluoro-2-methylphenyl	CH ₃
1.921	CH ₃	H	H	H	3-fluoro-4-methylphenyl	CH ₃
1.922	CH ₃	H	H	H	3-fluoro-5-methylphenyl	CH ₃
1.923	CH ₃	H	H	H	5-fluoro-2-methylphenyl	CH ₃
1.924	CH ₃	H	H	H	4-fluoro-2-methylphenyl	CH ₃
1.925	CH ₃	H	H	H	4-fluoro-3-methylphenyl	CH ₃
1.926	CH ₃	H	H	H	pyridin-2-yl	CH ₃
1.927	CH ₃	H	H	H	pyridin-3-yl	CH ₃
1.928	CH ₃	H	H	H	pyridin-4-yl	CH ₃
1.929	CH ₃	H	H	H	3-chloropyridin-2-yl	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.930	CH ₃	H	H	H	4-chloropyridin-2-yl	CH ₃
1.931	CH ₃	H	H	H	5-chloropyridin-2-yl	CH ₃
1.932	CH ₃	H	H	H	6-chloropyridin-2-yl	CH ₃
1.933	CH ₃	H	H	H	2-chloropyridin-3-yl	CH ₃
1.934	CH ₃	H	H	H	4-chloropyridin-3-yl	CH ₃
1.935	CH ₃	H	H	H	5-chloropyridin-3-yl	CH ₃
1.936	CH ₃	H	H	H	2-chloropyridin-4-yl	CH ₃
1.937	CH ₃	H	H	H	3-chloropyridin-4-yl	CH ₃
1.938	CH ₃	H	H	H	2-chloropyridin-5-yl	CH ₃
1.939	CH ₃	H	H	H	3-cyanopyridin-2-yl	CH ₃
1.940	CH ₃	H	H	H	4-cyanopyridin-2-yl	CH ₃
1.941	CH ₃	H	H	H	5-cyanopyridin-2-yl	CH ₃
1.942	CH ₃	H	H	H	6-cyanopyridin-2-yl	CH ₃
1.943	CH ₃	H	H	H	2-cyanopyridin-3-yl	CH ₃
1.944	CH ₃	H	H	H	4-cyanopyridin-3-yl	CH ₃
1.945	CH ₃	H	H	H	5-cyanopyridin-3-yl	CH ₃
1.946	CH ₃	H	H	H	2-cyanopyridin-5-yl	CH ₃
1.947	CH ₃	H	H	H	3-fluoropyridin-2-yl	CH ₃
1.948	CH ₃	H	H	H	4-fluoropyridin-2-yl	CH ₃
1.949	CH ₃	H	H	H	5-fluoropyridin-2-yl	CH ₃
1.950	CH ₃	H	H	H	6-fluoropyridin-2-yl	CH ₃
1.951	CH ₃	H	H	H	2-fluoropyridin-3-yl	CH ₃
1.952	CH ₃	H	H	H	4-fluoropyridin-3-yl	CH ₃
1.953	CH ₃	H	H	H	5-fluoropyridin-3-yl	CH ₃
1.954	CH ₃	H	H	H	2-fluoropyridin-5-yl	CH ₃
1.955	CH ₃	H	H	H	3-nitropyridin-2-yl	CH ₃
1.956	CH ₃	H	H	H	4-nitropyridin-2-yl	CH ₃
1.957	CH ₃	H	H	H	5-nitropyridin-2-yl	CH ₃
1.958	CH ₃	H	H	H	6-nitropyridin-2-yl	CH ₃
1.959	CH ₃	H	H	H	2-nitropyridin-3-yl	CH ₃
1.960	CH ₃	H	H	H	4-nitropyridin-3-yl	CH ₃
1.961	CH ₃	H	H	H	5-nitropyridin-3-yl	CH ₃
1.962	CH ₃	H	H	H	2-nitropyridin-5-yl	CH ₃
1.963	CH ₃	H	H	H	3-trifluoromethylpyridin-2-yl	CH ₃
1.964	CH ₃	H	H	H	4-trifluoromethylpyridin-2-yl	CH ₃
1.965	CH ₃	H	H	H	5-trifluoromethylpyridin-2-yl	CH ₃
1.966	CH ₃	H	H	H	6-trifluoromethylpyridin-2-yl	CH ₃
1.967	CH ₃	H	H	H	2-trifluoromethylpyridin-3-yl	CH ₃
1.968	CH ₃	H	H	H	4-trifluoromethylpyridin-3-yl	CH ₃
1.969	CH ₃	H	H	H	5-trifluoromethylpyridin-3-yl	CH ₃
1.970	CH ₃	H	H	H	2-trifluoromethylpyridin-5-yl	CH ₃
1.971	CH ₃	H	H	H	2,6-bis(trifluoromethyl)- pyridin-3-yl	CH ₃

	R ⁶	R ⁷	R ⁶	R ⁶	R ¹⁰	R ¹¹
1.972	CH ₃	H	H	H	2,6-bis(trifluoromethyl)-pyridin-4-yl	CH ₃
1.973	CH ₃	H	H	H	3,5-bis(trifluoromethyl)-pyridin-2-yl	CH ₃
1.974	CH ₃	H	H	H	2-thienyl	CH ₃
1.975	CH ₃	H	H	H	3-thienyl	CH ₃
1.976	CH ₃	H	H	H	5-cyanothien-2-yl	CH ₃
1.977	CH ₃	H	H	H	2-furyl	CH ₃
1.978	CH ₃	H	H	H	3-furyl	CH ₃
1.979	CH ₃	H	H	H	1-methyl-1,2,3-triazol-4-yl	CH ₃
1.980	CH ₃	H	H	H	2-methylthiopyrimidin-4-yl	CH ₃
1.981	CH ₃	H	H	H	5-methyl-2-methyl-thiopyrimidin-4-yl	CH ₃
1.982	CH ₃	H	H	H	pyrazin-2-yl	CH ₃
1.983	CH ₃	H	H	H	3,6-dimethylpyrazin-2-yl	CH ₃
1.984	CH ₃	H	H	H	3-cyanopyrazin-2-yl	CH ₃
1.985	CH ₃	H	H	H	quinolin-2-yl	CH ₃
1.986	CH ₃	H	H	H	3-ethylquinolin-2-yl	CH ₃
1.987	CH ₃	H	H	H	benzyl	CH ₃
1.988	CH ₃	H	H	H	4-fluorobenzyl	CH ₃
1.989	CH ₃	H	H	H	4-chlorobenzyl	CH ₃
1.990	CH ₃	H	H	H	4-methylbenzyl	CH ₃
1.991	CH ₃	H	H	H	2,4-dimethylbenzyl	CH ₃
1.992	CH ₃	H	H	H	2,4,6-trimethylbenzyl	CH ₃
1.993	CH ₃	H	H	H	H	CH ₂ OH
1.994	CH ₃	H	H	H	H	CH ₂ OCH ₃
1.995	CH ₃	H	H	H	H	CH ₂ OCH ₂ CH ₃
1.996	CH ₃	H	H	H	H	CHO
1.997	CH ₃	H	H	H	H	COCH ₃
1.998	CH ₃	H	H	H	H	CO ₂ H
1.999	CH ₃	H	H	H	H	CO ₂ CH ₃
1.1000	CH ₃	H	H	H	H	CO ₂ CH ₂ CH ₃
1.1001	CH ₃	H	H	H	H	CONH ₂
1.1002	CH ₃	H	H	H	H	CONHCH ₃
1.1003	CH ₃	H	H	H	H	CONHCH ₂ CH ₃
1.1004	CH ₃	H	H	H	H	CON(CH ₃) ₂
1.1005	CH ₃	H	H	H	H	CON-(CH ₂ CH ₃) ₂
1.1006	CH ₃	H	H	H	H	CON(CH ₃)O-CH ₃
1.1007	CH ₃	H	H	H	H	CH=NOH
1.1008	CH ₃	H	H	H	H	CH=NOCH ₃
1.1009	CH ₃	H	H	H	H	CH=NOCH ₂ -CH ₃
1.1010	CH ₃	H	H	H	H	C(CH ₃)=NOH
1.1011	CH ₃	H	H	H	H	C(CH ₃)=NO-CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.1012	CH ₃	H	H	H	H	CH ₂ OC(O)NH-CH ₃
1.1013	CH ₃	H	H	H	H	CH ₂ NH ₂
1.1014	CH ₃	H	H	H	H	CH ₂ NHCHO
1.1015	CH ₃	H	H	H	H	CH ₂ NHC(O)-CH ₃
1.1016	CH ₃	H	H	H	H	CH ₂ NHC(O)OCH ₃
1.1017	CH ₃	H	H	H	H	NHCO ₂ CH ₃
1.1018	CH ₃	H	H	H	H	NHCO ₂ -C(CH ₃) ₃
1.1019	CH ₃	H	H	H	H	CH(OH)CH ₃
1.1020	CH ₃	H	H	H	H	CH(CH ₃)OCH ₃
1.1021	CH ₃	H	H	H	H	CN
1.1022	CH ₃	H	H	H	H	CH ₂ SCH ₃
1.1023	CH ₃	H	H	H	H	CH ₂ S(O)CH ₃
1.1024	CH ₃	H	H	H	H	CH ₂ SO ₂ CH ₃
1.1025	CH ₃	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.1026	CH ₃	H	H	H	H	CH ₂ S(O)CH ₂ -CH ₃
1.1027	CH ₃	H	H	H	H	CH ₂ SO ₂ CH ₂ -CH ₃
1.1028	CH ₃	H	H	H	H	OCH ₃
1.1029	CH ₃	H	H	H	H	OCH ₂ CH ₃
1.1030	CH ₃	H	H	H	H	CH(OCH ₃) ₂
1.1031	CH ₃	H	H	H	H	CH-(OCH ₂ CH ₃) ₂
1.1032	CH ₃	H	H	H	H	CH ₂ CH ₃
1.1033	CH ₃	H	H	H	H	CH ₂ CH ₂ CH ₃
1.1034	CH ₃	H	H	H	H	CH(CH ₃) ₂
1.1035	CH ₃	H	H	H	H	C(CH ₃) ₃
1.1036	CH ₃	H	H	H	H	CH ₂ CH(CH ₃) ₂
1.1037	CH ₃	H	H	H	H	CH ₂ C(CH ₃) ₃
1.1038	CH ₃	H	H	H	H	CH ₂ CN
1.1039	CH ₃	H	H	H	H	cyclopropyl
1.1040	CH ₃	H	H	H	H	cyclobutyl
1.1041	CH ₃	H	H	H	H	cyclopentyl
1.1042	CH ₃	H	H	H	H	cyclohexyl
1.1043	CH ₃	H	H	H	H	CH ₂ -cyclopropyl
1.1044	CH ₃	H	H	H	H	benzyl
1.1045	CH ₃	H	H	H	H	CH ₂ CF ₃
1.1046	CH ₃	CH ₃	H	H	CH ₃	CH ₃
1.1047	H	H	Cl	Cl	H	H
1.1048	H	H	Cl	Cl	H	CH ₃
1.1049	CH ₃	H	Cl	Cl	H	CH ₃
1.1050	H	H	Br	Br	H	H
1.1051	H	H	Br	Br	H	CH ₃
1.1052	CH ₃	H	Br	Br	H	CH ₃
1.1053	H	H	OH	OH	H	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.1054	H	H	OH	OH	H	CH ₃
1.1055	CH ₃	H	OH	OH	H	CH ₃
1.1056	H	H	-O-C(CH ₃) ₂ -O-		H	H
1.1057	H	H	-O-C(CH ₃) ₂ -O-		H	CH ₃
1.1058	CH ₃	H	-O-C(CH ₃) ₂ -O-		H	CH ₃
1.1059	H	R ⁷ and R ⁸ form unit =O		H	H	H
1.1060	H	R ⁷ and R ⁸ form unit =O		H	H	CH ₃
1.1061	CH ₃	R ⁷ and R ⁸ form unit =O		H	H	H
1.1062	CH ₃	R ⁷ and R ⁸ form unit =O		H	H	CH ₃
1.1063	H	R ⁷ and R ⁸ form unit =NOCH ₃		H	H	H
1.1064	H	R ⁷ and R ⁸ form unit =NOCH ₃		H	H	CH ₃
1.1065	CH ₃	R ⁷ and R ⁸ form unit =NOCH ₃		H	H	H
1.1066	CH ₃	R ⁷ and R ⁸ form unit =NOCH ₃		H	H	CH ₃
1.1067	H	R ⁷ and R ⁸ form unit =NOCH ₂ CH ₃		H	H	H
1.1068	H	R ⁷ and R ⁸ form unit =NOCH ₂ CH ₃		H	H	CH ₃
1.1069	CH ₃	R ⁷ and R ⁸ form unit =NOCH ₂ CH ₃		H	H	H
1.1070	CH ₃	R ⁷ and R ⁸ form unit =NOCH ₂ CH ₃		H	H	CH ₃
1.1071	H	H	H	-O-(CH ₂) ₂ -O-		H
1.1072	H	H	H	-O-(CH ₂) ₂ -O-		CH ₃
1.1073	CH ₃	H	H	-O-(CH ₂) ₂ -O-		H
1.1074	CH ₃	H	H	-O-(CH ₂) ₂ -O-		CH ₃
1.1075	H	H	H	-O-(CH ₂) ₃ -O-		H
1.1076	H	H	H	-O-(CH ₂) ₃ -O-		CH ₃
1.1077	CH ₃	H	H	-O-(CH ₂) ₃ -O-		H
1.1078	CH ₃	H	H	-O-(CH ₂) ₃ -O-		CH ₃

Table 2 covers compounds of formula (A), wherein R¹ is ethyl, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 3 covers compounds of formula (A), wherein R¹ and R⁴ are ethyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 4 covers compounds of formula (A), wherein R¹, R² and R⁴ are ethyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 5 covers compounds of formula (A), wherein R¹ and R² are methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 6 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 7 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 8 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 9 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 10 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is ethynyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 11 covers compounds of formula (A), wherein R¹ and R² are methyl, R⁴ is vinyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 12 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 13 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 14 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 15 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 16 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 17 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is ethynyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 18 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R⁴ is vinyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 19 covers compounds of formula (A), wherein R¹ is ethynyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 20 covers compounds of formula (A), wherein R¹ is ethynyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 21 covers compounds of formula (A), wherein R¹ is ethynyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 22 covers compounds of formula (A), wherein R¹ is ethynyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 23 covers compounds of formula (A), wherein R¹ is ethynyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 24 covers compounds of formula (A), wherein R¹ and R⁴ are ethynyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 25 covers compounds of formula (A), wherein R¹ is vinyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 26 covers compounds of formula (A), wherein R¹ is vinyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 27 covers compounds of formula (A), wherein R¹ is vinyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 28 covers compounds of formula (A), wherein R¹ is vinyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 29 covers compounds of formula (A), wherein R¹ is vinyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 30 covers compounds of formula (A), wherein R¹ and R⁴ are vinyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 31 covers compounds of formula (A), wherein R¹ is methyl, R², R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 32 covers compounds of formula (A), wherein R¹ is methyl, R² is methoxy, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 33 covers compounds of formula (A), wherein R¹ is methyl, R² is trifluoromethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 34 covers compounds of formula (A), wherein R¹ is methyl, R² is ethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 35 covers compounds of formula (A), wherein R¹ is methyl, R² is ethynyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 36 covers compounds of formula (A), wherein R¹ is methyl, R² is vinyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 37 covers compounds of formula (A), wherein R¹ is methyl, R² is chlorine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 38 covers compounds of formula (A), wherein R¹ is methyl, R² is bromine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 39 covers compounds of formula (A), wherein R¹ is methyl, R² is iodine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 40 covers compounds of formula (A), wherein R¹ is ethyl, R², R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 41 covers compounds of formula (A), wherein R¹ is ethyl, R² is methoxy, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

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Table 42 covers compounds of formula (A), wherein R¹ is ethyl, R² is trifluoromethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 43 covers compounds of formula (A), wherein R¹ is ethyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 44 covers compounds of formula (A), wherein R¹ is ethyl, R² is ethynyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 45 covers compounds of formula (A), wherein R¹ is ethyl, R² is vinyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 46 covers compounds of formula (A), wherein R¹ is ethyl, R² is chlorine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 47 covers compounds of formula (A), wherein R¹ is ethyl, R² is bromine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 48 covers compounds of formula (A), wherein R¹ is ethyl, R² is iodine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 49 covers compounds of formula (A), wherein R¹ and R⁴ are methyl, R² is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 50 covers compounds of formula (A), wherein R¹ and R⁴ are methyl, R² is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 51 covers compounds of formula (A), wherein R¹ and R⁴ are methyl, R² is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 52 covers compounds of formula (A), wherein R¹ is methyl, R² is chlorine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 53 covers compounds of formula (A), wherein R¹ is methyl, R² is bromine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 54 covers compounds of formula (A), wherein R¹ is methyl, R² is iodine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 55 covers compounds of formula (A), wherein R¹ and R⁴ are ethyl, R² is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 56 covers compounds of formula (A), wherein R¹ and R⁴ are ethyl, R² is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 57 covers compounds of formula (A), wherein R¹ and R⁴ are ethyl, R² is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 58 covers compounds of formula (A), wherein R¹ is methyl, R² is chlorine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 59 covers compounds of formula (A), wherein R¹ is methyl, R² is bromine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 60 covers compounds of formula (A), wherein R¹ is ethyl, R² is chlorine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 61 covers compounds of formula (A), wherein R¹ is ethyl, R² is bromine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 62 covers compounds of formula (A), wherein R¹ and R⁴ are methyl, R² is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 63 covers compounds of formula (A), wherein R¹ is methyl, R² is methoxy, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 64 covers compounds of formula (A), wherein R¹ and R⁴ are ethyl, R² is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁷, R⁸, R⁹, R¹⁰, and R¹¹ are as defined in Table 1.

Table 65 covers compounds of formula (A), wherein R^1 , R^2 , R^3 and R^4 are methyl, R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 66 covers compounds of formula (A), wherein R^1 is difluoromethoxy, R^2 and R^4 are methyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 67 covers compounds of formula (A), wherein R^1 is difluoromethoxy, R^2 is methyl, R^4 is ethyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 68 covers compounds of formula (A), wherein R^1 is trifluoromethoxy, R^2 and R^4 are methyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 69 covers compounds of formula (A), wherein R^1 is trifluoromethoxy, R^2 is methyl, R^4 is ethyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

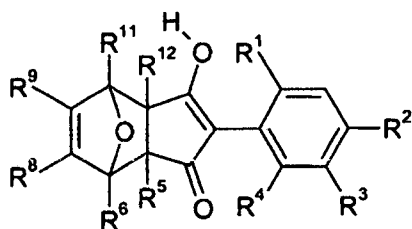
Table 70 covers compounds of formula (A), wherein R^1 is cyclopropyl, R^2 and R^4 are methyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 71 covers compounds of formula (A), wherein R^1 is cyclopropyl, R^2 is methyl, R^4 is ethyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 72 covers compounds of formula (A), wherein R^1 and R^2 are methyl, R^3 , R^5 and R^{12} are hydrogen, R^4 is cyclopropyl and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 73 covers compounds of formula (A), wherein R^1 and R^2 are ethyl, R^3 , R^5 and R^{12} are hydrogen, R^4 is cyclopropyl and R^6 , R^7 , R^8 , R^9 , R^{10} , and R^{11} are as defined in Table 1.

Table 74 covers compounds of formula (AH)



wherein R^1 , R^2 and R^4 are methyl, R^3 , R^5 and R^{12} are hydrogen and R^6 , R^8 , R^9 , and R^{11} are as defined in Table 74.

Table 74

	R ⁶	R ⁸	R ⁹	R ¹¹
74.001	H	H	H	H
74.002	H	H	H	CH ₃
74.003	H	H	H	CH ₂ OH
74.004	H	H	H	CH ₂ OCH ₃
74.005	H	H	H	CH ₂ OCH ₂ CH ₃
74.006	H	H	H	CH ₂ OCH ₂ OCH ₃
74.007	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃
74.007	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₃
74.008	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₂ CH ₃
74.009	H	H	H	CH ₂ OCH ₂ CN
74.010	H	H	H	CH(OH)CH ₃
74.011	H	H	H	CH(CH ₃)OCH ₃
74.012	H	H	H	CH(CH ₃)OCH ₂ CH ₃
74.013	H	H	H	CHO
74.014	H	H	H	COCH ₃
74.015	H	H	H	CH ₂ COCH ₃
74.016	H	H	H	CH ₂ CH ₂ COCH ₃
74.017	H	H	H	CO ₂ H
74.018	H	H	H	CO ₂ CH ₃
74.019	H	H	H	CO ₂ CH ₂ CH ₃
74.020	H	H	H	CH ₂ CO ₂ CH ₃
74.021	H	H	H	CH ₂ CO ₂ CH ₂ CH ₃
74.022	H	H	H	CH ₂ CH ₂ CO ₂ CH ₃
74.023	H	H	H	CH ₂ CH ₂ CO ₂ CH ₂ CH ₃
74.024	H	H	H	CONH ₂
74.025	H	H	H	CONHCH ₃
74.026	H	H	H	CONHCH ₂ CH ₃
74.027	H	H	H	CON(CH ₃) ₂
74.028	H	H	H	CON(CH ₂ CH ₃) ₂
74.029	H	H	H	CON(CH ₃)OCH ₃
74.030	H	H	H	CH=NOH
74.031	H	H	H	CH=NOCH ₃
74.032	H	H	H	CH=NOCH ₂ CH ₃
74.033	H	H	H	C(CH ₃)=NOH
74.034	H	H	H	C(CH ₃)=NOCH ₃
74.035	H	H	H	CH ₂ OC(O)CH ₃
74.036	H	H	H	CH ₂ OC(O)CH ₂ CH ₃
74.037	H	H	H	CH ₂ OC(O)CH(CH ₃) ₂
74.038	H	H	H	CH ₂ OC(O)C(CH ₃) ₃
74.039	H	H	H	CH ₂ OC(O)NHCH ₃
74.040	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.041	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₂ CH ₃
74.042	H	H	H	CH ₂ OC(O)NHC(CH ₃) ₃
74.043	H	H	H	CH ₂ NH ₂
74.044	H	H	H	CH ₂ NHCHO
74.045	H	H	H	CH ₂ NHC(O)CH ₃
74.046	H	H	H	CH ₂ NHC(O)OCH ₃
74.047	H	H	H	NHCO ₂ CH ₃
74.048	H	H	H	NHCO ₂ C(CH ₃) ₃
74.049	H	H	H	CN
74.050	H	H	H	CH ₂ SCH ₃
74.051	H	H	H	CH ₂ SCH ₂ CH ₃
74.052	H	H	H	CH ₂ SCH ₂ CH ₂ CH ₃
74.053	H	H	H	CH ₂ SCH(CH ₃) ₂
74.054	H	H	H	CH ₂ S(O)CH ₃
74.055	H	H	H	CH ₂ SO ₂ CH ₃
74.056	H	H	H	CH ₂ SCH ₂ CH ₃
74.057	H	H	H	CH ₂ S(O)CH ₂ CH ₃
74.058	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃
74.059	H	H	H	OCH ₃
74.060	H	H	H	OCH ₂ CH ₃
74.061	H	H	H	CH(OCH ₃) ₂
74.062	H	H	H	CH(OCH ₂ CH ₃) ₂
74.063	H	H	H	1,3-dioxolan-2-yl
74.064	H	H	H	1,3-dioxan-2-yl
74.065	H	H	H	5,5-dimethyl-1,3-dioxan-2-yl
74.066	H	H	H	CH ₂ CH ₃
74.067	H	H	H	<i>n</i> -propyl
74.068	H	H	H	isopropyl
74.069	H	H	H	<i>n</i> -butyl
74.070	H	H	H	isobutyl
74.071	H	H	H	<i>sec</i> -butyl
74.072	H	H	H	<i>tert</i> -butyl
74.073	H	H	H	<i>n</i> -pentyl
74.074	H	H	H	neopentyl
74.075	H	H	H	<i>n</i> -hexyl
74.076	H	H	H	<i>n</i> -heptyl
74.077	H	H	H	CH ₂ CN
74.078	H	H	H	cyclopropyl
74.079	H	H	H	cyclobutyl
74.080	H	H	H	cyclopentyl
74.081	H	H	H	cyclohexyl
74.082	H	H	H	CH ₂ -cyclopropyl

	R ⁸	R ⁸	R ⁹	R ¹¹
74.083	H	H	H	benzyl
74.084	H	H	H	CH ₂ CF ₃
74.085	H	H	H	CH ₂ F
74.086	H	H	H	CHF ₂
74.087	H	H	H	CF ₃
74.088	H	H	CH ₃	H
74.089	H	H	CH ₂ CH ₃	H
74.090	H	H	<i>n</i> -propyl	H
74.091	H	H	isopropyl	H
74.092	H	H	<i>n</i> -butyl	H
74.093	H	H	isobutyl	H
74.094	H	H	<i>sec</i> -butyl	H
74.095	H	H	<i>tert</i> -butyl	H
74.096	H	H	vinyl	H
74.097	H	H	ethynyl	H
74.098	H	H	trimethylsilylethynyl	H
74.099	H	H	CH ₂ OH	H
74.100	H	H	CH ₂ OCH ₃	H
74.101	H	H	CH ₂ OCH ₂ CH ₃	H
74.102	H	H	CH ₂ OCH ₂ OCH ₃	H
74.103	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
74.104	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
74.105	H	H	CHO	H
74.106	H	H	COCH ₃	H
74.107	H	H	CO ₂ H	H
74.108	H	H	CO ₂ CH ₃	H
74.109	H	H	CO ₂ CH ₂ CH ₃	H
74.110	H	H	CONH ₂	H
74.111	H	H	CONHCH ₃	H
74.112	H	H	CONHCH ₂ CH ₃	H
74.113	H	H	CON(CH ₃) ₂	H
74.114	H	H	CON(CH ₂ -CH ₃) ₂	H
74.115	H	H	CON(CH ₃)OCH ₃	H
74.116	H	H	CH=NOH	H
74.117	H	H	CH=N-OCH ₃	H
74.118	H	H	CH=N-OCH ₂ CH ₃	H
74.119	H	H	C(CH ₃)=N-OH	H
74.120	H	H	C(CH ₃)=N-OCH ₃	H
74.121	H	H	CH ₂ OC(O)-NHCH ₃	H
74.122	H	H	CH ₂ NH ₂	H
74.123	H	H	CH ₂ NHCHO	H
74.124	H	H	CH ₂ NHC(O)CH ₃	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.125	H	H	CH ₂ NHC(O)OCH ₃	H
74.126	H	H	CH(OH)CH ₃	H
74.127	H	H	CH(CH ₃)OCH ₃	H
74.128	H	H	CN	H
74.129	H	H	CH ₂ SCH ₃	H
74.130	H	H	CH ₂ S(O)CH ₃	H
74.131	H	H	CH ₂ SO ₂ CH ₃	H
74.132	H	H	CH ₂ SCH ₂ CH ₃	H
74.133	H	H	CH ₂ S(O)CH ₂ CH ₃	H
74.134	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H
74.135	H	H	OCH ₃	H
74.136	H	H	OCH ₂ CH ₃	H
74.137	H	H	CH(OCH ₃) ₂	H
74.138	H	H	CH(OCH ₂ CH ₃) ₂	H
74.139	H	H	cyclopropyl	H
74.140	H	H	cyclobutyl	H
74.141	H	H	cyclopentyl	H
74.142	H	H	cyclohexyl	H
74.143	H	H	F	H
74.144	H	H	Cl	H
74.145	H	H	Br	H
74.146	H	H	I	H
74.147	H	H	phenyl	H
74.148	H	H	2-acetylphenyl	H
74.149	H	H	3-acetylphenyl	H
74.150	H	H	4-acetylphenyl	H
74.151	H	H	2-chlorophenyl	H
74.152	H	H	3-chlorophenyl	H
74.153	H	H	4-chlorophenyl	H
74.154	H	H	2-cyanophenyl	H
74.155	H	H	3-cyanophenyl	H
74.156	H	H	4-cyanophenyl	H
74.157	H	H	2-fluorophenyl	H
74.158	H	H	3-fluorophenyl	H
74.159	H	H	4-fluorophenyl	H
74.160	H	H	2-methoxyphenyl	H
74.161	H	H	3-methoxyphenyl	H
74.162	H	H	4-methoxyphenyl	H
74.163	H	H	2-methylphenyl	H
74.164	H	H	3-methylphenyl	H
74.165	H	H	4-methylphenyl	H
74.166	H	H	2-nitrophenyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.167	H	H	3-nitrophenyl	H
74.168	H	H	4-nitrophenyl	H
74.169	H	H	2-thiomethylphenyl	H
74.170	H	H	3-thiomethylphenyl	H
74.171	H	H	4-thiomethylphenyl	H
74.172	H	H	2-trifluoromethoxyphenyl	H
74.173	H	H	3-trifluoromethoxyphenyl	H
74.174	H	H	4-trifluoromethoxyphenyl	H
74.175	H	H	2-trifluoromethylphenyl	H
74.176	H	H	3-trifluoromethylphenyl	H
74.177	H	H	4-trifluoromethylphenyl	H
74.178	H	H	2,3-dichlorophenyl	H
74.179	H	H	2,4-dichlorophenyl	H
74.180	H	H	2,5-dichlorophenyl	H
74.181	H	H	2,6-dichlorophenyl	H
74.182	H	H	3,4-dichlorophenyl	H
74.183	H	H	3,5-dichlorophenyl	H
74.184	H	H	2,3-difluorophenyl	H
74.185	H	H	2,4-difluorophenyl	H
74.186	H	H	2,5-difluorophenyl	H
74.187	H	H	2,6-difluorophenyl	H
74.188	H	H	3,4-difluorophenyl	H
74.189	H	H	3,5-difluorophenyl	H
74.190	H	H	2,4,6-trifluorophenyl	H
74.191	H	H	2,4-dimethylphenyl	H
74.192	H	H	2,4,6-trimethylphenyl	H
74.193	H	H	3,4,5-trimethoxyphenyl	H
74.194	H	H	2-chloro-3-cyanophenyl	H
74.195	H	H	2-chloro-4-cyanophenyl	H
74.196	H	H	2-chloro-5-cyanophenyl	H
74.197	H	H	2-chloro-6-cyanophenyl	H
74.198	H	H	3-chloro-2-cyanophenyl	H
74.199	H	H	3-chloro-4-cyanophenyl	H
74.200	H	H	3-chloro-5-cyanophenyl	H
74.201	H	H	5-chloro-2-cyanophenyl	H
74.202	H	H	4-chloro-2-cyanophenyl	H
74.203	H	H	4-chloro-3-cyanophenyl	H
74.204	H	H	2-chloro-3-fluorophenyl	H
74.205	H	H	2-chloro-4-fluorophenyl	H
74.206	H	H	2-chloro-5-fluorophenyl	H
74.207	H	H	2-chloro-6-fluorophenyl	H
74.208	H	H	3-chloro-2-fluorophenyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.209	H	H	3-chloro-4-fluorophenyl	H
74.210	H	H	3-chloro-5-fluorophenyl	H
74.211	H	H	5-chloro-2-fluorophenyl	H
74.212	H	H	4-chloro-2-fluorophenyl	H
74.213	H	H	4-chloro-3-fluorophenyl	H
74.214	H	H	2-chloro-3-methylphenyl	H
74.215	H	H	2-chloro-4-methylphenyl	H
74.216	H	H	2-chloro-5-methylphenyl	H
74.217	H	H	2-chloro-6-methylphenyl	H
74.218	H	H	3-chloro-2-methylphenyl	H
74.219	H	H	3-chloro-4-methylphenyl	H
74.220	H	H	3-chloro-5-methylphenyl	H
74.221	H	H	5-chloro-2-methylphenyl	H
74.222	H	H	4-chloro-2-methylphenyl	H
74.223	H	H	4-chloro-3-methylphenyl	H
74.224	H	H	2-cyano-3-fluorophenyl	H
74.225	H	H	2-cyano-4-fluorophenyl	H
74.226	H	H	2-cyano-5-fluorophenyl	H
74.227	H	H	2-cyano-6-fluorophenyl	H
74.228	H	H	3-cyano-2-fluorophenyl	H
74.229	H	H	3-cyano-4-fluorophenyl	H
74.230	H	H	3-cyano-5-fluorophenyl	H
74.231	H	H	5-cyano-2-fluorophenyl	H
74.232	H	H	4-cyano-2-fluorophenyl	H
74.233	H	H	4-cyano-3-fluorophenyl	H
74.234	H	H	2-fluoro-3-methylphenyl	H
74.235	H	H	2-fluoro-4-methylphenyl	H
74.236	H	H	2-fluoro-5-methylphenyl	H
74.237	H	H	2-fluoro-6-methylphenyl	H
74.238	H	H	3-fluoro-2-methylphenyl	H
74.239	H	H	3-fluoro-4-methylphenyl	H
74.240	H	H	3-fluoro-5-methylphenyl	H
74.241	H	H	5-fluoro-2-methylphenyl	H
74.242	H	H	4-fluoro-2-methylphenyl	H
74.243	H	H	4-fluoro-3-methylphenyl	H
74.244	H	H	pyridin-2-yl	H
74.245	H	H	pyridin-3-yl	H
74.246	H	H	pyridin-4-yl	H
74.247	H	H	3-chloropyridin-2-yl	H
74.248	H	H	4-chloropyridin-2-yl	H
74.249	H	H	5-chloropyridin-2-yl	H
74.250	H	H	6-chloropyridin-2-yl	H

	R ⁶	R ⁶	R ⁹	R ¹¹
74.251	H	H	2-chloropyridin-3-yl	H
74.252	H	H	4-chloropyridin-3-yl	H
74.253	H	H	5-chloropyridin-3-yl	H
74.254	H	H	2-chloropyridin-4-yl	H
74.255	H	H	3-chloropyridin-4-yl	H
74.256	H	H	2-chloropyridin-5-yl	H
74.257	H	H	3-cyanopyridin-2-yl	H
74.258	H	H	4-cyanopyridin-2-yl	H
74.259	H	H	5-cyanopyridin-2-yl	H
74.260	H	H	6-cyanopyridin-2-yl	H
74.261	H	H	2-cyanopyridin-3-yl	H
74.262	H	H	4-cyanopyridin-3-yl	H
74.263	H	H	5-cyanopyridin-3-yl	H
74.264	H	H	2-cyanopyridin-5-yl	H
74.265	H	H	3-fluoropyridin-2-yl	H
74.266	H	H	4-fluoropyridin-2-yl	H
74.267	H	H	5-fluoropyridin-2-yl	H
74.268	H	H	6-fluoropyridin-2-yl	H
74.269	H	H	2-fluoropyridin-3-yl	H
74.270	H	H	4-fluoropyridin-3-yl	H
74.271	H	H	5-fluoropyridin-3-yl	H
74.272	H	H	2-fluoropyridin-5-yl	H
74.273	H	H	3-nitropyridin-2-yl	H
74.274	H	H	4-nitropyridin-2-yl	H
74.275	H	H	5-nitropyridin-2-yl	H
74.276	H	H	6-nitropyridin-2-yl	H
74.277	H	H	2-nitropyridin-3-yl	H
74.278	H	H	4-nitropyridin-3-yl	H
74.279	H	H	5-nitropyridin-3-yl	H
74.280	H	H	2-nitropyridin-5-yl	H
74.281	H	H	3-trifluoromethylpyridin-2-yl	H
74.282	H	H	4-trifluoromethylpyridin-2-yl	H
74.283	H	H	5-trifluoromethylpyridin-2-yl	H
74.284	H	H	6-trifluoromethylpyridin-2-yl	H
74.285	H	H	2-trifluoromethylpyridin-3-yl	H
74.286	H	H	4-trifluoromethylpyridin-3-yl	H
74.287	H	H	5-trifluoromethylpyridin-3-yl	H
74.288	H	H	2-trifluoromethylpyridin-5-yl	H
74.289	H	H	2,6-bis(trifluoromethyl)pyridin-3-yl	H
74.290	H	H	2,6-bis(trifluoromethyl)pyridin-4-yl	H
74.291	H	H	3,5-bis(trifluoromethyl)pyridin-2-yl	H
74.292	H	H	2-thienyl	H

	R ⁶	R ⁶	R ⁹	R ¹¹
74.293	H	H	3-thienyl	H
74.294	H	H	5-cyanothien-2-yl	H
74.295	H	H	2-furyl	H
74.296	H	H	3-furyl	H
74.297	H	H	1-methyl-1,2,3-triazol-4-yl	H
74.298	H	H	2-methylthiopyrimidin-4-yl	H
74.299	H	H	5-methyl-2-methylthiopyrimidin-4-yl	H
74.300	H	H	pyrazin-2-yl	H
74.301	H	H	3,6-dimethylpyrazin-2-yl	H
74.302	H	H	3-cyanopyrazin-2-yl	H
74.303	H	H	quinolin-2-yl	H
74.304	H	H	3-ethylquinolin-2-yl	H
74.305	H	H	benzyl	H
74.306	H	H	4-fluorobenzyl	H
74.307	H	H	4-chlorobenzyl	H
74.308	H	H	4-methylbenzyl	H
74.309	H	H	2,4-dimethylbenzyl	H
74.310	H	H	2,4,6-trimethylbenzyl	H
74.311	H	H	CH ₃	CH ₃
74.312	H	H	CH ₂ CH ₃	CH ₃
74.313	H	H	<i>n</i> -propyl	CH ₃
74.314	H	H	isopropyl	CH ₃
74.315	H	H	<i>n</i> -butyl	CH ₃
74.316	H	H	isobutyl	CH ₃
74.317	H	H	<i>sec</i> -butyl	CH ₃
74.318	H	H	<i>tert</i> -butyl	CH ₃
74.319	H	H	vinyl	CH ₃
74.320	H	H	ethynyl	CH ₃
74.321	H	H	trimethylsilylethynyl	CH ₃
74.322	H	H	CH ₂ OH	CH ₃
74.323	H	H	CH ₂ OCH ₃	CH ₃
74.324	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
74.325	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
74.326	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
74.327	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
74.328	H	H	CHO	CH ₃
74.329	H	H	COCH ₃	CH ₃
74.330	H	H	CO ₂ H	CH ₃
74.331	H	H	CO ₂ CH ₃	CH ₃
74.332	H	H	CO ₂ CH ₂ CH ₃	CH ₃
74.333	H	H	CONH ₂	CH ₃
74.334	H	H	CONHCH ₃	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.335	H	H	CONHCH ₂ CH ₃	CH ₃
74.336	H	H	CON(CH ₃) ₂	CH ₃
74.337	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
74.338	H	H	CON(CH ₃)OCH ₃	CH ₃
74.339	H	H	CH=NOH	CH ₃
74.340	H	H	CH=N-OCH ₃	CH ₃
74.341	H	H	CH=N-OCH ₂ CH ₃	CH ₃
74.342	H	H	C(CH ₃)=N-OH	CH ₃
74.343	H	H	C(CH ₃)=N-OCH ₃	CH ₃
74.344	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃
74.345	H	H	CH ₂ NH ₂	CH ₃
74.346	H	H	CH ₂ NHCHO	CH ₃
74.347	H	H	CH ₂ NHC(O)CH ₃	CH ₃
74.348	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
74.349	H	H	CH(OH)CH ₃	CH ₃
74.350	H	H	CH(CH ₃)OCH ₃	CH ₃
74.351	H	H	CN	CH ₃
74.352	H	H	CH ₂ SCH ₃	CH ₃
74.353	H	H	CH ₂ S(O)CH ₃	CH ₃
74.354	H	H	CH ₂ SO ₂ CH ₃	CH ₃
74.355	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
74.356	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
74.357	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
74.358	H	H	OCH ₃	CH ₃
74.359	H	H	OCH ₂ CH ₃	CH ₃
74.360	H	H	CH(OCH ₃) ₂	CH ₃
74.361	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
74.362	H	H	cyclopropyl	CH ₃
74.363	H	H	cyclobutyl	CH ₃
74.364	H	H	cyclopentyl	CH ₃
74.365	H	H	cyclohexyl	CH ₃
74.366	H	H	F	CH ₃
74.367	H	H	Cl	CH ₃
74.368	H	H	Br	CH ₃
74.369	H	H	I	CH ₃
74.370	H	H	phenyl	CH ₃
74.371	H	H	2-acetylphenyl	CH ₃
74.372	H	H	3-acetylphenyl	CH ₃
74.373	H	H	4-acetylphenyl	CH ₃
74.374	H	H	2-chlorophenyl	CH ₃
74.375	H	H	3-chlorophenyl	CH ₃
74.376	H	H	4-chlorophenyl	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.377	H	H	2-cyanophenyl	CH ₃
74.378	H	H	3-cyanophenyl	CH ₃
74.379	H	H	4-cyanophenyl	CH ₃
74.380	H	H	2-fluorophenyl	CH ₃
74.381	H	H	3-fluorophenyl	CH ₃
74.382	H	H	4-fluorophenyl	CH ₃
74.383	H	H	2-methoxyphenyl	CH ₃
74.384	H	H	3-methoxyphenyl	CH ₃
74.385	H	H	4-methoxyphenyl	CH ₃
74.386	H	H	2-methylphenyl	CH ₃
74.387	H	H	3-methylphenyl	CH ₃
74.388	H	H	4-methylphenyl	CH ₃
74.389	H	H	2-nitrophenyl	CH ₃
74.390	H	H	3-nitrophenyl	CH ₃
74.391	H	H	4-nitrophenyl	CH ₃
74.392	H	H	2-thiomethylphenyl	CH ₃
74.393	H	H	3-thiomethylphenyl	CH ₃
74.394	H	H	4-thiomethylphenyl	CH ₃
74.395	H	H	2-trifluoromethoxyphenyl	CH ₃
74.396	H	H	3-trifluoromethoxyphenyl	CH ₃
74.397	H	H	4-trifluoromethoxyphenyl	CH ₃
74.398	H	H	2-trifluoromethylphenyl	CH ₃
74.399	H	H	3-trifluoromethylphenyl	CH ₃
74.400	H	H	4-trifluoromethylphenyl	CH ₃
74.401	H	H	2,3-dichlorophenyl	CH ₃
74.402	H	H	2,4-dichlorophenyl	CH ₃
74.403	H	H	2,5-dichlorophenyl	CH ₃
74.404	H	H	2,6-dichlorophenyl	CH ₃
74.405	H	H	3,4-dichlorophenyl	CH ₃
74.406	H	H	3,5-dichlorophenyl	CH ₃
74.407	H	H	2,3-difluorophenyl	CH ₃
74.408	H	H	2,4-difluorophenyl	CH ₃
74.409	H	H	2,5-difluorophenyl	CH ₃
74.410	H	H	2,6-difluorophenyl	CH ₃
74.411	H	H	3,4-difluorophenyl	CH ₃
74.412	H	H	3,5-difluorophenyl	CH ₃
74.413	H	H	2,4,6-trifluorophenyl	CH ₃
74.414	H	H	2,4-dimethylphenyl	CH ₃
74.415	H	H	2,4,6-trimethylphenyl	CH ₃
74.416	H	H	3,4,5-trimethoxyphenyl	CH ₃
74.417	H	H	2-chloro-3-cyanophenyl	CH ₃
74.418	H	H	2-chloro-4-cyanophenyl	CH ₃

	R ⁸	R ⁸	R ⁹	R ¹¹
74.419	H	H	2-chloro-5-cyanophenyl	CH ₃
74.420	H	H	2-chloro-6-cyanophenyl	CH ₃
74.421	H	H	3-chloro-2-cyanophenyl	CH ₃
74.422	H	H	3-chloro-4-cyanophenyl	CH ₃
74.423	H	H	3-chloro-5-cyanophenyl	CH ₃
74.424	H	H	5-chloro-2-cyanophenyl	CH ₃
74.425	H	H	4-chloro-2-cyanophenyl	CH ₃
74.426	H	H	4-chloro-3-cyano-phenyl	CH ₃
74.427	H	H	2-chloro-3-fluorophenyl	CH ₃
74.428	H	H	2-chloro-4-fluorophenyl	CH ₃
74.429	H	H	2-chloro-5-fluoro-phenyl	CH ₃
74.430	H	H	2-chloro-6-fluorophenyl	CH ₃
74.431	H	H	3-chloro-2-fluorophenyl	CH ₃
74.432	H	H	3-chloro-4-fluorophenyl	CH ₃
74.433	H	H	3-chloro-5-fluorophenyl	CH ₃
74.434	H	H	5-chloro-2-fluorophenyl	CH ₃
74.435	H	H	4-chloro-2-fluorophenyl	CH ₃
74.436	H	H	4-chloro-3-fluorophenyl	CH ₃
74.437	H	H	2-chloro-3-methylphenyl	CH ₃
74.438	H	H	2-chloro-4-methyl phenyl	CH ₃
74.439	H	H	2-chloro-5-methylphenyl	CH ₃
74.440	H	H	2-chloro-6-methylphenyl	CH ₃
74.441	H	H	3-chloro-2-methylphenyl	CH ₃
74.442	H	H	3-chloro-4-methylphenyl	CH ₃
74.443	H	H	3-chloro-5-methylphenyl	CH ₃
74.444	H	H	5-chloro-2-methylphenyl	CH ₃
74.445	H	H	4-chloro-2-methylphenyl	CH ₃
74.446	H	H	4-chloro-3-methyl phenyl	CH ₃
74.447	H	H	2-cyano-3-fluorophenyl	CH ₃
74.448	H	H	2-cyano-4-fluorophenyl	CH ₃
74.449	H	H	2-cyano-5-fluorophenyl	CH ₃
74.450	H	H	2-cyano-6-fluorophenyl	CH ₃
74.451	H	H	3-cyano-2-fluorophenyl	CH ₃
74.452	H	H	3-cyano-4-fluorophenyl	CH ₃
74.453	H	H	3-cyano-5-fluorophenyl	CH ₃
74.454	H	H	5-cyano-2-fluorophenyl	CH ₃
74.455	H	H	4-cyano-2-fluorophenyl	CH ₃
74.456	H	H	4-cyano-3-fluorophenyl	CH ₃
74.457	H	H	2-fluoro-3-methylphenyl	CH ₃
74.458	H	H	2-fluoro-4-methylphenyl	CH ₃
74.459	H	H	2-fluoro-5-methylphenyl	CH ₃
74.460	H	H	2-fluoro-6-methylphenyl	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.461	H	H	3-fluoro-2-methylphenyl	CH ₃
74.462	H	H	3-fluoro-4-methylphenyl	CH ₃
74.463	H	H	3-fluoro-5-methylphenyl	CH ₃
74.464	H	H	5-fluoro-2-methylphenyl	CH ₃
74.465	H	H	4-fluoro-2-methylphenyl	CH ₃
74.466	H	H	4-fluoro-3-methylphenyl	CH ₃
74.467	H	H	pyridin-2-yl	CH ₃
74.468	H	H	pyridin-3-yl	CH ₃
74.469	H	H	pyridin-4-yl	CH ₃
74.470	H	H	3-chloropyridin-2-yl	CH ₃
74.471	H	H	4-chloropyridin-2-yl	CH ₃
74.472	H	H	5-chloropyridin-2-yl	CH ₃
74.473	H	H	6-chloropyridin-2-yl	CH ₃
74.474	H	H	2-chloropyridin-3-yl	CH ₃
74.475	H	H	4-chloropyridin-3-yl	CH ₃
74.476	H	H	5-chloropyridin-3-yl	CH ₃
74.477	H	H	2-chloropyridin-4-yl	CH ₃
74.478	H	H	3-chloropyridin-4-yl	CH ₃
74.479	H	H	2-chloropyridin-5-yl	CH ₃
74.480	H	H	3-cyanopyridin-2-yl	CH ₃
74.481	H	H	4-cyanopyridin-2-yl	CH ₃
74.482	H	H	5-cyanopyridin-2-yl	CH ₃
74.483	H	H	6-cyanopyridin-2-yl	CH ₃
74.484	H	H	2-cyanopyridin-3-yl	CH ₃
74.485	H	H	4-cyanopyridin-3-yl	CH ₃
74.486	H	H	5-cyanopyridin-3-yl	CH ₃
74.487	H	H	2-cyanopyridin-5-yl	CH ₃
74.488	H	H	3-fluoropyridin-2-yl	CH ₃
74.489	H	H	4-fluoropyridin-2-yl	CH ₃
74.490	H	H	5-fluoropyridin-2-yl	CH ₃
74.491	H	H	6-fluoropyridin-2-yl	CH ₃
74.492	H	H	2-fluoropyridin-3-yl	CH ₃
74.493	H	H	4-fluoropyridin-3-yl	CH ₃
74.494	H	H	5-fluoropyridin-3-yl	CH ₃
74.495	H	H	2-fluoropyridin-5-yl	CH ₃
74.496	H	H	3-nitropyridin-2-yl	CH ₃
74.497	H	H	4-nitropyridin-2-yl	CH ₃
74.498	H	H	5-nitropyridin-2-yl	CH ₃
74.499	H	H	6-nitropyridin-2-yl	CH ₃
74.500	H	H	2-nitropyridin-3-yl	CH ₃
74.501	H	H	4-nitropyridin-3-yl	CH ₃
74.502	H	H	5-nitropyridin-3-yl	CH ₃

	R ⁶	R ⁶	R ⁹	R ¹¹
74.503	H	H	2-nitropyridin-5-yl	CH ₃
74.504	H	H	3-trifluoromethylpyridin-2-yl	CH ₃
74.505	H	H	4-trifluoromethylpyridin-2-yl	CH ₃
74.506	H	H	5-trifluoromethylpyridin-2-yl	CH ₃
74.507	H	H	6-trifluoromethylpyridin-2-yl	CH ₃
74.508	H	H	2-trifluoromethylpyridin-3-yl	CH ₃
74.509	H	H	4-trifluoromethylpyridin-3-yl	CH ₃
74.510	H	H	5-trifluoromethylpyridin-3-yl	CH ₃
74.511	H	H	2-trifluoromethylpyridin-5-yl	CH ₃
74.512	H	H	2,6-bis(trifluoromethyl)pyridin-3-yl	CH ₃
74.513	H	H	2,6-bis(trifluoromethyl)pyridin-4-yl	CH ₃
74.514	H	H	3,5-bis(trifluoromethyl)pyridin-2-yl	CH ₃
74.515	H	H	2-thienyl	CH ₃
74.516	H	H	3-thienyl	CH ₃
74.517	H	H	5-cyanothien-2-yl	CH ₃
74.518	H	H	2-furyl	CH ₃
74.519	H	H	3-furyl	CH ₃
74.520	H	H	1-methyl-1,2,3-triazol-4-yl	CH ₃
74.521	H	H	2-methylthiopyrimidin-4-yl	CH ₃
74.522	H	H	5-methyl-2-methylthiopyrimidin-4-yl	CH ₃
74.523	H	H	pyrazin-2-yl	CH ₃
74.524	H	H	3,6-dimethylpyrazin-2-yl	CH ₃
74.525	H	H	3-cyanopyrazin-2-yl	CH ₃
74.526	H	H	quinolin-2-yl	CH ₃
74.527	H	H	3-ethylquinolin-2-yl	CH ₃
74.528	H	H	benzyl	CH ₃
74.529	H	H	4-fluorobenzyl	CH ₃
74.530	H	H	4-chlorobenzyl	CH ₃
74.531	H	H	4-methylbenzyl	CH ₃
74.532	H	H	2,4-dimethylbenzyl	CH ₃
74.533	H	H	2,4,6-trimethylbenzyl	CH ₃
74.534	CH ₃	H	CH ₃	H
74.535	CH ₃	H	CH ₂ CH ₃	H
74.536	CH ₃	H	<i>n</i> -propyl	H
74.537	CH ₃	H	isopropyl	H
74.538	CH ₃	H	<i>n</i> -butyl	H
74.539	CH ₃	H	isobutyl	H
74.540	CH ₃	H	<i>sec</i> -butyl	H
74.541	CH ₃	H	<i>tert</i> -butyl	H
74.542	CH ₃	H	vinyl	H
74.543	CH ₃	H	ethynyl	H
74.544	CH ₃	H	trimethylsilylethynyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.545	CH ₃	H	CH ₂ OH	H
74.546	CH ₃	H	CH ₂ OCH ₃	H
74.547	CH ₃	H	CH ₂ OCH ₂ CH ₃	H
74.548	CH ₃	H	CH ₂ OCH ₂ OCH ₃	H
74.549	CH ₃	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
74.550	CH ₃	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
74.551	CH ₃	H	CHO	H
74.552	CH ₃	H	COCH ₃	H
74.553	CH ₃	H	CO ₂ H	H
74.554	CH ₃	H	CO ₂ CH ₃	H
74.555	CH ₃	H	CO ₂ CH ₂ CH ₃	H
74.556	CH ₃	H	CONH ₂	H
74.557	CH ₃	H	CONHCH ₃	H
74.558	CH ₃	H	CONHCH ₂ CH ₃	H
74.559	CH ₃	H	CON(CH ₃) ₂	H
74.560	CH ₃	H	CON(CH ₂ -CH ₃) ₂	H
74.561	CH ₃	H	CON(CH ₃)OCH ₃	H
74.562	CH ₃	H	CH=NOH	H
74.563	CH ₃	H	CH=N-OCH ₃	H
74.564	CH ₃	H	CH=N-OCH ₂ CH ₃	H
74.565	CH ₃	H	C(CH ₃)=N-OH	H
74.566	CH ₃	H	C(CH ₃)=N-OCH ₃	H
74.567	CH ₃	H	CH ₂ OC(O)-NHCH ₃	H
74.568	CH ₃	H	CH ₂ NH ₂	H
74.569	CH ₃	H	CH ₂ NHCHO	H
74.570	CH ₃	H	CH ₂ NHC(O)CH ₃	H
74.571	CH ₃	H	CH ₂ NHC(O)OCH ₃	H
74.572	CH ₃	H	CH(OH)CH ₃	H
74.573	CH ₃	H	CH(CH ₃)OCH ₃	H
74.574	CH ₃	H	CN	H
74.575	CH ₃	H	CH ₂ SCH ₃	H
74.576	CH ₃	H	CH ₂ S(O)CH ₃	H
74.577	CH ₃	H	CH ₂ SO ₂ CH ₃	H
74.578	CH ₃	H	CH ₂ SCH ₂ CH ₃	H
74.579	CH ₃	H	CH ₂ S(O)CH ₂ CH ₃	H
74.580	CH ₃	H	CH ₂ SO ₂ CH ₂ CH ₃	H
74.581	CH ₃	H	OCH ₃	H
74.582	CH ₃	H	OCH ₂ CH ₃	H
74.583	CH ₃	H	CH(OCH ₃) ₂	H
74.584	CH ₃	H	CH(OCH ₂ CH ₃) ₂	H
74.585	CH ₃	H	cyclopropyl	H
74.586	CH ₃	H	cyclobutyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.587	CH ₃	H	cyclopentyl	H
74.588	CH ₃	H	cyclohexyl	H
74.589	CH ₃	H	F	H
74.590	CH ₃	H	Cl	H
74.591	CH ₃	H	Br	H
74.592	CH ₃	H	I	H
74.593	CH ₃	H	phenyl	H
74.594	CH ₃	H	2-acetylphenyl	H
74.595	CH ₃	H	3-acetylphenyl	H
74.596	CH ₃	H	4-acetylphenyl	H
74.597	CH ₃	H	2-chlorophenyl	H
74.598	CH ₃	H	3-chlorophenyl	H
74.599	CH ₃	H	4-chlorophenyl	H
74.600	CH ₃	H	2-cyanophenyl	H
74.601	CH ₃	H	3-cyanophenyl	H
74.602	CH ₃	H	4-cyanophenyl	H
74.603	CH ₃	H	2-fluorophenyl	H
74.604	CH ₃	H	3-fluorophenyl	H
74.605	CH ₃	H	4-fluorophenyl	H
74.606	CH ₃	H	2-methoxyphenyl	H
74.607	CH ₃	H	3-methoxyphenyl	H
74.608	CH ₃	H	4-methoxyphenyl	H
74.609	CH ₃	H	2-methylphenyl	H
74.610	CH ₃	H	3-methylphenyl	H
74.611	CH ₃	H	4-methylphenyl	H
74.612	CH ₃	H	2-nitrophenyl	H
74.613	CH ₃	H	3-nitrophenyl	H
74.614	CH ₃	H	4-nitrophenyl	H
74.615	CH ₃	H	2-thiomethylphenyl	H
74.616	CH ₃	H	3-thiomethylphenyl	H
74.617	CH ₃	H	4-thiomethylphenyl	H
74.618	CH ₃	H	2-trifluoromethoxyphenyl	H
74.619	CH ₃	H	3-trifluoromethoxyphenyl	H
74.620	CH ₃	H	4-trifluoromethoxyphenyl	H
74.621	CH ₃	H	2-trifluoromethylphenyl	H
74.622	CH ₃	H	3-trifluoromethylphenyl	H
74.623	CH ₃	H	4-trifluoromethylphenyl	H
74.624	CH ₃	H	2,3-dichlorophenyl	H
74.625	CH ₃	H	2,4-dichlorophenyl	H
74.626	CH ₃	H	2,5-dichlorophenyl	H
74.627	CH ₃	H	2,6-dichlorophenyl	H
74.628	CH ₃	H	3,4-dichlorophenyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.629	CH ₃	H	3,5-dichlorophenyl	H
74.630	CH ₃	H	2,3-difluorophenyl	H
74.631	CH ₃	H	2,4-difluorophenyl	H
74.632	CH ₃	H	2,5-difluorophenyl	H
74.633	CH ₃	H	2,6-difluorophenyl	H
74.634	CH ₃	H	3,4-difluorophenyl	H
74.635	CH ₃	H	3,5-difluorophenyl	H
74.636	CH ₃	H	2,4,6-trifluorophenyl	H
74.637	CH ₃	H	2,4-dimethylphenyl	H
74.638	CH ₃	H	2,4,6-trimethylphenyl	H
74.639	CH ₃	H	3,4,5-trimethoxyphenyl	H
74.640	CH ₃	H	2-chloro-3-cyanophenyl	H
74.641	CH ₃	H	2-chloro-4-cyanophenyl	H
74.642	CH ₃	H	2-chloro-5-cyanophenyl	H
74.643	CH ₃	H	2-chloro-6-cyanophenyl	H
74.644	CH ₃	H	3-chloro-2-cyanophenyl	H
74.645	CH ₃	H	3-chloro-4-cyanophenyl	H
74.646	CH ₃	H	3-chloro-5-cyanophenyl	H
74.647	CH ₃	H	5-chloro-2-cyanophenyl	H
74.648	CH ₃	H	4-chloro-2-cyanophenyl	H
74.649	CH ₃	H	4-chloro-3-cyanophenyl	H
74.650	CH ₃	H	2-chloro-3-fluorophenyl	H
74.651	CH ₃	H	2-chloro-4-fluorophenyl	H
74.652	CH ₃	H	2-chloro-5-fluorophenyl	H
74.653	CH ₃	H	2-chloro-6-fluorophenyl	H
74.654	CH ₃	H	3-chloro-2-fluorophenyl	H
74.655	CH ₃	H	3-chloro-4-fluorophenyl	H
74.656	CH ₃	H	3-chloro-5-fluorophenyl	H
74.657	CH ₃	H	5-chloro-2-fluorophenyl	H
74.658	CH ₃	H	4-chloro-2-fluorophenyl	H
74.659	CH ₃	H	4-chloro-3-fluorophenyl	H
74.660	CH ₃	H	2-chloro-3-methylphenyl	H
74.661	CH ₃	H	2-chloro-4-methylphenyl	H
74.662	CH ₃	H	2-chloro-5-methylphenyl	H
74.663	CH ₃	H	2-chloro-6-methylphenyl	H
74.664	CH ₃	H	3-chloro-2-methylphenyl	H
74.665	CH ₃	H	3-chloro-4-methylphenyl	H
74.666	CH ₃	H	3-chloro-5-methylphenyl	H
74.667	CH ₃	H	5-chloro-2-methylphenyl	H
74.668	CH ₃	H	4-chloro-2-methylphenyl	H
74.669	CH ₃	H	4-chloro-3-methylphenyl	H
74.670	CH ₃	H	2-cyano-3-fluorophenyl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.671	CH ₃	H	2-cyano-4-fluorophenyl	H
74.672	CH ₃	H	2-cyano-5-fluorophenyl	H
74.673	CH ₃	H	2-cyano-6-fluorophenyl	H
74.674	CH ₃	H	3-cyano-2-fluorophenyl	H
74.675	CH ₃	H	3-cyano-4-fluorophenyl	H
74.676	CH ₃	H	3-cyano-5-fluorophenyl	H
74.677	CH ₃	H	5-cyano-2-fluorophenyl	H
74.678	CH ₃	H	4-cyano-2-fluorophenyl	H
74.679	CH ₃	H	4-cyano-3-fluorophenyl	H
74.680	CH ₃	H	2-fluoro-3-methylphenyl	H
74.681	CH ₃	H	2-fluoro-4-methylphenyl	H
74.682	CH ₃	H	2-fluoro-5-methylphenyl	H
74.683	CH ₃	H	2-fluoro-6-methylphenyl	H
74.684	CH ₃	H	3-fluoro-2-methylphenyl	H
74.685	CH ₃	H	3-fluoro-4-methylphenyl	H
74.686	CH ₃	H	3-fluoro-5-methylphenyl	H
74.687	CH ₃	H	5-fluoro-2-methylphenyl	H
74.688	CH ₃	H	4-fluoro-2-methylphenyl	H
74.689	CH ₃	H	4-fluoro-3-methylphenyl	H
74.690	CH ₃	H	pyridin-2-yl	H
74.691	CH ₃	H	pyridin-3-yl	H
74.692	CH ₃	H	pyridin-4-yl	H
74.693	CH ₃	H	3-chloropyridin-2-yl	H
74.694	CH ₃	H	4-chloropyridin-2-yl	H
74.695	CH ₃	H	5-chloropyridin-2-yl	H
74.696	CH ₃	H	6-chloropyridin-2-yl	H
74.697	CH ₃	H	2-chloropyridin-3-yl	H
74.698	CH ₃	H	4-chloropyridin-3-yl	H
74.699	CH ₃	H	5-chloropyridin-3-yl	H
74.700	CH ₃	H	2-chloropyridin-4-yl	H
74.701	CH ₃	H	3-chloropyridin-4-yl	H
74.702	CH ₃	H	2-chloropyridin-5-yl	H
74.703	CH ₃	H	3-cyanopyridin-2-yl	H
74.704	CH ₃	H	4-cyanopyridin-2-yl	H
74.705	CH ₃	H	5-cyanopyridin-2-yl	H
74.706	CH ₃	H	6-cyanopyridin-2-yl	H
74.707	CH ₃	H	2-cyanopyridin-3-yl	H
74.708	CH ₃	H	4-cyanopyridin-3-yl	H
74.709	CH ₃	H	5-cyanopyridin-3-yl	H
74.710	CH ₃	H	2-cyanopyridin-5-yl	H
74.711	CH ₃	H	3-fluoropyridin-2-yl	H
74.712	CH ₃	H	4-fluoropyridin-2-yl	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.713	CH ₃	H	5-fluoropyridin-2-yl	H
74.714	CH ₃	H	6-fluoropyridin-2-yl	H
74.715	CH ₃	H	2-fluoropyridin-3-yl	H
74.716	CH ₃	H	4-fluoropyridin-3-yl	H
74.717	CH ₃	H	5-fluoropyridin-3-yl	H
74.718	CH ₃	H	2-fluoropyridin-5-yl	H
74.719	CH ₃	H	3-nitropyridin-2-yl	H
74.720	CH ₃	H	4-nitropyridin-2-yl	H
74.721	CH ₃	H	5-nitropyridin-2-yl	H
74.722	CH ₃	H	6-nitropyridin-2-yl	H
74.723	CH ₃	H	2-nitropyridin-3-yl	H
74.724	CH ₃	H	4-nitropyridin-3-yl	H
74.725	CH ₃	H	5-nitropyridin-3-yl	H
74.726	CH ₃	H	2-nitropyridin-5-yl	H
74.727	CH ₃	H	3-trifluoromethylpyridin-2-yl	H
74.728	CH ₃	H	4-trifluoromethylpyridin-2-yl	H
74.729	CH ₃	H	5-trifluoromethylpyridin-2-yl	H
74.730	CH ₃	H	6-trifluoromethylpyridin-2-yl	H
74.731	CH ₃	H	2-trifluoromethylpyridin-3-yl	H
74.732	CH ₃	H	4-trifluoromethylpyridin-3-yl	H
74.733	CH ₃	H	5-trifluoromethylpyridin-3-yl	H
74.734	CH ₃	H	2-trifluoromethylpyridin-5-yl	H
74.735	CH ₃	H	2,6-bis(trifluoromethyl)pyridin-3-yl	H
74.736	CH ₃	H	2,6-bis(trifluoromethyl)pyridin-4-yl	H
74.737	CH ₃	H	3,5-bis(trifluoromethyl)pyridin-2-yl	H
74.738	CH ₃	H	2-thienyl	H
74.739	CH ₃	H	3-thienyl	H
74.740	CH ₃	H	5-cyanothien-2-yl	H
74.741	CH ₃	H	2-furyl	H
74.742	CH ₃	H	3-furyl	H
74.743	CH ₃	H	1-methyl-1,2,3-triazol-4-yl	H
74.744	CH ₃	H	2-methylthiopyrimidin-4-yl	H
74.745	CH ₃	H	5-methyl-2-methylthiopyrimidin-4-yl	H
74.746	CH ₃	H	pyrazin-2-yl	H
74.747	CH ₃	H	3,6-dimethylpyrazin-2-yl	H
74.748	CH ₃	H	3-cyanopyrazin-2-yl	H
74.749	CH ₃	H	quinolin-2-yl	H
74.750	CH ₃	H	3-ethylquinolin-2-yl	H
74.751	CH ₃	H	benzyl	H
74.752	CH ₃	H	4-fluorobenzyl	H
74.753	CH ₃	H	4-chlorobenzyl	H
74.754	CH ₃	H	4-methylbenzyl	H

	R ⁶	R ⁶	R ⁹	R ¹¹
74.755	CH ₃	H	2,4-dimethylbenzyl	H
74.756	CH ₃	H	2,4,6-trimethylbenzyl	H
74.757	CH ₃	H	H	CH ₃
74.758	CH ₃	H	CH ₃	CH ₃
74.759	CH ₃	H	CH ₂ CH ₃	CH ₃
74.760	CH ₃	H	<i>n</i> -propyl	CH ₃
74.761	CH ₃	H	isopropyl	CH ₃
74.762	CH ₃	H	<i>n</i> -butyl	CH ₃
74.763	CH ₃	H	isobutyl	CH ₃
74.764	CH ₃	H	<i>sec</i> -butyl	CH ₃
74.765	CH ₃	H	<i>tert</i> -butyl	CH ₃
74.766	CH ₃	H	vinyl	CH ₃
74.767	CH ₃	H	ethynyl	CH ₃
74.768	CH ₃	H	trimethylsilylethynyl	CH ₃
74.769	CH ₃	H	CH ₂ OH	CH ₃
74.770	CH ₃	H	CH ₂ OCH ₃	CH ₃
74.771	CH ₃	H	CH ₂ OCH ₂ CH ₃	CH ₃
74.772	CH ₃	H	CH ₂ OCH ₂ OCH ₃	CH ₃
74.773	CH ₃	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
74.774	CH ₃	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
74.775	CH ₃	H	CHO	CH ₃
74.776	CH ₃	H	COCH ₃	CH ₃
74.777	CH ₃	H	CO ₂ H	CH ₃
74.778	CH ₃	H	CO ₂ CH ₃	CH ₃
74.779	CH ₃	H	CO ₂ CH ₂ CH ₃	CH ₃
74.780	CH ₃	H	CONH ₂	CH ₃
74.781	CH ₃	H	CONHCH ₃	CH ₃
74.782	CH ₃	H	CONHCH ₂ CH ₃	CH ₃
74.783	CH ₃	H	CON(CH ₃) ₂	CH ₃
74.784	CH ₃	H	CON(CH ₂ -CH ₃) ₂	CH ₃
74.785	CH ₃	H	CON(CH ₃)OCH ₃	CH ₃
74.786	CH ₃	H	CH=NOH	CH ₃
74.787	CH ₃	H	CH=N-OCH ₃	CH ₃
74.788	CH ₃	H	CH=N-OCH ₂ CH ₃	CH ₃
74.789	CH ₃	H	C(CH ₃)=N-OH	CH ₃
74.790	CH ₃	H	C(CH ₃)=N-OCH ₃	CH ₃
74.791	CH ₃	H	CH ₂ OC(O)-NHCH ₃	CH ₃
74.792	CH ₃	H	CH ₂ NH ₂	CH ₃
74.793	CH ₃	H	CH ₂ NHCHO	CH ₃
74.794	CH ₃	H	CH ₂ NHC(O)CH ₃	CH ₃
74.795	CH ₃	H	CH ₂ NHC(O)OCH ₃	CH ₃
74.796	CH ₃	H	CH(OH)CH ₃	CH ₃

	R ⁶	R ⁶	R ⁶	R ¹¹
74.797	CH ₃	H	CH(CH ₃)OCH ₃	CH ₃
74.798	CH ₃	H	CN	CH ₃
74.799	CH ₃	H	CH ₂ SCH ₃	CH ₃
74.800	CH ₃	H	CH ₂ S(O)CH ₃	CH ₃
74.801	CH ₃	H	CH ₂ SO ₂ CH ₃	CH ₃
74.802	CH ₃	H	CH ₂ SCH ₂ CH ₃	CH ₃
74.803	CH ₃	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
74.804	CH ₃	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
74.805	CH ₃	H	OCH ₃	CH ₃
74.806	CH ₃	H	OCH ₂ CH ₃	CH ₃
74.807	CH ₃	H	CH(OCH ₃) ₂	CH ₃
74.808	CH ₃	H	CH(OCH ₂ CH ₃) ₂	CH ₃
74.809	CH ₃	H	cyclopropyl	CH ₃
74.810	CH ₃	H	cyclobutyl	CH ₃
74.811	CH ₃	H	cyclopentyl	CH ₃
74.812	CH ₃	H	cyclohexyl	CH ₃
74.813	CH ₃	H	F	CH ₃
74.814	CH ₃	H	Cl	CH ₃
74.815	CH ₃	H	Br	CH ₃
74.816	CH ₃	H	I	CH ₃
74.817	CH ₃	H	phenyl	CH ₃
74.818	CH ₃	H	2-acetylphenyl	CH ₃
74.819	CH ₃	H	3-acetylphenyl	CH ₃
74.820	CH ₃	H	4-acetylphenyl	CH ₃
74.821	CH ₃	H	2-chlorophenyl	CH ₃
74.822	CH ₃	H	3-chlorophenyl	CH ₃
74.823	CH ₃	H	4-chlorophenyl	CH ₃
74.824	CH ₃	H	2-cyanophenyl	CH ₃
74.825	CH ₃	H	3-cyanophenyl	CH ₃
74.826	CH ₃	H	4-cyanophenyl	CH ₃
74.827	CH ₃	H	2-fluorophenyl	CH ₃
74.828	CH ₃	H	3-fluorophenyl	CH ₃
74.829	CH ₃	H	4-fluorophenyl	CH ₃
74.830	CH ₃	H	2-methoxyphenyl	CH ₃
74.831	CH ₃	H	3-methoxyphenyl	CH ₃
74.832	CH ₃	H	4-methoxyphenyl	CH ₃
74.833	CH ₃	H	2-methylphenyl	CH ₃
74.834	CH ₃	H	3-methylphenyl	CH ₃
74.835	CH ₃	H	4-methylphenyl	CH ₃
74.836	CH ₃	H	2-nitrophenyl	CH ₃
74.837	CH ₃	H	3-nitrophenyl	CH ₃
74.838	CH ₃	H	4-nitrophenyl	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.839	CH ₃	H	2-thiomethylphenyl	CH ₃
74.840	CH ₃	H	3-thiomethylphenyl	CH ₃
74.841	CH ₃	H	4-thiomethylphenyl	CH ₃
74.842	CH ₃	H	2-trifluoromethoxyphenyl	CH ₃
74.843	CH ₃	H	3-trifluoromethoxyphenyl	CH ₃
74.844	CH ₃	H	4-trifluoromethoxyphenyl	CH ₃
74.845	CH ₃	H	2-trifluoromethylphenyl	CH ₃
74.846	CH ₃	H	3-trifluoromethylphenyl	CH ₃
74.847	CH ₃	H	4-trifluoromethylphenyl	CH ₃
74.848	CH ₃	H	2,3-dichlorophenyl	CH ₃
74.849	CH ₃	H	2,4-dichlorophenyl	CH ₃
74.850	CH ₃	H	2,5-dichlorophenyl	CH ₃
74.851	CH ₃	H	2,6-dichlorophenyl	CH ₃
74.852	CH ₃	H	3,4-dichlorophenyl	CH ₃
74.853	CH ₃	H	3,5-dichlorophenyl	CH ₃
74.854	CH ₃	H	2,3-difluorophenyl	CH ₃
74.855	CH ₃	H	2,4-difluorophenyl	CH ₃
74.856	CH ₃	H	2,5-difluorophenyl	CH ₃
74.857	CH ₃	H	2,6-difluorophenyl	CH ₃
74.858	CH ₃	H	3,4-difluorophenyl	CH ₃
74.859	CH ₃	H	3,5-difluorophenyl	CH ₃
74.860	CH ₃	H	2,4,6-trifluorophenyl	CH ₃
74.861	CH ₃	H	2,4-dimethylphenyl	CH ₃
74.862	CH ₃	H	2,4,6-trimethylphenyl	CH ₃
74.863	CH ₃	H	3,4,5-trimethoxyphenyl	CH ₃
74.864	CH ₃	H	2-chloro-3-cyanophenyl	CH ₃
74.865	CH ₃	H	2-chloro-4-cyanophenyl	CH ₃
74.866	CH ₃	H	2-chloro-5-cyanophenyl	CH ₃
74.867	CH ₃	H	2-chloro-6-cyanophenyl	CH ₃
74.868	CH ₃	H	3-chloro-2-cyanophenyl	CH ₃
74.869	CH ₃	H	3-chloro-4-cyanophenyl	CH ₃
74.870	CH ₃	H	3-chloro-5-cyanophenyl	CH ₃
74.871	CH ₃	H	5-chloro-2-cyanophenyl	CH ₃
74.872	CH ₃	H	4-chloro-2-cyanophenyl	CH ₃
74.873	CH ₃	H	4-chloro-3-cyanophenyl	CH ₃
74.874	CH ₃	H	2-chloro-3-fluorophenyl	CH ₃
74.875	CH ₃	H	2-chloro-4-fluorophenyl	CH ₃
74.876	CH ₃	H	2-chloro-5-fluorophenyl	CH ₃
74.877	CH ₃	H	2-chloro-6-fluorophenyl	CH ₃
74.878	CH ₃	H	3-chloro-2-fluorophenyl	CH ₃
74.879	CH ₃	H	3-chloro-4-fluorophenyl	CH ₃
74.880	CH ₃	H	3-chloro-5-fluorophenyl	CH ₃

	R ⁶	R ⁶	R ⁹	R ¹¹
74.881	CH ₃	H	5-chloro-2-fluorophenyl	CH ₃
74.882	CH ₃	H	4-chloro-2-fluorophenyl	CH ₃
74.883	CH ₃	H	4-chloro-3-fluorophenyl	CH ₃
74.884	CH ₃	H	2-chloro-3-methylphenyl	CH ₃
74.885	CH ₃	H	2-chloro-4-methylphenyl	CH ₃
74.886	CH ₃	H	2-chloro-5-methylphenyl	CH ₃
74.887	CH ₃	H	2-chloro-6-methylphenyl	CH ₃
74.888	CH ₃	H	3-chloro-2-methylphenyl	CH ₃
74.889	CH ₃	H	3-chloro-4-methylphenyl	CH ₃
74.890	CH ₃	H	3-chloro-5-methylphenyl	CH ₃
74.891	CH ₃	H	5-chloro-2-methylphenyl	CH ₃
74.892	CH ₃	H	4-chloro-2-methylphenyl	CH ₃
74.893	CH ₃	H	4-chloro-3-methylphenyl	CH ₃
74.894	CH ₃	H	2-cyano-3-fluorophenyl	CH ₃
74.895	CH ₃	H	2-cyano-4-fluorophenyl	CH ₃
74.896	CH ₃	H	2-cyano-5-fluorophenyl	CH ₃
74.897	CH ₃	H	2-cyano-6-fluorophenyl	CH ₃
74.898	CH ₃	H	3-cyano-2-fluorophenyl	CH ₃
74.899	CH ₃	H	3-cyano-4-fluorophenyl	CH ₃
74.901	CH ₃	H	3-cyano-5-fluorophenyl	CH ₃
74.902	CH ₃	H	5-cyano-2-fluorophenyl	CH ₃
74.903	CH ₃	H	4-cyano-2-fluorophenyl	CH ₃
74.904	CH ₃	H	4-cyano-3-fluorophenyl	CH ₃
74.905	CH ₃	H	2-fluoro-3-methylphenyl	CH ₃
74.906	CH ₃	H	2-fluoro-4-methylphenyl	CH ₃
74.907	CH ₃	H	2-fluoro-5-methylphenyl	CH ₃
74.908	CH ₃	H	2-fluoro-6-methylphenyl	CH ₃
74.909	CH ₃	H	3-fluoro-2-methylphenyl	CH ₃
74.910	CH ₃	H	3-fluoro-4-methylphenyl	CH ₃
74.911	CH ₃	H	3-fluoro-5-methylphenyl	CH ₃
74.912	CH ₃	H	5-fluoro-2-methylphenyl	CH ₃
74.913	CH ₃	H	4-fluoro-2-methylphenyl	CH ₃
74.914	CH ₃	H	4-fluoro-3-methylphenyl	CH ₃
74.915	CH ₃	H	pyridin-2-yl	CH ₃
74.916	CH ₃	H	pyridin-3-yl	CH ₃
74.917	CH ₃	H	pyridin-4-yl	CH ₃
74.918	CH ₃	H	3-chloropyridin-2-yl	CH ₃
74.919	CH ₃	H	4-chloropyridin-2-yl	CH ₃
74.920	CH ₃	H	5-chloropyridin-2-yl	CH ₃
74.921	CH ₃	H	6-chloropyridin-2-yl	CH ₃
74.922	CH ₃	H	2-chloropyridin-3-yl	CH ₃
74.923	CH ₃	H	4-chloropyridin-3-yl	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.924	CH ₃	H	5-chloropyridin-3-yl	CH ₃
74.925	CH ₃	H	2-chloropyridin-4-yl	CH ₃
74.926	CH ₃	H	3-chloropyridin-4-yl	CH ₃
74.927	CH ₃	H	2-chloropyridin-5-yl	CH ₃
74.928	CH ₃	H	3-cyanopyridin-2-yl	CH ₃
74.929	CH ₃	H	4-cyanopyridin-2-yl	CH ₃
74.930	CH ₃	H	5-cyanopyridin-2-yl	CH ₃
74.931	CH ₃	H	6-cyanopyridin-2-yl	CH ₃
74.932	CH ₃	H	2-cyanopyridin-3-yl	CH ₃
74.933	CH ₃	H	4-cyanopyridin-3-yl	CH ₃
74.934	CH ₃	H	5-cyanopyridin-3-yl	CH ₃
74.935	CH ₃	H	2-cyanopyridin-5-yl	CH ₃
74.936	CH ₃	H	3-fluoropyridin-2-yl	CH ₃
74.937	CH ₃	H	4-fluoropyridin-2-yl	CH ₃
74.938	CH ₃	H	5-fluoropyridin-2-yl	CH ₃
74.939	CH ₃	H	6-fluoropyridin-2-yl	CH ₃
74.940	CH ₃	H	2-fluoropyridin-3-yl	CH ₃
74.941	CH ₃	H	4-fluoropyridin-3-yl	CH ₃
74.942	CH ₃	H	5-fluoropyridin-3-yl	CH ₃
74.943	CH ₃	H	2-fluoropyridin-5-yl	CH ₃
74.944	CH ₃	H	3-nitropyridin-2-yl	CH ₃
74.945	CH ₃	H	4-nitropyridin-2-yl	CH ₃
74.946	CH ₃	H	5-nitropyridin-2-yl	CH ₃
74.947	CH ₃	H	6-nitropyridin-2-yl	CH ₃
74.948	CH ₃	H	2-nitropyridin-3-yl	CH ₃
74.949	CH ₃	H	4-nitropyridin-3-yl	CH ₃
74.950	CH ₃	H	5-nitropyridin-3-yl	CH ₃
74.951	CH ₃	H	2-nitropyridin-5-yl	CH ₃
74.952	CH ₃	H	3-trifluoromethylpyridin-2-yl	CH ₃
74.953	CH ₃	H	4-trifluoromethylpyridin-2-yl	CH ₃
74.954	CH ₃	H	5-trifluoromethylpyridin-2-yl	CH ₃
74.955	CH ₃	H	6-trifluoromethylpyridin-2-yl	CH ₃
74.956	CH ₃	H	2-trifluoromethylpyridin-3-yl	CH ₃
74.957	CH ₃	H	4-trifluoromethylpyridin-3-yl	CH ₃
74.958	CH ₃	H	5-trifluoromethylpyridin-3-yl	CH ₃
74.959	CH ₃	H	2-trifluoromethylpyridin-5-yl	CH ₃
74.960	CH ₃	H	2,6-bis(trifluoromethyl)pyridin-3-yl	CH ₃
74.961	CH ₃	H	2,6-bis(trifluoromethyl)pyridin-4-yl	CH ₃
74.962	CH ₃	H	3,5-bis(trifluoromethyl)pyridin-2-yl	CH ₃
74.963	CH ₃	H	2-thienyl	CH ₃
74.964	CH ₃	H	3-thienyl	CH ₃
74.965	CH ₃	H	5-cyanothien-2-yl	CH ₃

	R ⁰	R ⁰	R ⁹	R ¹¹
74.966	CH ₃	H	2-furyl	CH ₃
74.967	CH ₃	H	3-furyl	CH ₃
74.968	CH ₃	H	1-methyl-1,2,3-triazol-4-yl	CH ₃
74.969	CH ₃	H	2-methylthiopyrimidin-4-yl	CH ₃
74.970	CH ₃	H	5-methyl-2-methylthiopyrimidin-4-yl	CH ₃
74.971	CH ₃	H	pyrazin-2-yl	CH ₃
74.972	CH ₃	H	3,6-dimethylpyrazin-2-yl	CH ₃
74.973	CH ₃	H	3-cyanopyrazin-2-yl	CH ₃
74.974	CH ₃	H	quinolin-2-yl	CH ₃
74.975	CH ₃	H	3-ethylquinolin-2-yl	CH ₃
74.976	CH ₃	H	benzyl	CH ₃
74.977	CH ₃	H	4-fluorobenzyl	CH ₃
74.978	CH ₃	H	4-chlorobenzyl	CH ₃
74.979	CH ₃	H	4-methylbenzyl	CH ₃
74.980	CH ₃	H	2,4-dimethylbenzyl	CH ₃
74.981	CH ₃	H	2,4,6-trimethylbenzyl	CH ₃
74.982	CH ₃	H	H	CH ₂ OH
74.983	CH ₃	H	H	CH ₂ OCH ₃
74.984	CH ₃	H	H	CH ₂ OCH ₂ CH ₃
74.985	CH ₃	H	H	CHO
74.986	CH ₃	H	H	COCH ₃
74.987	CH ₃	H	H	CO ₂ H
74.988	CH ₃	H	H	CO ₂ CH ₃
74.989	CH ₃	H	H	CO ₂ CH ₂ CH ₃
74.990	CH ₃	H	H	CONH ₂
74.991	CH ₃	H	H	CONHCH ₃
74.992	CH ₃	H	H	CONHCH ₂ CH ₃
74.993	CH ₃	H	H	CON(CH ₃) ₂
74.994	CH ₃	H	H	CON-(CH ₂ CH ₃) ₂
74.995	CH ₃	H	H	CON(CH ₃)O-CH ₃
74.996	CH ₃	H	H	CH=NOH
74.997	CH ₃	H	H	CH=NOCH ₃
74.998	CH ₃	H	H	CH=NOCH ₂ -CH ₃
74.999	CH ₃	H	H	C(CH ₃)=NOH
74.1000	CH ₃	H	H	C(CH ₃)=NO-CH ₃
74.1001	CH ₃	H	H	CH ₂ OC(O)NH-CH ₃
74.1002	CH ₃	H	H	CH ₂ NH ₂
74.1003	CH ₃	H	H	CH ₂ NHCHO
74.1004	CH ₃	H	H	CH ₂ NHC(O)-CH ₃
74.1005	CH ₃	H	H	CH ₂ NHC(O)OCH ₃
74.1006	CH ₃	H	H	NHCO ₂ CH ₃
74.1007	CH ₃	H	H	NHCO ₂ -C(CH ₃) ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.1008	CH ₃	H	H	CH(OH)CH ₃
74.1009	CH ₃	H	H	CH(CH ₃)OCH ₃
74.1010	CH ₃	H	H	CN
74.1011	CH ₃	H	H	CH ₂ SCH ₃
74.1012	CH ₃	H	H	CH ₂ S(O)CH ₃
74.1013	CH ₃	H	H	CH ₂ SO ₂ CH ₃
74.1014	CH ₃	H	H	CH ₂ SCH ₂ CH ₃
74.1015	CH ₃	H	H	CH ₂ S(O)CH ₂ -CH ₃
74.1016	CH ₃	H	H	CH ₂ SO ₂ CH ₂ -CH ₃
74.1017	CH ₃	H	H	OCH ₃
74.1018	CH ₃	H	H	OCH ₂ CH ₃
74.1019	CH ₃	H	H	CH(OCH ₃) ₂
74.1020	CH ₃	H	H	CH-(OCH ₂ CH ₃) ₂
74.1021	CH ₃	H	H	CH ₂ CH ₃
74.1022	CH ₃	H	H	CH ₂ CH ₂ CH ₃
74.1023	CH ₃	H	H	CH(CH ₃) ₂
74.1024	CH ₃	H	H	C(CH ₃) ₃
74.1025	CH ₃	H	H	CH ₂ CH(CH ₃) ₂
74.1026	CH ₃	H	H	CH ₂ C(CH ₃) ₃
74.1027	CH ₃	H	H	CH ₂ CN
74.1028	CH ₃	H	H	cyclopropyl
74.1029	CH ₃	H	H	cyclobutyl
74.1030	CH ₃	H	H	cyclopentyl
74.1031	CH ₃	H	H	cyclohexyl
74.1032	CH ₃	H	H	CH ₂ -cyclopropyl
74.1033	CH ₃	H	H	benzyl
74.1034	CH ₃	H	H	CH ₂ CF ₃

Table 75 covers compounds of formula (AH), wherein R¹ is ethyl, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 76 covers compounds of formula (AH), wherein R¹ and R⁴ are ethyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 77 covers compounds of formula (AH), wherein R¹, R² and R⁴ are ethyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 78 covers compounds of formula (AH), wherein R¹ and R² are methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 79 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 80 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 81 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 82 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 83 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is ethynyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 84 covers compounds of formula (AH), wherein R¹ and R² are methyl, R⁴ is vinyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 85 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 86 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 87 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 88 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 89 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 90 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is ethynyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 91 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methyl, R⁴ is vinyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 92 covers compounds of formula (AH), wherein R¹ is ethynyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 93 covers compounds of formula (AH), wherein R¹ is ethynyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 94 covers compounds of formula (AH), wherein R¹ is ethynyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 95 covers compounds of formula (AH), wherein R¹ is ethynyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 96 covers compounds of formula (AH), wherein R¹ is ethynyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 97 covers compounds of formula (AH), wherein R¹ and R⁴ are ethynyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 98 covers compounds of formula (AH), wherein R¹ is vinyl, R² is methyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 99 covers compounds of formula (AH), wherein R¹ is vinyl, R² is methyl, R⁴ is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 100 covers compounds of formula (AH), wherein R¹ is vinyl, R² is methyl, R⁴ is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 101 covers compounds of formula (AH), wherein R¹ is vinyl, R² is methyl, R⁴ is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 102 covers compounds of formula (AH), wherein R¹ is vinyl, R² is methyl, R⁴ is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 103 covers compounds of formula (AH), wherein R¹ and R⁴ are vinyl, R² is methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 104 covers compounds of formula (AH), wherein R¹ is methyl, R², R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 105 covers compounds of formula (AH), wherein R¹ is methyl, R² is methoxy, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 106 covers compounds of formula (AH), wherein R¹ is methyl, R² is trifluoromethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 107 covers compounds of formula (AH), wherein R¹ is methyl, R² is ethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 108 covers compounds of formula (AH), wherein R¹ is methyl, R² is ethynyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 109 covers compounds of formula (AH), wherein R¹ is methyl, R² is vinyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 110 covers compounds of formula (AH), wherein R¹ is methyl, R² is chlorine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 111 covers compounds of formula (AH), wherein R¹ is methyl, R² is bromine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 112 covers compounds of formula (AH), wherein R¹ is methyl, R² is iodine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 113 covers compounds of formula (AH), wherein R¹ is ethyl, R², R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 114 covers compounds of formula (AH), wherein R¹ is ethyl, R² is methoxy, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 115 covers compounds of formula (AH), wherein R¹ and R² are ethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 116 covers compounds of formula (AH), wherein R¹ is ethyl, R² is trifluoromethyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 117 covers compounds of formula (AH), wherein R¹ is ethyl, R² is ethynyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 118 covers compounds of formula (AH), wherein R¹ is ethyl, R² is vinyl, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 119 covers compounds of formula (AH), wherein R¹ is ethyl, R² is chlorine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 120 covers compounds of formula (AH), wherein R¹ is ethyl, R² is bromine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 121 covers compounds of formula (AH), wherein R¹ is ethyl, R² is iodine, R³, R⁴, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 122 covers compounds of formula (AH), wherein R¹ and R⁴ are methyl, R² is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 123 covers compounds of formula (AH), wherein R¹ and R⁴ are methyl, R² is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 124 covers compounds of formula (AH), wherein R¹ and R⁴ are methyl, R² is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 125 covers compounds of formula (AH), wherein R¹ is methyl, R² is chlorine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 126 covers compounds of formula (AH), wherein R¹ is methyl, R² is bromine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 127 covers compounds of formula (AH), wherein R¹ is methyl, R² is iodine, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 128 covers compounds of formula (AH), wherein R¹ and R⁴ are ethyl, R² is chlorine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 129 covers compounds of formula (AH), wherein R¹ and R⁴ are methyl, R² is bromine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 130 covers compounds of formula (AH), wherein R¹ and R⁴ are ethyl, R² is iodine, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 131 covers compounds of formula (AH), wherein R¹ is methyl, R² is chlorine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 132 covers compounds of formula (AH), wherein R¹ is methyl, R² is bromine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 133 covers compounds of formula (AH), wherein R¹ is ethyl, R² is chlorine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 134 covers compounds of formula (AH), wherein R¹ is ethyl, R² is bromine, R³ is hydrogen, R⁴ is methoxy, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 135 covers compounds of formula (AH), wherein R¹ and R⁴ are methyl, R² is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 136 covers compounds of formula (AH), wherein R¹ is methyl, R² is methoxy, R³ is hydrogen, R⁴ is ethyl, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 137 covers compounds of formula (AH), wherein R¹ and R⁴ are ethyl, R² is methoxy, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 138 covers compounds of formula (AH) wherein R¹, R², R³ and R⁴ are methyl, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 139 covers compounds of formula (A), wherein R¹ is difluoromethoxy, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 140 covers compounds of formula (A), wherein R¹ is difluoromethoxy, R² is methyl, R⁴ is ethyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 141 covers compounds of formula (A), wherein R¹ is trifluoromethoxy, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 142 covers compounds of formula (A), wherein R¹ is trifluoromethoxy, R² is methyl, R⁴ is ethyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 143 covers compounds of formula (A), wherein R¹ is cyclopropyl, R² and R⁴ are methyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

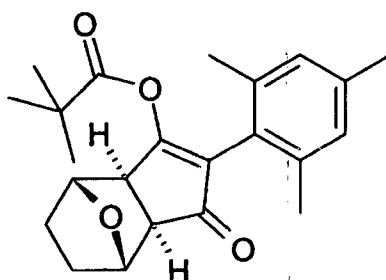
Table 144 covers compounds of formula (A), wherein R¹ is cyclopropyl, R² is methyl, R⁴ is ethyl, R³, R⁵ and R¹² are hydrogen and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 145 covers compounds of formula (A), wherein R¹ and R² are methyl, R³, R⁵ and R¹² are hydrogen, R⁴ is cyclopropyl and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Table 146 covers compounds of formula (A), wherein R¹ and R² are ethyl, R³, R⁵ and R¹² are hydrogen, R⁴ is cyclopropyl and R⁶, R⁸, R⁹, and R¹¹ are as defined in Table 74.

Example 25

Preparation of (1RS,2SR,6RS,7SR)-5-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-3-en-3-yl 2,2-dimethylpropionate.

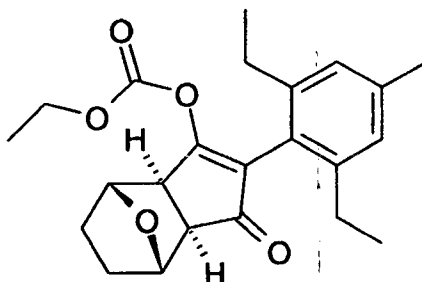


A solution of pivaloyl chloride (0.055 g, 0.57 mmol) in dichloromethane (2 ml) is added dropwise to a solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione (0.12 g, 0.42 mmol) in dichloromethane (2 ml) at room temperature and the reaction mixture is stirred for 2 minutes. A solution of triethylamine (0.08 ml) in dichloromethane (1 ml) is added and the reaction mixture is stirred at room temperature for 3 hours. The reaction mixture is diluted with dichloromethane (20 ml) and washed with saturated aqueous sodium bicarbonate solution. The organic phase is dried over anhydrous magnesium sulfate, filtered and the filtrate evaporated under reduced pressure to give (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,4,6-trimethylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-3-en-3-yl 2,2-dimethylpropionate as a colourless oil.

¹H NMR (400MHz, CDCl₃) δ_H 6.84 (1H, s), 6.82 (1H, s), 4.75 (1H, d), 4.55 (1H, d), 3.45 (1H, d), 2.78 (1H, d), 2.24 (3H, s), 2.09 (3H, s), 2.02 (3H, s), 1.89-1.83 (2H, m), 1.63 – 1.59 (2H, m), 1.11 (9H, s).

Example 26

Preparation of carbonic acid (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]dec-3-en-3-yl ester ethyl ester.



A solution of ethyl chloroformate (0.071 g, 0.65 mmol) in dichloromethane (0.5 ml) is added dropwise to a solution of (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo[5.2.1.0^{2,6}]decane-3,5-dione (0.172 g, 0.55 mmol) in dichloromethane (2 ml) at 0 °C and the reaction mixture is stirred. A solution of triethylamine (0.066 g, 0.65 mmol) in dichloromethane (1 ml) is added and the reaction mixture is stirred at room temperature for 17

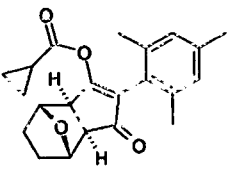
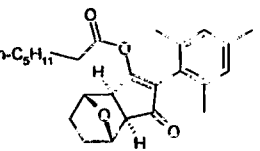
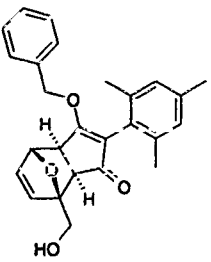
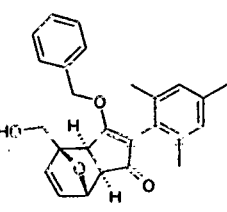
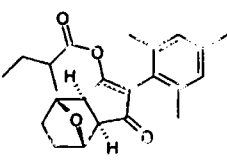
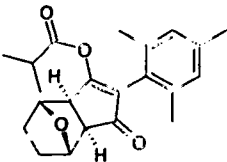
hours, warming slowly to room temperature. The reaction mixture is diluted with dichloromethane (3 ml) and washed with saturated aqueous sodium bicarbonate solution. The organic phase is separated, dried over anhydrous magnesium sulfate, filtered and the filtrate evaporated under reduced pressure. The residue is purified by column chromatography on silica gel to give carbonic acid (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,6-diethyl-4-methylphenyl)-10-oxatricyclo-[5.2.1.0^{2,6}]-dec-3-en-3-yl ester ethyl ester as a colourless solid.

¹H NMR (400MHz, CDCl₃) δ_H 1.06 (6H, m), 1.28 (3H, t), 1.63 (2H, m), 1.87 (2H, m), 2.3 (3H, s), 2.35 (4H, m), 2.8 (1H, d), 3.63 (1H, d), 4.22 (2H, q), 4.64 (1H, d), 4.77 (1H, d), 6.91 (2H, d).

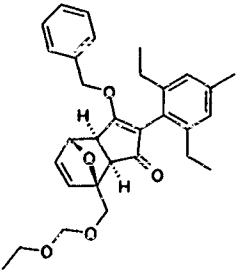
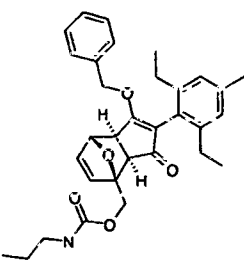
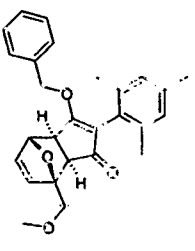
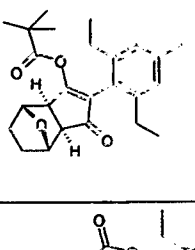
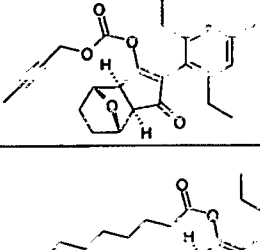
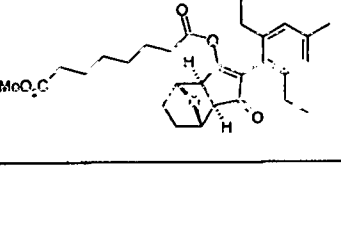
Additional compounds in Table P1 below were prepared by similar methods using appropriate starting materials.

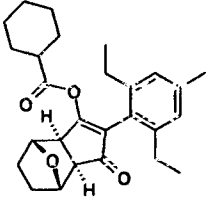
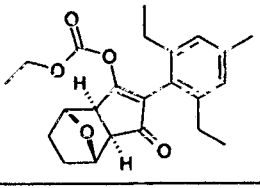
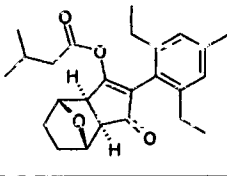
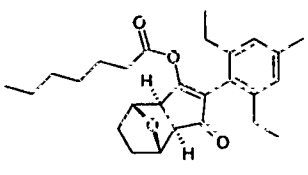
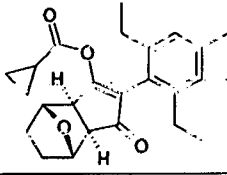
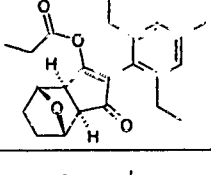
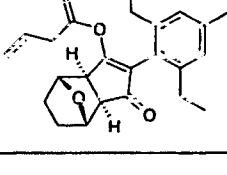
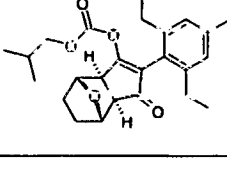
Table P1

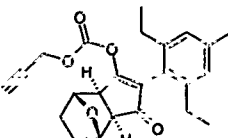
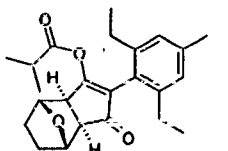
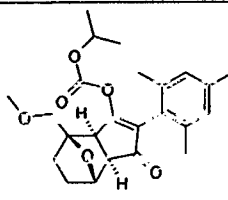
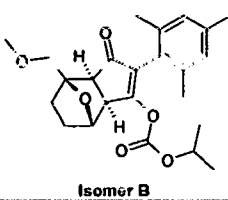
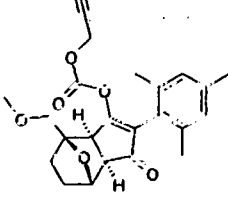
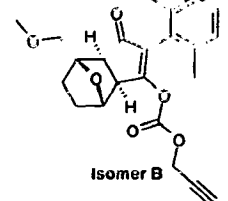
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P1		δ _H 6.90 (2H, s), 6.45 (1H, dd), 6.35 (1H, dd), 5.30 (1H, d), 5.25 (1H, d), 3.65 (3H, s), 3.65 (1H, dd), 3.45 (1H, dd), 2.35 (4H, m), 2.30 (3H, s), 1.10 (6H, m).
P2		δ _H 6.90 (2H, m), 4.85 (2H, m), 3.70 (3H, s), 3.60 (1H, m), 3.35 (1H, dd), 2.50 (2H, m), 2.35 (2H, m), 2.30 (3H, s), 1.90-1.75 (4H, m), 1.20 (3H, t), 1.10 (3H, t).
P3		δ _H 6.87 (1H, s), 6.85 (1H, s), 4.74 (1H, d), 4.68 (2H, t), 4.65 (1H, d), 3.53 (1H, d), 2.79 (1H, d), 2.56 (1H, t), 2.26 (3H, s), 2.09 (3H, s), 2.05 (3H, s), 1.94 - 1.80 (2H, m), 1.67 - 1.56 (2H, m).
P4		δ _H 6.87 (1H, s), 6.85 (1H, s), 4.85 - 4.78 (1H, m), 4.74 (1H, d), 4.64 (1H, d), 3.51 (1H, d), 2.77 (1H, d), 2.25 (3H, s), 2.09 (3H, s), 2.06 (3H, s), 1.93 - 1.79 (2H, m), 1.67 - 1.54 (2H, m), 1.25 (3H, d), 1.20 (3H, d).

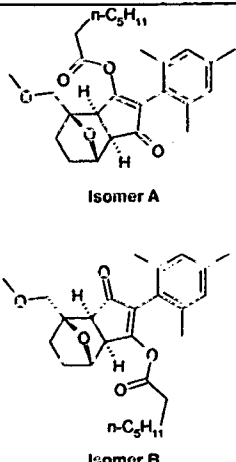
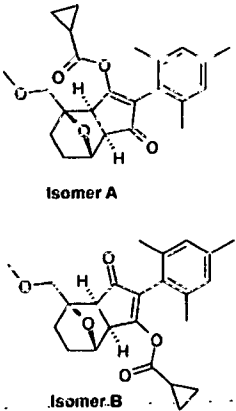
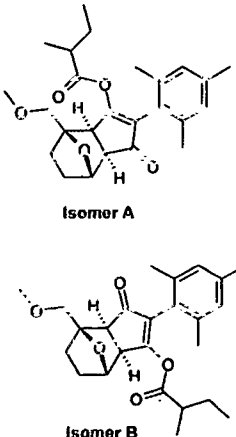
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P5		δ _H 6.88 (1H, s), 6.86 (1H, s), 4.73 (1H, d), 4.59 (1H, d), 3.56 (1H, d), 2.76 (1H, d), 2.27 (3H, s), 2.10 (3H, s), 2.04 (3H, s), 1.89 - 1.80 (2H, m), 1.69 - 1.56 (3H, m), 1.01 - 0.92 (4H, m).
P6		δ _H 6.86 (1H, s), 6.84 (1H, s), 4.74 (1H, d), 4.58 (1H, d), 3.48 (1H, d), 2.77 (1H, d), 2.40 - 2.35 (2H, m), 2.26 (3H, s), 2.09 (3H, s), 2.04 (3H, s), 1.93 - 1.82 (2H, m), 1.65 - 1.48 (4H, m), 1.31 - 1.17 (6H, m), 0.86 (3H, t).
P7		δ _H 7.38 - 7.37 (3H, m), 7.19 - 7.18 (2H, m), 6.97 (2H, s), 6.68 (1H, dd), 6.55 (1H, d), 5.08 (1H, s with fine splitting), 4.82 - 4.81 (2H, m), 4.13 - 4.10 (1H, m), 4.03 - 4.00 (1H, m), 3.13 (1H, dd), 2.89 (1H, dd), 2.54 - 2.45 (4H, m), 2.37 (3H, s), 1.20 - 1.16 (6H, m).
P8		δ _H 7.35 - 7.32 (3H, m), 7.15 - 7.13 (2H, m), 6.93 (1H, s), 6.92 (1H, s), 6.54 - 6.49 (2H, m), 5.14 (1H, d), 4.71 - 4.64 (2H, m), 4.15 - 4.08 (2H, m), 2.99 (1H, d), 2.84 (1H, d), 2.59 - 2.39 (4H, m), 2.32 (3H, s), 1.17 - 1.13 (6H, m).
P9		δ _H 6.84 (1H, s), 6.82 (1H, s), 4.73 (1H, d), 4.57 - 4.55 (1H, m), 3.46 - 3.44 (1H, m), 2.77 (1H, d), 2.46 - 2.35 (1H, m), 2.23 (3H, s), 2.08 (3H, s), 2.02 (3H, s), 1.92 - 1.80 (2H, m), 1.04 (3H, d), 0.93 (3H, t).
P10		δ _H 6.86 (1H, s), 6.84 (1H, s), 4.74 (1H, d), 4.56 (1H, d), 3.49 (1H, d), 2.78 (1H, d), 2.65 - 2.58 (1H, m), 2.25 (3H, s), 2.09 (3H, s), 2.03 (3H, s), 1.93 - 1.79 (2H, m), 1.66 - 1.56 (2H, m), 1.13 (3H, d), 1.06 (3H, d).

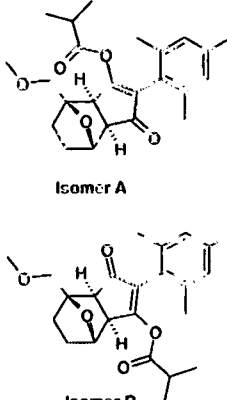
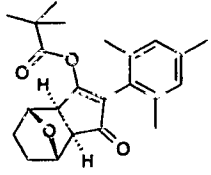
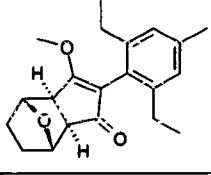
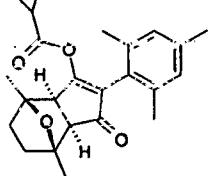
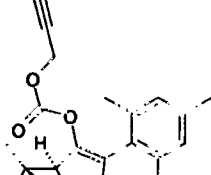
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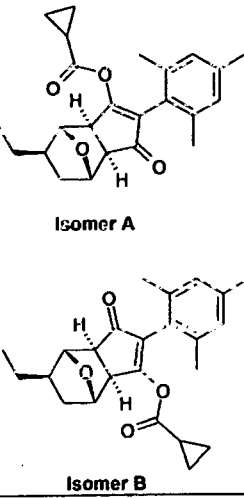
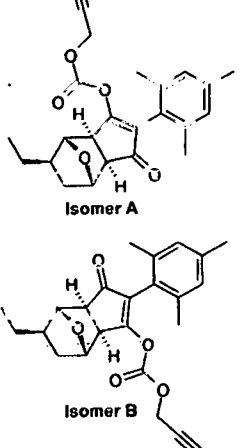
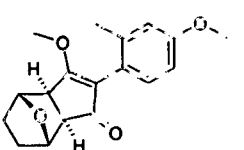
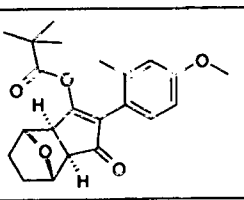
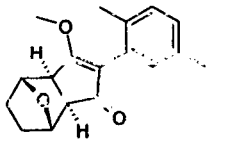
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P11		δ_H 7.34 - 7.31 (3H, m), 7.15 - 7.12 (2H, m), 6.90 (2H, s), 6.50 (2H, s), 5.05 (1H, s), 4.79 - 4.72 (4H, m), 4.23 (1H, d), 3.97 (1H, d), 3.65 - 3.58 (2H, m), 3.06 (1H, d), 2.66 (1H, d), 2.54 - 2.34 (4H, m), 2.31 (3H, s), 1.20 (3H, t), 1.15 - 1.10 (6H, m).
P12		δ_H 7.33 - 7.30 (3H, m), 7.14 - 7.12 (2H, m), 6.90 (2H, s), 6.51 (1H, dd), 6.45 (1H, d), 5.11 (1H, d), 5.05 (1H, d), 4.81 - 4.76 (1H, m), 4.73 - 4.72 (2H, m), 4.30 (1H, d), 3.17 - 3.12 (2H, m), 3.06 (1H, d), 2.69 (1H, d), 2.52 - 2.35 (4H, m), 2.31 (3H, s), 1.53 - 1.47 (2H, m), 1.15 - 1.11 (6H, m), 0.90 (3H, t).
P13		δ_H 7.33 - 7.30 (3H, m), 7.15 - 7.11 (2H, m), 6.86 (2H, s), 6.50 - 6.49 (2H, m), 5.11 (0.5H, s), 5.04 (0.5H, s), 4.76 - 4.66 (2H, m), 4.16 - 4.11 (1H, m), 3.77 - 3.74 (1H, m), 3.43 (1.5H, s), 3.34 (1.5H, s), 3.03 (0.5H, s), 2.94 (0.5H, s), 2.77 (0.5H, d), 2.62 (0.5H, d), 2.27 (1.5H, s), 2.19 (1.5H, s), 2.12 (1.5H, s), 2.08 (1.5H, s), 2.07 (3H, s).
P14		δ_H 1.04 (6H, m), 1.08 (9H, s), 1.6 (2H, m), 1.85 (2H, m), 2.3 (3H, s), 2.33 (4H, m), 2.79 (1H, d), 3.58 (1H, d), 4.54 (1H, d), 4.74 (1H, d), 6.85 (1H, s), 6.88 (1H, s).
P15		δ_H 1.04 (6H, m), 1.5 (2H, m), 1.85 (2H, m), 2.3 (3H, s), 2.35 (4H, m), 2.8 (1H, d), 3.63 (1H, d), 4.66 (1H, d), 4.7 (1H, s), 4.75 (1H, d), 6.9 (2H, s).
P16		δ_H 1.04 (6H, m), 1.2 (3H, m), 1.35 (1H, m), 1.6 (8H, m), 1.85 (2H, m), 2.32 (9H, m), 2.8 (1H, d), 3.58 (1H, d), 3.67 (3H, s), 4.58 (1H, d), 4.75 (1H, d), 6.9 (2H, s).

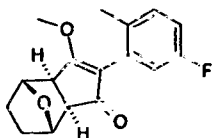
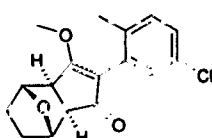
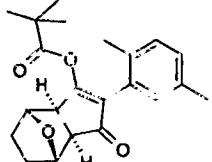
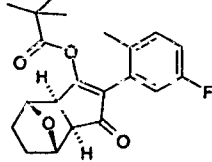
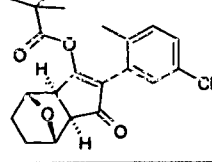
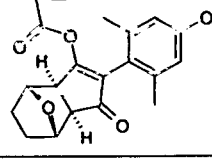
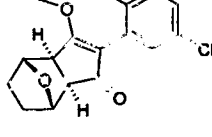
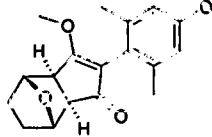
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P17		δ _H 1.04 (6H, m), 1.3 - 1.8 (14H, m), 2.3 (3H, s), 2.34 (5H, m), 2.79 (1H, d), 3.6 (1H, d), 4.54 (1H, d), 4.75 (1H, d), 6.89 (2H, d).
P18		δ _H 1.06 (6H, m), 1.28 (3H, t), 1.63 (2H, m), 1.87 (2H, m), 2.3 (3H, s), 2.35 (4H, m), 2.8 (1H, d), 3.63 (1H, d), 4.22 (2H, q), 4.64 (1H, d), 4.77 (1H, d), 6.91 (2H, d).
P19		δ _H 0.85 (6H, d), 1.05 (6H, m), 1.61 (2H, m), 1.85 (2H, m), 1.98 (1H, m), 2.28 (2H, d), 2.3 (3H, s), 2.35 (4H, m), 2.8 (1H, d), 3.58 (1H, d), 4.58 (1H, d), 4.75 (1H, d), 6.89 (2H, d).
P20		δ _H 0.84 (3H, t), 1.05 (6H, m), 1.23 (8H, m), 1.62 (2H, m), 1.86 (2H, m), 2.3 (3H, s), 2.37 (6H, m), 2.8 (1H, d), 3.59 (1H, d), 4.58 (1H, d), 4.75 (1H, d), 6.9 (2H, d).
P21		δ _H 0.95 (4H, m), 1.05 (δH, m), 1.63 (3H, m), 1.85 (2H, m), 2.3 (3H, s), 2.35 (4H, m), 2.77 (1H, d), 3.65 (1H, d), 4.59 (1H, d), 4.74 (1H, d), 6.9 (2H, d).
P22		δ _H 1.07 (9H, m), 1.6 (2H, m), 1.85 (2H, m), 2.31 (3H, s), 2.39 (6H, m), 2.79 (1H, d), 3.62 (1H, d), 4.58 (1H, d), 4.74 (1H, d), 6.9 (2H, d).
P23		δ _H 1.06 (6H, m), 1.62 (2H, m), 1.87 (2H, m), 2.3 (3H, s), 2.35 (4H, m), 2.8 (1H, d), 3.52 (1H, d), 4.62 (3H, m), 4.75 (1H, d), 5.31 (2H, m), 5.85 (1H, m), 6.91 (2H, d).
P24		δ _H 0.9 (6H, d), 1.07 (6H, m), 1.61 (2H, m), 1.86 (2H, m), 1.92 (1H, m), 2.31 (3H, s), 2.32 (4H, m), 2.8 (1H, d), 3.52 (1H, d), 3.94 (2H, m), 4.64 (1H, d), 4.76 (1H, d), 6.91 (2H, d).

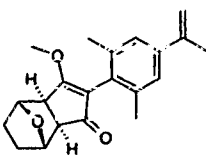
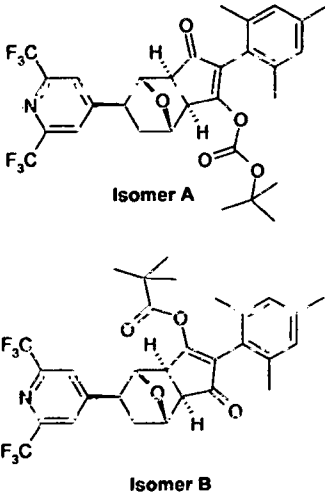
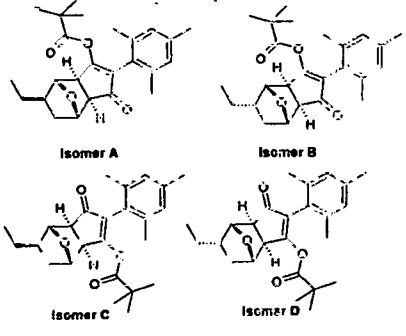
Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P25		δ _H 1.07 (6H, m), 1.62 (2H, m), 1.87 (2H, m), 2.31 (3H, s), 2.36 (4H, m), 2.56 (1H, m), 2.81 (1H, d), 3.63 (1H, d), 4.67 (1H, d), 4.75 (2H, m), 6.9 (2H, d).
P26		δ _H 1.05 (9H, m), 1.13 (3H, d), 1.61 (2H, m), 1.87 (2H, m), 2.31 (3H, s), 2.36 (4H, m), 2.6 (1H, m), 2.79 (1H, d), 3.61 (1H, d), 4.57 (1H, d), 4.76 (1H, d), 6.89 (2H, d).
P27	 Isomer A  Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ _H 6.87 - 6.86 (2H, m), 4.84 - 4.77 (1H, m), 4.60 (1H, d), 3.89 (1H, d), 3.70 (1H, d), 3.60 (1H, d), 3.41 (3H, s), 2.80 (1H, d), 2.25 (3H, s), 2.10 (3H, s), 2.05 (3H, s), 2.03 - 1.96 (2H, m), 1.72 - 1.65 (2H, m), 1.25 (3H, d), 1.19 (3H, d).
P28	 Isomer A  Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ _H 6.88 - 6.86 (2H, m), 4.74 - 4.60 (3H, m), 3.89 - 6.63 (3H, m), 3.41 (3H, s), 2.92 (0.5H, d), 2.83 - 2.81 (0.5H, m), 2.56 - 2.55 (1H, m), 2.26 (3H, s), 2.10 (1.5H, s), 2.09 (1.5H, s), 2.04 (1.5H, s), 2.03 (1.5H, s), 2.00 - 1.65 (4H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P29	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ_H 6.86 - 6.84 (2H, m), 4.55 (1H, d), 3.89 (1H, d), 3.70 (1H, d), 3.59 (1H, d), 3.41 (3H, s), 2.81 (1H, d), 2.39 - 2.33 (2H, m), 2.25 (3H, s), 2.09 (3H, s), 2.03 (3H, s), 2.00 - 1.95 (1H, m), 1.66 - 1.49 (3H, m), 1.38 - 1.13 (8H, m), 0.90 - 0.84 (3H, m).
P30	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ_H 6.88 - 6.86 (2H, m), 4.55 (1H, d), 3.89 (1H, d), 3.71 - 3.65 (2H, m), 3.41 (3H, s), 2.79 (1H, d), 2.27 (3H, s), 2.11 (3H, s), 2.03 (3H, s), 1.78 - 1.50 (4H, m), 1.07 - 1.04 (1H, m), 0.99 - 0.91 (4H, m).
P31	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ_H 6.84 - 6.82 (2H, m), 4.54 - 4.52 (1H, m), 3.89 (1H, d), 3.70 (1H, d), 3.56 (1H, t), 3.40 (3H, s), 2.80 (1H, d), 2.44 - 2.37 (1H, m), 2.24 (3H, s), 2.09 (3H, s), 2.02 (3H, s), 1.71 - 1.35 (6H, m), 1.17 - 1.02 (3H, m), 0.95 - 0.67 (3H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P32	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ _H 6.85 - 6.83 (2H, m), 4.52 (1H, d), 3.89 (1H, d), 3.70 (1H, d), 3.58 (1H, d), 3.40 (3H, s), 2.80 (1H, d), 2.62 - 2.57 (1H, m), 2.24 (3H, s), 2.09 (3H, s), 2.02 (3H, s), 1.71 - 1.52 (4H, m), 1.11 (3H, t), 1.04 (3H, d).
P33		δ _H 6.84 (1H, s), 6.82 (1H, s), 4.75 (1H, d), 4.55 (1H, d), 3.45 (1H, d), 2.78 (1H, d), 2.24 (3H, s), 2.09 (3H, s), 2.02 (3H, s), 1.89-1.83 (2H, m), 1.63 - 1.59 (2H, m), 1.11 (9H, s).
P34		δ _H 6.90 (1H, s), 6.89 (1H, s), 4.73 (1H, d), 4.66 (1H, d), 3.58 (3H, s), 2.91 (1H, d), 2.66 (1H, d), 2.49 - 2.39 (4H, m), 2.30 (3H, s), 1.88 - 1.81 (2H, m), 1.62 - 1.56 (2H, m), 1.12 - 1.08 (3H, m).
P35		δ _H 6.93 (2H, br. s), 3.71 - 3.69 (1H, m), 2.81 = 2.80 (1H, m), 2.33 (3H, s), 2.20 (3H, s), 2.08 (3H, s), 1.87 - 1.72 (5H, m), 1.64 - 1.60 (6H, m), 1.05 - 0.99 (4H, m).
P36		δ _H 6.88 (1H, s), 6.86 (1H, s), 4.71 (1H, dd), 4.61 (1H, dd), 3.65 (1H, d), 2.77 (1H, d), 2.55 (1H, t), 2.26 (3H, s), 2.12 (3H, s), 2.04 (3H, s), 1.82 - 1.71 (4H, m), 1.56 (3H, s), 1.53 (3H, s).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P37	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ_H 6.87 (1H, s), 6.85 (1H, s), 4.70 (0.5H, d), 4.55 (0.5H, d), 4.43 (1H, s), 4.26 (1H, s), 3.53 (1H, app t), 2.74 (1H, app t), 2.26 (3H, s), 2.09 (3H, s), 2.04 (3H, s), 1.82 - 1.63 (3H, m), 1.49 - 1.41 (2H, m), 1.30 - 1.26 (1H, m), 0.98 - 0.90 (7H, m).
P38	 Isomer A Isomer B	Approximately 1:1 ratio of Isomer A : Isomer B δ_H 6.87 (1H, s), 6.86 (1H, s), 4.72 - 4.60 (3H, m), 4.45 (0.5H, s), 4.33 (0.5H, d), 3.77 (1H, s), 3.50 (1H, d), 2.79 - 2.76 (0.5H, m), 2.56 - 2.54 (0.5H, m), 2.26 (3H, s), 2.08 (3H, s), 2.05 (3H, s), 1.84 - 1.75 (2H, m), 1.52 - 1.42 (2H, m), 1.30 - 1.24 (1H, m), 0.96 - 0.83 (3H, m).
P39		δ_H 7.01 (1H, br. s), 6.76 (1H, d), 6.72 (1H, dd), 4.72 (1H, d), 4.65 (1H, d), 3.78 (3H, s), 3.65 (3H, s), 2.88 (1H, d), 2.64 (1H, d), 2.15 (3H, s), 1.80 - 1.89 (2H, m), 1.56 - 1.62 (2H, m).
P40		δ_H 6.91 (1H, br. s), 6.76 (1H, s), 6.70 (1H, d), 4.73 (1H, d), 4.53 (1H, d), 3.78 (3H, s), 3.43 (1H, s), 2.75 (1H, d), 2.15 (3H, s), 1.93-1.79 (2H, m), 1.65-1.58 (2H, m), 1.16 (9H, s).
P41		δ_H 7.11-7.05 (1H, m), 7.03-6.99 (1H, m), 6.89 (1H, br. s), 4.73 (1H, d), 4.65 (1H, d), 3.64 (1H, s), 2.89 (1H, d), 2.64 (1H, d), 2.28 (3H, s), 2.13 (3H, s), 1.92-1.78 (2H, m), 1.63-1.57 (2H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P42		δ_H 7.19 (1H, dd), 6.96 (1H, td), 6.91-6.86 (1H, m), 4.77 (1H, d), 4.70 (1H, d), 3.72 (3H, s), 2.96 (1H, d), 2.70 (1H, d), 2.18 (3H, s), 1.97-1.82 (2H, m), 1.68-1.62 (2H, m).
P43		δ_H 7.16 - 7.10 (1H, m), 7.08-7.03 (1H, m), 6.94 (1H, br. s), 4.77 (1H, d), 4.70 (1H, d), 3.68 (3H, s), 2.93 (1H, d), 2.72-2.66 (1H, m), 2.17 (3H, s), 1.97-1.80 (2H, m), 1.62-1.58 (2H, m).
P44		δ_H 7.09 (1H, d), 7.04-6.99 (1H, m), 6.76 (1H, br. s), 4.75 (1H, d), 4.54 (1H, d), 3.49-3.41 (1H, m), 2.76 (1H, d), 2.26 (3H, s), 2.17 (3H, s), 1.94-1.79 (2H, m), 1.67-1.59 (2H, m), 1.15 (9H, s).
P45		δ_H 7.16 (1H, dd), 6.92 (1H, td), 6.74 (1H, br. s), 4.75 (1H, d), 4.54 (1H, d), 3.46 (1H, d), 2.77 (1H, d), 2.17 (3H, s), 1.93-1.82 (2H, m), 1.67-1.57 (2H, m), 1.17 (9H, s).
P46		δ_H 7.21 - 7.17 (1H, m), 7.16-7.12 (1H, m), 6.96 (1H, br. s), 4.74 (1H, d), 4.54 (1H, s), 3.45 (1H, d), 2.77 (1H, d), 2.17 (3H, s), 1.94-1.80 (2H, m), 1.67-1.58 (2H, m), 1.17 (9H, s).
P47		δ_H 6.58 (2H, d), 4.74 (1H, d), 4.55 (1H, d), 3.76 (3H, s), 3.43 (1H, d), 2.82-2.73 (1H, m), 2.11 (3H, s), 2.04 (3H, s), 1.93-1.78 (2H, m), 1.66-1.57 (2H, m), 1.11 (9H, s).
P48		δ_H 7.33 (1H, d), 7.29 (1H, br. s), 7.23 (1H, dd), 4.75 (1H, d), 4.67 (1H, d), 3.76 (3H, s), 2.94 (1H, s), 2.69 (1H, s), 1.93-1.79 (2H, m), 1.65-1.54 (2H, m).
P49		δ_H 6.60 (2H, d), 4.72 (1H, d), 4.65 (1H, d), 3.76 (3H, s), 3.58 (3H, s), 2.88 (1H, d), 2.64 (1H, d), 2.13 (3H, s), 2.10 (3H, s), 1.90-1.77 (2H, m), 1.64-1.54 (2H, m).

Compound Number	Structure	¹ H nmr (CDCl ₃ unless stated) or other physical data
P50		δ_H 7.14 (2H, d), 5.34 (1H, s), 5.04 (1H, s), 4.73 (1H, d), 4.66 (1H, d), 3.58 (3H, s), 2.90 (1H, d), 2.66 (1H, d), 2.17 (3H, s), 2.14 (3H, s), 2.11 (3H, s), 1.92-1.75 (2H, m), 1.66-1.54 (2H, m).
P51	 Isomer A Isomer B	Approximately 1:1 mixture of Isomer A : Isomer B Isomer A: δ_H 7.81 (2H, s), 6.87 (1H, s), 6.83 (1H, s), 4.83 (1H, d), 4.69 (1H, s), 3.64 (1H, d), 3.22 (1H, dd), 2.99 (1H, d), 2.38 (1H, dd), 2.25 (3H, s), 2.11 (3H, s), 2.04 (3H, s), 1.99 – 1.96 (1H, m), 1.23 (3H, s), 1.13 (6H, s). Isomer B: δ_H 7.84 (2H, s), 6.87 (1H, s), 6.84 (1H, s), 4.99 (1H, d), 4.50 (1H, s), 3.64 (1H, d), 3.24 (1H, dd), 2.94 (1H, d), 2.35 (1H, dd), 2.25 (3H, s), 2.10 (3H, s), 2.04 (3H, s), 1.91 – 1.89 (1H, m), 1.07 (9H s).
P52	 Isomer A Isomer B Isomer C Isomer D	Approximately 1:1:1:1 mixture of Isomer A : Isomer B : Isomer C : Isomer D δ_H 6.84 (1H, s), 6.82 (1H, s), 4.71 (0.25H, d), 4.68 (0.25H, d), 4.60 (0.25H, d), 4.52 (0.25H, d), 4.48 (0.25H, d), 4.45 (0.25H, s), 4.41 (0.25H, d), 4.23 (0.25H, s), 3.79 (0.25H, d), 3.43 (0.5H, t), 3.04 (0.25H, d), 2.77 – 2.73 (0.75H, m), 2.24 (3H, s), 2.19– 2.11 (1H, m), 2.09 (3H, s), 2.03 (3H, s), 1.84 – 1.73 (1H, m), 1.52 – 1.39 (2H, m), 1.28 – 1.26 (1H, m), 1.12 – 1.10 (9H, m), 1.00 – 0.90 (3H, m).

Biological Examples

Test Example 1

Monocotyledonous and dicotyledonous test plants were sown in standard soil in pots. After cultivation for one day (pre-emergence) or after 10 days cultivation (post-emergence) under controlled conditions in a glasshouse, the plants were sprayed with an aqueous spray solution derived from the formulation of the technical active ingredient in 0.6 ml acetone and

45 ml formulation solution containing 10.6% Emulsogen EL (Registry number 61791-12-6), 42.2% N-methyl pyrrolidone, 42.2% dipropylene glycol monomethyl ether (Registry number 34590-94-8) and 0.2 % X-77 (Registry number 11097-66-8). The test plants were then grown in a greenhouse under optimum conditions until, 15 days later for post-emergence and 20 days for pre-emergence, the test was evaluated (100 = total damage to plant; 0 = no damage to plant).

Test plants:

Alopecurus myosuroides (ALOMY), *Avena fatua* (AVEFA), *Lolium perenne* (LOLPE), *Setaria faberi* (SETFA), *Digitaria sanguinalis* (DIGSA), *Echinochloa crus-galli* (ECHCG)

Pre-Emergence Activity

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T1	250	100	100	100	100	100	100
T2	250	100	100	100	90	100	100
T3	250	90	80	100	70	80	100
T4	250	90	90	100	90	100	100
T5	250	100	80	100	80	100	100
T6	250	80	30	100	80	90	90
T7	250	100	80	100	90	80	90
T8	250	100	90	100	100	100	100
T9	250	70	40	100	100	100	100
T10	250	80	70	100	80	80	90
T11	250	30	40	60	20	0	30
T12	250	10	10	40	40	40	0
T13	250	80	80	90	100	100	100
T14	250	90	90	100	100	70	90
T15	250	40	20	40	60	30	80
T16	250	0	10	0	10	0	0
T17	250	100	90	100	100	100	100
T18	250	100	100	100	100	100	100
T19	250	100	90	100	100	90	100
T21	250	90	30	80	70	10	80
T27	250	70	70	70	100	90	100
T34	250	70	30	60	80	60	40

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T37	250	60	30	30	0	20	30
T39	250	10	20	30	40	30	30
T40	250	50	60	60	40	60	40
T41	250	50	30	20	60	30	70
T42	250	0	10	0	0	0	30
T43	250	10	20	0	50	20	0
T44	250	80	40	70	80	80	70
T46	250	10	0	30	30	20	70
T47	250	100	80	100	80	70	100
T48	250	100	80	100	100	100	100
T49	250	80	70	100	20	10	80
T52	250	40	30	100	90	90	100
T53	250	10	20	10	10	10	0
T56	250	100	60	100	70	70	100
T57	250	50	30	100	80	60	70
T58	250	0	10	0	0	0	60
T59	250	10	20	30	40	50	30
T60	250	0	40	10	10	30	30
T62	250	70	70	60	80	80	80
T64	250	0	0	10	20	10	50
T65	250	100	90	100	90	100	100
T66	250	30	60	40	100	90	70
T70	250	80	50	100	90	90	100
T71	250	30	0	0	20	50	50
T85	250	40	60	70	70	60	70
T89	250	20	60	40	30	30	20
T90	250	10	60	20	40	60	70
T91	250	20	50	20	50	70	50
T92	250	20	60	30	70	70	90
T93	250	40	30	20	30	30	0
T97	250	100	90	100	90	100	100

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Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T98	250	30	20	20	70	0	30
T99	250	80	60	100	80	80	100
T106	250	90	90	100	100	100	100
T107	250	90	90	100	100	100	100
T125	250	70	70	100	100	100	100
T128	250	70	70	90	100	100	100
T129	250	100	90	90	100	90	100
T134	250	60	20	70	0	50	20
T143	250	50	20	70	70	80	10
T146	250	70	60	90	80	80	80
T147	250	40	0	40	60	40	90
T148	250	60	50	70	60	70	80
T149	250	90	60	80	80	70	90
T150	250	0	0	30	0	0	40
T151	250	50	20	60	20	80	40
T153	250	70	70	80	70	60	70
T154	250	70	50	80	70	70	100
T155	250	60	50	80	60	70	60
T156	250	70	60	70	70	70	70
T157	250	30	-	70	0	0	50
T158	250	60	50	70	70	70	50
T159	250	50	60	40	70	70	70
T160	250	30	50	40	70	40	40
T162	250	70	70	90	10	40	80
T163	250	70	60	90	90	90	80
T165	250	70	20	80	70	50	80
T167	250	30	40	40	0	30	50
T169	250	20	30	40	0	0	0
T170	250	80	40	90	70	70	80
T171	250	30	0	10	70	40	70
T173	250	90	70	100	60	70	70

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T174	250	30	30	30	0	40	0
T177	250	60	50	70	50	10	70
T178	250	70	40	80	100	80	100
T179	250	70	60	80	10	60	70
T180	250	30	20	70	40	80	60
T181	250	40	40	80	70	90	100
T182	250	30	50	40	50	80	90
T184	250	30	60	70	90	70	60
T185	250	80	80	100	80	80	80
T187	250	10	20	60	40	20	10
T188	250	40	0	50	70	100	60
T193	250	20	30	60	40	20	20
T194	250	0	20	20	50	70	50
T199	250	0	50	60	60	100	80
T200	250	0	0	70	70	70	90
T203	250	20	20	60	70	70	90
T208	250	50	70	80	80	70	80
P3	250	100	100	100	90	90	100
P4	250	100	100	100	70	90	90
P5	250	100	100	100	90	100	90
P6	250	100	100	100	80	100	90
P9	250	100	100	100	80	90	80
P10	250	100	100	100	80	100	100
P14	250	100	100	100	100	100	100
P15	250	80	90	90	100	100	100
P16	250	100	90	90	100	100	100
P17	250	90	90	100	100	100	100
P18	250	100	100	100	100	100	100
P19	250	100	100	100	100	100	100
P20	250	100	80	100	100	100	100
P21	250	100	100	100	100	100	100

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
P22	250	100	100	100	100	100	100
P23	250	80	90	100	100	100	100
P24	250	90	90	100	100	100	100
P25	250	100	100	100	100	100	100
P26	250	100	90	100	100	100	100
P27	250	90	80	90	80	90	100
P28	250	90	80	100	80	90	80
P30	250	80	80	90	80	80	90
P33	250	90	70	100	80	80	-
P36	250	70	80	100	80	80	100
P37	250	90	90	100	100	100	100

Post-Emergence Activity

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T1	125	90	90	80	100	100	100
T2	125	100	90	100	80	100	100
T3	125	60	30	60	90	100	100
T4	125	80	90	90	80	80	100
T5	125	70	70	80	90	100	100
T6	125	80	80	80	80	90	90
T7	125	100	90	90	90	70	90
T8	125	100	100	100	100	100	100
T9	125	80	60	70	80	100	100
T10	125	70	70	80	80	50	80
T11	125	40	20	30	70	80	70
T12	125	70	50	10	70	70	70
T13	125	80	90	90	100	50	100
T14	125	80	80	80	100	90	100

Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T15	125	50	40	40	50	80	80
T16	125	40	20	50	0	0	30
T17	125	100	100	90	100	100	100
T18	125	100	100	80	100	100	100
T19	125	100	100	90	100	90	100
T21	125	90	70	70	60	30	100
T27	125	100	90	80	100	100	100
T34	125	40	30	30	80	80	80
T37	125	50	20	20	70	50	80
T39	125	10	20	0	60	70	70
T40	125	40	30	30	70	70	70
T41	125	40	0	0	80	80	80
T42	125	0	0	10	0	20	60
T43	125	10	0	0	40	20	60
T44	125	80	50	20	80	80	90
T46	125	0	0	0	60	0	80
T47	125	100	90	90	70	60	100
T48	125	80	70	70	90	100	100
T49	125	80	80	70	50	70	80
T52	125	60	70	70	80	80	100
T56	125	100	50	80	60	70	100
T57	125	70	70	40	70	70	80
T58	125	0	10	0	30	40	30
T59	125	50	40	0	70	80	80
T60	125	10	0	0	40	50	0
T62	125	60	0	20	70	70	80
T64	125	10	0	0	30	60	50
T65	125	90	90	80	100	100	100
T66	125	80	80	50	80	90	80
T70	125	90	70	70	70	70	80
T71	125	50	10	20	50	70	60

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Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T85	125	90	20	70	70	20	100
T89	125	80	80	80	90	90	100
T90	125	90	80	60	60	80	80
T91	125	90	90	50	100	100	100
T92	125	100	100	50	100	100	100
T93	125	60	80	60	100	100	100
T97	125	90	90	80	100	100	100
T98	125	70	20	40	70	60	80
T99	125	80	30	10	70	60	100
T106	125	90	80	80	90	80	100
T107	125	100	90	90	100	100	100
T125	125	80	70	70	80	80	90
T128	125	80	90	80	100	100	100
T129	125	80	80	70	100	80	100
T134	125	20	20	20	50	20	70
T143	125	40	60	30	40	60	70
T146	125	80	80	90	70	70	100
T147	125	90	90	40	70	100	90
T149	125	80	90	70	70	80	100
T150	125	60	60	40	90	30	100
T151	125	80	80	30	10	70	80
T153	125	50	80	50	20	30	70
T154	125	90	60	60	70	70	100
T155	125	90	70	60	100	100	100
T156	125	90	80	70	100	70	100
T157	125	60	60	40	60	60	100
T158	125	90	90	80	100	100	100
T159	125	90	70	40	100	100	100
T160	125	90	90	70	100	100	100
T162	125	90	90	70	100	100	100
T163	125	80	80	80	90	70	100

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Compound Number	Rate g/ ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T165	125	80	30	80	90	70	100
T167	125	80	50	50	70	70	100
T169	125	90	10	30	60	40	80
T170	125	80	70	80	40	40	100
T171	125	70	60	20	90	80	100
T173	125	100	90	90	90	70	100
T174	125	70	70	40	50	70	80
T177	125	80	70	30	20	30	80
T178	125	100	90	90	100	100	100
T179	125	80	80	80	10	50	70
T180	125	90	70	70	100	90	100
T181	125	90	90	80	100	80	100
T182	125	100	90	80	100	100	100
T184	125	10	0	10	50	20	100
T185	125	90	80	80	100	100	100
T187	125	70	10	40	60	60	70
T188	125	80	70	30	70	100	100
T193	125	60	40	30	30	60	60
T194	125	30	0	20	0	70	80
T199	125	100	100	60	80	100	100
T200	125	70	80	80	100	100	100
T203	125	20	10	10	0	50	50
T208	125	70	70	80	70	50	80
P3	125	100	90	100	80	70	100
P4	125	100	90	100	90	80	100
P5	125	100	90	100	80	60	100
P6	125	100	90	100	80	80	100
P9	125	100	90	100	80	80	90
P10	125	100	90	100	80	80	100
P14	125	90	90	90	100	100	100
P15	125	100	90	90	80	80	100

Compound Number	Rate g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
P16	125	100	90	100	100	100	100
P17	125	100	90	100	100	100	100
P18	125	90	50	80	70	70	100
P19	125	100	100	100	100	100	100
P20	125	100	100	100	90	80	100
P21	125	90	100	100	100	80	100
P22	125	100	100	100	100	100	100
P23	125	100	90	90	80	70	100
P24	125	100	100	100	100	70	100
P25	125	100	90	100	80	80	100
P26	125	100	100	90	100	100	100
P24	125	80	60	70	90	100	90
P28	125	80	80	70	80	80	100
P30	125	80	NC	70	80	90	100
P33	125	80	70	80	70	70	90
P36	125	60	70	60	80	80	90
P37	125	90	80	90	100	90	100

Test Example 2

Test compounds were applied post-emergence at 60g ai/ha, alone and in combination with cloquintocet-mexyl at 60g ai/ha; the adjuvant Adigor (0.5%) was included for every treatment. The application volume was 200l/ha. Target plants were 2-3 leaf seedlings of winter wheat 'Hereward' and winter barley 'Antoniya' grown in a greenhouse under ambient conditions. Assessments were made at 14-21 days after application.

Compound	Rate (g / ha)	Cloquintocet- mexyl (g / ha)	Crop Injury (%)	
			Wheat	Barley
T1	60	0	85	99
	60	60	18	73
T3	60	0	28	5
	60	60	0	5

Compound	Rate (g / ha)	Cloquintocet- mexyl (g / ha)	Crop Injury (%)	
			Wheat	Barley
1:1 mixture of T106 : T107	60	0	63	85
	60	60	23	45

Test Example 3

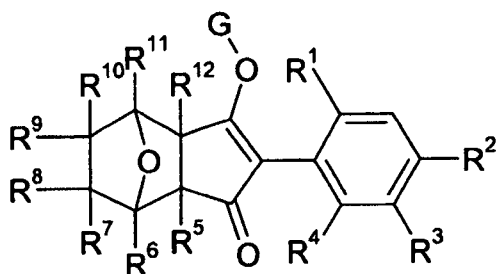
The test compound T1 was applied at 100 and 200g ai/ha, alone and in combination with a range of safeners as 1:1 mixtures (for example at 100g + 100g; 200g + 200g) to the test plants - wheat and maize - at the 2-3 leaf stage. A 4-way safener mixture (cloquintocet-mexyl, benoxacor, fluxofenim and compound A*) was also applied with the test compound so that each safener was used a 1:1 ratio (for example at 100+100+100+100+100g ai/ha). Assessments were made at 14-21 days after application.

Test Sample	Wheat Injury (%)		Maize Injury (%)	
	100 g/ha	200 g/ha	100 g/ha	200 g/ha
T1 alone	83	92	90	100
T1 + benoxacor at 1:1 ratio	80	85	90	75
T1 + cloquintocet-mexyl at 1:1 ratio	5	10	93	95
T1 + isoxadifen at 1:1 ratio	65	73	65	75
T1 + cyprosulfamide at 1:1 ratio	68	85	23	28
T1 + compound A* at 1:1 ratio	73	88	30	35
T1 + fluxofenim at 1:1 ratio	75	90	85	88
T1 + mefenpyr-diethyl at 1:1 ratio	23	45	100	100
T1+ dichlormid at 1:1 ratio	73	73	80	100
T1 + 4-way mix at 1:1:1:1 ratio	0	20	30	50

* Compound A is N-(2-methoxybenzoyl)-4-[(methylaminocarbonyl)amino]benzenesulfonamide.

What is claimed is:

1. A compound of formula I



(I)

wherein

G is hydrogen or an alkali metal, alkaline earth metal, sulfonium, ammonium or a latentating group,

R¹ is methyl, ethyl, *n*-propyl, isopropyl, cyclopropyl, halomethyl, haloethyl, vinyl, ethynyl, halogen, C₁-C₂alkoxy or C₁-C₂haloalkoxy,

R², R³ and R⁴ are independently of each other hydrogen, methyl, ethyl, *n*-propyl, isopropyl, cyclopropyl, halomethyl, haloethyl, vinyl, ethynyl, halogen, C₁-C₂alkoxy or C₁-C₂ haloalkoxy,

R⁵ and R¹² are independently of each other hydrogen, C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃alkylthio, halogen or C₁-C₆alkoxycarbonyl, or

R⁵ and R¹² join together to form a 3-7 membered carbocyclic ring, optionally containing an oxygen or sulfur atom, and

R⁶, R⁷, R⁸, R⁹, R¹⁰ and R¹¹ are independently of each other hydrogen or a substituent, or R⁷ and R⁸, or R⁹ and R¹⁰, together with the carbon atoms to which they are attached form a keto, an optionally substituted alkenyl or optionally substituted imino unit, or any two of R⁷, R⁸, R⁹ and R¹⁰ together form a 3-8 membered carbocyclic ring optionally containing a heteroatom selected from O, S or N and optionally substituted, or R⁷ and R¹⁰ together form a bond.

2. A compound according to claim 1, wherein

R⁶ and R¹¹ are independently of each other hydrogen, halogen, formyl, cyano or nitro or

R⁶ and R¹¹ are independently of each other C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₁-C₆alkoxy, C₃-C₇ cycloalkyl, C₃-C₇ cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

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R^6 and R^{11} are independently of each other a group COR^{13} , CO_2R^{14} or $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, NHR^{22} , $NR^{22}R^{23}$ or OR^{24} , wherein

R^{13} is C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{14} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or is 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{15} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{16} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, C_1 - C_6 alkylsulfonyl, phenylsulfonyl, heteroarylsulfonyl, amino, C_1 - C_6 alkylamino, di- C_1 - C_6 alkylamino, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^{15} and R^{16} may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom,

R^{17} and R^{19} are independently of each other hydrogen, C_1 - C_3 alkyl or C_3 - C_6 cycloalkyl,

R^{18} , R^{20} and R^{21} are independently of each other hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, aminocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, phenyl or heteroaryl, where all these substituents are optionally substituted,

R^{22} is C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, phenylcarbonyl, phenoxy carbonyl, phenylaminocarbonyl, phenylthiocarbonyl, phenylsulfonyl, heteroarylcarbonyl, heteroaryloxy carbonyl, heteroarylaminocarbonyl, heteroarylthiocarbonyl or heteroarylsulfonyl, where all these substituents are optionally substituted,

R^{23} is C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, phenyl or heteroaryl, where all these substituents are optionally substituted, or R^{22} and R^{23} may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom, where all these substituents are optionally substituted, and

R^{24} is C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, aminocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, tri- $(C_1$ - C_6 alkyl)silyl, phenyl or heteroaryl, where all these substituents are optionally substituted.

3. A compound according to claim 1, wherein

R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, halogen, hydroxyl, formyl, amino, cyano or nitro, or

R^7 , R^8 , R^9 and R^{10} are independently of each other C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy C_1 - C_6 alkyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylthio C_1 - C_6 alkyl, C_1 - C_6 alkylsulfinyl C_1 - C_6 alkyl, C_1 - C_6 alkylsulfonyl C_1 - C_6 alkyl, C_3 - C_7 cycloalkyl, C_4 - C_7 cycloalkenyl, tri(C_1 - C_6 alkyl)silyl, aryl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^7 , R^8 , R^9 and R^{10} are independently of each other a group COR^{13} , CO_2R^{14} or $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, $NR^{22}R^{23}$ or OR^{24} , wherein

R^{13} is C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{14} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or is 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{15} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted,

R^{16} is hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_7 cycloalkyl, C_5 - C_7 cycloalkenyl, C_1 - C_6 alkylsulfonyl, amino, C_1 - C_6 alkylamino, di C_1 - C_6 alkylamino, phenyl, heteroaryl or a 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^{15} and R^{16} may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom,

R^{17} and R^{19} are independently of each other hydrogen, C_1 - C_3 alkyl or C_3 - C_6 cycloalkyl,

R^{18} , R^{20} and R^{21} are independently of each other hydrogen, C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_2 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di C_1 - C_6 alkylaminocarbonyl, phenyl or heteroaryl, where all these substituents are optionally substituted,

R^{22} and R^{23} are independently of each other C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, phenyl or heteroaryl or

R^{22} and R^{23} may be joined to form an optionally substituted 3-7 membered ring, optionally containing an oxygen, sulfur or nitrogen atom, where all these substituents are optionally substituted, and

R^{24} is C_1 - C_6 alkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_3 - C_7 cycloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylthiocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, C_1 - C_6 alkylsulfonyl, tri(C_1 - C_6 alkyl)silyl, phenyl or heteroaryl, where all these substituents are optionally substituted.

4. A compound according to claim 1, wherein

R^7 and R^8 , or R^9 and R^{10} , together form a unit =O, or form a unit = $CR^{25}R^{26}$, or form a unit = NR^{27} , or any two of R^7 , R^8 , R^9 and R^{10} form a 3-8 membered ring, optionally containing a heteroatom selected from O, S or N and optionally substituted by C_1 - C_3 alkyl, C_1 - C_3 alkoxy, C_1 - C_3 alkylthio, C_1 - C_3 alkylsulfinyl, C_1 - C_3 alkylsulfonyl, C_1 - C_3 haloalkyl, halogen, phenyl, phenyl substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, aminocarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, halogen, cyano or by nitro, heteroaryl or heteroaryl substituted by C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_4 alkoxy, C_1 - C_4 haloalkoxy, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkylcarbonyl, halogen, cyano or by nitro, wherein

R^{25} and R^{26} are independently of each other hydrogen, halogen, cyano or nitro, or

R^{25} and R^{26} are independently of each other C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylamino, di- C_1 - C_6 alkylamino, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylaminocarbonyl, di- C_1 - C_6 alkylaminocarbonyl, *N*-phenyl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-phenyl- C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-heteroaryl-*N*- C_1 - C_6 alkylaminocarbonyl, *N*-heteroaryl- C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylaminocarbonyl, phenyl, heteroaryl, C_3 - C_6 cycloalkyl or 3-7 membered heterocyclyl, where all these substituents are optionally substituted, or

R^{25} and R^{26} may be joined together to form a 5-8 membered ring optionally containing a heteroatom selected from O, S or N and optionally substituted by C_1 - C_2 alkyl or C_1 - C_2 alkoxy,

R^{27} is nitro or cyano, or

R^{27} is C_1 - C_6 alkylamino, di- C_1 - C_6 alkylamino, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, phenoxy, phenylamino, *N*-phenyl-*N*- C_1 - C_6 alkylamino, *N*-phenyl- C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylamino, heteroaryloxy, heteroaryl-amino, *N*-heteroaryl-*N*- C_1 - C_6 alkylamino or *N*-heteroaryl- C_1 - C_6 alkyl-*N*- C_1 - C_6 alkylamino, where all these substituents are optionally substituted.

5. A compound according to claim 1, wherein R^1 , R^2 and R^4 are methyl and R^3 is hydrogen.

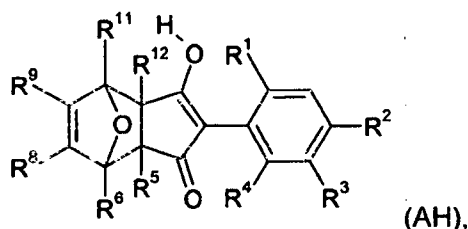
6. A compound according to claim 1, wherein R^1 , R^2 and R^4 are methyl and R^3 is hydrogen, and

R^7 , R^8 , R^9 and R^{10} are independently of each other hydrogen, cyano, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_1 - C_6 alkoxy, C_1 - C_6 alkoxy C_1 - C_6 alkyl, 3-7 membered heterocyclyl, optionally substituted aryl or optionally substituted heteroaryl.

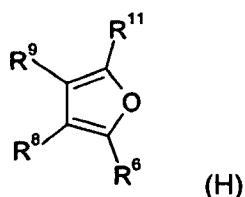
7. A compound according to claim 1, wherein R^5 and R^{12} are independently of each other hydrogen or C_1 - C_3 alkyl.

8. A compound according to claim 1, wherein R^1 is methyl, ethyl, vinyl, ethynyl, cyclopropyl, difluoromethoxy, trifluoromethoxy or C_1 - C_2 alkoxy and R^2 , R^3 and R^4 are independently of each other hydrogen, methyl, ethyl, vinyl or ethynyl.

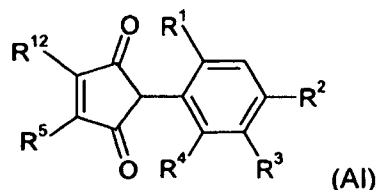
9. A process for the preparation of a compound of formula (AH)



wherein R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , R^8 , R^9 , R^{11} and R^{12} are as defined in claim 1, which comprises reacting a compound of formula (H)

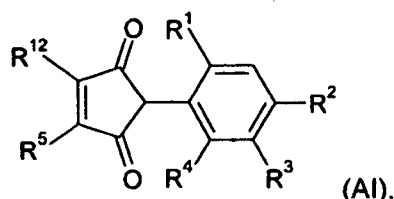


with a compound of formula (AI)

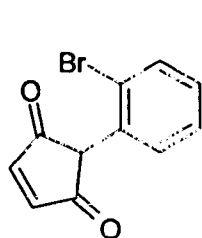


in the presence or absence of a catalyst and in the presence or absence of a solvent.

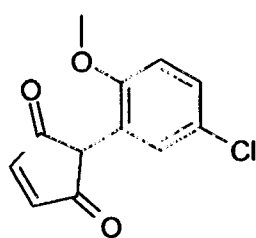
10. A compound of formula (AI)



wherein R^1 , R^2 , R^3 , R^4 , R^5 and R^{12} are as defined in claim 1, where the compounds of the formulae



and



are excluded.

11. A herbicidal composition, which, in addition to comprising formulation adjuvants, comprises a herbicidally effective amount of a compound of formula I.

12. A herbicidal composition according to claim 11, which, in addition to comprising formulation adjuvants, comprises a herbicidally effective amount of a compound of formula I and a further herbicide.

13. A herbicidal composition according to claim 11, which, in addition to comprising formulation adjuvants, comprises a herbicidally effective amount of a compound of formula I, a further herbicide and a safener.

14. A method of controlling grasses and weeds in crops of useful plants, which comprises applying a herbicidally effective amount of a compound of formula I, or of a composition comprising such a compound, to the plants or to the locus thereof.

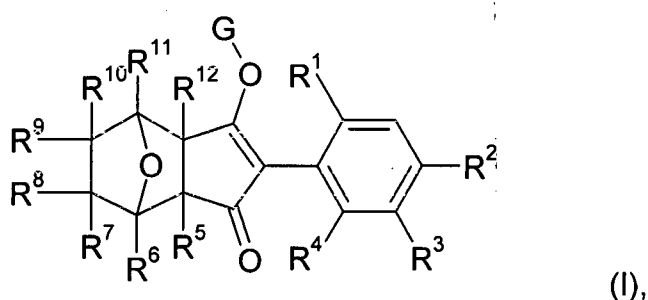
DERIVADOS DE CICLOPENTANDIONA PUENTEADOS TRICÍCLICOS COMO
HERBICIDAS

La presente invención se refiere a nuevos compuestos de ciclopentanodiona activos como herbicidas, y a derivados de los mismos, a procesos para su preparación, a composiciones que comprenden esos compuestos, y a su utilización en el control de malezas, especialmente en cultivos de plantas útiles, o en la inhibición del crecimiento de las plantas no deseadas.

Los compuestos de ciclopentanodiona que poseen acción herbicida se describen, por ejemplo, en WO 01/74770 y WO 96/03366.

Ahora se han descubierto nuevos compuestos de ciclopentanodiona, y derivados de los mismos, que poseen propiedades herbicidas e inhibidoras del crecimiento.

La presente invención en consecuencia se refiere a compuestos de la fórmula I



donde

G es hidrógeno o un metal alcalino, metal alcalinotérreo, sulfonio, amonio o un grupo de latenciación,

R^1 es metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C_1-C_2 o haloalcoxi C_1-C_2 ,

R^2 , R^3 y R^4 son independientemente entre sí hidrógeno, metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C_1-C_2 o haloalcoxi C_1-C_2 ,

R^5 y R^{12} son independientemente entre sí hidrógeno, alquilo C_1-C_3 , haloalquilo C_1-C_3 , alquioxio C_1-C_3 , alquiltio C_1-C_3 , halógeno o alcóxicarbonilo C_1-C_6 , o

R^5 y R^{12} se unen conjuntamente para formar un anillo carbocíclico de 3-7 miembros, que opcionalmente contiene un átomo de oxígeno o azufre, y

R^6 , R^7 , R^8 , R^9 , R^{10} y R^{11} son independientemente entre sí hidrógeno o un sustituyente, o R^7 y R^8 , o R^9 y R^{10} , conjuntamente con los átomos de carbono a los cuales ellos están unidos forman una unidad imino opcionalmente sustituido, alqueno opcionalmente sustituido, o ceto, o cualquiera de dos de R^7 , R^8 , R^9 y R^{10} conjuntamente forman un anillo carbocíclico de 3-8 miembros que opcionalmente contiene un heteroátomo seleccionado de O, S o N y opcionalmente sustituido, o R^7 y R^{10} conjuntamente forman un enlace.

En las definiciones de sustituyentes de los compuestos de la fórmula I, cada resto alquilo ya sea solo o como parte de un grupo mayor (tal como alcoxi, alquiltio, alcóxicarbonilo, alquilcarbonilo, alquilaminocarbonilo, dialquilaminocarbonilo) es una cadena recta o ramificada y es, por ejemplo, metilo, etilo, *n*-propilo, *n*-butilo, *n*-pentilo, *n*-hexilo, isopropilo, *n*-butilo, *sec*-butilo, isobutilo, *terc*-butilo o neopentilo. Los grupos alquilo son de modo adecuado grupos alquilo C_1-C_6 , pero son con preferencia grupos alquilo C_1-C_4 o alquilo C_1-C_3 , y, con más preferencia, grupos alquilo C_1-C_2 .

Cuando se encuentran presentes, los sustituyentes opcionales sobre un resto alquilo (solo o como parte de un grupo mayor tal como alcoxi, alcoxicarbonilo, alquilcarbonilo, alquilaminocarbonilo, dialquilaminocarbonilo) incluyen uno o más de halógeno, nitro, ciano, cicloalquilo C₃₋₇ (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), cicloalquenilo C₅₋₇ (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), hidroxilo, alcoxi C₁₋₁₀, alcóxido C₁₋₁₀, alcóxido (C₁₋₁₀), trialkilsilil (C₁₋₄) alcóxido (C₁₋₆), alcoxicarbonil C₁₋₆ alcóxido (C₁₋₁₀), haloalcoxi C₁₋₁₀, arilalcoxi (C₁₋₄) (donde el grupo arilo está opcionalmente sustituido), cicloalquiloxi C₃₋₇ (donde el grupo cicloalquilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), alqueniloxi C₃₋₁₀, alquiniloxi C₃₋₁₀, mercapto, alquiltio C₁₋₁₀, haloalquiltio C₁₋₁₀, arilalquiltio (C₁₋₄) (donde el grupo arilo está opcionalmente sustituido), cicloalquiltio C₃₋₇ (donde el grupo cicloalquilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), trialkilsilil (C₁₋₄) alquiltio (C₁₋₆), ariltio (donde el grupo arilo está opcionalmente sustituido), alquilsulfonilo C₁₋₆, haloalquilsulfonilo C₁₋₆, alquilsulfinilo C₁₋₆, haloalquilsulfinilo C₁₋₆, arilsulfonilo (donde el grupo arilo puede estar opcionalmente sustituido), trialkilsililo (C₁₋₄), arildialquilsililo (C₁₋₄), alquildiarilsililo (C₁₋₄), triarilsililo, arilalquiltio (C₁₋₄) alquilo (C₁₋₄), ariloxialquilo (C₁₋₄), formilo, alquilcarbonilo C₁₋₁₀, HO₂C, alcoxicarbonilo C₁₋₁₀, aminocarbonilo, alquilaminocarbonilo C₁₋₆, di(alquilo C₁₋₆)aminocarbonilo, N-(alquilo C₁₋₃)-N-(alcoxi C₁₋₃)aminocarbonilo, alquilcarboniloxi C₁₋₆, arilcarboniloxi (donde el grupo arilo está opcionalmente sustituido), dialquilaminocarboniloxi (C₁₋₆), alquiliminooxi C₁₋₆, alqueniloxiimino C₃₋₆, ariloxiimino, arilo (en sí mismo opcionalmente sustituido), heteroarilo (en sí mismo opcionalmente sustituido), heterociclilo (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), ariloxi (donde el grupo arilo está opcionalmente sustituido), heteroariloxi, (donde el grupo heteroarilo está

opcionalmente sustituido), heterocicliloxi (donde el grupo heterociclilo está opcionalmente sustituido con alquilo C_{1-6} o halógeno), amino, alquilamino C_{1-6} , dialquilamino (C_{1-6}), alquilcarbonilamino C_{1-6} , *N*-alquilcarbonil (C_{1-6})-*N*-alquilamino (C_{1-6}), alquenilcarbonilo C_{2-6} , alquinilcarbonilo C_{2-6} , alqueniloxicarbonilo C_{3-6} , alquiniloxicarbonilo C_{3-6} , ariloxicarbonilo (donde el grupo arilo está opcionalmente sustituido) y arilcarbonilo (donde el grupo arilo está opcionalmente sustituido).

Los restos alquenilo y alquinilo pueden estar en forma de cadenas rectas o ramificadas, y los restos alquenilo, cuando sea apropiado, pueden ser o bien de configuración (*E*) o (*Z*). Los ejemplos son vinilo, alilo y propargilo. Los restos alquenilo y alquinilo pueden contener uno o más enlaces dobles y/o triples en cualquier combinación. Se comprende, que en estos términos están incluidos alenilo y alquilinilalquenilo. Debe comprenderse que las unidades alquenilo formadas por R^7 conjuntamente con R^8 están directamente unidas al anillo ciclohexano en puente a través de un enlace doble.

Cuando se encuentran presentes, los sustituyentes opcionales sobre alquenilo o alquinilo incluyen aquellos sustituyentes opcionales proporcionados precedentemente para un resto alquilo.

Halógeno es flúor, cloro, bromo o yodo.

Los grupos haloalquilo son grupos alquilo que están sustituidos con uno o más de los mismos o diferentes átomos de halógeno y son, por ejemplo, CF_3 , CF_2Cl , CF_2H , CCl_2H , FCH_2 , $ClCH_2$, $BrCH_2$, CH_3CHF , $(CH_3)_2CF$, CF_3CH_2 o CHF_2CH_2 .

En el contexto de la presente memoria descriptiva el término "arilo" se refiere a sistemas de anillos que pueden ser mono-, bi- o tricíclicos. Los ejemplos de dichos anillos incluyen fenilo, naftilo, antraceno, indenilo o fenantreno. Un grupo arilo preferido es el fenilo.

El término "heteroarilo" con preferencia se refiere a un sistema de anillos aromáticos que contiene al menos un heteroátomo y que consiste o bien de un anillo único o bien de dos o más anillos fusionados. Con preferencia, los anillos únicos contendrán hasta tres y los sistemas bicíclicos hasta cuatro heteroátomos los cuales con preferencia se seleccionarán de nitrógeno, oxígeno y azufre. Los ejemplos de dichos grupos incluyen furilo, tienilo, pirrolilo, pirazolilo, imidazolilo, 1,2,3-triazolilo, 1,2,4-triazolilo, oxazolilo, isoxazolilo, tiazolilo, isotiazolilo, 1,2,4-oxadiazolilo, 1,3,4-oxadiazolilo, 1,2,5-oxadiazolilo, 1,2,3-tiadiazolilo, 1,2,4-tiadiazolilo, 1,3,4-tiadiazolilo, 1,2,5-tiadiazolilo, piridilo, pirimidinilo, piridazinilo, pirazinilo, 1,2,3-triazinilo, 1,2,4-triazinilo, 1,3,5-triazinilo, benzofurilo, benzisofurilo, benzotienilo, benzisotienilo, indolilo, isoindolilo, indazolilo, benzotiazolilo, benzisotiazolilo, benzoxazolilo, benzisoxazolilo, benzimidazolilo, 2,1,3-benzoxadiazol, quinolinilo, isoquinolinilo, cinolinilo, ftalazinilo, quinazolinilo, quinoxalinilo, naftiridinilo, benzotriazinilo, purinilo, pteridinilo e indolizinilo. Los ejemplos preferidos de radicales heteroaromáticos incluyen piridilo, pirimidinilo, triazinilo, tienilo, furilo, oxazolilo, isoxazolilo, 2,1,3-benzoxadiazolilo y tiazolilo. Otro grupo de heteroarilos preferidos comprende furilo, tienilo, pirazolilo, 1,2,3-triazolilo, 1,2,4-triazolilo, piridilo, pirimidinilo, piridazinilo, pirazinilo, quinolinilo, isoquinolinilo, cinolinilo, quinazolinilo o quinoxalinilo.

El término "heterociclilo" con preferencia se refiere a sistemas de anillos monocíclicos o bicíclicos con preferencia no aromáticos que contienen hasta 7 átomos incluyendo uno o más (con preferencia uno o dos) heteroátomos seleccionados de O, S y N. Ejemplos de dichos anillos incluyen 1,3-dioxolano, oxetano, tetrahidrofurano, morfolina, tiomorfolina y piperazina. Cuando se encuentran presentes, los sustituyentes opcionales sobre heterociclilo incluyen alquilo C_{1-6} y haloalquilo C_{1-6} así como también aquellos sustituyentes opcionales proporcionados precedentemente para un resto alquilo.

Cicloalquilo incluye con preferencia ciclopropilo, ciclobutilo, ciclopentilo y ciclohexilo. Cicloalquilalquilo es con preferencia ciclopropilmetilo. Cicloalquenilo incluye con preferencia ciclopentenilo y ciclohexenilo. Cuando se encuentran presentes, los sustituyentes opcionales sobre cicloalquilo o cicloalquenilo incluyen alquilo C_{1-3} así como también aquellos sustituyentes opcionales proporcionados precedentemente para un resto alquilo.

Los anillos carbocíclicos tales como aquéllos formados con R^7 conjuntamente con R^8 incluyen grupos arilo, cicloalquilo o carbocíclicos, y grupos cicloalquenilo.

Cuando se encuentran presentes, los sustituyentes opcionales sobre arilo, heteroarilo y carbociclos están con preferencia seleccionados independientemente, de halógeno, nitro, ciano, rodano, isotiocianato, alquilo C_{1-6} , haloalquilo C_{1-6} , alcoxi C_{1-6} -alquilo (C_{1-6}), alquenilo C_{2-6} , haloalquenilo C_{2-6} , alquinilo C_{2-6} , cicloalquilo C_{3-7} (en sí mismo opcionalmente sustituido con alquilo C_{1-6} o halógeno), cicloalquenilo C_{5-7} (en sí mismo opcionalmente sustituido con alquilo C_{1-6} o halógeno), hidroxilo, alcoxi C_{1-10} , alcoxi C_{1-10} alcoxi (C_{1-10}), trialkilsilil

(C₁₋₄) alcoxi (C₁₋₆), alcoxycarbonilo C₁₋₆ alcoxi (C₁₋₁₀), haloalcoxi C₁₋₁₀, arilalcoxi (C₁₋₄) (donde el grupo arilo está opcionalmente sustituido con halógeno o alquilo C₁₋₆), cicloalquiloxi C₃₋₇ (donde el grupo cicloalquilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), alqueniloxi C₃₋₁₀, alquinioloxi C₃₋₁₀, mercapto, alquiltio C₁₋₁₀, haloalquiltio C₁₋₁₀, arilalquiltio (C₁₋₄), cicloalquiltio C₃₋₇ (donde el grupo cicloalquilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), trialquilsilil (C₁₋₄)-alquiltio (C₁₋₆), ariltio, alquilsulfonilo C₁₋₆, haloalquilsulfonilo C₁₋₆, alquilsulfinilo C₁₋₆, haloalquilsulfinilo C₁₋₆, arilsulfonilo, trialquilsililo (C₁₋₄), arildialquilsililo (C₁₋₄), alquildiarilsililo (C₁₋₄), triarilsililo, alquilcarbonilo C₁₋₁₀, HO₂C, alcoxycarbonilo C₁₋₁₀, aminocarbonilo, alquilaminocarbonilo C₁₋₆, di(alquil C₁₋₆)-aminocarbonilo, *N*-(alquil C₁₋₃)-*N*-(alcoxi C₁₋₃)aminocarbonilo, alquilcarboniloxi C₁₋₆, arilcarboniloxi, dialquilamino (C₁₋₆)-carboniloxi, arilo (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), heteroarilo (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), heterociclilo (en sí mismo opcionalmente sustituido con alquilo C₁₋₆ o halógeno), ariloxi (donde el grupo arilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), heteroariloxi (donde el grupo heteroarilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), heterocicliloxi (donde el grupo heterociclilo está opcionalmente sustituido con alquilo C₁₋₆ o halógeno), amino, alquilamino C₁₋₆, dialquilamino (C₁₋₆), alquilcarbonilamino C₁₋₆, *N*-alquilcarbonil (C₁₋₆)-*N*-alquilamino (C₁₋₆), arilcarbonilo, (donde el grupo arilo está en sí mismo opcionalmente sustituido con halógeno o alquilo C₁₋₆) o dos posiciones adyacentes sobre un sistema arilo o heteroarilo pueden ser cicladas para formar un anillo carbocíclico o heterocíclico de 5, 6 o 7 miembros, en sí mismo opcionalmente sustituido con halógeno o alquilo C₁₋₆. Los sustituyentes adicionales para arilo o heteroarilo incluyen arilcarbonilamino (donde el grupo arilo está sustituido con alquilo C₁₋₆ o halógeno), alcoxycarbonilamino (C₁₋₆) alcoxycarbonil (C₁₋₆)-*N*-alquilamino (C₁₋₆),

ariloxicarbonilamino (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), ariloxicarbonil-*N*-alquilamino (C_{1-6}), (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), arilsulfonilamino (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), arilsulfonil-*N*-alquilamino (C_{1-6}) (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), aril-*N*-alquilamino (C_{1-6}) (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), arilamino (donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), heteroaril amino (donde el grupo heteroarilo está sustituido con alquilo C_{1-6} o halógeno), heterociclilamino (donde el grupo heterociclilo está sustituido con alquilo C_{1-6} o halógeno), aminocarbonilamino, alquilaminocarbonilamino C_{1-6} , dialquilaminocarbonilamino (C_{1-6}), arilaminocarbonilamino donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), aril-*N*-alquilamino (C_{1-6})-carbonilamino donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno), alquilaminocarbonil C_{1-6} -*N*-alquilamino (C_{1-6}), dialquilaminocarbonil (C_{1-6})-*N*-alquilamino (C_{1-6}), arilaminocarbonil-*N*-alquilamino (C_{1-6}) donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno) y aril-*N*-alquilaminocarbonil (C_{1-6})-*N*-alquilamino (C_{1-6}) donde el grupo arilo está sustituido con alquilo C_{1-6} o halógeno).

Para los grupos heterociclilo sustituido se prefiere que uno o más sustituyentes estén independientemente seleccionados de halógeno, alquilo C_{1-6} , haloalquilo C_{1-6} , alcoxi C_{1-6} , haloalcoxi C_{1-6} , alquiltio C_{1-6} , alquilsulfinilo C_{1-6} , alquilsulfonilo C_{1-6} , nitro y ciano. Debe comprenderse que los sustituyentes dialquilamino incluyen aquéllos donde los grupos dialquilo conjuntamente con el átomo de N al cual ellos están unidos forman un anillo heterocíclico de cinco, seis o siete miembros el cual puede contener uno o dos heteroátomos adicionales seleccionados de O, N o S y el cual está opcionalmente sustituido con uno o dos grupos alquilo (C_{1-6}) independientemente seleccionados. Cuando se forman

anillos heterocíclicos mediante la unión de dos grupos sobre un átomo de N, los anillos resultantes son de modo adecuado pirrolidina, piperidina, tiomorfolina y morfolina cada uno de los cuales puede estar sustituido con uno o dos grupos alquilo (C₁₋₆) independientemente seleccionados.

Debería comprenderse que el término "sustituyente" en las definiciones de R⁶ a R¹¹ comprende con preferencia todos los sustituyentes proporcionados precedentemente para "arilo", "heteroarilo" y "heterociclilo".

La invención también se refiere a las sales las cuales los compuestos de la fórmula I son capaces de formar con aminas, bases de metal alcalino y metal alcalinotérreo o bases de amonio cuaternario. Entre los hidróxidos de metal alcalino y metal alcalinotérreo como formadores de sales, debería efectuarse una mención especial de los hidróxidos de litio, sodio, potasio, magnesio y calcio, pero especialmente de los hidróxidos de sodio y potasio. Los compuestos de la fórmula I de acuerdo con la invención también incluyen hidratos los cuales se pueden formar durante la formación de sales.

Los ejemplos de aminas adecuadas para la formación de sales de amonio incluyen amoníaco así como también alquilaminas C₁-C₁₈, hidroxialquilaminas C₁-C₄ y alcoxialquilaminas C₂-C₄ primarias, secundarias y terciarias, por ejemplo metilamina, etilamina, *n*-propilamina, isopropilamina, los cuatro isómeros de butilamina, *n*-amilamina, isoamilamina, hexilamina, heptilamina, octilamina, nonilamina, decilamina, pentadecilamina, hexadecilamina, heptadecilamina, octadecilamina, metiletilamina, metilisopropilamina, metilhexilamina, metilnonilamina, metilpentadecilamina, metiloctadecilamina, etilbutilamina, etilheptilamina, etiloctilamina, hexilheptilamina, hexiloctilamina, dimetilamina,

dietilamina, di-*n*-propilamina, diisopropilamina, di-*n*-butilamina, di-*n*-amilamina, diisoamilamina, dihexilamina, diheptilamina, dioctilamina, etanolamina, *n*-propanolamina, isopropanolamina, *N,N*-dietanolamina, *N*-etilpropanolamina, *N*-butiletanolamina, alilamina, *n*-but-2-enilamina, *n*-pent-2-enilamina, 2,3-dimetilbut-2-enilamina, dibut-2-enilamina, *n*-hex-2-enilamina, propilendiamina, trimetilamina, trietilamina, tri-*n*-propilamina, triisopropilamina, tri-*n*-butilamina, triisobutilamina, tri-*sec*-butilamina, tri-*n*-amilamina, metoxietilamina y etoxietilamina; aminas heterocíclicas, por ejemplo piridina, quinolina, isoquinolina, morfolina, piperidina, pirrolidina, indolina, quinuclidina y azepina; arilaminas primarias, por ejemplo anilinas, metoxianilinas, etoxianilinas, *o*-, *m*- y *p*-toluidinas, fenilendiaminas, bencidinas, naftilaminas y *o*-, *m*- y *p*-cloroanilinas; pero especialmente trietilamina, isopropilamina y diisopropilamina.

Las bases de amonio cuaternario preferidas adecuadas para la formación de sales corresponden, por ejemplo, a la fórmula $[N(R_a R_b R_c R_d)]OH$ donde R_a , R_b , R_c y R_d son cada uno independientemente de los otros alquilo C_1 - C_4 . Se pueden obtener bases de tetraalquilamonio adecuadas adicionales con otros aniones, por ejemplo, a través de reacciones de intercambio aniónico.

Los grupos de latenciación G están seleccionados para permitir su remoción a través de un proceso o de una combinación de procesos bioquímicos, químicos o físicos para proporcionar compuestos de la fórmula I donde G es H antes, durante o luego de la aplicación al área o plantas tratadas. Los ejemplos de estos procesos incluyen escisión enzimática, hidrólisis química y fotólisis. Los compuestos que portan dichos grupos G pueden ofrecer ciertas ventajas, tales como una mejor penetración de las cutículas de las plantas tratadas, una mejor tolerancia de los cultivos, una mejor compatibilidad o estabilidad en mezclas

formuladas que contienen otros herbicidas, antídotos de herbicidas, reguladores del crecimiento de las plantas, fungicidas o insecticidas, o una menor lixiviación en los suelos.

Con preferencia, en los compuestos de la fórmula I, R^6 y R^{11} son independientemente entre sí hidrógeno, halógeno, formilo, ciano o nitro o

R^6 y R^{11} son independientemente entre sí alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , alcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_3-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^6 y R^{11} son independientemente entre sí un grupo COR^{13} , CO_2R^{14} o $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, NHR^{22} , $NR^{22}R^{23}$ o OR^{24} , donde

R^{13} es alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{14} es hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , fenilo, heteroarilo o es un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{15} es hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , alcoxi C_1-C_6 , haloalcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{16} es hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , alcoxi C_1-C_6 , haloalcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , alquilsulfonilo C_1-C_6 , fenilsulfonilo, heteroarilsulfonilo, amino, alquilamino C_1-C_6 , dialquilamino C_1-C_6 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^{15} y R^{16} pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno,

R^{17} y R^{19} son independientemente entre sí hidrógeno, alquilo C_1-C_3 o cicloalquilo C_3-C_6 ,

R^{18} , R^{20} y R^{21} son independientemente entre sí hidrógeno, alquilo C_1-C_6 , alqueno C_3-C_6 , alquino C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , aminocarbonilo, alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{22} es alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , fenilcarbonilo, fenoxycarbonilo, fenilaminocarbonilo, feniltiocarbonilo, fenilsulfonilo, heteroarilcarbonilo, heteroariloxycarbonilo, heteroarilaminocarbonilo, heteroariltiocarbonilo o heteroarilsulfonilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{23} es alquilo C_1-C_6 , alqueno C_3-C_6 , alquino C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^{22} y R^{23} pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno, donde todos estos sustituyentes están opcionalmente sustituidos, y

R^{24} es alqueno C_3-C_6 , alquino C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , aminocarbonilo,

alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , tri(alquil C_1-C_6)sililo, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos.

Con más preferencia, R^6 y R^{11} son independientemente entre sí hidrógeno, halógeno, ciano, alquilo C_1-C_6 opcionalmente sustituido o un grupo COR^{13} , CO_2R^{14} o $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$ o $CR^{19}=NNR^{20}R^{21}$, donde

R^{13} , R^{14} , R^{15} y R^{16} son alquilo C_1-C_6 ,

R^{17} y R^{19} son hidrógeno o alquilo C_1-C_3 ,

R^{18} es alquilo C_1-C_3 , y

R^{20} y R^{21} son independientemente entre sí hidrógeno o alquilo C_1-C_3 .

En particular, R^6 y R^{11} son independientemente entre sí hidrógeno, metilo o metilo sustituido con alcoxi C_1-C_3 .

Con preferencia, R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, halógeno, hidroxilo, formilo, amino, ciano o nitro, o

R^7 , R^8 , R^9 y R^{10} son independientemente entre sí alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , alquiltio C_1-C_6 , alquilsulfinilo C_1-C_6 , alquilsulfonilo C_1-C_6 , alquiltio C_1-C_6 alquilo C_1-C_6 , alquilsulfinil C_1-C_6 alquilo C_1-C_6 , alquilsulfonil C_1-C_6 alquilo C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_4-C_7 , tri(alquil C_1-C_6)sililo, arilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^7 , R^8 , R^9 y R^{10} son independientemente entre sí un grupo COR^{13} , CO_2R^{14} o $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, $NR^{22}R^{23}$ o OR^{24} , donde

R^{13} es alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_4-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁴ es hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, cicloalquilo C₃-C₇, cicloalquenilo C₅-C₇, fenilo, heteroarilo o es un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁵ es hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalquenilo C₅-C₇, fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁶ es hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalquenilo C₅-C₇, alquilsulfonilo C₁-C₆, amino, alquilamino C₁-C₆, dialquilamino C₁-C₆, fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R¹⁵ y R¹⁶ pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno,

R¹⁷ y R¹⁹ son independientemente entre sí hidrógeno, alquilo C₁-C₃ o cicloalquilo C₃-C₆,

R¹⁸, R²⁰ y R²¹ son independientemente entre sí hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, cicloalquilo C₃-C₇, alquilcarbonilo C₁-C₆, alcoxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R²² y R²³ son independientemente entre sí alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, cicloalquilo C₃-C₇, alquilcarbonilo C₁-C₆, alcoxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, alquilsulfonilo C₁-C₆, fenilo o heteroarilo o

R^{22} y R^{23} pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno, donde todos estos sustituyentes están opcionalmente sustituidos, y

R^{24} es alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxycarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , tri(alquil C_1-C_6)sililo, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos.

Con más preferencia, R^7 , R^8 , R^9 y R^{10} son hidrógeno.

También se prefiere que uno de R^7 , R^8 , R^9 y R^{10} sea metilo o etilo.

También se prefiere que uno de R^7 , R^8 , R^9 y R^{10} sea un arilo o heteroarilo opcionalmente sustituido y con más preferencia fenilo, naftilo, furilo, tienilo, pirazolilo, 1,2,3-triazolilo, 1,2,4-triazolilo, piridilo, pirimidinilo, piridazinilo, pirazinilo, quinolinilo, isoquinolinilo, cinolinilo, quinazolinilo o quinoxalinilo opcionalmente sustituido.

En particular, uno de R^7 , R^8 , R^9 y R^{10} es piridilo o piridilo sustituido con trifluormetilo o halógeno.

También se prefiere que R^7 y R^{10} formen un enlace.

Con preferencia, R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, ciano, alquilo C_1-C_6 , alquenilo C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , alquiltio C_1-C_6 alquilo C_1-C_6 , alquilsulfinil C_1-C_6 alquilo C_1-C_6 , alquilsulfonil C_1-C_6 alquilo C_1-C_6 , heterociclilo de 3-7 miembros, fenilo opcionalmente sustituido o heteroarilo opcionalmente sustituido, o $CR^{17}=NOR^{18}$, donde

R^{17} es hidrógeno o alquilo C_1-C_3 y

R^{18} es alquilo C_1-C_3 .

En otro grupo de compuestos preferidos de la fórmula I, R^7 y R^8 , o R^9 y R^{10} , conjuntamente forman una unidad $=O$, o forman una unidad $=CR^{25}R^{26}$, o forman una unidad $=NR^{27}$, o cualquiera de dos de R^7 , R^8 , R^9 y R^{10} forman un anillo de 3-8 miembros, que contiene opcionalmente un heteroátomo seleccionado de O, S o N y opcionalmente sustituido con alquilo C_1-C_3 , alcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , haloalquilo C_1-C_3 , halógeno, fenilo, fenilo sustituido con alquilo C_1-C_4 , haloalquilo C_1-C_4 , alcoxi C_1-C_4 , haloalcoxi C_1-C_4 , alquiltio C_1-C_4 , alquilsulfinilo C_1-C_4 , alquilsulfonilo C_1-C_4 , alquilcarbonilo C_1-C_4 , alcoxicarbonilo C_1-C_4 , aminocarbonilo, alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , halógeno, ciano o con nitro, heteroarilo o heteroarilo sustituido con alquilo C_1-C_4 , haloalquilo C_1-C_4 , alcoxi C_1-C_4 , haloalcoxi C_1-C_4 , alquiltio C_1-C_4 , alquilsulfinilo C_1-C_4 , alquilsulfonilo C_1-C_4 , alquilcarbonilo C_1-C_4 , halógeno, ciano o con nitro, donde

R^{25} y R^{26} son independientemente entre sí hidrógeno, halógeno, ciano o nitro, o

R^{25} y R^{26} son independientemente entre sí alquilo C_1-C_6 , alcoxi C_1-C_6 , alquilamino C_1-C_6 , dialquilamino C_1-C_6 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , *N*-fenil-*N*-alquilaminocarbonilo C_1-C_6 , *N*-fenilalquil C_1-C_6 -*N*-alquilaminocarbonilo C_1-C_6 , *N*-heteroaril-*N*-alquilaminocarbonilo C_1-C_6 , *N*-heteroarilalquil C_1-C_6 -*N*-alquilaminocarbonilo C_1-C_6 , fenilo, heteroarilo, cicloalquilo C_3-C_8 o heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^{25} y R^{26} pueden estar unidos conjuntamente para formar un anillo de 5-8 miembros que contiene opcionalmente un heteroátomo seleccionado de O, S o N y opcionalmente sustituido con alquilo C_1-C_2 o alcoxi C_1-C_2 ,

R^{27} es nitro o ciano, o

R^{27} es alquilamino C_1-C_6 , dialquilamino C_1-C_6 , alcoxi C_1-C_6 , alquenilo C_3-C_6 , alquinoxilo C_3-C_6 , fenoxi, fenilamino, *N*-fenil-*N*-alquilamino C_1-C_6 , *N*-fenilalquil C_1-C_6 -*N*-alquilamino C_1-C_6 , heteroarilo, heteroarilamino, *N*-heteroaril-*N*-alquilamino C_1-C_6 o *N*-heteroarilalquil C_1-C_6 -*N*-alquilamino C_1-C_6 , donde todos estos sustituyentes están opcionalmente sustituidos,

donde, con más preferencia, R^7 y R^8 , o R^9 y R^{10} , conjuntamente forman una unidad $=O$ o $=NR^{27}$,

donde R^{27} es alcoxi C_{1-3} o alquenilo C_2-C_3 .

Con más preferencia, R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, ciano, alquilo C_1-C_6 , alqueno C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , heterociclo de 3-7 miembros, fenilo opcionalmente sustituido o heteroarilo opcionalmente sustituido.

En particular, R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, metilo, etilo o fenilo opcionalmente sustituido.

En particular, uno de R^7 , R^8 , R^9 y R^{10} es heteroarilo opcionalmente sustituido, con preferencia furilo, tienilo, pirazolilo, 1,2,3-triazolilo, 1,2,4-triazolilo, piridilo, pirimidinilo, piridazinilo, pirazinilo, quinolinilo, isoquinolinilo, cinolinilo, quinazolinilo o quinoxalinilo opcionalmente sustituido, y con más preferencia piridilo sustituido una o dos veces con trifluorometilo o halógeno.

En otro grupo de compuestos preferidos de la fórmula I, R^1 , R^2 y R^4 son metilo y R^3 es hidrógeno.

En otro grupo de compuestos preferidos de la fórmula I, R^1 , R^2 y R^4 son metilo y R^3 es hidrógeno, y R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, ciano, alquilo C_1-C_6 , alquenilo C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , heterociclilo de 3-7 miembros, arilo opcionalmente sustituido o heteroarilo opcionalmente sustituido, con preferencia heteroarilo opcionalmente sustituido, y en particular piridilo sustituido una o dos veces con trifluormetilo o halógeno.

En otro grupo de compuestos preferidos de la fórmula I, R^5 y R^{12} son independientemente entre sí hidrógeno o alquilo C_1-C_3 , donde se prefiere más el hidrógeno.

En otro grupo de compuestos preferidos de la fórmula I, R^1 es metilo, etilo, vinilo, etinilo, ciclopropilo, difluormetoxi, trifluormetoxi o alcoxi C_1-C_2 y

R^2 , R^3 y R^4 son independientemente entre sí hidrógeno, metilo, etilo, vinilo o etinilo.

Con preferencia en este grupo, R^1 es etilo y R^2 , R^3 y R^4 son independientemente entre sí hidrógeno, metilo o etilo.

Con preferencia en este grupo, R^1 , R^2 y R^4 son metilo y R^3 es hidrógeno.

El grupo de latenciación G está con preferencia seleccionado de los grupos alquilo C_1-C_8 , haloalquilo C_2-C_8 , fenilalquilo C_1-C_8 (donde el fenilo puede estar opcionalmente sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 ,

halógeno, ciano o con nitro), heteroarilalquilo C₁-C₈ (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano o con nitro), alquenilo C₃-C₈, haloalquenilo C₃-C₉, alquinilo C₃-C₉, C(X^a)-R^a, C(X^b)-X^c-R^b, C(X^d)-N(R^e)-R^d, -SO₂-R^e, -P(X^e)(R^f)-R^g o CH₂-X^f-R^h donde X^a, X^b, X^c, X^d, X^e y X^f son independientemente entre sí oxígeno o azufre;

R^a es H, alquilo C₁-C₁₈, alquenilo C₂-C₁₈, alquinilo C₂-C₁₈, haloalquilo C₁-C₁₀, cianoalquilo C₁-C₁₀, nitroalquilo C₁-C₁₀, aminoalquilo C₁-C₁₀, alquilamino C₁-C₅, alquilo C₁-C₅, dialquilamino C₂-C₈, alquilo C₁-C₅, cicloalquil C₃-C₇, alquilo C₁-C₅, alcoxi C₁-C₅, alquilo C₁-C₅, alquenilo C₃-C₅, alquilo C₁-C₅, alquil C₃-C₅, oxialquilo C₁-C₅, alquiltio C₁-C₅, alquilo C₁-C₅, alquilsulfinil C₁-C₅, alquilsulfonil C₁-C₅, alquilo C₁-C₅, alquilidenaminoxil C₂-C₈, alquilo C₁-C₅, alquilcarbonil C₁-C₅, alquilo C₁-C₅, alcoxycarbonil C₁-C₅, alquilo C₁-C₅, aminocarbonilalquilo C₁-C₅, alquilaminocarbonil C₁-C₅, alquilo C₁-C₅, dialquilaminocarbonil C₂-C₈, alquilo C₁-C₅, alquilcarbonilamino C₁-C₅, alquilo C₁-C₅, N-alquilcarbonil C₁-C₅-N-alquilamino C₁-C₅, alquilo C₁-C₅, trialquilsilil C₃-C₆, alquilo C₁-C₅, fenilalquilo C₁-C₅ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), heteroarilalquilo C₁-C₅, (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), haloalquenilo C₂-C₅, cicloalquilo C₃-C₈, fenilo o fenilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilo o heteroarilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro,

R^b es alquilo C₁-C₁₈, alquenilo C₃-C₁₈, alquinilo C₃-C₁₈, haloalquilo C₂-C₁₀, cianoalquilo C₁-C₁₀, nitroalquilo C₁-C₁₀, aminoalquilo C₂-C₁₀, alquilamino C₁-C₅

alquilo C₁-C₅, dialquilamino C₂-C₃ alquilo C₁-C₅, cicloalquil C₃-C₇ alquilo C₁-C₅, alcoxi C₁-C₅ alquilo C₁-C₅, alquenilo C₃-C₅ alquilo C₁-C₅, alquinilo C₃-C₅ alquilo C₁-C₅, alquiltio C₁-C₅ alquilo C₁-C₅, alquilsulfinil C₁-C₅ alquilo C₁-C₅, alquilsulfonil C₁-C₅ alquilo C₁-C₅, alquilidenaminox C₂-C₃ alquilo C₁-C₅, alquilcarbonil C₁-C₅ alquilo C₁-C₅, alcoxycarbonil C₁-C₅ alquilo C₁-C₅, aminocarbonilalquilo C₁-C₅, alquilaminocarbonil C₁-C₅ alquilo C₁-C₅, dialquilaminocarbonil C₂-C₃ alquilo C₁-C₅, alquilcarbonilamino C₁-C₅ alquilo C₁-C₅, *N*-alquilcarbonil C₁-C₅-*N*-alquilamino C₁-C₅ alquilo C₁-C₅, trialquilsilil C₃-C₆ alquilo C₁-C₅, fenilalquilo C₁-C₅ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), heteroarilalquilo C₁-C₅, (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), haloalquenilo C₃-C₅, cicloalquilo C₃-C₈, fenilo o fenilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilo o heteroarilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro,

R^c y R^d son cada uno independientemente entre sí hidrógeno, alquilo C₁-C₁₀, alquenilo C₃-C₁₀, alquinilo C₃-C₁₀, haloalquilo C₂-C₁₀, cianoalquilo C₁-C₁₀, nitroalquilo C₁-C₁₀, aminoalquilo C₁-C₁₀, alquilamino C₁-C₅ alquilo C₁-C₅, dialquilamino C₂-C₃ alquilo C₁-C₅, cicloalquil C₃-C₇ alquilo C₁-C₅, alcoxi C₁-C₅ alquilo C₁-C₅, alquenilo C₃-C₅ alquilo C₁-C₅, alquinilo C₃-C₅ alquilo C₁-C₅, alquiltio C₁-C₅ alquilo C₁-C₅, alquilsulfinil C₁-C₅ alquilo C₁-C₅, alquilsulfonil C₁-C₅ alquilo C₁-C₅, alquilidenaminox C₂-C₃ alquilo C₁-C₅, alquilcarbonil C₁-C₅ alquilo C₁-C₅, alcoxycarbonil C₁-C₅ alquilo C₁-C₅, aminocarbonilalquilo C₁-C₅, alquilaminocarbonil C₁-C₅ alquilo C₁-C₅, dialquilaminocarbonil C₂-C₃ alquilo C₁-C₅, alquilcarbonilamino C₁-C₅ alquilo C₁-C₅, *N*-alquilcarbonil C₁-C₅-*N*-

alquilaminoalquilo C₂-C₅, trialquilsilil C₃-C₆ alquilo C₁-C₅, fenilalquilo C₁-C₅ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), heteroarilalquilo C₁-C₅, (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), haloalquenilo C₂-C₅, cicloalquilo C₃-C₈, fenilo o fenilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilo o heteroarilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilamino o heteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, diheteroarilamino o diheteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, fenilamino o fenilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro, difenilamino o difenilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro o cicloalquilamino C₃-C₇, di-cicloalquilamino C₃-C₇ o cicloalcoxi C₃-C₇ o R^c y R^d pueden unirse conjuntamente para formar un anillo de 3-7 miembros, que contiene opcionalmente un heteroátomo seleccionado de O o S,

R^e es alquilo C₁-C₁₀, alquenilo C₂-C₁₀, alquinilo C₂-C₁₀, haloalquilo C₁-C₁₀, cianoalquilo C₁-C₁₀, nitroalquilo C₁-C₁₀, aminoalquilo C₁-C₁₀, alquilamino C₁-C₅ alquilo C₁-C₅, dialquilamino C₂-C₈ alquilo C₁-C₅, cicloalquil C₃-C₇ alquilo C₁-C₅, alcoxi C₁-C₅ alquilo C₁-C₅, alqueniloxi C₂-C₅ alquilo C₁-C₅, alquiniloxi C₂-C₅ alquilo C₁-C₅, alquiltio C₁-C₅ alquilo C₁-C₅, alquilsulfinil C₁-C₅ alquilo C₁-C₅, alquilsulfonil C₁-C₅ alquilo C₁-C₅, alquilidenaminox C₂-C₈ alquilo C₁-C₅, alquilcarbonil C₁-C₅ alquilo C₁-C₅, alcoxicarbonil C₁-C₅ alquilo C₁-C₅, aminocarbonilalquilo C₁-C₅,

alquilaminocarbonil C₁-C₅ alquilo C₁-C₅, dialquilaminocarbonil C₂-C₈ alquilo C₁-C₅, alquilcarbonilamino C₁-C₅ alquilo C₁-C₅, *N*-alquilcarbonil C₁-C₅-*N*-alquilamino C₁-C₅ alquilo C₁-C₅, trialquilsilil C₃-C₆ alquilo C₁-C₅, fenilalquilo C₁-C₅ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), heteroarilalquilo C₁-C₅ (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), haloalquenilo C₂-C₅, cicloalquilo C₃-C₈, fenilo o fenilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilo o heteroarilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro, heteroarilamino o heteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro, diheteroarilamino o diheteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, fenilamino o fenilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, o cicloalquilamino C₃-C₇, diciticloalquilamino C₃-C₇ o cicloalcoxi C₃-C₇, alcoxi C₁-C₁₀, haloalcoxi C₁-C₁₀, alquilamino C₁-C₅ o dialquilamino C₂-C₈.

R^f y R^g son cada uno independientemente entre sí alquilo C₁-C₁₀, alquenilo C₂-C₁₀, alquinilo C₂-C₁₀, alcoxi C₁-C₁₀, haloalquilo C₁-C₁₀, cianoalquilo C₁-C₁₀, nitroalquilo C₁-C₁₀, aminoalquilo C₁-C₁₀, alquilamino C₁-C₅ alquilo C₁-C₅, dialquilamino C₂-C₈ alquilo C₁-C₅, cicloalquil C₃-C₇ alquilo C₁-C₅, alcoxi C₁-C₅ alquilo C₁-C₅, alqueniloxi C₃-C₅ alquilo C₁-C₅, alquiniloxi C₃-C₅ alquilo C₁-C₅, alquiltio C₁-C₅ alquilo C₁-C₅, alquilsulfinil C₁-C₅ alquilo C₁-C₅, alquilsulfonil C₁-C₅

alquilo C₁-C₅, alquilidenaminoxil C₂-C₈ alquilo C₁-C₅, alquilcarbonil C₁-C₅ alquilo C₁-C₅, alcoxycarbonil C₁-C₅ alquilo C₁-C₅, aminocarbonilalquilo C₁-C₅, alquilaminocarbonil C₁-C₅ alquilo C₁-C₅, dialquilaminocarbonil C₂-C₈ alquilo C₁-C₅, alquilcarbonilamino C₁-C₅ alquilo C₁-C₅, *N*-alquilcarbonil C₁-C₅-*N*-alquilaminoalquilo C₂-C₅, trialquilsilil C₃-C₆ alquilo C₁-C₅, fenilalquilo C₁-C₅ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), heteroarilalquilo C₁-C₅ (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsulfinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano, o con nitro), haloalquenilo C₂-C₅, cicloalquilo C₃-C₈, fenilo o fenilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, heteroarilo o heteroarilo sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro, heteroarilamino o heteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o con nitro, diheteroarilamino o diheteroarilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, fenilamino o fenilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, difenilamino, o difenilamino sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, o cicloalquilamino C₃-C₇, dicicloalquilamino C₃-C₇ o cicloalcoxi C₃-C₇, haloalcoxi C₁-C₁₀, alquilamino C₁-C₅ o dialquilamino C₂-C₃, benciloxi o fenoxi, donde los grupos bencilo y fenilo pueden a su vez estar sustituidos con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, halógeno, ciano o nitro, y

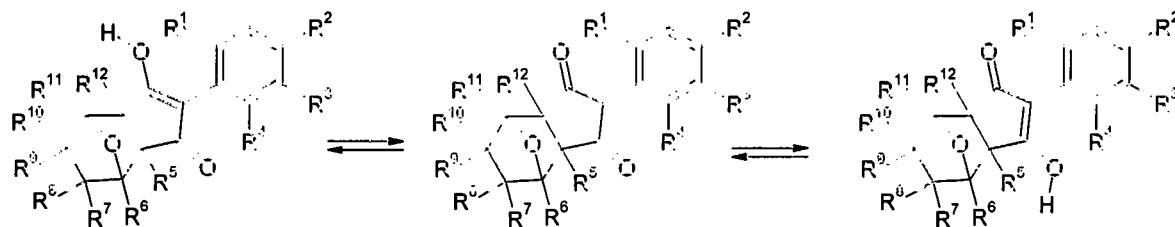
R^h es alquilo C_1-C_{10} , alquenilo C_3-C_{10} , alquinilo C_3-C_{10} , haloalquilo C_1-C_{10} , cianoalquilo C_1-C_{10} , nitroalquilo C_1-C_{10} , aminoalquilo C_2-C_{10} , alquilamino C_1-C_5 alquilo C_1-C_5 , dialquilamino C_2-C_8 alquilo C_1-C_5 , cicloalquil C_3-C_7 alquilo C_1-C_5 , alcoxi C_1-C_5 alquilo C_1-C_5 , alqueniloxi C_3-C_5 alquilo C_1-C_5 , alquiniloxi C_3-C_5 alquilo C_1-C_5 , alquiltio C_1-C_5 alquilo C_1-C_5 , alquilsulfinil C_1-C_5 alquilo C_1-C_5 , alquilsulfonil C_1-C_5 alquilo C_1-C_5 , alquilidenaminoxi C_2-C_8 alquilo C_1-C_5 , alquilcarbonil C_1-C_5 alquilo C_1-C_5 , alcoxycarbonil C_1-C_5 alquilo C_1-C_5 , aminocarbonilalquilo C_1-C_5 , alquilaminocarbonil C_1-C_5 alquilo C_1-C_5 , dialquilaminocarbonil C_2-C_8 alquilo C_1-C_5 , alquilcarbonilamino C_1-C_5 alquilo C_1-C_5 , *N*-alquilcarbonil C_1-C_5 -*N*-alquilamino C_1-C_5 alquilo C_1-C_5 , trialquilsilil C_3-C_6 alquilo C_1-C_5 , fenilalquilo C_1-C_5 (donde el fenilo puede estar opcionalmente sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , halógeno, ciano o con nitro), heteroarilalquilo C_1-C_5 (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , halógeno, ciano o con nitro), fenoxialquilo C_1-C_5 (donde el fenilo puede estar opcionalmente sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , halógeno, ciano o con nitro), heteroariloxialquilo C_1-C_5 (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , halógeno, ciano o con nitro), haloalquenilo C_3-C_5 , cicloalquilo C_3-C_8 , fenilo o fenilo sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , halógeno o con nitro, o heteroarilo, o heteroarilo sustituido con alquilo C_1-C_3 , haloalquilo C_1-C_3 , alcoxi C_1-C_3 , haloalcoxi C_1-C_3 , halógeno, ciano o con nitro.

En particular, el grupo de latenciación G es un grupo $-C(X^a)-R^a$ o $-C(X^b)-X^c-R^b$, y los significados de X^a , R^a , X^b , X^c y R^b son según se definieron precedentemente.

Se prefiere que G sea hidrógeno, un metal alcalino o metal alcalinotérreo, donde se prefiere especialmente el hidrógeno.

Debería comprenderse que en aquellos compuestos de la fórmula I donde G es un catión metálico, de amonio (tal como NH_4^+ ; $N(\text{alquilo})_4^+$) o sulfonio (tal como $S(\text{alquilo})_3^+$), la correspondiente carga negativa se encuentra en gran medida deslocalizada a través de la unidad $O-C=C-C=O$.

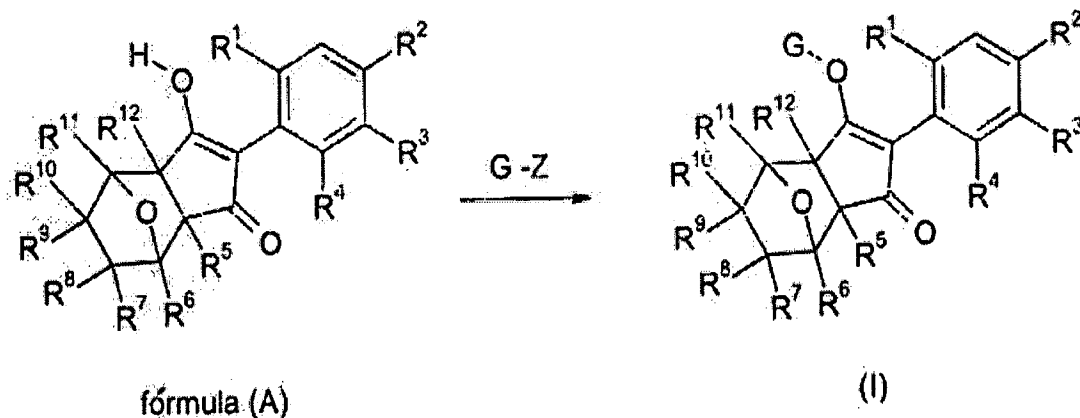
Dependiendo de la naturaleza de los sustituyentes, los compuestos de la fórmula I pueden existir en diferentes formas isoméricas. Cuando G es hidrógeno, por ejemplo, los compuestos de la fórmula I pueden existir en diferentes formas tautoméricas.



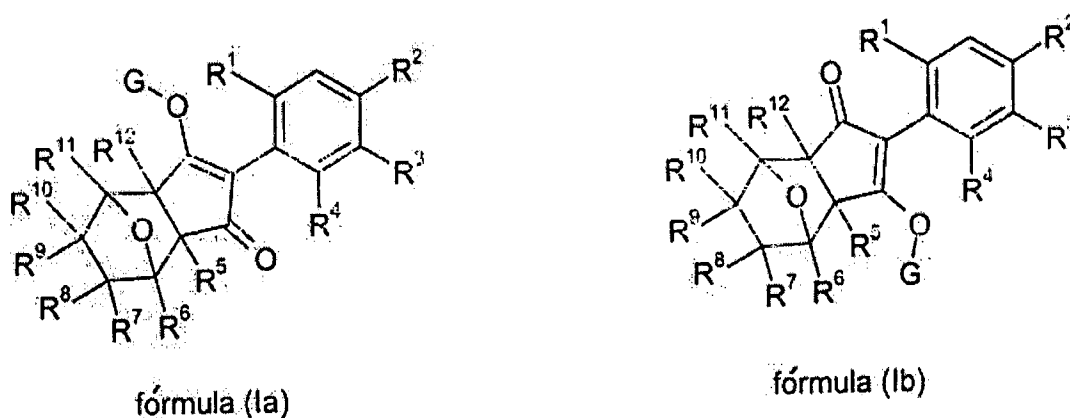
Esta invención comprende todos dichos isómeros y tautómeros y las mezclas de los mismos en todas las proporciones. Además, cuando los sustituyentes contienen enlaces dobles, pueden existir isómeros *cis* y *trans*. Estos isómeros, asimismo, se encuentran dentro del alcance de los compuestos de la fórmula I reivindicados.

Un compuesto de la fórmula I donde G es alquilo C₁-C₈, haloalquilo C₂-C₈, fenilalquilo C₁-C₈ (donde el fenilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsufinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano o con nitro), heteroarilalquilo C₁-C₈ (donde el heteroarilo puede estar opcionalmente sustituido con alquilo C₁-C₃, haloalquilo C₁-C₃, alcoxi C₁-C₃, haloalcoxi C₁-C₃, alquiltio C₁-C₃, alquilsufinilo C₁-C₃, alquilsulfonilo C₁-C₃, halógeno, ciano o con nitro), alquenilo C₃-C₈, haloalquenilo C₃-C₈, alquinilo C₃-C₈, C(X^a)-R^a, C(X^b)-X^c-R^b, C(X^d)-N(R^c)-R^d, -SO₂-R^e, -P(X^a)(R^f)-R^g o CH₂-X^f-R^h donde X^a, X^b, X^c, X^d, X^e, X^f, R^a, R^b, R^c, R^d, R^e, R^f, R^g y R^h son según se definieron precedentemente se puede preparar mediante el tratamiento de un compuesto de la fórmula (A), el cual es un compuesto de la fórmula I donde G es H, con un reactivo G-Z, donde G-Z es un agente de alquilación tal como un haluro de alquilo (la definición de haluros de alquilo incluye los haluros de alquilo C₁-C₈ simple tales como yoduro de metilo y yoduro de etilo, haluros de alquilo sustituido tales como fenilalquilo C₁-C₆, éteres de clorometil alquilo, Cl-CH₂-X^f-R^h, donde X^f es oxígeno, y sulfuros de clorometil alquilo Cl-CH₂-X^f-R^h, donde X^f es azufre), un sulfonato de alquilo C₁-C₈, o un sulfato de dialquilo C₁-C₈, o con un haluro de alquenilo C₃-C₈, o con un haluro de alquinilo C₃-C₈, o con un agente de acilación tal como un ácido carboxílico, HO-C(X^a)R^a, donde X^a es oxígeno, un cloruro de ácido, Cl-C(X^a)R^a, donde X^a es oxígeno, o anhídrido de ácido, [R^aC(X^a)]₂O, donde X^a es oxígeno, o un isocianato, R^cN=C=O, o un cloruro de carbamoilo, Cl-C(X^d)-N(R^c)-R^d (donde X^d es oxígeno y con la condición de que ninguno de R^c o R^d sea hidrógeno), o un cloruro de tiocarbamoilo, Cl-C(X^d)-N(R^c)-R^d (donde X^d es azufre y con la condición de que ninguno de R^c o R^d sea hidrógeno) o un cloroformiato, Cl-C(X^b)-X^c-R^b, (donde X^b y X^c son oxígeno), o un clorotioformiato Cl-C(X^b)-X^c-R^b (donde X^b es oxígeno y X^c

es azufre), o un cloroditioformiato $\text{Cl}-\text{C}(\text{X}^b)-\text{X}^c-\text{R}^h$, (donde X^b y X^c son azufre), o un isotiocianato, $\text{R}^c\text{N}=\text{C}=\text{S}$, o mediante el tratamiento secuencial con disulfuro de carbono y un agente de alquilación, o con un agente de fosforilación tal como un cloruro de fosforilo, $\text{Cl}-\text{P}(\text{X}^e)(\text{R}^f)-\text{R}^g$ o con un agente de sulfonación tal como un cloruro de sulfonilo $\text{Cl}-\text{SO}_2-\text{R}^e$, con preferencia en presencia de al menos un equivalente de una base.



Dependiendo de la naturaleza de los sustituyentes R^1 a R^{12} , y del grupo G, se pueden formar compuestos isoméricos de la fórmula I. Por ejemplo, un compuesto de la fórmula (A) donde R^5 y R^{12} son diferentes puede dar origen a un compuesto de la fórmula (1a) o a un compuesto de la fórmula (1b), o a una mezcla de compuestos de la fórmula (1a) y de la fórmula (1b).



La O-alquilación de 1,3-dionas cíclicas es conocida; los métodos adecuados se describen, por ejemplo, por T. Wheeler US4436666. Se han informado procedimientos alternativos por M. Pizzorno y S. Albonico, Chem. Ind. (Londres), (1972), 425; H. Born *et al.*, J. Chem. Soc., (1953), 1779; M. Constantino *et al.*, Synth. Commun., (1992), 22 (19), 2859; Y. Tian *et al.*, Synth. Commun., (1997), 27 (9), 1577, S. Chandra Roy *et al.*, Chem. Letters, (2006), 35 (1), 16, y P. Zubaidha *et al.*, Tetrahedron Lett., (2004), 45, 7187.

La O-acilación de 1,3-dionas cíclicas se puede efectuar a través de procedimientos similares a aquéllos descritos, por ejemplo, por R. Haines, US4175135, y por T. Wheeler, US4422870, US4659372 y US4436666. Normalmente las dionas de la fórmula (A) se pueden tratar con el agente de acilación en presencia de al menos un equivalente de una base adecuada, opcionalmente en presencia de un solvente adecuado. La base puede ser inorgánica, tal como un hidróxido o carbonato de metal alcalino, o un hidruro de metal, o una base orgánica tal como una amina terciaria o alcóxido de metal. Los ejemplos de bases inorgánicas adecuadas incluyen carbonato de sodio, hidróxido de sodio o potasio, hidruro de sodio, y las bases orgánicas adecuadas incluyen trialkilaminas, tales como trimetilamina y trietilamina, piridinas u otras bases de amina tales como 1,4-diazobicyclo[2.2.2]octano y 1,8-diazabicyclo[5.4.0]undec-7-eno. Las bases preferidas incluyen trietilamina y piridina. Los solventes adecuados para esta reacción están seleccionados para ser compatibles con los reactivos e incluyen éteres tales como tetrahidrofurano y 1,2-dimetoxietano y solventes halogenados tales como diclorometano y cloroformo. Ciertas bases, tales como piridina y trietilamina, se pueden emplear con éxito tanto como base

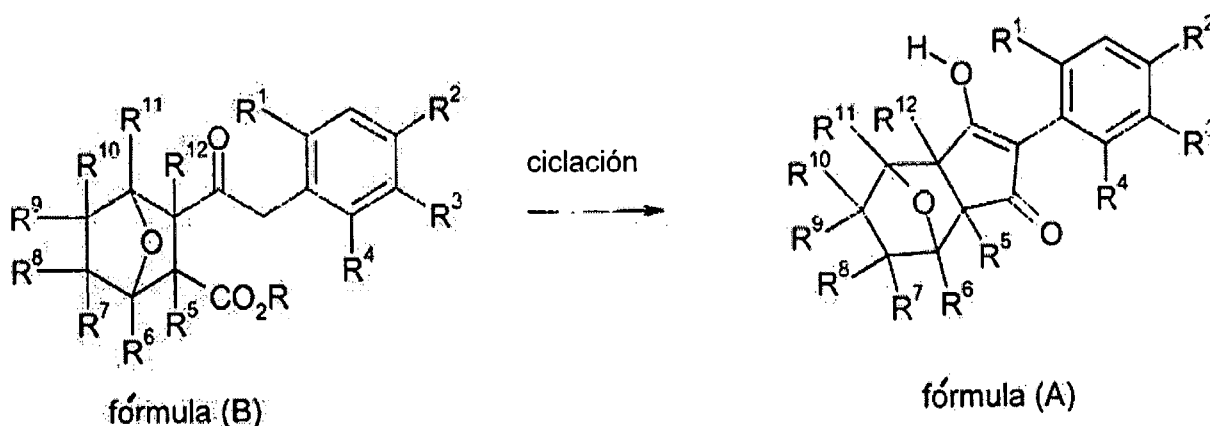
como solvente. Para los casos donde el agente de acilación es un ácido carboxílico, la acilación con preferencia se efectúa en presencia de un agente de acoplamiento tal como yoduro de 2-cloro-1-metilpiridinio, *N,N'*-díciclohexilcarbodiimida, 1-(3-dimetilaminopropil)-3-etilcarbodiimida y *N,N'*-carbodiimidazol, y opcionalmente una base tal como trietilamina o piridina en un solvente adecuado tal como tetrahidrofurano, diclorometano o acetonitrilo. Los procedimientos adecuados se describen, por ejemplo, por W. Zhang y G. Pugh, *Tetrahedron Lett.*, (1999), 40 (43), 7595-7598 y T. Isobe y T. Ishikawa, *J. Org. Chem.*, (1999), 64 (19), 6984.

La fosforilación de 1,3-dionas cíclicas se puede efectuar utilizando un haluro de fosforilo o haluro de tiofosforilo y una base a través de procedimientos análogos a aquéllos descritos por L. Hodakowski, US4409153.

La sulfonación de un compuesto de la fórmula (A) se puede lograr utilizando un haluro de alquil o aril sulfonilo, con preferencia en presencia de al menos un equivalente de una base, por ejemplo a través del procedimiento de C. Kowalski y K. Fields, *J. Org. Chem.*, (1981), 46, 197.

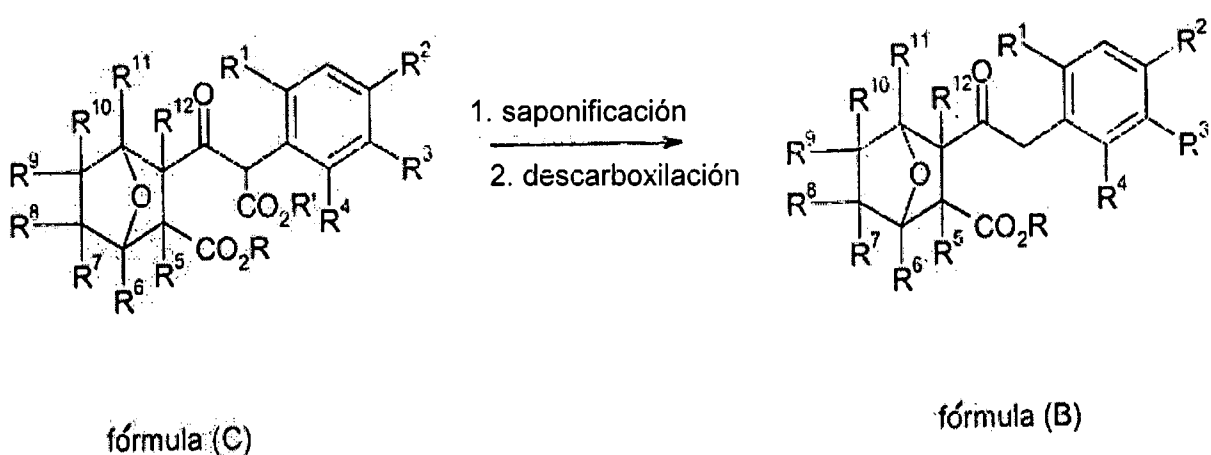
Se puede preparar un compuesto de la fórmula (A) a través de la ciclación de un compuesto de la fórmula (B), donde R es hidrógeno o un grupo alquilo, con preferencia en presencia de un ácido o base, y opcionalmente en presencia de un solvente adecuado, a través de métodos análogos a aquéllos descritos por T. Wheeler, US4209532. Los compuestos de la fórmula (B) se han diseñado particularmente como intermediarios en la síntesis de los compuestos de la fórmula I. Un compuesto de la fórmula (B) donde R es hidrógeno se puede ciclar bajo condiciones acídicas, con preferencia en presencia de un ácido fuerte tal

como ácido sulfúrico, ácido polifosfórico o reactivo de Eaton, opcionalmente en presencia de un solvente adecuado tal como ácido acético, tolueno o diclorometano.



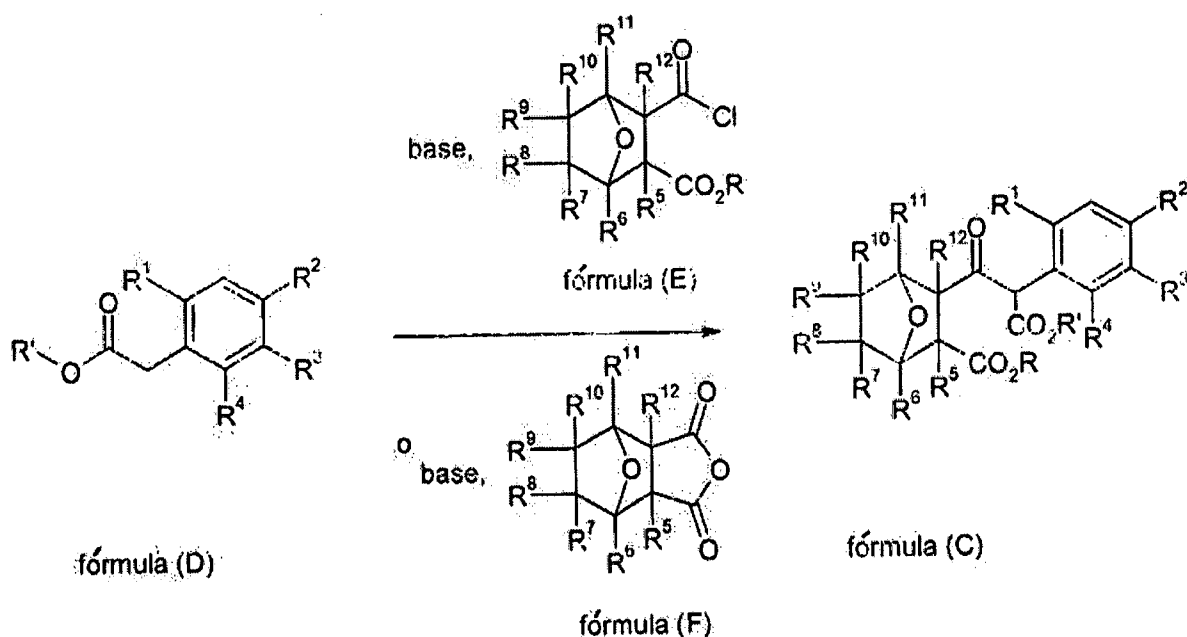
Un compuesto de la fórmula (B) donde R es alquilo (con preferencia metilo o etilo), se puede ciclar bajo condiciones ácidas o básicas, con preferencia en presencia de al menos un equivalente de una base fuerte tal como *tert*-butóxido de potasio, diisopropilamida de litio o hidruro de sodio y en un solvente tal como tetrahidrofurano, tolueno, dimetilsulfóxido o *N,N*-dimetilformamida.

Se puede preparar un compuesto de la fórmula (B), donde R es H, a través de la saponificación de un compuesto de la fórmula (C) donde R' es alquilo (con preferencia metilo o etilo), bajo condiciones standard, seguido por la acidificación de la mezcla de reacción para efectuar la descarboxilación, mediante procesos similares a aquéllos descritos, por ejemplo, por T. Wheeler, US4209532.



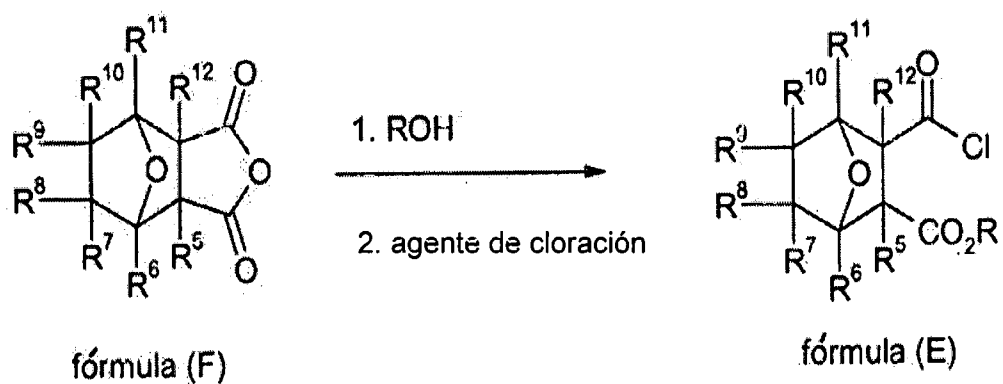
Un compuesto de la fórmula (B), donde R es H, puede ser esterificado a un compuesto de la fórmula (B), donde R es alquilo, bajo condiciones standard, por ejemplo mediante el calentamiento con un alquil alcohol, ROH, en presencia de un catalizador de ácido.

Se puede preparar un compuesto de la fórmula (C), donde R es alquilo, mediante el tratamiento de un compuesto de la fórmula (D) con un cloruro de ácido carboxílico adecuado de la fórmula (E) bajo condiciones básicas. Las bases adecuadas incluyen *tert*-butóxido de potasio, bis(trimetilsilil)amida de sodio y diisopropilamida de litio y la reacción con preferencia se lleva a cabo en un solvente adecuado (tal como tetrahidrofurano o tolueno) a una temperatura de entre -80°C y 30°C . Alternativamente, se puede preparar un compuesto de la fórmula (C), donde R es H, mediante el tratamiento de un compuesto de la fórmula (D) con una base adecuada (tal como *tert*-butóxido de potasio, bis(trimetilsilil)amida de sodio y diisopropilamida de litio) en un solvente adecuado (tal como tetrahidrofurano o tolueno) a una temperatura adecuada (entre -80°C y 30°C) y haciendo reaccionar el anión resultante con un anhídrido adecuado de la fórmula (F):



Los compuestos de la fórmula (D) son compuestos conocidos, o se pueden preparar a partir de compuestos conocidos a través de métodos conocidos.

Se puede preparar un compuesto de la fórmula (E) a partir de un compuesto de la fórmula (F) mediante el tratamiento con un alcohol, $R-OH$, en presencia de una base, tal como dimetilaminopiridina o un alcóxido de metal alcalino (véase, por ejemplo, S. Buser y A. Vasella, *Helv. Chim. Acta*, (2005), 88, 3151; M. Hart *et al.*, *Bioorg. Med. Chem. Letters*, (2004), 14, 1969), seguido por el tratamiento del ácido resultante con un reactivo de cloración tal como cloruro de oxalilo o cloruro de tionilo bajo condiciones conocidas (véase, por ejemplo, C. Santelli-Rouvier, *Tetrahedron Lett.*, (1984), 25 (39), 4371; D. Walba y M. Wand, *Tetrahedron Lett.*, (1982), 23 (48), 4995; J. Cason, *Org. Synth. Coll. Vol. III*, (169), 1955).



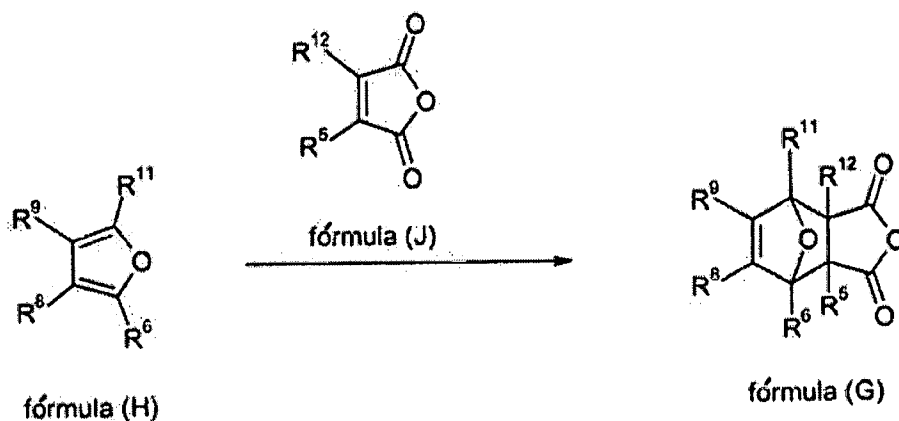
Se puede preparar un compuesto de la fórmula (F) donde R^7 y R^{10} son hidrógeno a través de la reducción de un compuesto de la fórmula (G) bajo condiciones conocidas (véase, por ejemplo, Y. Baba, N. Hirukawa y M. Sodeoka, *Bioorg. Med. Chem.* (2005), 13 (17), 5164, M. Hart *et al.*, *Bioorg. Med. Chem. Letters*, (2004), 14 (18), 1969, Y. Baba, N. Hirukawa, N. Tanohira y M. Sodeoka, *J. Am. Chem. Soc.*, (2003), 125, 9740).



donde R^7 y $R^{10} = H$

Se puede preparar un compuesto de la fórmula (G) haciendo reaccionar un compuesto de la fórmula (H) con un anhídrido de la fórmula (J), opcionalmente en presencia de un catalizador de ácido de Lewis, y de acuerdo con los procedimientos descritos, por ejemplo, por O. Diels y K. Alder, *Liebigs Ann. Chem.*, (1931), 490, 257, K. Potts y E. Walsh, *J. Org. Chem.*, (1984), 49 (21), 4099, J. Jurczak, T. Kozluk, S. Filipek y S. Eugster, *Helv. Chim. Acta*, (1982), 65, 1021, W. Dauben, C. Kessel y K. Takemura, *J. Am. Chem. Soc.*, (1980), 102, 6893, A. Pelter y B. Singaram, *Tetrahedron Lett.*, (1982), 23, 245, M. Lee y C. Herndon, *J. Org. Chem.*, (1978), 43, 518, B. Fisher y J. Hodge, *J. Org. Chem.* (1964), 29, 776, G. D'Alelio, C. Williams y C. Wilson, *J. Org. Chem.*, (1960), 25, 1028, Z. Song, M. Ho y H. Wong, *J. Org. Chem.*, (1994), 59 (14), 3917-3926, W. Tochtermann, S. Bruhn y C. Wolff, *Tetrahedron Lett.*, (1994), 35(8), 1165, W. Dauben, J. Lam y Z. Guo, *J. Org. Chem.*, (1996), 61 (14), 4816, M. Sodeoka, Y. Baba, S. Kobayashi y N. Hirukawa, *Bioorg. Med. Chem. Lett.*, (1997), 7 (14), 1833, M. Avalos, R. Babiano, J. Bravo, P. Cintas, J. Jimenez y J. Palacios, *Tetrahedron Lett.*, (1998), 39(50), 9301, J. Auge, R. Gil, S. Kalsey y N. Lubin-Germain, *Synlett*, (2000), 6, 877, I. Hemeon, C. Deamicis, H. Jenkins, P. Scammells y R. Singer, *Synlett*, (2002), 11, 1815, M. Essers, B. Wibbeling y G. Haufe, *Tetrahedron Lett.*, (2001), 42 (32), 5429, P. Vogel *et al.*, *Tetrahedron Asymmetry*, (1996), 7 (11), 3153, Y. Baba, N. Hirukawa, N. Tanohira y M. Sodeoka, *J. Am. Chem. Soc.*, (2003), 125, 9740, L. Ghosez *et al.*, *Tetrahedron Lett.*, (1988), 29 (36), 4573, H. Kotsuki, S. Kitagawa y H. Nishizawa, *J. Org. Chem.*, (1978), 43 (7), 1471, Y. Li *et al.*, *J. Org. Chem.*, (1997), 62 (23), 7926, M. Drew *et al.*, *J. Chem. Soc. Perkin Trans. 1*, (1985), 1277, R. McDonald y C. Reineke, *J. Org. Chem.*, (1967), 32, 1878, R. Fleming y B. Murray, *J. Org. Chem.*, (1979), 44 (13), 2280, M. Goldstein y G. Thayer Jr. *J. Am. Chem. Soc.*, (1965), 87

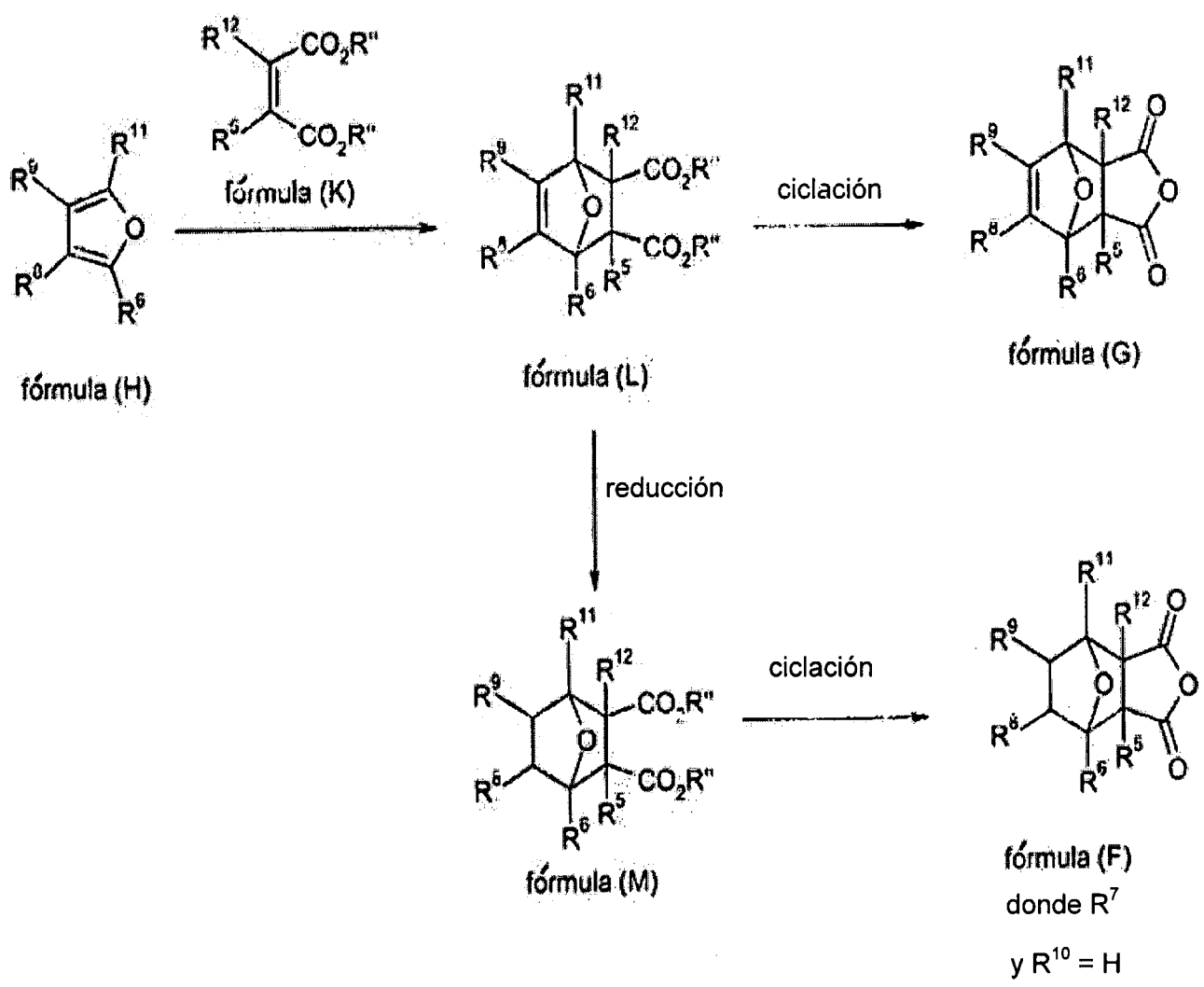
(9), 1925 y G. Keglevich *et al.*, J. Organomet. Chem., (1999), 579, 182, y las referencias en los mismos.



Los compuestos de la fórmula (H) y de la fórmula (J) son compuestos conocidos, o se pueden preparar a partir de compuestos conocidos a través de métodos conocidos.

Los compuestos de la fórmula (G) son alquenos, y como tales experimentan reacciones adicionales típicas de los alquenos para proporcionar los compuestos adicionales de la fórmula (F) de acuerdo con procedimientos conocidos. Los ejemplos de dichas reacciones incluyen, pero no se limitan a, halogenación, epoxidación, ciclopropanación, dihidroxilación, hidroarilación, hidrovilación e hidratación de alquenos. A su vez, los productos a partir de estas reacciones se pueden transformar en los compuestos adicionales de la fórmula (F) a través de los métodos descritos, por ejemplo por J. March, *Advanced Organic Chemistry*, tercera edición, John Wiley and Sons. Los compuestos de la fórmula (G) donde R^8 o R^9 son alcoxi C_1-C_6 son enol éteres, y ellos pueden ser hidrolizados a la correspondiente cetona utilizando procedimientos standard para proporcionar los compuestos adicionales de la fórmula (F). Ciertos compuestos de la fórmula (F), por ejemplo donde R^7 es un halógeno, pueden ser convertidos a los compuestos de la fórmula (G) a través de métodos conocidos.

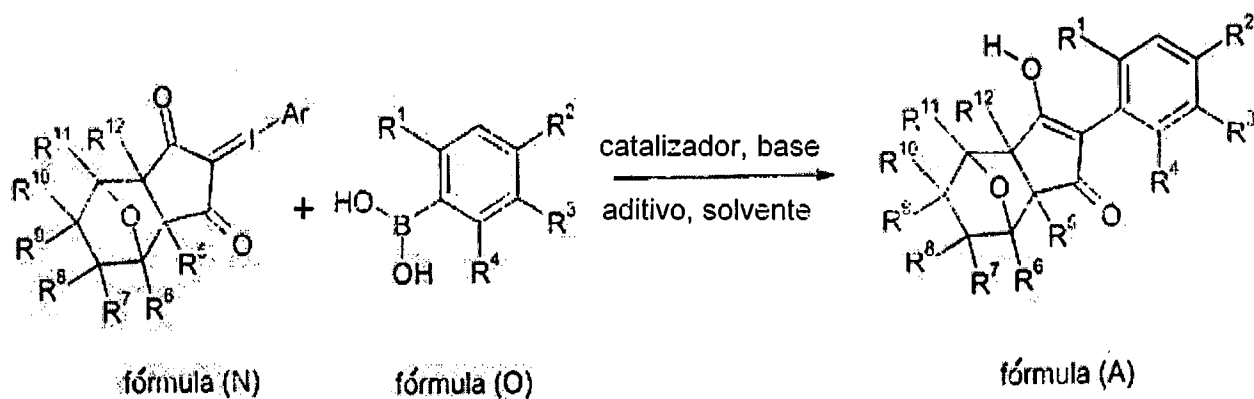
También se puede preparar un compuesto de la fórmula (G) haciendo reaccionar un compuesto de la fórmula (H) con un compuesto de la fórmula (K), donde R'' es hidrógeno o un grupo alquilo, para proporcionar un compuesto de la fórmula (L) y efectuando la ciclación de un compuesto de la fórmula (L) bajo condiciones conocidas (véase, por ejemplo, P. Sprague *et al.*, J. Med. Chem., (1985), 28, 1580, A. Guzaev y M. Manoharan, J. Am. Chem. Soc., (2003), 125, 2380, y A. Marchand y R. Allen, J. Org. Chem., (1975), 40 (17), 2551.



Un compuesto de la fórmula (L) también se puede reducir a un compuesto de la fórmula (M), y un compuesto de la fórmula (M) ciclar a un compuesto de la fórmula (F) donde R^7 y R^{10} son hidrógeno, bajo condiciones similares a aquéllas descriptas previamente.

Los compuestos de la fórmula (K) son compuestos conocidos, o se pueden preparar a partir de compuestos conocidos a través de métodos conocidos.

Los compuestos adicionales de la fórmula (A) se pueden preparar haciendo reaccionar un iluro de yodonio de la fórmula (N), donde Ar es un grupo fenilo opcionalmente sustituido, y un ácido aril borónico de la fórmula (O), en presencia de un catalizador de paladio adecuado, una base y en un solvente adecuado.



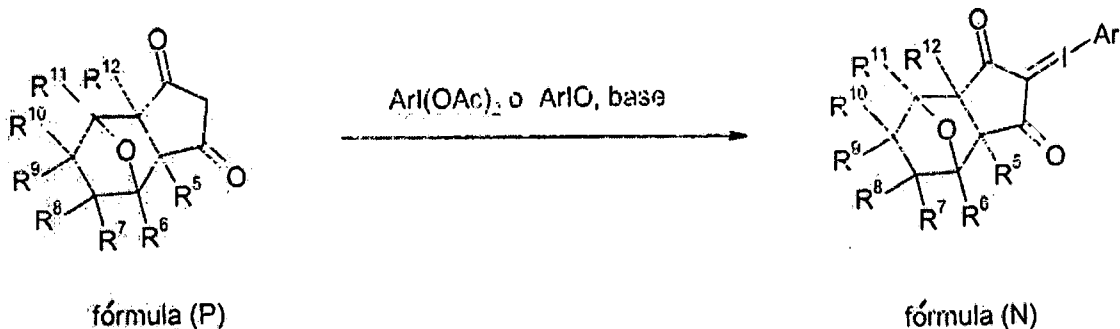
Los catalizadores de paladio adecuados son generalmente complejos de paladio (II) o paladio (0), por ejemplo dihaluros de paladio (II), acetato de paladio (II), sulfato de paladio (II), dicloruro de bis(trifenilfosfin)-paladio (II), dicloruro de bis(triciclopentilfosfin)paladio (II), dicloruro de bis(triciclohexil-fosfin)paladio (II), bis(dibencilidenacetona)paladio (0) o tetrakis-(trifenilfosfin)paladio (0). El catalizador de paladio también se puede preparar "*in situ*" a partir de compuestos

de paladio (II) o paladio (0) al acomplejarlos con los ligandos deseados, por ejemplo, combinando la sal de paladio (II) a ser acomplejada, por ejemplo dicloruro de paladio (II) (PdCl_2) o acetato de paladio (II) ($\text{Pd}(\text{OAc})_2$), conjuntamente con el ligando deseado, por ejemplo trifenilfosfina (PPh_3), triciclopentilfosfina, triciclohexilfosfina, 2-diciclohexilfosfin-2',6'-dimetoxibifenilo o 2-diciclohexilfosfin-2',4',6'-triisopropilbifenilo y el solvente seleccionado, con un compuesto de la fórmula (N), el ácido arilborónico de la fórmula (O), y una base. Son también adecuados los ligandos bidentados, por ejemplo 1,1'-bis(difenilfosfin)ferroceno o 1,2-bis(difenilfosfin)etano. Mediante el calentamiento del medio de reacción, se forma de este modo "*in situ*" el complejo de paladio (II) o el complejo de paladio (0) deseado para la reacción de acoplamiento C-C, y luego se inicia la reacción de acoplamiento C-C.

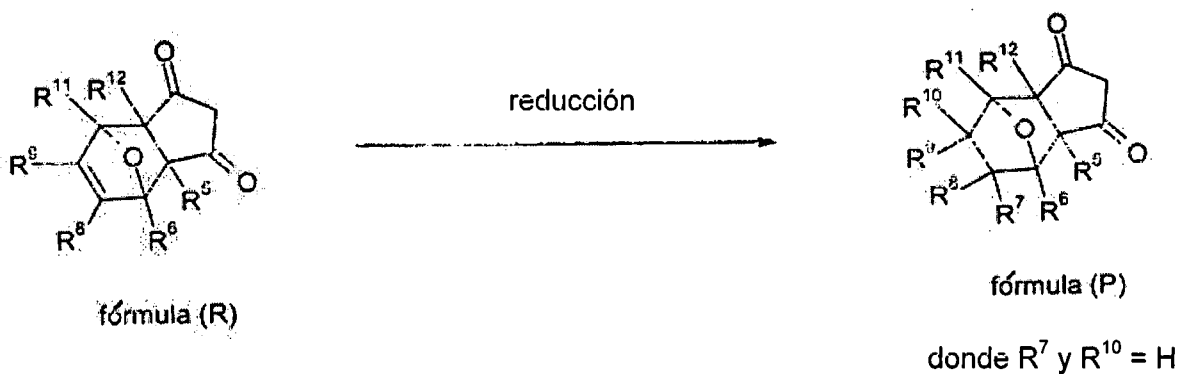
Los catalizadores de paladio se utilizan en una cantidad de desde 0,001 hasta 50% en mol, con preferencia en una cantidad de desde 0,1 hasta 15% en mol, en base al compuesto de la fórmula (N). La reacción también se puede llevar a cabo en presencia de otros aditivos, tales como sales de tetralquilamonio, por ejemplo, bromuro de tetrabutilamonio. Con preferencia el catalizador de paladio es acetato de paladio, la base es hidróxido de litio y el solvente es 1,2-dimetoxietano acuoso.

Se puede preparar un compuesto de la fórmula (N) a partir de un compuesto de la fórmula (P) mediante el tratamiento con un reactivo de yodo hipervalente tal como un (diacetoxi)yodobenceno o un yodosilbenceno y una base tal como carbonato de sodio, hidróxido de litio o hidróxido de sodio acuoso en un solvente tal como agua o un alcohol acuoso tal como etanol acuoso de acuerdo con los procedimientos de K. Schank y C. Lick, *Synthesis*, (1983), 392, R. M. Moriarty *et*

al., J. Am. Chem. Soc, (1985), 107, 1375, o de Z. Yang *et al.*, Org. Lett., (2002), 4 (19), 3333.



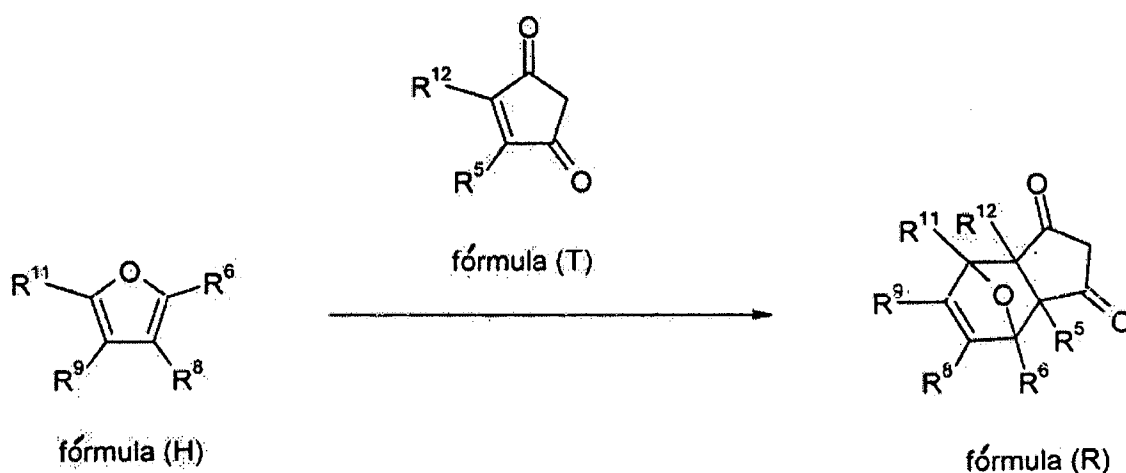
Se puede preparar un compuesto de la fórmula (P) donde R^7 y R^{10} son hidrógeno mediante la reducción de un compuesto de la fórmula (Q) bajo condiciones conocidas.



Los compuestos de la fórmula (R) son alquenos, y como tales experimentan reacciones adicionales típicas de los alquenos para proporcionar los compuestos adicionales de la fórmula (P) de acuerdo con procedimientos conocidos. Los ejemplos de dichas reacciones incluyen, pero no se limitan a, halogenación, epoxidación, ciclopropanación, dihidroxilación, hidroarilación, hidrovilación e hidratación de alquenos. A su vez, los productos a partir de estas reacciones se pueden transformar en los compuestos adicionales de la fórmula (P) a través de

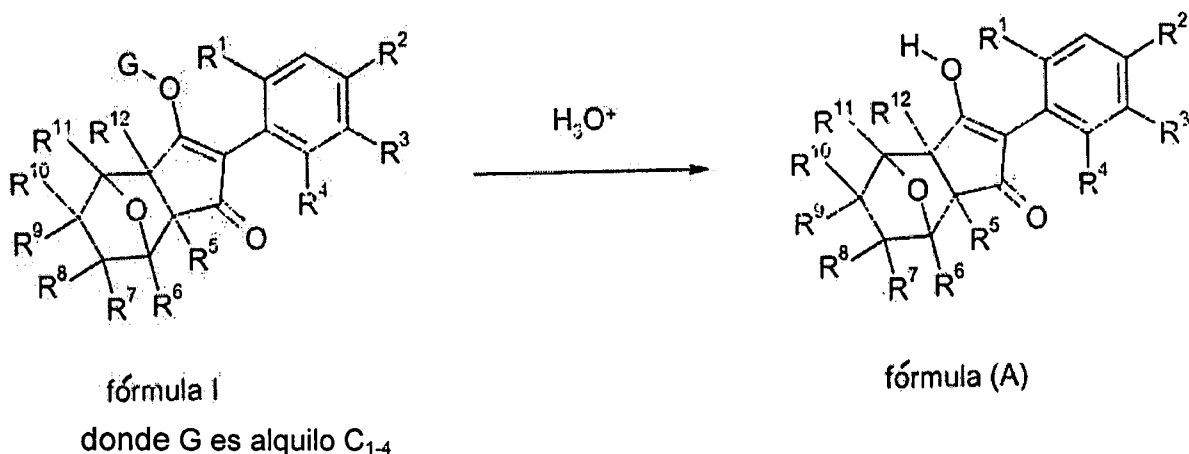
los métodos descriptos, por ejemplo por J. March, *Advanced Organic Chemistry*, tercera edición, John Wiley and Sons. Los compuestos de la fórmula (R) donde R^8 o R^9 son alcoxi C_1-C_6 son enol éteres, y ellos pueden ser hidrolizados a la correspondiente cetona utilizando procedimientos standard. A su vez, la cetona además se puede transformar, por ejemplo a través de cetalización, oximación, reducción y similares bajo condiciones conocidas para proporcionar los compuestos adicionales de la fórmula (P).

Se puede preparar un compuesto de la fórmula (R) haciendo reaccionar un compuesto de la fórmula (S) con una ciclopentenodiona de la fórmula (T), opcionalmente en presencia de un catalizador de ácido de Lewis, de acuerdo con los procedimientos descriptos, por ejemplo por B. Zwanenburg *et al.*, *Tetrahedron* (1989), 45 (22), 7109 y por M. Oda *et al.*, *Chem. Lett.*, (1977), 307.

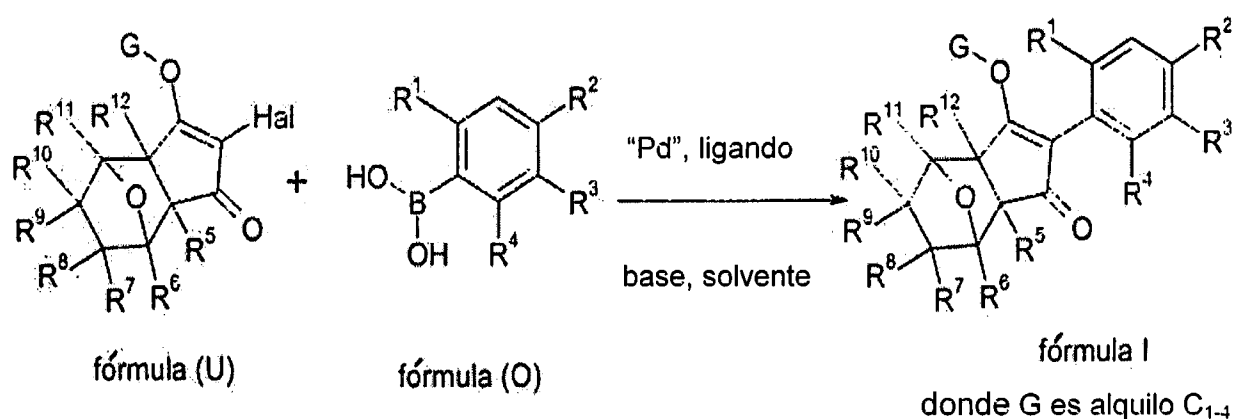


Los compuestos de la fórmula (H) y de la fórmula (T) son compuestos conocidos o se pueden elaborar a partir de compuestos conocidos a través de métodos conocidos.

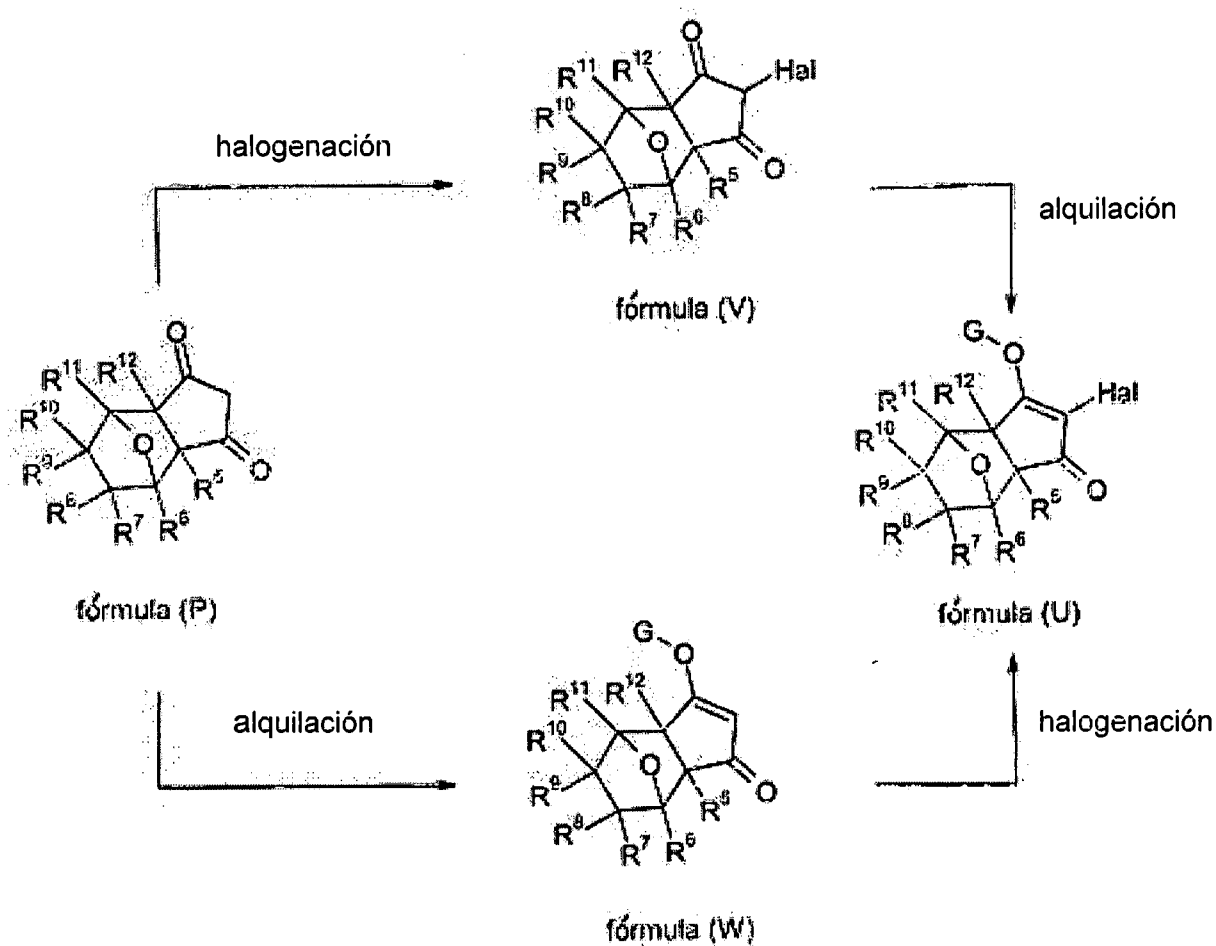
En una aproximación adicional, se puede preparar un compuesto de la fórmula (A) a partir de un compuesto de la fórmula I, donde G es alquilo C_{1-4} , a través de hidrólisis, con preferencia en presencia de un catalizador de ácido tal como ácido clorhídrico y opcionalmente en presencia de un solvente adecuado tal como tetrahidrofurano, acetona o 4-metilpentan-2-ona.



Se puede preparar un compuesto de la fórmula I donde G es alquilo C_{1-4} , a partir de un compuesto de la fórmula (U), donde G es alquilo C_{1-4} , y Hal es un halógeno (con preferencia bromo o yodo), a través del acoplamiento con un ácido aril borónico de la fórmula (O), en presencia de un catalizador de paladio adecuado y una base y con preferencia en presencia de un ligando adecuado, y en un solvente adecuado. Con preferencia el catalizador de paladio es acetato de paladio, la base es fosfato de potasio, el ligando es 2-diciclohexilfosfin-2',6'-dimetoxibifenilo y el solvente es tolueno.

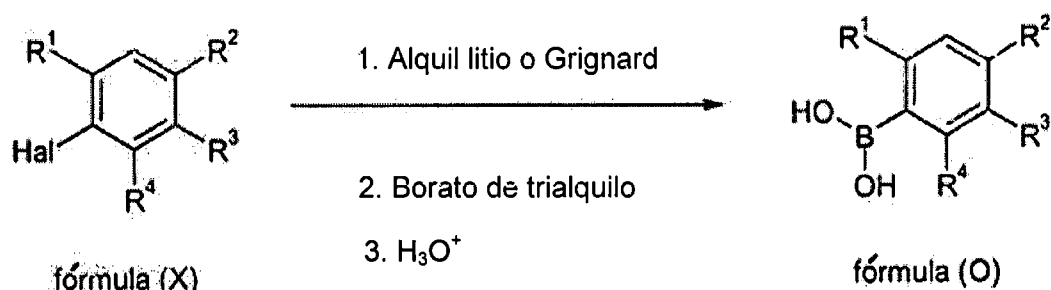


Se puede preparar un compuesto de la fórmula (U) mediante la halogenación de un compuesto de la fórmula (P), seguida por la reacción del haluro resultante de la fórmula (V) con un haluro de alquilo C₁₋₄ u ortoformiato de trialquilo C₁₋₄ bajo condiciones conocidas (por ejemplo a través de los procedimientos de R. Shepherd y A. White, J. Chem. Soc. Perkin Trans. 1 (1987), 2153, y Y.-L. Lin *et al.*, Bioorg. Med. Chem. (2002), 10, 685). Alternativamente, se puede preparar un compuesto de la fórmula (U) mediante la reacción de un compuesto de la fórmula (P) con un haluro de alquilo C₁₋₄ o un ortoformiato de trialquilo C₁₋₄, y la halogenación de la enona resultante de la fórmula (W) bajo condiciones conocidas.



Se puede preparar un compuesto de la fórmula (O) a partir de un haluro de arilo de la fórmula (X), donde Hal es bromo o yodo, a través de métodos conocidos (véase, por ejemplo, W. Thompson y J. Gaudino, *J. Org. Chem.*, (1984), 49, 5237 y R. Hawkins *et al.*, *J. Am. Chem. Soc.*, (1960), 82, 3053). Por ejemplo, un haluro de arilo de la fórmula (X) se puede tratar con un haluro de alquil litio o alquil magnesio en un solvente adecuado, con preferencia dietil éter o tetrahidrofurano, a una temperatura de entre -80°C y 30°C , y luego el reactivo de aril magnesio o aril litio obtenido se puede hacer reaccionar con un borato de trialquilo (con preferencia borato de trimetilo) para proporcionar un

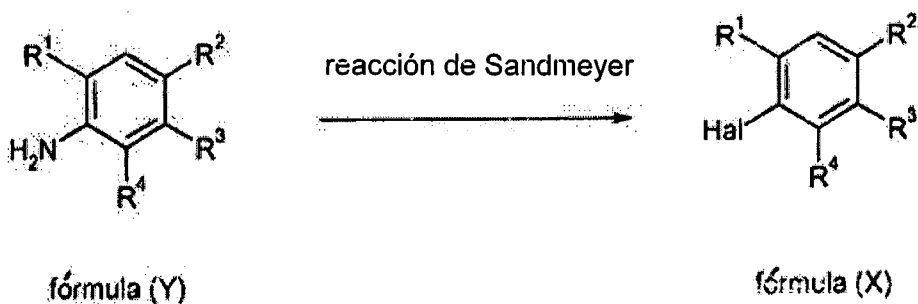
dialquilboronato de arilo el cual se puede hidrolizar para proporcionar un ácido borónico de la fórmula (O) bajo condiciones ácidas.



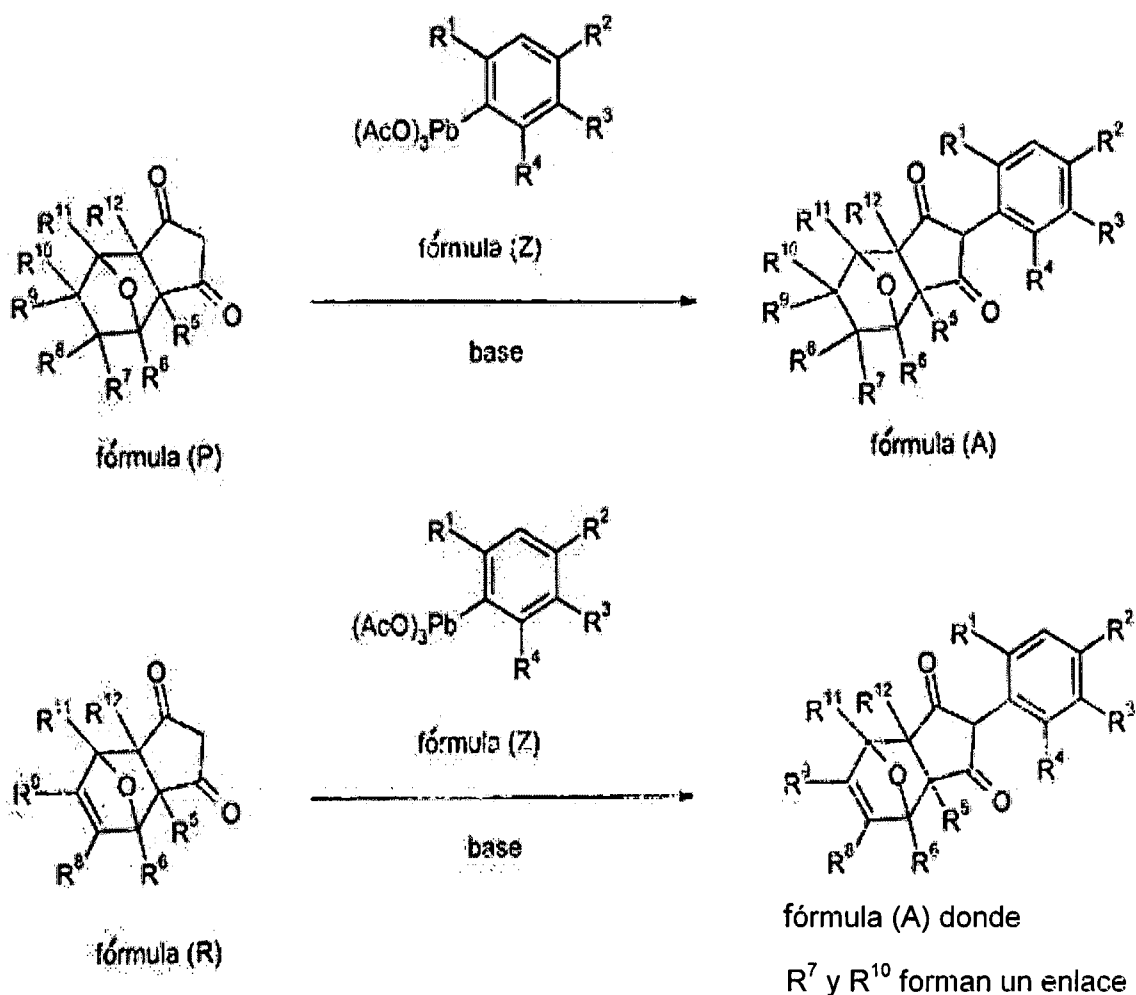
Alternativamente se puede hacer reaccionar un compuesto de la fórmula (X) con un boronato éster cíclico derivado de un 1,2- o de un 1,3-alcanodiol tal como pinacol, 2,2-dimetil-1,3-propanodiol y 2-metil-2,4-pentanodiol) bajo condiciones conocidas (véase, por ejemplo, N. Miyaura *et al.*, J. Org. Chem., (1995), 60, 7508, y W. Zhu and D. Ma, Org. Lett., (2006), 8 (2), 261), y el boronato éster resultante se puede hidrolizar bajo condiciones ácidas para proporcionar un ácido borónico de la fórmula (O).

Se puede preparar un haluro de arilo de la fórmula (X) a partir de una anilina de la fórmula (Y) a través de métodos conocidos, por ejemplo la reacción de Sandmeyer, a través de las correspondientes sales de diazonio.

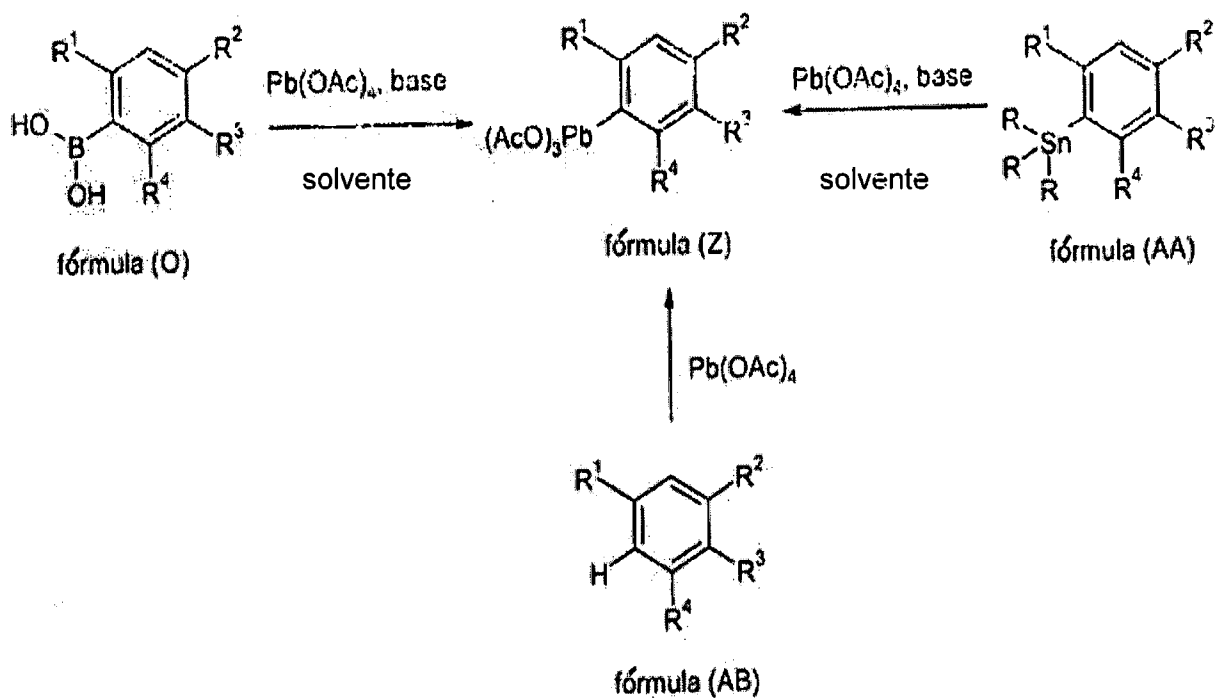
Las anilinas de la fórmula (Y) son compuestos conocidos, o se pueden elaborar a partir de compuestos conocidos, a través de métodos conocidos.



Se pueden preparar compuestos adicionales de la fórmula (A) haciendo reaccionar un compuesto de la fórmula (P), o un compuesto de la fórmula (R) con un reactivo de organoplomo de la fórmula (Z) bajo las condiciones descritas, por ejemplo, por J. Pinhey, *Pure and Appl. Chem.*, (1996), 68 (4), 819 y por M. Moloney *et al.*, *Tetrahedron Lett.*, (2002), 43, 3407.

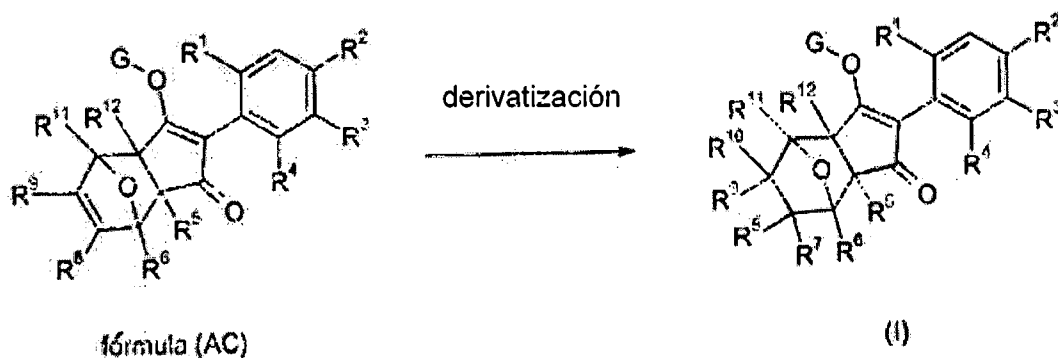


El reactivo de organoplomo de la fórmula (Z) se puede preparar a partir de un ácido borónico de la fórmula (O), un estannano de la fórmula (AA), donde R es alquilo C₁-C₄ o mediante el plumbado (plumbation) directo de un compuesto de la fórmula (AB) con tetraacetato de plomo de acuerdo con procedimientos conocidos.



Se pueden preparar compuestos adicionales de la fórmula (A) haciendo reaccionar un compuesto de la fórmula (P) o un compuesto de la fórmula (R) con un compuesto de triarilbismuto adecuado bajo las condiciones descriptas, por ejemplo, por A. Yu. Fedorov *et al.*, Russ. Chem. Bull. Int. Ed., (2005), 54 (11), 2602, y por P. Koech y M. Krische, J. Am. Chem. Soc., (2004), 126 (17), 5350 y las referencias en los mismos.

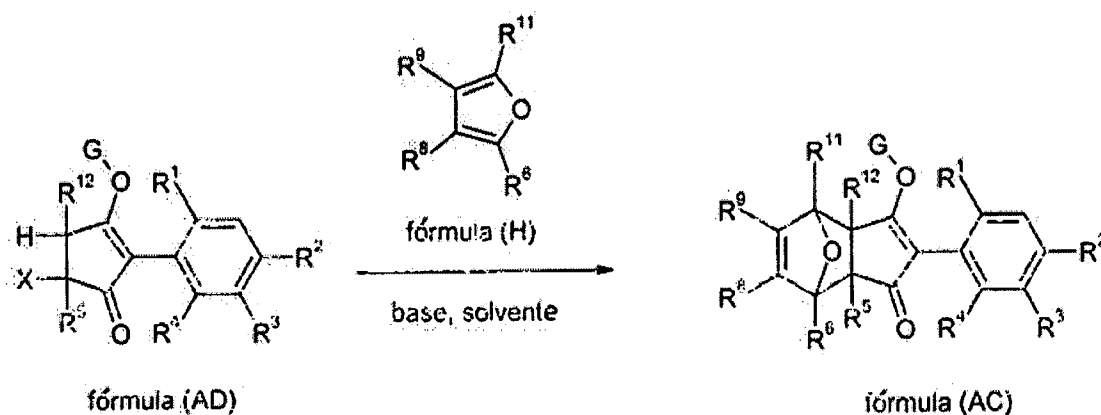
En una aproximación adicional, se puede preparar un compuesto de la fórmula I a partir de un compuesto de la fórmula (AC) mediante derivatización adecuada bajo condiciones standard.



Por ejemplo, los compuestos de la fórmula (AC) son alquenos, y como tales experimentan reacciones adicionales típicas de los alquenos para proporcionar los compuestos de la fórmula I de acuerdo con procedimientos conocidos. Los ejemplos de dichas reacciones incluyen, pero no se limitan a, reducción, halogenación, epoxidación, ciclopropanación, dihidroxilación, hidroarilación, hidrovinilación e hidratación. Los compuestos de la fórmula (AC) donde R^8 o R^9 es bromo o yodo son haluros de vinilo, y experimentan reacciones de haluros de vinilo conocidas tales como las reacciones de Suzuki-Miyaura, Sonogashira, Stille y reacciones relacionadas. Ciertos otros compuestos de la fórmula (AC), donde R^8 o R^9 es alcoxi C_1-C_6 , son enol éteres, y éstos se pueden hidrolizar a la correspondiente cetona utilizando procedimientos standard. A su vez, la cetona producida se puede transformar además, por ejemplo mediante cetalización, oximación, reducción y similares bajo condiciones conocidas para proporcionar los compuestos adicionales de la fórmula I. De modo similar, los compuestos de la fórmula (AC) donde R^8 o R^9 es amino C_1-C_6 o diamino C_1-C_6 son enaminas, y éstos también se pueden hidrolizar a la correspondiente cetona utilizando procedimientos standard.

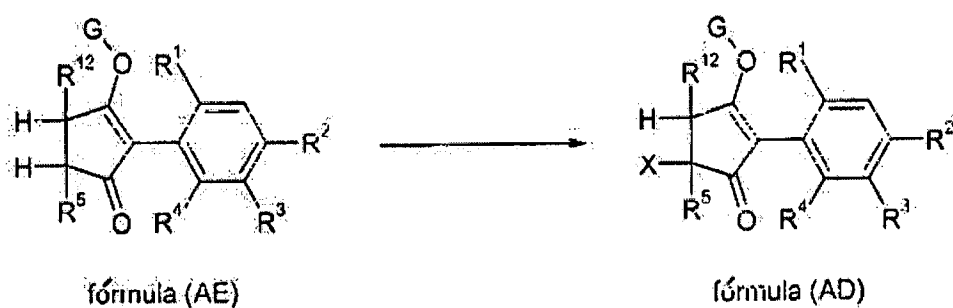
Se puede preparar un compuesto de la fórmula (AC), donde G es alquilo C_1-C_4 , a partir de un compuesto de la fórmula (AD), donde G es alquilo C_1-C_4 y X es

halógeno u otro grupo de partida adecuado (tal como un alquil o arilsulfonato, o un arilselenóxido), mediante la reacción con un compuesto de la fórmula (H), opcionalmente en un solvente adecuado, y opcionalmente en presencia de una base adecuada.



Los solventes adecuados incluyen tolueno, diclorometano y cloroformo y las bases adecuadas incluyen bases orgánicas tales como trietilamina, base de Hunig y 1,8-diazabicyclo[5.4.0]undec-7-eno. Con preferencia el solvente es tolueno y la base es 1,8-diazabicyclo[5.4.0]undec-7-eno.

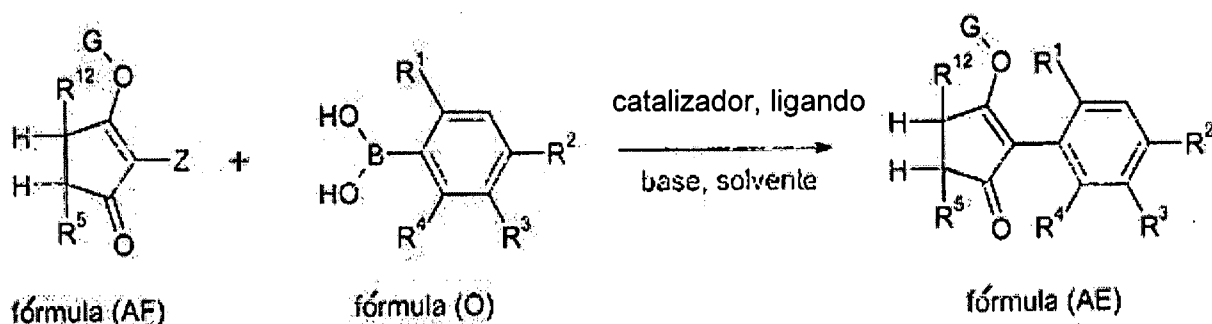
Se puede preparar un compuesto de la fórmula (AD) a partir de un compuesto de la fórmula (AE), bajo condiciones conocidas.



Por ejemplo, se puede preparar un compuesto de la fórmula (AD) donde X es cloro haciendo reaccionar un compuesto de la fórmula (AE) con cloruro de cobre (II) y cloruro de litio de acuerdo con el procedimiento de E. Kosower *et al.*, J. Org. Chem., (1963), 28, 630.

Los compuestos de la fórmula (AE) son compuestos conocidos o se pueden elaborar a partir de compuestos conocidos a través de métodos conocidos (véase, por ejemplo, Y. Song, B. Kim y J-N Heo, Tetrahedron Lett., (2005), 46, 5977). Alternativamente, se puede preparar un compuesto de la fórmula (AE) donde G es alquilo C₁-C₄ a partir de un compuesto de la fórmula (AE), donde G es hidrógeno, por ejemplo mediante la reacción con un haluro de alquilo C₁₋₄ o un ortoformiato de trialquilo C₁₋₄. Los compuestos de la fórmula (AE), donde G es hidrógeno, son conocidos, o se pueden preparar a partir de compuestos conocidos a través de métodos conocidos (véase, por ejemplo, T. Wheeler, US4338122, US4283348, J. T. Kuethe *et al.*, J. Org. Chem., (2002), 67, 5993, S. Buchwald *et al.*, J. Am. Chem. Soc., (2003), 125, 11818).

Alternativamente, se puede preparar un compuesto de la fórmula (AE), donde G es alquilo C₁₋₄, haciendo reaccionar un compuesto de la fórmula (AF), donde G es alquilo C₁₋₄ y Z es un halógeno, con preferencia bromo o yodo, con un ácido borónico de la fórmula (O) en presencia de un catalizador metálico adecuado, una base adecuada, y opcionalmente un ligando adecuado, en un solvente adecuado.

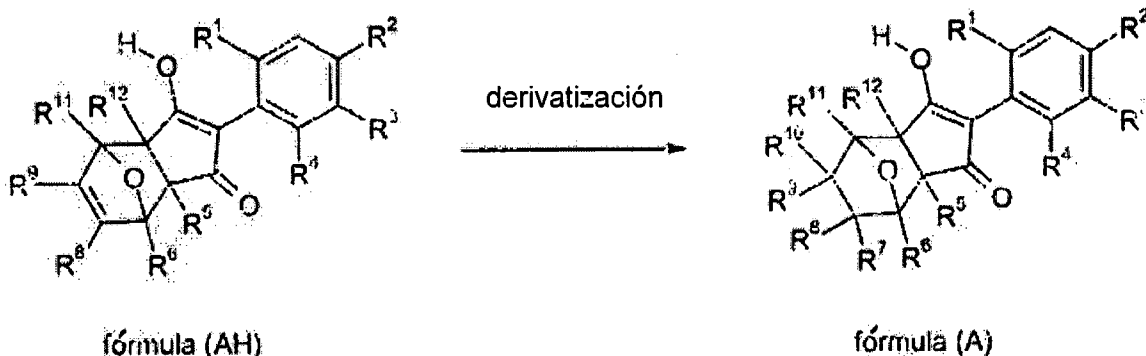


Los solventes adecuados incluyen tolueno y *n*-butanol, las bases adecuadas incluyen bases inorgánicas tales como fosfato de potasio, un catalizador metálico adecuado es un catalizador de paladio, por ejemplo en forma de acetato de paladio (II), y los ligandos adecuados incluyen fosfinas sustituidas, por ejemplo 2-diciclohexilfosfin-2',6'-dimetoxibifenilo.

Los compuestos de la fórmula (AF) son compuestos conocidos, o se pueden preparar a través de métodos conocidos en la técnica. Por ejemplo se puede preparar un compuesto de la fórmula (AF) donde G es alquilo C₁₋₄ y Z es un átomo de bromo haciendo reaccionar un compuesto de la fórmula (AG), donde G es alquilo C₁₋₄, con un agente de bromación adecuado, tal como *N*-bromosuccinimida, en un solvente adecuado, tal como 1,2-dicloroetano, según se describe por R. Shepherd y A. White, J. Chem. Soc. Perkin Trans. 1 (1987), 10, 2153.



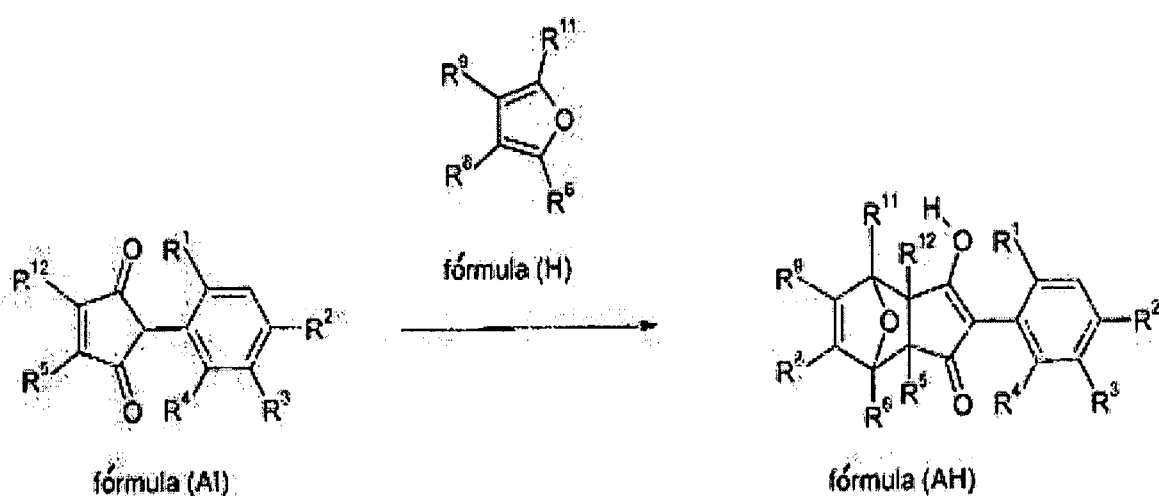
De modo similar, se puede preparar un compuesto de la fórmula (A) a partir de un compuesto de la fórmula (AH) mediante derivatización adecuada bajo condiciones standard.



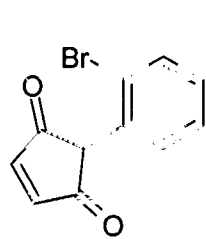
Por ejemplo, los compuestos de la fórmula (AH) son alquenos, y como tales experimentan reacciones adicionales típicas de los alquenos para proporcionar los compuestos de la fórmula (A) de acuerdo con procedimientos conocidos. Los ejemplos de dichas reacciones incluyen, pero no se limitan a, reducción, halogenación, epoxidación, ciclopropanación, dihidroxilación, hidroarilación, hidrovinilación e hidratación. Los compuestos de la fórmula (AH) donde R⁸ o R⁹ es bromo o yodo son haluros de vinilo, y experimentan reacciones de haluros de vinilo conocidas tales como las reacciones de Suzuki-Miyaura, Sonogashira, Stille y reacciones relacionadas. Ciertos otros compuestos de la fórmula (AH), donde R⁸ o R⁹ es alcoxi C₁-C₆, son enol éteres, y éstos se pueden hidrolizar a la correspondiente cetona utilizando procedimientos standard. A su vez, la cetona producida se puede transformar además, por ejemplo mediante cetalización, oximación, reducción y similares bajo condiciones conocidas para proporcionar los compuestos adicionales de la fórmula (A). De modo similar, los compuestos de la fórmula (AH) donde R⁸ o R⁹ es amino C₁-C₆ o diamino C₁-C₆ son enaminas,

y éstos también se pueden hidrolizar a la correspondiente cetona utilizando procedimientos standard.

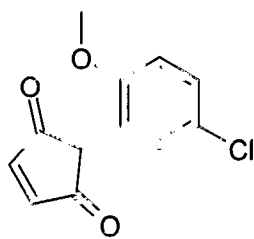
Se puede preparar un compuesto de la fórmula (AH) a partir de un compuesto de la fórmula (AI) mediante la reacción con un compuesto de la fórmula (H), opcionalmente en un solvente adecuado, y opcionalmente en presencia de un catalizador adecuado. Los compuestos de la fórmula (AI) se han diseñado particularmente como intermediarios en la síntesis de los compuestos de la fórmula I.



Los compuestos de la fórmula (AI) que tienen las fórmulas específicas



y



números

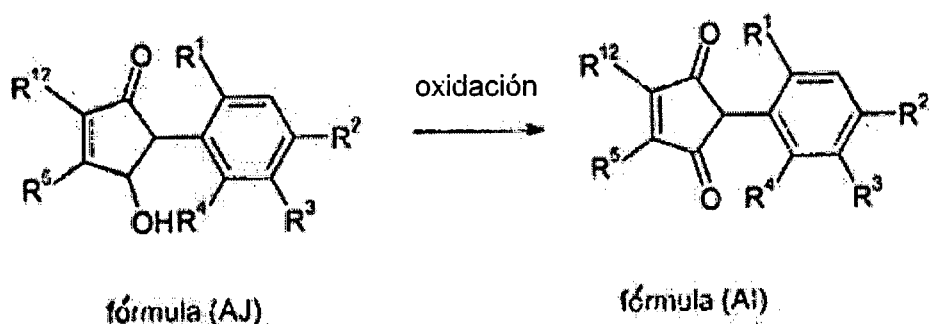
son conocidos bajo los

de registro CAS 299968-82-4 y 528833-96-7, respectivamente.

Con preferencia el catalizador es un catalizador de ácido de Lewis tal como cloruro de aluminio, cloruro de bismuto (III), trifluormetansulfonato de bismuto (III), trifluoruro de boro, cloruro de cerio (III), trifluormetansulfonato de cobre (I), cloruro de dietilaluminio, cloruro de hafnio (IV), cloruro de hierro (III), perclorato de litio, trifluormetansulfonato de litio, bromuro de magnesio, yoduro de magnesio, trifluormetansulfonato de escandio (III), cloruro de estaño (IV), cloruro de titanio (IV), isopropóxido de titanio (IV), trimetil aluminio, *N*-trimetilsilil-bis(trifluormetansulfonil)imida, trifluormetan-sulfonato de trimetilsililo, trifluormetansulfonato de iterbio (III), yoduro de zinc y cloruro de zirconio (IV). Se prefiere particularmente el yoduro de magnesio. Los solventes adecuados incluyen aquéllos que son conocidos por ser solventes efectivos para llevar a cabo reacciones de Diels-Alder, entre ellos, por ejemplo, cloroformo, diclorometano, dietil éter, etanol, metanol, alcanos perfluorados, tales como perfluorhexano, tolueno, agua, y líquidos iónicos tales como tetrafluorborato de 1-butil-3-metilimidazolio y hexafluorofosfato de 1-butil-3-metilimidazolio. Se prefiere particularmente como solvente el diclorometano.

Se puede preparar un compuesto de la fórmula (AI), mediante la oxidación de un compuesto de la fórmula (AJ) en un solvente adecuado tal como tolueno, acetona, cloroformo, diclorometano o 1,4-dioxano. Un amplio rango de oxidantes son adecuados para llevar a cabo esta transformación, que incluyen oxidantes inorgánicos tales como trióxido de cromo, dicromato de piridinio, dióxido de manganeso y alcóxidos de aluminio tales como isopropóxido de aluminio, así como también oxidantes orgánicos tales como 2,3-dicloro-5,6-diciano-*p*-benzoquinona y oxidantes de yodo hipervalente tales como 1,1,1,-tris(acetiloxi)-1,1-dihidro-1,2-benziodoxol-3-(1H)-ona (periodinano de Dess-Martin). Los procedimientos adecuados se describen, por ejemplo, por K. Saito y H.

Yamachika, US4371711. y por G. Piancatelli *et al.*, Tetrahedron (1978), 34, 2775. Se prefiere el uso de trióxido de cromo en una mezcla de ácido sulfúrico y acetona (reactivo de Jones).



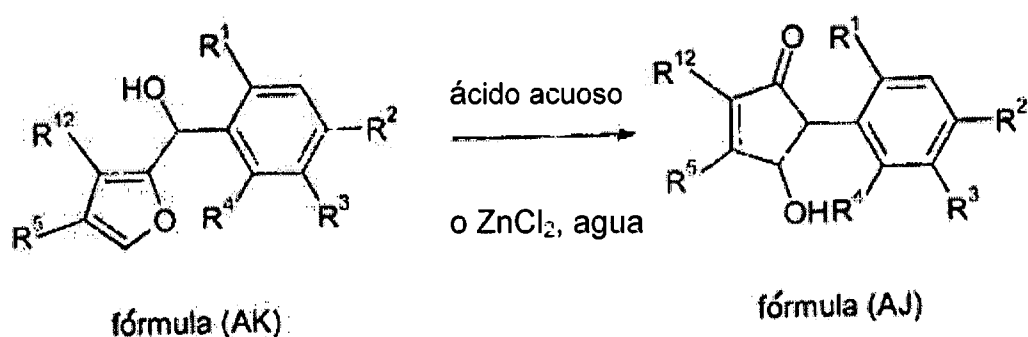
Los compuestos de la fórmula AI se han diseñado particularmente como intermediarios para la síntesis de los compuestos de la fórmula I.

Los compuestos de la fórmula AI particularmente útiles son aquéllos, donde R^5 y R^{12} son hidrógeno.

En otro grupo de compuestos útiles de la fórmula I, R^1 , R^2 y R^4 son independientemente entre sí metilo o etilo.

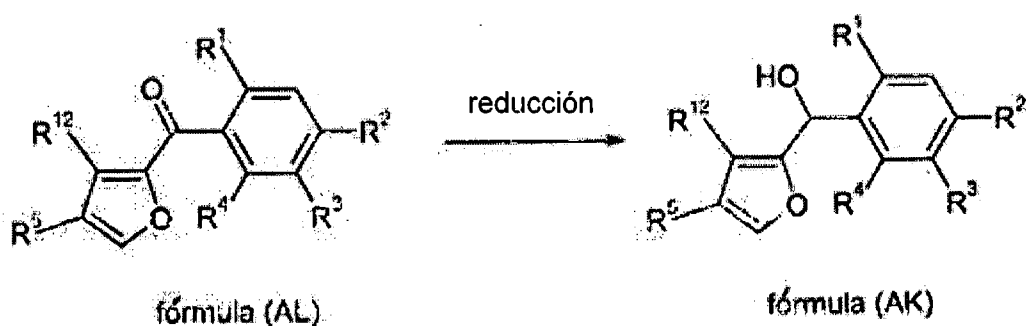
En otro grupo de compuestos útiles de la fórmula I, R^1 , R^2 y R^4 son independientemente entre sí metilo o etilo, y R^3 , R^5 y R^{12} son hidrógeno.

Se puede preparar un compuesto de la fórmula (AJ) a partir de un compuesto de la fórmula (AK) mediante el tratamiento con un catalizador de ácido adecuado en presencia de agua y opcionalmente en presencia de un solvente adecuado, de acuerdo con procedimientos conocidos.



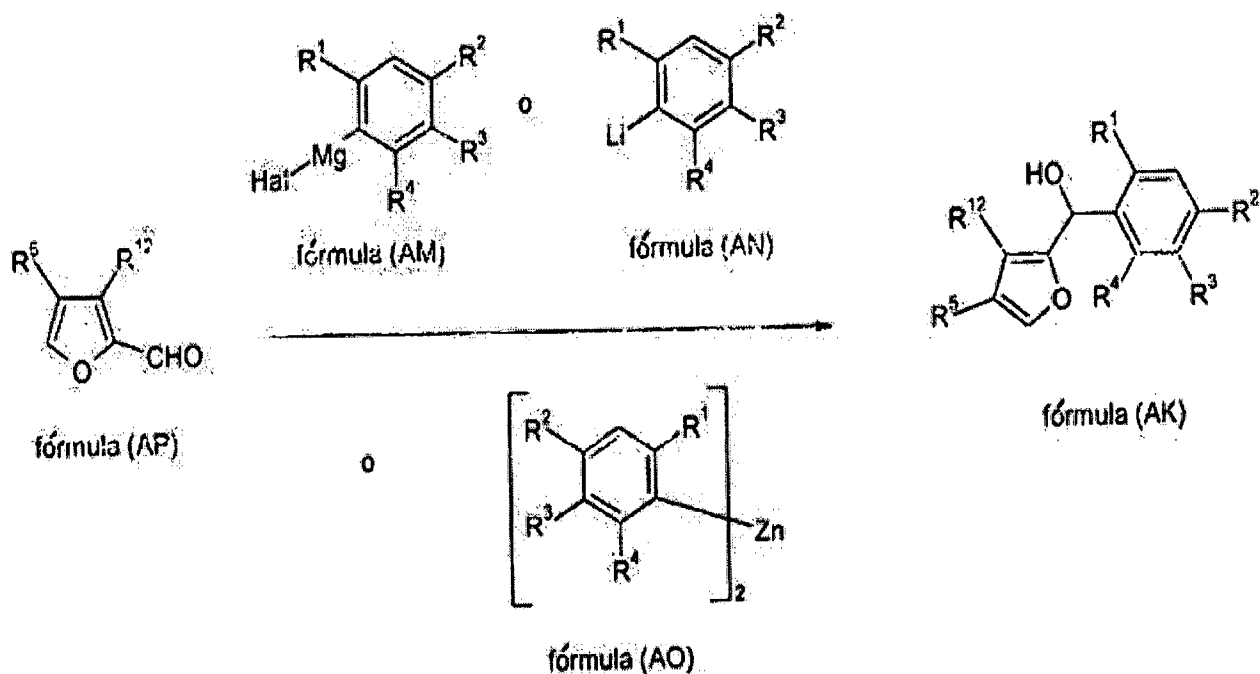
Por ejemplo, un compuesto de la fórmula (AK) se puede convertir a un compuesto de la fórmula (AJ) en presencia de una solución acuosa de un ácido tal como ácido fosfórico o ácido polifosfórico según se describe, por ejemplo por K. Saito y H. Yamachika, US4371711. Alternativamente se puede preparar un compuesto de la fórmula (AJ) a partir de un compuesto de la fórmula (AK) mediante redistribución en presencia de un catalizador de ácido de Lewis tal como cloruro de zinc de acuerdo con el procedimiento de G. Piancatelli *et al.*, Tetrahedron, (1978), 34, 2775.

Se puede preparar un compuesto de la fórmula (AK) mediante la reducción de un compuesto de la fórmula (AL) a través de condiciones conocidas (véase, por ejemplo R Silvestri *et al.*, J. Med. Chem., 2005, 48, 4378-4388).

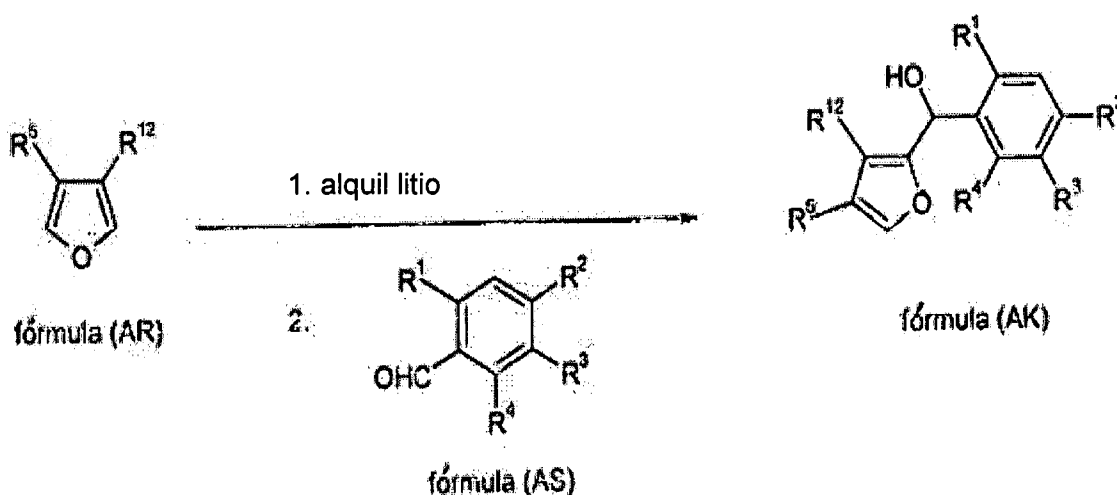


Los compuestos de la fórmula (AL) son conocidos, o se pueden elaborar a través de métodos conocidos a partir de compuestos conocidos (véase, por ejemplo, L. Liebeskind *et al.*, *Org. Lett.*, (2003), 5 (17), 3033-3035, H. Firouzabadi, N. Iranpoor y F. Nowrouzi, *Tetrahedron*, (2004), 60,10843, R. Silvestri *et al.*, *J. Med. Chem.*, (2005), 48, 4378 y las referencias en los mismos).

Alternativamente se puede preparar un compuesto de la fórmula (AK) mediante la adición de un reactivo organometálico adecuado tal como un haluro de arilmagnesio de la fórmula (AM) donde Hal es un haluro tal como cloruro, bromuro o yoduro, o un reactivo de arillitio de la fórmula (AN) o un reactivo de diarilzinc de la fórmula (AO) a un furan-2-carboxaldehído de la fórmula (AP) de acuerdo con procedimientos conocidos (véase, por ejemplo G. Panda *et al.*, *Tetrahedron Lett.*, (2005), 46, 3097).



Se pueden preparar compuestos adicionales de la fórmula (AK) a partir de los compuestos de la fórmula (AR) mediante la reacción con una base fuerte, por ejemplo un reactivo de alquil litio tal como *n*-butillitio, opcionalmente en presencia de un aditivo tal como tetrametiletilendiamina, y en un solvente adecuado tal como dietil éter o tetrahidrofurano, seguida por la reacción con un benzaldehído de la fórmula (AS) según se describe, por ejemplo por I. Gupta y M. Ravikanth, J. Org. Chem., (2004), 69, 6796, A. M. Echavarren *et al.*, J. Am. Chem. Soc., (2003), 125 (19), 5757, y por T. K. Chandrashekar *et al.*, J. Org. Chem., (2002), 67, 6309-6319.



Los reactivos organometálicos de la fórmula (AM), de la fórmula (AN) y de la fórmula (AO) son compuestos conocidos o se pueden elaborar a través de métodos conocidos a partir de compuestos conocidos. Los compuestos de la fórmula (AP), de la fórmula (AR) y de la fórmula (AS) son compuestos conocidos, o se pueden preparar a partir de compuestos conocidos a través de métodos conocidos.

Los compuestos de la fórmula I de acuerdo con la invención se pueden utilizar como herbicidas en forma no modificada, como se obtuvieron en la síntesis, pero ellos generalmente se formulan en composiciones herbicidas en una variedad de modos utilizando adyuvantes de formulación, tales como portadores, solventes y sustancias superficialmente activas. Las formulaciones se pueden encontrar en diversas formas físicas, por ejemplo en forma de polvos secantes (dusting powders), geles, polvos humectables, gránulos dispersables en agua, tabletas dispersables en agua, tabletas comprimidas efervescentes, concentrados emulsionables, concentrados microemulsionables, emulsiones de aceite en agua, floables oleosos, dispersiones acuosas, dispersiones oleosas, suspoemulsiones, suspensiones en cápsulas, gránulos emulsionables, líquidos solubles, concentrados solubles en agua (con agua o un solvente orgánico miscible en agua como portador), películas impregnadas de polímeros o en otras formas conocidas, por ejemplo, del Manual on Development and Use of FAO Specifications for Plant Protection Products, 5ta Edición, 1999. Dichas formulaciones o bien se pueden utilizar directamente o bien se diluyen antes del uso. Las formulaciones diluidas se pueden preparar, por ejemplo, con agua, fertilizantes líquidos, micronutrientes, organismos biológicos, aceite o solventes.

Las formulaciones se pueden preparar, por ejemplo, mezclando el ingrediente activo con adyuvantes de formulación con el objeto de obtener composiciones en forma de sólidos finamente divididos, gránulos, soluciones, dispersiones o emulsiones. Los ingredientes activos también se pueden formular con otros adyuvantes, por ejemplo sólidos finamente divididos, aceites minerales, aceites vegetales, aceites vegetales modificados, solventes orgánicos, agua, sustancias superficialmente activas o las combinaciones de los mismos. Los ingredientes activos también se pueden encontrar contenidos en microcápsulas

muy finas que consisten en un polímero. Las microcápsulas contienen los ingredientes activos en un portador poroso. Ello permite que los ingredientes activos se liberen hacia sus alrededores en cantidades controladas (por ejemplo liberación lenta). Las microcápsulas usualmente tienen un diámetro de desde 0,1 hasta 500 micrones. Ellas contienen ingredientes activos en una cantidad de aproximadamente desde 25 hasta 95% en peso del peso de la cápsula. Los ingredientes activos se pueden encontrar presentes en forma de un sólido monolítico, en forma de partículas finas en dispersión sólida o líquida o en forma de una solución adecuada. Las membranas encapsulantes comprenden, por ejemplo, gomas naturales y sintéticas, celulosa, copolímeros de estireno-butadieno, poliacrilonitrilo, poliacrilato, poliéster, poliamidas, poliureas, poliuretano o polímeros modificados químicamente y xantatos de almidón u otros polímeros que son conocidos para la persona experta en la técnica en este sentido. Alternativamente es posible que se forman microcápsulas muy finas donde el ingrediente activo se encuentra presente en forma de partículas finamente divididas en una matriz sólida de una sustancia base, pero en ese caso la microcápsula no se encuentra encapsulada.

Los adyuvantes de formulación adecuados para la preparación de las composiciones de acuerdo con la invención se conocen *per se*. Como portadores líquidos se pueden utilizar: agua, tolueno, xileno, éter de petróleo, aceites vegetales, acetona, metil etil cetona, ciclohexanona, anhídridos de ácidos, acetonitrilo, acetofenona, acetato de amilo, 2-butanona, carbonato de butilenos, clorobenceno, ciclohexano, ciclohexanol, alquil ésteres de ácido acético, diacetona alcohol, 1,2-dicloropropano, dietanolamina, p-dietilbenceno, dietilen glicol, abietato de dietilen glicol, butil éter de dietilen glicol, etil éter de dietilen glicol, metil éter de dietilen glicol, N,N-dimetilformamida, sulfóxido de dimetilo,

1,4-dioxano, dipropilen glicol, metil éter de dipropilen glicol, dibenzoato de dipropilen glicol, diproxitol, alquilpirrolidona, acetato de etilo, 2-etil hexanol, carbonato de etileno, 1,1,1-tricloroetano, 2-heptanona, alfa-pineno, d-limoneno, lactato de etilo, etilen glicol, butil éter de etilen glicol, metil éter de etilen glicol, gamma-butirolactona, glicerol, acetato de glicerol, diacetato de glicerol, triacetato de glicerol, hexadecano, hexilen glicol, acetato de isoamilo, acetato de isobornilo, isooctano, isoforona, isopropilbenceno, miristato de isopropilo, ácido láctico, laurilamina, óxido de mesitilo, metoxipropanol, metil isoamil cetona, metil isobutil cetona, laurato de metilo, octanoato de metilo, oleato de metilo, cloruro de metileno, m-xileno, *n*-hexano, *n*-octilamina, ácido octadecanoico, acetato de octilamina, ácido oleico, oleilamina, o-xileno, fenol, polietilen glicol (PEG 400), ácido propiónico, lactato de propilo, carbonato de propileno, propilen glicol, metil éter de propilen glicol, p-xileno, tolueno, fosfato de trietilo, trietilen glicol, ácido xilensulfónico, parafina, aceite mineral, tricloroetileno, percloroetileno, acetato de etilo, acetato de amilo, acetato de butilo, metil éter de propilen glicol, metil éter de dietilen glicol, metanol, etanol, isopropanol, y alcoholes de peso molecular más alto, tales como amil alcohol, tetrahidrofurfuril alcohol, hexanol, octanol, etilen glicol, propilen glicol, glicerol, N-metil-2-pirrolidona y similares. Generalmente el portador de elección para la dilución de los concentrados es el agua. Los portadores sólidos adecuados son, por ejemplo, talco, dióxido de titanio, arcilla pirofilita, sílice, arcilla atapulgita, kieselguhr, limestone, carbonato de calcio, bentonita, montomorillonita de calcio, cáscaras de semillas de algodón, harina de trigo, harina de soja, piedra pómez, harina de madera, cáscaras de nueces molidas, lignina y materiales similares, según se describe, por ejemplo, en CFR 180.1001. (c) & (d).

Una gran cantidad de sustancias superficialmente activas se puede utilizar de modo ventajoso tanto en formulaciones sólidas como líquidas, especialmente en aquellas formulaciones que se pueden diluir con un portador antes del uso. Las sustancias superficialmente activas pueden ser aniónicas, catiónicas, no iónicas o poliméricas y ellas se pueden utilizar como agentes emulsionantes, humectantes o de suspensión o para otros propósitos. Las sustancias superficialmente activas típicas incluyen, por ejemplo, sales de sulfatos de alquilo, tales como lauril sulfato de dietanolamonio; sales de alquilarilsulfonatos, tales como dodecilbencensulfonato de calcio; productos de adición de alquilfenol-óxido de alquileo, tales como etoxilado de nonilfenol; productos de adición de alcohol-óxido de alquileo, tales como etoxilado de tridecil alcohol; jabones, tales como estearato de sodio; sales de alquilnaftalensulfonatos, tales como dibutilnaftalensulfonato de sodio; dialquil ésteres de sales de sulfosuccinato, tales como di(2-etilhexil)sulfosuccinato de sodio; ésteres de sorbitol, tales como oleato de sorbitol; aminas cuaternarias, tales como cloruro de lauril trimetilamonio, ésteres de ácidos grasos de polietilen glicol, tales como estearato de polietilen glicol; copolímeros en bloque de óxido de etileno y de óxido de propileno; y sales de ésteres de mono- y di-alquil fosfato; y también sustancias adicionales descritas por ejemplo en "McCutcheon's Detergents and Emulsifiers Annual", MC Publishing Corp., Ridgewood, Nueva Jersey, 1981.

Los adyuvantes adicionales que usualmente se pueden utilizar en las formulaciones plaguicidas incluyen inhibidores de cristalización, sustancias que modifican la viscosidad, agentes de suspensión, colorantes, antioxidantes, agentes espumantes, absorbedores de luz, auxiliares para el mezclado, antiespumantes, agentes acomplejantes, sustancias y buffers neutralizantes o modificadores del pH, inhibidores de corrosión, fragancias, agentes humectantes,

mejoradores de la absorción, micronutrientes, plastificantes, glidantes, lubricantes, dispersantes, espesantes, anticongelantes, microbiocidas, y también fertilizantes líquidos y sólidos.

Las formulaciones también pueden comprender sustancias activas adicionales, por ejemplo herbicidas, antídotos de herbicidas, reguladores del crecimiento de las plantas, fungicidas o insecticidas adicionales.

Las composiciones de acuerdo con la invención pueden incluir adicionalmente un aditivo que comprende un aceite de origen vegetal o animal, un aceite mineral, alquil ésteres de dichos aceites o mezclas de dichos aceites y derivados de aceites. La cantidad de aditivo de aceite utilizada en la composición de acuerdo con la invención es generalmente desde 0,01 hasta 10%, en base a la mezcla de aerosol. Por ejemplo, el aditivo de aceite se puede adicionar al tanque de pulverización en la concentración deseada luego de que se ha preparado la mezcla de pulverización. Los aditivos de aceite preferidos comprenden aceites minerales o un aceite de origen vegetal, por ejemplo aceite de colza, aceite de oliva o aceite de girasol, aceite vegetal emulsionado, tal como AMIGO® (Rhône-Poulenc Canada Inc.), alquil ésteres de aceites de origen vegetal, por ejemplo los derivados de metilo, o un aceite de origen animal, tal como aceite de pescado o sebo vacuno. Un aditivo preferido contiene, por ejemplo, como componentes activos esencialmente 80% en peso de alquil ésteres de aceites de pescado y 15% en peso de aceite de colza metilado, y también 5% en peso de emulsionantes y modificadores del pH convencionales. Los aditivos de aceite especialmente preferidos comprenden alquil ésteres de ácidos grasos C_8 - C_{22} , especialmente los derivados de metilo de ácidos grasos C_{12} - C_{18} , siendo, por ejemplo, importantes los metil ésteres de ácido láurico, ácido palmítico y ácido

oleico. Esos ésteres son conocidos como laurato de metilo (CAS-111-82-0), palmitato de metilo (CAS-112-39-0) y oleato de metilo (CAS-112-62-9). Un derivado de metil éster de ácido graso preferido es Emery® 2230 o 2231 (Cognis GmbH). Ésos y otros derivados de aceite son también conocidos del Compendium of Herbicide Adjuvants, 5ta Edición, Southern Illinois University, 2000.

La aplicación y acción de los aditivos de aceite se pueden mejorar más aún combinándolos con sustancias superficialmente activas, tales como surfactantes no iónicos, aniónicos o catiónicos. Los ejemplos de surfactantes aniónicos, no iónicos y catiónicos adecuados se enumeran en las páginas 7 y 8 de WO 97/34485. Las sustancias superficialmente activas preferidas son surfactantes aniónicos del tipo dodecylbencilsulfonato, especialmente las sales de calcio de los mismos, y también surfactantes no iónicos del tipo etoxilado de alcohol graso. Se proporciona especial preferencia a alcoholes grasos C_{12} - C_{22} etoxilados que tienen un grado de etoxilación de desde 5 hasta 40. Ejemplos de surfactantes disponibles en el comercio son los tipos Genapol (Clariant AG). También son preferidos los surfactantes de siliconas, especialmente heptametiltrisiloxanos modificados con polialquil óxido, los cuales se encuentran disponibles en el comercio por ejemplo como Silwet L-77®, y también los surfactantes perfluorados. La concentración de las sustancias superficialmente activas en relación con el aditivo total es generalmente desde 1 hasta 30% en peso. Ejemplos de aditivos de aceite que consisten en mezclas de aceites o de aceites minerales o de derivados de los mismos con surfactantes son Edenor ME SU®, Turbocharge® (Syngenta AG, CH) y Actipron® (BP Oil UK Limited, GB).

Las dichas sustancias superficialmente activas también se pueden utilizar solas en las formulaciones, es decir sin aditivos de aceite.

Más aún, la adición de un solvente orgánico a la mezcla de aditivo de aceite/surfactante puede contribuir a un adicional mejoramiento de acción. Los solventes adecuados son, por ejemplo, Solvesso® (ESSO) y Aromatic Solvent® (Exxon Corporation). La concentración de dichos solventes puede ser desde 10 hasta 80% en peso del peso total. Dichos aditivos de aceite, los cuales se pueden encontrar en mezcla con solventes, se describen, por ejemplo, en US-A-4 834 908. Un aditivo de aceite disponible en el comercio descrito en el mismo se conoce por el nombre MERGE® (BASF Corporation). Los aditivos de aceite adicionales que son preferidos de acuerdo con la invención son SCORE® (Syngenta Crop Protection Canada) y Adigor® (Syngenta Crop Protection Canada).

Además de los aditivos de aceite enumerados precedentemente, con el objeto de mejorar la actividad de las composiciones de acuerdo con la invención también es posible que las formulaciones de alquilpirrolidonas, (e.g. Agrimax®) se adicionen a la mezcla de pulverización. También se pueden utilizar formulaciones de látices sintéticos, tales como, por ejemplo, poliacrilamida, compuestos de polivinilo o poli-1-p-menteno (por ejemplo Bond®, Courier® o Emerald®). Las soluciones que contienen ácido propiónico, por ejemplo Eurogkem Pen-e-trate®, también se pueden mezclar en la mezcla de pulverización como agentes que mejoran la actividad.

Las formulaciones herbicidas generalmente contienen desde 0,1 hasta 99% en peso, especialmente desde 0,1 hasta 95% en peso, de un compuesto de la

fórmula I y desde 1 hasta 99,9% en peso de un adyuvante de formulación, el cual con preferencia incluye desde 0 hasta 25% en peso de una sustancia superficialmente activa. Mientras que los productos comerciales con preferencia se formularán como concentrados, el usuario final normalmente empleará formulaciones diluidas.

La proporción de la aplicación de los compuestos de la fórmula I puede variar dentro de amplios límites y depende de la naturaleza del suelo, del método de aplicación (pre o post emergencia; recubrimiento de semillas; aplicación al surco de la semilla; aplicación de no labranza etc.), de la planta de cultivo, de la maleza o hierba a ser controlada, de las condiciones climáticas prevalecientes, y de otros factores regidos por el método de aplicación, el tiempo de aplicación y el cultivo objetivo. Los compuestos de la fórmula I de acuerdo con la invención generalmente se aplican en una proporción de 1 - 2000 g / ha, con preferencia 1 - 1000 g / ha y aún con más preferencia a 1 - 500 g/ha.

Las formulaciones preferidas tienen especialmente las siguientes composiciones:

(% = porcentaje en peso):

Concentrados emulsionables:

ingrediente activo:	1 a 95%, con preferencia 60 a 90%
agente superficialmente activo:	1 a 30 %, con preferencia 5 a 20 %
portador líquido:	1 a 80%, con preferencia 1 a 35%

Polvos finos:

ingrediente activo:	0,1 a 10%, con preferencia 0,1 a 5%
portador sólido:	99,9 a 90%, con preferencia 99,9 a 99%

Concentrados en suspensión:

ingrediente activo:	5 a 75%, con preferencia 10 a 50%
agua:	94 a 24%, con preferencia 88 a 30%
agente superficialmente activo:	1 a 40%, con preferencia 2 a 30%

Polvos humectables:

ingrediente activo:	0,5 a 90%, con preferencia 1 a 80%
agente superficialmente activo:	0,5 a 20%, con preferencia 1 a 15%
portador sólido:	5 a 95%, con preferencia 15 a 90%

Gránulos:

ingrediente activo:	0,1 a 30%, con preferencia 0,1 a 15%
portador sólido:	99,5 a 70%, con preferencia 97 a 85%

Los siguientes Ejemplos ilustran más aún, pero no limitan, la invención.

<u>F1. Concentrados emulsionables</u>	a)	b)	c)	d)
ingrediente activo	5%	10%	25%	50%
dodecilbencensulfonato				
de calcio	6%	8%	6%	8%
poliglicol éter de aceite de ricino	4%	-	4%	4%
(36 mol de óxido de etileno)				
poliglicol éter de octilfenol	-	4%	-	2%
(7-8 mol de óxido de etileno)				
NMP	-	-	10%	20%
mezcla de hidrocarburos	85%	78%	55%	16%
arom. C ₉ -C ₁₂				

Se pueden preparar emulsiones de cualquier concentración deseada a partir de dichos concentrados mediante la dilución con agua.

<u>F2. Soluciones</u>	a)	b)	c)	d)
ingrediente activo	5%	10%	50%	90%
1-metoxi-3-(3-metoxi-propoxi)-propano	-	20%	20%	-
polietilen glicol PM 400	20%	10%	-	-
NMP	-	-	30%	10%
mezcla de hidrocarburos arom. C ₉ -C ₁₂	75%	60%	-	-

Las soluciones son adecuadas para la aplicación en forma de microgotas.

<u>F3. Polvos humectables</u>	a)	b)	c)	d)
ingrediente activo	5%	25%	50%	80%
lignosulfonato de sodio	4 %	-	3 %	-
lauril sulfato de sodio	2%	3%	-	4%
diisobutilnaftalensulfonato de sodio	-	6%	5%	6%
poliglicol éter de octilfenol (7-8 mol de óxido de etileno)	-	1%	2%	-
ácido silícico altamente disperso	1%	3%	5%	10%
caolín	88%	62%	35%	-

El ingrediente activo se mezcla exhaustivamente con los adyuvantes y la mezcla se muele exhaustivamente en un molino adecuado, produciendo polvos humectables que pueden diluirse con agua para proporcionar suspensiones de cualquier concentración deseada.

<u>F4. Gránulos recubiertos</u>	a)	b)	c)
ingrediente activo	0,1%	5%	15%
ácido silícico altamente disperso	0,9%	2%	2%

portador inorg.	99,0%	93%	83%
(diámetro 0,1 - 1 mm)			
por ejemplo CaCO ₃ o SiO ₂			

El ingrediente activo se disuelve en cloruro de metileno, la solución se rocía sobre el portador y el solvente subsiguientemente se separa por evaporación *al vacío*.

<u>F5. Gránulos recubiertos</u>	a)	b)	c)
ingrediente activo	0,1%	5%	15%
polietilen glicol PM 200	1,0%	2%	3%
ácido silícico altamente disperso	0,9%	1%	2%
portador inorg.	98,0%	92%	80%
(diámetro 0,1 - 1 mm)			
por ejemplo CaCO ₃ o SiO ₂			

El ingrediente activo finamente molido se aplica de modo uniforme, en una mezcladora, al portador humedecido con polietilen glicol. De esta manera se obtienen gránulos recubiertos no pulverulentos.

<u>F6. Gránulos para extrusión</u>	a)	b)	c)	d)
ingrediente activo	0,1%	3%	5%	15%
lignosulfonato de sodio	1,5%	2%	3%	4%
carboximetilcelulosa	1,4%	2%	2%	2%
caolín	97,0%	93%	90%	79%

El ingrediente activo se mezcla y se muele con los adyuvantes y la mezcla se humedece con agua. La mezcla resultante se extruye y luego se seca en una corriente de aire.

<u>F7. Polvos finos</u>	a)	b)	c)
ingrediente activo	0,1%	1%	5%
talco	39,9%	49%	35%

particular trigo y cebada, arroz, maíz, colza, remolacha azucarera, caña de azúcar, soja, algodón, girasol, maní y cultivos de plantación.

El término "cultivos" debe comprenderse como incluyendo también cultivos que se han tornado tolerantes a los herbicidas o clases de herbicidas (por ejemplo inhibidores de ALS, GS, EPSPS, PPO y HPPD) como resultado de métodos de reproducción o ingeniería genética convencionales. Un ejemplo de un cultivo que se ha tornado tolerante por ejemplo a las imidazolinonas, tales como imazamox, a través de métodos de reproducción convencionales es la colza de verano Clearfield® (Canola). Los ejemplos de cultivos que se han tornado tolerantes a los herbicidas a través de métodos de ingeniería genética incluyen por ejemplo variedades de maíz resistentes al glifosato y glufosinato disponibles en el comercio bajo los nombres comerciales RoundupReady® y LibertyLink®. Las malezas a controlarse pueden ser tanto malezas monocotiledóneas como dicotiledóneas, tales como, por ejemplo, Stellaria, Nasturtium, Agrostis, Digitaria, Avena, Setaria, Sinapis, Lolium, Solanum, Echinochloa, Scirpus, Monochoria, Sagittaria, Bromus, Alopecurus, Sorghum, Rottboellia, Cyperus, Abutilon, Sida, Xanthium, Amaranthus, Chenopodium, Ipomoea, Chrysanthemum, Galium, Viola y Veronica. El control de malezas monocotiledóneas, en particular Agrostis, Avena, Setaria, Lolium, Echinochloa, Bromus, Alopecurus y Sorghum es muy exhaustivo.

También se debe comprender que los cultivos son aquéllos que se han tornado resistentes a los insectos nocivos a través de métodos de ingeniería genética, por ejemplo maíz Bt (resistente al barrenador europeo del maíz), algodón Bt (resistente al picudo del algodón) y también papas Bt (resistentes al escarabajo de Colorado). Ejemplos de maíz Bt son los híbridos de maíz Bt-176 de

NK® (Syngenta Seeds). La toxina Bt es una proteína que se forma naturalmente por las bacterias del suelo *Bacillus thuringiensis*. Los ejemplos de toxinas y plantas transgénicas capaces de sintetizar dichas toxinas se describen en EP-A-451 878, EP-A-374 753, WO 93/07278, WO 95/34656, WO 03/052073 y EP-A-427 529. Ejemplos de plantas transgénicas que contienen uno o más genes los cuales codifican una resistencia insecticida y expresan una o más toxinas son KnockOut® (maíz), Yield Gard® (maíz), NuCOTIN33B® (algodón), Bollgard® (algodón), NewLeaf® (papas), NatureGard® y Protexcta®. Los cultivos de plantas y su material de semillas pueden ser resistentes a los herbicidas y al mismo tiempo también a la alimentación por parte de los insectos (eventos transgénicos "apilados"). Las semillas pueden, por ejemplo, tener la capacidad de expresar una proteína Cry3 activa como insecticida y al mismo tiempo ser tolerantes al glifosato. El término "cultivos" debe comprenderse como incluyendo también los cultivos obtenidos como resultado de métodos de reproducción o ingeniería genética convencionales los cuales contienen las denominadas características de producción (por ejemplo sabor, estabilidad en almacenamiento, contenido nutricional mejorados).

Se debe comprender que las áreas bajo cultivo incluyen la tierra donde las plantas de cultivo ya se encuentran creciendo así como también la tierra destinada al cultivo de esas plantas de cultivo.

Los compuestos de la fórmula I de acuerdo con la invención también se pueden utilizar en combinación con otros herbicidas. Con preferencia, en estas mezclas, el compuesto de la fórmula I es uno de esos compuestos enumerados en las Tablas 1 a 146 a continuación. Las siguientes mezclas del compuesto de la fórmula I son especialmente importantes:

compuesto de la fórmula I + acetoclor, compuesto de la fórmula I + acifluorfenó, compuesto de la fórmula I + acifluorfenó sódico, compuesto de la fórmula I + aclonifeno, compuesto de la fórmula I + acroleína, compuesto de la fórmula I + alaclor, compuesto de la fórmula I + aloxidim, compuesto de la fórmula I + alil alcohol, compuesto de la fórmula I + ametrina, compuesto de la fórmula I + amicarbazone, compuesto de la fórmula I + amidosulfuron, compuesto de la fórmula I + aminopirialid, compuesto de la fórmula I + amitrol, compuesto de la fórmula I + sulfamato de amonio, compuesto de la fórmula I + anilofos, compuesto de la fórmula I + asulam, compuesto de la fórmula I + atraton, compuesto de la fórmula I + atrazina, compuesto de la fórmula I + azimsulfuron, compuesto de la fórmula I + BCPC, compuesto de la fórmula I + beflubutamida, compuesto de la fórmula I + benazolina, compuesto de la fórmula I + benfluralina, compuesto de la fórmula I + benfuresato, compuesto de la fórmula I + bensulfuron, compuesto de la fórmula I + bensulfuron-metil, compuesto de la fórmula I + bensulida, compuesto de la fórmula I + bentazona, compuesto de la fórmula I + benzfendizona, compuesto de la fórmula I + benzobiciclon, compuesto de la fórmula I + benzofenap, compuesto de la fórmula I + bifenox, compuesto de la fórmula I + bilanafos, compuesto de la fórmula I + bispiribac, compuesto de la fórmula I + bispiribac sódico, compuesto de la fórmula I + borax, compuesto de la fórmula I + bromacil, compuesto de la fórmula I + bromobutide, compuesto de la fórmula I + bromoxinil, compuesto de la fórmula I + butaclor, compuesto de la fórmula I + butafenacil, compuesto de la fórmula I + butamifos, compuesto de la fórmula I + butralina, compuesto de la fórmula I + butroxidim, compuesto de la fórmula I + butilato, compuesto de la fórmula I + ácido cacodílico, compuesto de la fórmula I + clorato de calcio, compuesto de la fórmula I + cafenstrol, compuesto de la fórmula I + carbetamida, compuesto de la fórmula I + carfentrazona, compuesto de la fórmula I + carfentrazona-etil, compuesto de la fórmula I +

CDEA, compuesto de la fórmula I + CEPC, compuesto de la fórmula I + clorflurenol, compuesto de la fórmula I + clorflurenol-metil, compuesto de la fórmula I + cloridazon, compuesto de la fórmula I + clorimuron, compuesto de la fórmula I + clorimuron-etil, compuesto de la fórmula I + ácido cloroacético, compuesto de la fórmula I + clorotoluron, compuesto de la fórmula I + clorprofam, compuesto de la fórmula I + clorsulfuron, compuesto de la fórmula I + clortal, compuesto de la fórmula I + clortal-dimetil, compuesto de la fórmula I + cinidon-etil, compuesto de la fórmula I + cinmetilina, compuesto de la fórmula I + cinosulfuron, compuesto de la fórmula I + cisanilida, compuesto de la fórmula I + cletodim, compuesto de la fórmula I + clodinafop, compuesto de la fórmula I + clodinafop-propargil, compuesto de la fórmula I + clomazona, compuesto de la fórmula I + clomeprop, compuesto de la fórmula I + clopiralid, compuesto de la fórmula I + cloransulam, compuesto de la fórmula I + cloransulam-metil, compuesto de la fórmula I + CMA, compuesto de la fórmula I + 4-CPB, compuesto de la fórmula I + CPMF, compuesto de la fórmula I + 4-CPP, compuesto de la fórmula I + CPPC, compuesto de la fórmula I + cresol, compuesto de la fórmula I + cumyluron, compuesto de la fórmula I + cianamida, compuesto de la fórmula I + cianazina, compuesto de la fórmula I + cicloato, compuesto de la fórmula I + ciclosulfamuron, compuesto de la fórmula I + cicloxidim, compuesto de la fórmula I + cihalofop, compuesto de la fórmula I + cihalofop-butil, compuesto de la fórmula I + 2,4-D, compuesto de la fórmula I + 3,4-DA, compuesto de la fórmula I + daimuron, compuesto de la fórmula I + dalapon, compuesto de la fórmula I + dazomet, compuesto de la fórmula I + 2,4-DB, compuesto de la fórmula I + 3,4-DB, compuesto de la fórmula I + 2,4-DEB, compuesto de la fórmula I + desmedifam, compuesto de la fórmula I + dicamba, compuesto de la fórmula I + diclobenil, compuesto de la fórmula I + orto-diclorobenceno, compuesto de la fórmula I + para-diclorobenceno, compuesto de

la fórmula I + diclorprop, compuesto de la fórmula I + diclorprop-P, compuesto de la fórmula I + diclofop, compuesto de la fórmula I + diclofop-metil, compuesto de la fórmula I + diclosulam, compuesto de la fórmula I + difenzoquat, compuesto de la fórmula I + metilsulfato de difenzoquat, compuesto de la fórmula I + diflufenican, compuesto de la fórmula I + diflufenzopir, compuesto de la fórmula I + dimefuron, compuesto de la fórmula I + dimepiperato, compuesto de la fórmula I + dimetaclor, compuesto de la fórmula I + dimetametrina, compuesto de la fórmula I + dimetenamid, compuesto de la fórmula I + dimetenamid-P, compuesto de la fórmula I + dimetipina, compuesto de la fórmula I + ácido dimetilarsínico, compuesto de la fórmula I + dinitramina, compuesto de la fórmula I + dinoterb, compuesto de la fórmula I + difenamida, compuesto de la fórmula I + diquat, compuesto de la fórmula I + dibromuro de diquat, compuesto de la fórmula I + ditiopir, compuesto de la fórmula I + diuron, compuesto de la fórmula I + DNOC, compuesto de la fórmula I + 3,4-DP, compuesto de la fórmula I + DSMA, compuesto de la fórmula I + EBEP, compuesto de la fórmula I + endotal, compuesto de la fórmula I + EPTC, compuesto de la fórmula I + esprocarb, compuesto de la fórmula I + etalfluralina, compuesto de la fórmula I + etametsulfuron, compuesto de la fórmula I + etametsulfuron-metil, compuesto de la fórmula I + etofumesato, compuesto de la fórmula I + etoxifen, compuesto de la fórmula I + etoxisulfuron, compuesto de la fórmula I + etobenzanida, compuesto de la fórmula I + fenoxaprop-P, compuesto de la fórmula I + fenoxaprop-P-etil, compuesto de la fórmula I + fentrazamide, compuesto de la fórmula I + sulfato ferroso, compuesto de la fórmula I + flamprop-M, compuesto de la fórmula I + flazasulfuron, compuesto de la fórmula I + florasulam, compuesto de la fórmula I + fluazifop, compuesto de la fórmula I + fluazifop-butil, compuesto de la fórmula I + fluazifop-P, compuesto de la fórmula I + fluazifop-P-butil, compuesto de la fórmula I + flucarbazone, compuesto de la fórmula I + flucarbazone sódico, compuesto de

la fórmula I + flucetosulfuron, compuesto de la fórmula I + flucloralina, compuesto de la fórmula I + flufenacet, compuesto de la fórmula I + flufenpir, compuesto de la fórmula I + flufenpir-etil, compuesto de la fórmula I + flumetsulam, compuesto de la fórmula I + flumiclorac, compuesto de la fórmula I + flumiclorac-pentil, compuesto de la fórmula I + flumioxazina, compuesto de la fórmula I + fluometurona, compuesto de la fórmula I + fluoroglicofen, compuesto de la fórmula I + fluoroglicofen-etil, compuesto de la fórmula I + flupropanato, compuesto de la fórmula I + flupirsulfuron, compuesto de la fórmula I + flupirsulfuron-metil-sodio, compuesto de la fórmula I + flurenol, compuesto de la fórmula I + fluridona, compuesto de la fórmula I + flurocloridona, compuesto de la fórmula I + fluroxipir, compuesto de la fórmula I + flurtamona, compuesto de la fórmula I + flutiacet, compuesto de la fórmula I + flutiacet-metil, compuesto de la fórmula I + fomesafen, compuesto de la fórmula I + foramsulfuron, compuesto de la fórmula I + fosamina, compuesto de la fórmula I + glufosinato, compuesto de la fórmula I + glufosinato-amonio, compuesto de la fórmula I + glifosato, compuesto de la fórmula I + halosulfuron, compuesto de la fórmula I + halosulfuron-metil, compuesto de la fórmula I + haloxifop, compuesto de la fórmula I + haloxifop-P, compuesto de la fórmula I + HC-252, compuesto de la fórmula I + hexazinona, compuesto de la fórmula I + imazametabenz, compuesto de la fórmula I + imazametabenz-metil, compuesto de la fórmula I + imazamox, compuesto de la fórmula I + imazapic, compuesto de la fórmula I + imazapir, compuesto de la fórmula I + imazaquin, compuesto de la fórmula I + imazetapir, compuesto de la fórmula I + imazosulfuron, compuesto de la fórmula I + indanofan, compuesto de la fórmula I + yodometano, compuesto de la fórmula I + yodosulfuron, compuesto de la fórmula I + yodosulfuron-metil-sodio, compuesto de la fórmula I + ioxinil, compuesto de la fórmula I + isoproturon, compuesto de la fórmula I + isouron, compuesto de la fórmula I + isoxaben, compuesto de la fórmula I + isoxaclortol,

compuesto de la fórmula I + isoxaflutol, compuesto de la fórmula I + carbutilato, compuesto de la fórmula I + lactofen, compuesto de la fórmula I + lenacil, compuesto de la fórmula I + linuron, compuesto de la fórmula I + MAA, compuesto de la fórmula I + MAMA, compuesto de la fórmula I + MCPA, compuesto de la fórmula I + MCPA-tioetil, compuesto de la fórmula I + MCPB, compuesto de la fórmula I + mecoprop, compuesto de la fórmula I + mecoprop-P, compuesto de la fórmula I + mefenacet, compuesto de la fórmula I + mefluidida, compuesto de la fórmula I + mesosulfuron, compuesto de la fórmula I + mesosulfuron-metil, compuesto de la fórmula I + mesotriona, compuesto de la fórmula I + metam, compuesto de la fórmula I + metamifop, compuesto de la fórmula I + metamitrona, compuesto de la fórmula I + metazaclor, compuesto de la fórmula I + metabenzthiazuron, compuesto de la fórmula I + ácido metilarsónico, compuesto de la fórmula I + metildimron, compuesto de la fórmula I + isotiocianato de metilo, compuesto de la fórmula I + metobenzuron, compuesto de la fórmula I + metolaclor, compuesto de la fórmula I + S-metolaclor, compuesto de la fórmula I + metosulam, compuesto de la fórmula I + metoxuron, compuesto de la fórmula I + metribuzina, compuesto de la fórmula I + metsulfuron, compuesto de la fórmula I + metsulfuron-metil, compuesto de la fórmula I + MK-616, compuesto de la fórmula I + molinato, compuesto de la fórmula I + monolinuron, compuesto de la fórmula I + MSMA, compuesto de la fórmula I + naproanilida, compuesto de la fórmula I + napropamida, compuesto de la fórmula I + naptalam, compuesto de la fórmula I + neburon, compuesto de la fórmula I + nicosulfuron, compuesto de la fórmula I + ácido nonanoico, compuesto de la fórmula I + norflurazona, compuesto de la fórmula I + ácido oleico (ácidos grasos), compuesto de la fórmula I + orbencarb, compuesto de la fórmula I + ortosulfamuron, compuesto de la fórmula I + orizalina, compuesto de la fórmula I + oxadiargilo, compuesto de la fórmula I + oxadiazon, compuesto de la fórmula I +

oxasulfuron, compuesto de la fórmula I + oxaziclomefone, compuesto de la fórmula I + oxifluorfenol, compuesto de la fórmula I + paraquat, compuesto de la fórmula I + dicloruro de paraquat, compuesto de la fórmula I + pebulato, compuesto de la fórmula I + pendimetalina, compuesto de la fórmula I + penoxsulam, compuesto de la fórmula I + pentaclorofenol, compuesto de la fórmula I + pentanoclor, compuesto de la fórmula I + pentoxazona, compuesto de la fórmula I + petoxamida, compuesto de la fórmula I + aceites de petróleo, compuesto de la fórmula I + fenmedifam, compuesto de la fórmula I + fenmedifam-etil, compuesto de la fórmula I + picloram, compuesto de la fórmula I + picolinafen, compuesto de la fórmula I + pinoxaden, compuesto de la fórmula I + piperofos, compuesto de la fórmula I + arsenito de potasio, compuesto de la fórmula I + azida de potasio, compuesto de la fórmula I + pretilaclor, compuesto de la fórmula I + primisulfuron, compuesto de la fórmula I + primisulfuron-metil, compuesto de la fórmula I + prodiamina, compuesto de la fórmula I + profluazol, compuesto de la fórmula I + profoxidim, compuesto de la fórmula I + prometon, compuesto de la fórmula I + prometrina, compuesto de la fórmula I + propaclor, compuesto de la fórmula I + propanil, compuesto de la fórmula I + propaquizafop, compuesto de la fórmula I + propazina, compuesto de la fórmula I + profam, compuesto de la fórmula I + propisoclor, compuesto de la fórmula I + propoxicarbazona, compuesto de la fórmula I + propoxicarbazona sódica, compuesto de la fórmula I + propizamida, compuesto de la fórmula I + prosulfocarb, compuesto de la fórmula I + prosulfuron, compuesto de la fórmula I + piraclonil, compuesto de la fórmula I + piraflufen, compuesto de la fórmula I + piraflufen-etil, fórmula I + pirasulfotol, compuesto de la fórmula I + pirazolinato, compuesto de la fórmula I + pirazosulfuron, compuesto de la fórmula I + pirazosulfuron-etil, compuesto de la fórmula I + pirazoxifeno, compuesto de la fórmula I + piribenzoxim, compuesto de la fórmula I + piributicarb, compuesto de

la fórmula I + piridafol, compuesto de la fórmula I + piridato, compuesto de la fórmula I + piriftalid, compuesto de la fórmula I + priminobac, compuesto de la fórmula I + piriminobac-metil, compuesto de la fórmula I + pirimisulfan, compuesto de la fórmula I + piritiobac, compuesto de la fórmula I + piritiobac sódico, compuesto de la fórmula I + quinclorac, compuesto de la fórmula I + quinmerac, compuesto de la fórmula I + quinoclamina, compuesto de la fórmula I + quizalofop, compuesto de la fórmula I + quizalofop-P, compuesto de la fórmula I + rimsulfuron, compuesto de la fórmula I + setoxidim, compuesto de la fórmula I + siduron, compuesto de la fórmula I + simazina, compuesto de la fórmula I + simetrina, compuesto de la fórmula I + SMA, compuesto de la fórmula I + arsenito de sodio, compuesto de la fórmula I + azida de sodio, compuesto de la fórmula I + clorato de sodio, compuesto de la fórmula I + sulcotriona, compuesto de la fórmula I + sulfentrazone, compuesto de la fórmula I + sulfometuron, compuesto de la fórmula I + sulfometuron-metil, compuesto de la fórmula I + sulfosato, compuesto de la fórmula I + sulfosulfuron, compuesto de la fórmula I + ácido sulfúrico, compuesto de la fórmula I + aceites de alquitrán, compuesto de la fórmula I + 2,3,6-TBA, compuesto de la fórmula I + TCA, compuesto de la fórmula I + TCA-sodio, compuesto de la fórmula I + tebutiuron, compuesto de la fórmula I + tepraloxidim, compuesto de la fórmula I + terbacil, compuesto de la fórmula I + terbumetona, compuesto de la fórmula I + terbutilazina, compuesto de la fórmula I + terbutrina, compuesto de la fórmula I + tenilclor, compuesto de la fórmula I + tiazopir, compuesto de la fórmula I + tifensulfuron, compuesto de la fórmula I + tifensulfuron-metil, compuesto de la fórmula I + tiobencarb, compuesto de la fórmula I + tiocarbazil, compuesto de la fórmula I + topramezone, compuesto de la fórmula I + tralcoxidim, compuesto de la fórmula I + tri-alato, compuesto de la fórmula I + triasulfuron, compuesto de la fórmula I + triaziflam, compuesto de la fórmula I + tribenuron, compuesto de la fórmula I + tribenuron-metil, compuesto

de la fórmula I + tricamba, compuesto de la fórmula I + triclopir, compuesto de la fórmula I + trietazina, compuesto de la fórmula I + trifloxisulfuron, compuesto de la fórmula I + trifloxisulfuron-sodio, compuesto de la fórmula I + trifluralina, compuesto de la fórmula I + triflusulfuron, compuesto de la fórmula I + triflusulfuron-metil, compuesto de la fórmula I + trihidroxitriazina, compuesto de la fórmula I + tritosulfuron, compuesto de la fórmula I + etil éster de ácido [3-[2-cloro-4-fluor-5-(1-metil-6-trifluormetil-2,4-dioxo-1,2,3,4-tetrahidropirimidin-3-il)fenoxi]-2-piridiloxi] acético (CAS RN 353292-31-6), compuesto de la fórmula I + ácido 4-[(4,5-dihidro-3-metoxi-4-metil-5-oxo)-1H-1,2,4-triazol-1-ilcarbonilsulfamoil]-5-metiltiofen-3-carboxílico (BAY636), compuesto de la fórmula I + BAY747 (CAS RN 335104-84-2), compuesto de la fórmula I + topramezone (CAS RN 210631-68-8), compuesto de la fórmula I + 4-hidroxi-3-[[2-[(2-metoxietoxi)metil]-6-(trifluormetil)-3-piridinil]carbonil]-biciclo[3.2.1]oct-3-en-2-ona (CAS RN 352010-68-5), y compuesto de la fórmula I + 4-hidroxi-3-[[2-(3-metoxipropil)-6-(difluormetil)-3-piridinil]carbonil]biciclo[3.2.1]oct-3-en-2-ona.

Los compañeros de mezclado para el compuesto de la fórmula I también se pueden encontrar en forma de ésteres o sales, según se menciona por ejemplo en The Pesticide Manual, 12da Edición (BCPC) 2000.

Los compuestos de la fórmula I de acuerdo con la invención también se pueden utilizar en combinación con antidotos. Con preferencia, en estas mezclas, el compuesto de la fórmula I es uno de esos compuestos enumerados en las Tablas 1 a 146 a continuación. Especialmente, entran en consideración las siguientes mezclas con antidotos:

compuesto de la fórmula I + cloquintocet-mexil, compuesto de la fórmula I + cloquintocet ácido y las sales del mismo, compuesto de la fórmula I + fenclorazol-etil, compuesto de la fórmula I + fenclorazol ácido y las sales del mismo, compuesto de la fórmula I + mefenpir-diétel, compuesto de la fórmula I + mefenpir diácido, compuesto de la fórmula I + isoxadifen-etil, compuesto de la fórmula I + isoxadifen ácido, compuesto de la fórmula I + furilazol, compuesto de la fórmula I + isómero R de furilazol, compuesto de la fórmula (I) + N-(2-metoxibenzoil)-4-[(metilaminocarbonil)amino]bencensulfonamida, compuesto de la fórmula I + benoxacor, compuesto de la fórmula I + diclormid, compuesto de la fórmula I + AD-67, compuesto de la fórmula I + oxabetrinil, compuesto de la fórmula I + ciometrinil, compuesto de la fórmula I + isómero Z de ciometrinil, compuesto de la fórmula I + fenclorim, compuesto de la fórmula I + cipro-sulfamida, compuesto de la fórmula I + anhídrido naftálico, compuesto de la fórmula I + flurazol, compuesto de la fórmula I + CL 304,415, compuesto de la fórmula I + diciclonona, compuesto de la fórmula I + fluxofenim, compuesto de la fórmula I + DKA-24, compuesto de la fórmula I + R-29148 y compuesto de la fórmula I + PPG-1292. También se puede observar un efecto antídoto para las mezclas de compuesto de la fórmula I + dimron, compuesto de la fórmula I + MCPA, compuesto de la fórmula I + mecoprop y compuesto de la fórmula I + mecoprop-P.

Los antídotos y herbicidas mencionados precedentemente se describen, por ejemplo, en the Pesticide Manual, Décimo segunda Edición, British Crop Protection Council, 2000. R-29148 se describe, por ejemplo por P.B. Goldsbrough *et al.*, Plant Physiology, (2002), Vol. 130 págs. 1497-1505 y las referencias en el mismo, PPG-1292 se conoce a partir de WO09211761 y N-(2-metoxibenzoil)-4-[(metilaminocarbonil)amino]bencensulfonamida se conoce a partir de EP365484.

Son especialmente preferidos el benoxacor, cloquintocet-mexil, ciprosulfamida, mefenpir-dietil y N-(2-metoxibenzoil)-4-[(metilaminocarbonil) amino]bencensulfonamida, mientras que el cloquintocet-mexil es particularmente valioso.

Se prefiere aplicar los otros herbicidas conjuntamente con uno de los antidotos mencionados precedentemente.

Los siguientes Ejemplos ilustran más aún la invención pero no limitan la invención.

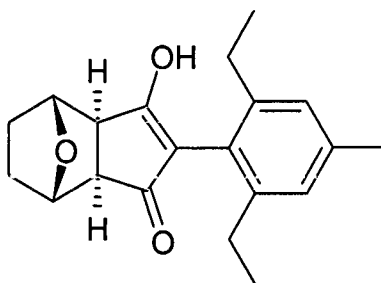
Ejemplos de Preparación:

Aquéllos expertos en la técnica apreciarán que ciertos compuestos descritos a continuación son β -cetoenoles, y que como tales pueden existir como un tautómero simple o como una mezcla de tautómeros de dicetona y ceto-enol, según se describe, por ejemplo por J. March, Advanced Organic Chemistry, tercera edición, John Wiley and Sons. Los compuestos que se muestran a continuación, y en la Tabla T1 están delineados como un tautómero enol simple arbitrario, pero se debería inferir que esta descripción incluye tanto a la forma dicetona como a cualquiera de los posibles enoles que podrían surgir por medio de tautomerismo. Cuando se observa más de un tautómero en la RMN protónica, los datos que se muestran son para la mezcla de tautómeros. Más aún, algunos de los compuestos que se muestran a continuación se encuentran delineados como enantiómeros simples para los propósitos de simplicidad, pero a menos que se especifiquen como enantiómeros simples, estas estructuras deberían interpretarse como representando una mezcla de enantiómeros. Adicionalmente,

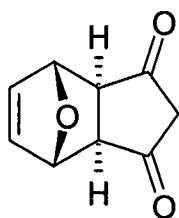
algunos de los compuestos pueden existir como diastereoisómeros, y debería inferirse que éstos se pueden encontrar presentes como una mezcla de diastereoisómeros o como cualquier diastereoisómero simple posible. Dentro de la sección experimental detallada el tautómero de dicetona está seleccionado para propósitos de denominación, aún si el tautómero predominante consiste en la forma enol.

Ejemplo 1

Preparación de (1RS,2SR,6RS,7SR)-4-(2,6-diethyl-4-metilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.



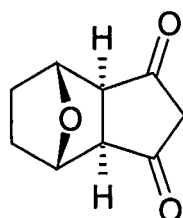
Etapas 1: Preparación de (1RS,2SR,6RS,7SR)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.



Se adiciona furano (13,9 ml, 0,19 mol) a ciclopenten-1,4-diona (18,4 g, 0,19 mol) y la mezcla de reacción se agita a temperatura ambiente durante 5 días. La mezcla se diluye con metanol y se recoge mediante filtración

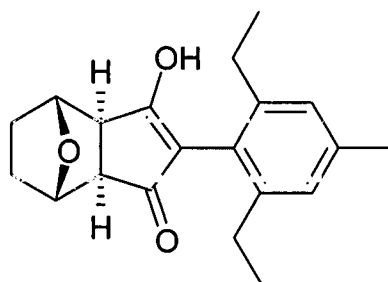
(1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona, y se utiliza sin purificación adicional en la etapa siguiente.

Etapa 2: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.



Se disuelve (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (2,1 g, 12,8 mmol), preparada en la Etapa 1, en metanol tibio (180 ml) y la mezcla se deja enfriar hasta temperatura ambiente. Luego la mezcla se hidrogena en presencia de paladio sobre carbón 5% (aprox. 50 mg) a 3,5 bar durante 4 horas. El catalizador se remueve mediante filtración a través de tierra diatomea y el filtrado se concentra bajo presión reducida para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

Etapa 3: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.



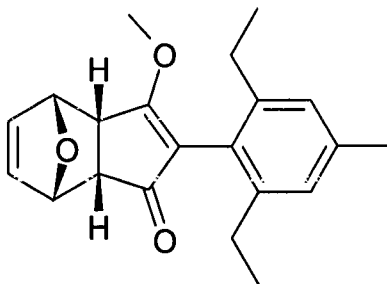
Se suspenden diacetato de yodobenceno (10,3 g, 32,0 mol) y carbonato de sodio (3,38 g, 32,0 mmol) en agua (100 ml) y la suspensión amarilla resultante se agita a temperatura ambiente durante 30 minutos. Mientras tanto, se adiciona (1RS,2SR,6RS,7SR)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona (5,3 g, 32,0 mol) a una solución de carbonato de sodio (3,38 g, 32,0 mol) en agua (50 ml) y etanol (50 ml) y la mezcla se agita a temperatura ambiente para producir una solución anaranjada. Las dos mezclas se combinan y se agitan durante 3 horas a temperatura ambiente, luego la mezcla se vierte en agua y se extrae con diclorometano. Los extractos orgánicos se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora bajo presión reducida para proporcionar un iluro de yodonio, utilizado sin purificación adicional en la etapa siguiente.

El iluro de yodonio (3 g, 8,15 mmol), preparado precedentemente, se adiciona a una solución de ácido 2,6-dietil-4-metilfenilborónico (1,57 g, 8,15 mmol), bromuro de tetrabutilamonio (2,63 g, 8,15 mmol), hidróxido de litio monohidratado (1,03 g, 24,5 mmol) y acetato de paladio (II) (92 mg, 0,41 mmol) en 1,2-dimetoxietano (80 ml) y agua (20 ml) y la mezcla de reacción se calienta a 50°C durante 5 horas bajo una atmósfera de nitrógeno. La mezcla de reacción se enfría hasta temperatura ambiente y se particiona entre ácido clorhídrico acuoso diluido y acetato de etilo. Luego la fase orgánica se extrae en solución acuosa de carbonato de potasio 0,5 M y la fase orgánica se desecha. La fase acuosa se acidifica con ácido clorhídrico concentrado y se extrae con acetato de etilo. El extracto orgánico se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR)-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

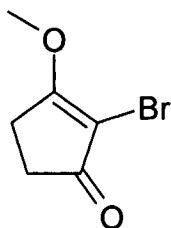
^1H RMN (400 MHz, CDCl_3) δ_{H} 6,88 – 6,87 (2H, m), 4,55 – 4,54 (2H, m), 2,62 (2H, s), 2,36 – 2,27 (7H, m), 1,69 – 1,67 (2H, m), 1,40 – 1,39 (2H, m), 1,03 (6H, q).

Ejemplo 2

Preparación de (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona.



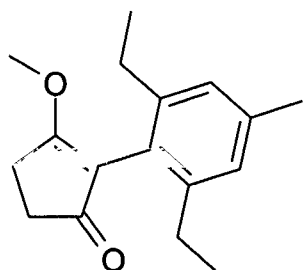
Etapa 1: Preparación de 2-bromo-3-metoxiciclopent-2-enona.



Se adiciona *N*-bromosuccinimida (24,92 g, 0,140 mol), a modo de porción, durante 1 hora a una solución agitada de 3-metoxiciclopent-2-enona (14,95 g, 0,133 mol) en 1,2-dicloroetano (300 ml) a 0°C en un frasco ámbar. La mezcla de reacción se agita a 0°C durante 90 minutos adicionales y luego cualquier sólido restante se remueve mediante filtración. El filtrado se evapora hasta sequedad bajo presión reducida, el sólido resultante se disuelve en tolueno tibio (600 ml) y se lava rápidamente con agua enfriada con hielo (2 x 100 ml). La fase orgánica se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida hasta que queden aproximadamente 150 ml. El residuo se enfría

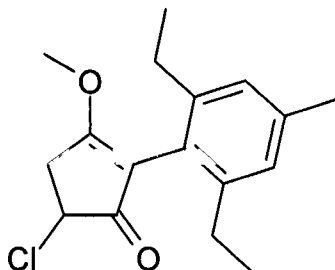
con un baño de hielo y se deja durante 30 minutos. El sólido resultante se remueve mediante filtración, se lava con hexano (50 ml) y se seca al aire para proporcionar 2-bromo-3-metoxiciclopent-2-enona.

Etapas 2: Preparación de 2-(2,6-dietil-4-metilfenil)-3-metoxiciclopent-2-enona.



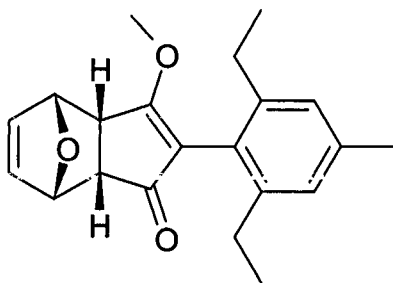
A una suspensión agitada de 2-bromo-3-metoxiciclopent-2-enona (17,5 g, 91,6 mmol), ácido 2,6-dietil-4-metilfenil borónico (26,4 g, 137 mmol) y fosfato de potasio en polvo recientemente obtenido (38,9 g, 183 mmol) en tolueno anhidro, desgasificado (450 ml) bajo una atmósfera de nitrógeno se le adicionan acetato de paladio (II) (0,411 g, 1,83 mmol) y 2-diciclohexilfosfin-2',6'-dimetoxibifenilo (1,51 g, 3,67 mmol). La mezcla de reacción se calienta a 90°C durante 6,5 horas y luego se deja enfriar hasta temperatura ambiente durante la noche. La reacción se diluye con agua (400 ml) y se extrae con acetato de etilo (3 x 150 ml). Los extractos orgánicos combinados se lavan con salmuera (50 ml), se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora hasta sequedad bajo presión reducida para proporcionar un aceite marrón. El producto crudo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar 2-(2,6-dietil-4-metilfenil)-3-metoxiciclopent-2-enona.

Etapas 3: Preparación de 5-cloro-2-(2,6-dietil-4-metilfenil)-3-metoxiciclopent-2-enona.



A una solución agitada de 2-(2,6-dietil-4-metilfenil)-3-metoxiciclopent-2-enona (0,715 g, 2,77 mmol) en 1,4-dioxano (45 ml), y bajo una atmósfera de nitrógeno, se le adicionan cloruro de cobre (II) (0,743 g, 5,53 mmol) y cloruro de litio (0,176 g, 4,15 mmol). La reacción se calienta a reflujo durante 7 horas y se deja enfriar hasta temperatura ambiente durante la noche. El sólido restante se remueve mediante filtración y se lava con acetato de etilo (50 ml). El filtrado se lava con agua (2 x 25 ml) y los lavados acuosos se vuelven a extraer con acetato de etilo (15 ml). Las fases orgánicas combinadas se lavan con salmuera (15 ml), se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora bajo presión reducida para proporcionar un aceite marrón. El producto crudo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar 5-cloro-2-(2,6-dietil-4-metilfenil)-3-metoxi-ciclopent-2-enona.

Etapa 4: Preparación de (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona.



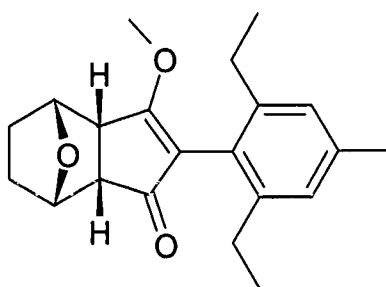
A una solución agitada de 5-cloro-2-(2,6-dietil-4-metilfenil)-3-metoxiciclopent-2-enona (0,530 g, 1,81 mmol) en furano (40 ml) a temperatura ambiente se le adiciona mediante bomba de jeringa durante dos horas una solución de 1,8-diazabicyclo[5,4,0]undec-7-eno (0,540 ml, 3,62 mmol) en furano (10 ml). La reacción se agita a temperatura ambiente durante 30 minutos adicionales y luego se evapora hasta sequedad bajo presión reducida. El residuo se diluye con agua (50 ml), se adiciona ácido clorhídrico acuoso 2 M (25 ml) y la mezcla se extrae con acetato de etilo (3 x 50 ml). Los extractos orgánicos combinados se lavan con salmuera (20 ml), se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora hasta sequedad bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona.

¹H RMN (400 MHz, CDCl₃) δ_H 6,90 (2H, s), 6,45 (1H, dd), 6,35 (1H, dd), 5,30 (1H, d), 5,25 (1H, d), 3,65 (3H, s), 3,65 (1H, dd), 3,45 (1H, dd), 2,35 (4H, m), 2,30 (3H, s), 1,10 (6H, m).

Nota: Durante el curso de esta reacción también se forma una cantidad de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona.

Ejemplo 3

Preparación de (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.

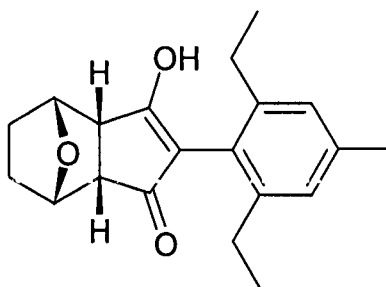


A una solución de (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona (0,052 g, 0,16 mmol) en metanol (10 ml) se le adiciona paladio sobre carbón 5% (10 mg). La reacción se agita bajo una atmósfera de hidrógeno durante 90 minutos. La reacción se filtra a través de tierra diatomea y la almohadilla del filtro se lava con acetato de etilo (10 ml). El solvente se remueve bajo presión reducida para producir (1*RS*,2*RS*,6-*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.

¹H RMN (400 MHz, CDCl₃) δ_H 6,90 (2H, m), 4,85 (2H, m), 3,70 (3H, s), 3,60 (1H, m), 3,35 (1H, dd), 2,50 (2H, m), 2,35 (2H, m), 2,30 (3H, s), 1,90-1,75 (4H, m), 1,20 (3H, t), 1,10 (3H, t).

Ejemplo 4

Preparación de (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

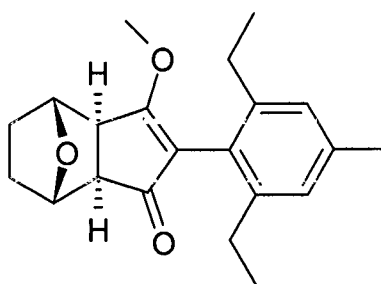


A una solución de (1*RS*,2*RS*,6*SR*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxa-triciclo[5,2,1,0^{2,6}]dec-4-en-3-ona (0,049 g, 0,15 mmol) en THF (1 ml) en un vial para microondas de 5 ml se le adiciona ácido clorhídrico acuoso 2 M (4 ml). La mezcla de reacción está a 140°C bajo irradiación de microondas durante 50 minutos. La mezcla de reacción se enfría hasta temperatura ambiente, se diluye con solución acuosa de carbonato de potasio 2 M (20 ml) y se lava con dietil éter (2 x 5 ml). El pH de la fase acuosa se regula hasta aprox. 2 mediante la adición de ácido clorhídrico acuoso 5 M y luego se extrae con acetato de etilo (3 x 10 ml). Los extractos orgánicos combinados se lavan con salmuera (10 ml), se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora hasta sequedad bajo presión reducida para proporcionar un aceite amarillo. El producto crudo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*RS*,6*SS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

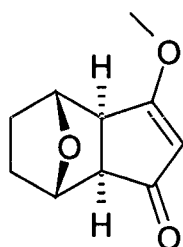
¹H RMN (400 MHz, CDCl₃) δ_H 6,95 (2H, s), 4,75 (2H, br), 3,40 (2H, br), 2,45 (2H, q), 2,35 (2H, q), 2,30 (3H, s), 1,80 (4H, m), 1,15 (3H, t), 1,05 (3H, t).

Ejemplo 5

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.

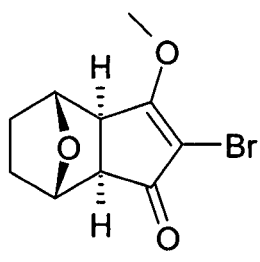


Etapa 1: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.



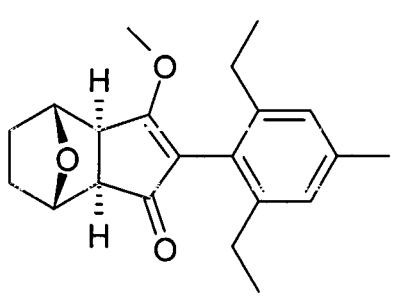
Se adiciona yodo (0,10 g, 0,38 mmol) a una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxa-triciclo[5,2,1,0^{2,6}]decan-3,5-diona (2,1 g, 12,65 mmol) en metanol (50 ml) y la mezcla de reacción se agita durante 2 horas a temperatura ambiente. Luego el solvente se remueve bajo presión reducida, se adiciona diclorometano y la capa orgánica se lava con solución acuosa saturada de tiosulfato de sodio, agua y salmuera. La capa orgánica se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona y se utiliza sin purificación adicional en la etapa siguiente.

Etapa 2: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-bromo-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.



Una solución de bromo (0,14 ml, 2,8 mmol) en diclorometano (5 ml) se adiciona gota a gota a una solución del enol éter (0,48 g, 2,6 mmol) preparada en la etapa 1 en diclorometano (40 ml) a 0°C y la mezcla de reacción se agita durante 1 hora. Luego se adiciona trietilamina (0,64 ml, 4,6 mmol) y la mezcla de reacción se deja entibiar hasta temperatura ambiente y luego se agita durante 3 horas. La mezcla de reacción se lava con ácido clorhídrico acuoso 2 M y salmuera, se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR)-4-bromo-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.

Etapa 3: Preparación de (1RS,2SR,6RS,7SR)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.



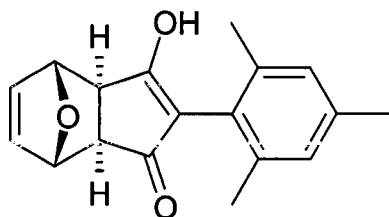
Una mezcla de (1RS,2SR,6RS,7SR)-4-bromo-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona (0,315 g, 1,2 mmol), ácido 2,6-dietil-4-metilfenilborónico (0,35 g, 1,8 mmol), 2-diciclo-hexilfosfin-2',6'-dimetoxibifenilo

(20 mg, 0,048 mmol), acetato de paladio (II) (5,5 mg, 0,024 mmol) y fosfato de potasio (0,51 g, 2,4 mmol) se calienta en tolueno desgasificado a 95°C durante 24 horas. La mezcla de reacción se particiona entre diclorometano y agua, y la fase orgánica se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-5-metoxi-10-oxatriciclo[5,2,1,0^{2,6}]dec-4-en-3-ona.

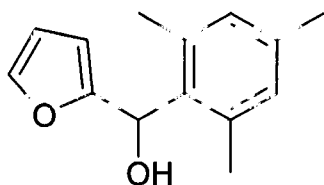
¹H RMN (400 MHz, CDCl₃) δ_H 6,90 (1H, s), 6,80 (1H, s), 4,73 (1H, d), 4,66 (1H, d), 3,58 (3H, s), 2,91 (1H, d), 2,66 (1H, d), 2,50 – 2,36 (4H, m), 2,30 (3H, s), 1,88 – 1,81 (2H, m), 1,62 – 1,56 (2H, m), 1,12 – 1,09 (6H, m).

Ejemplo 6

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.



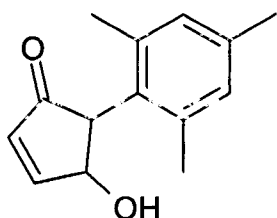
Etapla 1: Preparación de (2,4,6-trimetilfenil)furan-2-ilmetanol.



Una solución de 2,4,6-trimetil-1-bromobenceno (30,9 g, 155 mmol) en tetrahidrofurano (100 ml) se adiciona lentamente a virutas de magnesio (3,77 g,

155 mmol), hasta que el magnesio apenas se cubre. Se adiciona una pequeña cantidad de yodo y la mezcla se deja reposar a temperatura ambiente durante 25 minutos y luego se calienta y se agita hasta que se pierde el color marrón. El resto de la solución de bromuro de arilo se adiciona gota a gota durante un período de 20 minutos, con calentamiento ocasional para mantener la formación de la solución de reactivo de Grignard. La reacción se agita a temperatura ambiente durante 1 hora. Se adiciona gota a gota una solución de furfural (12,8 ml, 155 mmol) en tetrahidrofurano (70 ml), y una vez que la adición está completa, la reacción se agita a temperatura ambiente durante 2 horas. La reacción se inactiva mediante la cuidadosa adición de solución saturada de cloruro de amonio en exceso, luego se extrae en acetato de etilo, se lava con salmuera, se seca sobre sulfato de magnesio anhidro, se filtra y se concentra bajo presión reducida. La purificación mediante cromatografía en columna sobre gel de sílice proporciona (2,4,6-trimetilfenil)furan-2-ilmetanol.

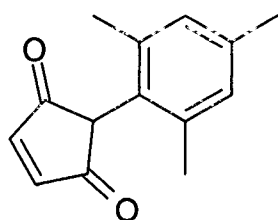
Etapa 2: Preparación de 5-(2,4,6-trimetilfenil)-4-hidroxiciclopent-2-enona.



Una solución de (2,4,6-trimetilfenil)furan-2-ilmetanol (27,8 g, 129 mmol) en acetona (730 ml) y agua (100 ml) se calienta hasta 55°C y se adiciona ácido polifosfórico (2 g). La mezcla se agita a 55°C durante 7 horas, luego se enfría hasta temperatura ambiente durante la noche. La mezcla de reacción se concentra bajo presión reducida para remover la mayor parte de la acetona luego se adiciona acetato de etilo (500 ml), y la mezcla de reacción se particiona. La

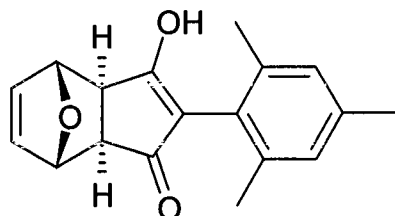
fase acuosa se extrae en acetato de etilo y las soluciones orgánicas se combinan, se lavan con solución acuosa saturada de bicarbonato de sodio y salmuera, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar 5-(2,4,6-trimetilfenil)-4-hidrox ciclopent-2-enona.

Etapa 3: Preparación de 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona.



Se adiciona gota a gota reactivo de Jones (138 ml de solución 1,67 M, 230 mmol) durante 40 minutos a una solución enfriada (baño de hielo) de 5-(2,4,6-trimetilfenil)-4-hidrox ciclopent-2-enona (49,66 g, 230 mmol) en acetona (600 ml). La mezcla se agita durante 1 hora. Se adiciona isopropanol (100 ml) y la mezcla se agita a temperatura ambiente durante 2 horas. La mezcla se diluye con acetato de etilo y se lava con salmuera, se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida para proporcionar 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona.

Etapa 4: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

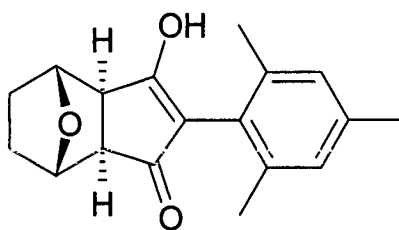


Se adicionan furano (214 ml, 3,15 mol) y yoduro de magnesio (7,0 g, 0,025 mol) a 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona (27,0 g, 0,126 mol) y la mezcla se agita a temperatura ambiente durante 4 días. La mezcla de reacción se concentra bajo presión reducida y el residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 6,86 (2H, s), 6,47 (2H, s), 5,01 (2H, s), 2,74 (2H, s), 2,23 (3H, s), 2,08 (3H, s), 2,06 (3H, s).

Ejemplo 7

Preparación de (1RS,2SR,6RS,7SR)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.



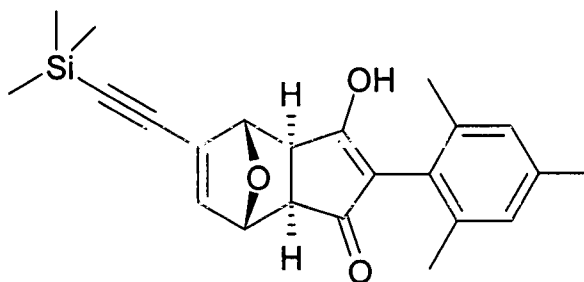
Una solución de (1RS,2SR,6RS,7SR)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (205 mg, 0,66 mmol) en metanol (250 ml) se hidrogena a 2 bar sobre paladio sobre carbón 5% (aproximadamente 20 mgs) durante 1 hora a temperatura ambiente. El catalizador se remueve mediante

filtración a través de tierra diatomea y el solvente se evapora bajo presión reducida. La trituración con dietil éter proporciona (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, d₄-MeOH) δ_H 6,88 (2H, s), 4,61 (2H, s), 2,87 (2H, s), 2,27 (3H, s), 2,06 (6H, s), 1,84 – 1,82 (2H, m), 1,71 – 1,66 (2H, m).

Ejemplo 8

Preparación de (1*RS*,2*SR*,6*RS*,7*RS*)-4-(2,4,6-trimetilfenil)-8-trimetilsililetinil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

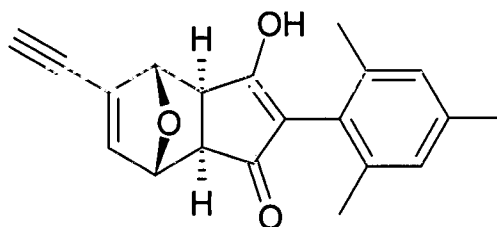


Se adicionan 3-(trimetilsililetinil)furano (10,0 g, 61 mmol) y yoduro de magnesio (1,11 g, 4 mmol) a 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona (4,34 g, 20 mmol) y la mezcla se agita a temperatura ambiente durante 3 días. La mezcla de reacción se concentra bajo presión reducida y el residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*SR*,6*RS*,7*RS*)-4-(2,4,6-trimetilfenil)-8-trimetilsililetinil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 6,65 (2H, s), 6,26 (1H, s), 4,75 (1H, s), 4,67 (1H, s), 2,62 (1H, d), 2,52 (1H, d), 2,03 (3H, s), 1,84 (3H, s), 1,80 (3H, s), 0,00 (9H, s).

Ejemplo 9

Preparación de (1RS,2SR,6RS,7RS)-8-etinil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

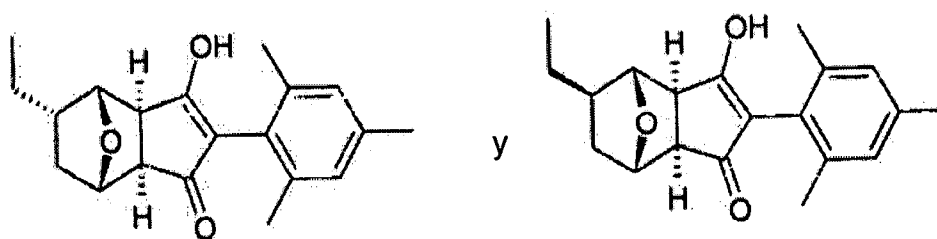


Se adiciona carbonato de potasio (2,58 g, 19 mmol) a una solución agitada de (1RS,2SR,6RS,7RS)-4-(2,4,6-trimetilfenil)-8-trimetilsililetinil-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona (6,43 g, 17 mmol) en metanol (100 ml). La mezcla de reacción se agita a temperatura ambiente durante 2 horas y 30 minutos, luego se adiciona ácido clorhídrico acuoso diluido y la mezcla se extrae con acetato de etilo. Los extractos orgánicos se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora bajo presión reducida para proporcionar (1RS,2SR,6RS,7RS)-8-etinil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, d₄-MeOH) δ_H 6,85 (2H, s), 6,72 (1H, d), 5,03 (1H, d), 3,96 (1H, s), 2,92 - 2,88 (2H, m), 2,24 (3H, s), 2,06 (3H, s), 2,01 (3H, s).

Ejemplo 10

Preparación de (1RS,2SR,6RS,7SR,8RS)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona y (1RS,2SR,6RS,7SR,8SR)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona



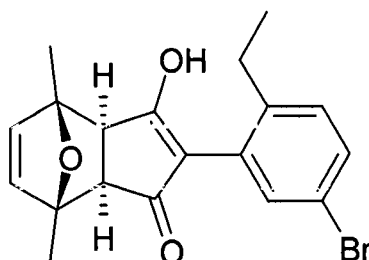
Una solución de (1*RS*,2*SR*,6*RS*,7*RS*)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona (1,0 g , 3,3 mmol) en metanol (100 ml) y diclorometano (100 ml) se hidrogena a 3,5 bar sobre paladio sobre carbón 5% (aproximadamente 50 mg) hasta que se considera que la reacción está completa a través de espectrometría de masas. El catalizador se remueve mediante filtración a través de tierra diatomea y el solvente se evapora bajo presión reducida. La purificación mediante cromatografía en columna sobre gel de sílice proporciona una mezcla de (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona y (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona aproximadamente 1:1.

(1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona: ¹H RMN (400 MHz, CDCl₃) δ_H 6,82 (2H, s), 4,44 (1H, d), 4,24 (1H, s), 2,45 - 2,40 (2H, m), 2,22 (3H, s), 2,02 (6H, s), 1,58 - 1,52 (2H, m), 1,38 - 1,33 (1H, m), 1,25 - 1,16 (2H, m), 0,85 - 0,82 (3H, m).

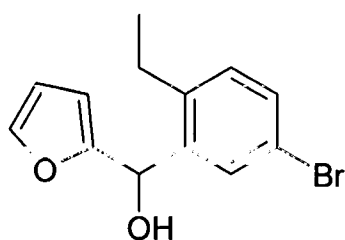
(1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-etil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona: ¹H RMN (400 MHz, CDCl₃) δ_H 6,85 (2H, s), 4,51 (1H, d), 4,43 (1H, d), 3,07 (1H, d), 2,82 - 2,81 (1H, m), 2,24 (3H, s), 2,10 - 2,05 (2H, m), 2,04 (6H, s), 1,87 - 1,79 (1H, m), 1,53 - 1,46 (2H, m), 1,00 (3H, t).

Ejemplo 11

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

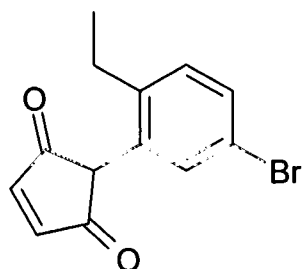


Etapla 1: Preparación de (5-bromo-2-etilfenil)furan-2-ilmetanol



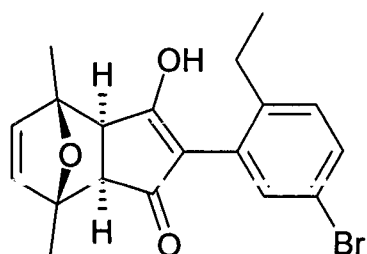
Se disuelve 4-bromo-2-yodoetil benceno (50,0 g, 0,161 mol) en tetrahidrofurano anhidro (250 ml) y se enfría hasta -70°C bajo una atmósfera de nitrógeno. Se adiciona gota a gota cloruro de isopropilmagnesio (solución 2 M en THF, 100 ml, 0,200 mmol) con agitación enérgica durante 40 minutos, manteniendo la temp interna por debajo de -60°C mediante enfriamiento externo. Cuando se completa la adición, la reacción se agita a -70°C durante 20 minutos después se deja entibiar hasta temperatura ambiente durante 1 hora y 20 minutos. Luego la mezcla de reacción se enfría hasta -70°C y se adiciona gota a gota una solución de 2-furaldehído (16 ml, 18,6 g, 190 mmol) en tetrahidrofurano (50 ml) durante 40 minutos. Al completar la adición, la reacción se deja entibiar hasta temperatura ambiente y se agita a temperatura ambiente durante 3 horas.

Etapa 3: Preparación de 2-(5-bromo-2-etilfenil)ciclopent-4-en-1,3-diona.



Se adiciona gota a gota reactivo de Jones (75 ml de solución 1,67 M, 125 mmol) durante 30 minutos a una solución enfriada (baño de hielo) de 5-(5-bromo-4-etilfenil)-4-hidroxyciclopent-2-enona (33 g, 117 mmol) en acetona (400 ml). La mezcla se agita durante 20 minutos, luego se remueve el baño de enfriamiento y la mezcla se agita durante 1 hora a temperatura ambiente. Se adiciona isopropanol (150 ml) a la suspensión amarilla y la mezcla se agita a temperatura ambiente durante 2 horas. La mezcla se diluye con acetato de etilo y se lava con salmuera, se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida para proporcionar 2-(5-bromo-2-etilfenil)ciclopent-4-en-1,3-diona.

Etapa 4: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

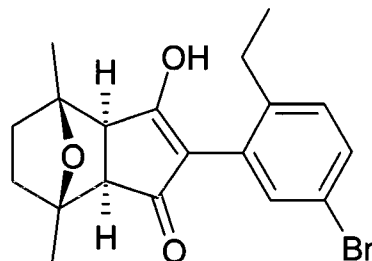


Se adicionan 2,5-dimetilfurano (2,3 ml, 21,6 mmol) y yoduro de magnesio (0,40 g, 1,4 mmol) a una solución de 2-(5-bromo-2-etilfenil)ciclopent-4-en-1,3-diona (2,0 g, 7,2 mmol) en diclorometano (10 ml) y la mezcla se agita a temperatura ambiente durante 3 días. La mezcla de reacción se concentra bajo presión reducida y el residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

¹H RMN (400 MHz, d₄-MeOH) δ_{H} 7,39 (1H, dd), 7,18 (1H, d), 7,16 (1H, d), 6,35 (2H, s), 2,79 (2H, s), 2,46 (2H, q), 1,61 (6H, s), 1,07 (3H, t).

Ejemplo 12

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

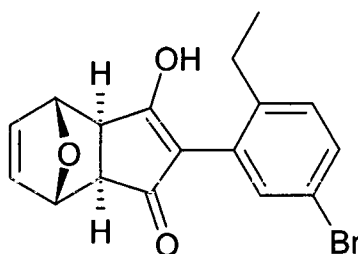


Una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (1,63 g, 4,3 mmol) en metanol (200 ml) se hidrogena a 3,5 bar sobre paladio sobre carbón 5% durante 1 hora y 30 minutos a temperatura ambiente. El catalizador se remueve mediante filtración a través de tierra diatomea y el solvente se evapora bajo presión reducida. La trituración con dietil éter proporciona (1*RS*,2*SR*,6*RS*,7*SR*)-4-(5-bromo-2-etilfenil)-1,7-dimetil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

^1H RMN (400 MHz, $\text{d}_4\text{-MeOH}$) δ_{H} 7,36 (1H, dd), 7,17 (1H, d), 7,15 (1H, d), 2,81 (2H, s), 2,48 – 2,43 (2H, m), 1,84 – 1,79 (2H, m), 1,69 – 1,65 (2H, m), 1,51 (6H, s), 1,08 (3H, t).

Ejemplo 13

Preparación de (1RS,2SR,6RS,7SR)-4-(5-bromo-2-etilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

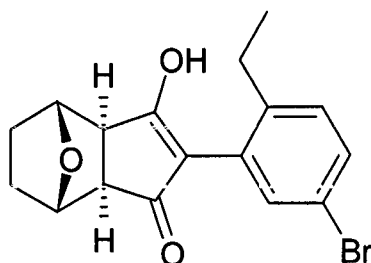


Se adicionan furano (4,0 ml, 55,0 mmol) y yoduro de magnesio (1,00 g, 3,6 mmol) a una solución de 2-(5-bromo-2-etilfenil)ciclopent-4-en-1,3-diona (5,0 g, 17,9 mmol) en diclorometano (20 ml) y la mezcla se agita a temperatura ambiente durante 3 días. Se agrega una cantidad adicional de furano (1,3 ml, 17,8 mmol) y la agitación se continúa durante 18 horas, y luego se agrega una cantidad adicional de furano (1,3 ml, 17,8 mmol) y la mezcla se agita durante 48 horas, y después se deja a temperatura ambiente durante 5 días. La mezcla de reacción se disuelve en metanol y se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR)-4-(5-bromo-2-etilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

^1H RMN (400 MHz, $\text{d}_4\text{-MeOH}$) δ_{H} 7,37 (1H, dd), 7,17 (1H, d), 7,14 (1H, d), 6,54 (2H, s), 4,96 (2H, s), 2,79 (2H, s), 2,44 (2H, q), 1,06 (3H, t)

Ejemplo 14

Preparación de (1RS,2SR,6RS,7SR)-4-(5-bromo-2-etilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

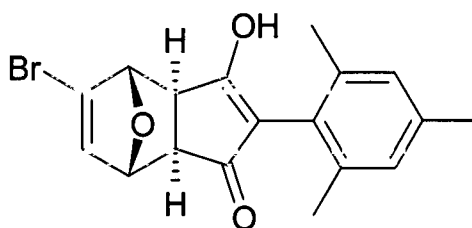


Una solución de (1RS,2SR,6RS,7SR)-4-(5-bromo-2-etilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]-dec-8-en-3,5-diona (3,00 g , 8,6 mmol) en metanol (250 ml) se hidrogena a 3,5 bar sobre paladio sobre carbón 5% durante 2 horas a temperatura ambiente. El catalizador se remueve mediante filtración a través de tierra diatomea y el solvente se evapora bajo presión reducida para proporcionar (1RS,2SR,6RS,7SR)-4-(5-bromo-2-etilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, d₄-MeOH) δ_H 7,34 (1H, dd), 7,15 (2H, d), 4,59 (2H, s), 2,78 (2H, s), 2,43 (2H, q), 1,81 – 1,78 (2H, m), 1,66 – 1,61 (2H, m), 1,06 (3H, t).

Ejemplo 15

Preparación de (1RS,2RS,6SR,7SR)-8-bromo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

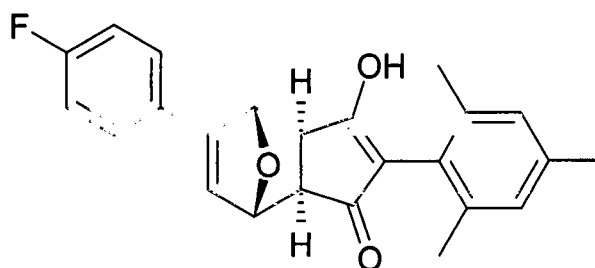


Se adicionan 3-bromofurano (5,2 g, 56 mmol) y yoduro de magnesio (1,5 g, 5,6 mmol) a 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona (4,0 g, 18,7 mmol) y la mezcla se agita a temperatura ambiente durante 2 días; se adicionan pequeñas cantidades de diclorometano cuando sea requerido para auxiliar en la agitación. La mezcla de reacción se deja reposar a temperatura ambiente durante 17 horas, luego se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*RS*,6*SR*,7*SR*)-8-bromo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 6,87 (2H, s), 6,40 (1H, d), 4,95 (1H, s), 4,82 (1H, s), 2,90 (1H, d), 2,81 (1H, d), 2,25 (3H, s), 2,07 (3H, s), 2,03 (3H, s).

Ejemplo 16

Preparación de (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.



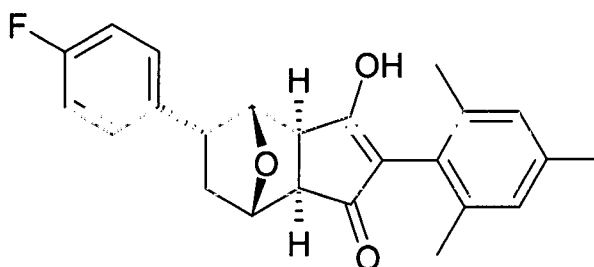
Una mezcla de (1*RS*,2*RS*,6*SR*,7*SR*)-8-bromo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona (300 mg, 0,82 mmol), ácido 4-fluorfenilborónico (171 mg, 1,22 mmol), 2'-díciclohexilfosfin-2,6-dimetoxi-1,1'-bifenil-3-sulfonato de sodio hidratado (17 mg, 0,03 mmol), fosfato de potasio (522 mg, 2,5 mmol) y acetato de paladio (4 mg, 0,02 mmol) en agua (8 ml) se

calienta por 150°C durante 25 minutos bajo irradiación de microondas. La mezcla se enfría hasta temperatura ambiente y se adiciona ácido clorhídrico acuoso diluido. La mezcla se filtra y el filtrado se extrae con acetato de etilo. Los extractos orgánicos se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se concentra bajo presión reducida. La purificación mediante cromatografía en columna sobre gel de sílice proporciona (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 7,35 - 7,32 (2H, m), 6,86 (1H, s), 6,85 (1H, s), 6,82 - 6,77 (2H, m), 6,37 (1H, d), 5,31 (1H, s), 5,03 (1H, d), 2,82 - 2,78 (2H, m), 2,25 (3H, s), 2,07 (3H, s), 2,05 (3H, s).

Ejemplo 17

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-(4-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.



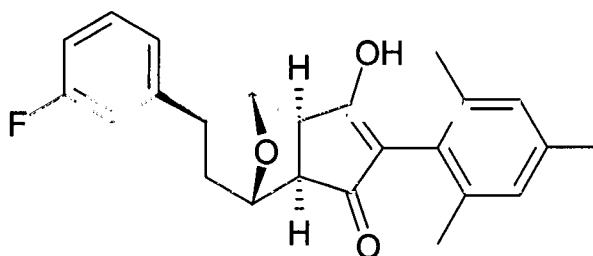
Una suspensión de (1*RS*,2*SR*,6*RS*,7*RS*)-8-(4-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (99 mg, 0,26 mmol) en metanol (20 ml) se hidrogena a 3 bar sobre paladio sobre carbón 5% durante 5 horas a temperatura ambiente. El catalizador se remueve mediante filtración a través de tierra diatomea y el solvente se evapora bajo presión reducida para

proporcionar (1*RS*,2*SR*,6*RS*,7*SR*,8*SR*)-8-(4-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 7,39 (2H, dd), 7,11 (2H, t), 6,86 (1H, s), 6,85 (1H, s), 4,73 (1H, d), 4,68 (1H, d), 3,63 - 3,58 (1H, m), 2,94 (1H, d), 2,75 (1H, d), 2,38 - 2,30 (1H, m), 2,25 (3H, s), 2,08 (3H, s), 2,03 (3H, s), 1,92 (1H, dd).

Ejemplo 18

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-(3-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

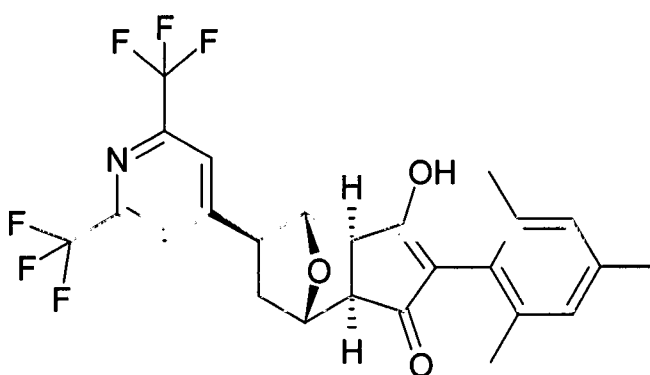


Se adicionan diacetato de bis(trifenilfosfin)paladio (20 mg, 0,024 mmol), 1-fluor-3-yodo-benceno (104 mg, 0,47 mmol) y piperidina (0,16 ml, 1,6 mmol) a una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (0,20 g, 0,71 mmol) en *N,N*-dimetilformamida seca (2 ml). Se adiciona ácido fórmico (0,06 ml, 1,6 mmol) y la mezcla de reacción se calienta a 50°C durante 2 horas. La mezcla de reacción se enfría hasta temperatura ambiente, se adicionan agua (1 ml) y diclorometano (1 ml), y la mezcla se agita durante 1 hora. Las dos fases se separan, la fase orgánica se recoge y el solvente se evapora. El residuo se purifica mediante HPLC preparativa de fase inversa para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-8-(3-fluorfenil)-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

^1H RMN (400 MHz, CDCl_3) δ_{H} 7,75 - 7,66 (1H, m), 7,25 - 7,21 (1H, m), 7,06 - 7,02 (2H, m), 6,88 (1H, s), 6,87 (1H, s), 4,83 (1H, br. s), 4,59 (1H, s), 3,00 - 2,98 (1H, m), 2,83 - 2,70 (2H, br. s), 2,25 (3H, s), 2,20 - 2,16 (1H, m), 2,09 (3H, s), 2,08 (3H, s), 1,92 - 1,89 (1H, m).

Ejemplo 19

Preparación de (1RS,2SR,6RS,7SR,8RS)-8-[2,6-bis(trifluormetil)piridin-4-il]-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona

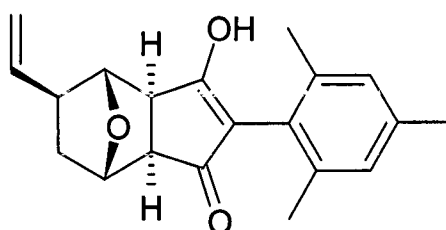


Una mezcla de (1RS,2SR,6RS,7SR)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (400 mg, 1,4 mmol), 2,6-bis(trifluormetil)-4-cloropiridina (531 mg, 1,4 mmol), acetato de paladio (16 mg, 0,07 mmol), 2'-d ciclohexilfosfin-2,6-dimetoxi-1,1'-bifenilo (67 mg, 0,14 mmol), formiato de potasio (353 mg, 4,2 mmol), cloruro de tetrabutilamonio (389 mg, 1,4 mmol) y yoduro de cobre (53 mg, 0,28 mmol) en *N,N*-dimetilformamida seca (6 ml) se calienta a 150°C durante 30 minutos bajo irradiación de microondas. La purificación mediante HPLC preparativa de fase inversa proporciona (1RS,2SR,6RS,7SR,8RS)-8-[2,6-bis(trifluormetil)piridin-4-il]-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

^1H RMN (400 MHz $\text{d}_4\text{-MeOH}$) δ_{H} 7,81 (1H, s), 7,26 (1H, s), 6,92 (1H, s), 6,90 (1H, s), 4,91 (1H, d), 4,64 (1H, s), 3,19 - 3,17 (1H, m), 2,99 - 2,95 (2H, m), 2,32 - 2,27 (1H, m), 2,26 (3H, s), 2,09 (3H, s), 2,07 (3H, s), 1,93 - 1,90 (1H, m).

Ejemplo 20

Preparación de (1RS,2SR,6RS,7SR,8RS)-4-(2,4,6-trimetilfenil)-8-vinil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

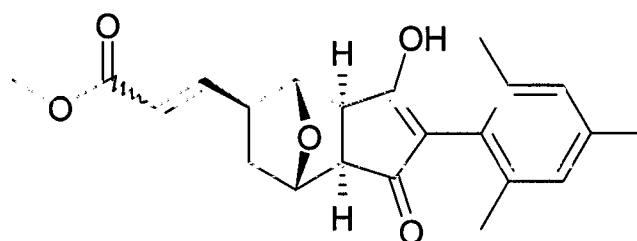


Una mezcla de (1RS,2SR,6RS,7SR)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona (510 mg, 1,8 mmol), yoduro de vinilo (280 mg, 1,8 mmol), acetato de paladio (20 mg, 0,09 mmol), formiato de sodio (454 mg, 5,4 mmol) y cloruro de tetrabutilamonio (500 mg, 1,8 mmol) en *N,N*-dimetilformamida seca (15 ml) se calienta a 150°C durante 20 minutos bajo irradiación de microondas. La mezcla se enfría hasta temperatura ambiente y se particiona entre agua y acetato de etilo. Los extractos orgánicos se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR,8RS)-4-(2,4,6-trimetilfenil)-8-vinil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona.

^1H RMN (400 MHz, CDCl_3) δ_{H} 6,90 - 6,89 (2H, m), 5,80 - 5,71 (1H, m), 5,05 - 4,97 (2H, m), 4,68 (1H, d), 4,44 (1H, s), 2,81 - 2,76 (2H, m), 2,51 - 2,46 (1H, m), 2,26 (3H, s), 2,07 (3H, s), 2,06 (3H, s), 1,89 - 1,84 (1H, m), 1,67 - 1,62 (1H, m).

Ejemplo 21

Preparación de [(1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-3,5-dioxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-il]acrilato de metilo.

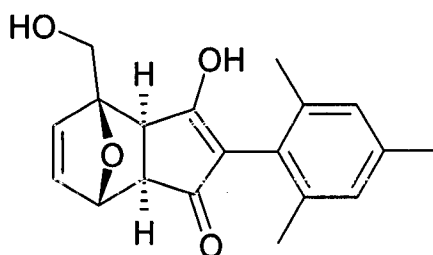


Se adiciona benciliden[1,3-bis(2,4,6-trimetilfenil)-2-imidazolidiniliden]dicloro(triciclohexil-fosfin)rutenio (14 mg, 0,016 mmol) a una suspensión de (1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-4-(2,4,6-trimetilfenil)-8-vinil-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona (100 mg, 0,32 mmol) y acrilato de metilo (0,03 ml, 0,35 mmol) en diclorometano (1 ml) y la mezcla se agita a reflujo durante 2 horas. La mezcla de reacción se enfría hasta temperatura ambiente, el solvente se evapora bajo presión reducida y el residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar [(1*RS*,2*SR*,6*RS*,7*SR*,8*RS*)-3,5-dioxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-il]acrilato de metilo. La RMN de protones indica que el producto comprende una mezcla de isómeros *E* y *Z*.

Isómero *E*: ¹H RMN (400 MHz, CDCl₃) δ_H 6,80 (2H, s), 6,74 (1H, dd), 5,91 (1H, d), 4,58 (1H, d), 4,30 (1H, s), 3,33 (3H, s), 2,85 - 2,77 (3H, m), 2,21 (3H, s), 1,97 (3H, s), 1,94 (3H, s), 1,94 - 1,91 (1H, m), 1,59- 1,54 (1H, m).

Ejemplo 22

Preparación de (1*RS*,2*SR*,6*SR*,7*SR*)-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

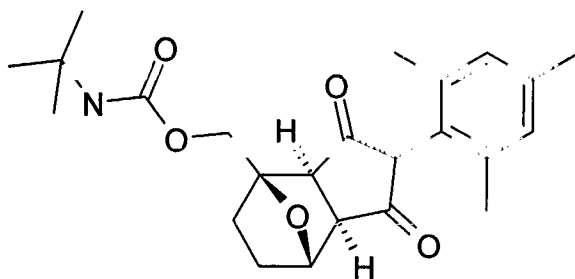


Se adiciona furfuril alcohol (4 ml, 46,7 mmol) a 2-(2,4,6-trimetilfenil)ciclopent-4-en-1,3-diona (2,0 g, 9,3 mmol) y MgI_2 (520 mg, 1,86 mmol) y la reacción se agita durante 17 horas. La mezcla de reacción es adsorbida sobre gel de sílice y se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1RS,2SR,6RS,7SR)-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona.

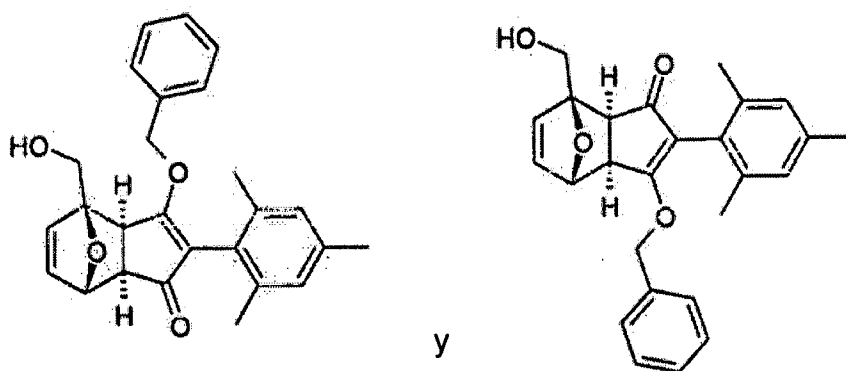
^1H RMN (400 MHz, CDCl_3) δ_{H} 6,87 (2H, s), 6,49 (1H, d), 6,44 (1H, d), 4,96 (1H, d), 3,98 (1H, d), 3,85 (1H, d), 2,82-2,78 (2H, m), 2,24 (3H, s), 2,08 (3H, s), 2,05 (3H, s).

Ejemplo 23

Preparación de [(1RS,2SR,6RS,7SR)-3,5-dioxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-1-il]metil éster de ácido *terc*-butil carbámico.

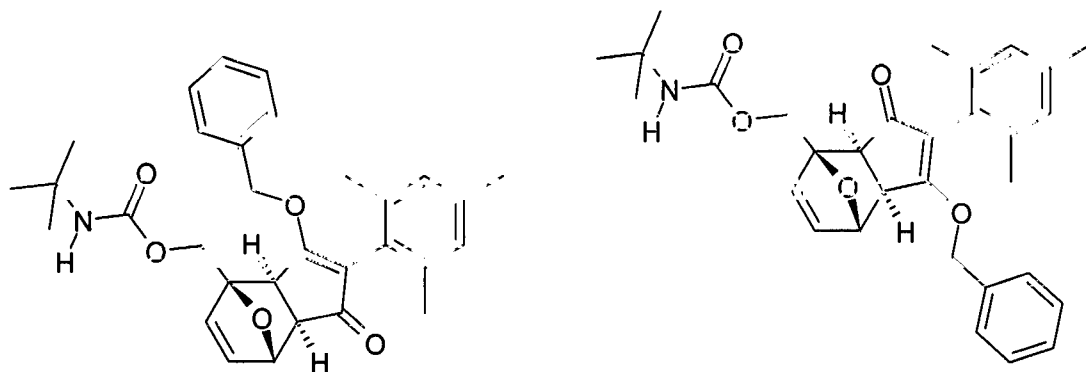


Etapa 1: Preparación de (1*RS*,2*SR*,6*SR*,7*SR*)-5-benciloxi-7-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona y (1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona



Se adiciona bromuro de bencilo (0,72 ml, 6,1 mmol) a una mezcla de carbonato de potasio (840 mg, 6,1 mmol) y (1*RS*,2*SR*,6*RS*,7*SR*)-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]dec-8-en-3,5-diona (1,80 g, 5,8 mmol) en acetona (80 ml), y la mezcla de reacción se calienta a reflujo durante 4 horas. La mezcla de reacción se enfría hasta temperatura ambiente, se diluye con agua y se extrae con acetato de etilo. Los extractos orgánicos se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar una mezcla de (1*RS*,2*SR*,6*SR*,7*SR*)-5-benciloxi-7-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona y (1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona.

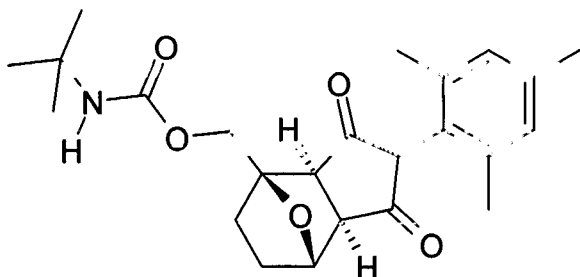
Etapa 2: Preparación de [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benciloxi-5-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster de ácido *tert*-butil carbámico y [(1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-3-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster de ácido *tert*-butil carbámico.



Se adiciona hidruro de sodio (60 mg, 1,97 mmol) a una mezcla enfriada (0°C) de (1*RS*,2*SR*,6*SR*,7*SR*)-5-benciloxi-7-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona y (1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-1-hidroximetil-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-3-ona (265 mg, 0,66 mmol) en tetrahidrofurano (10 ml). La mezcla se agita durante unos pocos minutos y luego se adiciona isocianato de *tert*-butilo (0,15 ml, 1,32 mmol). La reacción se deja entibiar hasta temperatura ambiente y se agita durante 17 horas. La mezcla se particiona entre agua y acetato de etilo, y las soluciones orgánicas se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se evapora. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar una mezcla de [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benciloxi-5-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster de ácido *tert*-butil carbámico y

[(1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-3-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster de ácido *terc*-butil carbámico.

Etapas 3: Preparación de [(1*RS*,2*SR*,6*RS*,7*SR*)-3,5-dioxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-1-il]metil éster de ácido *terc*-butil carbámico.

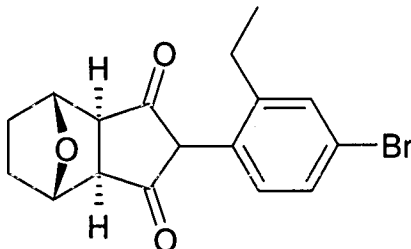


Una suspensión de una mezcla de [(1*RS*,2*RS*,6*RS*,7*SR*)-3-benciloxi-5-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster y [(1*RS*,2*SR*,6*RS*,7*SR*)-5-benciloxi-3-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]deca-4,8-dien-1-il]metil éster de ácido *terc*-butil carbámico (147 mg, 0,29 mmol) en metanol (20 ml) se hidrogena a 3 bar sobre paladio sobre carbón 5% durante 5 horas. El catalizador se remueve mediante filtración y el filtrado se concentra bajo presión reducida para proporcionar [(1*RS*,2*SR*,6*RS*,7*SR*)-3,5-dioxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5,2,1,0^{2,6}]dec-8-en-1-il]metil éster ácido *terc*-butil carbámico.

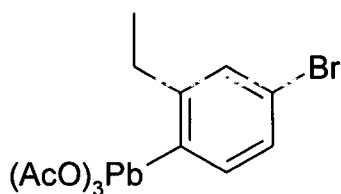
¹H RMN (400 MHz, CDCl₃) δ_H 6,83 (2H, s), 5,02 (1H, s), 4,72 (1H, d), 4,65 (1H, d), 4,12 (1H, d), 2,83 (1H, d), 2,70 (1H, d), 2,23 (3H, s), 2,07 (3H, s), 2,06 (3H, s), 1,86 - 1,80 (2H, m), 1,57 - 1,45 (2H, m), 1,29 (9H, s).

Ejemplo 24

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-etilfenil)-10-oxatriciclo-
[5,2,1,0^{2,6}]decan-3,5-diona.

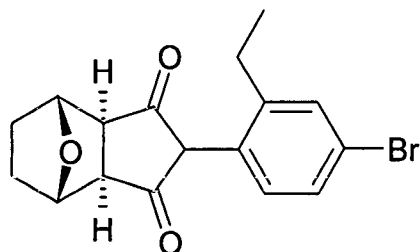


Etapa 1: Preparación de triacetato de 4-bromo-2-etilfenilplomo.



Se adiciona cloroformo seco (30 ml) a una mezcla de tetraacetato de plomo (8,52 g, 19,3 mmol) y diacetato mercúrico (0,28 g, 0,875 mmol) bajo una atmósfera de nitrógeno, y la mezcla de reacción se agita y se calienta hasta 40°C. Se adiciona ácido 4-bromo-2-etilfenilborónico (4,0 g, 17,5 mmol) en una porción y la mezcla se agita a 40°C durante 4 horas. La mezcla de reacción se enfría hasta 0°C, y se adiciona carbonato de potasio (2,66 g, 19,3 mmol) a modo de porción. La mezcla se agita durante 5 minutos, luego se filtra a través de un pequeño tapón de tierra diatomea, lavando con cloroformo. El filtrado se concentra bajo presión reducida para proporcionar triacetato de 4-bromo-2-etilfenilplomo.

Etapa 2: Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-etilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.



Se adicionan 4-dimetilaminopiridina (3,67 g, 30,0 mmol) y tolueno (10 ml) a una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-10-oxatriciclo[5,2,1,0^{2,6}]decan-3,5-diona (1,0 g, 6,0 mmol) en cloroformo (40 ml) y la mezcla de reacción se calienta hasta 80°C. Se adiciona triacetato de 4-bromo-2-etilfenilplomo (5,13 g, 9,04 mmol) a modo de porción durante 20 minutos, y una vez que se completa la adición la mezcla de reacción se agita a 80°C durante 4 horas adicionales. La mezcla se enfría hasta temperatura ambiente, se adiciona ácido clorhídrico acuoso 2 M (40 ml), y la mezcla se agita enérgicamente durante 15 minutos, luego se filtra a través de un pequeño tapón de tierra diatomea, lavando con 40 ml de diclorometano. La fase orgánica se separa, y la fase acuosa se extrae con diclorometano (2 x 20 ml). Las soluciones orgánicas se combinan, se secan sobre sulfato de magnesio anhidro, se filtran y el filtrado se concentra bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-4-(4-bromo-2-etilfenil)-10-oxatriciclo-[5,2,1,0^{2,6}]decan-3,5-diona.

¹H RMN (400 MHz, CDCl₃) δ_H 7,39 (1H, dd), 7,27-7,33 (1H, m), 6,97 (1H, dd), 4,68 (2H, m), 2,74 (2H, br. s), 2,48 (2H, q), 1,78-1,87 (2H, m), 1,56 (2H, m), 1,11 (3H, t).

Los compuestos adicionales en la Tabla T1 a continuación se prepararon a través de métodos similares utilizando materiales de partida apropiados. Debería notarse que ciertos compuestos de la invención existen como una mezcla de isómeros indicada precedentemente, bajo las condiciones utilizadas para obtener los datos de ¹H RMN. Cuando ello haya ocurrido, los datos de caracterización se informan para todos los isómeros presentes a temperatura ambiente en el solvente especificado. A menos que se afirme de otro modo, los espectros de RMN de protones se registraron a temperatura ambiente. Los compuestos caracterizados mediante HPLC-MS se analizaron utilizando uno de los dos métodos descriptos a continuación.

Método A

Los compuestos caracterizados mediante HPLC-MS se analizaron utilizando un inyector Waters 2777 con una HPLC con microbomba 1525 equipada con una columna Waters Atlantis dC18 IS (longitud de columna 20 mm, diámetro interno de columna 3 mm, tamaño de partícula 3 micrones), arreglo de fotodiodos Waters 2996, Waters 2420 ELSD y Micromass ZQ2000. El análisis se llevó a cabo utilizando un tiempo de ejecución de tres minutos, de acuerdo con la siguiente tabla de gradientes:

Tiempo (mins)	Solvente A (%)	Solvente B (%)	Flujo (ml / mn)
0,00	95,0	5	1,300
2,50	0,0	100	1,300
2,80	0,00	100	1,300
2,90	95,0	5	1,300

Solvente A: H₂O con TFA 0,05%
Solvente B: CH₃CN con TFA 0,05%

Método B

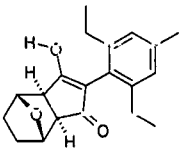
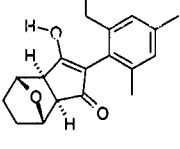
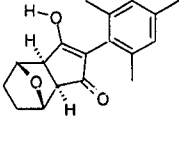
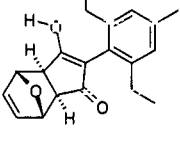
Los compuestos caracterizados mediante HPLC-MS se analizaron utilizando una HPLC Waters 2795 equipada con una columna Waters Atlantis dC18 (longitud de columna 20 mm, diámetro interno de columna 3 mm, tamaño de partícula 3 micrones, temperatura 40°C), arreglo de fotodiodos Waters y Micromass ZQ2000. El análisis se llevó a cabo utilizando un tiempo de ejecución de tres minutos, de acuerdo con la siguiente tabla de gradientes:

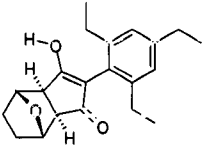
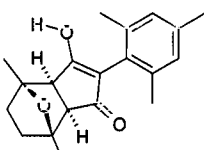
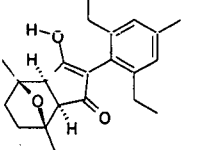
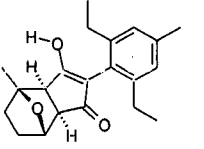
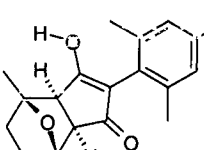
Tiempo (mins)	Solvente A (%)	Solvente B (%)	Flujo (ml / mn)
0,00	90,0	10,0	2,00
0,25	90,0	100	2,00
2,00	10,0	90,0	2,00
2,50	10,0	90,0	2,00
2,60	90,0	10,0	2,00
3,0	90,0	10,0	2,00

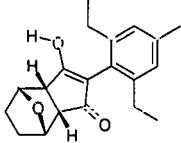
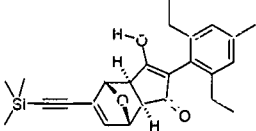
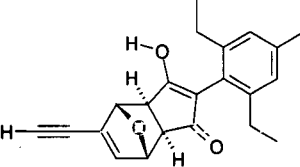
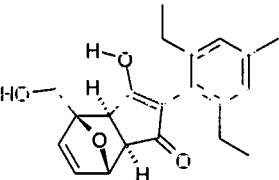
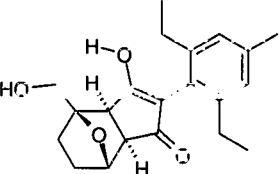
Solvente A: H₂O conteniendo HCOOH 0,1%
Solvente B: CH₃CN conteniendo HCOOH 0,1%

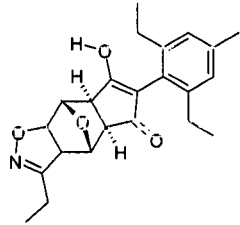
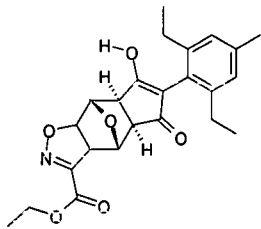
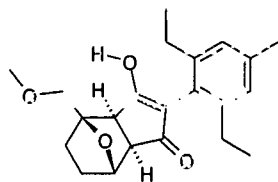
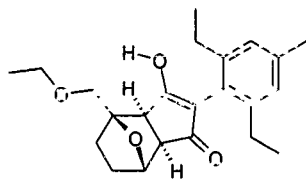
Los valores característicos obtenidos para cada compuesto fueron el tiempo de retención (tr, registrado en minutos) y el ión molecular (normalmente el catión MH⁺), según se enumera en la Tabla T1.

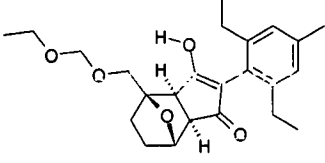
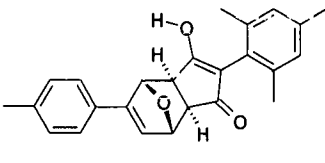
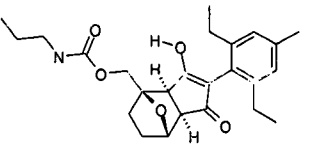
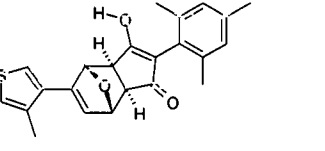
Tabla T1

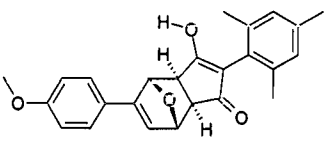
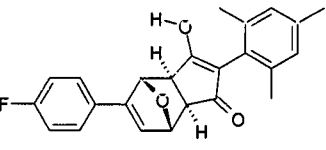
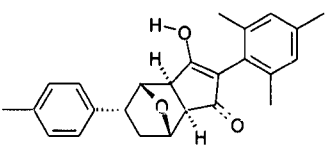
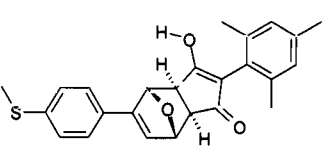
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T1		δ _H 6,88 – 6,87 (2H, m), 4,55 – 4,54 (2H, m), 2,62 (2H, s), 2,36 – 2,27 (7H, m), 1,69 – 1,67 (2H, m), 1,40 – 1,39 (2H, m), 1,03 (6H, q).
T2		δ _H 6,88 (2H, m), 4,58 (2H, s), 2,65 (2H, m), 2,38 – 2,32 (2H, m), 2,26 (3H, s), 2,02 (3H, s), 1,76 – 1,71 (2H, m), 1,45 (2H, m), 1,04 (3H, q).
T3		δ _H 6,86 (1H, s), 6,85 (1H, s), 4,68 – 4,67 (2H, m), 2,74 (2H, s), 2,24 (3H, s), 2,10 (3H, s), 2,08 (3H, s), 1,83 -1,80 (2H, m), 1,58 – 1,54 (2H, m).
T4		δ _H 6,94 (2H, s), 6,44 (2H, s), 5,04 (2H, s), 2,81-2,73 (2H, m), 2,41 – 2,35 (4H, m), 2,30 (3H, s), 1,10 – 1,02 (6H, m).

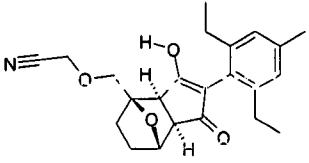
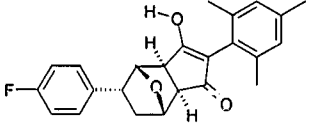
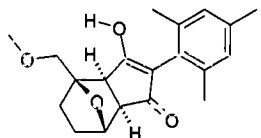
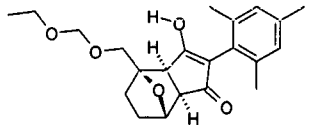
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T5		δ_{H} 6,94 (1H, s), 6,93 (1H, s), 4,64 – 4,63 (2H, m), 2,73 (2H, s), 2,59 (2H, q), 2,41 – 2,31 (4H, m), 1,77 (2H, m), 1,48 (2H, m), 1,22 (3H, t), 1,06 (6H, m).
T6		δ_{H} 6,98 (1H, s), 6,97 (1H, s), 2,64 – 2,59 (2H, brs), 2,25 (3H, s), 2,03 (6H, s), 1,66 (4H, s), 1,50 (6H br s).
T7		δ_{H} 6,95 (1H, s), 6,47 (1H, br s), 3,00 (1H, d), 2,68 – 2,66 (1H, m), 2,44 – 2,31 (7H, m), 1,77 – 1,71 (4H, m), 1,58 (3H, s), 1,55 (3H, s), 1,08 (6H, q).
T8		δ_{H} 6,95 (s), 4,69 (d), 4,64 (d), 3,05 (d), 2,91 (d), 2,81 (d), 2,59 (d), 2,44 – 2,32 (m), 2,31 (s), 2,00 – 1,93 (m), 1,67 – 1,62 (m), 1,61 (s), 1,58 (s), 1,10 – 1,05 (m).
T9		δ_{H} 6,92 (2H, s), 6,47 (1H, s), 6,32 (0,5H, s), 6,28 (0,5H, s), 5,14 (0,5H, s), 4,97 (0,5H, br s), 3,06 (0,5H, br s), 2,86 (0,5H, s), 2,80 (0,5H br s), 2,50 (0,5H, br s), 2,28

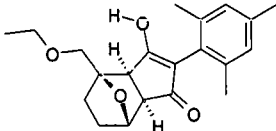
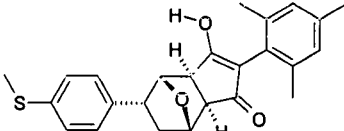
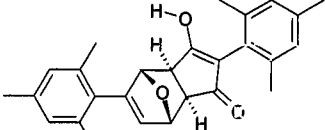
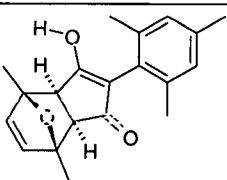
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(3H, s), 2,12 (6H, s), 1,70 (3H, br s).
T10		δ _H 6,95 (2H, s), 4,75 (2H, br), 3,40 (2H, br), 2,45 (2H, q), 2,35 (2H, q), 2,30 (3H, s), 1,80 (4H, m), 1,15 (3H, t), 1,05 (3H, t).
T11		δ _H 6,70 (2H, s), 6,24 (1H, s), 4,79 (1H, s), 4,73 (1H, s), 2,67 (1H, br s), 2,56 (1H, d), 2,17 - 2,08 (7H, m), 0,87 - 0,77 (6H, m), 0,00 (9H, s).
T12		δ _H 6,94 (2H, s), 6,66 (0,5H, s), 6,62 (0,5H, s), 5,14 - 5,02 (2H, m), 3,42 (1H, s), 3,10 (0,5H, s), 3,00 (0,5H, s), 2,86 (0,5H, s), 2,77 (0,5 H, s), 2,38 - 2,31 (7H, m), 1,10 - 1,01 (6H, m).
T13		δ _H 6,95 (2H, s), 6,60 (1H, s), 6,53 - 6,51 (1H, m), 5,07 (1H, s), 4,14 - 4,00 (2H, m), 3,10 - 2,90 (br m, 2H), 2,42 - 2,28 (7H, m), 1,11 - 1,04 (6H, m).
T14		δ _H 6,88 (2H, s), 4,57 (1H, d), 3,86 (1H, d), 3,73 (1H, d), 3,23 (1H, s), 2,35 - 2,27 (7H, m), 1,86 - 1,53 (4H,

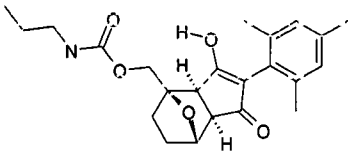
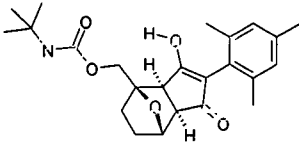
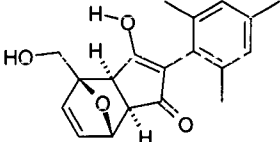
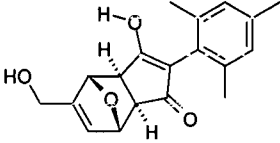
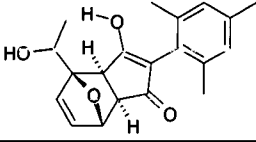
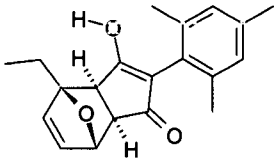
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		m), 1,06 - 1,00 (6H, m).
T15		δ_{H} 6,94 (1H, s), 6,93 (1H, s), 4,86 (1H, s), 4,79 (1H, d), 4,76 (1H, s), 3,50 (1H, d), 2,96 (1H, s), 2,78 (1H, s), 2,50 - 2,25 (9H, m), 1,24 - 1,18 (3H, m), 1,09 - 1,02 (6H, m).
T16		δ_{H} 6,92 (2H, s), 5,00 (1H, d), 4,96 (1H, s), 4,93 (1H, s), 4,37 - 4,32 (2H, m), 3,78 (1H, d), 2,96 (1H, s), 2,61 (1H, s), 2,34 - 2,30 (7H, m), 1,39 - 1,35 (3H, m), 1,07 - 1,00 (6H, m).
T17		δ_{H} 8,40 (1H, s), 6,93 (1H, s), 6,92 (1H, s), 4,78 (1H, d), 4,01 (1H, d), 3,75 (1H, d), 3,52 (3H, s), 3,11 (1H, d), 2,81 (1H, d), 2,44 - 2,31 (4H, m), 2,30 (3H, s), 2,00 - 1,93 (2H, m), 1,75 - 1,70 (2H, m), 1,09 - 1,05 (6H, m).
T18		δ_{H} 6,88 (1H, s), 6,87 (1H, s), 4,66 (1H, d), 3,94 (1H, d), 3,77 (1H, d), 3,65 - 3,52 (2H, m), 2,88 (1H, s), 2,80 (1H, d), 2,39 - 2,26 ((7H, m), 1,94 - 1,90 (2H, m), 1,65 - 1,60 (4H,

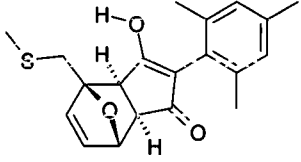
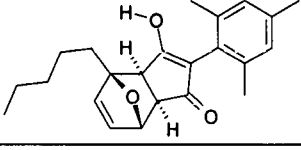
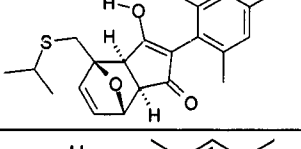
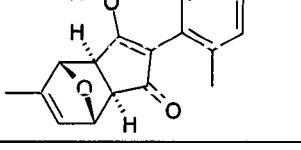
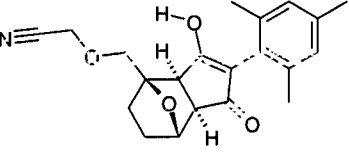
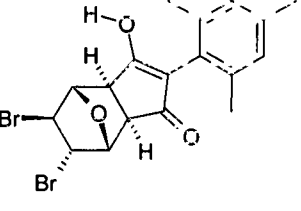
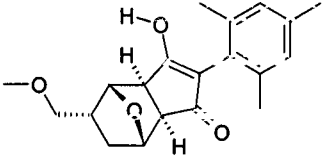
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		m), 1,20 (3H, t), 1,05 - 1,00 (6H, m).
T19		δ_{H} 6,92 (1H, s), 6,91 (1H, s), 4,75 (2H, s), 4,69 (1H, s), 4,04 - 3,96 (2H, m), 3,64 - 3,61 (2H, m), 2,94 (1H, br s), 2,81 (1H, d), 2,42 - 2,30 (4H, m), 2,30 (3H, s), 2,00 - 1,86 (2H, m), 1,69 - 1,54 (2H, m), 1,22 - 1,19 (3H, m), 1,08 - 1,04 (8H, m).
T20		δ_{H} 7,29 - 7,26 (2H, m), 7,05 (2H, d), 6,85 (1H, s), 6,84 (1H, s), 6,39 (1H, d), 5,32 (1H, s), 5,02 (1H, d), 2,79 - 2,75 (2H, m), 2,33 (3H, s), 3,23 (3H, s), 2,07 (3H, s), 2,04 (3H, s).
T21		δ_{H} 6,87 (2H, s), 5,44 (1H, v. br s), 4,71 - 4,64 (2H, m), 4,26 - 4,23 (1H, m), 3,11 - 3,06 (2H, m), 2,90 (1H, br s), 2,81 (1H, d), 2,38 - 2,27 (4H, m), 2,25 (3H, s), 1,93 - 1,82 (2H, m), 1,66 - 1,52 (2H, m), 1,50 - 1,43 (2H, m), 1,01 (6H, t), 0,87 (3H, t).
T22		δ_{H} 7,21 (1H, d), 6,93 (1H, dd), 6,84 (2H, s), 6,30 (1H, s), 5,24 (1H, s), 5,04 (1H, s), 2,82 - 2,81 (1H, m),

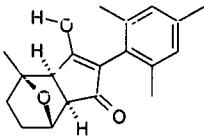
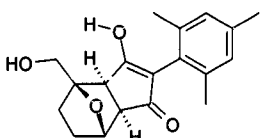
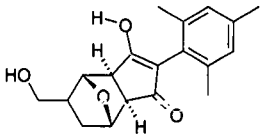
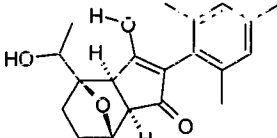
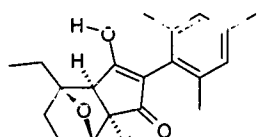
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,78 - 2,77 (1H, m), 2,28 (3H, s con leve división) 2,22 (3H, s), 2,07 (3H, s), 2,04 (3H, s).
T23		δ_{H} 7,33 (2H, d), 6,86 - 6,81 (4H, m), 6,35 (1H, s), 5,32 (1H, s), 5,04 (1H, s), 3,80 (3H, s), 2,83 - 2,82 (1H, m), 2,77 (1H, br s), 2,24 (3H, s), 2,07 (3H, s), 2,05 (3H, s).
T24		δ_{H} 7,35 - 7,32 (2H, m), 6,86 (1H, s), 6,85 (1H, s), 6,82 - 6,77 (2H, m), 6,37 (1H, d), 5,31 (1H, s), 5,03 (1H, d), 2,82 - 2,78 (2H, m), 2,25 (3H, s), 2,07 (3H, s), 2,05 (3H, s).
T25		δ_{H} 7,25 - 7,17 (4H, m), 6,86 (1H, s), 6,84 (1H, s), 4,73 (1H, d), 4,68 (1H, d), 3,61 - 3,56 (1H, m), 2,90 (1H, d), 2,80 (1H, d), 2,35 - 2,20 (4H, m), 2,24 (3H, s), 2,07 (3H, s), 2,02 (3H, s), 1,92 (1H, dd).
T26		δ_{H} 7,38 - 7,36 (2H, m), 7,22 - 7,20 (2H, m), 6,86 (2H, s), 6,58 (1H, d), 5,38 (1H, d), 5,11 (1H, s), 2,90 (1H, m), 2,84 (1H, m), 2,47 (3H, s), 2,24 (3H, s), 2,08 (6H, s).

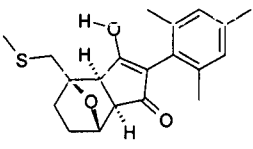
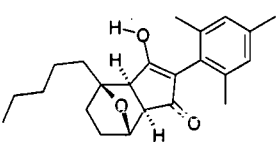
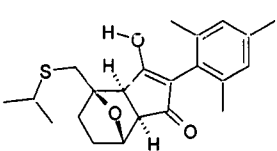
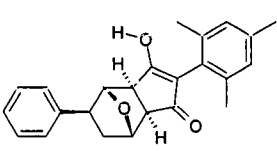
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T27		δ_H 6,92 (2H, s), 4,62 (1H, d), 4,29 - 4,27 (1H, m), 4,10 - 4,03 (2H, m), 3,93 - 3,90 (1H, m), 2,84 (1H, d), 2,77 (1H, d), 2,38 - 2,29 (4H, m), 2,30 (3H, s), 1,96 - 1,88 (2H, m), 1,59 - 1,51 (2H, m), 1,07 - 1,03 (6H, m).
T28		δ_H 7,39 (2H, dd), 7,11 (2H, t), 6,86 (1H, s), 6,85 (1H, s), 4,73 (1H, d), 4,68 (1H, d), 3,63 - 3,58 (1H, m), 2,94 (1H, d), 2,75 (1H, d), 2,38 - 2,30 (1H, m), 2,25 (3H, s), 2,08 (3H, s), 2,03 (3H, s), 1,92 (1H, dd).
T29		δ_H 6,82 (2H, s), 4,54 (1H, d), 3,85 (1H, d), 3,67 (1H, d), 3,30 (3H, s), 2,90 (1H, d), 2,78 (1H, d), 2,20 (3H, s), 2,03 (3H, s), 1,99 (3H, s), 1,93 (1H, dd), 1,87 - 1,81 (1H, m), 1,70 - 1,63 (1H, m), 1,58 - 1,54 (1H, m).
T30		δ_H 6,87 (1H, s), 6,86 (1H, s), 4,87 - 4,81 (1H, m), 4,67 - 4,65 (1H, m), 4,08 - 3,93 (2H, m), 3,66 - 3,58 (2H, m), 2,89 - 2,84 (1H, m), 2,76 - 2,73 (1H, m), 2,25 (3H, s), 2,09 (3H, s),

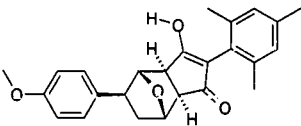
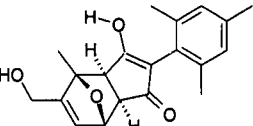
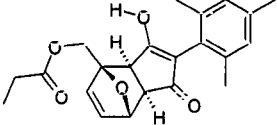
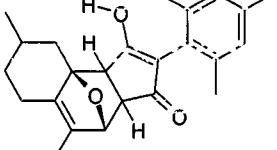
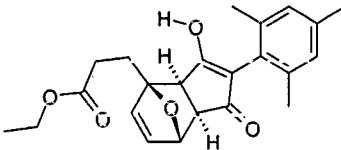
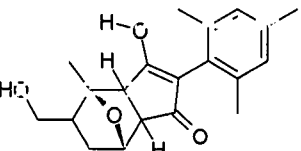
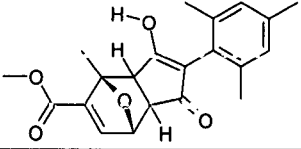
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,06 (3H, s), 1,95 - 1,84 (2H, m), 1,71 - 1,59 (2H, m), 1,26 - 1,17 (3H, m).
T31		δ_{H} 6,88 (1H, s), 6,87 (1H, s), 4,67 (1H, t), 3,97 (1H, d), 3,81 (1H, d), 3,70 - 3,62 (1H, m), 3,60 - 3,54 (1H, m), 2,87 - 2,82 (2H, m), 2,25 (3H, s), 2,10 (3H, s), 2,06 (3H, s), 1,99 - 1,94 (2H, m), 1,69 - 1,64 (2H, m), 1,23 (3H, t).
T32		δ_{H} 7,20 - 7,18 (2H, m), 7,12 - 7,10 (2H, m), 6,88 (1H, s), 6,85 (1H, s), 4,71 (2H, t), 3,55 - 3,50 (1H, m), 2,77 (1H, d), 2,73 (1H, d), 2,48 (3H, s), 2,32 - 2,25 (1H, m), 2,23 (3H, s), 2,07 (3H, s), 2,01 (3H, s), 1,72 (1H, dd).
T33		δ_{H} 6,93 (2H, s), 6,88 (2H, s), 6,36 (1H, d), 5,13 (1H, d), 5,01 (1H, s), 3,13 (1H, d), 2,96 (1H, d), 2,29 (12H, s), 2,11 (3H, s), 2,09 (3H, s).
T34		δ_{H} 2,82 (2H, s), 6,19 (2H, s), 2,51 (2H, br s), 2,22 (3H, s), 2,05 (3H, s), 2,04 (3H, s), 1,57 (6H, s).

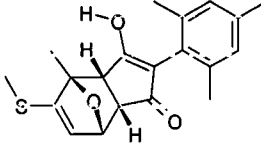
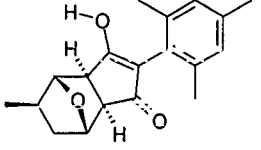
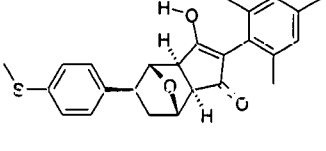
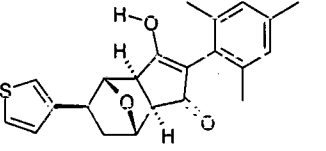
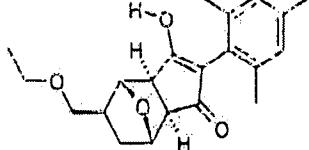
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T35		δ_H 6,88 (1H, s), 6,87 (1H, s), 4,73 - 4,69 (2H, m), 4,29 (1H, d), 3,14 - 3,09 (2H, m), 2,93 (1H, d), 2,85 (1H, d), 2,25 (3H, s), 2,09 (3H, s), 2,06 (3H, s), 1,97 - 1,86 (2H, m), 1,71 - 1,59 (2H, m), 1,54 - 1,47 (2H, m), 0,91 (3H, t).
T36		δ_H 6,83 (2H, s), 5,02 (1H, s), 4,72 (1H, d), 4,65 (1H, d), 4,12 (1H, d), 2,83 (1H, d), 2,70 (1H, d), 2,23 (3H, s), 2,07 (3H, s), 2,06 (3H, s), 1,86 - 1,80 (2H, m), 1,57 - 1,45 (2H, m), 1,29 (9H, s).
T37		LC-MS (Método A) ES ⁺ : MH ⁺ = 313; tr = 1,07 mins
T38		LC-MS (Método A) ES ⁺ : MH ⁺ = 313; tr = 1,07 mins
T39		LC-MS (Método A) ES ⁺ : MH ⁺ = 327; tr = 1,23 mins
T40		LC-MS (Método A) ES ⁺ : MH ⁺ = 311; tr = 1,34 mins

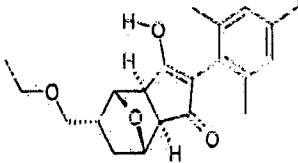
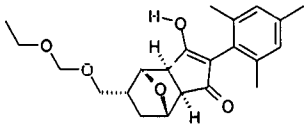
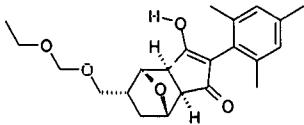
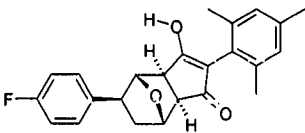
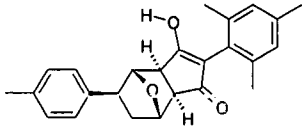
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T41		LC-MS (Método A) ES ⁺ : MH ⁺ = 343; tr = 1,35 mins
T42		LC-MS (Método A) ES ⁺ : MH ⁺ = 353; tr = 1,79 mins
T43		LC-MS (Método A) ES ⁺ : MH ⁺ = 371; tr = 1,50 mins
T44		LC-MS (Método A) ES ⁺ : MH ⁺ = 297; tr = 1,25 mins
T45		δ_H 6,86 (2H, s), 4,61 - 4,58 (2H, m), 4,43 (1H, d), 4,07 (1H, d), 3,95 (1H, d), 2,98 - 2,85 (2H, m), 2,24 (3H, s), 2,08 (3H, s), 2,06 (3H, s), 1,91 - 1,87 (2H, m), 1,76 - 1,70 (1H, m), 1,65 - 1,59 (1H, m).
T46		δ_H 6,93 (2H, s), 4,75 (1H, d), 4,72 (1H, s), 4,38 (1H, dd), 3,93 (1H, d), 3,68 (1H, d), 2,90 (1H, d), 2,38 - 2,31 (7H, m), 1,08 - 1,01 (6H, m).
T47		δ_H 6,82 (2H, s), 4,50 - 4,45 (2H, m), 3,36 - 3,34 (1H, m), 3,26 - 3,24 (4H, m), 2,92 (1H, d), 2,47 (1H, d), 2,41 - 2,36 (1H, m), 2,23 (3H, s), 2,02

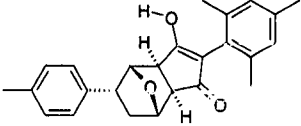
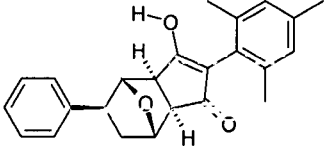
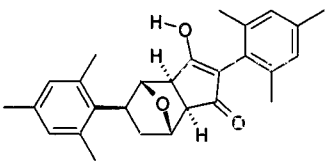
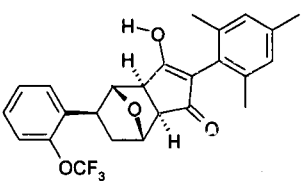
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		(6H, s), 1,95 - 1,88 (1H, m), 1,00 (1H, dd).
T48		δ_{H} 6,84 - 6,83 (2H, m), 4,47 (1H, d), 2,63 (1H, d), 2,41 (1H, d), 2,23 (3H, s), 2,04 (3H, s), 2,01 (3H, s), 1,86 - 1,83 (1H, m), 1,55 - 1,46 (3H, m), 1,48 (3H, s).
T49		δ_{H} 6,85 (2H, s), 4,55 (1H, d), 3,84 (1H, d), 3,75 (1H, d), 2,76 - 2,70 (2H, m), 2,23 (3H, s), 2,03 (6H, s).
T50		δ_{H} 6,83 - 6,82 (2H, m), 4,48 - 4,45 (2H, m), 3,35 - 3,34 (1H, m), 3,26 - 3,24 (1H, m), 2,93 (1H, d), 2,48 (1H, d), 2,23 (3H, s), 2,02 (6H, s), 2,42 - 2,36 (1H, m), 1,94 - 1,88 (1H, m), 1,01 (1H, dd).
T51		δ_{H} 6,85 (2H, s), 4,55 (1H, d), 4,03 (1H, q), 2,76 (1H, d), 2,72 (1H, d), 2,23 (3H, s), 2,04 (3H, s), 2,03 (3H, s), 1,84 - 1,70 (2H, m), 1,58 - 1,41 (2H, m), 1,24 (3H, d).
T52		δ_{H} 6,82 (1H, s), 6,81 (1H, s), 4,42 (1H, d), 2,53 - 2,48 (2H, m), 2,22 (3H, s), 2,00 (3H, s), 1,98 (3H, s),

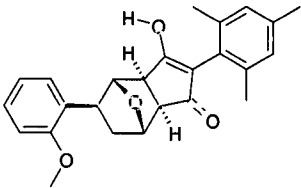
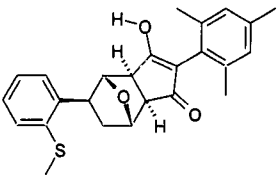
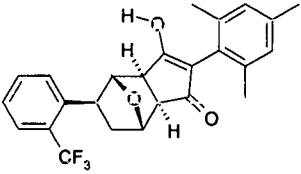
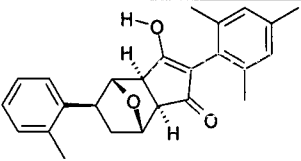
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		1,93 – 1,86 (1H, m), 1,77 – 1,70 (2H, m), 1,54 – 1,41 (3H, m), 1,03 (3H, t).
T53		δ_{H} 6,83 (2H, s), 4,49 (1H, d), 3,00 – 2,92 (2H, m), 2,62 – 2,58 (2H, m), 2,23 (3H, s), 2,14 (3H, s), 2,02 (3H, s), 2,00 (3H, s), 2,00 – 1,85 (2H, m), 1,52 – 1,47 (2H, m).
T54		δ_{H} 6,84 (1H, s), 6,83 (1H, s), 4,45 (1H, d), 2,60 – 2,56 (2H, m), 2,23 (3H, s), 2,04 (3H, s), 2,00 (3H, s), 1,93 – 1,88 (1H, m), 1,80 – 1,76 (1H, m), 1,69 – 1,46 (4H, m), 1,35 – 1,26 (6H, m), 0,88 – 0,85 (3H, m).
T55		δ_{H} 6,86 (2H, m), 3,11 – 3,00 (4H, m), 2,72 (1H, d), 2,25 (3H, s), 2,09 (3H, s), 2,05 (3H, s), 1,98 – 1,89 (1H, m), 1,79 – 1,56 (3H, m), 1,33 – 1,25 (6H, m)
T56		δ_{H} 7,28 - 7,17 (5H, m), 6,89 (1H, s), 6,88 (1H, s), 4,72 (1H, d), 4,53 (1H, s), 2,89 (1H, dd), 3,02 (1H, d), 2,96 (1H, d), 2,32 - 2,30 (1H, m), 2,27 (3H, s), 2,07 (6H, s), 1,90 - 1,85

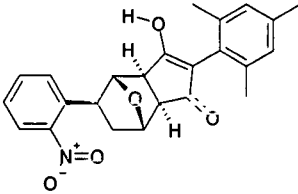
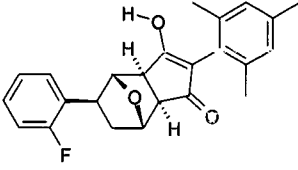
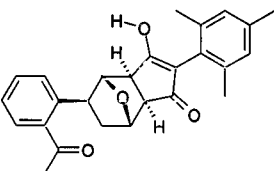
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		(1H, m).
T57		δ_{H} 7,26 – 7,23 (2H, m), 6,88 – 6,85 (4H, m), 4,74 (1H, d), 4,40 (1H, s), 3,79 (3H, s), 3,10 (1H, dd), 3,02 (1H, d), 2,96 (1H, d), 2,32 – 2,30 (1H, m), 2,27 (3H, s), 2,07 (6H, s), 1,90 – 1,85 (1H, m).
T58		LC-MS (Método A) ES^+ : $\text{MH}^+ = 327$; $\text{tr} = 1,10$ mins
T59		LC-MS (Método A) ES^+ : $\text{MH}^+ = 369$; $\text{tr} = 1,33$ mins
T60		LC-MS (Método A) ES^+ : $\text{MH}^+ = 365$; $\text{tr} = 1,77$ mins
T61		LC-MS (Método A) ES^+ : $\text{MH}^+ = 383$; $\text{tr} = 1,36$ mins
T62		δ_{H} 6,86 (2H, s), 4,48 (1H, d), 3,68 – 3,48 (2H, m), 2,81 – 2,74 (1H, m), 2,67 (1H, d), 2,23 (3H, s), 2,07 (3H, s), 2,04 (3H, s), 1,54 (3H, s), 1,27 – 1,26 (1H, m), 1,04 – 1,01 (2H, m).
T63		LC-MS (Método A) ES^+ : $\text{MH}^+ = 355$; $\text{tr} = 1,36$ mins

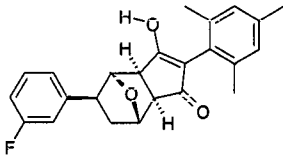
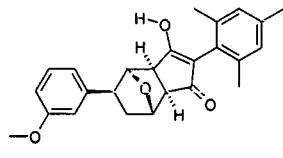
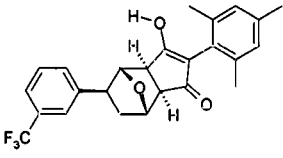
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T64		LC-MS (Método A) ES ⁺ : MH ⁺ = 343; tr = 1,37 mins
T65		d ₄ -MeOH δ _H 6,85 (2H, m), 4,51 (1H, d), 4,37 (1H, d), 3,14 (1H, d), 2,84 (1H, d), 2,28 – 2,24 (1H, m), 2,24 (3H, s), 2,13 (1H, dd), 2,04 (3H, s), 2,03 (3H, s), 1,13 (3H, d), 1,11 – 1,06 (1H, m).
T66		δ _H 7,26 - 7,18 (4H, m), 6,85 (2H, s), 4,72 (1H, d), 4,40 (1H, s), 3,09 (1H, dd), 3,00 (1H, d), 2,94 (1H, d), 2,44 (3H, s), 2,29 - 2,24 (1H, m), 2,24 (3H, s), 2,05 (6H, s), 1,88 - 1,82 (1H, m).
T67		δ _H 7,24 - 7,21 (1H, m), 6,94 - 6,93 (2H, m), 6,88 (2H, s), 4,75 (1H, d), 4,45 (1H, s), 3,52 (1H, dd), 3,05 (1H, d), 2,96 (1H, d), 2,35 - 2,29 (1H, m), 2,27 (3H, s), 2,08 (6H, s), 2,01- 1,95 (1H, m).
T68		Mezcla de Isómero A:Isómero B aproximadamente 3:2 Isómero A: δ _H 6,86 (1H, s), 6,85 (1H, s), 4,55 (1H, d), 4,53 (1H, d),

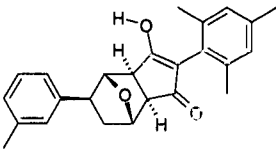
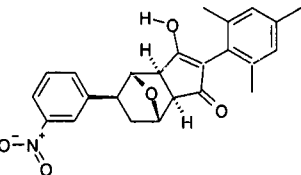
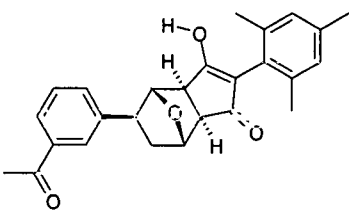
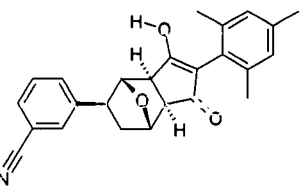
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	Isómero A  Isómero B 	3,50 - 3,42 (3H, m), 3,36 - 3,33 (1H, m), 3,02 (1H, d), 2,49 - 2,43 (2H, m), 2,25 (3H, s), 2,05 (6H, s), 2,01 - 1,94 (1H, m), 1,19 (3H, t), 1,06 (1H, dd).
T69		δ_H 6,85 (2H, s), 4,69 (2H, s), 4,56 - 4,54 (2H, m), 3,76 - 3,55 (5H, m), 3,12 (1H, d), 2,83 (1H, d), 2,55 - 2,45 (1H, m), 2,24 (3H, s), 2,04 (3H, s), 1,24 - 1,15 (4H, m).
T70		δ_H 7,34 - 7,31 (2H, m), 7,00 (2H, t), 6,85 (2H, s), 4,73 (1H, d), 4,39 (1H, s), 3,13 (1H, dd), 3,01 (1H, d), 2,95 (1H, d), 2,30 - 2,27 (1H, m), 2,24 (3H, s), 2,05 (6H, s), 1,87 - 1,81 (1H, m).
T71		δ_H 7,21 (2H, d), 7,11 (2H, d), 6,88 (2H, s), 4,74 (1H, d), 4,42 (1H, s), 3,09 (1H, dd), 3,02 (1H, d), 2,96 (1H, d), 2,32 (3H, s), 2,29 - 2,24 (1H, m), 2,27 (3H, s), 2,08 (6H, s), 1,91 - 1,85 (1H, m).

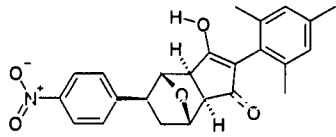
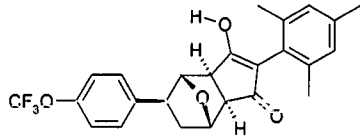
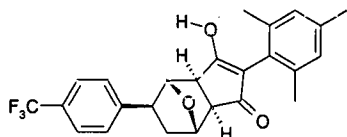
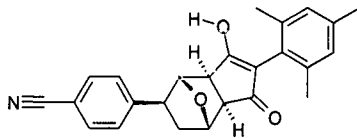
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T72		δ _H 7,25 - 7,18 (4H, m), 6,86 (1H, s), 6,84 (1H, s), 4,73 (1H, d), 4,68 (1H, d), 3,61 - 3,56 (1H, m), 2,90 (1H, d), 2,80 (1H, d), 2,35 (3H, s), 2,32 - 2,28 (1H, m), 2,24 (3H, s), 2,07 (3H, s), 2,02 (3H, s), 1,92 (1H, dd).
T73		δ _H 7,29 - 7,27 (3H, m), 7,22 - 7,19 (2H, m), 6,89 (1H, s), 6,88 (1H, s), 4,85 (1H, d), 4,61 (1H, s), 3,01 (1H, dd), 2,26 (3H, s), 2,19 (1H, dd), 2,10 (3H, s), 2,09 (3H, s), 2,00 - 1,96 (1H, m).
T74		δ _H 6,90 (1H, s), 6,88 (1H, s), 6,86 - 6,82 (2H, m), 4,82 - 4,77 (2H, m), 3,12 - 3,05 (2H, m), 2,28 - 2,86 (1H, m), 2,41 - 2,39 (1H, m), 2,26 (3H, s), 2,23 (3H, s), 2,11 (6H, s), 2,08 (3H, s), 2,01 - 1,97 (1H, m).
T75		δ _H 7,79 - 7,76 (1H, m), 7,59 - 7,56 (1H, m), 7,28 - 7,20 (2H, m), 6,90 (1H, s), 6,89 (1H, s), 4,88 - 4,86 (1H, m), 4,67 (1H, s), 3,47 - 3,42 (1H, m), 3,14 - 3,00 (2H, m), 2,26 (3H, s), 2,25 - 2,21 (1H, m), 2,11

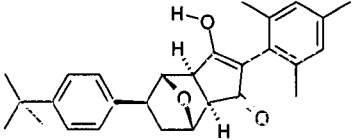
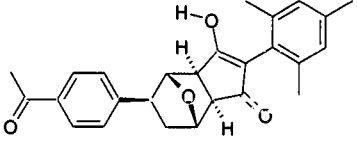
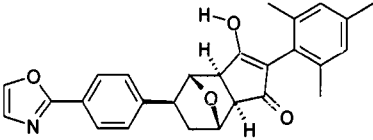
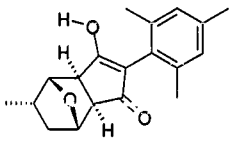
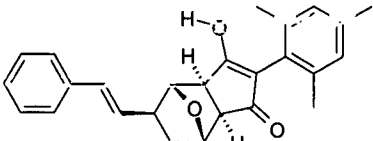
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(3H, s), 2,09 (3H, s), 1,88 - 1,84 (1H, m).
T76		δ _H 7,39 - 7,35 (1H, m), 7,19 - 7,16 (1H, m), 6,93 - 6,83 (4H, m), 4,82 (1H, brs), 4,62 (1H, s), 3,48 (3H, s), 3,54 (1H, dd), 3,13 - 3,02 (2H, brm), 2,26 (3H, s), 2,17 - 2,13 (1H, m), 2,10 (3H, s), 2,09 (3H, s), 1,90 - 1,84 (1H, m).
T77		δ _H 7,42 (1H, d), 7,21 - 7,12 (3H, m), 6,88 (1H, s), 6,87 (1H, s), 4,82 (1H, s), 4,82 (1H, d), 4,68 (1H, s), 3,51 (1H, dd), 2,47 (3H, s), 2,25 (3H, s), 2,23 - 2,20 (1H, m), 2,10 (3H, s), 2,08 (3H, s), 1,85 - 1,81 (1H, m).
T78		δ _H 7,73 - 7,70 (2H, m), 7,59 (1H, d), 7,52 - 7,50 (1H, m), 7,31 - 7,28 (1H, m), 6,89 (1H, s), 6,88 (1H, s), 4,86 (1H, br S), 4,64 (1H, s), 3,42 (1H, br S), 3,13 - 3,05 (2H, m), 2,26 (3H, s), 2,66 - 2,24 (1H, m), 2,11 (3H, s), 2,08 (3H, s), 1,92 - 1,88 (1H, m).
T79		δ _H 7,42 - 7,39 (1H, m), 7,18 - 7,11 (3H, m), 6,91 (1H, s), 6,90 (1H, s),

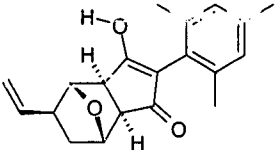
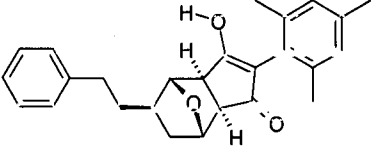
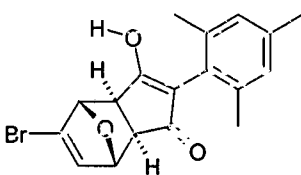
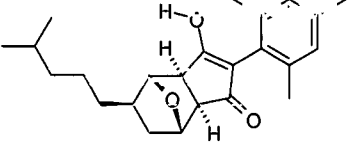
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		4,87 - 4,85 (1H, m), 4,74 (1H, s), 3,24 - 3,22 (1H, m), 3,13 - 3,07 (2H, m), 2,36 (3H, s), 2,34 (3H, s), 2,24 - 2,22 (1H, m), 2,19 (3H, s), 2,09 (3H, s), 1,88 - 1,86 (1H, m).
T80		δ _H 7,79 - 7,73 (2H, m), 7,56 (1H, t), 7,35 (1H, t), 6,90 (1H, s), 6,89 (1H, s), 4,87 (1H, br s), 4,71 (1H, s), 3,47 (1H, br. s), 3,13 - 3,06 (2H, m), 2,42 - 2,30 (1H, m), 2,26 (3H, s), 2,11 (3H, s), 2,09 (3H, s), 1,98 - 1,97 (1H, m).
T81		δ _H 7,45 - 7,43 (1H, m), 7,18 - 7,16 (1H, m), 7,11 - 7,08 (1H, m), 7,02 - 6,98 (1H, m), 6,89 (1H, s), 6,88 (1H, s), 4,85 (1H, d), 4,65 (1H, s), 3,44 (1H, br. s), 3,15 - 3,00 (2H, br. s), 2,26 (3H, s), 2,22 - 2,17 (1H, m), 2,10 (3H, s), 2,09 (3H, s), 1,92 - 1,88 (1H, s).
T82		δ _H 7,47 - 7,96 (2H, m), 7,14 - 7,11 (2H, m), 6,90 (2H, s), 4,88 (1H, s), 4,57 (1H, s), 3,21 (1H, s), 2,94 - 2,74 (2H, br. s), 2,62, (3H, s), 2,26

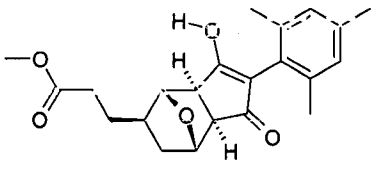
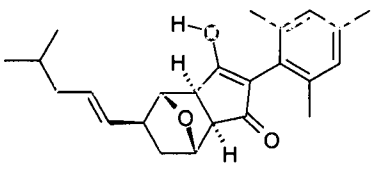
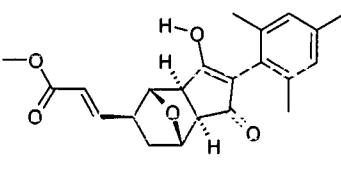
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		(3H, s), 2,25 - 2,23 (1H, m), 2,11 (3H, s), 2,10 (3H, s), 2,01 - 1,93 (1H, m).
T83		δ_{H} 7,75 - 7,66 (1H, m), 7,25 - 7,21 (1H, m), 7,06 - 7,02 (2H, m), 6,88 (1H, s), 6,87 (1H, s), 4,83 (1H, br. s), 4,59 (1H, s), 3,00 - 2,98 (1H, m), 2,83 - 2,70 (2H, br. s), 2,25 (3H, s), 2,20 - 2,16 (1H, m), 2,09 (3H, s), 2,08 (3H, s), 1,92 - 1,89 (1H, m).
T84		δ_{H} 7,79 - 7,77 (1H, m), 7,21 - 7,18 (1H, m), 6,89 - 6,86 (3H, m), 6,76 - 6,74 (1H, m), 4,83 (1H, d), 4,62 (1H, s), 3,80 (3H, s), 2,99 (1H, dd), 2,80 - 2,70 (2H, br. s), 2,26 (3H, s), 2,18 (1H, dd), 2,10 (3H, s), 2,09 (3H, s), 1,97 - 1,95 (1H, m).
T85		δ_{H} 7,54 - 7,46 (3H, m), 7,41 - 7,38 (1H, m), 6,87 (1H, s), 6,88 (1H, s), 4,85 (1H, d), 4,60 (1H, s), 3,06 (1H, dd), 2,25 (3H, s), 2,21 (1H, dd), 2,10 (3H, s), 2,08 (3H, s), 1,93 - 1,90 (1H, m).

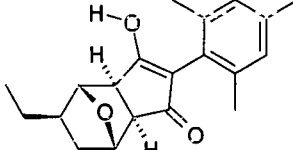
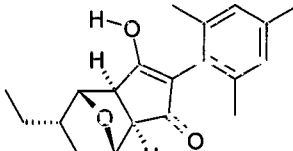
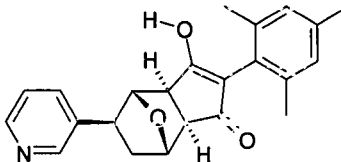
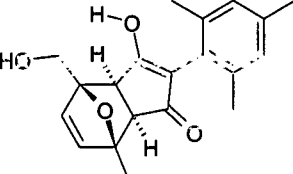
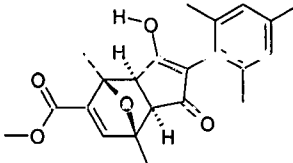
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T86		δ_H 7,19 - 7,08 (3H, m), 7,03 - 7,07 (1H, m), 6,89 (1H, s), 6,88 (1H, s), 4,84 (1H, d), 4,60 (1H, s), 2,98 (1H, dd), 2,33 (3H, s), 2,26 (3H, s), 2,17 (1H, dd), 2,10 (3H, s), 2,08 (3H, s), 1,97 - 1,95 (1H, br. m).
T87		δ_H 8,09 - 8,07 (1H, m), 7,68 - 7,67 (2H, m), 7,46 (1H, t), 6,89 (1H, s), 6,88 (1H, s), 4,89 (1H, d), 4,62 (1H, s), 3,13 (1H, dd), 2,28 - 2,24 (1H, m), 2,25 (3H, s), 2,10 (3H, s), 2,08 (3H, s), 1,95 - 1,95 (1H, m).
T88		δ_H 7,88 - 7,86 (1H, m), 7,79 (1H, d), 7,55 - 7,53 (1H, m), 7,39 (1H, t), 6,88 (1H, s), 6,87 (1H, s), 4,87 (1H, d), 4,61 (1H, s), 3,09 (1H, dd), 2,60 (3H, s), 2,25 (3H, s), 2,23 - 2,20 (1H, m), 2,10 (3H, s), 2,08 (3H, s), 1,96 - 1,94 (1H, m).
T89		δ_H 7,62 - 7,60 (1H, m), 7,56 - 7,50 (2H, m), 7,39 (1H, t), 6,90 (1H, s), 6,88 (1H, s), 4,88 (1H, br. s), 4,59 (1H, s), 3,05 - 3,03 (1H, m), 2,26 (3H, s), 2,24 - 2,20 (1H, m),

Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,10 (3H, s), 2,08 (3H, s), 1,92 - 1,89 (1H, m).
T90		δ_{H} 8,14 (2H, d), 7,47 (2H, d), 6,89 (1H, s), 6,87 (1H, s), 4,89 (1H, d), 4,63 (1H, s), 3,12 (1H, dd), 2,27 - 2,23 (1H, m), 2,26 (3H, s), 2,10 (3H, s), 2,08 (3H, s), 1,95 - 1,91 (1H, m).
T91		δ_{H} 7,35 - 7,31 (2H, m), 7,15 - 7,12 (2H, m), 6,91 (1H, s), 6,90 (1H, s), 4,87 (1H, br. s), 4,61 (1H, s), 3,07 - 3,05 (1H, m), 2,27 (3H, s), 2,22 - 2,20 (1H, m), 2,10 (3H, s), 2,09 (3H, s), 1,93- 1,91 (1H, m).
T92		δ_{H} 7,54 (2H, d), 7,43 - 7,41 (2H, m), 6,89 (1H, s), 6,88 (1H, s), 4,87 (1H, d), 4,61 (1H, s), 3,07 (1H, dd), 2,26 (3H, s), 2,23 (1H, dd), 2,10 (3H, s), 2,08 (3H, s), 1,95 - 1,91 (1H, m).
T93		δ_{H} 7,57 (2H, d), 7,41 (2H, d), 6,88 (1H, s), 6,87 (1H, s), 4,86 (1H, d), 4,60 (1H, s), 3,05 (1H, dd), 2,25 (3H, s), 2,23 - 2,20 (1H, m), 2,09 (3H, s), 2,08 (3H, s), 1,95 - 1,91

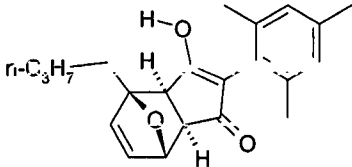
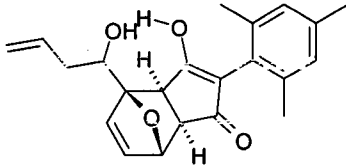
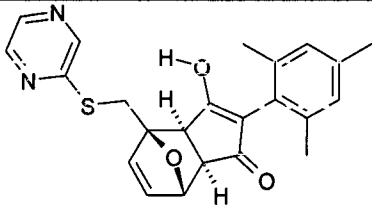
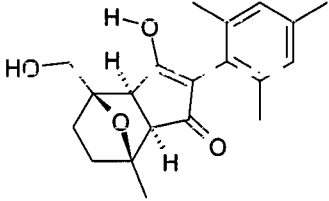
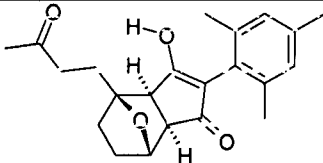
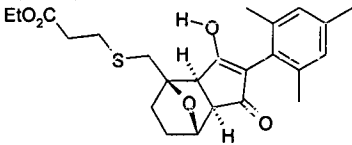
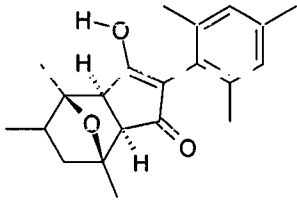
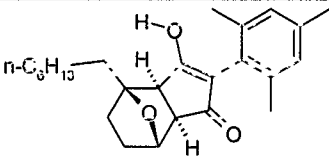
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(1H, m).
T94		δ _H 7,31 - 7,29 (2H, m), 7,24 - 7,22 (2H, m), 6,89 (1H, s), 6,88 (1H, s), 4,85 (1H, d), 4,59 (1H, s), 3,00 (1H, dd), 2,26 (3H, s), 2,17 (1H, dd), 2,10 (3H, s), 2,09 (3H, s), 1,99 - 1,96 (1H, m), 1,30 (9H, s).
T95		δ _H 7,88 (2H, d), 7,41 - 7,38 (2H, m), 6,90 (1H, s), 6,88 (1H, s), 4,88 (1H, br. s), 4,63 (1H, s), 3,08 (1H, br. s), 2,58 (3H, s), 2,26 (3H, s), 2,23 - 2,21 (1H, m), 2,11 (3H, s), 2,09 (3H, s), 1,95 - 1,93 (1H, m).
T96		LC-MS (Método A) ES ⁺ : MH ⁺ = 428; tr = 1,52 mins
T97		δ _H 6,85 (2H, s), 4,50 (1H, d), 4,37 (1H, d), 3,31 - 3,29 (1H, m), 3,12 (1H, d), 2,81 (1H, d), 2,24 (3H, s), 2,14 - 2,07 (1H, m), 2,05 (3H, s), 2,03 (3H, s), 1,12 (3H, d), 1,07 (1H, dd).
T98		δ _H 7,33 - 7,18 (5H, m), 6,84 - 6,81 (2H, m), 6,35 (1H, d), 6,08 (1H, dd), 4,63 (1H, d), 4,42 (1H, s), 2,68 -

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		2,63 (2H, m), 2,55 - 2,48 (1H, m), 2,22 (3H, s), 2,04 (3H, s), 2,02 (3H, s), 1,85 - 1,80 (1H, m), 1,64 - 1,60 (1H, m).
T99		δ _H 6,90 - 6,89 (2H, m), 5,80 - 5,71 (1H, m), 5,05 - 4,97 (2H, m), 4,68 (1H, d), 4,44 (1H, s), 2,81 - 2,76 (2H, m), 2,51 - 2,46 (1H, m), 2,26 (3H, s), 2,07 (3H, s), 2,06 (3H, s), 1,89 - 1,84 (1H, m), 1,67 - 1,62 (1H, m).
T100		δ _H 7,27 - 7,12 (5H, m), 6,83 (2H, br. s), 4,55 (1H, d), 4,33 (1H, s), 2,75 - 2,71 (2H, m), 2,64 (2H, t), 2,23 (3H, s), 2,04 (6H, s), 1,74 - 1,68 (3H, m), 1,57 - 1,50 (1H, m), 1,44 - 1,41 (1H, m).
T101		δ _H 6,87 (2H, s), 6,40 (1H, d), 4,95 (1H, s), 4,82 (1H, s), 2,90 (1h, d), 2,81 (1H, d), 2,25 (3H, s), 2,07 (3H, s), 2,03 (3H, s).
T102		δ _H 6,82 (2H, s), 4,47 (1H, d), 4,25 (1H, s), 2,50 - 2,46 (2H, m), 2,22 (3H, s), 2,02 (3H, s), 2,01 (3H, s),

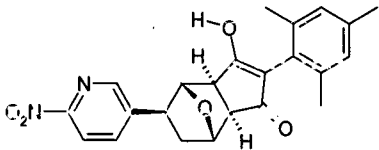
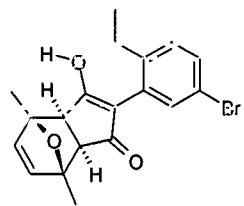
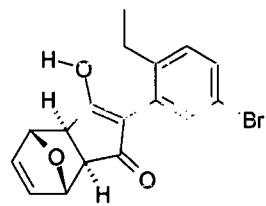
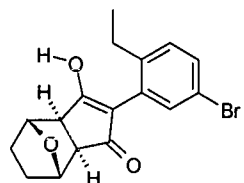
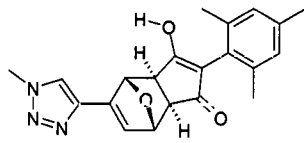
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		1,69 - 1,50 (4H, m), 1,34 - 1,12 (6H, m), 0,88 - 0,86 (6H, m).
T103		δ_{H} 6,81 (2H, s), 4,47 (1H, d), 4,24 (1H, s), 3,64 (3H, s), 2,52 - 2,47 (2H, m), 2,28 - 2,20 (5H, m), 2,00 (6H, s), 1,70 - 1,48 (4H, m), 1,27 - 1,24 (1H, m).
T104		Mezcla de isómeros E y Z aproximadamente 85:15. Isómero E: δ_{H} 6,84 (2H, s), 5,42 - 5,26 (2H, m), 4,53 (1H, d), 4,29 (1H, s), 2,58 (1H, m), 2,37 - 2,29 (1H, m), 2,23 (3H, s), 2,02 (3H, s), 2,01 (3H, s), 1,86 - 1,83 (2H, m), 1,75 - 1,70 (1H, m), 1,63 - 1,47 (3H, m), 0,89 - 0,86 (6H, m).
T105		Mezcla de isómeros E y Z aproximadamente 3:2. Isómero E δ_{H} 6,80 (2H, s), 6,74 (1H, dd), 5,91 (1H, d), 4,58 (1H, d), 4,30 (1H, s), 3,33 (3H, s), 2,85 - 2,77 (3H, m), 2,21 (3H, s), 1,97 (3H, s), 1,94 (3H, s), 1,94 - 1,91 (1H, m), 1,59 - 1,54 (1H, m).

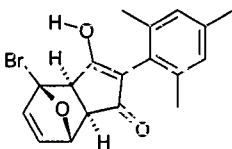
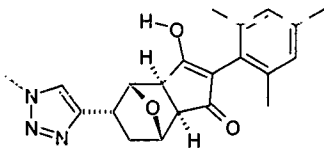
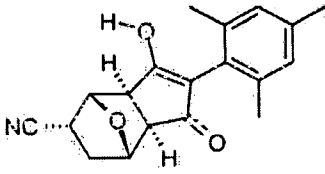
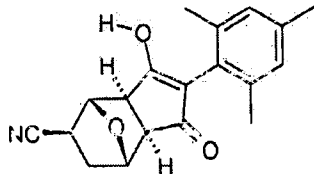
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T106		δ_{H} 6,82 (2H, s), 4,44 (1H, d), 4,24 (1H, s), 2,45 - 2,40 (2H, m), 2,22 (3H, s), 2,02 (6H, s), 1,58 - 1,52 (2H, m), 1,38 - 1,33 (1H, m), 1,25 - 1,16 (2H, m), 0,85 - 0,82 (3H, m).
T107		δ_{H} 6,85 (2H, s), 4,51 (1H, d), 4,43 (1H, d), 3,07 (1H, d), 2,82 - 2,81 (1H, m), 2,24 (3H, s), 2,10 - 2,05 (2H, m), 2,04 (6H, s), 1,87 - 1,79 (1H, m), 1,53 - 1,46 (2H, m), 1,00 (3H, t).
T108		δ_{H} 8,82 (1H, s), 8,76 (1H, d), 8,03 (1H, dd), 6,82 (2H, s), 4,90 (1H, d), 4,63 (1H, s), 3,55 (1H, dd), 3,16 (1H, d), 3,08 (1H, d), 2,46 - 2,40 (1H, m), 2,23 (3H, s), 2,08 (6H, s), 2,02 - 1,96 (1H, m).
T109		LC-MS (Método A) ES^+ : MH^+ = 327; tr = 4,97 mins
T110		LC-MS (Método A) ES^+ : MH^+ = 369; tr = 4,98 mins

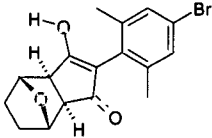
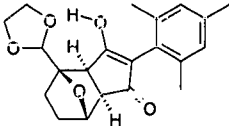
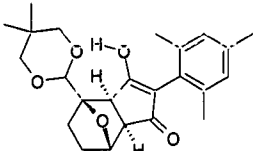
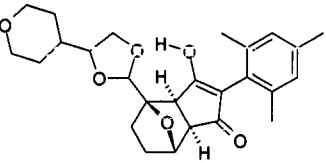
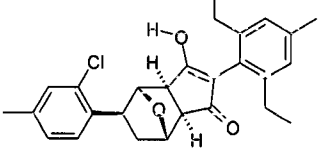
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T111		LC-MS (Método A) ES ⁺ : MH ⁺ = 412; tr = 5,70 mins
T112		LC-MS (Método A) ES ⁺ : MH ⁺ = 435; tr = 4,23 mins
T113		LC-MS (Método A) ES ⁺ : MH ⁺ = 353; tr = 4,48 mins
T114		LC-MS (Método A) ES ⁺ : MH ⁺ = 371; tr = 5,23 mins
T115		LC-MS (Método A) ES ⁺ : MH ⁺ = 325; tr = 4,22 mins
T116		LC-MS (Método A) ES ⁺ : MH ⁺ = 371; tr = 5,51 mins
T117		LC-MS (Método A) ES ⁺ : MH ⁺ = 431; tr = 4,98 mins
T118		LC-MS (Método A) ES ⁺ : MH ⁺ = 381; tr = 7,34 mins

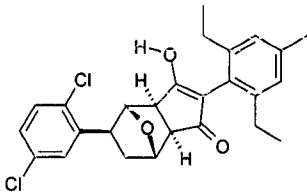
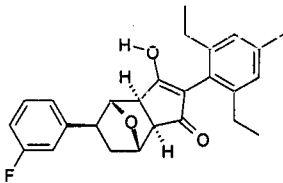
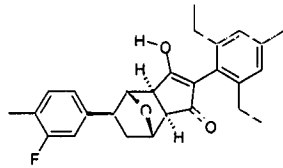
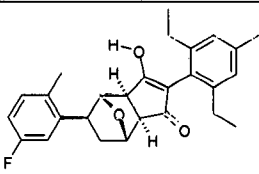
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T119		LC-MS (Método A) ES^+ : $\text{MH}^+ = 339$, tr = 6,54 mins
T120		LC-MS (Método A) ES^+ : $\text{MH}^+ = 353$; tr = 5,23 mins
T121		LC-MS (Método A) ES^+ : $\text{MH}^+ = 407$; tr = 5,04 mins
T122		LC-MS (Método B) ES^+ : $\text{MH}^+ = 329$; tr = 1,18 mins
T123		LC-MS (Método B) ES^+ : $\text{MH}^+ = 355$; tr = 1,32 mins
T124		LC-MS (Método B) ES^+ : $\text{MH}^+ = 43$; tr = 1,58 mins
T125		LC-MS (Método B) ES^+ : $\text{MH}^+ = 327$; tr = 1,45 mins
T126		LC-MS (Método B) ES^+ : $\text{MH}^+ = 383$; tr = 1,93 mins

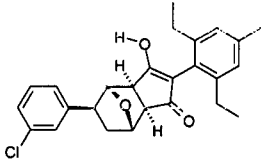
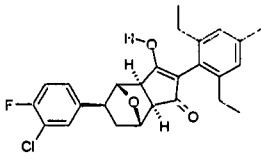
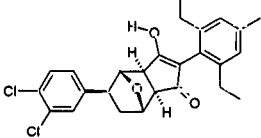
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T127		$d_4\text{-MeOH}$ δ_{H} 6,84 (2H, s), 4,50 (2H, s), 3,56 (2H, s), 2,88 (2H, s), 2,23 (3H, s), 2,05 (3H, s), 2,02 (3H, s).
T128		$d_4\text{-MeOH}$ δ_{H} 8,68 (1H, d), 8,03 (1H, dd), 7,78 (1H, d), 6,89 (2H, s), 4,83 (1H, d), 4,52 (1H, s), 3,36 - 3,34 (1H, m), 3,10 (1H, d), 3,03 (1H, d), 2,83 (1H, dd), 2,27 (3H, s), 2,09 (3H, s), 2,08 (3H, s), 1,93 - 1,88 (1H, m).
T129		$d_4\text{-MeOH}$ δ_{H} 8,10 (1H, d), 7,95 - 7,90 (1H, m), 7,00 (1H, dd), 6,85 (2H, s), 4,77 (1H, d), 4,41 (1H, s), 3,21 (1H, dd), 3,03 (1H, d), 2,96 (1H, d), 2,30 (1H, dd), 2,23 (3H, s), 2,05 (6H, s), 1,85 - 1,80 (1H, m).
T130		$d_4\text{-MeOH}$ δ_{H} 8,65 (1H, d), 7,97 (1H, dd), 7,81 (1H, d), 6,85 (2H, s), 4,80 (1H, d), 4,48 (1H, s), 3,34 - 3,31 (1H, m), 3,06 (1H, d), 2,99 (1H, d), 2,35 (1H, dd), 2,24 (3H, s), 2,05 (3H, s), 2,04 (3H, s), 1,91 - 1,86 (1H, m).

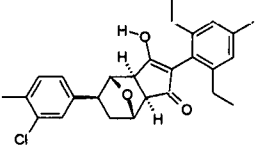
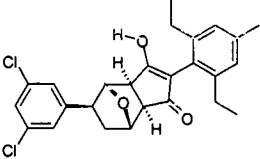
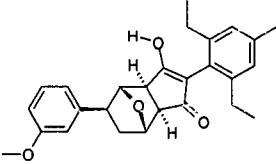
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T131		d ₄ -MeOH δ _H 8,63 (1H, d), 8,34 (1H, d), 8,22 (1H, dd), 6,92 (2H, s), 4,88 (1H, d), 4,56 (1H, s), 3,48 (1H, dd), 3,14 (1H, d), 3,06 (1H, d), 2,43 (1H, dd), 2,31 (3H, s), 2,12 (3H, s), 2,11 (3H, s), 2,00 - 1,94 (1H, m).
T132		d ₄ -MeOH δ _H 7,39 (1H, dd), 7,18 (1H, d), 7,16 (1H, d), 6,35 (2H, s), 2,79 (2H, s), 2,46 (2H, q), 1,61 (6H, s), 1,07 (3H, t)
T133		d ₄ -MeOH δ _H 7,37 (1H, dd), 7,17 (1H, d), 7,14 (1H, d), 6,54 (2H, s), 4,96 (2H, s), 2,79 (2H, s), 2,44 (2H, q), 1,06 (3H, t)
T134		d ₄ -MeOH δ _H 7,34 (1H, dd), 7,15 (2H, d), 4,59 (2H, s), 2,78 (2H, s), 2,43 (2H, q), 1,81 - 1,78 (2H, m), 1,66 - 1,61 (2H, m), 1,06 (3H, t)
T135		d ₄ -MeOH δ _H 8,13 (1H, s), 6,80 (2H, s), 6,76 (1H, d), 5,28 (1H, s), 5,06 (1H, d), 4,11 (3H, s), 2,71 (1H, d), 2,60 (1H, d), 2,21 (3H, s), 2,08 (6H, s)

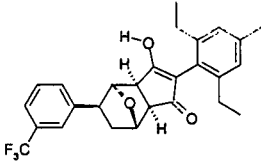
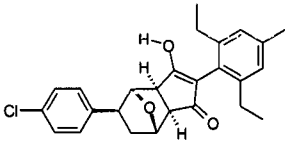
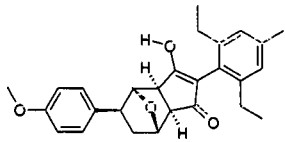
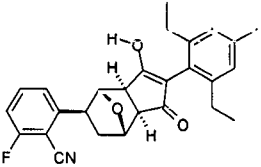
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		s).
T136		δ_H 6,82 (2H, s), 6,48 - 6,44 (2H, m), 4,98 (1H, s), 2,93 - 2,87 (2H, m), 2,19 (3H, s), 2,05 (3H, s), 2,02 (3H, s).
T137		d_4 -MeOH δ_H 7,93 (1H, s), 6,82 (1H, s), 6,80 (1H, s), 4,72 (1H, d), 4,71 (1H, d), 4,12 (3H, s), 3,59 - 3,54 (1H, m), 2,76 (1H, d), 2,66 (1H, d), 2,41 - 2,32 (1H, m), 2,23 (3H, s), 2,10 (3H, s), 2,06 (3H, s), 2,00 - 1,95 (1H, m).
T138	 Isómero A  Isómero B	Mezcla de Isómero A:Isómero B aproximadamente 9:1. Isómero A: d_4-MeOH δ_H 6,83 (2H, s), 4,77 (1H, d), 4,69 (1H, d), 3,22 (1H, d), 3,16 - 3,13 (1H, m), 2,85 (1H, d), 2,35 - 2,29 (1H, m), 2,23 (3H, s), 2,07 (3H, s), 2,03 (3H, s), 1,87 (1H, dd).

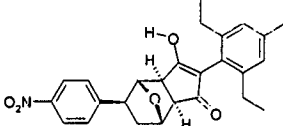
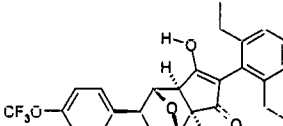
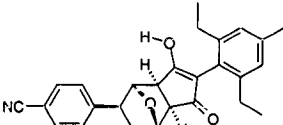
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T139		$\text{d}_6\text{-DMSO-}d_6$ δ_{H} 7,17 (1H, s), 7,18 (1H, s), 6,50 (2H, s), 4,86 (2H, s), 2,7 (2H, br. s), 2,00 (3H, s), 1,95 (3H, s)
T140		$\text{d}_4\text{-MeOH}$ δ_{H} 6,83 (2H, s), 5,35 (1H, s), 4,64 (1H, d), 4,05 - 3,93 (4H, m), 2,84 - 2,80 (2H, m), 2,24 (3H, s), 2,10 (3H, s), 2,08 (3H, s), 1,93 - 1,85 (2H, m), 1,73 - 1,68 (1H, m), 1,58 - 1,54 (1H, m).
T141		$\text{d}_4\text{-MeOH}$ δ_{H} 6,82 (1H, s), 6,80 (1H, s), 5,04 (1H, s), 4,62 (1H, d), 3,66 - 3,49 (4H, m), 2,72 - 2,67 (2H, m), 2,23 (3H, s), 2,12 (3H, s), 2,10 (3H, s), 2,11 - 2,08 (1H, m), 1,94 - 1,83 (1H, m), 1,70 - 1,62 (2H, m), 1,21 (3H, s), 0,74 (3H, s).
T142		LC-MS (Método B) ES^+ : $\text{MH}^+ = 439$; $\text{tr} = 1,35$ mins
T143		δ_{H} 7,32 (1H, d), 7,15 (1H, s), 7,02 (1H, d), 6,91 - 6,90 (2H, m), 4,75 - 4,73 (1H, br. m), 4,62 (1H, s), 3,46 - 3,44 (1H, m), 2,95 - 2,84 (2H, m), 2,37 - 2,28 (10H, m), 2,16 - 2,11

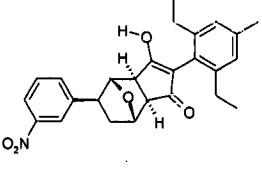
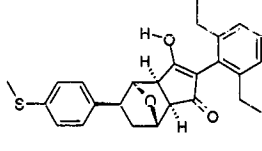
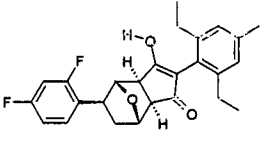
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		(1H, m), 1,76 - 1,73 (1H, m), 1,06 - 1,02 (6H, m).
T144		δ_{H} 7,48 (1H, s), 7,28 (1H, s), 7,13 (1H, d), 6,96 - 6,94 (2H, m), 4,86 (1H, s), 4,68 (1H, s), 3,52 (1H, s con leve división), 3,11 - 2,90 (2H, m), 2,40 - 2,23 (8H, m), 1,83 - 1,80 (1H, m), 1,10 - 1,06 (6H, m).
T145		δ_{H} 7,26 - 7,21 (2H, m), 7,05 - 7,02 (2H, m), 6,94 - 6,88 (3H, m), 4,81 (1H, s), 4,59 (1H, s), 2,99 - 2,85 (3H, m), 2,40 - 2,30 (7H, m), 2,19 - 2,14 (1H, m), 1,91 - 1,89 (1H, m), 1,06 (6H, t).
T146		δ_{H} 7,08 - 7,05 (1H, m), 6,97 - 6,92 (4H, m), 4,80 (1H, br. s), 4,56 (1H, s), 3,10 - 2,82 (3H, m), 2,38 - 2,33 (4H, m), 2,30 (3H, s), 2,23 (3H, s), 2,18 - 2,11 (1H, m), 1,90 - 1,86 (1H, m), 1,08 - 1,05 (6H, m).
T147		δ_{H} 7,16 - 7,13 (1H, m), 7,08 - 7,05 (1H, m), 6,96 (1H, s), 6,94 (1H, s), 6,81 - 6,78 (1H, m), 4,86 (1H, br. s), 4,67 (1H, s), 3,18 (1H, br. s), 3,10

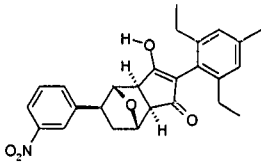
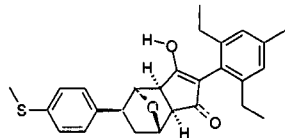
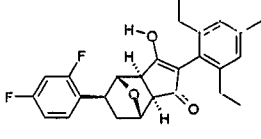
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(1H, br. s), 2,85 (1H, br. s), 2,40 - 2,36 4H, m), 2,31 (3H, s), 2,28 (3H, s), 2,23 - 2,18 (1H, m), 1,81 (1H, br. s), 1,10 - 1,06 (6H, m).
T148		δ _H 7,34 - 7,31 (1H, m), 7,25 - 7,15 (3H, m), 6,96 (1H, s), 6,94 (1H, s), 4,87 - 4,85 (1H, m), 4,65 (1H, s), 3,11 - 3,08 (1H, m), 3,02 - 2,98 (1H, m), 2,86 - 2,80 (1H, m), 2,43 - 2,33 (4H, m), 2,31 (3H, s), 2,23 - 2,18 (1H, m), 2,00 - 1,92 (1H, m), 1,09 - 1,06 (6H, m).
T149		δ _H 7,36 (1H, d), 7,16 - 7,13 (1H, m), 7,04 (1H, t), 6,95 (1H, s), 6,94 (1H, s), 4,83 (1H, br. s), 4,56 (1H, s), 2,96 - 2,83 (3H, m), 2,39 - 2,35 (4H, m), 2,31 (3H, s), 2,21 - 2,16 (1H, m), 1,88 - 1,85 (1H, m), 1,08 - 1,05 (6H, m).
T150		δ _H 7,41 - 7,39 (1H, m), 7,35 - 7,33 (1H, m), 7,12 - 7,10 (1H, m), 6,94 (1H, s), 6,93 (1H, s), 4,82 - 4,80 (1H, m), 4,56 (1H, s), 2,98 - 2,80 (3H, m), 2,37 - 2,33 (4H, m), 2,30

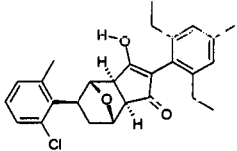
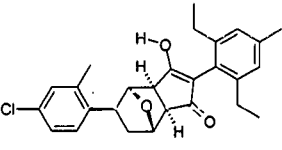
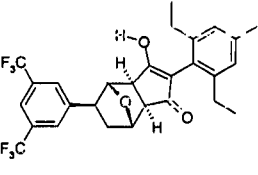
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(3H, s), 2,19 - 2,15 (1H, m), 1,87 - 1,83 (1H, m), 1,08 - 1,04 (6H, m).
T151		δ _H 7,28 (1H, br. s), 7,13 - 7,11 (1H, m), 7,07 - 7,05 (1H, m), 6,94 (1H, s), 6,92 (1H, s), 4,79 - 4,78 (1H, m), 4,55 (1H, s), 2,95 - 2,80 (3H, m), 2,39 - 2,34 (4H, m), 2,33 (3H, s), 2,30 (3H, s), 2,15 - 2,10 (1H, m), 1,89 - 1,84 (1H, m), 1,07 - 1,04 (6H, m).
T152		δ _H 7,22 - 7,18 (3H, m), 6,93 (1H, s), 6,92 (1H, s), 4,79 (1H, s), 4,56 (1H, s), 2,93 - 2,88 (2H, m), 2,37 - 2,32 (5H, m), 2,29 (3H, s), 2,13 (1H, br. m), 1,85 (1H, br. m), 1,07 - 1,04 (6H, m).
T153		δ _H 7,21 - 7,18 (1H, m), 6,94 (1H, s), 6,93 (1H, s), 6,90 - 6,84 (2H, m), 6,76 - 6,74 (1H, m), 4,81 (1H, br. s), 4,60 (1H, s), 3,80 (3H, s), 2,97 - 2,83 (2H, m), 2,83 - 2,35 (5H, m), 2,30 (3H, s), 2,16 - 2,14 (1H, m), 2,00 - 1,96 (1H, m), 1,09 - 1,04 (6H, m).

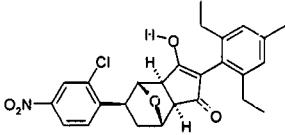
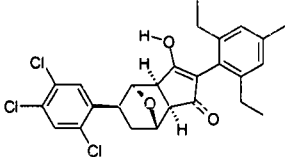
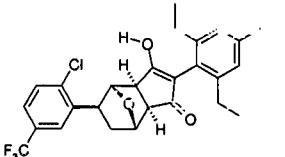
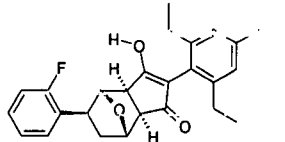
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T154		δ_{H} 7,53 - 7,39 (4H, m), 6,94 - 6,93 (2H, m), 4,82 (1H, br. s), 4,59 (1H, d), 3,04 - 3,02 (1H, m), 2,93 - 2,89 (2H, br. m), 2,38 - 2,33 (4H, m), 2,30 (3H, s), 2,18 (3H, s), 2,16 (3H, s), 1,92 - 1,90 (1H, m), 1,08 - 1,04 (6H, m).
T155		δ_{H} 7,26 - 7,25 (4H, m), 6,95 - 6,94 (2H, m), 4,84 (1H, s), 4,60 - 4,57 (1H, m), 3,09 - 3,06 (1H, m), 2,99 - 2,97 (1H, m), 2,85 - 2,80 (1H, m), 2,40 - 2,36 (4H, m), 2,31 (3H, s), 2,22 - 2,17 (1H, m), 1,93 - 1,89 (1H, m), 1,09 - 1,05 (6H, m).
T156		δ_{H} 7,22 - 7,20 (2H, m), 6,95 - 6,93 (2H, m), 6,84 - 6,82 (2H, m), 4,83 - 4,82 (1H, br. m), 4,56 (1H, s), 3,78 (3H, s), 2,98 - 2,95 (1H, m), 2,90 - 2,75 (2H, br. s), 2,39 - 2,35 (4H, m), 2,30 (3H, s), 2,19 - 2,13 (1H, m), 1,95 - 1,89 (1H, m), 1,09 - 1,05 (6H, m).
T157		δ_{H} 7,57 - 7,53 (1H, m), 7,44 - 7,42 (1H, m), 7,09 - 7,05 (1H, m), 6,93

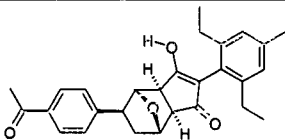
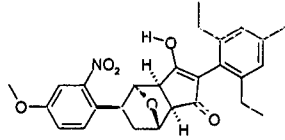
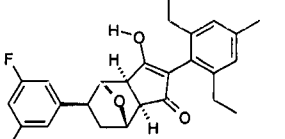
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(2H, s), 4,84 (1H, br. s), 4,70 (1H, br. s), 3,45 - 3,33 (1H, m), 3,10 - 2,90 (2H, m), 2,37 - 2,32 (4H, m), 2,29 (3H, s), 1,85 - 1,83 (2H, m), 1,09 - 1,04 (6H, m).
T158		δ_H 8,15 (2H, d), 7,46 (2H, dd), 6,95 (1H, s), 6,94 (1H, s), 4,88 (1H, s con leve división), 4,62 (1H, s), 4,62 (1H, s), 3,12 - 3,10 (1H, m), 2,99 - 2,90 (2H, br. m), 2,40 - 2,35 (4H, m), 2,31 (3H, s), 2,25 - 2,22 (1H, m), 1,93 - 1,89 (1H, m), 1,08 - 1,05 (6H, m).
T159		δ_H 7,31 - 7,28 (2H, m), 7,13 - 7,12 (2H, m), 6,94 - 6,93 (2H, m), 4,84 - 4,81 (1H, m), 4,57 (1H, d), 3,00 - 2,99 (4H, m), 2,98 - 2,85 (2H, br. m), 2,38 - 2,33 (4H, m), 2,30 (3H, s), 2,17 - 2,14 (1H, m), 1,90 - 1,87 (1H, m), 1,08 - 1,04 (6H, m).
T160		δ_H 7,58 (2H, dd), 7,41 - 7,40 (2H, m), 6,95 (1H, s), 4,87 - 4,85 (1H, m), 4,60 (1H, d), 3,06 - 3,03 (1H, m), 3,04 - 2,95 (2H, br. m), 2,40 -

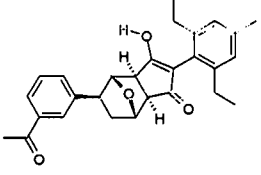
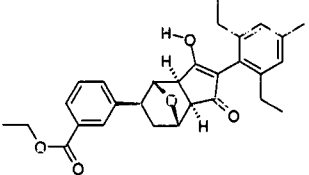
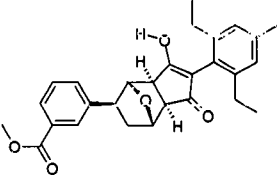
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		2,33 (4H, m), 2,30 (3H, s), 2,25 - 2,20 (1H, m), 1,93 - 1,88 (1H, m), 1,09 - 1,05 (6H, m).
T161		δ_H 8,18 (1H, s), 8,10 - 8,08 (1H, m), 7,69 - 7,67 (1H, m), 7,48 (1H, t), 6,97 (1H, s), 6,95 (1H, s), 4,91 (1H, d), 4,64 (1H, s), 3,18 - 3,13 (1H, m), 3,10 - 2,95 (2H, br. m), 2,40 - 2,36 (4H, m), 2,31 (3H, s), 1,08 (6H, t).
T162		δ_H 7,25 - 7,15 (4H, m), 6,96 (1H, s), 6,94 (1H, s), 4,85 (1H, s), 4,58 (1H, br. s), 3,10 - 3,05 (1H, br. m), 3,00 - 2,97 (1H, m), 2,87 - 2,85 (1H, m), 2,47 (3H, s), 2,42 - 2,34 (4H, m), 2,31 (3H, s), 2,21 - 2,17 (1H, m), 1,96 - 1,91 (1H, m), 1,00 - 1,05 (6H, m).
T163		δ_H 7,42 - 7,38 (1H, m), 6,94 - 6,92 (2H, m), 6,85 - 6,83 (1H, m), 6,77 - 6,73 (1H, m), 4,82 - 4,80 (1H, m), 4,59 (1H, d), 3,38 - 3,34 (1H, m), 3,05 - 2,91 (2H, br. m), 2,37 - 2,34 (4H, m), 2,30 (3H, s), 2,19 - 2,15 (1H, m), 1,85 - 1,80 (1H, m), 1,08 -

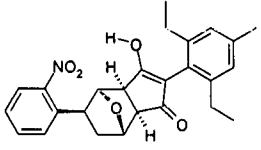
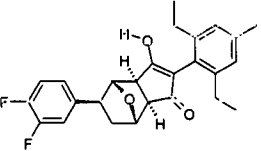
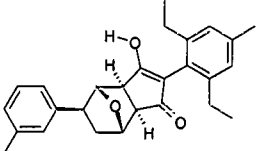
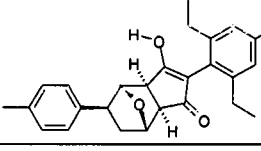
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		2,33 (4H, m), 2,30 (3H, s), 2,25 - 2,20 (1H, m), 1,93 - 1,88 (1H, m), 1,09 - 1,05 (6H, m).
T161		δ _H 8,18 (1H, s), 8,10 - 8,08 (1H, m), 7,69 - 7,67 (1H, m), 7,48 (1H, t), 6,97 (1H, s), 6,95 (1H, s), 4,91 (1H, d), 4,64 (1H, s), 3,18 - 3,13 (1H, m), 3,10 - 2,95 (2H, br. m), 2,40 - 2,36 (4H, m), 2,31 (3H, s), 1,08 (6H, t).
T162		δ _H 7,25 - 7,15 (4H, m), 6,96 (1H, s), 6,94 (1H, s), 4,85 (1H, s), 4,58 (1H, br. s), 3,10 - 3,05 (1H, br. m), 3,00 - 2,97 (1H, m), 2,87 - 2,85 (1H, m), 2,47 (3H, s), 2,42 - 2,34 (4H, m), 2,31 (3H, s), 2,21 - 2,17 (1H, m), 1,96 - 1,91 (1H, m), 1,00 - 1,05 (6H, m).
T163		δ _H 7,42 - 7,38 (1H, m), 6,94 - 6,92 (2H, m), 6,85 - 6,83 (1H, m), 6,77 - 6,73 (1H, m), 4,82 - 4,80 (1H, m), 4,59 (1H, d), 3,38 - 3,34 (1H, m), 3,05 - 2,91 (2H, br. m), 2,37 - 2,34 (4H, m), 2,30 (3H, s), 2,19 - 2,15 (1H, m), 1,85 - 1,80 (1H, m), 1,08 -

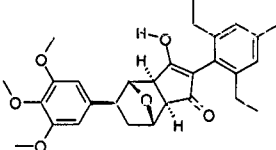
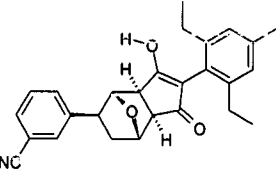
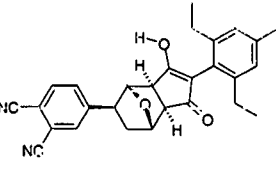
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		1,04 (6H, m).
T164		δ_H 7,22 - 7,20 (1H, m), 7,05 - 7,00 (2H, m), 6,94 (1H, s), 6,92 (1H, s), 4,83 (1H, s), 4,79 (1H, br. s), 3,85 - 3,82 (1H, m), 3,06 - 2,89 (2H, br. m), 2,51 (3H, s), 2,39 - 2,33 (4H, m), 2,30 (3H, s), 2,18 - 2,14 (1H, m), 1,99 - 1,95 (1H, m), 1,05 (6H, t).
T165		δ_H 7,35 (1H, t), 7,16 - 7,12 (1H, m), 6,96 (1H, s), 6,61 - 6,53 (1H, m), 4,86 (1H, br. s), 4,66 (1H, s), 3,17 - 3,09 (2H, m), 2,87 - 2,85 (1H, m), 2,42 - 2,35 (4H, m), 2,32 (6H, s), 2,26 - 2,18 (1H, m), 1,83 - 1,76 (1H, m), 1,08 (6H, t).
T166		δ_H 7,76 - 7,74 (3H, m), 6,96 (1H, s), 6,94 (1H, s), 4,89 (1H, br. s), 4,62 (1H, s), 3,15 - 3,13 (1H, m), 3,12 - 3,07 (1H, br. m), 2,87 (1H, br. s), 2,43 - 2,36 (4H, m), 2,30 (3H, s), 2,28 - 2,25 (1H, m), 1,92 - 1,90 (1H, m), 1,09 - 1,06 (6H, m).

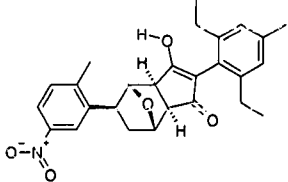
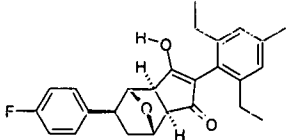
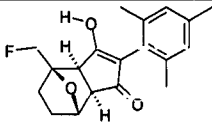
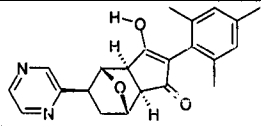
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T167		δ _H 8,26 - 8,24 (1H, m), 8,10 (1H, dd), 7,71 (1H, d), 6,96 (1H, s), 9,95 (1H, s), 4,89 (1H, br. s), 4,73 (1H, br. s), 3,62 (1H, br. s), 3,13 (1H, br. s), 2,94 (1H, br. s), 2,39 - 2,33 (4H, m), 2,31 (3H, s), 1,82 - 1,80 (1H, m), 1,67 - 1,65 (1H, m), 1,08 (6H, t).
T168		δ _H 7,58 (1H, s), 7,46 (1H, d), 6,97 (1H, s), 6,95 (1H, s), 4,88 (1H, br. s), 4,64 (1H, s), 3,49 - 3,47 (1H, m), 3,17 - 2,86 (2H, br. m), 2,40 - 2,35 (4H, m), 2,32 (3H, s), 1,81 - 1,79 (1H, m), 1,58 - 1,56 (1H, m), 1,10 - 1,06 (6H, m).
T169		δ _H 7,73 (1H, s), 7,48 - 7,41 (2H, m), 6,96 (1H, s), 6,93 (1H, s), 4,84 (1H, br. s), 4,69 (1H, s), 3,58 (1H, br. s), 3,08 - 2,93 (2H, br. m), 2,38 - 2,32 (4H, m), 2,31 (3H, s), 2,27 - 2,35 (1H, m), 1,84 - 1,80 (1H, m), 1,10 - 1,05 (6H, m).
T170		δ _H 7,43 - 7,38 (1H, m), 7,19 - 7,14 (1H, m), 7,11 - 7,07 (1H, m), 7,01 -

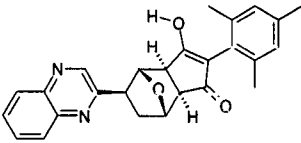
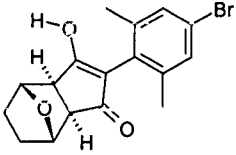
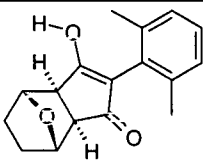
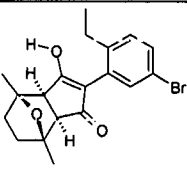
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		6,96 (1H, m), 6,90 - 6,89 (2H, m), 4,75 (1H, d), 4,60 (1H, s), 3,35 (1H, dd), 2,90 - 2,83 (2H, m), 2,37 - 2,29 (4H, m), 2,28 (3H, s), 2,12 - 2,07 (1H, m), 1,84 - 1,78 (1H, m), 1,06 - 1,01 (6H, m).
T171		δ_{H} 7,86 (2H, d), 7,34 (2H, d), 6,91 - 6,90 (2H, m), 4,76 (1H, d), 4,57 (1H, s), 2,97 (1H, dd), 2,87 - 2,83 (2H, m), 2,58 (3H, s), 2,42 - 2,32 (4H, m), 2,28 (3H, s), 2,10 - 2,02 (1H, m), 1,87 - 1,82 (1H, m), 1,09 - 1,05 (6H, m).
T172		δ_{H} 7,61 (1H, d), 7,30 (1H, d), 7,12 (1H, dd), 6,94 - 6,93 (2H, m), 4,81 (1H, d), 4,67 (1H, s), 3,85 (3H, s), 3,40 (1H, dd), 3,04 - 2,88 (2H, br. s), 2,40 - 2,31 (4H, m), 2,30 (3H, s), 2,29 - 2,26 (1H, m), 1,89 - 1,86 (1H, m), 1,06 (6H, t).
T173		δ_{H} 6,89 (1H, s), 6,88 (1H, s), 6,78 - 6,73 (2H, m), 6,67 - 6,61 (1H, m), 4,66 (1H, d), 4,48 (1H, s), 2,81 (1H, dd), 2,74 (2H, br. s), 2,33 - 2,27

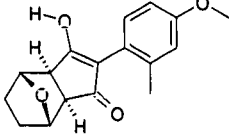
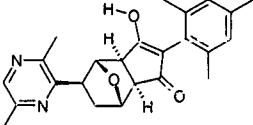
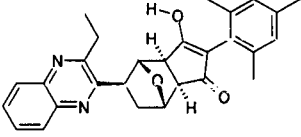
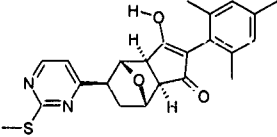
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(4H, m), 2,26 (3H, s), 2,05 - 1,98 (1H, m), 1,77 - 1,71 (1H, m), 1,02 (6H, t).
T174		δ _H 7,78 - 7,73 (2H, m), 7,44 - 7,42 (1H, m), 7,35 (1H, t), 6,84 (2H, s), 4,69 (1H, d), 4,50 (1H, s), 2,93 (1H, dd), 2,79 - 2,76 (2H, m), 2,54 (3H, s), 2,35 - 2,26 (4H, m), 2,22 (3H, s), 2,05 - 2,00 (1H, m), 1,82 - 1,76 (1H, m), 1,04 - 0,99 (6H, m).
T175		δ _H 7,95 (2H, d), 7,28 (2H, d), 6,91 - 6,90 (2H, m), 4,69 (1H, d), 4,53 (1H, s), 4,38 (2H, q), 2,91 (1H, dd), 2,79 - 2,76 (2H, m), 2,40 - 2,31 (4H, m), 2,30 (3H, s), 2,03 - 1,97 (1H, m), 1,83 - 1,77 (1H, m), 1,43 (2H, t), 1,06 (6H, t).
T176		δ _H 7,94 (2H, d), 7,33 (2H, d), 6,92 - 6,91 (2H, m), 4,81 (1H, d), 4,60 (1H, s), 3,89 (3H, s), 3,02 (1H, dd), 2,97 - 2,80 (2H, br. m), 2,38 - 2,30 (4H, m), 2,29 (3H, s), 2,16 (1H, dd), 1,93 - 1,87 (1H, m), 1,07 - 1,03 (6H, m).

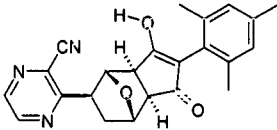
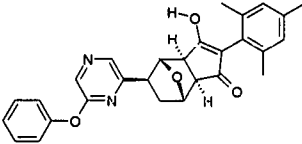
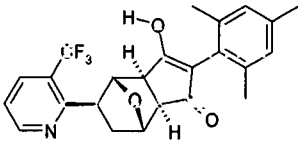
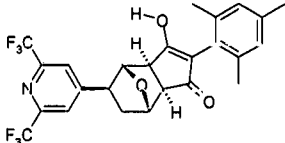
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T177		δ_{H} 7,78 (1H, dd), 7,71 (1H, dd), 7,59 - 7,54 (1H, m), 7,37 - 7,33 (1H, m), 6,91 - 6,90 (2H, m), 4,79 (1H, d), 4,69 (1H, s), 3,42 (1H, dd), 2,93 (1H, br. s), 2,88 - 2,86 (1H, m), 2,39 - 2,30 (4H, m), 2,28 (3H, s), 2,28 - 2,26 (1H, m), 1,91 - 1,85 (1H, m), 1,05 (6H, t).
T178		δ_{H} 7,05 - 6,97 (2H, m), 6,87 - 6,83 (3H, m), 4,62 (1H, d), 4,41 (1H, s), 2,76 (1H, dd), 2,70 (2H, br. s), 2,34 - 2,24 (5H, m), 2,26 (3H, s), 1,97 - 1,92 (1H, m), 1,71 - 1,66 (1H, m), 1,00 (6H, t).
T179		δ_{H} 7,15 (1H, t), 7,07 (1H, s), 7,02 - 7,00 (2H, m), 6,89 (1H, s), 6,88 (1H, s), 4,70 (1H, d), 4,51 (1H, s), 2,85 (1H, dd), 2,80 - 2,76 (2H, m), 2,37 - 2,31 (4H, m), 2,32 (3H, s), 2,27 (3H, s), 2,04 - 1,98 (1H, m), 1,87 - 1,82 (1H, m), 1,05 - 1,01 (6H, m).
T180		δ_{H} 7,11 - 7,05 (4H, m), 6,88 - 6,87 (2H, m), 4,67 (1H, d), 4,47 (1H, s),

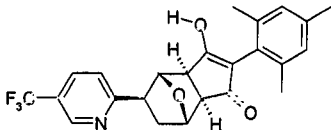
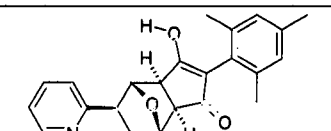
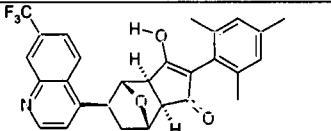
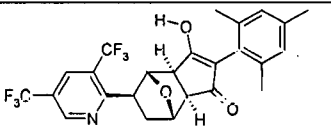
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		2,84 (1H, dd), 2,77 - 2,73 (2H, m), 2,36 - 2,28 (4H, m), 2,30 (3H, s), 2,27 (3H, s), 2,01 - 1,96 (1H, m), 1,84 - 1,79 (1H, m), 1,05 - 1,00 (6H, m).
T181		δ _H 6,90 (1H, s), 6,89 (1H, s), 6,47 (2H, s), 4,70 (1H, d), 4,51 (1H, s), 3,84 (6H, s), 3,80 (3H, s), 2,84 - 2,79 (3H, m), 2,37 - 2,30 (4H, m), 2,28 (3H, s), 2,07 - 2,02 (1H, m), 1,86 - 1,80 (1H, m), 1,07 - 1,02 (6H, m).
T182		δ _H 7,53 (1H, s), 7,49 - 7,43 (2H, m), 7,38 - 7,34 (1H, m), 6,89 (1H, s), 6,88 (1H, s), 4,71 (1H, d), 4,47 (1H, s), 2,89 (1H, dd), 2,82 - 2,78 (2H, m), 2,36 - 2,26 (4H, m), 2,25 (3H, s), 2,05 (1H, dd), 1,78 - 1,72 (1H, m), 1,02 (6H, t)
T183		δ _H 7,79 (1H, d), 7,74 - 7,72 (1H, m), 7,69 - 7,66 (1H, m), 6,96 (1H, s), 6,95 (1H, s), 4,90 (1H, d), 4,60 (1H, s), 3,11 (1H, dd), 2,99 (2H, br. s), 2,40 - 2,32 (4H, m), 2,30 (3H, s),

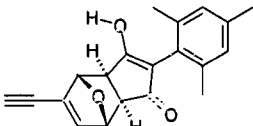
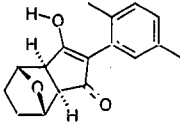
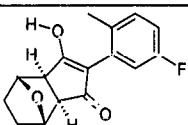
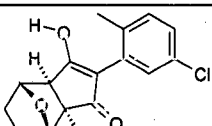
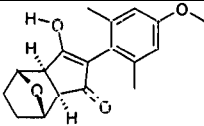
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,29 - 2,26 (1H, m), 1,90 - 1,84 (1H, m), 1,09 - 1,05 (6H, m).
T184		δ_{H} 8,29 (1H, d), 7,97 (1H, dd), 7,29 (1H, d), 6,97 (1H, s), 6,95 (1H, s), 4,92 (1H, d), 4,72 (1H, s), 3,26 (1H, dd), 3,03 (2H, br. s), 2,43 (3H, s), 2,40 - 2,33 (4H, m), 2,32 (3H, s), 2,26 (1H, dd), 1,87 - 1,85 (1H, m), 1,12 - 1,06 (6H, m).
T185		δ_{H} 7,19 - 7,16 (2H, m), 6,97 - 6,90 (4H, m), 4,71 (1H, d), 4,48 (1H, s), 2,88 (1H, dd), 2,82 - 2,78 (2H, m), 2,37 - 2,30 (4H, m), 2,28 (3H, s), 2,05 (1H, dd), 1,83 - 1,77 (1H, m), 1,05 - 1,01 (6H, m).
T186		$d_4\text{-MeOH } \delta_{\text{H}}$ 6,82 (1H, s), 6,80 (1H, s), 4,87 (1H, d), 4,77 (1H, d), 4,63 (1H, d), 2,72 (1H, d), 2,65 (1H, d), 2,23 (3H, s), 2,12 (3H, s), 2,08 (3H, s), 2,07 - 2,03 (1H, m), 1,95 - 1,86 (1H, m), 1,76 - 1,70 (1H, m), 1,62 - 1,55 (1H, m).
T187		$d_4\text{-MeOH } \delta_{\text{H}}$ 8,65 (1H, s), 8,54 (1H, br. s), 8,46 (1H, br. s), 6,87 (2H, s),

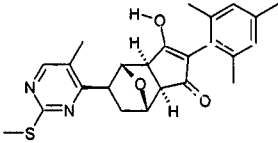
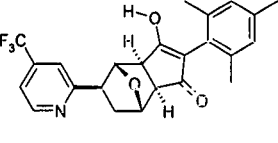
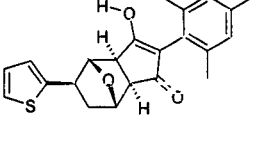
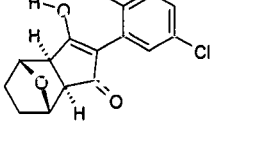
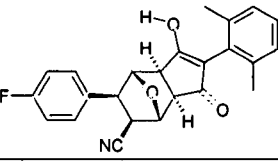
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		4,82 (1H, d), 4,72 (1H, s), 3,48 - 3,46 (1H, m), 3,13 (1H, d), 3,04 (1H, d), 2,25 (3H, s), 2,25 - 2,18 (2H, m), 2,09 (3H, s), 2,07 (3H, s), 1,79 - 1,74 (1H, m), 1,72 - 1,67 (1H, m).
T188		d ₄ -MeOH δ_{H} 8,93 (1H, s), 8,09 - 8,06 (2H, m), 7,85 - 7,78 (2H, m), 6,87 (2H, s), 4,90 (1H, s), 4,87 (1H, d), 3,66 (1H, dd), 3,19 (1H, d), 3,09 (1H, d), 2,44 - 2,33 (2H, m), 2,25 (3H, s), 2,09 (3H, s), 2,08 (3H, s).
T189		d ₄ -MeOH δ_{H} 7,23 (2H, s), 4,61 (2H, t), 2,88 (2H, s), 2,09 (6H, s), 1,83 (2H, m), 1,69 (2H, m)
T190		d ₄ -MeOH δ_{H} 7,14-7,04 (3H, m), 4,61 (2H, t), 2,88 (2H, s), 2,11 (6H, s), 1,83 (2H, m), 1,69 (2H, m)
T191		d ₄ -MeOH δ_{H} 7,36 (1H, dd), 7,17 (1H, d), 7,15 (1H, d), 2,81 (2H, s), 2,48 - 2,43 (2H, m), 1,84 - 1,79 (2H, m), 1,69 - 1,65 (2H, m), 1,51 (6H, s), 1,08 (3H, t).

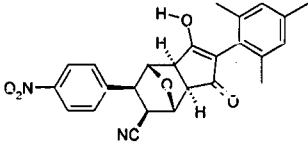
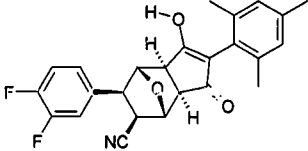
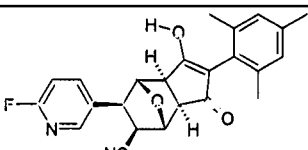
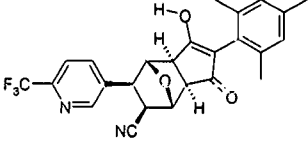
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T192		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 6,94 (1H, d), 6,78 (1H, d), 6,73 (1H, dd), 4,59 (2H, s), 3,77 (3H, s), 2,82 (2H, s), 2,10 (3H, s), 1,84-1,79 (2H, m), 1,69-1,62 (2H, m).
T193		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 7,84 (1H, br. s), 6,78 (2H, s), 4,89 (1H, br. s), 4,84 (1H, s), 3,28 (1H, br. s), 3,02 (1H, br. s), 2,94 (1H, br. s), 2,57 - 2,46 (2H, m), 2,53 (3H, s), 2,18 (3H, s), 2,05 (3H, s), 2,03 (3H, s), 2,02 (3H, s).
T194		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 8,09 - 8,06 (1H, m), 8,00 - 7,98 (1H, m), 7,73 - 7,70 (2H, m), 6,86 (2H, s), 4,99 (1H, s), 4,80 (1H, d), 3,19 - 3,10 (3H, m), 2,49 - 2,43 (1H, m), 2,34 - 2,28 (1H, m), 2,25 (3H, s), 2,07 (3H, s), 2,06 (3H, s), 1,46 (3H, t).
T195		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 7,04 (1H, br. s), 6,86 (2H, s), 5,93 (1H, br. s), 4,86 (1H, br. s), 4,78 (1H, s), 3,18 (1H, br. s), 3,02 (1H, br. s), 2,94 (1H, br. s), 2,59 (3H, s), 2,37 (3H, s), 2,24 (3H, s), 2,16 (3H, s), 2,07 (6H, m).

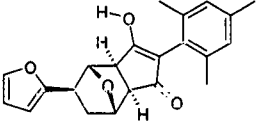
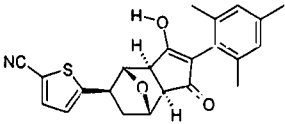
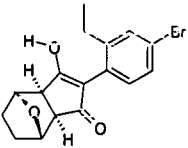
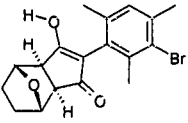
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T196		d ₄ -MeOH δ _H 8,79 (1H, s), 8,59 (1H, s), 6,87 (1H, s), 4,95 (1H, s), 4,92 (1H, d), 3,74 - 3,71 (1H, m), 2,87 (2H, m), 2,26 (2H, m), 2,18 (3H, s), 2,10 (3H, s), 2,07 (3H, s).
T197		d ₄ -MeOH δ _H 7,45 - 7,42 (3H, m), 7,29 - 7,23 (2H, m), 7,17 - 7,15 (2H, m), 6,80 (2H, s), 4,82 (1H, br. s), 4,73 (1H, br. s), 3,21 (1H, br. s), 2,90 (1H, br. s), 2,84 (1H, br. s), 2,20 (3H s), 2,09 - 2,07 (2H, m), 2,05 (6H, s).
T198		d ₄ -MeOH δ _H 8,78 (1H, br. s), 7,96 (1H, br. s), 6,84 (3H, s), 4,82 (2H, br. s), 3,51 (1H br. s), 2,98 (1H, br. s), 2,90 (1H, br. s), 2,35 (1H, br. s), 2,22 (3H, s), 2,04 - 2,02 (7H, m).
T199		d ₄ -MeOH δ _H 7,81 (1H, s), 7,26 (1H, s), 6,92 (1H, s), 6,90 (1H, s), 4,91 (1H, d), 4,64 (1H, s), 3,19 - 3,17 (1H, m), 2,99 - 2,95 (2H, m), 2,32 - 2,27 (1H, m), 2,26 (3H, s), 2,09 (3H, s), 2,07 (3H, s), 1,93 - 1,90 (1H, m).

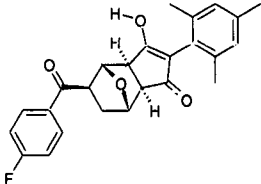
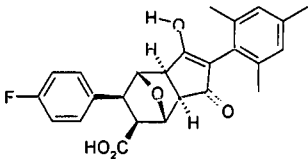
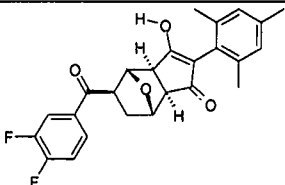
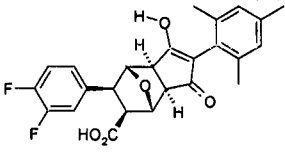
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T200		d ₄ -MeOH δ _H 7,95 (1H, br. s), 7,86 (1H, br. s), 7,44 (1H, br. s), 6,88 (1H, s), 6,84 (1H, s), 4,86 (1H, br. s), 4,71 (1H, br. s), 3,44 - 3,40 (1H, br. s), 3,07 (1H, br. s), 2,85 (1H, br. s), 2,22 (3H, s), 2,15 - 2,11 (2H, m), 2,10 (3H, s), 2,05 (3H, s).
T201		d ₄ -MeOH δ _H 7,79 (1H, t), 7,53 (2H, d), 6,86 (2H, s), 4,78 (1H, s), 4,71 (1H, s), 3,35 - 3,31 (1H, m), 2,88 (1H, br. s), 2,79 (1H, br. s), 2,22 (3H, s), 2,17 - 2,09 (2H, m), 2,04 (3H, s), 2,02 (3H, s).
T202		d ₄ -MeOH δ _H 8,76 (1H, br. s), 8,61 (1H, d), 8,32 (1H, d), 7,96 (1H, d), 7,85 (1H, d), 6,86 (2H, s), 4,84 (1H, s), 4,11 (1H, dd), 3,24 (1H, d), 3,13 (1H, d), 2,58 - 2,54 (1H, m), 2,24 (3H, s), 2,07 (6H, s), 1,95 - 1,91 (1H, m).
T203		d ₄ -MeOH δ _H 9,07 (1H, s), 8,38 (1H, s), 6,87 (2H, s), 4,77 (1H, s), 3,77 - 3,74 (1H, m), 3,04 (2H, br. s), 2,40 - 2,37 (1H, m), 2,29 - 2,25 (1H, m),

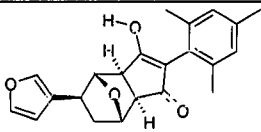
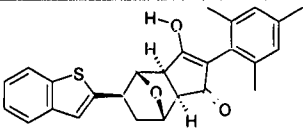
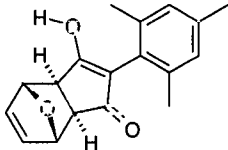
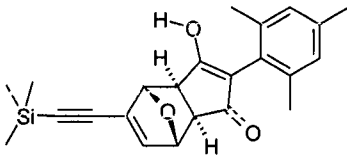
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,25 (3H, s), 2,06 (3H, s), 2,04 (3H, s).
T204		$\text{d}_4\text{-MeOH}$ δ_{H} 6,85 (2H, s), 6,72 (1H, d), 5,03 (1H, d), 3,96 (1H, s), 2,92 - 2,88 (2H, m), 2,24 (3H, s), 2,06 (3H, s), 2,01 (3H, s).
T205		$\text{d}_6\text{-DMSO}$ δ_{H} 11,92 (1H, s), 7,05 (1H, d), 6,96 (1H, d), 6,77 (1H, s), 4,50 (2H, s), 2,74 (2H, br. s), 2,23 (3H, s), 2,03 (3H, s), 1,71-1,65 (2H, m), 1,57-1,53 (2H, m).
T206		$\text{d}_6\text{-DMSO}$ δ_{H} 12,21 (1H, s), 7,20 (1H, dd), 6,99 (1H, td), 6,75 (1H, dd), 4,51 (2H, s), 2,76 (2H, br. s), 2,04 (3H, s), 1,71-1,65 (2H, m), 1,60-1,52 (2H, m).
T207		$\text{d}_6\text{-DMSO}$ δ_{H} 12,27 (1H, s), 7,21 (2H, s), 6,97 (1H, s), 4,51 (2H, s), 2,78 (2H, br. s), 2,05 (3H, s), 1,73-1,63 (2H, m), 1,60-1,51 (2H, m).
T208		$\text{d}_4\text{-MeOH}$ δ_{H} 6,61 (2H, s), 4,64-4,50 (2H, m), 3,74 (3H, s), 2,83 (2H, s), 2,04 (6H, d), 1,87-1,77 (2H, m), 1,70-1,59 (2H, m).

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
T209		d ₄ -MeOH δ _H 8,30 (1H, s), 6,86 (2H, s), 4,89 (1H, s), 4,73 (1H, d), 3,47 (1H, dd), 3,09 (1H, d), 3,04 (1H, d), 2,55 (3H, s), 2,39 - 2,35 (1H, m), 2,30 (3H, s), 2,25 (3H, s), 2,17 (1H, dd), 2,06 (3H, s), 2,04 (3H, s).
T210		d ₄ -MeOH δ _H 8,72 (1H, d), 7,72 (1H, s), 7,58 (1H, d), 6,86 (2H, s), 4,81 (1H, d), 4,68 (1H, s), 3,51 (1H, dd), 3,10 (1H, d), 3,03 (1H, d), 2,33 (1H, dd), 2,25 (3H, s), 2,16 - 2,11 (1H, m), 2,06 (3H, s), 2,05 (3H, s).
T211		d ₄ -MeOH δ _H 7,21 - 7,19 (1H, m), 6,92 - 6,90 (2H, m), 6,86 (2H, s), 4,72 (1H, d), 4,43 (1H, s), 3,49 (1H, dd), 3,02 (1H, d), 2,93 (1H, d), 2,29 (1H, dd), 2,25 (3H, s), 2,05 (6H, s), 1,98 - 1,93 (1H, m).
T212		d ₄ -MeOH δ _H 7,41 (1H, d), 7,29 (1H, dd), 7,19 (1H, d), 4,65 - 4,60 (2H, m), 2,87 (2H, s), 1,86-1,79 (2H, m), 1,70-1,63 (2H, m).
T213		d ₄ -MeOH δ _H 7,44 - 7,41 (2H, m), 7,08 (2H, t), 6,88 (1H, s), 6,87 (1H,

Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		s), 4,89 (1H, s), 4,73 (1H, s), 3,68 (1H, d), 3,59 (1H, d), 3,10 - 3,06 (2H, m), 2,25 (3H, s), 2,07 (3H, s), 2,5 (3H, s).
T214		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 8,24 (2H, d), 7,66 (2H, d), 6,88 (2H, s), 4,93 (1H, s), 4,68 (1H, s), 3,76 (2H, s), 3,13 - 3,11 (2H, m), 2,25 (3H, s), 2,07 (3H, s), 2,05 (3H, s).
T215		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 7,34 - 7,30 (1H, m), 7,25 - 7,18 (2H, m), 6,89 (1H, s), 6,87 (1H, s), 4,90 (1H, s), 4,75 (1H, s), 3,67 (1H, d), 3,58 (1H, d), 3,10 - 3,05 (2H, m), 2,26 (3H, s), 2,07 (3H, s), 2,05 (3H, s).
T216		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 8,53 (1H, s), 7,83 (1H, d), 7,64 (1H, d), 6,91 (2H, s), 3,12 (1H, dd), 2,97 (2H, br. s), 2,47 (1H, dd), 2,27 (3H, s), 1,84 - 1,79 (1H, m), 2,11 (3H, s), 2,08 (3H, s), 1,71 (3H, s), 1,10 (3H, s).
T217		$\text{d}_4\text{-MeOH } \delta_{\text{H}}$ 7,92 (1H, d), 7,77 - 7,73 (1H, m), 6,91 - 6,88 (3H, m), 3,04 (1H, dd), 2,96 - 2,92 (2H, m),

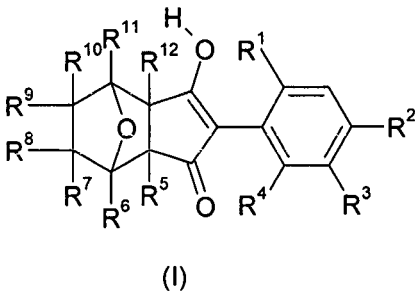
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		2,43 (1H, dd), 2,25 (3H, s), 2,11 (3H, s), 2,08 (3H, s), 1,76 (1H, dd), 1,70 (3H, s), 1,09 (3H, s).
T218		$\text{d}_4\text{-MeOH}$ δ_{H} 7,41 (1H, d), 6,88 (2H, s), 6,35 - 6,34 (1H, m), 6,14 (1H, d), 4,72 (1H, d), 4,59 (1H, s), 3,26 (1H, dd), 3,02 (1H, d), 2,94 (1H, d), 2,27 (3H, s), 2,18 - 2,12 (1H, m), 2,08 (3H, s), 2,06 (3H, s), 2,05 - 2,01 (1H, m).
T219		$\text{d}_4\text{-MeOH}$ δ_{H} 7,60 (1H, d), 7,06 (1H, d), 6,89 (2H, s), 4,79 (1H, d), 4,47 (1H, s), 3,63 (1H, dd), 3,06 (1H, d), 3,00 (1H, d), 2,36 (1H, dd), 2,27 (3H, s), 2,07 (6H, s), 1,97 - 1,91 (1H, m).
T220		δ_{H} 7,39 (1H, dd), 7,27-7,33 (1H, m), 6,97 (1H, dd), 4,68 (2H, m), 2,74 (2H, br. s), 2,48 (2H, q), 1,78-1,87 (2H, m), 1,56 (2H, m), 1,11 (3H, t).
T221		δ_{H} 7,05-6,99 (1H, m), 4,76-4,67 (2H, m), 2,84 (2H, br. s), 2,38 (3H, s), 2,24 (3H, d), 2,05 (3H, d), 1,88-1,85 (2H, m), 1,64-1,58 (2H, m).

Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
T222		$\text{d}_4\text{-MeOH}$ δ_{H} 8,11 (2H, dd), 8,61 (2H, t), 6,86 (2H, s), 4,81 (1H, s), 4,67 (1H, d), 3,81 (1H, dd), 3,14 (1H, d), 3,03 (1H, d), 2,24 (3H, s), 2,23 - 2,19 (1H, m), 2,11 - 2,09 (1H, m), 2,06 (3H, s), 2,02 (3H, s).
T223		$\text{d}_4\text{-MeOH}$ δ_{H} 7,39 - 7,36 (2H, m), 6,98 - 6,94 (2H, m), 6,88 (1H, s), 6,86 (1H, s), 4,95 (1H, s), 4,53 (1H, s), 3,63 (1H, d), 3,08 (1H, d), 3,03 (1H, d), 2,88 - 2,86 (1H, m), 2,25 (3H, s), 2,09 (3H, s), 2,06 (3H, s).
T224		$\text{d}_4\text{-MeOH}$ δ_{H} 7,81 - 7,76 (1H, m), 7,73 - 7,70 (1H, m), 7,29 - 7,23 (1H, m), 6,88 (2H, s), 4,96 (1H, s), 4,79 (1H, d), 3,47 (1H, dd), 3,04 - 2,92 (2H, m), 2,25 (3H, s), 2,11 - 2,07 (1H, m), 2,07 (3H, s), 2,04 (3H, s), 1,96 - 1,88 (1H, m).
T225		$\text{d}_4\text{-MeOH}$ δ_{H} 7,16 - 7,12 (1H, m), 7,01 - 6,90 (2H, m), 6,78 (1H, s), 6,76 (1H, s), 4,94 (1H, s), 4,54 (1H, s), 3,39 (1H, d), 3,12 (1H, d), 2,28 - 2,80 (2H, br. m), 2,14 (3H, s), 2,00

Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		(3H, s), 1,96 (3H, s).
T226		$\text{d}_4\text{-MeOH}$ δ_{H} 7,43 (1H, s), 7,38 (1H, s), 6,88 (2H, s), 6,42 (1H, d), 4,93 (1H, s), 4,71 (1H, d), 3,09 (1H, dd), 2,99 (1H, d), 2,93 (1H, d), 2,27 (3H, s), 2,17 (1H, dd), 2,08 (6H, m), 1,85 - 1,80 (1H, m).
T227		δ_{H} 7,92 - 7,81 (3H, m), 7,42 - 7,29 (2H, m), 6,85 (2H, s), 4,78 (1H, d), 4,59 (1H, s), 3,57 (1H, dd), 3,14 (1H, d), 3,00 (1H, d), 2,31 (1H, dd), 2,24 (3H, s), 2,07 (3H, s), 2,05 (3H, s), 2,04 - 1,98 (1H, m).
T228		δ_{H} 6,86 (2H, s), 6,47 (2H, s), 5,01 (2H, s), 2,74 (2H, s), 2,23 (3H, s), 2,08 (3H, s), 2,06 (3H, s).
T229		δ_{H} 6,65 (2H, s), 6,26 (1H, s), 4,75 (1H, s), 4,67 (1H, s), 2,62 (1H, d), 2,52 (1H, d), 2,03 (3H, s), 1,84 (3H, s), 1,80 (3H, s), 0,00 (9H, s).

Los compuestos de las siguientes Tablas 1 a 146 se pueden obtener de manera análoga.

La Tabla 1 comprende los compuestos de la fórmula (A)



donde R¹, R² y R⁴ son metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definen en la Tabla 1.

Tabla 1

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.001	H	H	H	H	H	H
1.002	H	H	H	H	H	CH ₃
1.003	H	H	H	H	H	CH ₂ OH
1.004	H	H	H	H	H	CH ₂ OCH ₃
1.005	H	H	H	H	H	CH ₂ OCH ₂ CH ₃
1.006	H	H	H	H	H	CH ₂ OCH ₂ OCH ₃
1.007	H	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃
1.007	H	H	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₃
1.008	H	H	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₂ CH ₃
1.009	H	H	H	H	H	CH ₂ OCH ₂ CN
1.010	H	H	H	H	H	CH(OH)CH ₃
1.011	H	H	H	H	H	CH(CH ₃)OCH ₃
1.012	H	H	H	H	H	CH(CH ₃)OCH ₂ CH ₃
1.013	H	H	H	H	H	CHO
1.014	H	H	H	H	H	COCH ₃
1.015	H	H	H	H	H	CH ₂ COCH ₃
1.016	H	H	H	H	H	CH ₂ CH ₂ COCH ₃
1.017	H	H	H	H	H	CO ₂ H
1.018	H	H	H	H	H	CO ₂ CH ₃
1.019	H	H	H	H	H	CO ₂ CH ₂ CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.020	H	H	H	H	H	CH ₂ CO ₂ CH ₃
1.021	H	H	H	H	H	CH ₂ CO ₂ CH ₂ CH ₃
1.022	H	H	H	H	H	CH ₂ CH ₂ CO ₂ CH ₃
1.023	H	H	H	H	H	CH ₂ CH ₂ CO ₂ CH ₂ CH ₃
1.024	H	H	H	H	H	CONH ₂
1.025	H	H	H	H	H	CONHCH ₃
1.026	H	H	H	H	H	CONHCH ₂ CH ₃
1.027	H	H	H	H	H	CON(CH ₃) ₂
1.030	H	H	H	H	H	CON(CH ₂ CH ₃) ₂
1.031	H	H	H	H	H	CON(CH ₃)OCH ₃
1.032	H	H	H	H	H	CH=NOH
1.033	H	H	H	H	H	CH=NOCH ₃
1.034	H	H	H	H	H	CH=NOCH ₂ CH ₃
1.035	H	H	H	H	H	C(CH ₃)=NOH
1.036	H	H	H	H	H	C(CH ₃)=NOCH ₃
1.037	H	H	H	H	H	CH ₂ OC(O)CH ₃
1.038	H	H	H	H	H	CH ₂ OC(O)CH ₂ CH ₃
1.039	H	H	H	H	H	CH ₂ OC(O)CH(CH ₃) ₂
1.040	H	H	H	H	H	CH ₂ OC(O)C(CH ₃) ₃
1.039	H	H	H	H	H	CH ₂ OC(O)NHCH ₃
1.040	H	H	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₃
1.041	H	H	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₂ CH ₃
1.042	H	H	H	H	H	CH ₂ OC(O)NHC(CH ₃) ₃
1.043	H	H	H	H	H	CH ₂ NH ₂
1.044	H	H	H	H	H	CH ₂ NHCHO
1.045	H	H	H	H	H	CH ₂ NHC(O)CH ₃
1.046	H	H	H	H	H	CH ₂ NHC(O)OCH ₃
1.047	H	H	H	H	H	NHCO ₂ CH ₃
1.048	H	H	H	H	H	NHCO ₂ C(CH ₃) ₃
1.049	H	H	H	H	H	CN
1.050	H	H	H	H	H	CH ₂ SCH ₃
1.051	H	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.052	H	H	H	H	H	CH ₂ SCH ₂ CH ₂ CH ₃
1.053	H	H	H	H	H	CH ₂ SCH(CH ₃) ₂
1.054	H	H	H	H	H	CH ₂ S(O)CH ₃
1.055	H	H	H	H	H	CH ₂ SO ₂ CH ₃
1.056	H	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.057	H	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃
1.058	H	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.059	H	H	H	H	H	OCH ₃
1.060	H	H	H	H	H	OCH ₂ CH ₃
1.061	H	H	H	H	H	CH(OCH ₃) ₂
1.062	H	H	H	H	H	CH(OCH ₂ CH ₃) ₂
1.063	H	H	H	H	H	1,3-dioxolan-2-ilo
1.064	H	H	H	H	H	1,3-dioxan-2-ilo
1.065	H	H	H	H	H	5,5-dimetil-1,3-dioxan-2-ilo
1.066	H	H	H	H	H	CH ₂ CH ₃
1.067	H	H	H	H	H	<i>n</i> -propilo
1.068	H	H	H	H	H	isopropilo
1.069	H	H	H	H	H	<i>n</i> -butilo
1.070	H	H	H	H	H	isobutilo
1.071	H	H	H	H	H	<i>sec</i> -butilo
1.072	H	H	H	H	H	<i>tert</i> -butilo
1.073	H	H	H	H	H	<i>n</i> -pentilo
1.074	H	H	H	H	H	neopentilo
1.075	H	H	H	H	H	<i>n</i> -hexilo
1.076	H	H	H	H	H	<i>n</i> -heptilo
1.077	H	H	H	H	H	CH ₂ CN
1.078	H	H	H	H	H	ciclopropilo
1.079	H	H	H	H	H	ciclobutilo
1.080	H	H	H	H	H	ciclopentilo
1.081	H	H	H	H	H	ciclohexilo
1.082	H	H	H	H	H	CH ₂ -ciclopropilo
1.083	H	H	H	H	H	bencilo
1.084	H	H	H	H	H	CH ₂ CF ₃
1.085	H	H	H	H	H	CH ₂ F
1.086	H	H	H	H	H	CHF ₂
1.087	H	H	H	H	H	CF ₃
1.088	H	H	H	H	CH ₃	H
1.089	H	H	H	H	CH ₂ CH ₃	H
1.090	H	H	H	H	<i>n</i> -propilo	H
1.091	H	H	H	H	isopropilo	H
1.092	H	H	H	H	<i>n</i> -butilo	H
1.093	H	H	H	H	isobutilo	H
1.094	H	H	H	H	<i>sec</i> -butilo	H
1.095	H	H	H	H	<i>tert</i> -butilo	H
1.096	H	H	H	H	vinilo	H
1.097	H	H	H	H	etinilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.098	H	H	H	H	trimetilsililetinilo	H
1.099	H	H	H	H	CH ₂ OH	H
1.100	H	H	H	H	CH ₂ OCH ₃	H
1.101	H	H	H	H	CH ₂ OCH ₂ CH ₃	H
1.102	H	H	H	H	CH ₂ OCH ₂ OCH ₃	H
1.103	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
1.104	H	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
1.105	H	H	H	H	CHO	H
1.106	H	H	H	H	COCH ₃	H
1.107	H	H	H	H	CO ₂ H	H
1.108	H	H	H	H	CO ₂ CH ₃	H
1.109	H	H	H	H	CO ₂ CH ₂ CH ₃	H
1.110	H	H	H	H	CONH ₂	H
1.111	H	H	H	H	CONHCH ₃	H
1.112	H	H	H	H	CONHCH ₂ CH ₃	H
1.113	H	H	H	H	CON(CH ₃) ₂	H
1.114	H	H	H	H	CON(CH ₂ -CH ₃) ₂	H
1.115	H	H	H	H	CON(CH ₃)OCH ₃	H
1.116	H	H	H	H	CH=NOH	H
1.117	H	H	H	H	CH=N-OCH ₃	H
1.118	H	H	H	H	CH=N-OCH ₂ CH ₃	H
1.119	H	H	H	H	C(CH ₃)=N-OH	H
1.120	H	H	H	H	C(CH ₃)=N-OCH ₃	H
1.121	H	H	H	H	CH ₂ OC(O)-NHCH ₃	H
1.122	H	H	H	H	CH ₂ NH ₂	H
1.123	H	H	H	H	CH ₂ NHCHO	H
1.124	H	H	H	H	CH ₂ NHC(O)CH ₃	H
1.125	H	H	H	H	CH ₂ NHC(O)OCH ₃	H
1.126	H	H	H	H	NHCO ₂ CH ₃	H
1.127	H	H	H	H	NHCO ₂ C(CH ₃) ₃	H
1.128	H	H	H	H	CH(OH)CH ₃	H
1.129	H	H	H	H	CH(CH ₃)OCH ₃	H
1.130	H	H	H	H	CN	H
1.131	H	H	H	H	CH ₂ SCH ₃	H
1.132	H	H	H	H	CH ₂ S(O)CH ₃	H
1.133	H	H	H	H	CH ₂ SO ₂ CH ₃	H
1.134	H	H	H	H	CH ₂ SCH ₂ CH ₃	H
1.135	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃	H
1.136	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.137	H	H	H	H	OCH ₃	H
1.138	H	H	H	H	OCH ₂ CH ₃	H
1.139	H	H	H	H	CH(OCH ₃) ₂	H
1.140	H	H	H	H	CH(OCH ₂ CH ₃) ₂	H
1.141	H	H	H	H	ciclopropilo	H
1.142	H	H	H	H	ciclobutilo	H
1.143	H	H	H	H	ciclopentilo	H
1.144	H	H	H	H	ciclohexilo	H
1.145	H	H	H	H	F	H
1.146	H	H	H	H	Cl	H
1.147	H	H	H	H	Br	H
1.148	H	H	H	H	I	H
1.149	H	H	H	H	OH	H
1.150	H	H	H	H	fenilo	H
1.151	H	H	H	H	2-acetilfenilo	H
1.152	H	H	H	H	3-acetilfenilo	H
1.153	H	H	H	H	4-acetilfenilo	H
1.154	H	H	H	H	2-clorofenilo	H
1.155	H	H	H	H	3-clorofenilo	H
1.156	H	H	H	H	4-clorofenilo	H
1.157	H	H	H	H	2-cianofenilo	H
1.158	H	H	H	H	3-cianofenilo	H
1.159	H	H	H	H	4-cianofenilo	H
1.160	H	H	H	H	2-fluorfenilo	H
1.161	H	H	H	H	3-fluorfenilo	H
1.162	H	H	H	H	4-fluorfenilo	H
1.163	H	H	H	H	2-metoxifenilo	H
1.164	H	H	H	H	3-metoxifenilo	H
1.165	H	H	H	H	4-metoxifenilo	H
1.166	H	H	H	H	2-metilfenilo	H
1.167	H	H	H	H	3-metilfenilo	H
1.168	H	H	H	H	4-metilfenilo	H
1.169	H	H	H	H	2-nitrofenilo	H
1.170	H	H	H	H	3-nitrofenilo	H
1.171	H	H	H	H	4-nitrofenilo	H
1.172	H	H	H	H	2-tiometilfenilo	H
1.173	H	H	H	H	3-tiometilfenilo	H
1.174	H	H	H	H	4-tiometilfenilo	H
1.175	H	H	H	H	2-trifluormetoxifenilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.176	H	H	H	H	3-trifluormetoxifenilo	H
1.177	H	H	H	H	4-trifluormetoxifenilo	H
1.178	H	H	H	H	2-trifluormetilfenilo	H
1.179	H	H	H	H	3-trifluormetilfenilo	H
1.180	H	H	H	H	4-trifluormetilfenilo	H
1.181	H	H	H	H	2,3-diclorofenilo	H
1.182	H	H	H	H	2,4-diclorofenilo	H
1.183	H	H	H	H	2,5-diclorofenilo	H
1.184	H	H	H	H	2,6-diclorofenilo	H
1.185	H	H	H	H	3,4-diclorofenilo	H
1.186	H	H	H	H	3,5-diclorofenilo	H
1.187	H	H	H	H	2,3-difluorfenilo	H
1.188	H	H	H	H	2,4-difluorfenilo	H
1.189	H	H	H	H	2,5-difluorfenilo	H
1.190	H	H	H	H	2,6-difluorfenilo	H
1.191	H	H	H	H	3,4-difluorfenilo	H
1.192	H	H	H	H	3,5-difluorfenilo	H
1.193	H	H	H	H	2,4,6-trifluorfenilo	H
1.194	H	H	H	H	2,4-dimetilfenilo	H
1.195	H	H	H	H	2,4,6-trimetilfenilo	H
1.196	H	H	H	H	3,4,5-trimetoxifenilo	h
1.197	H	H	H	H	2-cloro-3-cianofenilo	H
1.198	H	H	H	H	2-cloro-4-cianofenilo	H
1.199	H	H	H	H	2-cloro-5-cianofenilo	H
1.200	H	H	H	H	2-cloro-6-cianofenilo	H
1.201	H	H	H	H	3-cloro-2-cianofenilo	H
1.202	H	H	H	H	3-cloro-4-cianofenilo	H
1.203	H	H	H	H	3-cloro-5-cianofenilo	H
1.204	H	H	H	H	5-cloro-2-cianofenilo	H
1.205	H	H	H	H	4-cloro-2-cianofenilo	H
1.206	H	H	H	H	4-cloro-3-cianofenilo	H
1.207	H	H	H	H	2-cloro-3-fluorfenilo	H
1.208	H	H	H	H	2-cloro-4-fluorfenilo	H
1.209	H	H	H	H	2-cloro-5-fluorfenilo	H
1.210	H	H	H	H	2-cloro-6-fluorfenilo	H
1.211	H	H	H	H	3-cloro-2-fluorfenilo	H
1.212	H	H	H	H	3-cloro-4-fluorfenilo	H
1.213	H	H	H	H	3-cloro-5-fluorfenilo	H
1.214	H	H	H	H	5-cloro-2-fluorfenilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.215	H	H	H	H	4-cloro-2-fluorfenilo	H
1.216	H	H	H	H	4-cloro-3-fluorfenilo	H
1.217	H	H	H	H	2-cloro-3-metilfenilo	H
1.218	H	H	H	H	2-cloro-4-metilfenilo	H
1.219	H	H	H	H	2-cloro-5-metilfenilo	H
1.220	H	H	H	H	2-cloro-6-metilfenilo	H
1.221	H	H	H	H	3-cloro-2-metilfenilo	H
1.222	H	H	H	H	3-cloro-4-metilfenilo	H
1.223	H	H	H	H	3-cloro-5-metilfenilo	H
1.224	H	H	H	H	5-cloro-2-metilfenilo	H
1.225	H	H	H	H	4-cloro-2-metilfenilo	H
1.226	H	H	H	H	4-cloro-3-metilfenilo	H
1.227	H	H	H	H	2-ciano-3-fluorfenilo	H
1.228	H	H	H	H	2-ciano-4-fluorfenilo	H
1.229	H	H	H	H	2-ciano-5-fluorfenilo	H
1.230	H	H	H	H	2-ciano-6-fluorfenilo	H
1.231	H	H	H	H	3-ciano-2-fluorfenilo	H
1.232	H	H	H	H	3-ciano-4-fluorfenilo	H
1.233	H	H	H	H	3-ciano-5-fluorfenilo	H
1.234	H	H	H	H	5-ciano-2-fluorfenilo	H
1.235	H	H	H	H	4-ciano-2-fluorfenilo	H
1.236	H	H	H	H	4-ciano-3-fluorfenilo	H
1.237	H	H	H	H	2-fluor-3-metilfenilo	H
1.238	H	H	H	H	2-fluor-4-metilfenilo	H
1.239	H	H	H	H	2-fluor-5-metilfenilo	H
1.240	H	H	H	H	2-fluor-6-metilfenilo	H
1.241	H	H	H	H	3-fluor-2-metilfenilo	H
1.242	H	H	H	H	3-fluor-4-metilfenilo	H
1.243	H	H	H	H	3-fluor-5-metilfenilo	H
1.244	H	H	H	H	5-fluor-2-metilfenilo	H
1.245	H	H	H	H	4-fluor-2-metilfenilo	H
1.246	H	H	H	H	4-fluor-3-metilfenilo	H
1.247	H	H	H	H	piridin-2-ilo	H
1.248	H	H	H	H	piridin-3-ilo	H
1.249	H	H	H	H	piridin-4-ilo	H
1.250	H	H	H	H	3-cloropiridin-2-ilo	H
1.251	H	H	H	H	4-cloropiridin-2-ilo	H
1.252	H	H	H	H	5-cloropiridin-2-ilo	H
1.253	H	H	H	H	6-cloropiridin-2-ilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.254	H	H	H	H	2-cloropiridin-3-ilo	H
1.255	H	H	H	H	4-cloropiridin-3-ilo	H
1.256	H	H	H	H	5-cloropiridin-3-ilo	H
1.257	H	H	H	H	2-cloropiridin-4-ilo	H
1.258	H	H	H	H	3-cloropiridin-4-ilo	H
1.259	H	H	H	H	2-cloropiridin-5-ilo	H
1.260	H	H	H	H	3-cianopiridin-2-ilo	H
1.261	H	H	H	H	4-cianopiridin-2-ilo	H
1.262	H	H	H	H	5-cianopiridin-2-ilo	H
1.263	H	H	H	H	6-cianopiridin-2-ilo	H
1.264	H	H	H	H	2-cianopiridin-3-ilo	H
1.265	H	H	H	H	4-cianopiridin-3-ilo	H
1.266	H	H	H	H	5-cianopiridin-3-ilo	H
1.267	H	H	H	H	2-cianopiridin-5-ilo	H
1.268	H	H	H	H	3-fluorpiridin-2-ilo	H
1.269	H	H	H	H	4-fluorpiridin-2-ilo	H
1.270	H	H	H	H	5-fluorpiridin-2-ilo	H
1.271	H	H	H	H	6-fluorpiridin-2-ilo	H
1.272	H	H	H	H	2-fluorpiridin-3-ilo	H
1.273	H	H	H	H	4-fluorpiridin-3-ilo	H
1.274	H	H	H	H	5-fluorpiridin-3-ilo	H
1.275	H	H	H	H	2-fluorpiridin-5-ilo	H
1.276	H	H	H	H	3-nitropiridin-2-ilo	H
1.277	H	H	H	H	4-nitropiridin-2-ilo	H
1.278	H	H	H	H	5-nitropiridin-2-ilo	H
1.279	H	H	H	H	6-nitropiridin-2-ilo	H
1.280	H	H	H	H	2-nitropiridin-3-ilo	H
1.281	H	H	H	H	4-nitropiridin-3-ilo	H
1.282	H	H	H	H	5-nitropiridin-3-ilo	H
1.283	H	H	H	H	2-nitropiridin-5-ilo	H
1.284	H	H	H	H	3-trifluometilpiridin-2-ilo	H
1.285	H	H	H	H	4-trifluometilpiridin-2-ilo	H
1.286	H	H	H	H	5-trifluometilpiridin-2-ilo	H
1.287	H	H	H	H	6-trifluometilpiridin-2-ilo	H
1.288	H	H	H	H	2-trifluometilpiridin-3-ilo	H
1.289	H	H	H	H	4-trifluometilpiridin-3-ilo	H
1.290	H	H	H	H	5-trifluometilpiridin-3-ilo	H
1.291	H	H	H	H	2-trifluometilpiridin-5-ilo	H
1.292	H	H	H	H	2,6-bis(trifluometil)-piridin-3-ilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.293	H	H	H	H	2,6-bis(trifluormetil)-piridin-4-ilo	H
1.294	H	H	H	H	3,5-bis(trifluormetil)-piridin-2-ilo	H
1.295	H	H	H	H	2-tienilo	H
1.296	H	H	H	H	3-tienilo	H
1.297	H	H	H	H	5-cianotien-2-ilo	H
1.298	H	H	H	H	2-furilo	H
1.299	H	H	H	H	3-furilo	H
1.300	H	H	H	H	1-metil-1,2,3-triazol-4-ilo	H
1.301	H	H	H	H	2-metiltiopirimidin-4-ilo	H
1.302	H	H	H	H	5-metil-2-metil-tiopirimidin-4-ilo	H
1.303	H	H	H	H	pirazin-2-ilo	H
1.304	H	H	H	H	3,6-dimetilpirazin-2-ilo	H
1.305	H	H	H	H	3-cianopirazin-2-ilo	H
1.306	H	H	H	H	quinolin-2-ilo	H
1.307	H	H	H	H	3-etilquinolin-2-ilo	H
1.308	H	H	H	H	bencilo	H
1.309	H	H	H	H	4-fluorbencilo	H
1.310	H	H	H	H	4-clorobencilo	H
1.311	H	H	H	H	4-metilbencilo	H
1.312	H	H	H	H	2,4-dimetilbencilo	H
1.313	H	H	H	H	2,4,6-trimetilbencilo	H
1.314	H	H	H	H	CH ₃	CH ₃
1.315	H	H	H	H	CH ₂ CH ₃	CH ₃
1.316	H	H	H	H	<i>n</i> -propilo	CH ₃
1.317	H	H	H	H	isopropilo	CH ₃
1.318	H	H	H	H	<i>n</i> -butilo	CH ₃
1.319	H	H	H	H	isobutilo	CH ₃
1.320	H	H	H	H	<i>sec</i> -butilo	CH ₃
1.321	H	H	H	H	<i>tere</i> -butilo	CH ₃
1.322	H	H	H	H	vinilo	CH ₃
1.323	H	H	H	H	etinilo	CH ₃
1.324	H	H	H	H	trimetilsililetinilo	CH ₃
1.325	H	H	H	H	CH ₂ OH	CH ₃
1.326	H	H	H	H	CH ₂ OCH ₃	CH ₃
1.327	H	H	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
1.328	H	H	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
1.329	H	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
1.330	H	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.331	H	H	H	H	CHO	CH ₃
1.332	H	H	H	H	COCH ₃	CH ₃
1.333	H	H	H	H	CO ₂ H	CH ₃
1.337	H	H	H	H	CO ₂ CH ₃	CH ₃
1.335	H	H	H	H	CO ₂ CH ₂ CH ₃	CH ₃
1.336	H	H	H	H	CONH ₂	CH ₃
1.337	H	H	H	H	CONHCH ₃	CH ₃
1.338	H	H	H	H	CONHCH ₂ CH ₃	CH ₃
1.339	H	H	H	H	CON(CH ₃) ₂	CH ₃
1.340	H	H	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
1.341	H	H	H	H	CON(CH ₃)OCH ₃	CH ₃
1.342	H	H	H	H	CH=NOH	CH ₃
1.343	H	H	H	H	CH=N-OCH ₃	CH ₃
1.344	H	H	H	H	CH=N-OCH ₂ CH ₃	CH ₃
1.345	H	H	H	H	C(CH ₃)=N-OH	CH ₃
1.346	H	H	H	H	C(CH ₃)=N-OCH ₃	CH ₃
1.347	H	H	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃
1.348	H	H	H	H	CH ₂ NH ₂	CH ₃
1.349	H	H	H	H	CH ₂ NHCHO	CH ₃
1.350	H	H	H	H	CH ₂ NHC(O)CH ₃	CH ₃
1.351	H	H	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
1.352	H	H	H	H	NHCO ₂ CH ₃	CH ₃
1.353	H	H	H	H	NHCO ₂ C(CH ₃) ₃	CH ₃
1.354	H	H	H	H	CH(OH)CH ₃	CH ₃
1.355	H	H	H	H	CH(CH ₃)OCH ₃	CH ₃
1.356	H	H	H	H	CN	CH ₃
1.357	H	H	H	H	CH ₂ SCH ₃	CH ₃
1.358	H	H	H	H	CH ₂ S(O)CH ₃	CH ₃
1.359	H	H	H	H	CH ₂ SO ₂ CH ₃	CH ₃
1.360	H	H	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
1.361	H	H	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
1.362	H	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
1.363	H	H	H	H	OCH ₃	CH ₃
1.364	H	H	H	H	OCH ₂ CH ₃	CH ₃
1.365	H	H	H	H	CH(OCH ₃) ₂	CH ₃
1.366	H	H	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
1.367	H	H	H	H	ciclopropilo	CH ₃
1.368	H	H	H	H	ciclobutilo	CH ₃
1.369	H	H	H	H	ciclopentilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.370	H	H	H	H	ciclohexilo	CH ₃
1.371	H	H	H	H	F	CH ₃
1.372	H	H	H	H	Cl	CH ₃
1.373	H	H	H	H	Br	CH ₃
1.374	H	H	H	H	I	CH ₃
1.375	H	H	H	H	OH	CH ₃
1.376	H	H	H	H	fenilo	CH ₃
1.377	H	H	H	H	2-acetilfenilo	CH ₃
1.378	H	H	H	H	3-acetilfenilo	CH ₃
1.379	H	H	H	H	4-acetilfenilo	CH ₃
1.380	H	H	H	H	2-clorofenilo	CH ₃
1.381	H	H	H	H	3-clorofenilo	CH ₃
1.382	H	H	H	H	4-clorofenilo	CH ₃
1.383	H	H	H	H	2-cianofenilo	CH ₃
1.384	H	H	H	H	3-cianofenilo	CH ₃
1.385	H	H	H	H	4-cianofenilo	CH ₃
1.386	H	H	H	H	2-fluorfenilo	CH ₃
1.387	H	H	H	H	3-fluorfenilo	CH ₃
1.388	H	H	H	H	4-fluorfenilo	CH ₃
1.389	H	H	H	H	2-metoxifenilo	CH ₃
1.390	H	H	H	H	3-metoxifenilo	CH ₃
1.391	H	H	H	H	4-metoxifenilo	CH ₃
1.392	H	H	H	H	2-metilfenilo	CH ₃
1.393	H	H	H	H	3-metilfenilo	CH ₃
1.394	H	H	H	H	4-metilfenilo	CH ₃
1.395	H	H	H	H	2-nitrofenilo	CH ₃
1.396	H	H	H	H	3-nitrofenilo	CH ₃
1.397	H	H	H	H	4-nitrofenilo	CH ₃
1.398	H	H	H	H	2-timetilfenilo	CH ₃
1.399	H	H	H	H	3-timetilfenilo	CH ₃
1.400	H	H	H	H	4-timetilfenilo	CH ₃
1.401	H	H	H	H	2-trifluormetoxifenilo	CH ₃
1.402	H	H	H	H	3-trifluormetoxifenilo	CH ₃
1.403	H	H	H	H	4-trifluormetoxifenilo	CH ₃
1.404	H	H	H	H	2-trifluormetilfenilo	CH ₃
1.405	H	H	H	H	3-trifluormetilfenilo	CH ₃
1.406	H	H	H	H	4-trifluormetilfenilo	CH ₃
1.407	H	H	H	H	2,3-diclorofenilo	CH ₃
1.408	H	H	H	H	2,4-diclorofenilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.409	H	H	H	H	2,5-diclorofenilo	CH ₃
1.410	H	H	H	H	2,6-diclorofenilo	CH ₃
1.411	H	H	H	H	3,4-diclorofenilo	CH ₃
1.412	H	H	H	H	3,5-diclorofenilo	CH ₃
1.413	H	H	H	H	2,3-difluorfenilo	CH ₃
1.414	H	H	H	H	2,4-difluorfenilo	CH ₃
1.415	H	H	H	H	2,5-difluorfenilo	CH ₃
1.416	H	H	H	H	2,6-difluorfenilo	CH ₃
1.417	H	H	H	H	3,4-difluorfenilo	CH ₃
1.418	H	H	H	H	3,5-difluorfenilo	CH ₃
1.419	H	H	H	H	2,4,6-trifluorfenilo	CH ₃
1.420	H	H	H	H	2,4-dimetilfenilo	CH ₃
1.421	H	H	H	H	2,4,6-trimetilfenilo	CH ₃
1.422	H	H	H	H	3,4,5-trimetoxifenilo	CH ₃
1.423	H	H	H	H	2-cloro-3-cianofenilo	CH ₃
1.424	H	H	H	H	2-cloro-4-cianofenilo	CH ₃
1.425	H	H	H	H	2-cloro-6-cianofenilo	CH ₃
1.426	H	H	H	H	2-cloro-6-cianofenilo	CH ₃
1.427	H	H	H	H	3-cloro-2-cianofenilo	CH ₃
1.428	H	H	H	H	3-cloro-4-cianofenilo	CH ₃
1.429	H	H	H	H	3-cloro-5-cianofenilo	CH ₃
1.430	H	H	H	H	5-cloro-2-cianofenilo	CH ₃
1.431	H	H	H	H	4-cloro-2-cianofenilo	CH ₃
1.432	H	H	H	H	4-cloro-3-cianofenilo	CH ₃
1.433	H	H	H	H	2-cloro-3-fluorfenilo	CH ₃
1.434	H	H	H	H	2-cloro-4-fluorfenilo	CH ₃
1.435	H	H	H	H	2-cloro-5-fluorfenilo	CH ₃
1.436	H	H	H	H	2-cloro-6-fluorfenilo	CH ₃
1.437	H	H	H	H	3-cloro-2-fluorfenilo	CH ₃
1.438	H	H	H	H	3-cloro-4-fluorfenilo	CH ₃
1.439	H	H	H	H	3-cloro-5-fluorfenilo	CH ₃
1.440	H	H	H	H	5-cloro-2-fluorfenilo	CH ₃
1.441	H	H	H	H	4-cloro-2-fluorfenilo	CH ₃
1.442	H	H	H	H	4-cloro-3-fluorfenilo	CH ₃
1.443	H	H	H	H	2-cloro-3-metilfenilo	CH ₃
1.444	H	H	H	H	2-cloro-4-metilfenilo	CH ₃
1.445	H	H	H	H	2-cloro-5-metilfenilo	CH ₃
1.446	H	H	H	H	2-cloro-6-metilfenilo	CH ₃
1.447	H	H	H	H	3-cloro-2-metilfenilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.448	H	H	H	H	3-cloro-4-metilfenilo	CH ₃
1.449	H	H	H	H	3-cloro-5-metilfenilo	CH ₃
1.450	H	H	H	H	5-cloro-2-metilfenilo	CH ₃
1.451	H	H	H	H	4-cloro-2-metilfenilo	CH ₃
1.452	H	H	H	H	4-cloro-3-metilfenilo	CH ₃
1.453	H	H	H	H	2-ciano-3-fluorfenilo	CH ₃
1.454	H	H	H	H	2-ciano-4-fluorfenilo	CH ₃
1.455	H	H	H	H	2-ciano-5-fluorfenilo	CH ₃
1.456	H	H	H	H	2-ciano-6-fluorfenilo	CH ₃
1.457	H	H	H	H	3-ciano-2-fluorfenilo	CH ₃
1.458	H	H	H	H	3-ciano-4-fluorfenilo	CH ₃
1.459	H	H	H	H	3-ciano-5-fluorfenilo	CH ₃
1.460	H	H	H	H	5-ciano-2-fluorfenilo	CH ₃
1.461	H	H	H	H	4-ciano-2-fluorfenilo	CH ₃
1.462	H	H	H	H	4-ciano-3-fluorfenilo	CH ₃
1.463	H	H	H	H	2-fluor-3-metilfenilo	CH ₃
1.464	H	H	H	H	2-fluor-4-metilfenilo	CH ₃
1.465	H	H	H	H	2-fluor-5-metilfenilo	CH ₃
1.466	H	H	H	H	2-fluor-6-metilfenilo	CH ₃
1.467	H	H	H	H	3-fluor-2-metilfenilo	CH ₃
1.468	H	H	H	H	3-fluor-4-metilfenilo	CH ₃
1.469	H	H	H	H	3-fluor-5-metilfenilo	CH ₃
1.470	H	H	H	H	5-fluor-2-metilfenilo	CH ₃
1.471	H	H	H	H	4-fluor-2-metilfenilo	CH ₃
1.472	H	H	H	H	4-fluor-3-metilfenilo	CH ₃
1.473	H	H	H	H	piridin-2-ilo	CH ₃
1.474	H	H	H	H	piridin-3-ilo	CH ₃
1.475	H	H	H	H	piridin-4-ilo	CH ₃
1.476	H	H	H	H	3-cloropiridin-2-ilo	CH ₃
1.477	H	H	H	H	4-cloropiridin-2-ilo	CH ₃
1.478	H	H	H	H	5-cloropiridin-2-ilo	CH ₃
1.479	H	H	H	H	6-cloropiridin-2-ilo	CH ₃
1.480	H	H	H	H	2-cloropiridin-3-ilo	CH ₃
1.481	H	H	H	H	4-cloropiridin-3-ilo	CH ₃
1.482	H	H	H	H	5-cloropiridin-3-ilo	CH ₃
1.483	H	H	H	H	2-cloropiridin-4-ilo	CH ₃
1.484	H	H	H	H	3-cloropiridin-4-ilo	CH ₃
1.485	H	H	H	H	2-cloropiridin-5-ilo	CH ₃
1.486	H	H	H	H	3-cianopiridin-2-ilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.487	H	H	H	H	4-cianopiridin-2-ilo	CH ₃
1.488	H	H	H	H	5-cianopiridin-2-ilo	CH ₃
1.489	H	H	H	H	6-cianopiridin-2-ilo	CH ₃
1.490	H	H	H	H	2-cianopiridin-3-ilo	CH ₃
1.491	H	H	H	H	4-cianopiridin-3-ilo	CH ₃
1.492	H	H	H	H	5-cianopiridin-3-ilo	CH ₃
1.493	H	H	H	H	2-cianopiridin-5-ilo	CH ₃
1.494	H	H	H	H	3-fluorpiridin-2-ilo	CH ₃
1.495	H	H	H	H	4-fluorpiridin-2-ilo	CH ₃
1.496	H	H	H	H	5-fluorpiridin-2-ilo	CH ₃
1.497	H	H	H	H	6-fluorpiridin-2-ilo	CH ₃
1.498	H	H	H	H	2-fluorpiridin-3-ilo	CH ₃
1.499	H	H	H	H	4-fluorpiridin-3-ilo	CH ₃
1.500	H	H	H	H	5-fluorpiridin-3-ilo	CH ₃
1.501	H	H	H	H	2-fluorpiridin-5-ilo	CH ₃
1.502	H	H	H	H	3-nitropiridin-2-ilo	CH ₃
1.503	H	H	H	H	4-nitropiridin-2-ilo	CH ₃
1.504	H	H	H	H	5-nitropiridin-2-ilo	CH ₃
1.505	H	H	H	H	6-nitropiridin-2-ilo	CH ₃
1.506	H	H	H	H	2-nitropiridin-3-ilo	CH ₃
1.507	H	H	H	H	4-nitropiridin-3-ilo	CH ₃
1.508	H	H	H	H	5-nitropiridin-3-ilo	CH ₃
1.509	H	H	H	H	2-nitropiridin-5-ilo	CH ₃
1.510	H	H	H	H	3-trifluormetilpiridin-2-ilo	CH ₃
1.511	H	H	H	H	4-trifluormetilpiridin-2-ilo	CH ₃
1.512	H	H	H	H	5-trifluormetilpiridin-2-ilo	CH ₃
1.513	H	H	H	H	6-trifluormetilpiridin-2-ilo	CH ₃
1.514	H	H	H	H	2-trifluormetilpiridin-3-ilo	CH ₃
1.515	H	H	H	H	4-trifluormetilpiridin-3-ilo	CH ₃
1.516	H	H	H	H	5-trifluormetilpiridin-3-ilo	CH ₃
1.517	H	H	H	H	2-trifluormetilpiridin-5-ilo	CH ₃
1.518	H	H	H	H	2,6-bis(trifluormetil)-piridin-3-ilo	CH ₃
1.519	H	H	H	H	2,6-bis(trifluormetil)-piridin-4-ilo	CH ₃
1.520	H	H	H	H	3,5-bis(trifluormetil)-piridin-2-ilo	CH ₃
1.521	H	H	H	H	2-tienilo	CH ₃
1.522	H	H	H	H	3-tienilo	CH ₃
1.523	H	H	H	H	5-cianotien-2-ilo	CH ₃
1.524	H	H	H	H	2-furilo	CH ₃
1.525	H	H	H	H	3-furilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.526	H	H	H	H	1-metil-1,2,3-triazol-4-ilo	CH ₃
1.527	H	H	H	H	2-metiltiopirimidin-4-ilo	CH ₃
1.528	H	H	H	H	5-metil-2-metil-tiopirimidin-4-ilo	CH ₃
1.529	H	H	H	H	pirazin-2-ilo	CH ₃
1.530	H	H	H	H	3,6-dimetilpirazin-2-ilo	CH ₃
1.531	H	H	H	H	3-clanopirazin-2-ilo	CH ₃
1.532	H	H	H	H	quinolin-2-ilo	CH ₃
1.533	H	H	H	H	3-etilquinolin-2-ilo	CH ₃
1.534	H	H	H	H	bencilo	CH ₃
1.535	H	H	H	H	4-fluorbencilo	CH ₃
1.536	H	H	H	H	4-clorobencilo	CH ₃
1.537	H	H	H	H	4-metilbencilo	CH ₃
1.538	H	H	H	H	2,4-dimetilbencilo	CH ₃
1.539	H	H	H	H	2,4,6-trimetilbencilo	CH ₃
1.540	CH ₃	H	H	H	CH ₃	H
1.541	CH ₃	H	H	H	CH ₂ CH ₃	H
1.542	CH ₃	H	H	H	<i>n</i> -propilo	H
1.543	CH ₃	H	H	H	isopropilo	H
1.544	CH ₃	H	H	H	<i>n</i> -butilo	H
1.545	CH ₃	H	H	H	isobutilo	H
1.546	CH ₃	H	H	H	<i>sec</i> -butilo	H
1.547	CH ₃	H	H	H	<i>tere</i> -butilo	H
1.548	CH ₃	H	H	H	vinilo	H
1.549	CH ₃	H	H	H	etinilo	H
1.550	CH ₃	H	H	H	trimetilsililetinilo	H
1.551	CH ₃	H	H	H	CH ₂ OH	H
1.552	CH ₃	H	H	H	CH ₂ OCH ₃	H
1.553	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₃	H
1.554	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₃	H
1.555	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
1.556	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
1.557	CH ₃	H	H	H	CHO	H
1.558	CH ₃	H	H	H	COCH ₃	H
1.559	CH ₃	H	H	H	CO ₂ H	H
1.560	CH ₃	H	H	H	CO ₂ CH ₃	H
1.561	CH ₃	H	H	H	CO ₂ CH ₂ CH ₃	H
1.562	CH ₃	H	H	H	CONH ₂	H
1.563	CH ₃	H	H	H	CONHCH ₃	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.564	CH ₃	H	H	H	CONHCH ₂ CH ₃	H
1.565	CH ₃	H	H	H	CON(CH ₃) ₂	H
1.566	CH ₃	H	H	H	CON(CH ₂ -CH ₃) ₂	H
1.567	CH ₃	H	H	H	CON(CH ₃)OCH ₃	H
1.568	CH ₃	H	H	H	CH=NOH	H
1.569	CH ₃	H	H	H	CH=N-OCH ₃	H
1.570	CH ₃	H	H	H	CH=N-OCH ₂ CH ₃	H
1.571	CH ₃	H	H	H	C(CH ₃)=N-OH	H
1.572	CH ₃	H	H	H	C(CH ₃)=N-OCH ₃	H
1.573	CH ₃	H	H	H	CH ₂ OC(O)-NHCH ₃	H
1.574	CH ₃	H	H	H	CH ₂ NH ₂	H
1.575	CH ₃	H	H	H	CH ₂ NHCHO	H
1.576	CH ₃	H	H	H	CH ₂ NHC(O)CH ₃	H
1.577	CH ₃	H	H	H	CH ₂ NHC(O)OCH ₃	H
1.578	CH ₃	H	H	H	NHCO ₂ CH ₃	H
1.579	CH ₃	H	H	H	NHCO ₂ C(CH ₃) ₃	H
1.580	CH ₃	H	H	H	CH(OH)CH ₃	H
1.581	CH ₃	H	H	H	CH(CH ₃)OCH ₃	H
1.582	CH ₃	H	H	H	CN	H
1.583	CH ₃	H	H	H	CH ₂ SCH ₃	H
1.584	CH ₃	H	H	H	CH ₂ S(O)CH ₃	H
1.585	CH ₃	H	H	H	CH ₂ SO ₂ CH ₃	H
1.586	CH ₃	H	H	H	CH ₂ SCH ₂ CH ₃	H
1.587	CH ₃	H	H	H	CH ₂ S(O)CH ₂ CH ₃	H
1.588	CH ₃	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H
1.589	CH ₃	H	H	H	OCH ₃	H
1.590	CH ₃	H	H	H	OCH ₂ CH ₃	H
1.591	CH ₃	H	H	H	CH(OCH ₃) ₂	H
1.592	CH ₃	H	H	H	CH(OCH ₂ CH ₃) ₂	H
1.593	CH ₃	H	H	H	ciclopropilo	H
1.594	CH ₃	H	H	H	ciclobutilo	H
1.595	CH ₃	H	H	H	ciclopentilo	H
1.596	CH ₃	H	H	H	ciclohexilo	H
1.597	CH ₃	H	H	H	F	H
1.598	CH ₃	H	H	H	Cl	H
1.599	CH ₃	H	H	H	Br	H
1.600	CH ₃	H	H	H	I	H
1.601	CH ₃	H	H	H	OH	H
1.602	CH ₃	H	H	H	fenilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.603	CH ₃	H	H	H	2-acetilfenilo	H
1.604	CH ₃	H	H	H	3-acetilfenilo	H
1.605	CH ₃	H	H	H	4-acetilfenilo	H
1.606	CH ₃	H	H	H	2-clorofenilo	H
1.607	CH ₃	H	H	H	3-clorofenilo	H
1.608	CH ₃	H	H	H	4-clorofenilo	H
1.609	CH ₃	H	H	H	2-cianofenilo	H
1.610	CH ₃	H	H	H	3-cianofenilo	H
1.611	CH ₃	H	H	H	4-cianofenilo	H
1.612	CH ₃	H	H	H	2-fluorfenilo	H
1.613	CH ₃	H	H	H	3-fluorfenilo	H
1.614	CH ₃	H	H	H	4-fluorfenilo	H
1.615	CH ₃	H	H	H	2-metoxifenilo	H
1.616	CH ₃	H	H	H	3-metoxifenilo	H
1.617	CH ₃	H	H	H	4-metoxifenilo	H
1.618	CH ₃	H	H	H	2-metilfenilo	H
1.619	CH ₃	H	H	H	3-metilfenilo	H
1.620	CH ₃	H	H	H	4-metilfenilo	H
1.621	CH ₃	H	H	H	2-nitrofenilo	H
1.622	CH ₃	H	H	H	3-nitrofenilo	H
1.623	CH ₃	H	H	H	4-nitrofenilo	H
1.624	CH ₃	H	H	H	2-tiometilfenilo	H
1.625	CH ₃	H	H	H	3-tiometilfenilo	H
1.626	CH ₃	H	H	H	4-tiometilfenilo	H
1.627	CH ₃	H	H	H	2-trifluormetoxifenilo	H
1.628	CH ₃	H	H	H	3-trifluormetoxifenilo	H
1.629	CH ₃	H	H	H	4-trifluormetoxifenilo	H
1.630	CH ₃	H	H	H	2-trifluormetilfenilo	H
1.631	CH ₃	H	H	H	3-trifluormetilfenilo	H
1.632	CH ₃	H	H	H	4-trifluormetilfenilo	H
1.633	CH ₃	H	H	H	2,3-diclorofenilo	H
1.634	CH ₃	H	H	H	2,4-diclorofenilo	H
1.635	CH ₃	H	H	H	2,5-diclorofenilo	H
1.636	CH ₃	H	H	H	2,6-diclorofenilo	H
1.637	CH ₃	H	H	H	3,4-diclorofenilo	H
1.638	CH ₃	H	H	H	3,5-diclorofenilo	H
1.639	CH ₃	H	H	H	2,3-difluorfenilo	H
1.640	CH ₃	H	H	H	2,4-difluorfenilo	H
1.641	CH ₃	H	H	H	2,5-difluorfenilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.642	CH ₃	H	H	H	2,6-difluorfenilo	H
1.643	CH ₃	H	H	H	3,4-difluorfenilo	H
1.644	CH ₃	H	H	H	3,5-difluorfenilo	H
1.645	CH ₃	H	H	H	2,4,6-trifluorfenilo	H
1.646	CH ₃	H	H	H	2,4-dimetilfenilo	H
1.647	CH ₃	H	H	H	2,4,6-trimetilfenilo	H
1.648	CH ₃	H	H	H	3,4,5-trimetoxi-fenilo	H
1.649	CH ₃	H	H	H	2-cloro-3-cianofenilo	H
1.650	CH ₃	H	H	H	2-cloro-4-cianofenilo	H
1.651	CH ₃	H	H	H	2-cloro-5-cianofenilo	H
1.652	CH ₃	H	H	H	2-cloro-6-cianofenilo	H
1.653	CH ₃	H	H	H	3-cloro-2-cianofenilo	H
1.654	CH ₃	H	H	H	3-cloro-4-cianofenilo	H
1.655	CH ₃	H	H	H	3-cloro-5-cianofenilo	H
1.656	CH ₃	H	H	H	5-cloro-2-cianofenilo	H
1.657	CH ₃	H	H	H	4-cloro-2-cianofenilo	H
1.658	CH ₃	H	H	H	4-cloro-3-cianofenilo	H
1.659	CH ₃	H	H	H	2-cloro-3-fluorfenilo	H
1.660	CH ₃	H	H	H	2-cloro-4-fluorfenilo	H
1.661	CH ₃	H	H	H	2-cloro-5-fluorfenilo	H
1.662	CH ₃	H	H	H	2-cloro-6-fluorfenilo	H
1.663	CH ₃	H	H	H	3-cloro-2-fluorfenilo	H
1.664	CH ₃	H	H	H	3-cloro-4-fluorfenilo	H
1.665	CH ₃	H	H	H	3-cloro-5-fluorfenilo	H
1.666	CH ₃	H	H	H	5-cloro-2-fluorfenilo	H
1.667	CH ₃	H	H	H	4-cloro-2-fluorfenilo	H
1.668	CH ₃	H	H	H	4-cloro-3-fluorfenilo	H
1.669	CH ₃	H	H	H	2-cloro-3-metilfenilo	H
1.670	CH ₃	H	H	H	2-cloro-4-metilfenilo	H
1.671	CH ₃	H	H	H	2-cloro-5-metilfenilo	H
1.672	CH ₃	H	H	H	2-cloro-6-metilfenilo	H
1.673	CH ₃	H	H	H	3-cloro-2-metilfenilo	H
1.674	CH ₃	H	H	H	3-cloro-4-metilfenilo	H
1.675	CH ₃	H	H	H	3-cloro-5-metilfenilo	H
1.676	CH ₃	H	H	H	5-cloro-2-metilfenilo	H
1.677	CH ₃	H	H	H	4-cloro-2-metilfenilo	H
1.678	CH ₃	H	H	H	4-cloro-3-metilfenilo	H
1.679	CH ₃	H	H	H	2-ciano-3-fluorfenilo	H
1.680	CH ₃	H	H	H	2-ciano-4-fluorfenilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.681	CH ₃	H	H	H	2-ciano-5-fluorfenilo	H
1.682	CH ₃	H	H	H	2-ciano-6-fluorfenilo	H
1.683	CH ₃	H	H	H	3-ciano-2-fluorfenilo	H
1.684	CH ₃	H	H	H	3-ciano-4-fluorfenilo	H
1.685	CH ₃	H	H	H	3-ciano-5-fluorfenilo	H
1.686	CH ₃	H	H	H	5-ciano-2-fluorfenilo	H
1.687	CH ₃	H	H	H	4-ciano-2-fluorfenilo	H
1.688	CH ₃	H	H	H	4-ciano-3-fluorfenilo	H
1.689	CH ₃	H	H	H	2-fluor-3-metilfenilo	H
1.690	CH ₃	H	H	H	2-fluor-4-metilfenilo	H
1.691	CH ₃	H	H	H	2-fluor-5-metilfenilo	H
1.692	CH ₃	H	H	H	2-fluor-6-metilfenilo	H
1.693	CH ₃	H	H	H	3-fluor-2-metilfenilo	H
1.694	CH ₃	H	H	H	3-fluor-4-metilfenilo	H
1.695	CH ₃	H	H	H	3-fluor-5-metilfenilo	H
1.696	CH ₃	H	H	H	5-fluor-2-metilfenilo	H
1.697	CH ₃	H	H	H	4-fluor-2-metilfenilo	H
1.698	CH ₃	H	H	H	4-fluor-3-metilfenilo	H
1.699	CH ₃	H	H	H	piridin-2-ilo	H
1.700	CH ₃	H	H	H	piridin-3-ilo	H
1.701	CH ₃	H	H	H	piridin-4-ilo	H
1.702	CH ₃	H	H	H	3-cloropiridin-2-ilo	H
1.703	CH ₃	H	H	H	4-cloropiridin-2-ilo	H
1.704	CH ₃	H	H	H	5-cloropiridin-2-ilo	H
1.705	CH ₃	H	H	H	6-cloropiridin-2-ilo	H
1.706	CH ₃	H	H	H	2-cloropiridin-3-ilo	H
1.707	CH ₃	H	H	H	4-cloropiridin-3-ilo	H
1.708	CH ₃	H	H	H	5-cloropiridin-3-ilo	H
1.709	CH ₃	H	H	H	2-cloropiridin-4-ilo	H
1.710	CH ₃	H	H	H	3-cloropiridin-4-ilo	H
1.711	CH ₃	H	H	H	2-cloropiridin-5-ilo	H
1.712	CH ₃	H	H	H	3-cianopiridin-2-ilo	H
1.713	CH ₃	H	H	H	4-cianopiridin-2-ilo	H
1.714	CH ₃	H	H	H	5-cianopiridin-2-ilo	H
1.715	CH ₃	H	H	H	6-cianopiridin-2-ilo	H
1.716	CH ₃	H	H	H	2-cianopiridin-3-ilo	H
1.717	CH ₃	H	H	H	4-cianopiridin-3-ilo	H
1.718	CH ₃	H	H	H	5-cianopiridin-3-ilo	H
1.719	CH ₃	H	H	H	2-cianopiridin-5-ilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.720	CH ₃	H	H	H	3-fluorpiridin-2-ilo	H
1.721	CH ₃	H	H	H	4-fluorpiridin-2-ilo	H
1.722	CH ₃	H	H	H	5-fluorpiridin-2-ilo	H
1.723	CH ₃	H	H	H	6-fluorpiridin-2-ilo	H
1.724	CH ₃	H	H	H	2-fluorpiridin-3-ilo	H
1.725	CH ₃	H	H	H	4-fluorpiridin-3-ilo	H
1.726	CH ₃	H	H	H	5-fluorpiridin-3-ilo	H
1.727	CH ₃	H	H	H	2-fluorpiridin-5-ilo	H
1.728	CH ₃	H	H	H	3-nitropiridin-2-ilo	H
1.729	CH ₃	H	H	H	4-nitropiridin-2-ilo	H
1.730	CH ₃	H	H	H	5-nitropiridin-2-ilo	H
1.731	CH ₃	H	H	H	6-nitropiridin-2-ilo	H
1.732	CH ₃	H	H	H	2-nitropiridin-3-ilo	H
1.733	CH ₃	H	H	H	4-nitropiridin-3-ilo	H
1.734	CH ₃	H	H	H	5-nitropiridin-3-ilo	H
1.735	CH ₃	H	H	H	2-nitropiridin-5-ilo	H
1.736	CH ₃	H	H	H	3-trifluometilpiridin-2-ilo	H
1.737	CH ₃	H	H	H	4-trifluometilpiridin-2-ilo	H
1.738	CH ₃	H	H	H	5-trifluometilpiridin-2-ilo	H
1.739	CH ₃	H	H	H	6-trifluometilpiridin-2-ilo	H
1.740	CH ₃	H	H	H	2-trifluometilpiridin-3-ilo	H
1.741	CH ₃	H	H	H	4-trifluometilpiridin-3-ilo	H
1.742	CH ₃	H	H	H	5-trifluometilpiridin-3-ilo	H
1.743	CH ₃	H	H	H	2-trifluometilpiridin-5-ilo	H
1.744	CH ₃	H	H	H	2,6-bis(trifluometil)-piridin-3-ilo	H
1.745	CH ₃	H	H	H	2,6-bis(trifluometil)-piridin-4-ilo	H
1.746	CH ₃	H	H	H	3,5-bis(trifluometil)-piridin-2-ilo	H
1.747	CH ₃	H	H	H	2-tienilo	H
1.748	CH ₃	H	H	H	3-tienilo	H
1.749	CH ₃	H	H	H	5-cianotien-2-ilo	H
1.750	CH ₃	H	H	H	2-furilo	H
1.751	CH ₃	H	H	H	3-furilo	H
1.752	CH ₃	H	H	H	1-metil-1,2,3-triazol-4-ilo	H
1.753	CH ₃	H	H	H	2-metiltiopirimidin-4-ilo	H
1.754	CH ₃	H	H	H	5-metil-2-metil-tiopirimidin-4-ilo	H
1.755	CH ₃	H	H	H	pirazin-2-ilo	H
1.756	CH ₃	H	H	H	3,6-dimetilpirazin-2-ilo	H
1.757	CH ₃	H	H	H	3-clanopirazin-2-ilo	H

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.758	CH ₃	H	H	H	quinolin-2-ilo	H
1.759	CH ₃	H	H	H	3-etilquinolin-2-ilo	H
1.760	CH ₃	H	H	H	bencilo	H
1.761	CH ₃	H	H	H	4-fluorbencilo	H
1.762	CH ₃	H	H	H	4-clorobencilo	H
1.763	CH ₃	H	H	H	4-metilbencilo	H
1.764	CH ₃	H	H	H	2,4-dimetilbencilo	H
1.765	CH ₃	H	H	H	2,4,6-trimetilbencilo	H
1.766	CH ₃	H	H	H	H	CH ₃
1.767	CH ₃	H	H	H	CH ₃	CH ₃
1.768	CH ₃	H	H	H	CH ₂ CH ₃	CH ₃
1.769	CH ₃	H	H	H	<i>n</i> -propilo	CH ₃
1.770	CH ₃	H	H	H	isopropilo	CH ₃
1.771	CH ₃	H	H	H	<i>n</i> -butilo	CH ₃
1.772	CH ₃	H	H	H	isobutilo	CH ₃
1.773	CH ₃	H	H	H	<i>sec</i> -butilo	CH ₃
1.774	CH ₃	H	H	H	<i>terc</i> -butilo	CH ₃
1.775	CH ₃	H	H	H	vinilo	CH ₃
1.776	CH ₃	H	H	H	etinilo	CH ₃
1.777	CH ₃	H	H	H	trimetilsililetinilo	CH ₃
1.778	CH ₃	H	H	H	CH ₂ OH	CH ₃
1.779	CH ₃	H	H	H	CH ₂ OCH ₃	CH ₃
1.780	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
1.781	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
1.782	CH ₃	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
1.783	CH ₃	H	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
1.784	CH ₃	H	H	H	CHO	CH ₃
1.785	CH ₃	H	H	H	COCH ₃	CH ₃
1.786	CH ₃	H	H	H	CO ₂ H	CH ₃
1.787	CH ₃	H	H	H	CO ₂ CH ₃	CH ₃
1.788	CH ₃	H	H	H	CO ₂ CH ₂ CH ₃	CH ₃
1.789	CH ₃	H	H	H	CONH ₂	CH ₃
1.790	CH ₃	H	H	H	CONHCH ₃	CH ₃
1.791	CH ₃	H	H	H	CONHCH ₂ CH ₃	CH ₃
1.792	CH ₃	H	H	H	CON(CH ₃) ₂	CH ₃
1.793	CH ₃	H	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
1.794	CH ₃	H	H	H	CON(CH ₃)OCH ₃	CH ₃
1.795	CH ₃	H	H	H	CH=NOH	CH ₃
1.796	CH ₃	H	H	H	CH=N-OCH ₃	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.797	CH ₃	H	H	H	CH=N-OCH ₂ CH ₃	CH ₃
1.798	CH ₃	H	H	H	C(CH ₃)=N-OH	CH ₃
1.799	CH ₃	H	H	H	C(CH ₃)=N-OCH ₃	CH ₃
1.800	CH ₃	H	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃
1.801	CH ₃	H	H	H	CH ₂ NH ₂	CH ₃
1.802	CH ₃	H	H	H	CH ₂ NHCHO	CH ₃
1.803	CH ₃	H	H	H	CH ₂ NHC(O)CH ₃	CH ₃
1.804	CH ₃	H	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
1.805	CH ₃	H	H	H	NHCO ₂ CH ₃	CH ₃
1.806	CH ₃	H	H	H	NHCO ₂ C(CH ₃) ₃	CH ₃
1.807	CH ₃	H	H	H	CH(OH)CH ₃	CH ₃
1.808	CH ₃	H	H	H	CH(CH ₃)OCH ₃	CH ₃
1.809	CH ₃	H	H	H	CN	CH ₃
1.810	CH ₃	H	H	H	CH ₂ SCH ₃	CH ₃
1.811	CH ₃	H	H	H	CH ₂ S(O)CH ₃	CH ₃
1.812	CH ₃	H	H	H	CH ₂ SO ₂ CH ₃	CH ₃
1.813	CH ₃	H	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
1.814	CH ₃	H	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
1.815	CH ₃	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
1.816	CH ₃	H	H	H	OCH ₃	CH ₃
1.817	CH ₃	H	H	H	OCH ₂ CH ₃	CH ₃
1.818	CH ₃	H	H	H	CH(OCH ₃) ₂	CH ₃
1.819	CH ₃	H	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
1.820	CH ₃	H	H	H	Ciclopropilo	CH ₃
1.821	CH ₃	H	H	H	Ciclobutilo	CH ₃
1.822	CH ₃	H	H	H	Ciclopentilo	CH ₃
1.823	CH ₃	H	H	H	Ciclohexilo	CH ₃
1.824	CH ₃	H	H	H	F	CH ₃
1.825	CH ₃	H	H	H	Cl	CH ₃
1.826	CH ₃	H	H	H	Br	CH ₃
1.827	CH ₃	H	H	H	I	CH ₃
1.828	CH ₃	H	H	H	OH	CH ₃
1.829	CH ₃	H	H	H	fenilo	CH ₃
1.830	CH ₃	H	H	H	2-acetilfenilo	CH ₃
1.831	CH ₃	H	H	H	3-acetilfenilo	CH ₃
1.832	CH ₃	H	H	H	4-acetilfenilo	CH ₃
1.833	CH ₃	H	H	H	2-clorofenilo	CH ₃
1.834	CH ₃	H	H	H	3-clorofenilo	CH ₃
1.835	CH ₃	H	H	H	4-clorofenilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.836	CH ₃	H	H	H	2-clanofenilo	CH ₃
1.837	CH ₃	H	H	H	3-clanofenilo	CH ₃
1.838	CH ₃	H	H	H	4-clanofenilo	CH ₃
1.839	CH ₃	H	H	H	2-fluorfenilo	CH ₃
1.840	CH ₃	H	H	H	3-fluorfenilo	CH ₃
1.841	CH ₃	H	H	H	4-fluorfenilo	CH ₃
1.842	CH ₃	H	H	H	2-metoxifenilo	CH ₃
1.843	CH ₃	H	H	H	3-metoxifenilo	CH ₃
1.844	CH ₃	H	H	H	4-metoxifenilo	CH ₃
1.845	CH ₃	H	H	H	2-metilfenilo	CH ₃
1.846	CH ₃	H	H	H	3-metilfenilo	CH ₃
1.847	CH ₃	H	H	H	4-metilfenilo	CH ₃
1.848	CH ₃	H	H	H	2-nitrofenilo	CH ₃
1.849	CH ₃	H	H	H	3-nitrofenilo	CH ₃
1.850	CH ₃	H	H	H	4-nitrofenilo	CH ₃
1.851	CH ₃	H	H	H	2-tiometilfenilo	CH ₃
1.852	CH ₃	H	H	H	3-tiometilfenilo	CH ₃
1.853	CH ₃	H	H	H	4-tiometilfenilo	CH ₃
1.854	CH ₃	H	H	H	2-trifluormetoxifenilo	CH ₃
1.855	CH ₃	H	H	H	3-trifluormetoxifenilo	CH ₃
1.856	CH ₃	H	H	H	4-trifluormetoxifenilo	CH ₃
1.857	CH ₃	H	H	H	2-trifluormetilfenilo	CH ₃
1.858	CH ₃	H	H	H	3-trifluormetilfenilo	CH ₃
1.859	CH ₃	H	H	H	4-trifluormetilfenilo	CH ₃
1.860	CH ₃	H	H	H	2,3-diclorofenilo	CH ₃
1.861	CH ₃	H	H	H	2,4-diclorofenilo	CH ₃
1.862	CH ₃	H	H	H	2,5-diclorofenilo	CH ₃
1.863	CH ₃	H	H	H	2,6-diclorofenilo	CH ₃
1.864	CH ₃	H	H	H	3,4-diclorofenilo	CH ₃
1.865	CH ₃	H	H	H	3,5-diclorofenilo	CH ₃
1.866	CH ₃	H	H	H	2,3-difluorfenilo	CH ₃
1.867	CH ₃	H	H	H	2,4-difluorfenilo	CH ₃
1.868	CH ₃	H	H	H	2,5-difluorfenilo	CH ₃
1.869	CH ₃	H	H	H	2,6-difluorfenilo	CH ₃
1.870	CH ₃	H	H	H	3,4-difluorfenilo	CH ₃
1.871	CH ₃	H	H	H	3,5-difluorfenilo	CH ₃
1.872	CH ₃	H	H	H	2,4,6-trifluorfenilo	CH ₃
1.873	CH ₃	H	H	H	2,4-dimetilfenilo	CH ₃
1.874	CH ₃	H	H	H	2,4,6-trimetilfenilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.875	CH ₃	H	H	H	3,4,5-trimetoxifenilo	CH ₃
1.876	CH ₃	H	H	H	2-cloro-3-cianofenilo	CH ₃
1.877	CH ₃	H	H	H	2-cloro-4-cianofenilo	CH ₃
1.878	CH ₃	H	H	H	2-cloro-5-cianofenilo	CH ₃
1.879	CH ₃	H	H	H	2-cloro-6-cianofenilo	CH ₃
1.880	CH ₃	H	H	H	3-cloro-2-cianofenilo	CH ₃
1.881	CH ₃	H	H	H	3-cloro-4-cianofenilo	CH ₃
1.882	CH ₃	H	H	H	3-cloro-5-cianofenilo	CH ₃
1.883	CH ₃	H	H	H	5-cloro-2-cianofenilo	CH ₃
1.884	CH ₃	H	H	H	4-cloro-2-cianofenilo	CH ₃
1.885	CH ₃	H	H	H	4-cloro-3-cianofenilo	CH ₃
1.886	CH ₃	H	H	H	2-cloro-3-fluorfenilo	CH ₃
1.887	CH ₃	H	H	H	2-cloro-4-fluorfenilo	CH ₃
1.888	CH ₃	H	H	H	2-cloro-5-fluorfenilo	CH ₃
1.889	CH ₃	H	H	H	2-cloro-6-fluorfenilo	CH ₃
1.890	CH ₃	H	H	H	3-cloro-2-fluorfenilo	CH ₃
1.891	CH ₃	H	H	H	3-cloro-4-fluorfenilo	CH ₃
1.892	CH ₃	H	H	H	3-cloro-5-fluorfenilo	CH ₃
1.893	CH ₃	H	H	H	5-cloro-2-fluorfenilo	CH ₃
1.894	CH ₃	H	H	H	4-cloro-2-fluorfenilo	CH ₃
1.895	CH ₃	H	H	H	4-cloro-3-fluorfenilo	CH ₃
1.896	CH ₃	H	H	H	2-cloro-3-metilfenilo	CH ₃
1.897	CH ₃	H	H	H	2-cloro-4-metilfenilo	CH ₃
1.898	CH ₃	H	H	H	2-cloro-5-metilfenilo	CH ₃
1.899	CH ₃	H	H	H	2-cloro-6-metilfenilo	CH ₃
1.900	CH ₃	H	H	H	3-cloro-2-metilfenilo	CH ₃
1.901	CH ₃	H	H	H	3-cloro-4-metilfenilo	CH ₃
1.902	CH ₃	H	H	H	3-cloro-5-metilfenilo	CH ₃
1.903	CH ₃	H	H	H	5-cloro-2-metilfenilo	CH ₃
1.904	CH ₃	H	H	H	4-cloro-2-metilfenilo	CH ₃
1.905	CH ₃	H	H	H	4-cloro-3-metilfenilo	CH ₃
1.906	CH ₃	H	H	H	2-ciano-3-fluorfenilo	CH ₃
1.907	CH ₃	H	H	H	2-ciano-4-fluorfenilo	CH ₃
1.908	CH ₃	H	H	H	2-ciano-5-fluorfenilo	CH ₃
1.909	CH ₃	H	H	H	2-ciano-6-fluorfenilo	CH ₃
1.910	CH ₃	H	H	H	3-ciano-2-fluorfenilo	CH ₃
1.911	CH ₃	H	H	H	3-ciano-4-fluorfenilo	CH ₃
1.912	CH ₃	H	H	H	3-ciano-5-fluorfenilo	CH ₃
1.913	CH ₃	H	H	H	5-ciano-2-fluorfenilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.914	CH ₃	H	H	H	4-clano-2-fluorfenilo	CH ₃
1.915	CH ₃	H	H	H	4-clano-3-fluorfenilo	CH ₃
1.916	CH ₃	H	H	H	2-fluor-3-metilfenilo	CH ₃
1.917	CH ₃	H	H	H	2-fluor-4-metilfenilo	CH ₃
1.918	CH ₃	H	H	H	2-fluor-5-metilfenilo	CH ₃
1.919	CH ₃	H	H	H	2-fluor-6-metilfenilo	CH ₃
1.920	CH ₃	H	H	H	3-fluor-2-metilfenilo	CH ₃
1.921	CH ₃	H	H	H	3-fluor-4-metilfenilo	CH ₃
1.922	CH ₃	H	H	H	3-fluor-5-metilfenilo	CH ₃
1.923	CH ₃	H	H	H	5-fluor-2-metilfenilo	CH ₃
1.924	CH ₃	H	H	H	4-fluor-2-metilfenilo	CH ₃
1.925	CH ₃	H	H	H	4-fluor-3-metilfenilo	CH ₃
1.926	CH ₃	H	H	H	piridin-2-ilo	CH ₃
1.927	CH ₃	H	H	H	piridin-3-ilo	CH ₃
1.928	CH ₃	H	H	H	piridin-4-ilo	CH ₃
1.929	CH ₃	H	H	H	3-cloropiridin-2-ilo	CH ₃
1.930	CH ₃	H	H	H	4-cloropiridin-2-ilo	CH ₃
1.931	CH ₃	H	H	H	5-cloropiridin-2-ilo	CH ₃
1.932	CH ₃	H	H	H	6-cloropiridin-2-ilo	CH ₃
1.933	CH ₃	H	H	H	2-cloropiridin-3-ilo	CH ₃
1.934	CH ₃	H	H	H	4-cloropiridin-3-ilo	CH ₃
1.935	CH ₃	H	H	H	5-cloropiridin-3-ilo	CH ₃
1.936	CH ₃	H	H	H	2-cloropiridin-4-ilo	CH ₃
1.937	CH ₃	H	H	H	3-cloropiridin-4-ilo	CH ₃
1.938	CH ₃	H	H	H	2-cloropiridin-5-ilo	CH ₃
1.939	CH ₃	H	H	H	3-cianopiridin-2-ilo	CH ₃
1.940	CH ₃	H	H	H	4-cianopiridin-2-ilo	CH ₃
1.941	CH ₃	H	H	H	5-cianopiridin-2-ilo	CH ₃
1.942	CH ₃	H	H	H	6-cianopiridin-2-ilo	CH ₃
1.943	CH ₃	H	H	H	2-cianopiridin-3-ilo	CH ₃
1.944	CH ₃	H	H	H	4-cianopiridin-3-ilo	CH ₃
1.945	CH ₃	H	H	H	5-cianopiridin-3-ilo	CH ₃
1.946	CH ₃	H	H	H	2-cianopiridin-5-ilo	CH ₃
1.947	CH ₃	H	H	H	3-fluorpiridin-2-ilo	CH ₃
1.948	CH ₃	H	H	H	4-fluorpiridin-2-ilo	CH ₃
1.949	CH ₃	H	H	H	5-fluorpiridin-2-ilo	CH ₃
1.950	CH ₃	H	H	H	6-fluorpiridin-2-ilo	CH ₃
1.951	CH ₃	H	H	H	2-fluorpiridin-3-ilo	CH ₃
1.952	CH ₃	H	H	H	4-fluorpiridin-3-ilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.953	CH ₃	H	H	H	5-fluorpiridin-3-ilo	CH ₃
1.954	CH ₃	H	H	H	2-fluorpiridin-5-ilo	CH ₃
1.955	CH ₃	H	H	H	3-nitropiridin-2-ilo	CH ₃
1.956	CH ₃	H	H	H	4-nitropiridin-2-ilo	CH ₃
1.957	CH ₃	H	H	H	5-nitropiridin-2-ilo	CH ₃
1.958	CH ₃	H	H	H	6-nitropiridin-2-ilo	CH ₃
1.959	CH ₃	H	H	H	2-nitropiridin-3-ilo	CH ₃
1.960	CH ₃	H	H	H	4-nitropiridin-3-ilo	CH ₃
1.961	CH ₃	H	H	H	5-nitropiridin-3-ilo	CH ₃
1.962	CH ₃	H	H	H	2-nitropiridin-5-ilo	CH ₃
1.963	CH ₃	H	H	H	3-trifluormetilpiridin-2-ilo	CH ₃
1.964	CH ₃	H	H	H	4-trifluormetilpiridin-2-ilo	CH ₃
1.965	CH ₃	H	H	H	5-trifluormetilpiridin-2-ilo	CH ₃
1.966	CH ₃	H	H	H	6-trifluormetilpiridin-2-ilo	CH ₃
1.967	CH ₃	H	H	H	2-trifluormetilpiridin-3-ilo	CH ₃
1.968	CH ₃	H	H	H	4-trifluormetilpiridin-3-ilo	CH ₃
1.969	CH ₃	H	H	H	5-trifluormetilpiridin-3-ilo	CH ₃
1.970	CH ₃	H	H	H	2-trifluormetilpiridin-5-ilo	CH ₃
1.971	CH ₃	H	H	H	2,6-bis(trifluormetil)-piridin-3-ilo	CH ₃
1.972	CH ₃	H	H	H	2,6-bis(trifluormetil)-piridin-4-ilo	CH ₃
1.973	CH ₃	H	H	H	3,5-bis(trifluormetil)-piridin-2-ilo	CH ₃
1.974	CH ₃	H	H	H	2-tienilo	CH ₃
1.975	CH ₃	H	H	H	3-tienilo	CH ₃
1.976	CH ₃	H	H	H	5-clanotien-2-ilo	CH ₃
1.977	CH ₃	H	H	H	2-furilo	CH ₃
1.978	CH ₃	H	H	H	3-furilo	CH ₃
1.979	CH ₃	H	H	H	1-metil-1,2,3-triazol-4-ilo	CH ₃
1.980	CH ₃	H	H	H	2-metiltiopirimidin-4-ilo	CH ₃
1.981	CH ₃	H	H	H	5-metil-2-metil-tiopirimidin-4-ilo	CH ₃
1.982	CH ₃	H	H	H	pirazin-2-ilo	CH ₃
1.983	CH ₃	H	H	H	3,6-dimetilpirazin-2-ilo	CH ₃
1.984	CH ₃	H	H	H	3-clanopirazin-2-ilo	CH ₃
1.985	CH ₃	H	H	H	quinolin-2-ilo	CH ₃
1.986	CH ₃	H	H	H	3-etilquinolin-2-ilo	CH ₃
1.987	CH ₃	H	H	H	bencilo	CH ₃
1.988	CH ₃	H	H	H	4-fluorbencilo	CH ₃
1.989	CH ₃	H	H	H	4-clorobencilo	CH ₃
1.990	CH ₃	H	H	H	4-metilbencilo	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.991	CH ₃	H	H	H	2,4-dimetilbencilo	CH ₃
1.992	CH ₃	H	H	H	2,4,6-trimetilbencilo	CH ₃
1.993	CH ₃	H	H	H	H	CH ₂ OH
1.994	CH ₃	H	H	H	H	CH ₂ OCH ₃
1.995	CH ₃	H	H	H	H	CH ₂ OCH ₂ CH ₃
1.996	CH ₃	H	H	H	H	CHO
1.997	CH ₃	H	H	H	H	COCH ₃
1.998	CH ₃	H	H	H	H	CO ₂ H
1.999	CH ₃	H	H	H	H	CO ₂ CH ₃
1.1000	CH ₃	H	H	H	H	CO ₂ CH ₂ CH ₃
1.1001	CH ₃	H	H	H	H	CONH ₂
1.1002	CH ₃	H	H	H	H	CONHCH ₃
1.1003	CH ₃	H	H	H	H	CONHCH ₂ CH ₃
1.1004	CH ₃	H	H	H	H	CON(CH ₃) ₂
1.1005	CH ₃	H	H	H	H	CON-(CH ₂ CH ₃) ₂
1.1006	CH ₃	H	H	H	H	CON(CH ₃)O-CH ₃
1.1007	CH ₃	H	H	H	H	CH=NOH
1.1008	CH ₃	H	H	H	H	CH=NOCH ₃
1.1009	CH ₃	H	H	H	H	CH=NOCH ₂ -CH ₃
1.1010	CH ₃	H	H	H	H	C(CH ₃)=NOH
1.1011	CH ₃	H	H	H	H	C(CH ₃)=NO-CH ₃
1.1012	CH ₃	H	H	H	H	CH ₂ OC(O)NH-CH ₃
1.1013	CH ₃	H	H	H	H	CH ₂ NH ₂
1.1014	CH ₃	H	H	H	H	CH ₂ NHCHO
1.1015	CH ₃	H	H	H	H	CH ₂ NHC(O)-CH ₃
1.1016	CH ₃	H	H	H	H	CH ₂ NHC(O)OCH ₃
1.1017	CH ₃	H	H	H	H	NHC(O ₂ CH ₃)
1.1018	CH ₃	H	H	H	H	NHC(O ₂ -C(CH ₃) ₃)
1.1019	CH ₃	H	H	H	H	CH(OH)CH ₃
1.1020	CH ₂	H	H	H	H	CH(CH ₃)OCH ₃
1.1021	CH ₃	H	H	H	H	CN
1.1022	CH ₃	H	H	H	H	CH ₂ SCH ₃
1.1023	CH ₃	H	H	H	H	CH ₂ S(O)CH ₃
1.1024	CH ₃	H	H	H	H	CH ₂ SO ₂ CH ₃
1.1025	CH ₂	H	H	H	H	CH ₂ SCH ₂ CH ₃
1.1026	CH ₃	H	H	H	H	CH ₂ S(O)CH ₂ -CH ₃
1.1027	CH ₃	H	H	H	H	CH ₂ SO ₂ CH ₂ -CH ₃
1.1028	CH ₃	H	H	H	H	OCH ₃
1.1029	CH ₃	H	H	H	H	OCH ₂ CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
1.1030	CH ₃	H	H	H	H	CH(OCH ₃) ₂
1.1031	CH ₃	H	H	H	H	CH-(OCH ₂ CH ₃) ₂
1.1032	CH ₃	H	H	H	H	CH ₂ CH ₃
1.1033	CH ₃	H	H	H	H	CH ₂ CH ₂ CH ₃
1.1034	CH ₃	H	H	H	H	CH(CH ₃) ₂
1.1035	CH ₃	H	H	H	H	C(CH ₃) ₃
1.1036	CH ₃	H	H	H	H	CH ₂ CH(CH ₃) ₂
1.1037	CH ₃	H	H	H	H	CH ₂ C(CH ₃) ₃
1.1038	CH ₃	H	H	H	H	CH ₂ CN
1.1039	CH ₃	H	H	H	H	ciclopropilo
1.1040	CH ₃	H	H	H	H	ciclobutilo
1.1041	CH ₃	H	H	H	H	ciclopentilo
1.1042	CH ₃	H	H	H	H	ciclohexilo
1.1043	CH ₃	H	H	H	H	CH ₂ -ciclopropilo
1.1044	CH ₃	H	H	H	H	bencilo
1.1045	CH ₃	H	H	H	H	CH ₂ CF ₃
1.1046	CH ₃	CH ₃	H	H	CH ₃	CH ₃
1.1047	H	H	Cl	Cl	H	H
1.1048	H	H	Cl	Cl	H	CH ₃
1.1049	CH ₃	H	Cl	Cl	H	CH ₃
1.1050	H	H	Br	Br	H	H
1.1051	H	H	Br	Br	H	CH ₃
1.1052	CH ₃	H	Br	Br	H	CH ₃
1.1053	H	H	OH	OH	H	H
1.1054	H	H	OH	OH	H	CH ₃
1.1055	CH ₃	H	OH	OH	H	CH ₃
1.1056	H	H	-O-C(CH ₃) ₂ -O-		H	H
1.1057	H	H	-O-C(CH ₃) ₂ -O-		H	CH ₃
1.1058	CH ₃	H	-O-C(CH ₃) ₂ -O-		H	CH ₃
1.1059	H	R ⁷ y R ⁸ forman la unidad =O		H	H	H
1.1060	H	R ⁷ y R ⁸ forman la unidad =O		H	H	CH ₃
1.1061	CH ₃	R ⁷ y R ⁸ forman la unidad =O		H	H	H
1.1062	CH ₃	R ⁷ y R ⁸ forman la unidad =O		H	H	CH ₃
1.1063	H	R ⁷ y R ⁸ forman la unidad =NOCH ₃		H	H	H
1.1064	H	R ⁷ y R ⁸ forman la unidad		H	H	CH ₃

	R ⁶	R ⁷	R ⁸	R ⁹	R ¹⁰	R ¹¹
		=NOCH ₃				
1.1065	CH ₃	R ⁷ y R ⁸ forman la unidad =NOCH ₃		H	H	H
1.1066	CH ₃	R ⁷ y R ⁸ forman la unidad =NOCH ₃		H	H	CH ₃
1.1067	H	R ⁷ y R ⁸ forman la unidad =NOCH ₂ CH ₃		H	H	H
1.1068	H	R ⁷ y R ⁸ forman la unidad =NOCH ₂ CH ₃		H	H	CH ₃
1.1069	CH ₃	R ⁷ y R ⁸ forman la unidad =NOCH ₂ CH ₃		H	H	H
1.1070	CH ₃	R ⁷ y R ⁸ forman la unidad =NOCH ₂ CH ₃		H	H	CH ₃
1.1071	H	H	H	-O-(CH ₂) ₂ -O-		H
1.1072	H	H	H	-O-(CH ₂) ₂ -O-		CH ₃
1.1073	CH ₃	H	H	-O-(CH ₂) ₂ -O-		H
1.1074	CH ₃	H	H	-O-(CH ₂) ₂ -O-		CH ₃
1.1075	H	H	H	-O-(CH ₂) ₃ -O-		H
1.1076	H	H	H	-O-(CH ₂) ₃ -O-		CH ₃
1.1077	CH ₃	H	H	-O-(CH ₂) ₃ -O-		H
1.1078	CH ₃	H	H	-O-(CH ₂) ₃ -O-		CH ₃

La Tabla 2 comprende los compuestos de la fórmula (A), donde R¹ es etilo, R² y R⁴ son metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definieron en la Tabla 1.

La Tabla 3 comprende los compuestos de la fórmula (A), donde R¹ y R⁴ son etilo, R² es metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definieron en la Tabla 1.

La Tabla 4 comprende los compuestos de la fórmula (A), donde R¹, R² y R⁴ son etilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definieron en la Tabla 1.

La Tabla 5 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 6 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 7 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 8 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 9 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 10 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es etinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 11 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^4 es vinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 12 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 13 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 14 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 15 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 16 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 17 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es etinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 18 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^4 es vinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 19 comprende los compuestos de la fórmula (A), donde R^1 es etinilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 20 comprende los compuestos de la fórmula (A), donde R^1 es etinilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 21 comprende los compuestos de la fórmula (A), donde R^1 es etinilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 22 comprende los compuestos de la fórmula (A), donde R^1 es etinilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 23 comprende los compuestos de la fórmula (A), donde R^1 es etinilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 24 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son etinilo, R^2 es metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 25 comprende los compuestos de la fórmula (A), donde R^1 es vinilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 26 comprende los compuestos de la fórmula (A), donde R^1 es vinilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 27 comprende los compuestos de la fórmula (A), donde R^1 es vinilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 28 comprende los compuestos de la fórmula (A), donde R^1 es vinilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 29 comprende los compuestos de la fórmula (A), donde R^1 es vinilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 30 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son vinilo, R^2 es metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 31 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 , R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 32 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es metoxi, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 33 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es trifluormetilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 34 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es etilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 35 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es etinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 36 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es vinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 37 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es cloro, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 38 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es bromo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 39 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es yodo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 40 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 , R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 41 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metoxi, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 42 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es trifluormetilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 43 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 44 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es etinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 45 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es vinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 46 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es cloro, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 47 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es bromo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 48 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es yodo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 49 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son metilo, R^2 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 50 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son metilo, R^2 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 51 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son metilo, R^2 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 52 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es cloro, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 53 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es bromo, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 54 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es yodo, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 55 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son etilo, R^2 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 56 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son etilo, R^2 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 57 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son etilo, R^2 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 58 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es cloro, R^3 es hidrógeno, R^4 es metoxi, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 59 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es bromo, R^3 es hidrógeno, R^4 es metoxi, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 60 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es cloro, R^3 es hidrógeno, R^4 es metoxi, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 61 comprende los compuestos de la fórmula (A), donde R^1 es etilo, R^2 es bromo, R^3 es hidrógeno, R^4 es metoxi, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 62 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son metilo, R^2 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 63 comprende los compuestos de la fórmula (A), donde R^1 es metilo, R^2 es metoxi, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 64 comprende los compuestos de la fórmula (A), donde R^1 y R^4 son etilo, R^2 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 65 comprende los compuestos de la fórmula (A), donde R^1 , R^2 , R^3 y R^4 son metilo, R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 66 comprende los compuestos de la fórmula (A), donde R^1 es difluormetoxi, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 67 comprende los compuestos de la fórmula (A), donde R^1 es difluormetoxi, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 68 comprende los compuestos de la fórmula (A), donde R^1 es trifluormetoxi, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 69 comprende los compuestos de la fórmula (A), donde R^1 es trifluormetoxi, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

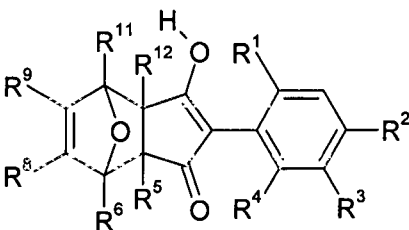
La Tabla 70 comprende los compuestos de la fórmula (A), donde R^1 es ciclopropilo, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 71 comprende los compuestos de la fórmula (A), donde R^1 es ciclopropilo, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^7 , R^8 , R^9 , R^{10} , y R^{11} son según se definieron en la Tabla 1.

La Tabla 72 comprende los compuestos de la fórmula (A), donde R¹ y R² son metilo, R³, R⁵ y R¹² son hidrógeno, R⁴ es ciclopropilo y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definieron en la Tabla 1.

La Tabla 73 comprende los compuestos de la fórmula (A), donde R¹ y R² son etilo, R³, R⁵ y R¹² son hidrógeno, R⁴ es ciclopropilo y R⁶, R⁷, R⁸, R⁹, R¹⁰, y R¹¹ son según se definieron en la Tabla 1.

La Tabla 74 comprende los compuestos de la fórmula (AH)



donde R¹, R² y R⁴ son metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definen en la Tabla 74.

Tabla 74

	R ⁶	R ⁸	R ⁹	R ¹¹
74.001	H	H	H	H
74.002	H	H	H	CH ₃
74.003	H	H	H	CH ₂ OH
74.004	H	H	H	CH ₂ OCH ₃
74.005	H	H	H	CH ₂ OCH ₂ CH ₃
74.006	H	H	H	CH ₂ OCH ₂ OCH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.007	H	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃
74.007	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₃
74.008	H	H	H	CH ₂ OCH ₂ CO ₂ CH ₂ CH ₃
74.009	H	H	H	CH ₂ OCH ₂ CN
74.010	H	H	H	CH(OH)CH ₃
74.011	H	H	H	CH(CH ₃)OCH ₃
74.012	H	H	H	CH(CH ₃)OCH ₂ CH ₃
74.013	H	H	H	CHO
74.014	H	H	H	COCH ₃
74.015	H	H	H	CH ₂ COCH ₃
74.016	H	H	H	CH ₂ CH ₂ COCH ₃
74.017	H	H	H	CO ₂ H
74.018	H	H	H	CO ₂ CH ₃
74.019	H	H	H	CO ₂ CH ₂ CH ₃
74.020	H	H	H	CH ₂ CO ₂ CH ₃
74.021	H	H	H	CH ₂ CO ₂ CH ₂ CH ₃
74.022	H	H	H	CH ₂ CH ₂ CO ₂ CH ₃
74.023	H	H	H	CH ₂ CH ₂ CO ₂ CH ₂ CH ₃
74.024	H	H	H	CONH ₂
74.025	H	H	H	CONHCH ₃
74.026	H	H	H	CONHCH ₂ CH ₃
74.027	H	H	H	CON(CH ₃) ₂
74.028	H	H	H	CON(CH ₂ CH ₃) ₂
74.029	H	H	H	CON(CH ₃)OCH ₃
74.030	H	H	H	CH=NOH

	R ⁶	R ⁸	R ⁹	R ¹¹
74.031	H	H	H	CH=NOCH ₃
74.032	H	H	H	CH=NOCH ₂ CH ₃
74.033	H	H	H	C(CH ₃)=NOH
74.034	H	H	H	C(CH ₃)=NOCH ₃
74.035	H	H	H	CH ₂ OC(O)CH ₃
74.036	H	H	H	CH ₂ OC(O)CH ₂ CH ₃
74.037	H	H	H	CH ₂ OC(O)CH(CH ₃) ₂
74.038	H	H	H	CH ₂ OC(O)C(CH ₃) ₃
74.039	H	H	H	CH ₂ OC(O)NHCH ₃
74.040	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₃
74.041	H	H	H	CH ₂ OC(O)NHCH ₂ CH ₂ CH ₃
74.042	H	H	H	CH ₂ OC(O)NHC(CH ₃) ₃
74.043	H	H	H	CH ₂ NH ₂
74.044	H	H	H	CH ₂ NHCHO
74.045	H	H	H	CH ₂ NHC(O)CH ₃
74.046	H	H	H	CH ₂ NHC(O)OCH ₃
74.047	H	H	H	NHCO ₂ CH ₃
74.048	H	H	H	NHCO ₂ C(CH ₃) ₃
74.049	H	H	H	CN
74.050	H	H	H	CH ₂ SCH ₃
74.051	H	H	H	CH ₂ SCH ₂ CH ₃
74.052	H	H	H	CH ₂ SCH ₂ CH ₂ CH ₃
74.053	H	H	H	CH ₂ SCH(CH ₃) ₂
74.054	H	H	H	CH ₂ S(O)CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.055	H	H	H	CH ₂ SO ₂ CH ₃
74.056	H	H	H	CH ₂ SCH ₂ CH ₃
74.057	H	H	H	CH ₂ S(O)CH ₂ CH ₃
74.058	H	H	H	CH ₂ SO ₂ CH ₂ CH ₃
74.059	H	H	H	OCH ₃
74.060	H	H	H	OCH ₂ CH ₃
74.061	H	H	H	CH(OCH ₃) ₂
74.062	H	H	H	CH(OCH ₂ CH ₃) ₂
74.063	H	H	H	1,3-dioxolan-2-ilo
74.064	H	H	H	1,3-dioxan-2-ilo
74.065	H	H	H	5,5-dimetil-1,3-dioxan-2-ilo
74.066	H	H	H	CH ₂ CH ₃
74.067	H	H	H	<i>n</i> -propilo
74.068	H	H	H	isopropilo
74.069	H	H	H	<i>n</i> -butilo
74.070	H	H	H	isobutilo
74.071	H	H	H	<i>sec</i> -butilo
74.072	H	H	H	<i>terc</i> -butilo
74.073	H	H	H	<i>n</i> -pentilo
74.074	H	H	H	neopentilo
74.075	H	H	H	<i>n</i> -hexilo
74.076	H	H	H	<i>n</i> -heptilo
74.077	H	H	H	CH ₂ CN
74.078	H	H	H	ciclopropilo

	R ⁶	R ⁸	R ⁹	R ¹¹
74.079	H	H	H	ciclobutilo
74.080	H	H	H	ciclopentilo
74.081	H	H	H	ciclohexilo
74.082	H	H	H	CH ₂ -ciclopropilo
74.083	H	H	H	bencilo
74.084	H	H	H	CH ₂ CF ₃
74.085	H	H	H	CH ₂ F
74.086	H	H	H	CHF ₂
74.087	H	H	H	CF ₃
74.088	H	H	CH ₃	H
74.089	H	H	CH ₂ CH ₃	H
74.090	H	H	<i>n</i> -propilo	H
74.091	H	H	isopropilo	H
74.092	H	H	<i>n</i> -butilo	H
74.093	H	H	isobutilo	H
74.094	H	H	<i>sec</i> -butilo	H
74.095	H	H	<i>terc</i> -butilo	H
74.096	H	H	vinilo	H
74.097	H	H	etinilo	H
74.098	H	H	trimetilsililetinilo	H
74.099	H	H	CH ₂ OH	H
74.100	H	H	CH ₂ OCH ₃	H
74.101	H	H	CH ₂ OCH ₂ CH ₃	H
74.102	H	H	CH ₂ OCH ₂ OCH ₃	H
74.103	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.104	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
74.105	H	H	CHO	H
74.106	H	H	COCH ₃	H
74.107	H	H	CO ₂ H	H
74.108	H	H	CO ₂ CH ₃	H
74.109	H	H	CO ₂ CH ₂ CH ₃	H
74.110	H	H	CONH ₂	H
74.111	H	H	CONHCH ₃	H
74.112	H	H	CONHCH ₂ CH ₃	H
74.113	H	H	CON(CH ₃) ₂	H
74.114	H	H	CON(CH ₂ —CH ₃) ₂	H
74.115	H	H	CON(CH ₃)OCH ₃	H
74.116	H	H	CH=NOH	H
74.117	H	H	CH=N—OCH ₃	H
74.118	H	H	CH=N—OCH ₂ CH ₃	H
74.119	H	H	C(CH ₃)=N—OH	H
74.120	H	H	C(CH ₃)=N—OCH ₃	H
74.121	H	H	CH ₂ OC(O)—NHCH ₃	H
74.122	H	H	CH ₂ NH ₂	H
74.123	H	H	CH ₂ NHCHO	H
74.124	H	H	CH ₂ NHC(O)CH ₃	H
74.125	H	H	CH ₂ NHC(O)OCH ₃	H
74.126	H	H	CH(OH)CH ₃	H
74.127	H	H	CH(CH ₃)OCH ₃	H
74.128	H	H	CN	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.129	H	H	CH ₂ SCH ₃	H
74.130	H	H	CH ₂ S(O)CH ₃	H
74.131	H	H	CH ₂ SO ₂ CH ₃	H
74.132	H	H	CH ₂ SCH ₂ CH ₃	H
74.133	H	H	CH ₂ S(O)CH ₂ CH ₃	H
74.134	H	H	CH ₂ SO ₂ CH ₂ CH ₃	H
74.135	H	H	OCH ₃	H
74.136	H	H	OCH ₂ CH ₃	H
74.137	H	H	CH(OCH ₃) ₂	H
74.138	H	H	CH(OCH ₂ CH ₃) ₂	H
74.139	H	H	ciclopropilo	H
74.140	H	H	ciclobutilo	H
74.141	H	H	ciclopentilo	H
74.142	H	H	ciclohexilo	H
74.143	H	H	F	H
74.144	H	H	Cl	H
74.145	H	H	Br	H
74.146	H	H	I	H
74.147	H	H	fenilo	H
74.148	H	H	2-acetilfenilo	H
74.149	H	H	3-acetilfenilo	H
74.150	H	H	4-acetilfenilo	H
74.151	H	H	2-clorofenilo	H
74.152	H	H	3-clorofenilo	H
74.153	H	H	4-clorofenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.154	H	H	2–cianofenilo	H
74.155	H	H	3–cianofenilo	H
74.156	H	H	4–cianofenilo	H
74.157	H	H	2–fluorfenilo	H
74.158	H	H	3–fluorfenilo	H
74.159	H	H	4–fluorfenilo	H
74.160	H	H	2–metoxifenilo	H
74.161	H	H	3–metoxifenilo	H
74.162	H	H	4–metoxifenilo	H
74.163	H	H	2–metilfenilo	H
74.164	H	H	3–metilfenilo	H
74.165	H	H	4–metilfenilo	H
74.166	H	H	2–nitrofenilo	H
74.167	H	H	3–nitrofenilo	H
74.168	H	H	4–nitrofenilo	H
74.169	H	H	2–tiometilfenilo	H
74.170	H	H	3–tiometilfenilo	H
74.171	H	H	4–tiometilfenilo	H
74.172	H	H	2–trifluormetoxifenilo	H
74.173	H	H	3–trifluormetoxifenilo	H
74.174	H	H	4–trifluormetoxifenilo	H
74.175	H	H	2–trifluormetilfenilo	H
74.176	H	H	3–trifluormetilfenilo	H
74.177	H	H	4–trifluormetilfenilo	H
74.178	H	H	2,3–diclorofenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.179	H	H	2,4–diclorofenilo	H
74.180	H	H	2,5–diclorofenilo	H
74.181	H	H	2,6–diclorofenilo	H
74.182	H	H	3,4–diclorofenilo	H
74.183	H	H	3,5–diclorofenilo	H
74.184	H	H	2,3–difluorfenilo	H
74.185	H	H	2,4–difluorfenilo	H
74.186	H	H	2,5–difluorfenilo	H
74.187	H	H	2,6–difluorfenilo	H
74.188	H	H	3,4–difluorfenilo	H
74.189	H	H	3,5–difluorfenilo	H
74.190	H	H	2,4,6–trifluorfenilo	H
74.191	H	H	2,4–dimetilfenilo	H
74.192	H	H	2,4,6–trimetilfenilo	H
74.193	H	H	3,4,5–trimetoxifenilo	H
74.194	H	H	2–cloro–3–cianofenilo	H
74.195	H	H	2–cloro–4–cianofenilo	H
74.196	H	H	2–cloro–5–cianofenilo	h
74.197	H	H	2–cloro–6–cianofenilo	H
74.198	H	H	3–cloro–2–cianofenilo	H
74.199	H	H	3–cloro–4–cianofenilo	H
74.200	H	H	3–cloro–5–cianofenilo	H
74.201	H	H	5–cloro–2–cianofenilo	H
74.202	H	H	4–cloro–2–cianofenilo	H
74.203	H	H	4–cloro–3–cianofenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.204	H	H	2-cloro-3-fluorfenilo	H
74.205	H	H	2-cloro-4-fluorfenilo	H
74.206	H	H	2-cloro-5-fluorfenilo	H
74.207	H	H	2-cloro-6-fluorfenilo	H
74.208	H	H	3-cloro-2-fluorfenilo	H
74.209	H	H	3-cloro-4-fluorfenilo	H
74.210	H	H	3-cloro-5-fluorfenilo	H
74.211	H	H	5-cloro-2-fluorfenilo	H
74.212	H	H	4-cloro-2-fluorfenilo	H
74.213	H	H	4-cloro-3-fluorfenilo	H
74.214	H	H	2-cloro-3-metilfenilo	H
74.215	H	H	2-cloro-4-metilfenilo	H
74.216	H	H	2-cloro-5-metilfenilo	H
74.217	H	H	2-cloro-6-metilfenilo	H
74.218	H	H	3-cloro-2-metilfenilo	H
74.219	H	H	3-cloro-4-metilfenilo	H
74.220	H	H	3-cloro-5-metilfenilo	H
74.221	H	H	5-cloro-2-metilfenilo	H
74.222	H	H	4-cloro-2-metilfenilo	H
74.223	H	H	4-cloro-3-metilfenilo	H
74.224	H	H	2-ciano-3-fluorfenilo	H
74.225	H	H	2-ciano-4-fluorfenilo	H
74.226	H	H	2-ciano-5-fluorfenilo	H
74.227	H	H	2-ciano-6-fluorfenilo	H
74.228	H	H	3-ciano-2-fluorfenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.229	H	H	3-ciano-4-fluorfenilo	H
74.230	H	H	3-ciano-5-fluorfenilo	H
74.231	H	H	5-ciano-2-fluorfenilo	H
74.232	H	H	4-ciano-2-fluorfenilo	H
74.233	H	H	4-ciano-3-fluorfenilo	H
74.234	H	H	2-fluor-3-metilfenilo	H
74.235	H	H	2-fluor-4-metilfenilo	H
74.236	H	H	2-fluor-5-metilfenilo	H
74.237	H	H	2-fluor-6-metilfenilo	H
74.238	H	H	3-fluor-2-metilfenilo	H
74.239	H	H	3-fluor-4-metilfenilo	H
74.240	H	H	3-fluor-5-metilfenilo	H
74.241	H	H	5-fluor-2-metilfenilo	H
74.242	H	H	4-fluor-2-metilfenilo	H
74.243	H	H	4-fluor-3-metilfenilo	H
74.244	H	H	piridin-2-ilo	H
74.245	H	H	piridin-3-ilo	H
74.246	H	H	piridin-4-ilo	H
74.247	H	H	3-cloropiridin-2-ilo	H
74.248	H	H	4-cloropiridin-2-ilo	H
74.249	H	H	5-cloropiridin-2-ilo	H
74.250	H	H	6-cloropiridin-2-ilo	H
74.251	H	H	2-cloropiridin-3-ilo	H
74.252	H	H	4-cloropiridin-3-ilo	H
74.253	H	H	5-cloropiridin-3-ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.254	H	H	2-cloropiridin-4-ilo	H
74.255	H	H	3-cloropiridin-4-ilo	H
74.256	H	H	2-cloropiridin-5-ilo	H
74.257	H	H	3-cianopiridin-2-ilo	H
74.258	H	H	4-cianopiridin-2-ilo	H
74.259	H	H	5-cianopiridin-2-ilo	H
74.260	H	H	6-cianopiridin-2-ilo	H
74.261	H	H	2-cianopiridin-3-ilo	H
74.262	H	H	4-cianopiridin-3-ilo	H
74.263	H	H	5-cianopiridin-3-ilo	H
74.264	H	H	2-cianopiridin-5-ilo	H
74.265	H	H	3-fluorpiridin-2-ilo	H
74.266	H	H	4-fluorpiridin-2-ilo	H
74.267	H	H	5-fluorpiridin-2-ilo	H
74.268	H	H	6-fluorpiridin-2-ilo	H
74.269	H	H	2-fluorpiridin-3-ilo	H
74.270	H	H	4-fluorpiridin-3-ilo	H
74.271	H	H	5-fluorpiridin-3-ilo	H
74.272	H	H	2-fluorpiridin-5-ilo	H
74.273	H	H	3-nitropiridin-2-ilo	H
74.274	H	H	4-nitropiridin-2-ilo	H
74.275	H	H	5-nitropiridin-2-ilo	H
74.276	H	H	6-nitropiridin-2-ilo	H
74.277	H	H	2-nitropiridin-3-ilo	H
74.278	H	H	4-nitropiridin-3-ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.279	H	H	5–nitropiridin–3–ilo	H
74.280	H	H	2–nitropiridin–5–ilo	H
74.281	H	H	3–trifluormetilpiridin–2–ilo	H
74.282	H	H	4–trifluormetilpiridin–2–ilo	H
74.283	H	H	5–trifluormetilpiridin–2–ilo	H
74.284	H	H	6–trifluormetilpiridin–2–ilo	H
74.285	H	H	2–trifluormetilpiridin–3–ilo	H
74.286	H	H	4–trifluormetilpiridin–3–ilo	H
74.287	H	H	5–trifluormetilpiridin–3–ilo	H
74.288	H	H	2–trifluormetilpiridin–5–ilo	H
74.289	H	H	2,6–bis(trifluormetil)piridin–3–ilo	H
74.290	H	H	2,6–bis(trifluormetil)piridin–4–ilo	H
74.291	H	H	3,5–bis(trifluormetil)piridin–2–ilo	H
74.292	H	H	2–tienilo	H
74.293	H	H	3–tienilo	H
74.294	H	H	5–cianotien–2–ilo	H
74.295	H	H	2–furilo	H
74.296	H	H	3–furilo	H
74.297	H	H	1–metil–1,2,3–triazol–4–ilo	H
74.298	H	H	2–metiltiopirimidin–4–ilo	H
74.299	H	H	5–metil–2–metiltiopirimidin–4– ilo	H
74.300	H	H	pirazin–2–ilo	H
74.301	H	H	3,6–dimetilpirazin–2–ilo	H
74.302	H	H	3–cianopirazin–2–ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.303	H	H	quinolin-2-ilo	H
74.304	H	H	3-etilquinolin-2-ilo	H
74.305	H	H	bencilo	H
74.306	H	H	4-fluorbencilo	H
74.307	H	H	4-clorobencilo	H
74.308	H	H	4-metilbencilo	H
74.309	H	H	2,4-dimetilbencilo	H
74.310	H	H	2,4,6-trimetilbencilo	H
74.311	H	H	CH ₃	CH ₃
74.312	H	H	CH ₂ CH ₃	CH ₃
74.313	H	H	<i>n</i> -propilo	CH ₃
74.314	H	H	isopropilo	CH ₃
74.315	H	H	<i>n</i> -butilo	CH ₃
74.316	H	H	isobutilo	CH ₃
74.317	H	H	<i>sec</i> -butilo	CH ₃
74.318	H	H	<i>terc</i> -butilo	CH ₃
74.319	H	H	vinilo	CH ₃
74.320	H	H	etinilo	CH ₃
74.321	H	H	trimetilsililetinilo	CH ₃
74.322	H	H	CH ₂ OH	CH ₃
74.323	H	H	CH ₂ OCH ₃	CH ₃
74.324	H	H	CH ₂ OCH ₂ CH ₃	CH ₃
74.325	H	H	CH ₂ OCH ₂ OCH ₃	CH ₃
74.326	H	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
74.327	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃

	R^6	R^8	R^9	R^{11}
74.328	H	H	CHO	CH ₃
74.329	H	H	COCH ₃	CH ₃
74.330	H	H	CO ₂ H	CH ₃
74.331	H	H	CO ₂ CH ₃	CH ₃
74.332	H	H	CO ₂ CH ₂ CH ₃	CH ₃
74.333	H	H	CONH ₂	CH ₃
74.334	H	H	CONHCH ₃	CH ₃
74.335	H	H	CONHCH ₂ CH ₃	CH ₃
74.336	H	H	CON(CH ₃) ₂	CH ₃
74.337	H	H	CON(CH ₂ -CH ₃) ₂	CH ₃
74.338	H	H	CON(CH ₃)OCH ₃	CH ₃
74.339	H	H	CH=NOH	CH ₃
74.340	H	H	CH=N-OCH ₃	CH ₃
74.341	H	H	CH=N-OCH ₂ CH ₃	CH ₃
74.342	H	H	C(CH ₃)=N-OH	CH ₃
74.343	H	H	C(CH ₃)=N-OCH ₃	CH ₃
74.344	H	H	CH ₂ OC(O)-NHCH ₃	CH ₃
74.345	H	H	CH ₂ NH ₂	CH ₃
74.346	H	H	CH ₂ NHCHO	CH ₃
74.347	H	H	CH ₂ NHC(O)CH ₃	CH ₃
74.348	H	H	CH ₂ NHC(O)OCH ₃	CH ₃
74.349	H	H	CH(OH)CH ₃	CH ₃
74.350	H	H	CH(CH ₃)OCH ₃	CH ₃
74.351	H	H	CN	CH ₃
74.352	H	H	CH ₂ SCH ₃	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.353	H	H	CH ₂ S(O)CH ₃	CH ₃
74.354	H	H	CH ₂ SO ₂ CH ₃	CH ₃
74.355	H	H	CH ₂ SCH ₂ CH ₃	CH ₃
74.356	H	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
74.357	H	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
74.358	H	H	OCH ₃	CH ₃
74.359	H	H	OCH ₂ CH ₃	CH ₃
74.360	H	H	CH(OCH ₃) ₂	CH ₃
74.361	H	H	CH(OCH ₂ CH ₃) ₂	CH ₃
74.362	H	H	ciclopropilo	CH ₃
74.363	H	H	ciclobutilo	CH ₃
74.364	H	H	ciclopentilo	CH ₃
74.365	H	H	ciclohexilo	CH ₃
74.366	H	H	F	CH ₃
74.367	H	H	Cl	CH ₃
74.368	H	H	Br	CH ₃
74.369	H	H	I	CH ₃
74.370	H	H	fenilo	CH ₃
74.371	H	H	2-acetilfenilo	CH ₃
74.372	H	H	3-acetilfenilo	CH ₃
74.373	H	H	4-acetilfenilo	CH ₃
74.374	H	H	2-clorofenilo	CH ₃
74.375	H	H	3-clorofenilo	CH ₃
74.376	H	H	4-clorofenilo	CH ₃
74.377	H	H	2-cianofenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.378	H	H	3–cianofenilo	CH ₃
74.379	H	H	4–cianofenilo	CH ₃
74.380	H	H	2–fluorfenilo	CH ₃
74.381	H	H	3–fluorfenilo	CH ₃
74.382	H	H	4–fluorfenilo	CH ₃
74.383	H	H	2–metoxifenilo	CH ₃
74.384	H	H	3–metoxifenilo	CH ₃
74.385	H	H	4–metoxifenilo	CH ₃
74.386	H	H	2–metilfenilo	CH ₃
74.387	H	H	3–metilfenilo	CH ₃
74.388	H	H	4–metilfenilo	CH ₃
74.389	H	H	2–nitrofenilo	CH ₃
74.390	H	H	3–nitrofenilo	CH ₃
74.391	H	H	4–nitrofenilo	CH ₃
74.392	H	H	2–tiometilfenilo	CH ₃
74.393	H	H	3–tiometilfenilo	CH ₃
74.394	H	H	4–tiometilfenilo	CH ₃
74.395	H	H	2–trifluormetoxifenilo	CH ₃
74.396	H	H	3–trifluormetoxifenilo	CH ₃
74.397	H	H	4–trifluormetoxifenilo	CH ₃
74.398	H	H	2–trifluormetilfenilo	CH ₃
74.399	H	H	3–trifluormetilfenilo	CH ₃
74.400	H	H	4–trifluormetilfenilo	CH ₃
74.401	H	H	2,3–diclorofenilo	CH ₃
74.402	H	H	2,4–diclorofenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.403	H	H	2,5–diclorofenilo	CH ₃
74.404	H	H	2,6–diclorofenilo	CH ₃
74.405	H	H	3,4–diclorofenilo	CH ₃
74.406	H	H	3,5–diclorofenilo	CH ₃
74.407	H	H	2,3–difluorfenilo	CH ₃
74.408	H	H	2,4–difluorfenilo	CH ₃
74.409	H	H	2,5–difluorfenilo	CH ₃
74.410	H	H	2,6–difluorfenilo	CH ₃
74.411	H	H	3,4–difluorfenilo	CH ₃
74.412	H	H	3,5–difluorfenilo	CH ₃
74.413	H	H	2,4,6–trifluorfenilo	CH ₃
74.414	H	H	2,4–dimetilfenilo	CH ₃
74.415	H	H	2,4,6–trimetilfenilo	CH ₃
74.416	H	H	3,4,5–trimetoxifenilo	CH ₃
74.417	H	H	2–cloro–3–cianofenilo	CH ₃
74.418	H	H	2–cloro–4–cianofenilo	CH ₃
74.419	H	H	2–cloro–5–cianofenilo	CH ₃
74.420	H	H	2–cloro–6–cianofenilo	CH ₃
74.421	H	H	3–cloro–2–cianofenilo	CH ₃
74.422	H	H	3–cloro–4–cianofenilo	CH ₃
74.423	H	H	3–cloro–5–cianofenilo	CH ₃
74.424	H	H	5–cloro–2–cianofenilo	CH ₃
74.425	H	H	4–cloro–2–cianofenilo	CH ₃
74.426	H	H	4–cloro–3–ciano–fenilo	CH ₃
74.427	H	H	2–cloro–3–fluorfenilo	CH ₃

	R ⁵	R ⁸	R ⁹	R ¹¹
74.428	H	H	2-cloro-4-fluorfenilo	CH ₃
74.429	H	H	2-cloro-5-fluor-fenilo	CH ₃
74.430	H	H	2-cloro-6-fluorfenilo	CH ₃
74.431	H	H	3-cloro-2-fluorfenilo	CH ₃
74.432	H	H	3-cloro-4-fluorfenilo	CH ₃
74.433	H	H	3-cloro-5-fluorfenilo	CH ₃
74.434	H	H	5-cloro-2-fluorfenilo	CH ₃
74.435	H	H	4-cloro-2-fluorfenilo	CH ₃
74.436	H	H	4-cloro-3-fluorfenilo	CH ₃
74.437	H	H	2-cloro-3-metilfenilo	CH ₃
74.438	H	H	2-cloro-4-metil fenilo	CH ₃
74.439	H	H	2-cloro-5-metilfenilo	CH ₃
74.440	H	H	2-cloro-6-metilfenilo	CH ₃
74.441	H	H	3-cloro-2-metilfenilo	CH ₃
74.442	H	H	3-cloro-4-metilfenilo	CH ₃
74.443	H	H	3-cloro-5-metilfenilo	CH ₃
74.444	H	H	5-cloro-2-metilfenilo	CH ₃
74.445	H	H	4-cloro-2-metilfenilo	CH ₃
74.446	H	H	4-cloro-3-metil fenilo	CH ₃
74.447	H	H	2-ciano-3-fluorfenilo	CH ₃
74.448	H	H	2-ciano-4-fluorfenilo	CH ₃
74.449	H	H	2-ciano-5-fluorfenilo	CH ₃
74.450	H	H	2-ciano-6-fluorfenilo	CH ₃
74.451	H	H	3-ciano-2-fluorfenilo	CH ₃
74.452	H	H	3-ciano-4-fluorfenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.453	H	H	3-ciano-5-fluorfenilo	CH ₃
74.454	H	H	5-ciano-2-fluorfenilo	CH ₃
74.455	H	H	4-ciano-2-fluorfenilo	CH ₃
74.456	H	H	4-ciano-3-fluorfenilo	CH ₃
74.457	H	H	2-fluor-3-metilfenilo	CH ₃
74.458	H	H	2-fluor-4-metilfenilo	CH ₃
74.459	H	H	2-fluor-5-metilfenilo	CH ₃
74.460	H	H	2-fluor-6-metilfenilo	CH ₃
74.461	H	H	3-fluor-2-metilfenilo	CH ₃
74.462	H	H	3-fluor-4-metilfenilo	CH ₃
74.463	H	H	3-fluor-5-metilfenilo	CH ₃
74.464	H	H	5-fluor-2-metilfenilo	CH ₃
74.465	H	H	4-fluor-2-metilfenilo	CH ₃
74.466	H	H	4-fluor-3-metilfenilo	CH ₃
74.467	H	H	piridin-2-ilo	CH ₃
74.468	H	H	piridin-3-ilo	CH ₃
74.469	H	H	piridin-4-ilo	CH ₃
74.470	H	H	3-cloropiridin-2-ilo	CH ₃
74.471	H	H	4-cloropiridin-2-ilo	CH ₃
74.472	H	H	5-cloropiridin-2-ilo	CH ₃
74.473	H	H	6-cloropiridin-2-ilo	CH ₃
74.474	H	H	2-cloropiridin-3-ilo	CH ₃
74.475	H	H	4-cloropiridin-3-ilo	CH ₃
74.476	H	H	5-cloropiridin-3-ilo	CH ₃
74.477	H	H	2-cloropiridin-4-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.478	H	H	3-cloropiridin-4-ilo	CH ₃
74.479	H	H	2-cloropiridin-5-ilo	CH ₃
74.480	H	H	3-cianopiridin-2-ilo	CH ₃
74.481	H	H	4-cianopiridin-2-ilo	CH ₃
74.482	H	H	5-cianopiridin-2-ilo	CH ₃
74.483	H	H	6-cianopiridin-2-ilo	CH ₃
74.484	H	H	2-cianopiridin-3-ilo	CH ₃
74.485	H	H	4-cianopiridin-3-ilo	CH ₃
74.486	H	H	5-cianopiridin-3-ilo	CH ₃
74.487	H	H	2-cianopiridin-5-ilo	CH ₃
74.488	H	H	3-fluorpiridin-2-ilo	CH ₃
74.489	H	H	4-fluorpiridin-2-ilo	CH ₃
74.490	H	H	5-fluorpiridin-2-ilo	CH ₃
74.491	H	H	6-fluorpiridin-2-ilo	CH ₃
74.492	H	H	2-fluorpiridin-3-ilo	CH ₃
74.493	H	H	4-fluorpiridin-3-ilo	CH ₃
74.494	H	H	5-fluorpiridin-3-ilo	CH ₃
74.495	H	H	2-fluorpiridin-5-ilo	CH ₃
74.496	H	H	3-nitropiridin-2-ilo	CH ₃
74.497	H	H	4-nitropiridin-2-ilo	CH ₃
74.498	H	H	5-nitropiridin-2-ilo	CH ₃
74.499	H	H	6-nitropiridin-2-ilo	CH ₃
74.500	H	H	2-nitropiridin-3-ilo	CH ₃
74.501	H	H	4-nitropiridin-3-ilo	CH ₃
74.502	H	H	5-nitropiridin-3-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.503	H	H	2-nitropiridin-5-ilo	CH ₃
74.504	H	H	3-trifluometilpiridin-2-ilo	CH ₃
74.505	H	H	4-trifluometilpiridin-2-ilo	CH ₃
74.506	H	H	5-trifluometilpiridin-2-ilo	CH ₃
74.507	H	H	6-trifluometilpiridin-2-ilo	CH ₃
74.508	H	H	2-trifluometilpiridin-3-ilo	CH ₃
74.509	H	H	4-trifluometilpiridin-3-ilo	CH ₃
74.510	H	H	5-trifluometilpiridin-3-ilo	CH ₃
74.511	H	H	2-trifluometilpiridin-5-ilo	CH ₃
74.512	H	H	2,6-bis(trifluometil)piridin-3-ilo	CH ₃
74.513	H	H	2,6-bis(trifluometil)piridin-4-ilo	CH ₃
74.514	H	H	3,5-bis(trifluometil)piridin-2-ilo	CH ₃
74.515	H	H	2-tienilo	CH ₃
74.516	H	H	3-tienilo	CH ₃
74.517	H	H	5-cianotien-2-ilo	CH ₃
74.518	H	H	2-furilo	CH ₃
74.519	H	H	3-furilo	CH ₃
74.520	H	H	1-metil-1,2,3-triazol-4-ilo	CH ₃
74.521	H	H	2-metiltiopirimidin-4-ilo	CH ₃
74.522	H	H	5-metil-2-metiltiopirimidin-4-ilo	CH ₃
74.523	H	H	pirazin-2-ilo	CH ₃
74.524	H	H	3,6-dimetilpirazin-2-ilo	CH ₃
74.525	H	H	3-cianopirazin-2-ilo	CH ₃
74.526	H	H	quinolin-2-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.527	H	H	3-etilquinolin-2-ilo	CH ₃
74.528	H	H	bencilo	CH ₃
74.529	H	H	4-fluorbencilo	CH ₃
74.530	H	H	4-clorobencilo	CH ₃
74.531	H	H	4-metilbencilo	CH ₃
74.532	H	H	2,4-dimetilbencilo	CH ₃
74.533	H	H	2,4,6-trimetilbencilo	CH ₃
74.534	CH ₃	H	CH ₃	H
74.535	CH ₃	H	CH ₂ CH ₃	H
74.536	CH ₃	H	<i>n</i> -propilo	H
74.537	CH ₃	H	isopropilo	H
74.538	CH ₃	H	<i>n</i> -butilo	H
74.539	CH ₃	H	isobutilo	H
74.540	CH ₃	H	<i>sec</i> -butilo	H
74.541	CH ₃	H	<i>terc</i> -butilo	H
74.542	CH ₃	H	vinilo	H
74.543	CH ₃	H	etinilo	H
74.544	CH ₃	H	trimetilsililetinilo	H
74.545	CH ₃	H	CH ₂ OH	H
74.546	CH ₃	H	CH ₂ OCH ₃	H
74.547	CH ₃	H	CH ₂ OCH ₂ CH ₃	H
74.548	CH ₃	H	CH ₂ OCH ₂ OCH ₃	H
74.549	CH ₃	H	CH ₂ OCH ₂ OCH ₂ CH ₃	H
74.550	CH ₃	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H
74.551	CH ₃	H	CHO	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.552	CH ₃	H	COCH ₃	H
74.553	CH ₃	H	CO ₂ H	H
74.554	CH ₃	H	CO ₂ CH ₃	H
74.555	CH ₃	H	CO ₂ CH ₂ CH ₃	H
74.556	CH ₃	H	CONH ₂	H
74.557	CH ₃	H	CONHCH ₃	H
74.558	CH ₃	H	CONHCH ₂ CH ₃	H
74.559	CH ₃	H	CON(CH ₃) ₂	H
74.560	CH ₃	H	CON(CH ₂ -CH ₃) ₂	H
74.561	CH ₃	H	CON(CH ₃)OCH ₃	H
74.562	CH ₃	H	CH=NOH	H
74.563	CH ₃	H	CH=N-OCH ₃	H
74.564	CH ₃	H	CH=N-OCH ₂ CH ₃	H
74.565	CH ₃	H	C(CH ₃)=N-OH	H
74.566	CH ₃	H	C(CH ₃)=N-OCH ₃	H
74.567	CH ₃	H	CH ₂ OC(O)-NHCH ₃	H
74.568	CH ₃	H	CH ₂ NH ₂	H
74.569	CH ₃	H	CH ₂ NHCHO	H
74.570	CH ₃	H	CH ₂ NHC(O)CH ₃	H
74.571	CH ₃	H	CH ₂ NHC(O)OCH ₃	H
74.572	CH ₃	H	CH(OH)CH ₃	H
74.573	CH ₃	H	CH(CH ₃)OCH ₃	H
74.574	CH ₃	H	CN	H
74.575	CH ₃	H	CH ₂ SCH ₃	H
74.576	CH ₃	H	CH ₂ S(O)CH ₃	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.577	CH ₃	H	CH ₂ SO ₂ CH ₃	H
74.578	CH ₃	H	CH ₂ SCH ₂ CH ₃	H
74.579	CH ₃	H	CH ₂ S(O)CH ₂ CH ₃	H
74.580	CH ₃	H	CH ₂ SO ₂ CH ₂ CH ₃	H
74.581	CH ₃	H	OCH ₃	H
74.582	CH ₃	H	OCH ₂ CH ₃	H
74.583	CH ₃	H	CH(OCH ₃) ₂	H
74.584	CH ₃	H	CH(OCH ₂ CH ₃) ₂	H
74.585	CH ₃	H	ciclopropilo	H
74.586	CH ₃	H	ciclobutilo	H
74.587	CH ₃	H	ciclopentilo	H
74.588	CH ₃	H	ciclohexilo	H
74.589	CH ₃	H	F	H
74.590	CH ₃	H	Cl	H
74.591	CH ₃	H	Br	H
74.592	CH ₃	H	I	H
74.593	CH ₃	H	fenilo	H
74.594	CH ₃	H	2-acetilfenilo	H
74.595	CH ₃	H	3-acetilfenilo	H
74.596	CH ₃	H	4-acetilfenilo	H
74.597	CH ₃	H	2-clorofenilo	H
74.598	CH ₃	H	3-clorofenilo	H
74.599	CH ₃	H	4-clorofenilo	H
74.600	CH ₃	H	2-cianofenilo	H
74.601	CH ₃	H	3-cianofenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.602	CH ₃	H	4–cianofenilo	H
74.603	CH ₃	H	2–fluorfenilo	H
74.604	CH ₃	H	3–fluorfenilo	H
74.605	CH ₃	H	4–fluorfenilo	H
74.606	CH ₃	H	2–metoxifenilo	H
74.607	CH ₃	H	3–metoxifenilo	H
74.608	CH ₃	H	4–metoxifenilo	H
74.609	CH ₃	H	2–metilfenilo	H
74.610	CH ₃	H	3–metilfenilo	H
74.611	CH ₃	H	4–metilfenilo	H
74.612	CH ₃	H	2–nitrofenilo	H
74.613	CH ₃	H	3–nitrofenilo	H
74.614	CH ₃	H	4–nitrofenilo	H
74.615	CH ₃	H	2–tiometilfenilo	H
74.616	CH ₃	H	3–tiometilfenilo	H
74.617	CH ₃	H	4–tiometilfenilo	H
74.618	CH ₃	H	2–trifluormetoxifenilo	H
74.619	CH ₃	H	3–trifluormetoxifenilo	H
74.620	CH ₃	H	4–trifluormetoxifenilo	H
74.621	CH ₃	H	2–trifluormetilfenilo	H
74.622	CH ₃	H	3–trifluormetilfenilo	H
74.623	CH ₃	H	4–trifluormetilfenilo	H
74.624	CH ₃	H	2,3–diclorofenilo	H
74.625	CH ₃	H	2,4–diclorofenilo	H
74.626	CH ₃	H	2,5–diclorofenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.627	CH ₃	H	2,6–diclorofenilo	H
74.628	CH ₃	H	3,4–diclorofenilo	H
74.629	CH ₃	H	3,5–diclorofenilo	H
74.630	CH ₃	H	2,3–difluorfenilo	H
74.631	CH ₃	H	2,4–difluorfenilo	H
74.632	CH ₃	H	2,5–difluorfenilo	H
74.633	CH ₃	H	2,6–difluorfenilo	H
74.634	CH ₃	H	3,4–difluorfenilo	H
74.635	CH ₃	H	3,5–difluorfenilo	H
74.636	CH ₃	H	2,4,6–trifluorfenilo	H
74.637	CH ₃	H	2,4–dimetilfenilo	H
74.638	CH ₃	H	2,4,6–trimetilfenilo	H
74.639	CH ₃	H	3,4,5–trimetoxifenilo	H
74.640	CH ₃	H	2–cloro–3–cianofenilo	H
74.641	CH ₃	H	2–cloro–4–cianofenilo	H
74.642	CH ₃	H	2–cloro–5–cianofenilo	H
74.643	CH ₃	H	2–cloro–6–cianofenilo	H
74.644	CH ₃	H	3–cloro–2–cianofenilo	H
74.645	CH ₃	H	3–cloro–4–cianofenilo	H
74.646	CH ₃	H	3–cloro–5–cianofenilo	H
74.647	CH ₃	H	5–cloro–2–cianofenilo	H
74.648	CH ₃	H	4–cloro–2–cianofenilo	H
74.649	CH ₃	H	4–cloro–3–cianofenilo	H
74.650	CH ₃	H	2–cloro–3–fluorfenilo	H
74.651	CH ₃	H	2–cloro–4–fluorfenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.652	CH ₃	H	2-cloro-5-fluorfenilo	H
74.653	CH ₃	H	2-cloro-6-fluorfenilo	H
74.654	CH ₃	H	3-cloro-2-fluorfenilo	H
74.655	CH ₃	H	3-cloro-4-fluorfenilo	H
74.656	CH ₃	H	3-cloro-5-fluorfenilo	H
74.657	CH ₃	H	5-cloro-2-fluorfenilo	H
74.658	CH ₃	H	4-cloro-2-fluorfenilo	H
74.659	CH ₃	H	4-cloro-3-fluorfenilo	H
74.660	CH ₃	H	2-cloro-3-metilfenilo	H
74.661	CH ₃	H	2-cloro-4-metilfenilo	H
74.662	CH ₃	H	2-cloro-5-metilfenilo	H
74.663	CH ₃	H	2-cloro-6-metilfenilo	H
74.664	CH ₃	H	3-cloro-2-metilfenilo	H
74.665	CH ₃	H	3-cloro-4-metilfenilo	H
74.666	CH ₃	H	3-cloro-5-metilfenilo	H
74.667	CH ₃	H	5-cloro-2-metilfenilo	H
74.668	CH ₃	H	4-cloro-2-metilfenilo	H
74.669	CH ₃	H	4-cloro-3-metilfenilo	H
74.670	CH ₃	H	2-ciano-3-fluorfenilo	H
74.671	CH ₃	H	2-ciano-4-fluorfenilo	H
74.672	CH ₃	H	2-ciano-5-fluorfenilo	H
74.673	CH ₃	H	2-ciano-6-fluorfenilo	H
74.674	CH ₃	H	3-ciano-2-fluorfenilo	H
74.675	CH ₃	H	3-ciano-4-fluorfenilo	H
74.676	CH ₃	H	3-ciano-5-fluorfenilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.677	CH ₃	H	5-ciano-2-fluorfenilo	H
74.678	CH ₃	H	4-ciano-2-fluorfenilo	H
74.679	CH ₃	H	4-ciano-3-fluorfenilo	H
74.680	CH ₃	H	2-fluor-3-metilfenilo	H
74.681	CH ₃	H	2-fluor-4-metilfenilo	H
74.682	CH ₃	H	2-fluor-5-metilfenilo	H
74.683	CH ₃	H	2-fluor-6-metilfenilo	H
74.684	CH ₃	H	3-fluor-2-metilfenilo	H
74.685	CH ₃	H	3-fluor-4-metilfenilo	H
74.686	CH ₃	H	3-fluor-5-metilfenilo	H
74.687	CH ₃	H	5-fluor-2-metilfenilo	H
74.688	CH ₃	H	4-fluor-2-metilfenilo	H
74.689	CH ₃	H	4-fluor-3-metilfenilo	H
74.690	CH ₃	H	piridin-2-ilo	H
74.691	CH ₃	H	piridin-3-ilo	H
74.692	CH ₃	H	piridin-4-ilo	H
74.693	CH ₃	H	3-cloropiridin-2-ilo	H
74.694	CH ₃	H	4-cloropiridin-2-ilo	H
74.695	CH ₃	H	5-cloropiridin-2-ilo	H
74.696	CH ₃	H	6-cloropiridin-2-ilo	H
74.697	CH ₃	H	2-cloropiridin-3-ilo	H
74.698	CH ₃	H	4-cloropiridin-3-ilo	H
74.699	CH ₃	H	5-cloropiridin-3-ilo	H
74.700	CH ₃	H	2-cloropiridin-4-ilo	H
74.701	CH ₃	H	3-cloropiridin-4-ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.702	CH ₃	H	2-cloropiridin-5-ilo	H
74.703	CH ₃	H	3-cianopiridin-2-ilo	H
74.704	CH ₃	H	4-cianopiridin-2-ilo	H
74.705	CH ₃	H	5-cianopiridin-2-ilo	H
74.706	CH ₃	H	6-cianopiridin-2-ilo	H
74.707	CH ₃	H	2-cianopiridin-3-ilo	H
74.708	CH ₃	H	4-cianopiridin-3-ilo	H
74.709	CH ₃	H	5-cianopiridin-3-ilo	H
74.710	CH ₃	H	2-cianopiridin-5-ilo	H
74.711	CH ₃	H	3-fluorpiridin-2-ilo	H
74.712	CH ₃	H	4-fluorpiridin-2-ilo	H
74.713	CH ₃	H	5-fluorpiridin-2-ilo	H
74.714	CH ₃	H	6-fluorpiridin-2-ilo	H
74.715	CH ₃	H	2-fluorpiridin-3-ilo	H
74.716	CH ₃	H	4-fluorpiridin-3-ilo	H
74.717	CH ₃	H	5-fluorpiridin-3-ilo	H
74.718	CH ₃	H	2-fluorpiridin-5-ilo	H
74.719	CH ₃	H	3-nitropiridin-2-ilo	H
74.720	CH ₃	H	4-nitropiridin-2-ilo	H
74.721	CH ₃	H	5-nitropiridin-2-ilo	H
74.722	CH ₃	H	6-nitropiridin-2-ilo	H
74.723	CH ₃	H	2-nitropiridin-3-ilo	H
74.724	CH ₃	H	4-nitropiridin-3-ilo	H
74.725	CH ₃	H	5-nitropiridin-3-ilo	H
74.726	CH ₃	H	2-nitropiridin-5-ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.727	CH ₃	H	3-trifluormetilpiridin-2-ilo	H
74.728	CH ₃	H	4-trifluormetilpiridin-2-ilo	H
74.729	CH ₃	H	5-trifluormetilpiridin-2-ilo	H
74.730	CH ₃	H	6-trifluormetilpiridin-2-ilo	H
74.731	CH ₃	H	2-trifluormetilpiridin-3-ilo	H
74.732	CH ₃	H	4-trifluormetilpiridin-3-ilo	H
74.733	CH ₃	H	5-trifluormetilpiridin-3-ilo	H
74.734	CH ₃	H	2-trifluormetilpiridin-5-ilo	H
74.735	CH ₃	H	2,6-bis(trifluormetil)piridin-3-ilo	H
74.736	CH ₃	H	2,6-bis(trifluormetil)piridin-4-ilo	H
74.737	CH ₃	H	3,5-bis(trifluormetil)piridin-2-ilo	H
74.738	CH ₃	H	2-tienilo	H
74.739	CH ₃	H	3-tienilo	H
74.740	CH ₃	H	5-cianotien-2-ilo	H
74.741	CH ₃	H	2-furilo	H
74.742	CH ₃	H	3-furilo	H
74.743	CH ₃	H	1-metil-1,2,3-triazol-4-ilo	H
74.744	CH ₃	H	2-metiltiopirimidin-4-ilo	H
74.745	CH ₃	H	5-metil-2-metiltiopirimidin-4-ilo	H
74.746	CH ₃	H	pirazin-2-ilo	H
74.747	CH ₃	H	3,6-dimetilpirazin-2-ilo	H
74.748	CH ₃	H	3-cianopirazin-2-ilo	H
74.749	CH ₃	H	quinolin-2-ilo	H
74.750	CH ₃	H	3-etilquinolin-2-ilo	H

	R ⁶	R ⁸	R ⁹	R ¹¹
74.751	CH ₃	H	bencilo	H
74.752	CH ₃	H	4-fluorbencilo	H
74.753	CH ₃	H	4-clorobencilo	H
74.754	CH ₃	H	4-metilbencilo	H
74.755	CH ₃	H	2,4-dimetilbencilo	H
74.756	CH ₃	H	2,4,6-trimetilbencilo	H
74.757	CH ₃	H	H	CH ₃
74.758	CH ₃	H	CH ₃	CH ₃
74.759	CH ₃	H	CH ₂ CH ₃	CH ₃
74.760	CH ₃	H	<i>n</i> -propilo	CH ₃
74.761	CH ₃	H	isopropilo	CH ₃
74.762	CH ₃	H	<i>n</i> -butilo	CH ₃
74.763	CH ₃	H	isobutilo	CH ₃
74.764	CH ₃	H	<i>sec</i> -butilo	CH ₃
74.765	CH ₃	H	<i>terc</i> -butilo	CH ₃
74.766	CH ₃	H	vinilo	CH ₃
74.767	CH ₃	H	etinilo	CH ₃
74.768	CH ₃	H	trimetilsililetinilo	CH ₃
74.769	CH ₃	H	CH ₂ OH	CH ₃
74.770	CH ₃	H	CH ₂ OCH ₃	CH ₃
74.771	CH ₃	H	CH ₂ OCH ₂ CH ₃	CH ₃
74.772	CH ₃	H	CH ₂ OCH ₂ OCH ₃	CH ₃
74.773	CH ₃	H	CH ₂ OCH ₂ OCH ₂ CH ₃	CH ₃
74.774	CH ₃	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃
74.775	CH ₃	H	CHO	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.776	CH ₃	H	COCH ₃	CH ₃
74.777	CH ₃	H	CO ₂ H	CH ₃
74.778	CH ₃	H	CO ₂ CH ₃	CH ₃
74.779	CH ₃	H	CO ₂ CH ₂ CH ₃	CH ₃
74.780	CH ₃	H	CONH ₂	CH ₃
74.781	CH ₃	H	CONHCH ₃	CH ₃
74.782	CH ₃	H	CONHCH ₂ CH ₃	CH ₃
74.783	CH ₃	H	CON(CH ₃) ₂	CH ₃
74.784	CH ₃	H	CON(CH ₂ –CH ₃) ₂	CH ₃
74.785	CH ₃	H	CON(CH ₃)OCH ₃	CH ₃
74.786	CH ₃	H	CH=NOH	CH ₃
74.787	CH ₃	H	CH=N–OCH ₃	CH ₃
74.788	CH ₃	H	CH=N–OCH ₂ CH ₃	CH ₃
74.789	CH ₃	H	C(CH ₃)=N–OH	CH ₃
74.790	CH ₃	H	C(CH ₃)=N–OCH ₃	CH ₃
74.791	CH ₃	H	CH ₂ OC(O)–NHCH ₃	CH ₃
74.792	CH ₃	H	CH ₂ NH ₂	CH ₃
74.793	CH ₃	H	CH ₂ NHCHO	CH ₃
74.794	CH ₃	H	CH ₂ NHC(O)CH ₃	CH ₃
74.795	CH ₃	H	CH ₂ NHC(O)OCH ₃	CH ₃
74.796	CH ₃	H	CH(OH)CH ₃	CH ₃
74.797	CH ₃	H	CH(CH ₃)OCH ₃	CH ₃
74.798	CH ₃	H	CN	CH ₃
74.799	CH ₃	H	CH ₂ SCH ₃	CH ₃
74.800	CH ₃	H	CH ₂ S(O)CH ₃	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.801	CH ₃	H	CH ₂ SO ₂ CH ₃	CH ₃
74.802	CH ₃	H	CH ₂ SCH ₂ CH ₃	CH ₃
74.803	CH ₃	H	CH ₂ S(O)CH ₂ CH ₃	CH ₃
74.804	CH ₃	H	CH ₂ SO ₂ CH ₂ CH ₃	CH ₃
74.805	CH ₃	H	OCH ₃	CH ₃
74.806	CH ₃	H	OCH ₂ CH ₃	CH ₃
74.807	CH ₃	H	CH(OCH ₃) ₂	CH ₃
74.808	CH ₃	H	CH(OCH ₂ CH ₃) ₂	CH ₃
74.809	CH ₃	H	ciclopropilo	CH ₃
74.810	CH ₃	H	ciclobutilo	CH ₃
74.811	CH ₃	H	ciclopentilo	CH ₃
74.812	CH ₃	H	ciclohexilo	CH ₃
74.813	CH ₃	H	F	CH ₃
74.814	CH ₃	H	Cl	CH ₃
74.815	CH ₃	H	Br	CH ₃
74.816	CH ₃	H	I	CH ₃
74.817	CH ₃	H	fenilo	CH ₃
74.818	CH ₃	H	2-acetilfenilo	CH ₃
74.819	CH ₃	H	3-acetilfenilo	CH ₃
74.820	CH ₃	H	4-acetilfenilo	CH ₃
74.821	CH ₃	H	2-clorofenilo	CH ₃
74.822	CH ₃	H	3-clorofenilo	CH ₃
74.823	CH ₃	H	4-clorofenilo	CH ₃
74.824	CH ₃	H	2-cianofenilo	CH ₃
74.825	CH ₃	H	3-cianofenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.826	CH ₃	H	4–cianofenilo	CH ₃
74.827	CH ₃	H	2–fluorfenilo	CH ₃
74.828	CH ₃	H	3–fluorfenilo	CH ₃
74.829	CH ₃	H	4–fluorfenilo	CH ₃
74.830	CH ₃	H	2–metoxifenilo	CH ₃
74.831	CH ₃	H	3–metoxifenilo	CH ₃
74.832	CH ₃	H	4–metoxifenilo	CH ₃
74.833	CH ₃	H	2–metilfenilo	CH ₃
74.834	CH ₃	H	3–metilfenilo	CH ₃
74.835	CH ₃	H	4–metilfenilo	CH ₃
74.836	CH ₃	H	2–nitrofenilo	CH ₃
74.837	CH ₃	H	3–nitrofenilo	CH ₃
74.838	CH ₃	H	4–nitrofenilo	CH ₃
74.839	CH ₃	H	2–tiometilfenilo	CH ₃
74.840	CH ₃	H	3–tiometilfenilo	CH ₃
74.841	CH ₃	H	4–tiometilfenilo	CH ₃
74.842	CH ₃	H	2–trifluormetoxifenilo	CH ₃
74.843	CH ₃	H	3–trifluormetoxifenilo	CH ₃
74.844	CH ₃	H	4–trifluormetoxifenilo	CH ₃
74.845	CH ₃	H	2–trifluormetilfenilo	CH ₃
74.846	CH ₃	H	3–trifluormetilfenilo	CH ₃
74.847	CH ₃	H	4–trifluormetilfenilo	CH ₃
74.848	CH ₃	H	2,3–diclorofenilo	CH ₃
74.849	CH ₃	H	2,4–diclorofenilo	CH ₃
74.850	CH ₃	H	2,5–diclorofenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.851	CH ₃	H	2,6-diclorofenilo	CH ₃
74.852	CH ₃	H	3,4-diclorofenilo	CH ₃
74.853	CH ₃	H	3,5-diclorofenilo	CH ₃
74.854	CH ₃	H	2,3-difluorfenilo	CH ₃
74.855	CH ₃	H	2,4-difluorfenilo	CH ₃
74.856	CH ₃	H	2,5-difluorfenilo	CH ₃
74.857	CH ₃	H	2,6-difluorfenilo	CH ₃
74.858	CH ₃	H	3,4-difluorfenilo	CH ₃
74.859	CH ₃	H	3,5-difluorfenilo	CH ₃
74.860	CH ₃	H	2,4,6-trifluorfenilo	CH ₃
74.861	CH ₃	H	2,4-dimetilfenilo	CH ₃
74.862	CH ₃	H	2,4,6-trimetilfenilo	CH ₃
74.863	CH ₃	H	3,4,5-trimetoxifenilo	CH ₃
74.864	CH ₃	H	2-cloro-3-cianofenilo	CH ₃
74.865	CH ₃	H	2-cloro-4-cianofenilo	CH ₃
74.866	CH ₃	H	2-cloro-5-cianofenilo	CH ₃
74.867	CH ₃	H	2-cloro-6-cianofenilo	CH ₃
74.868	CH ₃	H	3-cloro-2-cianofenilo	CH ₃
74.869	CH ₃	H	3-cloro-4-cianofenilo	CH ₃
74.870	CH ₃	H	3-cloro-5-cianofenilo	CH ₃
74.871	CH ₃	H	5-cloro-2-cianofenilo	CH ₃
74.872	CH ₃	H	4-cloro-2-cianofenilo	CH ₃
74.873	CH ₃	H	4-cloro-3-cianofenilo	CH ₃
74.874	CH ₃	H	2-cloro-3-fluorfenilo	CH ₃
74.875	CH ₃	H	2-cloro-4-fluorfenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.876	CH ₃	H	2-cloro-5-fluorfenilo	CH ₃
74.877	CH ₃	H	2-cloro-6-fluorfenilo	CH ₃
74.878	CH ₃	H	3-cloro-2-fluorfenilo	CH ₃
74.879	CH ₃	H	3-cloro-4-fluorfenilo	CH ₃
74.880	CH ₃	H	3-cloro-5-fluorfenilo	CH ₃
74.881	CH ₃	H	5-cloro-2-fluorfenilo	CH ₃
74.882	CH ₃	H	4-cloro-2-fluorfenilo	CH ₃
74.883	CH ₃	H	4-cloro-3-fluorfenilo	CH ₃
74.884	CH ₃	H	2-cloro-3-metilfenilo	CH ₃
74.885	CH ₃	H	2-cloro-4-metilfenilo	CH ₃
74.886	CH ₃	H	2-cloro-5-metilfenilo	CH ₃
74.887	CH ₃	H	2-cloro-6-metilfenilo	CH ₃
74.888	CH ₃	H	3-cloro-2-metilfenilo	CH ₃
74.889	CH ₃	H	3-cloro-4-metilfenilo	CH ₃
74.890	CH ₃	H	3-cloro-5-metilfenilo	CH ₃
74.891	CH ₃	H	5-cloro-2-metilfenilo	CH ₃
74.892	CH ₃	H	4-cloro-2-metilfenilo	CH ₃
74.893	CH ₃	H	4-cloro-3-metilfenilo	CH ₃
74.894	CH ₃	H	2-ciano-3-fluorfenilo	CH ₃
74.895	CH ₃	H	2-ciano-4-fluorfenilo	CH ₃
74.896	CH ₃	H	2-ciano-5-fluorfenilo	CH ₃
74.897	CH ₃	H	2-ciano-6-fluorfenilo	CH ₃
74.898	CH ₃	H	3-ciano-2-fluorfenilo	CH ₃
74.899	CH ₃	H	3-ciano-4-fluorfenilo	CH ₃
74.901	CH ₃	H	3-ciano-5-fluorfenilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.902	CH ₃	H	5-ciano-2-fluorfenilo	CH ₃
74.903	CH ₃	H	4-ciano-2-fluorfenilo	CH ₃
74.904	CH ₃	H	4-ciano-3-fluorfenilo	CH ₃
74.905	CH ₃	H	2-fluor-3-metilfenilo	CH ₃
74.906	CH ₃	H	2-fluor-4-metilfenilo	CH ₃
74.907	CH ₃	H	2-fluor-5-metilfenilo	CH ₃
74.908	CH ₃	H	2-fluor-6-metilfenilo	CH ₃
74.909	CH ₃	H	3-fluor-2-metilfenilo	CH ₃
74.910	CH ₃	H	3-fluor-4-metilfenilo	CH ₃
74.911	CH ₃	H	3-fluor-5-metilfenilo	CH ₃
74.912	CH ₃	H	5-fluor-2-metilfenilo	CH ₃
74.913	CH ₃	H	4-fluor-2-metilfenilo	CH ₃
74.914	CH ₃	H	4-fluor-3-metilfenilo	CH ₃
74.915	CH ₃	H	piridin-2-ilo	CH ₃
74.916	CH ₃	H	piridin-3-ilo	CH ₃
74.917	CH ₃	H	piridin-4-ilo	CH ₃
74.918	CH ₃	H	3-cloropiridin-2-ilo	CH ₃
74.919	CH ₃	H	4-cloropiridin-2-ilo	CH ₃
74.920	CH ₃	H	5-cloropiridin-2-ilo	CH ₃
74.921	CH ₃	H	6-cloropiridin-2-ilo	CH ₃
74.922	CH ₃	H	2-cloropiridin-3-ilo	CH ₃
74.923	CH ₃	H	4-cloropiridin-3-ilo	CH ₃
74.924	CH ₃	H	5-cloropiridin-3-ilo	CH ₃
74.925	CH ₃	H	2-cloropiridin-4-ilo	CH ₃
74.926	CH ₃	H	3-cloropiridin-4-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.927	CH ₃	H	2-cloropiridin-5-ilo	CH ₃
74.928	CH ₃	H	3-cianopiridin-2-ilo	CH ₃
74.929	CH ₃	H	4-cianopiridin-2-ilo	CH ₃
74.930	CH ₃	H	5-cianopiridin-2-ilo	CH ₃
74.931	CH ₃	H	6-cianopiridin-2-ilo	CH ₃
74.932	CH ₃	H	2-cianopiridin-3-ilo	CH ₃
74.933	CH ₃	H	4-cianopiridin-3-ilo	CH ₃
74.934	CH ₃	H	5-cianopiridin-3-ilo	CH ₃
74.935	CH ₃	H	2-cianopiridin-5-ilo	CH ₃
74.936	CH ₃	H	3-fluorpiridin-2-ilo	CH ₃
74.937	CH ₃	H	4-fluorpiridin-2-ilo	CH ₃
74.938	CH ₃	H	5-fluorpiridin-2-ilo	CH ₃
74.939	CH ₃	H	6-fluorpiridin-2-ilo	CH ₃
74.940	CH ₃	H	2-fluorpiridin-3-ilo	CH ₃
74.941	CH ₃	H	4-fluorpiridin-3-ilo	CH ₃
74.942	CH ₃	H	5-fluorpiridin-3-ilo	CH ₃
74.943	CH ₃	H	2-fluorpiridin-5-ilo	CH ₃
74.944	CH ₃	H	3-nitropiridin-2-ilo	CH ₃
74.945	CH ₃	H	4-nitropiridin-2-ilo	CH ₃
74.946	CH ₃	H	5-nitropiridin-2-ilo	CH ₃
74.947	CH ₃	H	6-nitropiridin-2-ilo	CH ₃
74.948	CH ₃	H	2-nitropiridin-3-ilo	CH ₃
74.949	CH ₃	H	4-nitropiridin-3-ilo	CH ₃
74.950	CH ₃	H	5-nitropiridin-3-ilo	CH ₃
74.951	CH ₃	H	2-nitropiridin-5-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.952	CH ₃	H	3-trifluormetilpiridin-2-ilo	CH ₃
74.953	CH ₃	H	4-trifluormetilpiridin-2-ilo	CH ₃
74.954	CH ₃	H	5-trifluormetilpiridin-2-ilo	CH ₃
74.955	CH ₃	H	6-trifluormetilpiridin-2-ilo	CH ₃
74.956	CH ₃	H	2-trifluormetilpiridin-3-ilo	CH ₃
74.957	CH ₃	H	4-trifluormetilpiridin-3-ilo	CH ₃
74.958	CH ₃	H	5-trifluormetilpiridin-3-ilo	CH ₃
74.959	CH ₃	H	2-trifluormetilpiridin-5-ilo	CH ₃
74.960	CH ₃	H	2,6-bis(trifluormetil)piridin-3-ilo	CH ₃
74.961	CH ₃	H	2,6-bis(trifluormetil)piridin-4-ilo	CH ₃
74.962	CH ₃	H	3,5-bis(trifluormetil)piridin-2-ilo	CH ₃
74.963	CH ₃	H	2-tienilo	CH ₃
74.964	CH ₃	H	3-tienilo	CH ₃
74.965	CH ₃	H	5-cianotien-2-ilo	CH ₃
74.966	CH ₃	H	2-furilo	CH ₃
74.967	CH ₃	H	3-furilo	CH ₃
74.968	CH ₃	H	1-metil-1,2,3-triazol-4-ilo	CH ₃
74.969	CH ₃	H	2-metiltiopirimidin-4-ilo	CH ₃
74.970	CH ₃	H	5-metil-2-metiltiopirimidin-4-ilo	CH ₃
74.971	CH ₃	H	pirazin-2-ilo	CH ₃
74.972	CH ₃	H	3,6-dimetilpirazin-2-ilo	CH ₃
74.973	CH ₃	H	3-cianopirazin-2-ilo	CH ₃
74.974	CH ₃	H	quinolin-2-ilo	CH ₃
74.975	CH ₃	H	3-etilquinolin-2-ilo	CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.976	CH ₃	H	bencilo	CH ₃
74.977	CH ₃	H	4-fluorbencilo	CH ₃
74.978	CH ₃	H	4-clorobencilo	CH ₃
74.979	CH ₃	H	4-metilbencilo	CH ₃
74.980	CH ₃	H	2,4-dimetilbencilo	CH ₃
74.981	CH ₃	H	2,4,6-trimetilbencilo	CH ₃
74.982	CH ₃	H	H	CH ₂ OH
74.983	CH ₃	H	H	CH ₂ OCH ₃
74.984	CH ₃	H	H	CH ₂ OCH ₂ CH ₃
74.985	CH ₃	H	H	CHO
74.986	CH ₃	H	H	COCH ₃
74.987	CH ₃	H	H	CO ₂ H
74.988	CH ₃	H	H	CO ₂ CH ₃
74.989	CH ₃	H	H	CO ₂ CH ₂ CH ₃
74.990	CH ₃	H	H	CONH ₂
74.991	CH ₃	H	H	CONHCH ₃
74.992	CH ₃	H	H	CONHCH ₂ CH ₃
74.993	CH ₃	H	H	CON(CH ₃) ₂
74.994	CH ₃	H	H	CON-(CH ₂ CH ₃) ₂
74.995	CH ₃	H	H	CON(CH ₃)O-CH ₃
74.996	CH ₃	H	H	CH=NOH
74.997	CH ₃	H	H	CH=NOCH ₃
74.998	CH ₃	H	H	CH=NOCH ₂ -CH ₃
74.999	CH ₃	H	H	C(CH ₃)=NOH
74.1000	CH ₃	H	H	C(CH ₃)=NO-CH ₃

	R ⁶	R ⁸	R ⁹	R ¹¹
74.1001	CH ₃	H	H	CH ₂ OC(O)NH-CH ₃
74.1002	CH ₃	H	H	CH ₂ NH ₂
74.1003	CH ₃	H	H	CH ₂ NHCHO
74.1004	CH ₃	H	H	CH ₂ NHC(O)-CH ₃
74.1005	CH ₃	H	H	CH ₂ NHC(O)OCH ₃
74.1006	CH ₃	H	H	NHCO ₂ CH ₃
74.1007	CH ₃	H	H	NHCO ₂ -C(CH ₃) ₃
74.1008	CH ₃	H	H	CH(OH)CH ₃
74.1009	CH ₃	H	H	CH(CH ₃)OCH ₃
74.1010	CH ₃	H	H	CN
74.1011	CH ₃	H	H	CH ₂ SCH ₃
74.1012	CH ₂	H	H	CH ₂ S(O)CH ₃
74.1013	CH ₃	H	H	CH ₂ SO ₂ CH ₃
74.1014	CH ₃	H	H	CH ₂ SCH ₂ CH ₃
74.1015	CH ₃	H	H	CH ₂ S(O)CH ₂ -CH ₃
74.1016	CH ₃	H	H	CH ₂ SO ₂ CH ₂ -CH ₃
74.1017	CH ₃	H	H	OCH ₃
74.1018	CH ₃	H	H	OCH ₂ CH ₃
74.1019	CH ₃	H	H	CH(OCH ₃) ₂
74.1020	CH ₃	H	H	CH-(OCH ₂ CH ₃) ₂
74.1021	CH ₃	H	H	CH ₂ CH ₃
74.1022	CH ₃	H	H	CH ₂ CH ₂ CH ₃
74.1023	CH ₃	H	H	CH(CH ₃) ₂
74.1024	CH ₃	H	H	C(CH ₃) ₃
74.1025	CH ₃	H	H	CH ₂ CH(CH ₃) ₂

	R ⁶	R ⁸	R ⁹	R ¹¹
74.1026	CH ₃	H	H	CH ₂ C(CH ₃) ₃
74.1027	CH ₃	H	H	CH ₂ CN
74.1028	CH ₃	H	H	ciclopropilo
74.1029	CH ₃	H	H	ciclobutilo
74.1030	CH ₃	H	H	ciclopentilo
74.1031	CH ₃	H	H	ciclohexilo
74.1032	CH ₃	H	H	CH ₂ -ciclopropilo
74.1033	CH ₃	H	H	bencilo
74.1034	CH ₃	H	H	CH ₂ CF ₃

La Tabla 75 comprende los compuestos de la fórmula (AH), donde R¹ es etilo, R² y R⁴ son metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 76 comprende los compuestos de la fórmula (AH), donde R¹ y R⁴ son etilo, R² es metilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 77 comprende los compuestos de la fórmula (AH), donde R¹, R² y R⁴ son etilo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 78 comprende los compuestos de la fórmula (AH), donde R¹ y R² son metilo, R³, R⁴, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 79 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 80 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 81 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 82 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 83 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es etinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 84 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son metilo, R^4 es vinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 85 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 86 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 87 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 88 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 89 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 90 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es etinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 91 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metilo, R^4 es vinilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 92 comprende los compuestos de la fórmula (AH), donde R^1 es etinilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 93 comprende los compuestos de la fórmula (AH), donde R^1 es etinilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 94 comprende los compuestos de la fórmula (AH), donde R^1 es etinilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 95 comprende los compuestos de la fórmula (AH), donde R^1 es etinilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 96 comprende los compuestos de la fórmula (AH), donde R^1 es etinilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 97 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son etinilo, R^2 es metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 98 comprende los compuestos de la fórmula (AH), donde R^1 es vinilo, R^2 es metilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 99 comprende los compuestos de la fórmula (AH), donde R^1 es vinilo, R^2 es metilo, R^4 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 100 comprende los compuestos de la fórmula (AH), donde R^1 es vinilo, R^2 es metilo, R^4 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 101 comprende los compuestos de la fórmula (AH), donde R^1 es vinilo, R^2 es metilo, R^4 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 102 comprende los compuestos de la fórmula (AH), donde R^1 es vinilo, R^2 es metilo, R^4 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 103 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son vinilo, R^2 es metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 104 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 , R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 105 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es metoxi, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 106 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es trifluormetilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 107 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es etilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 108 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es etinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 109 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es vinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 110 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es cloro, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 111 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es bromo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 112 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es yodo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 113 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 , R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 114 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es metoxi, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 115 comprende los compuestos de la fórmula (AH), donde R^1 y R^2 son etilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 116 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es trifluormetilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 117 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es etinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 118 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es vinilo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 119 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es cloro, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 120 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es bromo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 121 comprende los compuestos de la fórmula (AH), donde R^1 es etilo, R^2 es yodo, R^3 , R^4 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 122 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son metilo, R^2 es cloro, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 123 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son metilo, R^2 es bromo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 124 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son metilo, R^2 es yodo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 125 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es cloro, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 126 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es bromo, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 127 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es yodo, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 128 comprende los compuestos de la fórmula (AH), donde R¹ y R⁴ son etilo, R² es cloro, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 129 comprende los compuestos de la fórmula (AH), donde R¹ y R⁴ son metilo, R² es bromo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 130 comprende los compuestos de la fórmula (AH), donde R¹ y R⁴ son etilo, R² es yodo, R³, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 131 comprende los compuestos de la fórmula (AH), donde R¹ es metilo, R² es cloro, R³ es hidrógeno, R⁴ es metoxi, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 132 comprende los compuestos de la fórmula (AH), donde R¹ es metilo, R² es bromo, R³ es hidrógeno, R⁴ es metoxi, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 133 comprende los compuestos de la fórmula (AH), donde R¹ es etilo, R² es cloro, R³ es hidrógeno, R⁴ es metoxi, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 134 comprende los compuestos de la fórmula (AH), donde R¹ es etilo, R² es bromo, R³ es hidrógeno, R⁴ es metoxi, R⁵ y R¹² son hidrógeno y R⁶, R⁸, R⁹, y R¹¹ son según se definieron en la Tabla 74.

La Tabla 135 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son metilo, R^2 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 136 comprende los compuestos de la fórmula (AH), donde R^1 es metilo, R^2 es metoxi, R^3 es hidrógeno, R^4 es etilo, R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 137 comprende los compuestos de la fórmula (AH), donde R^1 y R^4 son etilo, R^2 es metoxi, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 138 comprende los compuestos de la fórmula (AH) donde R^1 , R^2 , R^3 y R^4 son metilo, R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 139 comprende los compuestos de la fórmula (A), donde R^1 es difluormetoxi, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 140 comprende los compuestos de la fórmula (A), donde R^1 es difluormetoxi, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 141 comprende los compuestos de la fórmula (A), donde R^1 es trifluormetoxi, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 142 comprende los compuestos de la fórmula (A), donde R^1 es trifluormetoxi, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 143 comprende los compuestos de la fórmula (A), donde R^1 es ciclopropilo, R^2 y R^4 son metilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

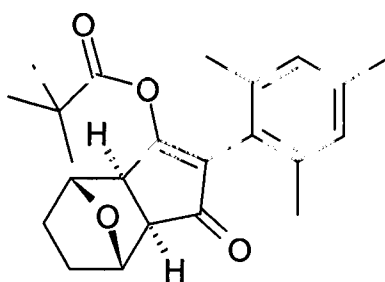
La Tabla 144 comprende los compuestos de la fórmula (A), donde R^1 es ciclopropilo, R^2 es metilo, R^4 es etilo, R^3 , R^5 y R^{12} son hidrógeno y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 145 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son metilo, R^3 , R^5 y R^{12} son hidrógeno, R^4 es ciclopropilo y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

La Tabla 146 comprende los compuestos de la fórmula (A), donde R^1 y R^2 son etilo, R^3 , R^5 y R^{12} son hidrógeno, R^4 es ciclopropilo y R^6 , R^8 , R^9 , y R^{11} son según se definieron en la Tabla 74.

Ejemplo 25

Preparación de 2,2-dimetilpropionato de (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5.2.1.0^{2,6}]dec-3-en-3-ilo.

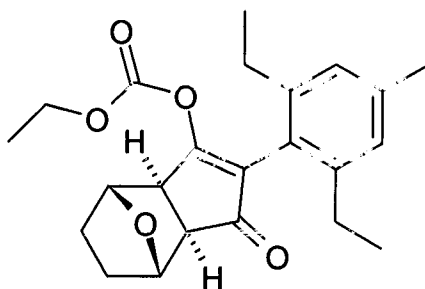


Una solución de cloruro de pivaloilo (0,055 g, 0,57 mmol) en diclorometano (2 ml) se adiciona gota a gota a una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5.2.1.0^{2,6}]decan-3,5-diona (0,12 g, 0,42 mmol) en diclorometano (2 ml) a temperatura ambiente y la mezcla de reacción se agita durante 2 minutos. Se adiciona una solución de trietilamina (0,08 ml) en diclorometano (1 ml) y la mezcla de reacción se agita a temperatura ambiente durante 3 horas. La mezcla de reacción se diluye con diclorometano (20 ml) y se lava con solución acuosa saturada de bicarbonato de sodio. La fase orgánica se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida para proporcionar 2,2-dimetilpropionato de (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,4,6-trimetilfenil)-10-oxatriciclo[5.2.1.0^{2,6}]dec-3-en-3-ilo como un aceite incoloro.

¹H RMN (400 MHz, CDCl₃) δ_H 6,84 (1H, s), 6,82 (1H, s), 4,75 (1H, d), 4,55 (1H, d), 3,45 (1H, d), 2,78 (1H, d), 2,24 (3H, s), 2,09 (3H, s), 2,02 (3H, s), 1,89-1,83 (2H, m), 1,63 – 1,59 (2H, m), 1,11 (9H, s).

Ejemplo 26

Preparación de (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo[5.2.1.0^{2,6}]-dec-3-en-3-il éster etil éster de ácido carbónico.

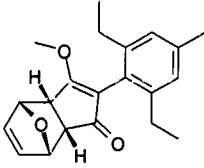
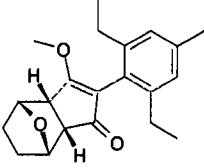
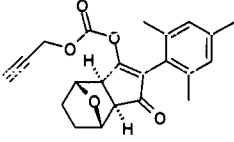
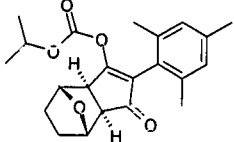


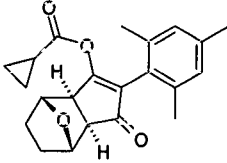
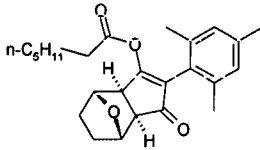
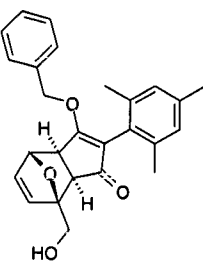
Una solución de cloroformiato de etilo (0,071 g, 0,65 mmol) en diclorometano (0,5 ml) se adiciona gota a gota a una solución de (1*RS*,2*SR*,6*RS*,7*SR*)-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo[5.2.1.0^{2,6}]decan-3,5-diona (0,172 g, 0,55 mmol) en diclorometano (2 ml) a 0°C y la mezcla de reacción se agita. Se adiciona una solución de trietilamina (0,066 g, 0,65 mmol) en diclorometano (1 ml) y la mezcla de reacción se agita a temperatura ambiente durante 17 horas, entibiándose lentamente hasta temperatura ambiente. La mezcla de reacción se diluye con diclorometano (3 ml) y se lava con solución acuosa saturada de bicarbonato de sodio. La fase orgánica se separa, se seca sobre sulfato de magnesio anhidro, se filtra y el filtrado se evapora bajo presión reducida. El residuo se purifica mediante cromatografía en columna sobre gel de sílice para proporcionar (1*RS*,2*SR*,6*RS*,7*SR*)-5-oxo-4-(2,6-dietil-4-metilfenil)-10-oxatriciclo-[5.2.1.0^{2,6}]-dec-3-en-3-il éster etil éster de ácido carbónico como un sólido incoloro.

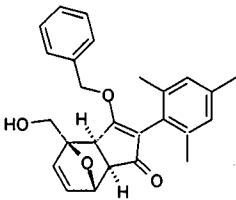
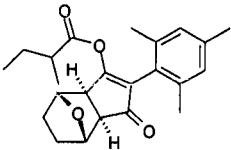
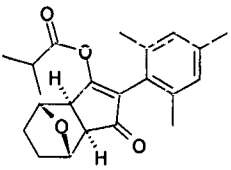
¹H RMN (400 MHz, CDCl₃) δ_H 1,06 (6H, m), 1,28 (3H, t), 1,63 (2H, m), 1,87 (2H, m), 2,3 (3H, s), 2,35 (4H, m), 2,8 (1H, d), 3,63 (1H, d), 4,22 (2H, q), 4,64 (1H, d), 4,77 (1H, d), 6,91 (2H, d).

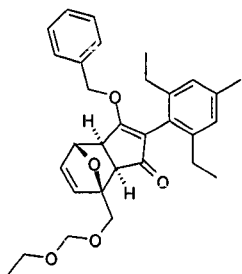
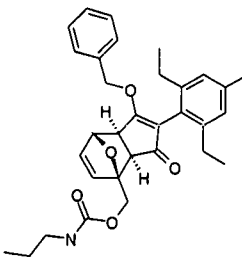
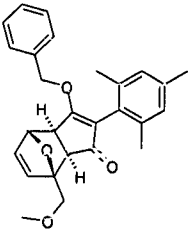
Los compuestos adicionales en la Tabla P1 a continuación se prepararon a través de métodos similares utilizando materiales de partida apropiados.

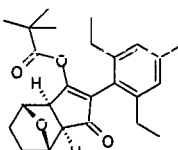
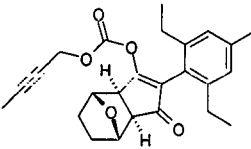
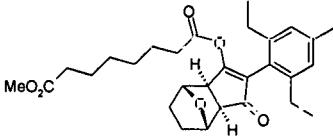
Tabla P1

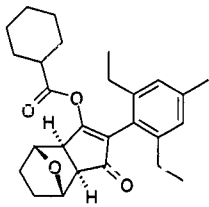
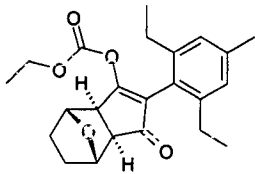
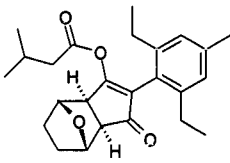
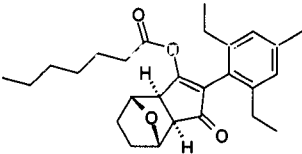
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
P1		δ _H 6,90 (2H, s), 6,45 (1H, dd), 6,35 (1H, dd), 5,30 (1H, d), 5,25 (1H, d), 3,65 (3H, s), 3,65 (1H, dd), 3,45 (1H, dd), 2,35 (4H, m), 2,30 (3H, s), 1,10 (6H, m).
P2		δ _H 6,90 (2H, m), 4,85 (2H, m), 3,70 (3H, s), 3,60 (1H, m), 3,35 (1H, dd), 2,50 (2H, m), 2,35 (2H, m), 2,30 (3H, s), 1,90-1,75 (4H, m), 1,20 (3H, t), 1,10 (3H, t)
P3		δ _H 6,87 (1H, s), 6,85 (1H, s), 4,74 (1H, d), 4,68 (2H, t), 4,65 (1H, d), 3,53 (1H, d), 2,79 (1H, d), 2,56 (1H, t), 2,26 (3H, s), 2,09 (3H, s), 2,05 (3H, s), 1,94 – 1,80 (2H, m), 1,67 - 1,56 (2H, m).
P4		δ _H 6,87 (1H, s), 6,85 (1H, s), 4,85 - 4,78 (1H, m), 4,74 (1H, d), 4,64 (1H, d), 3,51 (1H, d), 2,77 (1H, d), 2,25 (3H, s), 2,09

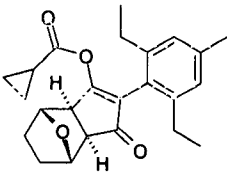
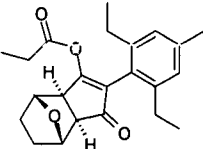
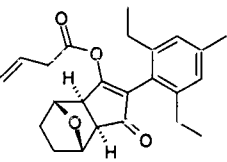
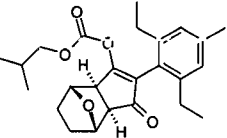
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(3H, s), 2,06 (3H, s), 1,93 - 1,79 (2H, m), 1,67 - 1,54 (2H, m), 1,25 (3H, d), 1,20 (3H, d).
P5		δ _H 6,88 (1H, s), 6,86 (1H, s), 4,73 (1H, d), 4,59 (1H, d), 3,56 (1H, d), 2,76 (1H, d), 2,27 (3H, s), 2,10 (3H, s), 2,04 (3H, s), 1,89 - 1,80 (2H, m), 1,69 - 1,56 (3H, m), 1,01 - 0,92 (4H, m).
P6		δ _H 6,86 (1H, s), 6,84 (1H, s), 4,74 (1H, d), 4,58 (1H, d), 3,48 (1H, d), 2,77 (1H, d), 2,40 - 2,35 (2H, m), 2,26 (3H, s), 2,09 (3H, s), 2,04 (3H, s), 1,93 - 1,82 (2H, m), 1,65 - 1,48 (4H, m), 1,31 - 1,17 (6H, m), 0,86 (3H, t)
P7		δ _H 7,38 - 7,37 (3H, m), 7,19 - 7,18 (2H, m), 6,97 (2H, s), 6,68 (1H, dd), 6,55 (1H, d), 5,08 (1H, s con leve división), 4,82 - 4,81 (2H, m), 4,13 - 4,10 (1H, m), 4,03 - 4,00 (1H, m), 3,13 (1H, dd), 2,89 (1H, dd), 2,54 - 2,45 (4H, m), 2,37 (3H, s), 1,20 -

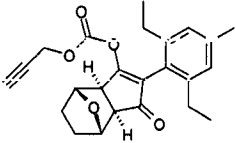
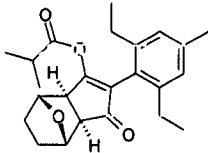
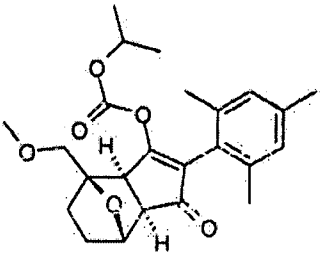
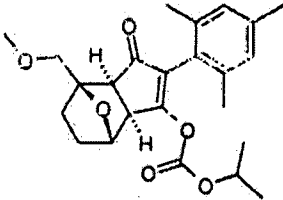
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		1,16 (6H, m).
P8		δ_H 7,35 - 7,32 (3H, m), 7,15 - 7,13 (2H, m), 6,93 (1H, s), 6,92 (1H, s), 6,54 - 6,49 (2H, m), 5,14 (1H, d), 4,71 - 4,64 (2H, m), 4,15 - 4,08 (2H, m), 2,99 (1H, d), 2,84 (1H, d), 2,59 - 2,39 (4H, m), 2,32 (3H, s), 1,17 - 1,13 (6H, m).
P9		δ_H 6,84 (1H, s), 6,82 (1H, s), 4,73 (1H, d), 4,57 - 4,55 (1H, m), 3,46 - 3,44 (1H, m), 2,77 (1H, d), 2,46 - 2,35 (1H, m), 2,23 (3H, s), 2,08 (3H, s), 2,02 (3H, s), 1,92 - 1,80 (2H, m), 1,04 (3H, d), 0,93 (3H, t).
P10		δ_H 6,86 (1H, s), 6,84 (1H, s), 4,74 (1H, d), 4,56 (1H, d), 3,49 (1H, d), 2,78 (1H, d), 2,65 - 2,58 (1H, m), 2,25 (3H, s), 2,09 (3H, s), 2,03 (3H, s), 1,93 - 1,79 (2H, m), 1,66 - 1,56 (2H, m), 1,13 (3H, d), 1,06 (3H, d).

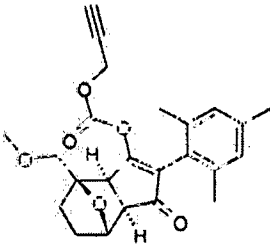
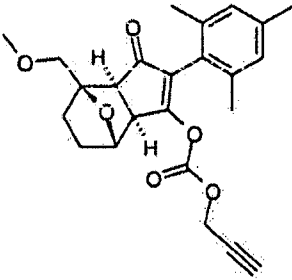
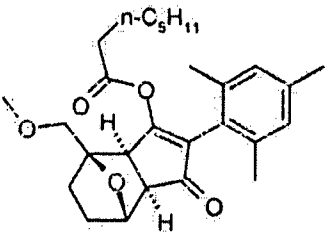
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
P11		δ _H 7,34 - 7,31 (3H, m), 7,15 - 7,12 (2H, m), 6,90 (2H, s), 6,50 (2H, s), 5,05 (1H, s), 4,79 - 4,72 (4H, m), 4,23 (1H, d), 3,97 (1H, d), 3,65 - 3,58 (2H, m), 3,06 (1H, d), 2,66 (1H, d), 2,54 - 2,34 (4H, m), 2,31 (3H, s), 1,20 (3H, t), 1,15 - 1,10 (6H, m).
P12		δ _H 7,33 - 7,30 (3H, m), 7,14 - 7,12 (2H, m), 6,90 (2H, s), 6,51 (1H, dd), 6,45 (1H, d), 5,11 (1H, d), 5,05 (1H, d), 4,81 - 4,76 (1H, m), 4,73 - 4,72 (2H, m), 4,30 (1H, d), 3,17 - 3,12 (2H, m), 3,06 (1H, d), 2,69 (1H, d), 2,52 - 2,35 (4H, m), 2,31 (3H, s), 1,53 - 1,47 (2H, m), 1,15 - 1,11 (6H, m), 0,90 (3H, t).
P13		δ _H 7,33 - 7,30 (3H, m), 7,15 - 7,11 (2H, m), 6,86 (2H, s), 6,50 - 6,49 (2H, m), 5,11 (0,5H, s), 5,04 (0,5H, s), 4,76 - 4,66 (2H, m), 4,16 - 4,11 (1H, m), 3,77 - 3,74 (1H, m), 3,43 (1,5H, s),

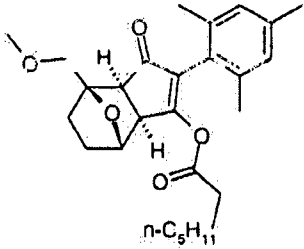
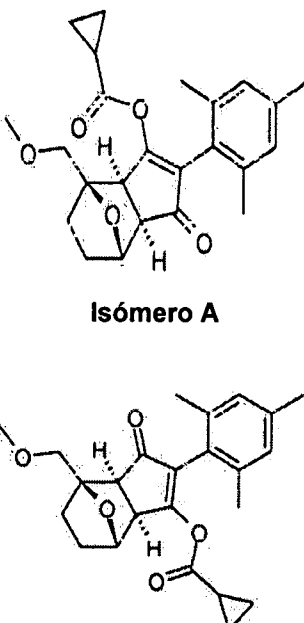
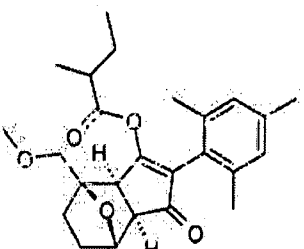
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		3,34 (1,5H, s), 3,03 (0,5H, s), 2,94 (0,5H, s), 2,77 (0,5H, d), 2,62 (0,5H, d), 2,27 (1,5H, s), 2,19 (1,5H, s), 2,12 (1,5H, s), 2,08 (1,5H, s), 2,07 (3H, s).
P14		δ _H 1,04 (6H, m), 1,08 (9H, s), 1,6 (2H, m), 1,85 (2H, m), 2,3 (3H, s), 2,33 (4H, m), 2,79 (1H, d), 3,58 (1H, d), 4,54 (1H, d), 4,74 (1H, d), 6,85 (1H, s) 6,88 (1H, s).
P15		δ _H 1,04 (6H, m), 1,6 (2H, m), 1,85 (2H, m), 2,3 (3H, s), 2,35 (4H, m), 2,8 (1H, d), 3,63 (1H, d), 4,66 (1H, d), 4,7 (1H, s), 4,75 (1H, d), 6,9 (2H, s).
P16		δ _H 1,04 (6H, m), 1,2 (3H, m), 1,35 (1H, m), 1,6 (8H, m), 1,85 (2H, m), 2,32 (9H, m), 2,8 (1H, d), 3,58 (1H, d), 3,67 (3H, s), 4,58 (1H, d), 4,75 (1H, d), 6,9 (2H, s).

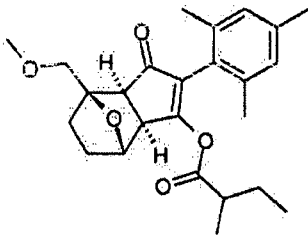
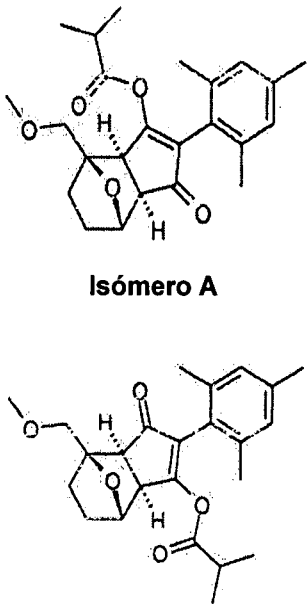
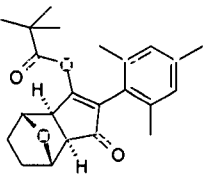
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
P17		δ _H 1,04 (6H, m), 1,3 - 1,8 (14H, m), 2,3 (3H, s), 2,34 (5H, m), 2,79 (1H, d), 3,6 (1H, d), 4,54 (1H, d), 4,75 (1H, d), 6,89 (2H, d).
P18		δ _H 1,06 (6H, m), 1,28 (3H, t), 1,63 (2H, m), 1,87 (2H, m), 2,3 (3H, s), 2,35 (4H, m), 2,8 (1H, d), 3,63 (1H, d), 4,22 (2H, q), 4,64 (1H, d), 4,77 (1H, d), 6,91 (2H, d).
P19		δ _H 0,85 (6H, d), 1,05 (6H, m), 1,61 (2H, m), 1,85 (2H, m), 1,98 (1H, m), 2,28 (2H, d), 2,3 (3H, s), 2,35 (4H, m), 2,8 (1H, d), 3,58 (1H, d), 4,58 (1H, d), 4,75 (1H, d), 6,89 (2H, d).
P20		δ _H 0,84 (3H, t), 1,05 (6H, m), 1,23 (8H, m), 1,62 (2H, m), 1,86 (2H, m), 2,3 (3H, s), 2,37 (6H, m), 2,8 (1H, d), 3,59 (1H, d), 4,58 (1H, d), 4,75 (1H, d), 6,9 (2H, d).

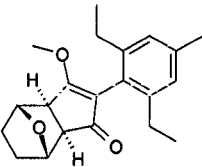
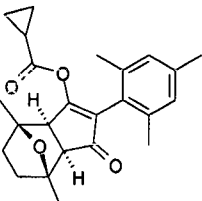
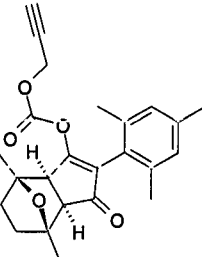
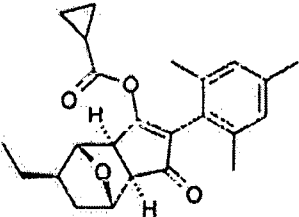
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		d).
P21		δ _H 0,95 (4H, m), 1,05 (6H,m), 1,63 (3H, m), 1,85 (2H, m), 2,3 (3H, s), 2,35 (4H, m), 2,77 (1H, d), 3,65 (1H, d), 4,59 (1H, d), 4,74 (1H, d), 6,9 (2H, d)
P22		δ _H 1,07 (9H, m), 1,6 (2H, m), 1,85 (2H, m), 2,31 (3H, s), 2,39 (6H, m), 2,79 (1H, d), 3,62 (1H, d), 4,58 (1H, d), 4,74 (1H, d), 6,9 (2H, d).
P23		δ _H 1,06 (6H, m), 1,62 (2H, m), 1,87 (2H, m), 2,3 (3H, s), 2,35 (4H, m), 2,8 (1H, d), 3,52 (1H,d), 4,62 (3H, m), 4,75 (1H, d), 5,31 (2H, m), 5,85 (1H, m), 6,91 (2H, d).
P24		δ _H 0,9 (6H, d), 1,07 (6H, m), 1,61 (2H, m), 1,86 (2H, m), 1,92 (1H, m), 2,31 (3H, s), 2,32 (4H, m), 2,8 (1H, d), 3,52 (1H, d), 3,94 (2H, m), 4,64 (1H, d), 4,76 (1H,

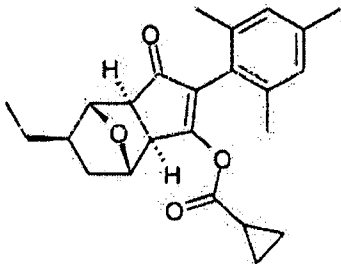
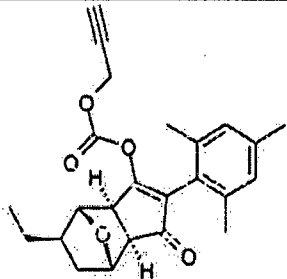
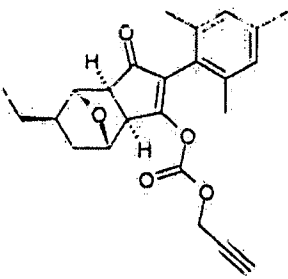
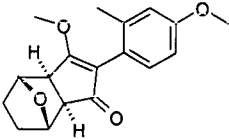
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		d), 6,91 (2H, d).
P25		δ_H 1,07 (6H, m), 1,62 (2H, m), 1,87 (2H, m), 2,31 (3H, s), 2,36 (4H, m), 2,56 (1H, m), 2,81 (1H, d), 3,63 (1H, d), 4,67 (1H, d), 4,75 (2H, m), 6,9 (2H, d).
P26		δ_H 1,05 (9H,m), 1,13 (3H, d), 1,61 (2H, m), 1,87 (2H, m),2,31 (3H, s), 2,36 (4H, m), 2,6 (1H, m), 2,79 (1H, d) 3,61 (1H, d), 4,57 (1H, d), 4,76 (1H, d), 6,89 (2H, d).
P27	 Isómero A 	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,87 - 6,86 (2H, m), 4,84 - 4,77 (1H, m), 4,60 (1H, d), 3,89 (1H, d), 3,70 (1H, d), 3,60 (1H, d), 3,41 (3H, s), 2,80 (1H, d), 2,25 (3H, s), 2,10 (3H, s), 2,05 (3H, s), 2,03 - 1,96 (2H, m), 1,72 - 1,65 (2H, m), 1,25 (3H, d), 1,19 (3H, d).

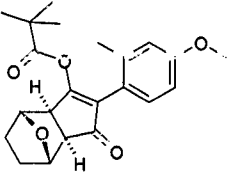
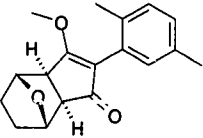
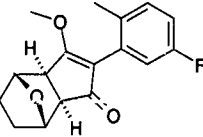
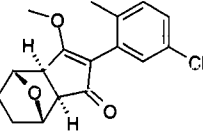
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	Isómero B	
P28	 Isómero A  Isómero B	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,88 - 6,86 (2H, m), 4,74 - 4,60 (3H, m), 3,89 - 6,63 (3H, m), 3,41 (3H, s), 2,92 (0,5H, d), 2,83 - 2,81 (0,5H, m), 2,56 - 2,55 (1H, m), 2,26 (3H, s), 2,10 (1,5H, s), 2,09 (1,5H, s), 2,04 (1,5H, s), 2,03 (1,5H, s), 2,00 - 1,65 (4H, m).
P29	 Isómero A	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,86 - 6,84 (2H, m), 4,55 (1H, d), 3,89 (1H, d), 3,70 (1H, d), 3,59 (1H, d), 3,41 (3H, s), 2,81 (1H, d), 2,39 - 2,33 (2H, m), 2,25 (3H, s), 2,09 (3H, s), 2,03 (3H, s), 2,00 - 1,95 (1H, m), 1,66 - 1,49 (3H, m), 1,38 - 1,13

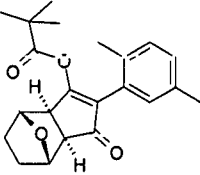
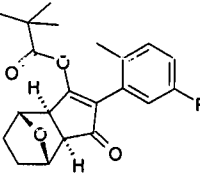
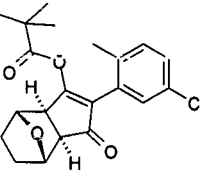
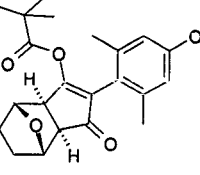
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	 Isómero B	(8H, m), 0,90 - 0,84 (3H, m).
P30	 Isómero A Isómero B	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,88 - 6,86 (2H, m), 4,55 (1H, d), 3,89 (1H, d), 3,71 - 3,65 (2H, m), 3,41 (3H, s), 2,79 (1H, d), 2,27 (3H, s), 2,11 (3H, s), 2,03 (3H, s), 1,78 - 1,50 (4H, m), 1,07 - 1,04 (1H, m), 0,99 - 0,91 (4H, m).
P31	 Isómero A	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,84 - 6,82 (2H, m), 4,54 - 4,52 (1H, m), 3,89 (1H, d), 3,70 (1H, d), 3,56 (1H, t), 3,40 (3H, s), 2,80 (1H, d), 2,44 - 2,37 (1H, m), 2,24 (3H, s), 2,09 (3H, s),

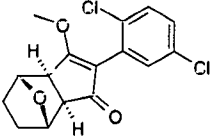
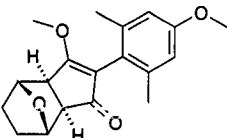
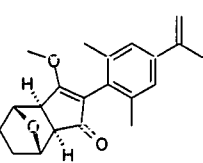
Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	 Isómero B	2,02 (3H, s), 1,71 - 1,35 (6H, m), 1,17 - 1,02 (3H, m), 0,95 - 0,67 (3H, m).
P32	 Isómero A Isómero B	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,85 - 6,83 (2H, m), 4,52 (1H, d), 3,89 (1H, d), 3,70 (1H, d), 3,58 (1H, d), 3,40 (3H, s), 2,80 (1H, d), 2,62 - 2,57 (1H, m), 2,24 (3H, s), 2,09 (3H, s), 2,02 (3H, s), 1,71 - 1,52 (4H, m), 1,11 (3H, t), 1,04 (3H, d).
P33		δ _H 6,84 (1H, s), 6,82 (1H, s), 4,75 (1H, d), 4,55 (1H, d), 3,45 (1H, d), 2,78 (1H, d), 2,24 (3H, s), 2,09 (3H, s), 2,02 (3H, s), 1,89-1,83 (2H, m), 1,63 - 1,59 (2H, m), 1,11 (9H, s).

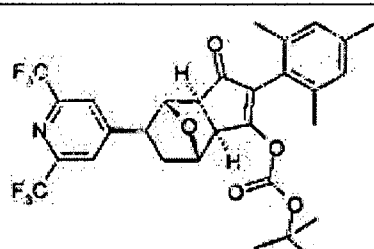
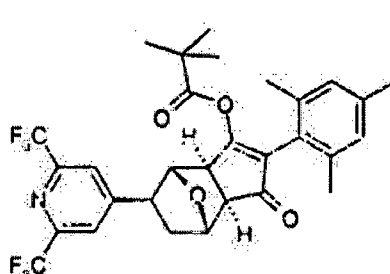
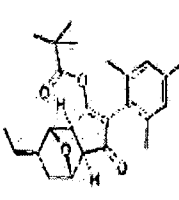
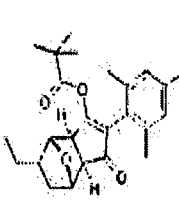
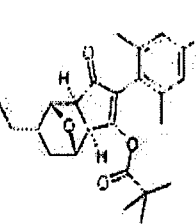
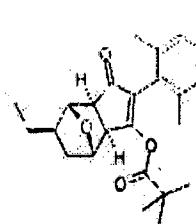
Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
P34		δ_{H} 6,90 (1H, s), 6,89 (1H, s), 4,73 (1H, d), 4,66 (1H, d), 3,58 (3H, s), 2,91 (1H, d), 2,66 (1H, d), 2,49 - 2,39 (4H, m), 2,30 (3H, s), 1,88 - 1,81 (2H, m), 1,62 - 1,56 (2H, m), 1,12 - 1,08 (3H, m).
P35		δ_{H} 6,93 (2H, br, s), 3,71 - 3,69 (1H, m), 2,81 - 2,80 (1H, m), 2,33 (3H, s), 2,20 (3H, s), 2,08 (3H, s), 1,87 - 1,72 (5H, m), 1,64 - 1,60 (6H, m), 1,05 - 0,99 (4H, m).
P36		δ_{H} 6,88 (1H, s), 6,86 (1H, s), 4,71 (1H, dd), 4,61 (1H, dd), 3,65 (1H, d), 2,77 (1H, d), 2,55 (1H, t), 2,26 (3H, s), 2,12 (3H, s), 2,04 (3H, s), 1,82 - 1,71 (4H, m), 1,56 (3H, s), 1,53 (3H, s).
P37		Relación de Isómero A:Isómero B aproximadamente 1:1 δ_{H} 6,87 (1H, s), 6,85 (1H, s), 4,70 (0,5H, d), 4,55 (0,5H, d), 4,43 (1H, s), 4,26 (1H, s), 3,53

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	Isómero A  Isómero B	(1H, app t), 2,74 (1H, app t), 2,26 (3H, s), 2,09 (3H, s), 2,04 (3H, s), 1,82 - 1,63 (3H, m), 1,49 - 1,41 (2H, m), 1,30 - 1,26 (1H, m), 0,98 - 0,90 (7H, m).
P38	Isómero A  Isómero B 	Relación de Isómero A:Isómero B aproximadamente 1:1 δ_H 6,87 (1H, s), 6,86 (1H, s), 4,72 - 4,60 (3H, m), 4,45 (0,5H, s), 4,33 (0,5H, d), 3,77 (1H, s), 3,50 (1H, d), 2,79 - 2,76 (0,5H, m), 2,56 - 2,54 (0,5H, m), 2,26 (3H, s), 2,08 (3H, s), 2,05 (3H, s), 1,84 - 1,75 (2H, m), 1,52 - 1,42 (2H, m), 1,30 - 1,24 (1H, m), 0,96 - 0,83 (3H, m).
P39		δ_H 7,01 (1H, br, s), 6,76 (1H, d), 6,72 (1H, dd), 4,72 (1H, d), 4,65 (1H, d), 3,78 (3H, s), 3,65 (3H, s), 2,88 (1H, d), 2,64 (1H, d), 2,15 (3H, s), 1,80 - 1,89 (2H,

Número de Compuesto	Estructura	^1H RMN (a menos que se establezca CDCl_3) u otros datos físicos
		m), 1,56 - 1,62 (2H, m).
P40		δ_{H} 6,91 (1H, br, s), 6,76 (1H, s), 6,70 (1H, d), 4,73 (1H, d), 4,53 (1H, d), 3,78 (3H, s), 3,43 (1H, s), 2,75 (1H, d), 2,15 (3H, s), 1,93-1,79 (2H, m), 1,65-1,58 (2H, m), 1,16 (9H, s).
P41		δ_{H} 7,11-7,05 (1H, m), 7,03-6,99 (1H, m), 6,89 (1H, br, s), 4,73 (1H, d), 4,65 (1H, d), 3,64 (1H, s), 2,89 (1H, d), 2,64 (1H, d), 2,28 (3H, s), 2,13 (3H, s), 1,92-1,78 (2H, m), 1,63-1,57 (2H, m).
P42		δ_{H} 7,19 (1H, dd), 6,96 (1H, td), 6,91-6,86 (1H, m), 4,77 (1H, d), 4,70 (1H, d), 3,72 (3H, s), 2,96 (1H, d), 2,70 (1H, d), 2,18 (3H, s), 1,97-1,82 (2H, m), 1,68-1,62 (2H, m).
P43		δ_{H} 7,16 - 7,10 (1H, m), 7,08-7,03 (1H, m), 6,94 (1H, br, s), 4,77 (1H, d), 4,70 (1H, d), 3,68 (3H, s), 2,93 (1H, d), 2,72-2,66 (1H, m), 2,17 (3H, s), 1,97-1,80

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(2H, m), 1,62-1,58 (2H, m).
P44		δ _H 7,09 (1H, d), 7,04-6,99 (1H, m), 6,76 (1H, br, s), 4,75 (1H, d), 4,54 (1H, d), 3,49-3,41 (1H, m), 2,76 (1H, d), 2,26 (3H, s), 2,17 (3H, s), 1,94-1,79 (2H, m), 1,67-1,59 (2H, m), 1,15 (9H, s).
P45		δ _H 7,16 (1H, dd), 6,92 (1H, td), 6,74 (1H, br, s), 4,75 (1H, d), 4,54 (1H, d), 3,46 (1H, d), 2,77 (1H, d), 2,17 (3H, s), 1,93-1,82 (2H, m), 1,67-1,57 (2H, m), 1,17 (9H, s).
P46		δ _H 7,21 - 7,17 (1H, m), 7,16-7,12 (1H, m), 6,96 (1H, br, s), 4,74 (1H, d), 4,54 (1H, s), 3,45 (1H, d), 2,77 (1H, d), 2,17 (3H, s), 1,94-1,80 (2H, m), 1,67-1,58 (2H, m), 1,17 (9H, s).
P47		δ _H 6,58 (2H, d), 4,74 (1H, d), 4,55 (1H, d), 3,76 (3H, s), 3,43 (1H, d), 2,82-2,73 (1H, m), 2,11 (3H, s), 2,04 (3H, s), 1,93-1,78 (2H, m), 1,66-1,57 (2H, m), 1,11

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
		(9H, s).
P48		δ _H 7,33 (1H, d), 7,29 (1H, br, s), 7,23 (1H, dd), 4,75 (1H, d), 4,67 (1H, d), 3,76 (3H, s), 2,94 (1H, s), 2,69 (1H, s), 1,93-1,79 (2H, m), 1,65-1,54 (2H, m).
P49		δ _H 6,60 (2H, d), 4,72 (1H, d), 4,65 (1H, d), 3,76 (3H, s), 3,58 (3H, s), 2,88 (1H, d), 2,64 (1H, d), 2,13 (3H, s), 2,10 (3H, s), 1,90-1,77 (2H, m), 1,64-1,54 (2H, m).
P50		δ _H 7,14 (2H, d), 5,34 (1H, s), 5,04 (1H, s), 4,73 (1H, d), 4,66 (1H, d), 3,58 (3H, s), 2,90 (1H, d), 2,66 (1H, d), 2,17 (3H, s), 2,14 (3H, s), 2,11 (3H, s), 1,92-1,75 (2H, m), 1,66-1,54 (2H, m).
P51		Mezcla de Isómero A:Isómero B aproximadamente 1:1 Isómero A: δ _H 7,81 (2H, s), 6,87 (1H, s), 6,83 (1H, s), 4,83 (1H, d), 4,69 (1H, s), 3,64 (1H, d), 3,22 (1H, dd), 2,99 (1H, d), 2,38

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	 Isómero A  Isómero B	(1H, dd), 2,25 (3H, s), 2,11 (3H, s), 2,04 (3H, s), 1,99 – 1,96 (1H, m), 1,23 (3H, s), 1,13 (6H, s). Isómero B: δ_H 7,84 (2H, s), 6,87 (1H, s), 6,84 (1H, s), 4,99 (1H, d), 4,50 (1H, s), 3,64 (1H, d), 3,24 (1H, dd), 2,94 (1H, d), 2,35 (1H, dd), 2,25 (3H, s), 2,10 (3H, s), 2,04 (3H, s), 1,91 – 1,89 (1H, m), 1,07 (9H s).
P52	 Isómero A  Isómero B 	Mezcla de Isómero A:Isómero B:Isómero C:Isómero D aproximadamente 1:1:1:1 δ_H 6,84 (1H, s), 6,82 (1H, s), 4,71 (0,25H, d), 4,68 (0,25H, d), 4,60 (0,25H, d), 4,52 (0,25H, d), 4,48 (0,25H, d), 4,45 (0,25H, s), 4,41 (0,25H, d), 4,23 (0,25H, s), 3,79 (0,25H, d), 3,43 (0,5H, t), 3,04 (0,25H, d), 2,77 – 2,73 (0,75H, m), 2,24 (3H, s), 2,19–2,11 (1H, m), 2,09 (3H, s), 2,03 (3H, s), 1,84 – 1,73 (1H, m),

Número de Compuesto	Estructura	¹ H RMN (a menos que se establezca CDCl ₃) u otros datos físicos
	Isómero C Isómero D	1,52 – 1,39 (2H, m), 1,28 – 1,26 (1H, m), 1,12 – 1,10 (9H, m), 1,00 – 0,90 (3H, m).

Ejemplos Biológicos

Ejemplo de Ensayo 1

Se cultivaron plantas monocotiledóneas y dicotiledóneas en suelo standard en macetas. Luego del cultivo durante un día (preemergencia) o del cultivo de 10 días (postemergencia) bajo condiciones controladas en un invernadero, las plantas se rociaron con una solución acuosa en aerosol derivada de la formulación del ingrediente activo técnico en 0,6 ml de acetona y 45 ml de solución de formulación conteniendo Emulsogen EL 10,6% (Número de registro 61791-12-6), N-metil pirrolidona 42,2%, monometil éter de dipropilen glicol 42,2% (Número de registro 34590-94-8) y X-77 0,2% (Número de registro 11097-66-8). Luego las plantas de ensayo se cultivaron en un invernadero bajo óptimas condiciones hasta que se evaluó el ensayo, 15 días después para la postemergencia y 20 días para la preemergencia (100 = daño total a la planta; 0 = sin daño a la planta).

Plantas de Ensayo:

Alopecurus myosuroides (ALOMY), *Avena fatua* (AVEFA), *Lolium perenne* (LOLPE), *Setaria faberi* (SETFA), *Digitaria sanguinalis* (DIGSA), *Echinochloa crus-galli* (ECHCG)

Actividad Preemergencia

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T1	250	100	100	100	100	100	100
T2	250	100	100	100	90	100	100
T3	250	90	80	100	70	80	100
T4	250	90	90	100	90	100	100
T5	250	100	80	100	80	100	100
T6	250	80	30	100	80	90	90
T7	250	100	80	100	90	80	90
T8	250	100	90	100	100	100	100
T9	250	70	40	100	100	100	100
T10	250	80	70	100	80	80	90
T11	250	30	40	60	20	0	30
T12	250	10	10	40	40	40	0
T13	250	80	80	90	100	100	100
T14	250	90	90	100	100	70	90
T15	250	40	20	40	60	30	80
T16	250	0	10	0	10	0	0
T17	250	100	90	100	100	100	100
T18	250	100	100	100	100	100	100
T19	250	100	90	100	100	90	100
T21	250	90	30	80	70	10	80
T27	250	70	70	70	100	90	100
T34	250	70	30	60	80	60	40

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T37	250	60	30	30	0	20	30
T39	250	10	20	30	40	30	30
T40	250	50	60	60	40	60	40
T41	250	50	30	20	60	30	70
T42	250	0	10	0	0	0	30
T43	250	10	20	0	50	20	0
T44	250	80	40	70	80	80	70
T46	250	10	0	30	30	20	70
T47	250	100	80	100	80	70	100
T48	250	100	80	100	100	100	100
T49	250	80	70	100	20	10	80
T52	250	40	30	100	90	90	100
T53	250	10	20	10	10	10	0
T56	250	100	60	100	70	70	100
T57	250	50	30	100	80	60	70
T58	250	0	10	0	0	0	60
T59	250	10	20	30	40	50	30
T60	250	0	40	10	10	30	30
T62	250	70	70	60	80	80	80
T64	250	0	0	10	20	10	50
T65	250	100	90	100	90	100	100
T66	250	30	60	40	100	90	70
T70	250	80	50	100	90	90	100
T71	250	30	0	0	20	50	50

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T85	250	40	60	70	70	60	70
T89	250	20	60	40	30	30	20
T90	250	10	60	20	40	60	70
T91	250	20	50	20	50	70	50
T92	250	20	60	30	70	70	90
T93	250	40	30	20	30	30	0
T97	250	100	90	100	90	100	100
T98	250	30	20	20	70	0	30
T99	250	80	60	100	80	80	100
T106	250	90	90	100	100	100	100
T107	250	90	90	100	100	100	100
T125	250	70	70	100	100	100	100
T128	250	70	70	90	100	100	100
T129	250	100	90	90	100	90	100
T134	250	60	20	70	0	50	20
T143	250	50	20	70	70	80	10
T146	250	70	60	90	80	80	80
T147	250	40	0	40	60	40	90
T148	250	60	50	70	60	70	80
T149	250	90	60	80	80	70	90
T150	250	0	0	30	0	0	40
T151	250	50	20	60	20	80	40
T153	250	70	70	80	70	60	70
T154	250	70	50	80	70	70	100

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T155	250	60	50	80	60	70	60
T156	250	70	60	70	70	70	70
T157	250	30	-	70	0	0	50
T158	250	60	50	70	70	70	50
T159	250	50	60	40	70	70	70
T160	250	30	50	40	70	40	40
T162	250	70	70	90	10	40	80
T163	250	70	60	90	90	90	80
T165	250	70	20	80	70	50	80
T167	250	30	40	40	0	30	50
T169	250	20	30	40	0	0	0
T170	250	80	40	90	70	70	80
T171	250	30	0	10	70	40	70
T173	250	90	70	100	60	70	70
T174	250	30	30	30	0	40	0
T177	250	60	50	70	50	10	70
T178	250	70	40	80	100	80	100
T179	250	70	60	80	10	60	70
T180	250	30	20	70	40	80	60
T181	250	40	40	80	70	90	100
T182	250	30	50	40	50	80	90
T184	250	30	60	70	90	70	60
T185	250	80	80	100	80	80	80
T187	250	10	20	60	40	20	10

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T188	250	40	0	50	70	100	60
T193	250	20	30	60	40	20	20
T194	250	0	20	20	50	70	50
T199	250	0	50	60	60	100	80
T200	250	0	0	70	70	70	90
T203	250	20	20	60	70	70	90
T208	250	50	70	80	80	70	80
P3	250	100	100	100	90	90	100
P4	250	100	100	100	70	90	90
P5	250	100	100	100	90	100	90
P6	250	100	100	100	80	100	90
P9	250	100	100	100	80	90	80
P10	250	100	100	100	80	100	100
P14	250	100	100	100	100	100	100
P15	250	80	90	90	100	100	100
P16	250	100	90	90	100	100	100
P17	250	90	90	100	100	100	100
P18	250	100	100	100	100	100	100
P19	250	100	100	100	100	100	100
P20	250	100	80	100	100	100	100
P21	250	100	100	100	100	100	100
P22	250	100	100	100	100	100	100
P23	250	80	90	100	100	100	100
P24	250	90	90	100	100	100	100

Número de Compuesto	Proporción g/ha	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
P25	250	100	100	100	100	100	100
P26	250	100	90	100	100	100	100
P27	250	90	80	90	80	90	100
P28	250	90	80	100	80	90	80
P30	250	80	80	90	80	80	90
P33	250	90	70	100	80	80	-
P36	250	70	80	100	80	80	100
P37	250	90	90	100	100	100	100

Actividad Postemergencia

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T1	125	90	90	80	100	100	100
T2	125	100	90	100	80	100	100
T3	125	60	30	60	90	100	100
T4	125	80	90	90	80	80	100
T5	125	70	70	80	90	100	100
T6	125	80	80	80	80	90	90
T7	125	100	90	90	90	70	90
T8	125	100	100	100	100	100	100
T9	125	80	60	70	80	100	100

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T10	125	70	70	80	80	50	80
T11	125	40	20	30	70	80	70
T12	125	70	50	10	70	70	70
T13	125	80	90	90	100	50	100
T14	125	80	80	80	100	90	100
T15	125	50	40	40	50	80	80
T16	125	40	20	50	0	0	30
T17	125	100	100	90	100	100	100
T18	125	100	100	80	100	100	100
T19	125	100	100	90	100	90	100
T21	125	90	70	70	60	30	100
T27	125	100	90	80	100	100	100
T34	125	40	30	30	80	80	80
T37	125	50	20	20	70	50	80
T39	125	10	20	0	60	70	70
T40	125	40	30	30	70	70	70
T41	125	40	0	0	80	80	80
T42	125	0	0	10	0	20	60
T43	125	10	0	0	40	20	60
T44	125	80	50	20	80	80	90
T46	125	0	0	0	60	0	80
T47	125	100	90	90	70	60	100
T48	125	80	70	70	90	100	100

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T49	125	80	80	70	50	70	80
T52	125	60	70	70	80	80	100
T56	125	100	50	80	60	70	100
T57	125	70	70	40	70	70	80
T58	125	0	10	0	30	40	30
T59	125	50	40	0	70	80	80
T60	125	10	0	0	40	50	0
T62	125	60	0	20	70	70	80
T64	125	10	0	0	30	60	50
T65	125	90	90	80	100	100	100
T66	125	80	80	50	80	90	80
T70	125	90	70	70	70	70	80
T71	125	50	10	20	50	70	60
T85	125	90	20	70	70	20	100
T89	125	80	80	80	90	90	100
T90	125	90	80	60	60	80	80
T91	125	90	90	50	100	100	100
T92	125	100	100	50	100	100	100
T93	125	60	80	60	100	100	100
T97	125	90	90	80	100	100	100
T98	125	70	20	40	70	60	80
T99	125	80	30	10	70	60	100
T106	125	90	80	80	90	80	100

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T107	125	100	90	90	100	100	100
T125	125	80	70	70	80	80	90
T128	125	80	90	80	100	100	100
T129	125	80	80	70	100	80	100
T134	125	20	20	20	50	20	70
T143	125	40	60	30	40	60	70
T146	125	80	80	90	70	70	100
T147	125	90	90	40	70	100	90
T149	125	80	90	70	70	80	100
T150	125	60	60	40	90	30	100
T151	125	80	80	30	10	70	80
T153	125	50	80	50	20	30	70
T154	125	90	60	60	70	70	100
T155	125	90	70	60	100	100	100
T156	125	90	80	70	100	70	100
T157	125	60	60	40	60	60	100
T158	125	90	90	80	100	100	100
T159	125	90	70	40	100	100	100
T160	125	90	90	70	100	100	100
T162	125	90	90	70	100	100	100
T163	125	80	80	80	90	70	100
T165	125	80	30	80	90	70	100
T167	125	80	50	50	70	70	100

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
T169	125	90	10	30	60	40	80
T170	125	80	70	80	40	40	100
T171	125	70	60	20	90	80	100
T173	125	100	90	90	90	70	100
T174	125	70	70	40	50	70	80
T177	125	80	70	30	20	30	80
T178	125	100	90	90	100	100	100
T179	125	80	80	80	10	50	70
T180	125	90	70	70	100	90	100
T181	125	90	90	80	100	80	100
T182	125	100	90	80	100	100	100
T184	125	10	0	10	50	20	100
T185	125	90	80	80	100	100	100
T187	125	70	10	40	60	60	70
T188	125	80	70	30	70	100	100
T193	125	60	40	30	30	60	60
T194	125	30	0	20	0	70	80
T199	125	100	100	60	80	100	100
T200	125	70	80	80	100	100	100
T203	125	20	10	10	0	50	50
T208	125	70	70	80	70	50	80
P3	125	100	90	100	80	70	100
P4	125	100	90	100	90	80	100

Número de Compuest o	Proporción g/a	ALOMY	AVEFA	LOLPE	SETFA	DIGSA	ECHCG
P5	125	100	90	100	80	60	100
P6	125	100	90	100	80	80	100
P9	125	100	90	100	80	80	90
P10	125	100	90	100	80	80	100
P14	125	90	90	90	100	100	100
P15	125	100	90	90	80	80	100
P16	125	100	90	100	100	100	100
P17	125	100	90	100	100	100	100
P18	125	90	50	80	70	70	100
P19	125	100	100	100	100	100	100
P20	125	100	100	100	90	80	100
P21	125	90	100	100	100	80	100
P22	125	100	100	100	100	100	100
P23	125	100	90	90	80	70	100
P24	125	100	100	100	100	70	100
P25	125	100	90	100	80	80	100
P26	125	100	100	90	100	100	100
P24	125	80	60	70	90	100	90
P28	125	80	80	70	80	80	100
P30	125	80	NC	70	80	90	100
P33	125	80	70	80	70	70	90
P36	125	60	70	60	80	80	90
P37	125	90	80	90	100	90	100

Ejemplo de Ensayo 2

Los compuestos de ensayo se aplicaron postemergencia a 60 g ia/ha, solos y en combinación con cloquintocet-mexil a 60 g ia/ha; para cada tratamiento se incluyó el adyuvante Adigor (0,5%). El volumen de aplicación fue de 200 l/ha. Las plantas objetivo fueron plántulas de 2-3 hojas de trigo de invierno ‘Hereward’ y de cebada de invierno ‘Antoniya’ cultivadas en un invernadero bajo condiciones ambiente. Las evaluaciones se llevaron a cabo a los 14-21 días luego de la aplicación.

Compuesto	Proporción (g/ha)	Cloquintocet-mexil (g/ha)	Daño al Cultivo (%)	
			Trigo	Cebada
T1	60	0	85	99
	60	60	18	73
T3	60	0	28	5
	60	60	0	5
mezcla de T106:T107 1:1	60	0	63	85
	60	60	23	45

Ejemplo de Ensayo 3

El compuesto de ensayo T1 se aplicó a 100 y 200 g ia/ha, solo y en combinación con un rango de antídotos como mezclas 1:1 (por ejemplo a 100 g + 100 g; 200 g + 200 g) a las plantas de ensayo - trigo y maíz - en la etapa de 2-3

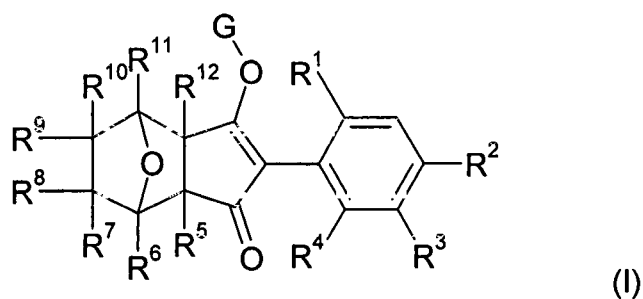
hojas. También se aplicó una mezcla de antídoto de 4 vías (cloquintocet-mexil, benoxacor, fluxofenim y el compuesto A*) con el compuesto de ensayo de modo que cada antídoto se utilizó a una relación 1:1 (por ejemplo a 100+100+100+100+100 g ia/ha). Las evaluaciones se llevaron a cabo a los 14-21 días luego de la aplicación.

Muestra de Ensayo	Daño al Trigo (%)		Daño al Maíz (%)	
	100 g/ha	200 g/ha	100 g/ha	200 g/ha
T1 solo	83	92	90	100
T1 + benoxacor a una relación 1:1	80	85	90	75
T1 + cloquintocet-mexil a una relación 1:1	5	10	93	95
T1 + isoxadifen a una relación 1:1	65	73	65	75
T1 + cipro sulfamida a una relación 1:1	68	85	23	28
T1 + compuesto A* a una relación 1:1	73	88	30	35
T1 + fluxofenim a una relación 1:1	75	90	85	88
T1 + mafenpir-dietil a una relación 1:1	23	45	100	100
T1+ diclorimid a una relación 1:1	73	73	80	100
T1 + mezcla de 4 vías a una relación 1:1:1:1	0	20	30	50

* El compuesto A es N-(2-metoxibenzoil)-4-[(metilaminocarbonil)amino]bencensulfonamida.

REIVINDICACIONES

1. Un compuesto de la fórmula I



donde

G es hidrógeno o un metal alcalino, metal alcalinotérreo, sulfonio, amonio o un grupo de latenciación,

R¹ es metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C₁-C₂ o haloalcoxi C₁-C₂,

R², R³ y R⁴ son independientemente entre sí hidrógeno, metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C₁-C₂ o haloalcoxi C₁-C₂,

R⁵ y R¹² son independientemente entre sí hidrógeno, alquilo C₁-C₃, haloalquilo C₁-C₃, alquioxo C₁-C₃, alquiltio C₁-C₃, halógeno o alcóxicarbonilo C₁-C₆, o

R⁵ y R¹² se unen conjuntamente para formar un anillo carbocíclico de 3-7 miembros, que opcionalmente contiene un átomo de oxígeno o azufre, y

R^6 , R^7 , R^8 , R^9 , R^{10} y R^{11} son independientemente entre sí hidrógeno o un sustituyente, o R^7 y R^8 , o R^9 y R^{10} , conjuntamente con los átomos de carbono a los cuales ellos están unidos forman una unidad imino opcionalmente sustituido, alqueno opcionalmente sustituido, o ceto, o cualquiera de dos de R^7 , R^8 , R^9 y R^{10} conjuntamente forman un anillo carbocíclico de 3-8 miembros que opcionalmente contiene un heteroátomo seleccionado de O, S o N y opcionalmente está sustituido, o R^7 y R^{10} conjuntamente forman un enlace.

2. Un compuesto de acuerdo con la reivindicación 1, donde

R^6 y R^{11} son independientemente entre sí hidrógeno, halógeno, formilo, ciano o nitro o

R^6 y R^{11} son independientemente entre sí alquilo C_1-C_6 , alqueno C_2-C_6 , alquino C_2-C_6 , alcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalqueno C_3-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^6 y R^{11} son independientemente entre sí un grupo COR^{13} , CO_2R^{14} o $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, NHR^{22} , $NR^{22}R^{23}$ o OR^{24} , donde

R^{13} es alquilo C_1-C_6 , alqueno C_2-C_6 , alquino C_2-C_6 , cicloalquilo C_3-C_7 , cicloalqueno C_3-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{14} es hidrógeno, alquilo C_1-C_6 , alqueno C_3-C_6 , alquino C_3-C_6 , cicloalquilo C_3-C_7 , cicloalqueno C_5-C_7 , fenilo, heteroarilo o es un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{15} es hidrógeno, alquilo C_1-C_6 , alqueno C_3-C_6 , alquino C_3-C_6 , alcoxi C_1-C_6 , haloalcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalqueno C_5-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{16} es hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , alcoxi C_1-C_6 , haloalcoxi C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , alquilsulfonilo C_1-C_6 , fenilsulfonilo, heteroarilsulfonilo, amino, alquilamino C_1-C_6 , dialquilamino C_1-C_6 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^{15} y R^{16} pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno,

R^{17} y R^{19} son independientemente entre sí hidrógeno, alquilo C_1-C_3 o cicloalquilo C_3-C_6 ,

R^{18} , R^{20} y R^{21} son independientemente entre sí hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , aminocarbonilo, alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{22} es alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , fenilcarbonilo, fenoxicarbonilo, fenilaminocarbonilo, feniltiocarbonilo, fenilsulfonilo, heteroarilcarbonilo, heteroariloxicarbonilo, heteroarilaminocarbonilo, heteroariltiocarbonilo o heteroarilsulfonilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{23} es alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcoxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^{22} y R^{23} pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno, donde todos estos sustituyentes están opcionalmente sustituidos, y

R^{24} es alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcóxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , aminocarbonilo, alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , tri(alquil C_1-C_6)sililo, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos.

3. Un compuesto de acuerdo con la reivindicación 1, donde

R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, halógeno, hidroxilo, formilo, amino, ciano o nitro, o

R^7 , R^8 , R^9 y R^{10} son independientemente entre sí alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , alquiltio C_1-C_6 , alquilsulfinilo C_1-C_6 , alquilsulfonilo C_1-C_6 , alquiltio C_1-C_6 alquilo C_1-C_6 , alquilsulfinil C_1-C_6 alquilo C_1-C_6 , alquilsulfonil C_1-C_6 alquilo C_1-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_4-C_7 , tri(alquil C_1-C_6)sililo, arilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R^7 , R^8 , R^9 y R^{10} son independientemente entre sí un grupo COR^{13} , CO_2R^{14} o $CONR^{15}R^{16}$, $CR^{17}=NOR^{18}$, $CR^{19}=NNR^{20}R^{21}$, $NR^{22}R^{23}$ u OR^{24} , donde

R^{13} es alquilo C_1-C_6 , alquenilo C_2-C_6 , alquinilo C_2-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R^{14} es hidrógeno, alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , cicloalquenilo C_5-C_7 , fenilo, heteroarilo o es un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁵ es hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalquenilo C₅-C₇, fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁶ es hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalquenilo C₅-C₇, alquilsulfonilo C₁-C₆, amino, alquilamino C₁-C₆, dialquilamino C₁-C₆, fenilo, heteroarilo o un heterociclilo de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R¹⁵ y R¹⁶ pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno,

R¹⁷ y R¹⁹ son independientemente entre sí hidrógeno, alquilo C₁-C₃ o cicloalquilo C₃-C₆,

R¹⁸, R²⁰ y R²¹ son independientemente entre sí hidrógeno, alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, cicloalquilo C₃-C₇, alquilcarbonilo C₁-C₆, alcoxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R²² y R²³ son independientemente entre sí alquilo C₁-C₆, alquenilo C₃-C₆, alquinilo C₃-C₆, cicloalquilo C₃-C₇, alquilcarbonilo C₁-C₆, alcoxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, alquilsulfonilo C₁-C₆, fenilo o heteroarilo o

R²² y R²³ pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno, donde todos estos sustituyentes están opcionalmente sustituidos, y

R^{24} es alquilo C_1-C_6 , alquenilo C_3-C_6 , alquinilo C_3-C_6 , cicloalquilo C_3-C_7 , alquilcarbonilo C_1-C_6 , alcóxicarbonilo C_1-C_6 , alquiltiocarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , alquilsulfonilo C_1-C_6 , tri(alquil C_1-C_6)sililo, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos.

4. Un compuesto de acuerdo con la reivindicación 1, donde

R^7 y R^8 , o R^9 y R^{10} , conjuntamente forman una unidad $=O$, o forman una unidad $=CR^{25}R^{26}$, o forman una unidad $=NR^{27}$, o cualquiera de dos de R^7 , R^8 , R^9 y R^{10} forman un anillo de 3-8 miembros, que contiene opcionalmente un heteroátomo seleccionado de O, S o N y está opcionalmente sustituido con alquilo C_1-C_3 , alcoxi C_1-C_3 , alquiltio C_1-C_3 , alquilsulfinilo C_1-C_3 , alquilsulfonilo C_1-C_3 , haloalquilo C_1-C_3 , halógeno, fenilo, fenilo sustituido con alquilo C_1-C_4 , haloalquilo C_1-C_4 , alcoxi C_1-C_4 , haloalcoxi C_1-C_4 , alquiltio C_1-C_4 , alquilsulfinilo C_1-C_4 , alquilsulfonilo C_1-C_4 , alquilcarbonilo C_1-C_4 , alcóxicarbonilo C_1-C_4 , aminocarbonilo, alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , halógeno, ciano o con nitro, heteroarilo o heteroarilo sustituido con alquilo C_1-C_4 , haloalquilo C_1-C_4 , alcoxi C_1-C_4 , haloalcoxi C_1-C_4 , alquiltio C_1-C_4 , alquilsulfinilo C_1-C_4 , alquilsulfonilo C_1-C_4 , alquilcarbonilo C_1-C_4 , halógeno, ciano o con nitro, donde

R^{25} y R^{26} son independientemente entre sí hidrógeno, halógeno, ciano o nitro, o R^{25} y R^{26} son independientemente entre sí alquilo C_1-C_6 , alcoxi C_1-C_6 , alquilamino C_1-C_6 , dialquilamino C_1-C_6 , alquilcarbonilo C_1-C_6 , alcóxicarbonilo C_1-C_6 , alquilaminocarbonilo C_1-C_6 , dialquilaminocarbonilo C_1-C_6 , *N*-fenil-*N*-alquilaminocarbonilo C_1-C_6 , *N*-fenilalquil C_1-C_6 -*N*-alquilaminocarbonilo C_1-C_6 , *N*-heteroaril-*N*-alquilaminocarbonilo C_1-C_6 , *N*-heteroarilalquil C_1-C_6 -*N*-alquilaminocarbonilo C_1-C_6 , fenilo, heteroarilo, cicloalquilo C_3-C_8 o heterociclilo de

3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,
o

R^{25} y R^{26} pueden estar unidos conjuntamente para formar un anillo de 5-8 miembros que contiene opcionalmente un heteroátomo seleccionado de O, S o N y está opcionalmente sustituido con alquilo C_1-C_2 o alcoxi C_1-C_2 ,

R^{27} es nitro o ciano, o

R^{27} es alquilamino C_1-C_6 , dialquilamino C_1-C_6 , alcoxi C_1-C_6 , alqueniloxi C_3-C_6 , alquiniloxi C_3-C_6 , fenoxi, fenilamino, *N*-fenil-*N*-alquilamino C_1-C_6 , *N*-fenilalquil C_1-C_6 -*N*-alquilamino C_1-C_6 , heteroariloxi, heteroarilamino, *N*-heteroaril-*N*-alquilamino C_1-C_6 o *N*-heteroarilalquil C_1-C_6 -*N*-alquilamino C_1-C_6 , donde todos estos sustituyentes están opcionalmente sustituidos.

5. Un compuesto de acuerdo con la reivindicación 1, donde R^1 , R^2 y R^4 son metilo y R^3 es hidrógeno.

6. Un compuesto de acuerdo con la reivindicación 1, donde R^1 , R^2 y R^4 son metilo y R^3 es hidrógeno, y

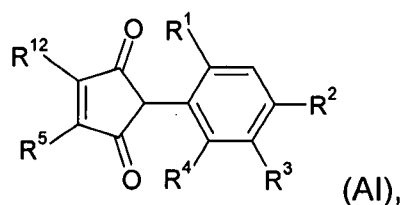
R^7 , R^8 , R^9 y R^{10} son independientemente entre sí hidrógeno, ciano, alquilo C_1-C_6 , alquenilo C_2-C_6 , alcoxi C_1-C_6 , alcoxi C_1-C_6 alquilo C_1-C_6 , heterociclilo de 3-7 miembros, arilo opcionalmente sustituido o heteroarilo opcionalmente sustituido.

7. Un compuesto de acuerdo con la reivindicación 1, donde R^5 y R^{12} son independientemente entre sí hidrógeno o alquilo C_1-C_3 .

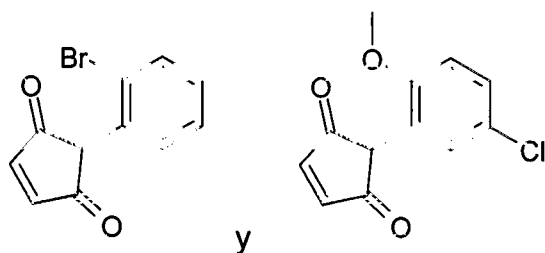
8. Un compuesto de acuerdo con la reivindicación 1, donde R^1 es metilo, etilo, vinilo, etinilo, ciclopropilo, difluormetoxi, trifluormetoxi o alcoxi C_1-C_2 y

en presencia o ausencia de un catalizador y en presencia o ausencia de un solvente.

10. Un compuesto de la fórmula (AI)



donde R^1 , R^2 , R^3 , R^4 , R^5 y R^{12} son según se definieron en la reivindicación 1, donde los compuestos de las fórmulas



están excluidos.

11. Una composición herbicida, la cual, además de comprender adyuvantes de formulación, comprende una cantidad efectiva como herbicida de un compuesto de la fórmula I.

12. Una composición herbicida de acuerdo con la reivindicación 11, la cual, además de comprender adyuvantes de formulación, comprende una cantidad efectiva como herbicida de un compuesto de la fórmula I y un herbicida adicional.

13. Una composición herbicida de acuerdo con la reivindicación 11, la cual, además de comprender adyuvantes de formulación, comprende una cantidad



Industria y Comercio

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

DIVISION DE NUEVAS CREACIONES

TARJETA ARCHIVO PROPIETARIOS

SUPERINTENDENCIA PATENTE DE INVENCION ☐ **PCT** ☒ **MODELO DE UTILIDAD** ☐ **DISEÑO INDUSTRIAL** ☐

(21) N° de solicitud:

(22) Fecha de solicitud:

(51) Clasificación Internacional:

(71) Solicitante(s) **SYNGENTA LIMITED**

(72) Inventor(es) **CHRISTOPHER JOHN MATHEWS, STEPHANE ANDRE MARIE JEANMART, MELLONEY TYTE, GAVIN JOHN HALL, WILLIAM GUY WHITTINGHAM, JEFFREY STEVEN WAILES, JAMES NICHOLAS SCUTT, RUSSELL VINER**

(74) Apoderado: **DRA. MARGARITA CASTELLANOS ABONDANO**

(30) Prioridad

(31) No. Prioridad

(32)

Fecha

(33) País

0715454.5

08/08/2007

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(86) Datos relativos a la presentación de la solicitud PCT

Fecha: **12/02/2009**

Fecha de presentación de la solicitud: **06/08/2008**

N° publicación: **WO 2009/019005 A2**

No. de solicitud **PCT/EP2008/006467**

(84) Título: **NUEVOS HERBICIDAS**



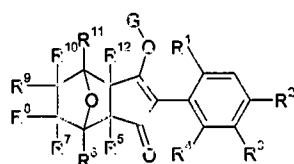
Industria y Comercio
SUPERINTENDENCIA

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES
EXTRACTO PARA PUBLICACIÓN
SOLICITUD DE PATENTE DE INVENCION PCT

(21) N° de solicitud:					(51) Int. Cl.:	
22) Fecha de solicitud:					(71) Solicitante(s) SYNGENTA LIMITED	
(30) Prioridad	(31) N° Prioridad	32)	Fecha	(33) País	(72) Inventor(es) CHRISTOPHER JOHN MATHEWS STEPHANE ANDRE MARIE JEANMART MELLONEY TYTE Y OTROS	
	0715454.5		06/08/2007	GB		
					(74) Apoderado: MARGARITA CASTELLANOS ABONDANO	
(85)	Fecha límite inicio fase nacional:				(87) Publicación internacional	
(86)	Datos relativos a la presentación de la solicitud PCT				Fecha: 12/02/2009	
	Fecha de presentación de la solicitud: 06/08/2008				N° publicación: WO 2009/019005 A2	
	N° de solicitud PCT/EP2008/006467					
(54) Título: NUEVOS HERBICIDAS						

Reivindicación(es):

1. Un compuesto de la fórmula I



(I)

donde

G es hidrógeno o un metal alcalino, metal alcalinotérreo, sulfonio, amonio o un grupo de latenciación,
R¹ es metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C₁-C₂ o haloalcoxi C₁-C₂,

R², R³ y R⁴ son independientemente entre sí hidrógeno, metilo, etilo, *n*-propilo, isopropilo, ciclopropilo, halometilo, haloetilo, vinilo, etinilo, halógeno, alcoxi C₁-C₂ o haloalcoxi C₁-C₂,

R⁵ y R¹² son independientemente entre sí hidrógeno, alquilo C₁-C₆, haloalquilo C₁-C₆, alquioxi C₁-C₆, alquiltio C₁-C₆, halógeno o alcóxicarbonilo C₁-C₆, o

R⁵ y R¹² se unen conjuntamente para formar un anillo carbocíclico de 3-7 miembros, que opcionalmente contiene un átomo de oxígeno o azufre, y

R⁶, R⁷, R⁸, R⁹, R¹⁰ y R¹¹ son independientemente entre sí hidrógeno o un sustituyente, o R⁷ y R⁸, o R⁹ y R¹⁰, conjuntamente con los átomos de carbono a los cuales ellos están unidos forman una unidad imino opcionalmente sustituido, alqueno opcionalmente sustituido, o ceto, o cualquiera de dos de R⁷, R⁸, R⁹ y R¹⁰ conjuntamente forman un anillo carbocíclico de 3-8 miembros que opcionalmente contiene un heteroátomo seleccionado de O, S o N y opcionalmente está sustituido, o R⁷ y R¹⁰ conjuntamente forman un enlace.

2. Un compuesto de acuerdo con la reivindicación 1, donde

R⁶ y R¹¹ son independientemente entre sí hidrógeno, halógeno, formilo, ciano o nitró

R⁶ y R¹¹ son independientemente entre sí alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, alcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalqueno C₃-C₇, fenilo, heteroarilo o un heterocíclico de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R⁶ y R¹¹ son independientemente entre sí un grupo COR¹³, CO₂R¹⁴ o CONR¹⁵R¹⁶, CR¹⁷=NOR¹⁸, CR¹⁹=NNR²⁰R²¹, NHR²², NR²²R²³ o OR²⁴, donde

R¹³ es alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, cicloalquilo C₃-C₇, cicloalqueno C₃-C₇, fenilo, heteroarilo o un heterocíclico de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁴ es hidrógeno, alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, cicloalquilo C₃-C₇, cicloalqueno C₃-C₇, fenilo, heteroarilo o es un heterocíclico de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁵ es hidrógeno, alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalqueno C₃-C₇, fenilo, heteroarilo o un heterocíclico de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos,

R¹⁶ es hidrógeno, alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, alcoxi C₁-C₆, haloalcoxi C₁-C₆, cicloalquilo C₃-C₇, cicloalqueno C₃-C₇, alquilsulfonilo C₁-C₆, fenilsulfonilo, heteroarilsulfonilo, amino, alquilamino C₁-C₆, dialquilamino C₁-C₆, fenilo, heteroarilo o un heterocíclico de 3-7 miembros, donde todos estos sustituyentes están opcionalmente sustituidos, o

R¹⁵ y R¹⁶ pueden estar unidos para formar un anillo de 3-7 miembros opcionalmente sustituido, que contiene opcionalmente un átomo de oxígeno, azufre o nitrógeno,

R¹⁷ y R¹⁹ son independientemente entre sí hidrógeno, alquilo C₁-C₆ o cicloalquilo C₃-C₆,

R¹⁶, R²⁰ y R²¹ son independientemente entre sí hidrógeno, alquilo C₁-C₆, alqueno C₂-C₆, alquino C₂-C₆, cicloalquilo C₃-C₇, alquicarbonilo C₁-C₆, alcóxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, aminocarbonilo, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, fenilo o heteroarilo, donde todos estos sustituyentes están opcionalmente sustituidos,

R²² es alquicarbonilo C₁-C₆, alcóxicarbonilo C₁-C₆, alquiltiocarbonilo C₁-C₆, alquilaminocarbonilo C₁-C₆, dialquilaminocarbonilo C₁-C₆, alquilsulfonilo C₁-C₆, fenilcarbonilo, fenoxycarbonilo, fenilaminocarbonilo, feniltiocarbonilo, fenilsulfonilo, heteroarilcarbonilo, heteroariloxycarbonilo, heteroarilaminocarbonilo, heteroariltiocarbonilo o heteroarilsulfonilo, donde todos estos sustituyentes están opcionalmente sustituidos,

...

COLOMBIA

Registered Office:

SYNGENTA LIMITED
EUROPEAN REGIONAL CENTRE
PRIESTLY ROAD
SURREY RESEARCH PARK
GUILDFORD
SURREY GU2 7YH
UNITED KINGDOM

PODER

POWER OF ATTORNEY

El (los) SYNGENTA LIMITED

Domiciliados en Priestly Road, Surrey
Research Park, Guildford, Surrey GU2 7YH
Nombran por el presente a XIMENA CASTELLANOS A. y/o
MARGARITA CASTELLANOS A. abogadas con oficinas en
la Carrera 9 No. 93-09, Bogotá-Colombia para

y para obtener la protección de mi (nuestra) propiedad
Industrial y con este fin autorizamos a dichos apoderados para
que nos representen ante cualesquiera autoridades o
personas de los órdenes administrativo, contencioso -
administrativo y judicial en todo lo relacionado con los
siguientes actos y gestiones:

a) Obtención de patentes de invención, modelos y dibujos
industriales; registro de marcas de fábrica, de servicio,
colectivas o defensivas y de denominaciones de origen,
depósito de nombres y señas comerciales; su renovación,
prórroga, inscripción de traspaso y cambio de nombre o
domicilio, cancelación voluntaria y el registro de licencias de
uso de esos derechos; b) Para la obtención de registros
sanitarios; c) Acciones de oposición, observación,
cancelación, nulidad, medidas cautelares y en general los
juicios civiles, penales, administrativos o contencioso -
administrativos que promovamos o se nos promuevan,
pudiendo en todos los actos y gestiones arriba mencionados
sustituir éste mandato, transigir, desistir, recibir, cancelar,
renunciar, aceptar notificaciones y nombrar apoderados
judiciales y extrajudiciales.

Dado y firmado hoy 2 de Julio del 2003

en Bracknell, Reino Unido

por SYNGENTA LIMITED

(El notario debe suscribir el documento en la pagina siguiente)

(Se requiere legalización consular)

I (we) the undersigned SYNGENTA LIMITED
Of

- REINO UNIDO

hereby grant(s) Power of Attorney to XIMENA
CASTELLANOS A. and for MARGARITA CASTELLANOS
a. attorneys residing at Carrera 9 No. 93-09, Bogotá-
Colombia, to

and to obtain the protection of my (our) Industrial Property, for
which purpose we authorize the said attorneys to represent
us before any authorities, or persons, specially those,
administrative, contentious and judicial, in all matters
concerning the following:

a) Obtention of patents, models and designs, registration of
trademarks, services, collective and defensive marks, and of
designations of origin; the deposit of trade names and
emblems; its renewal, extension, recordal of assignments,
change of name or domicile, voluntary cancellation, and the
registration of licenses of use of the above rights; b) For the
obtention of Sanitary registrations; c) Actions of opposition,
cancellation, nullity, infringement, granting of licenses; and in
general the civil, criminal and administrative suits related to
those rights; actions and suits instituted by us or against us;
and that in all the above matters they may substitute this
power of attorney, compromise, desist, cancel, receive,
renounce, accept notifications and appoint attorneys in fact,
in or out of court.

Given and signed this 2nd JULY 2003

in BRACKNELL, UK

by Joanna Chandler

(Notary shall execute on the other side)

(Consular legalization required)

JOANNA CHANDLER

AUTHORISED SIGNATORY

ALVARO CASTELLANOS M. & CIA.

ABOGADOS COLOMBIA

Carrera 9 No. 93-09 - P.O. Box 6242 - Bogotá, Colombia
Tel.: (571) 616 74 20 / 66 7 80 - Fax (571) 616 67 06 - e-mail: a.castellanos@ingrae.net.co

Como Notario del Circuito de
Bogotá, hago constar que esta copia
coincide con original que se ha
presentado para su autenticación.
Bogotá, D.C. Colombia

- 4 FEB. 2010

WILLIAM E. JIMÉNEZ LEAÑO
NOTARIO 28 ENCARGADO

37367

COLOMBIA

CERTIFICADO NOTARIAL (Sociedad)

Hoy 3 de Jul. del año 2003
compareció (eron) personalmente
a quienes conozco como la(s) personas que firma(n) en
representación de la Sociedad (Compañía denominada
Certifico: SYNGENTA LIMITED
a) Que es una sociedad/Compañía legalmente
constituida y existente de acuerdo con las leyes de
b) Que el domicilio de dicha Sociedad/Compañía es
c) Que el objeto u objetos para los cuales se otorga el
presenta poder están comprendidos dentro del objeto
social de la mencionada Sociedad/Compañía.
d) Que el Sr. Joanna Chandler
está autorizado para otorgar el presente poder. Lo anterior
está probado por medio de los siguientes documentos, que
certifico he visto* Estatutos de constitución

(Ciudad) Egham

(Estado) Surrey

Hoy 3 del Julio del 2003

(Notario Público)

*Los documentos debe identificarse con fecha y origen.

NOTARIAL (Corporation)

On this 3rd day of July of 2003
personally appeared JOANNA CHANDLER
whom I know to be the person(s) who signed this
document as representative(s) of the Corporation
/Company named SYNGENTA LTD
I certify:
a) That SYNGENTA is a corporation (Company legally
constituted and in existence in accordance with the
laws of England & Wales
b) That the domicile of said Corporation/Company is GUILDFORD
c) That the purpose or purposes for which the present
Power of Attorney is granted are comprised within
the object set forth in the charter of the mentioned
Corporation/Company.
d) That Mr. M/S Joanna Chandler
is (are) authorized to grant the present Power of Attorney.
The aforementioned was duly proven through the
following documents and I duly certify having seen them:
Certificate of Incorporation.
(City) Egham

(State) Surrey

EXECUTION
Certified Verified and Authenticated
this 3 day of July of the year 2003 in Egham In Surrey
The 3rd Day of July 2003

KENNETH GREENWOOD
NOTARY PUBLIC
10 RINE EGGALL ANT FREEMAN

*Documents must be identified with date and origin

Como Notario Valiente del Circuito de
Bogotá, hego constar que esta copia
coincide con original que se ha
presentado para su autenticación.
Bogotá, D.C. Colombia
- 4 FEB. 2010
WILLIAM E. JIMÉNEZ LEAÑO
NOTARIO 28 ENCARGADO

ALVARO CASTELLANOS M. & CIA.
ABOGADOS COLOMBIA

Carrera 9 No. 33-09 - P.O. Box 1347 - Bogotá, Colombia
Tels: (571) 610 74 20 / 20 / 00 - Fax (571) 610 67 66 - e-mail: acastell@impresos.net.co

APOSTILLE

(Hague Convention of 5 October 1961 / Convention de La Haye du 5 octobre 1961)

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

1. Country: United Kingdom of Great Britain and Northern Ireland
Pays: Royaume-Uni de Grande-Bretagne et d'Irlande du Nord

This public document / Le présent acte public

2. Has been signed by **K Greenwood**
a été signé par
3. Acting in the capacity of **Notary Public**
agissant en qualité de
4. Bears the seal/stamp of **The Said Notary Public**
est revêtu du sceau/timbre de

Certified/Attesté

5. at London/à Londres
6. the/le **04 July 2003**
7. by Her Majesty's Principal Secretary of State for Foreign and Commonwealth Affairs /
par le Secrétaire d'Etat Principal de Sa Majesté aux Affaires Etrangères et du Commonwealth.

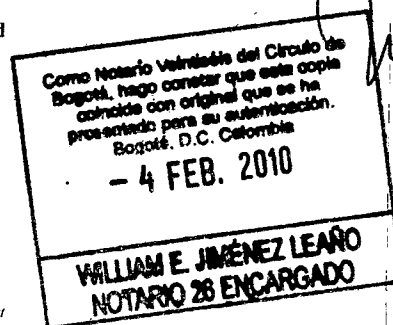
8. Number/sous No **G201564**

9. Stamp:
timbre:

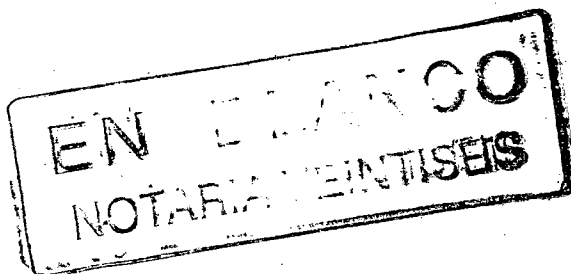
10. Signature: **J. Ireland**



For the Secretary of State / Pour le Secrétaire d'Etat



If this document is to be used in a country which is not party to the Hague Convention of 5 October 1961,
it should be presented to the consular section of the mission representing that country.



-----TRADUCCION OFICIAL No. 03-0718-----

de un documento escrito en INGLES, el cual para su identificación lleva el sello de la Traductora e Intérprete Oficial , según Resoluciones 2755/68 y 01144/97 del Ministerio de Justicia.

(Anexo a un documento de poder de Syngenta Limited)

AUTENTICACIÓN

Certificado, verificado y autenticado en el pueblo de Egham en Surrey

Hoy día 3 de Julio de 2003.

(fdo) ilegible

Kenneth Greenwood – Notario Público

Horne, Engall and Freeman

(Sello en oblea roja)

APOSTILLA

(Convención de La haya del 5 de octubre de 1961)

1. País: Reino Unido de Gran Bretaña e Irlanda del Norte

Este documento público

2. ha sido firmado por K. Greenwood

3. actuando en su carácter de Notario Público

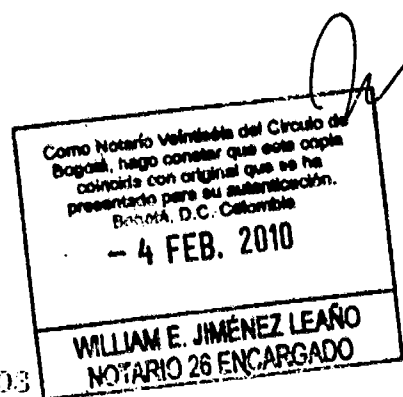
4. lleva el sello de dicho Notario Público

Certificado

5. En Londres

6. el día 4 de Julio de 2003

7. por el Secretario de Estado Principal de Su Majestad para Asuntos Exteriores y de la Comunidad



DORA DUQUE DE BERNAL
TRADUCCION OFICIAL
RES. 03755/68 y 01144/97
MIN. DE JUSTICIA

8 No. G201564

9. Sello

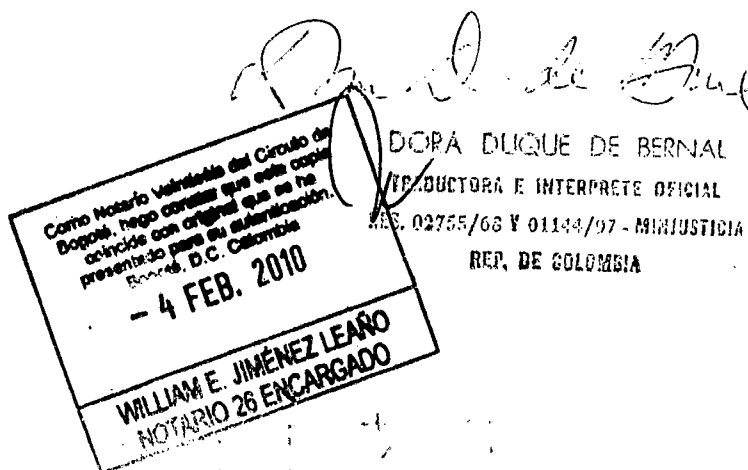
10. Firma: J. Ireland

(fdo) ilegible

Por el Secretario de Estado

ES TRADUCCION FIEL Y COMPLETA, a la cual me remito,

Bogotá, D. C., Julio 24, 2003



MINISTERIO DE RELACIONES
EXTERIORES

NO SE ASUME
RESPONSABILIDAD DEL TEXTO

Don m. car
249710

2003 JUL 25 P 12:02

COYA FIRMA AUTENTICA EN EL
DOCUMENTO PRESENTADO
LAS FIRMAS

lea
JEFE DE LEGALIZACIONES
SANTAFE DE BOGOTA D.C.

Como Notario Veintiseis del Circuito de Bogotá, hago constar que esta copia coincide con original que se ha presentado para su autenticación. Bogotá, D.C. Colombia - 4 FEB. 2010	
WILLIAM E. JIMÉNEZ LEAÑO NOTARIO 22 ENCARGADO	

EN BLANCO
NOTARIA VEINTISEIS

EN BLANCO
NOTARIA VEINTISEIS

CASTELLANOS & CO LTDA
ABOGADOS
 Calle 94 A No. 7 A-09
 Bogotá, D.C. - COLOMBIA

Señor

Jefe de la División de Nuevas Creaciones

Superintendencia de Industria y Comercio

Ministerio de Comercio, Desarrollo, Industria y Turismo

E.

S.

D.

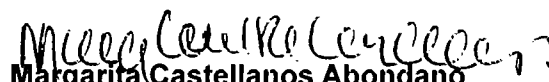
Ref.: **PODER** conferido por la sociedad **SYNGENTA LIMITED**

Yo, **XIMENA CASTELLANOS ABONDANO**, mayor de edad, identificada y domiciliada como aparece al pie de mi firma, atentamente manifiesto a Uds. que sustituyo en la Dra. **MARGARITA CASTELLANOS ABONDANO**, el poder que me confirió la sociedad **SYNGENTA LIMITED**, con domicilio en **European Regional Centre, Priestly Road, Surrey Research Park, Guildford, Surrey GU2 7YH, REINO UNIDO**, debidamente legalizado por Apostilla, bajo el No. **G201564** el día **4 de Julio de 2003**, con las mismas facultades que me fueron conferidas, para tramitar la solicitud de Patente PCT Entrada en Fase Nacional, en Colombia, para: **"DERIVADOS DE CICLOPENTANDIONA PUENTEADOS TRICICLICOS COMO HERBICIDAS"**.

Del Señor Jefe,

Acepto


Ximena Castellanos Abondano
 C.C. No. **39.773.330** de Usaquén
 T.P.A. No. **58.236** del C.S.J.
 Calle 94 A No. 7 A-09 - Bogotá, D.C.
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Margarita Castellanos Abondano
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Bogotá, D.C.
 ZCA/MCA/P1892

El anterior memorial fue presentado personalmente por

Ximeno Castellanos Abandano

quien se identificó con la C. de C. No. 39223330

de Usaquen

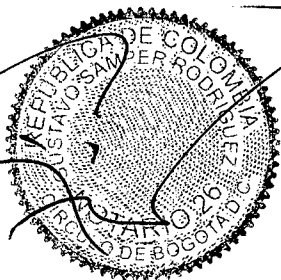
Tarjeta Profesional No. 58236 CJS

Bogotá, D.C. 5 FEB. 2010

El Notario Veintiseis

Gustavo Samper Rodríguez

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El anterior memorial fue presentado personalmente por

Margarita Castellanos Abandano

quien se identificó con la C. de C. No. 3922967

de Usaquen

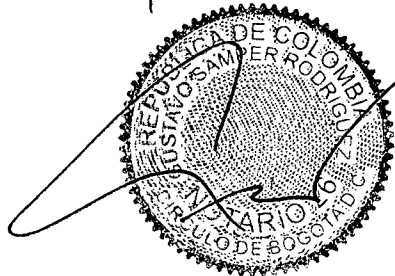
Tarjeta Profesional No. 20819 CJS

Bogotá, D.C. 5 FEB. 2010

El Notario Veintiseis

Gustavo Samper Rodríguez

[Handwritten signature]





Bogotá,
2020

Doctor(a)
MARGARITA CASTELLANOS ABONDANO
Apoderado(a) y/o Representante de
SYNGENTA LIMITED

REFERENCIA	Radicación No.	10 12629
	Solicitud internacional	PCT/EP2008/006467
	Fecha inicio fase nacional	08/03/2010
	Trámite	11
	Evento	378
	Actuación	430
	Oficio No.	3538

Como resultado del examen de forma, realizado con fundamento en el artículo 39 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

1. El solicitante debe presentar un nuevo título que permita identificar la materia de la cual trata la solicitud, ya que el título relacionado no se encuentra con la precisión necesaria para identificar claramente el objeto de la solicitud de patente. (Regla 4.3 PCT, Art 26-27 D-486, Circular Única 5.2.9)

2. La solicitud no contiene la copia del documento en que consta la cesión del derecho a la patente del inventor al solicitante o a su causante, conforme a lo establecido por el artículo 26 literal k) de la Decisión 486 de la Comisión de la Comunidad Andina. Cuando se trate de documentos otorgados en el extranjero, estos deberán legalizarse de conformidad con lo dispuesto por los artículos 259 y 260 del Código de Procedimiento Civil. Cuando se trate de las declaraciones a que hace referencia la Regla 4.17 ii) del Tratado de Cooperación en Materia de Patentes PCT., el alcance de las tales declaraciones se determinará según indiquen claramente una cesión de derechos del inventor al solicitante o su causante, de conformidad con lo dispuesto en el numeral 5.2.15 del Capítulo Quinto, Título X de la Circular Única de Superintendencia de Industria y Comercio.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No.10 de 2001.

Continúa en la página siguiente...