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Industria y Comercio

SUPERINTENDENCIA

PETITORIO

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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SOLICITUD DE:

1

☒ Patente de Invención.
☒ Capítulo I.

☐ Patente de Modelo de Utilidad.
☐ Capítulo II.

2

SOLICITANTE
(71)

Nombre: **BASF AKTIENGESSELLSCHAFT**
sociedad constituida y existente de acuerdo
con las leyes de Alemania

Dirección: 67056 Ludwigshafen
Alemania

Domicilio: Ludwigshafen, Alemania

IDENTIFICACIÓN

C.C. ☐ NIT ☐
C.E. ☐ Otro ☐
Cual _____
Número _____

3

REPRESENTANTE
O APODERADO

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Número 438.019 T.P 31.929

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5

PCT (86)

Solicitud Internacional No. PCT/EP2006/062719

Fecha: 30 de mayo de 2006

Publicación Internacional No. WO 2006/128867 A1

Fecha: 7 de diciembre de 2006

6

Título (54)

DERIVADOS DE UN 1-FENILTRIAZOL

7

Clasificación Internacional (51) A01N 043/653

(Für Patente, Modelle und Zeichnungen; Warenzeichen und Servicezeichen; Handelsnamen und -zeichen)

REPRESENTACION Y PODER

Yo (nosotros), abajo firmado (s)

BASF Aktiengesellschaft

domiciliado(s) en Ludwigshafen, República
Federal de Alemania

por el presente nombramos a GERMAN CAVELIER, tpa. 832; GONZALO PERDOMO, tpa. 831; ERNESTO CAVELIER, tpa. 11519; y EMILIO FERRERO, tpa. 31929; domiciliados en la Carrera 4ª N° 72-35, Bogotá, Colombia, en obediencia a lo dispuesto en el parágrafo 1º del Artículo 543 del Código de Comercio, el primero como principal y los demás como suplentes, en su orden, como nuestros representantes en todos los asuntos de propiedad industrial con facultad para recibir notificaciones y nombrar apoderados judiciales o extrajudiciales. El primer representante suplente reemplazará al principal en caso de ausencia o impedimento temporal o definitivo de aquél. La misma regla se aplicará cuando el segundo representante suplente haya de reemplazar al primero, o el tercero al segundo. En tales casos, el representante principal, o el primero, o segundo suplente, en su caso, o ambos, declararán su intención de no ejercer la representación mediante declaración autenticada por Notario Público en Colombia, o por Notario u otro Funcionario Público, o Cónsul de Colombia, en el extranjero; y si se tratare de impedimento, con el certificado respectivo. Si alguno de los nombrados faltare definitivamente, el siguiente tomará su lugar. Cuando cesare la ausencia o impedimento del representante principal, o de su primero o segundo suplente, en su caso, podrán ejercer la representación, en su orden, uno u otros según el caso, asumiéndola por el solo hecho de ejercerla, cesando en ese momento el ejercicio de la representación por el primero, segundo o tercer suplente en su caso. Además, y bajo las mismas reglas, conferimos poder a los abogados arriba nombrados, para obtener la protección de mi (nuestra) propiedad industrial y contra la competencia desleal, a cuyo efecto autorizo(amos) a los dichos apoderados para que me(nos) representen ante cualesquiera entidades o personas, ejerzan o no jurisdicción, especialmente ante las del orden administrativo, contencioso-administrativo y judicial, en todo lo concerniente a los siguientes asuntos: a) Obtención de patentes de invención, modelos y dibujos industriales; el registro de marcas de fábrica, colectivas, defensivas y de servicios; el depósito de nombres comerciales y enseñanzas; su renovación, traspaso, cambio de nombre o domicilio, cancelación voluntaria; y el registro de licencias de uso de esos derechos; b) Las acciones de oposición, cancelación, nulidad, medidas cautelares, concesión de licencias y en general los juicios civiles, penales, administrativos o contencioso-administrativos relacionados con estos derechos; acciones y juicios que promovamos o se nos promuevan. Y para que en todos los asuntos arriba determinados, puedan sustituir este mandato, transigir, desistir, cancelar, recibir, renunciar, y ratificar los actos hechos por agentes oficiosos.

Dado y firmado hoy 17 de marzo de 1989

en D-6700 Ludwigshafen

BASF Aktiengesellschaft

Firma
ppa. Walzel

VERTRETUNG UND VOLLMACHT

Ich (wir) unten Unterzeichnender (de)

BASF Aktiengesellschaft

wohnhaft in Ludwigshafen, Republica Federal
de Alemania

verleihen durch dieses Schreiben an GERMAN CAVELIER, tpa. 832; GONZALO PERDOMO, tpa. 831; ERNESTO CAVELIER, tpa. 11519; und EMILIO FERRERO, tpa. 31929; wohnhaft in der Carrera 4ª N° 72-35, Bogotá, Kolumbien, um die Verfügung des Absatzes 1 im Artikel 543 des Handelsgesetzbuch zu beachten, der erste als Hauptvertreter und die übrigen als Stellvertreter, beziehungsweise, als unsere Vertreter in allen was sich auf das industrielle Eigentum bezieht, berechtigt Meldungen zu empfangen und gerichtliche und aussergerichtliche Bevollmächtigte zu ernennen. Der erste Stellvertreter wird den Hauptvertreter ersetzen wegen zeitweiligen oder definitiven Abwesenheit oder Hindernisses des ersten. Dieselbe Regel wird angewandt werden wenn der zweite Stellvertreter den ersten ersetzen muss, oder der dritte den zweiten. In solchen Fällen der Hauptvertreter, oder der erste oder der zweite Stellvertreter, beziehungsweise, oder beide, werden ihre Absicht aussprechen um nicht die Vertretung auszuüben mittelst Aussage notariell beglaubigt in Kolumbien, oder vor Notar oder vor einem anderen öffentlichen Beamten, oder kolumbianischen Konsul im Auslande; und wenn es ein Hindernis sei, mittels der betreffenden Beglaubigung. Wenn einer der Genannten immerfort abwesend wäre, der Folgende wird ihn ersetzen. Im Falle dass die Abwesenheit oder das Hindernis des Hauptvertreters, oder diejenigen seines ersten, zweiten oder dritten Vertreters, beziehungsweise, beendeten, einer oder anderen, ordnungsgemäss werden die Vertretung ausüben und sie zu sich nehmen nur auf Grund sie auszuüben, mit Aufhören zur Zeit der Ausübung der Vertretung durch den ersten, den zweiten oder den dritten Stellvertreter beziehungsweise. Ausserdem, und unter dieselben Regeln, wir verleihen den genannten Rechtsanwälte die Vollmacht, und um den Schutz meines (unseres) industriellen Eigentums zu erhalten, und gegen den unlauteren Wettbewerb; zu dessen Zweck ich (wir) die genannten Bevollmächtigten ernenne(n), damit sie uns vor beliebigen Institutionen oder Personen, die die Rechtsprechung ausüben oder nicht, vor allem vor denen mit Verwaltungs, streitigem Verwaltungs, und juristischem Charakter, in allen was sich auf folgende Angelegenheiten bezieht, zu vertreten: a) Erlangung von Patenten, Modellen und Zeichnungen; Registrierung von Waren-, Marken-, Defensive- und Service-zeichen; Aufbewahrung von Handelsnamen- und -zeichen; ihre Erneuerung und Übertragung, Names und Wohnsitzänderung, freiwillige Annullierung und die Registrierung von Vertraglizenz; b) Die Oppositionsklagen, Annullierung, Ungültigkeit, Vorsichtsmassnahmen, Lizenzen und im allgemeinen die Zivil-, Straf-, Verwaltungs- oder streitigen Verwaltungsprozesse, die mit diesen Rechten verbunden sind, Aktionen und Verhandlungen, die wir vorantreiben oder die man uns vorantreibt und; c) damit sie in allen oben bestimmten Angelegenheiten dieses Mandat erledigen, regeln, davon Abstand nehmen, annullieren, empfangen, verzichten, Meldungen annehmen und gerichtliche und aussergerichtliche Bevollmächtigte ernennen, und die Handlungen der halbamtlichen Vertreter bestätigen.

Unterzeichnet heute am 17. März 1989, CAVELIER, tpa. 832, tpa. 831, tpa. 11519, tpa. 31929, COPIA COINCIDE CON EL ORIGINAL HE TENIDO A LA VISTA

in D-6700 Ludwigshafen

03 ENE 2008

Unterzeichnet
ppa. Richter

GENERAL DE COI

GENERAL DE COI

1407/89

Ich beglaube hiermit die Echtheit der vorstehend
eigenhändig vor mir vollzogenen Unterschriften der für
die Firma BASF Aktiengesellschaft Ludwigshafen am Rhein
handelnden Herren:

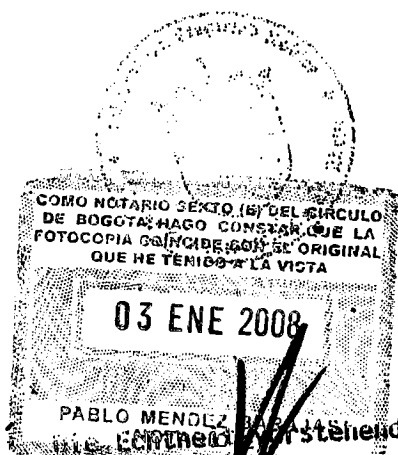
1. Dr. Günther W e i z e l , Chemiker in
Ludwigshafen am Rhein,

2. Dr. Peter R i c h t e r s , Chemiker in
Ludwigshafen am Rhein.

Die Herren Dr. Welzel und Dr. Richters sind mir persönlich
bekannt.

aufgrund heutiger Einsichtnahme in das Handelsregister
beim Amtsgericht Ludwigshafen am Rhein HR B 3000 be-
scheinige ich, daß die Herren Dr. Welzel und Dr. Richters
als Prokuristen gemeinschaftlich zur Vertretung und
Zeichnung der Firma BASF Aktiengesellschaft mit dem
Sitz in Ludwigshafen am Rhein berechtigt sind.

Ludwigshafen am Rhein, den 17. März 1989



[Handwritten signature]

n. Walter
als amtlich bestellter Vertreter
des Notars Dr. Josef Kohler

Die Echtheit der Unterschrift des Notarassessors
Thomas Walter

als amtlich bestellter Vertreter des Notars Justizrat Dr. Kohler
in Ludwigshafen am Rhein und die Echtheit des beigedruckten
Dienststempels werden hiermit bestätigt. Zugleich wird bescheinigt,
daß der Vorgenannte zur Vornahme der Amtshandlung befugt war.

Frankenthal (Pfalz), den einundzwanzigsten März neunzehnhundert-
neunundachtzig

Präsident des Landgerichts

(Franz Serfas)



Kostenvermerk: Gebühr 20 -- DM



LUZ ARRIAGA DE ARREBEN
DIRECTORA EN CHARGE
Resolución No. 555 Pineda

CONSULADO GENERAL DE COLOMBIA

El suscrito Cónsul General de Colombia en Frankfurt
am Main, República Federal de Alemania, vistos los
documentos presentados por los interesados,

C E R T I F I C A:

Que el señor Thomas Walter-----
quien como Notario en Ludwigshafen am Rhein-----
autenticó la(s) firma(s) del(os) signatario(s) del
Poder precedente, ejercía las funciones indicadas;
su firma corresponde a la registrada ante el Tribunal
Regional de Frankenthal (Pfalz)-----
que la compañía BASF Aktiengesellschaft-----
es una sociedad constituida de acuerdo con las leyes
de la República Federal de Alemania y cumple su objeto
conforme a las mismas; que el(los) señor(es) Dr. Johannes
WELZEL y el Dr. Peter RICHTERS-----
quien(es) en sus carácter(es) de apoderados-----
----- y cuya(s) firma(s) del
(fueron) autenticada(s) ante el Notario Thomas Walter
----- es(son) qu(é) representante
te(s) legal(es) en este país.

El Cónsul General no asume responsabilidad por el
tenido del documento.

Esta Certificación se expide en Frankfurt am Main
el seis de Abril de mil novecientos ochenta y ocho

Frankfurt a. M 06 ABR 1989

PAGADO IMPUESTO DE TIMBRE

Don \$45.60 de Ley E. S. N. N.

COMO NOTARIO SEXTO (E) DEL CIRCULO
DE BOGOTA, HAGO CONSTAR QUE LA
FOTOCOPIA COINCIDE CON EL ORIGINAL
QUE HE TENIDO A LA VISTA

03 ENE 2008

PABLO FENDEZ BARAJAS
NOTARIO (E)



Manuela Niño de Guzmán
Cónsul General de Colombia

86

LE LAS INSTRUCCIONES
DEBEN ESTAR PRESENTES CON TODOS LOS

ESTE FORMULARIO
CON ALGUN VALOR

881051599954

B C C 15
SUCURSAL CORPORATIVA

16 013 01 000045 1
RECIBO DE IMPUESTOS
16 013 01 000045 1

① Administración de impuestos de:		Código	② Teléfono:
BOGOTA		0,3	2120100
③ Documento de identificación (marque X)		④ Apellidos y Nombres o Razón Social de las partes (traducción o transcripción)	
C.C. ó T.I. ☐ C ☐	NIT. ☐ A ☒ Y No. 860041367	O.V. 3	CAVELIER ABOGADOS
⑤		⑥ Apellidos y Nombres o Razón Social de las partes (traducción o transcripción)	
C.C. ó T.I. ☐ C ☒ X	NIT. ☐ A ☐ Y No. 19' 301.629	O.V.	FORERO BOLHA JAIME
⑦ Dirección (de la persona o entidad identificada en la casilla 4)		Municipio	Departamento
Cra. 4a. No. 72-35		BOGOTA	CUNDINAMARCA
⑧			

TIMBRE TRADUCCION OFICIAL No. 2056 DE ABRIL 26 DE 1969
PAGO DERECHOS TRADUCCION DE UN PODER
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REVISADO
SECCION DE ASUNTOS CONSULARES
DE RELACIONES EXTERIORES

Responsable del pago

Nombre
C.C. No.

19301629

PAGO EN BANCOS
FORMA VALORES

VP
VS
IM
TR

CONTRIBUYENTE

CON PAGO
CORO NOTARIO SEXTO (S) DEL CIRCULO
DE BOGOTA, HAGO CONSTAR QUE LA
COPIA COINCIDE CON EL ORIGINAL
RENTENDO A LA VISTA
03 ENE 2008
PARLO MENDEZ BARAJAS
NOTARIO (S)

El Presidente del Tribunal Regional

Fdn.: firma ilegible (sello redondo:)

(Franz Serfas)

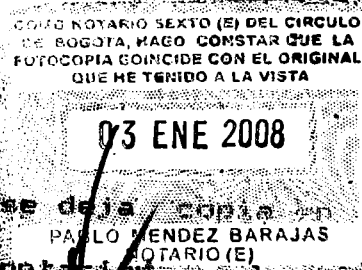
El Presidente del Tribunal Regional
de Frankenthal (Pfalz)

Nota: Derrechos 20,-- DM

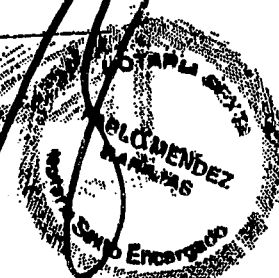
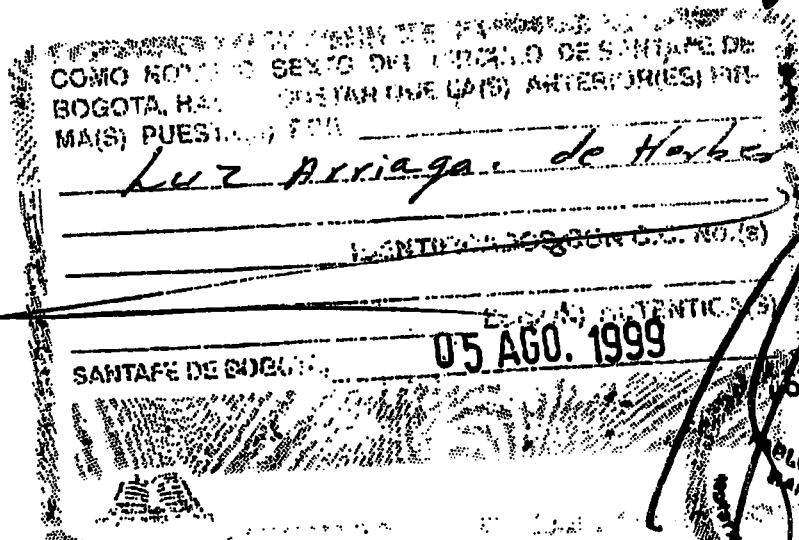
EN ESPAÑOL: La legalización de las firmas anteriores por el
Consulado de General de Colombia en Frankfurt, bajo el No.
0077 (Certificación consular) del 6 de abril de 1989 y del
Ministerio de Relaciones Exteriores de Colombia bajo el No.
85061 del 24 de abril de 1989.

Pagado impuesto de timbre US\$ 6,00

ES TRADUCCION FIEL Y COMPLETA, de la cual se deja copia en
los archivos de estas oficinas para su confrontación.
Bogotá, 26 de abril de 1989



LUZ ARRIAGA DE HERBER
TRADUCTORA E INTERPRETE OFICIAL
Regulación No. 50 Ministerio



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(74) Common Representative: BASF Aktiengesellschaft;
67056 Ludwigshafen (DE).

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KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
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(71) Applicant (for all designated States except US): BASF
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RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

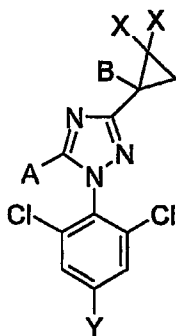
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Fuquay Varina, Nc 27526 (US). ANSPAUGH, Douglas,
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Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: DERIVATIVES OF A 1-PHENYLTRIAZOLE AS ANTIPARASITIC AGENTS



(I)

(57) Abstract: Compounds of formula (I) wherein X is chloro or bromo; Y is chloro or tri-
fluoromethyl; and A and B are hydrogen or methyl with the proviso that one of A or B must
be methyl; or the enantiomers or salts thereof, use of compounds of formula (I) for comba-
ting insects or acarids and for treating, controlling, preventing or protecting animals against
infestation or infection by parasites, and compositions comprising compounds of formula (I).

WO 2006/128867 A1

It was therefore an object of the present invention to provide new insecticidal and acaricidal compounds, new compositions and new methods for the control of insects or acarids.

- 5 We have found that these objects are achieved by the compounds and compositions of formula I.

- 1-Phenyltriazoles have been described inter alia in EP-A 957 094 and in EP-A 285 893. The insecticidal and acaricidal properties of these compounds however are not totally
10 satisfying.

It was therefore an object of the present invention to provide new 1-phenyltriazoles having enhanced properties for combating insects and acarids.

- 15 Accordingly, 1-phenyl-1,2,4-triazoles of formula I were found which exhibit a methyl group at the 1-position of the cyclopropyl ring and/or at the 5-position of the triazole ring.

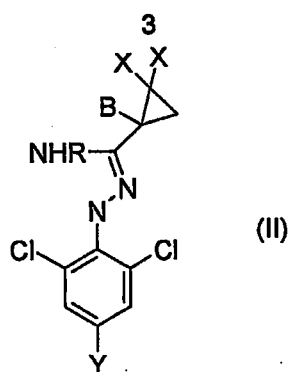
- EP-A 957 094 discloses 1-(2-halogenaryl)azoles wherein the aryl group may be substituted phenyl and the azole may be 1,2,4-triazole, which may carry an optionally substituted cyclopropyl ring. No mention is made however of the favorable effect of fixing a
20 methyl group at the cyclopropyl ring or at the triazole ring.

- EP-A 285 893 describes 1-phenyl-(1,2,4-triazoles) wherein the triazole in the 3-position among a broad group of substituents may carry a methyl-substituted cyclopropyl group but preferably an alkyl or haloalkyl group and in the 5-position is optionally substituted, preferably by an amino derived group. EP-A 285 893 does not disclose the 1-phenyl-triazoles of the present invention nor does it suggest the favorable effect of fixing a
25 methyl group at the cyclopropyl ring and/or at the triazole ring.

- 30 Depending on the substitution pattern, the compounds of formula I can contain a chiral center, in which case they are present as enantiomer mixtures. Subject-matter of this invention are not only compositions containing these mixtures but also those containing the pure enantiomers.

- 35 Compounds of formula I may be synthesized by reacting compounds of formula II

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wherein R is methyl, ethyl or trimethylsilyl, with an oxidating agent.

Suitable oxidating agents are, for example, lead (IV)-oxide (PbO_2), hypochlorites (e.g. NaOCl) and dichlorodicyanobenzoquinone (DDQ).

Particular preference is given to dichlorodicyanobenzoquinone (DDQ).

The reaction is usually carried out at temperatures of from -20°C to 50°C , preferably from -5°C to 25°C (room temperature), in an inert organic solvent in the presence of a base.

Suitable solvents are aromatic hydrocarbons such as toluene, o-, m- and p-xylene, aliphatic hydrocarbons such as pentane, hexane, cyclohexane and petroleum ether, halogenated hydrocarbons, such as methylene chloride, chloroform and chlorobenzene, ethers, such as diethyl ether, diisopropyl ether, tert.-butyl methyl ether, dioxane, tetrahydrofuran, diglyme or anisol, nitriles such as acetonitrile and propionitrile, and also dimethyl sulfoxide, dimethyl formamide and dimethyl acetamide. Particular preference is given to aromatic hydrocarbons. It is also possible to use mixtures of the solvents mentioned.

Suitable bases are organic bases, such as tertiary amines, such as trimethyl amine, triethyl amine, diisopropyl ethyl amine, N-methyl-piperidine, and pyridine. Substituted pyridines are for example collidine, lutidine and 4-dimethyl amino pyridine as well as bicyclic amines such as quinoline or isoquinoline. Further suitable bases are inorganic compounds such as alkali metal hydroxides and earth alkali metal hydroxides such as lithium hydroxide, sodium hydroxide, potassium hydroxide, and calcium hydroxide, alkali metal oxides and earth alkali metal oxides such as lithium oxide, sodium oxide, potassium oxide, calcium oxide, and magnesium oxide, alkali metal carbonates and earth alkali metal carbonates such as lithium carbonate, potassium carbonate, and calcium carbonate, alkali metal hydrogen carbonates such as sodium hydrogen carbonate, alkali metal alcoholates and earth alkali metal alcoholates such as sodium methanolate, sodium ethanolate, potassium ethanolate, potassium tert.-butanolate and dimethoxy magnesium. Particular preference is given to pyridine and substituted pyridines. It is also possible to use mixtures of the bases mentioned.

- insects from the order of the lepidopterans (*Lepidoptera*), for example *Agrotis ypsilon*, *Agrotis segetum*, *Alabama argillacea*, *Anticarsia gemmatalis*, *Argyresthia conjugella*, *Autographa gamma*, *Bupalus piniarius*, *Cacoecia murinana*, *Capua reticulana*, *Cheimatobia brumata*, *Choristoneura fumiferana*, *Choristoneura occidentalis*, *Cirphis unipuncta*, *Cydia pomonella*, *Dendrolimus pini*, *Diaphania nitidalis*, *Diatraea grandiosella*, *Earias insulana*, *Elasmopalpus lignosellus*, *Eupoecilia ambiguella*, *Evetria boulliana*, *Feltia subterranea*, *Galleria mellonella*, *Grapholitha funebrana*, *Grapholitha molesta*, *Heliothis armigera*, *Heliothis virescens*, *Heliothis zea*, *Hellula undalis*, *Hibernia defoliaria*, *Hyphantria cunea*, *Hyponomeuta malinellus*, *Keiferia lycopersicella*, *Lambdina fiscellaria*, *Laphygma exigua*, *Leucoptera coffeella*, *Leucoptera scitella*, *Lithocolletis blancardella*, *Lobesia botrana*, *Loxostege sticticalis*, *Lymantria dispar*, *Lymantria monacha*, *Lyonetia clerkella*, *Malacosoma neustria*, *Mamestra brassicae*, *Orgyia pseudotsugata*, *Ostrinia nubilalis*, *Panolis flammea*, *Pectinophora gossypiella*, *Peridroma saucia*, *Phalera bucephala*, *Phthorimaea operculella*, *Phyllocnistis citrella*, *Pieris brassicae*, *Plathypena scabra*, *Plutella xylostella*, *Pseudoplusia includens*, *Rhyacionia frutрана*, *Scrobipalpula absoluta*, *Sitotroga cerealella*, *Sparganothis pillariana*, *Spodoptera frugiperda*, *Spodoptera littoralis*, *Spodoptera litura*, *Thaumatopoea pityocampa*, *Tortrix viridana*, *Trichoplusia ni* and *Zeiraphera canadensis*,
- beetles (*Coleoptera*), for example *Agrius sinuatus*, *Agriotes lineatus*, *Agriotes obscurus*, *Amphimallus solstitialis*, *Anisandrus dispar*, *Anthonomus grandis*, *Anthonomus pomorum*, *Aphthona euphoridae*, *Athous haemorrhoidalis*, *Atomaria linearis*, *Blastophagus piniperda*, *Blitophaga undata*, *Bruchus rufimanus*, *Bruchus pisorum*, *Bruchus lentis*, *Byctiscus betulae*, *Cassida nebulosa*, *Ceratomya trifurcata*, *Cetonia aurata*, *Ceuthorrhynchus assimilis*, *Ceuthorrhynchus napi*, *Chaetocnema tibialis*, *Conoderus vespertinus*, *Crioceris asparagi*, *Ctenicera ssp.*, *Diabrotica longicornis*, *Diabrotica semipunctata*, *Diabrotica 12-punctata*, *Diabrotica speciosa*, *Diabrotica virgifera*, *Epilachna varivestis*, *Eplatrix hirtipennis*, *Eutinobothrus brasiliensis*, *Hylobius abietis*, *Hypera brunneipennis*, *Hypera postica*, *Ips typographus*, *Lema bilineata*, *Lema melanopus*, *Leptinotarsa decemlineata*, *Limonius californicus*, *Lissorhoptrus oryzophilus*, *Melanotus communis*, *Meligethes aeneus*, *Melolontha hippocastani*, *Melolontha melolontha*, *Oulema oryzae*, *Otiorrhynchus sulcatus*, *Otiorrhynchus ovatus*, *Phaedon cochleariae*, *Phyllobius pyri*, *Phyllotreta chrysocephala*, *Phyllophaga sp.*, *Phyllopertha horticola*, *Phyllotreta nemorum*, *Phyllotreta striolata*, *Popillia japonica*, *Sitona lineatus* and *Sitophilus granaria*,
- flies, mosquitoes (*Diptera*), e.g. *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*, *Anastrepha ludens*, *Anopheles maculipennis*, *Anopheles crucians*, *Anopheles albimanus*, *Anopheles gambiae*, *Anopheles freeborni*, *Anopheles leucosphyrus*, *Anopheles minimus*, *Anopheles quadrimaculatus*, *Calliphora vicina*, *Ceratitis capitata*, *Chrysomya bezziana*, *Chrysomya hominivorax*, *Chrysomya macellaria*, *Chrysops discalis*, *Chrysops silacea*, *Chrysops atlanticus*, *Cochliomyia hominivorax*, *Contarinia sorghicola*

- Cordylobia anthropophaga*, *Culicoides furens*, *Culex pipiens*, *Culex nigripalpus*, *Culex quinquefasciatus*, *Culex tarsalis*, *Culiseta inornata*, *Culiseta melanura*, *Dacus cucurbitae*, *Dacus oleae*, *Dasineura brassicae*, *Delia antique*, *Delia coarctata*, *Delia platura*, *Delia radicum*, *Dermatobia hominis*, *Fannia canicularis*, *Geomyza Tripunctata*, *Gasterophilus intestinalis*, *Glossina morsitans*, *Glossina palpalis*, *Glossina fuscipes*, *Glossina tachinoides*, *Haematobia irritans*, *Haplodiplosis equestris*, *Hippelates* spp., *Hylemyia platura*, *Hypoderma lineata*, *Leptoconops torrens*, *Liriomyza sativae*, *Liriomyza trifolii*, *Lucilia caprina*, *Lucilia cuprina*, *Lucilia sericata*, *Lycoria pectoralis*, *Mansonia titillanus*, *Mayetiola destructor*, *Musca domestica*, *Muscina stabulans*, *Oestrus ovis*, *Opomyza florum*, *Oscinella frit*, *Pegomya hysocyami*, *Phorbia antiqua*, *Phorbia brassicae*, *Phorbia coarctata*, *Phlebotomus argentipes*, *Psorophora columbiae*, *Psila rosae*, *Psorophora discolor*, *Prosimulium mixtum*, *Rhagoletis cerasi*, *Rhagoletis pomonella*, *Sarcophaga haemorrhoidalis*, *Sarcophaga* sp., *Simulium vittatum*, *Stomoxys calcitrans*, *Tabanus bovinus*, *Tabanus atratus*, *Tabanus lineola*, and *Tabanus similis*, *Tipula ol-
eracea*, and *Tipula paludosa*
- thrips (*Thysanoptera*), e.g. *Dichromothrips corbetti*, *Dichromothrips* ssp, *Frankliniella fusca*, *Frankliniella occidentalis*, *Frankliniella tritici*, *Scirtothrips citri*, *Thrips oryzae*, *Thrips palmi* and *Thrips tabaci*,
- termites (*Isoptera*), e.g. *Calotermes flavicollis*, *Leucotermes flavipes*, *Heterotermes aureus*, *Reticulitermes flavipes*, *Reticulitermes virginicus*, *Reticulitermes lucifugus*, *Termes natalensis*, and *Coptotermes formosanus*,
- cockroaches (*Blattaria* - *Blattodea*), e.g. *Blattella germanica*, *Blattella asahinae*, *Periplaneta americana*, *Periplaneta japonica*, *Periplaneta brunnea*, *Periplaneta fuliginosa*, *Periplaneta australasiae*, and *Blatta orientalis*,
- true bugs (*Hemiptera*), e.g. *Acrosternum hilare*, *Blissus leucopterus*, *Cyrtopeltis notatus*, *Dysdercus cingulatus*, *Dysdercus intermedius*, *Eurygaster integriceps*, *Euschistus impictiventris*, *Leptoglossus phyllopus*, *Lygus lineolaris*, *Lygus pratensis*, *Nezara viridula*, *Piesma quadrata*, *Solubea insularis*, *Thyanta perditor*, *Acyrtosiphon onobrychis*, *Adelges laricis*, *Aphidula nasturtii*, *Aphis fabae*, *Aphis forbesi*, *Aphis pomi*, *Aphis gossypii*, *Aphis grossulariae*, *Aphis schneideri*, *Aphis spiraeicola*, *Aphis sambuci*, *Acyrtosiphon pisum*, *Aulacorthum solani*, *Bemisia argentifolii*, *Brachycaudus cardui*, *Brachycaudus helichrysi*, *Brachycaudus persicae*, *Brachycaudus prunicola*, *Brevicoryne brassicae*, *Capitophorus horni*, *Cerosipha gossypii*, *Chaetosiphon fragaefolii*, *Cryptomyzus ribis*, *Dreyfusia nordmannianae*, *Dreyfusia piceae*, *Dysaphis radicola*, *Dysaulacorthum pseudosolani*, *Dysaphis plantaginea*, *Dysaphis pyri*, *Empoasca fabae*, *Hyalopterus pruni*, *Hyperomyzus lactucae*, *Macrosiphum avenae*, *Macrosiphum euphorbiae*, *Macrosiphum rosae*, *Megoura viciae*, *Melanaphis pyralis*, *Metopolophium dirhodum*, *Myzus persicae*, *Myzus ascalonicus*, *Myzus cerasi*, *Myzus varians*, *Nasonovia ribis-nigri*,

- Nilaparvata lugens*, *Pemphigus bursarius*, *Perkinsiella saccharicida*, *Phorodon humuli*, *Psylla mali*, *Psylla piri*, *Rhopalomyzus ascalonicus*, *Rhopalosiphum maidis*, *Rhopalosiphum padi*, *Rhopalosiphum insertum*, *Sappaphis mala*, *Sappaphis mali*, *Schizaphis graminum*, *Schizoneura lanuginosa*, *Sitobion avenae*, *Trialeurodes vaporariorum*,
 5 *Toxoptera aurantiand*, *Viteus vitifolii*, *Cimex lectularius*, *Cimex hemipterus*, *Reduvius senilis*, *Triatoma* spp., and *Arilus critatus*.

- ants, bees, wasps, sawflies (Hymenoptera), e.g. *Athalia rosae*, *Atta cephalotes*, *Atta capiguara*, *Atta cephalotes*, *Atta laevigata*, *Atta robusta*, *Atta sexdens*, *Atta texana*,
 10 *Crematogaster* spp., *Hoplocampa minuta*, *Hoplocampa testudinea*, *Monomorium pharaonis*, *Solenopsis geminata*, *Solenopsis invicta*, *Solenopsis richteri*, *Solenopsis xyloni*, *Pogonomyrmex barbatus*, *Pogonomyrmex californicus*, *Pheidole megacephala*, *Dasy-
 mutilla occidentalis*, *Bombus* spp. *Vespula squamosa*, *Paravespula vulgaris*, *Paraves-
 pula pennsylvanica*, *Paravespula germanica*, *Dolichovespula maculata*, *Vespa crabro*,
 15 *Polistes rubiginosa*, *Camponotus floridanus*, and *Linepithema humile*,

- crickets, grasshoppers, locusts (Orthoptera), e.g. *Acheta domestica*, *Gryllotalpa gryllotalpa*, *Locusta migratoria*, *Melanoplus bivittatus*, *Melanoplus femurrubrum*, *Melanoplus mexicanus*, *Melanoplus sanguinipes*, *Melanoplus spretus*, *Nomadacris septemfasciata*,
 20 *Schistocerca americana*, *Schistocerca gregaria*, *Dociostaurus maroccanus*, *Tachycines asynamoros*, *Oedaleus senegalensis*, *Zonozelus variegatus*, *Hieroglyphus daganensis*, *Kraussaria angulifera*, *Calliptamus italicus*, *Chortoicetes terminifera*, and *Locustana pardalina*,

- 25 Arachnoidea, such as arachnids (Acarina), e.g. of the families Argasidae, Ixodidae and Sarcoptidae, such as *Amblyomma americanum*, *Amblyomma variegatum*, *Amblyomma maculatum*, *Argas persicus*, *Boophilus annulatus*, *Boophilus decoloratus*, *Boophilus microplus*, *Dermacentor silvarum*, *Dermacentor andersoni*, *Dermacentor variabilis*, *Hyalomma truncatum*, *Ixodes ricinus*, *Ixodes rubicundus*, *Ixodes scapularis*, *Ixodes holocyclus*, *Ixodes pacificus*, *Ornithodoros moubata*, *Ornithodoros hermsi*, *Ornithodoros turicata*, *Ornithonyssus bacoti*, *Otobius megnini*, *Dermanyssus gallinae*, *Psoroptes ovis*, *Rhipicephalus sanguineus*, *Rhipicephalus appendiculatus*, *Rhipicephalus evertsi*, *Sarcoptes scabiei*, and Eriophyidae spp. such as *Aculus schlechtendali*, *Phyllocoptrata oleivora* and *Eriophyes sheldoni*, Tarsonemidae spp. such as *Phytonemus pallidus* and
 30 *Polyphagotarsonemus latus*, Tenuipalpidae spp. such as *Brevipalpus phoenicis*, Tetranychidae spp. such as *Tetranychus cinnabarinus*, *Tetranychus kanzawai*, *Tetranychus pacificus*, *Tetranychus telarius* and *Tetranychus urticae*, Panonychus ulmi, Panonychus citri, and *Oligonychus pratensis*, Araneida, e.g. *Latrodectus mactans*, and *Loxosceles reclusa*,

- 40 fleas (Siphonaptera), e.g. *Ctenocephalides felis*, *Ctenocephalides canis*, *Xenopsylla cheopis*, *Pulex irritans*, *Tunga penetrans*, and *Nosopsyllus fasciatus*,

silverfish, firebrat (Thysanura), e.g. *Lepisma saccharina* and *Thermobia domestica*,

centipedes (Chilopoda), e.g. *Scutigera coleoptrata*,

5 millipedes (Diplopoda), e.g. *Narceus spp.*,

Earwigs (Dermaptera), e.g. *forficula auricularia*,

lice (Phthiraptera), e.g. *Pediculus humanus capitis*, *Pediculus humanus corporis*, *Pthirus pubis*, *Haematopinus eurytenuis*, *Haematopinus suis*, *Linognathus vituli*, *Bovicola bovis*, *Menopon gallinae*, *Menacanthus stramineus* and *Solenopotes capillatus*.

Moreover, the compounds of formula I and compositions containing them are especially useful for the control of Isoptera, Diptera, Blattaria (Blattodea), Hymenoptera,
15 Siphonaptera, and Acarina.

For use according to the present invention, the compounds I can be converted into the customary formulations, e.g. solutions, emulsions, suspensions, dusts, powders, pastes and granules. The use form depends on the particular purpose; it is intended to
20 ensure in each case a fine and uniform distribution of the compound according to the invention.

The formulations are prepared in a known manner, e.g. by extending the active ingredient with solvents and/or carriers, if desired using emulsifiers and dispersants.
25 Solvents/auxiliaries, which are suitable, are essentially:

- water, aromatic solvents (for example Solvesso products, xylene), paraffins (for example mineral fractions), alcohols (for example methanol, butanol, pentanol, benzyl alcohol), ketones (for example cyclohexanone, gamma-butyrolactone), pyrrolidones (NMP, NOP), acetates (glycol diacetate), glycols, fatty acid dimethylamides, fatty acids and fatty acid esters. In principle, solvent mixtures may also be used.
- carriers such as ground natural minerals (e.g. kaolins, clays, talc, chalk) and ground synthetic minerals (e.g. highly disperse silica, silicates); emulsifiers such as nonionic and anionic emulsifiers (e.g. polyoxyethylene fatty alcohol ethers, alkylsulfonates and arylsulfonates) and dispersants such as lignin-sulfite waste
30 liquors and methylcellulose.

Suitable surfactants are alkali metal, alkaline earth metal and ammonium salts of lignosulfonic acid, naphthalenesulfonic acid, phenolsulfonic acid,
40 dibutyl naphthalenesulfonic acid, alkylarylsulfonates, alkyl sulfates, alkylsulfonates, fatty alcohol sulfates, fatty acids and sulfated fatty alcohol glycol ethers, furthermore

- condensates of sulfonated naphthalene and naphthalene derivatives with formaldehyde, condensates of naphthalene or of naphthalenesulfonic acid with phenol @octylphenol, nonylphenol, alkylphenyl polyglycol ethers, tributylphenyl polyglycol ether, tristearylphenyl polyglycol ether, alkylaryl polyether alcohols, alcohol and fatty alcohol/ethylene oxide condensates, ethoxylated castor oil, polyoxyethylene alkyl ethers, ethoxylated polyoxypropylene, lauryl alcohol polyglycol ether acetal, sorbitol esters, lignin-sulfite waste liquors and methylcellulose and ethylene oxide / propylene oxide block copolymers.
- 10 Substances which are suitable for the preparation of directly sprayable solutions, emulsions, pastes or oil dispersions are mineral oil fractions of medium to high boiling point, such as kerosene or diesel oil, furthermore coal tar oils and oils of vegetable or animal origin, aliphatic, cyclic and aromatic hydrocarbons, for example toluene, xylene, paraffin, tetrahydronaphthalene, alkylated naphthalenes or their derivatives, methanol,
- 15 ethanol, propanol, butanol, cyclohexanol, cyclohexanone, isophorone, strongly polar solvents, for example dimethyl sulfoxide, N-methylpyrrolidone and water.

Powders, materials for spreading and dusts can be prepared by mixing or concomitantly grinding the active substances with a solid carrier.

- 20 Granules, for example coated granules, impregnated granules and homogeneous granules, can be prepared by binding the active ingredients to solid carriers. Examples of solid carriers are mineral earths such as silica gels, silicates, talc, kaolin, attaclay, limestone, lime, chalk, bole, loess, clay, dolomite, diatomaceous earth, calcium sulfate,
- 25 magnesium sulfate, magnesium oxide, ground synthetic materials, fertilizers, such as, for example, ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas, and products of vegetable origin, such as cereal meal, tree bark meal, wood meal and nutshell meal, cellulose powders and other solid carriers.
- 30 In general, the formulations comprise from 0.01 to 95% by weight, preferably from 0.1 to 90% by weight, of the active ingredient. The active ingredients are employed in a purity of from 90% to 100%, preferably 95% to 100% (according to NMR spectrum).

The following are examples of formulations: 1. Products for dilution with water

- 35 A Soluble concentrates (SL, LS)
- 10 parts by weight of a compound according to the invention are dissolved in water or in a water-soluble solvent. As an alternative, wetters or other auxiliaries are added. The active ingredient dissolves upon dilution with water.

40

B Dispersible concentrates (DC)

20 parts by weight of a compound according to the invention are dissolved in cyclohexanone with addition of a dispersant, for example polyvinylpyrrolidone. Dilution with water gives a dispersion.

5

C Emulsifiable concentrates (EC)

15 parts by weight of a compound according to the invention are dissolved in xylene with addition of calcium dodecylbenzenesulfonate and castor oil ethoxylate (in each case 5% strength). Dilution with water gives an emulsion.

10

D Emulsions (EW, EO, ES)

40 parts by weight of a compound according to the invention are dissolved in xylene with addition of calcium dodecylbenzenesulfonate and castor oil ethoxylate (in each case 5% strength). This mixture is introduced into water by means of an emulsifier (Ultraturrax) and made into a homogeneous emulsion. Dilution with water gives an emulsion.

15

E Suspensions (SC, OD, FS)

In an agitated ball mill, 20 parts by weight of a compound according to the invention are milled with addition of dispersant, wetters and water or an organic solvent to give a fine active ingredient suspension. Dilution with water gives a stable suspension of the active ingredient.

20

F Water-dispersible granules and water-soluble granules (WG, SG)

25 50 parts by weight of a compound according to the invention are ground finely with addition of dispersants and wetters and made into water-dispersible or water-soluble granules by means of technical appliances (for example extrusion, spray tower, fluidized bed). Dilution with water gives a stable dispersion or solution of the active ingredient.

30

G Water-dispersible powders and water-soluble powders (WP, SP, WS)

75 parts by weight of a compound according to the invention are ground in a rotor-stator mill with addition of dispersant, wetters and silica gel. Dilution with water gives a stable dispersion or solution with the active ingredient.

35

2. Products to be applied undiluted**H Dustable powders (DP, DS)**

40 5 parts by weight of a compound according to the invention are ground finely and mixed intimately with 95% of finely divided kaolin. This gives a dustable product.

49
49

I Granules (GR, FG, GG, MG)

0.5 parts by weight of a compound according to the invention is ground finely and associated with 95.5% carriers. Current methods are extrusion, spray drying or the fluidized bed. This gives granules to be applied undiluted.

5

J ULV solutions (UL)

10 parts by weight of a compound according to the invention are dissolved in an organic solvent, for example xylene. This gives a product to be applied undiluted.

- 10 The active ingredients can be used as such, in the form of their formulations or the use forms prepared therefrom, eg. in the form of directly sprayable solutions, powders, gels, suspensions or dispersions, emulsions, oil dispersions, pastes, dustable products, materials for spreading, or granules, microcapsules (CS), pellets or tablets, by means of spraying, atomizing, dusting, spreading or pouring. The use forms depend entirely on the intended purposes; it is intended to ensure in each case the finest possible distribution of the active ingredients according to the invention.

15

- 20 Aqueous use forms can be prepared from emulsion concentrates, pastes or wettable powders (sprayable powders, oil dispersions) by adding water. To prepare emulsions, pastes or oil dispersions, the substances, as such or dissolved in an oil or solvent, can be homogenized in water by means of a wetter, tackifier, dispersant or emulsifier. Alternatively, it is possible to prepare concentrates composed of active substance, wetter, tackifier, dispersant or emulsifier and, if appropriate, solvent or oil, and such concentrates are suitable for dilution with water.

25

The active ingredient concentrations in the ready-to-use products can be varied within relatively wide ranges. In general, they are from 0.0001 to 10%, preferably from 0.01 to 1%.

- 30 The active ingredients may also be used successfully in the ultra-low-volume process (ULV), it being possible to apply formulations comprising over 95% by weight of active ingredient, or even to apply the active ingredient without additives.

- 35 Various types of oils, wetters, adjuvants, herbicides, fungicides, other pesticides, or bactericides may be added to the active ingredients, if appropriate just immediately prior to use (tank mix). These agents usually are admixed with the agents according to the invention in a weight ratio of 1:10 to 10:1.

- 40 The compounds of formula I are effective through both contact (via soil, glass, wall, bed net, carpet, plant parts or animal parts), and ingestion (bait, or plant part) and through trophallaxis and transfer.

Preferred application methods are into water bodies, via soil, cracks and crevices, pastures, manure piles, sewers, into water, on floor, wall, or by perimeter spray application and bait.

- 5 According to a preferred embodiment of the invention, the compounds of formula I are employed via soil application. Soil application is especially favorable for use against ants, termites, flies, crickets, or cockroaches.

- 10 According to another preferred embodiment of the invention, for use against non crop pests such as ants, termites, wasps, flies, mosquitoes, crickets, locusts, or cockroaches the compounds of formula I are prepared into a bait preparation.

- 15 The bait can be a liquid, a solid or a semisolid preparation (e.g. a gel). Solid baits can be formed into various shapes and forms suitable to the respective application e.g. granules, blocks, sticks, disks. Liquid baits can be filled into various devices to ensure proper application, e.g. open containers, spray devices, droplet sources, or evaporation sources. Gels can be based on aqueous or oily matrices and can be formulated to particular necessities in terms of stickiness, moisture retention or aging characteristics.

- 20 The bait employed in the composition is a product which is sufficiently attractive to incite insects such as ants, termites, wasps, flies, mosquitoes, crickets etc. or cockroaches to eat it. This attractant may be chosen from feeding stimulants or para and / or sex pheromones. Suitable feeding stimulants are chosen, for example, from animal and/or plant proteins (meat-, fish- or blood meal, insect parts, crickets powder, egg yolk), from fats and oils of animal and/or plant origin, or mono-, oligo- or polyorgano-
- 25 saccharides, especially from sucrose, lactose, fructose, dextrose, glucose, starch, pectin or even molasses or honey, or from salts such as ammonium sulfate, ammonium carbonate or ammonium acetate. Fresh or decaying parts of fruits, crops, plants, animals, insects or specific parts thereof can also serve as a feeding stimulant.

- 30 Pheromones are known to be more insect specific. Specific pheromones are described in the literature and are known to those skilled in the art.

- Formulations of compounds of formula I as aerosols (e.g. in spray cans), oil sprays or pump sprays are highly suitable for the non-professional user for controlling pests such
- 35 as flies, fleas, ticks, mosquitoes, locusts or cockroaches. Aerosol recipes are preferably composed of the active compound, solvents such as lower alcohols (e.g. methanol, ethanol, propanol, butanol), ketones (e.g. acetone, methyl ethyl ketone), paraffin hydrocarbons (e.g. kerosenes) having boiling ranges of approximately 50 to 250 °C, dimethylfomaamide, N-methylpyrrolidone, dimethyl sulphoxide, aromatic hydrocarbons
- 40 such as toluene, xylene, water, furthermore auxiliaries such as emulsifiers such as sorbitol monooleate, oleyl ethoxylate having 3-7 mol of ethylene oxide, fatty alcohol ethoxylate, perfume oils such as ethereal oils, esters of medium fatty acids with lower al-

cohols, aromatic carbonyl compounds, if appropriate stabilizers such as sodium benzoate, amphoteric surfactants, lower epoxides, triethyl orthoformate and, if required, propellants such as propane, butane, nitrogen, compressed air, dimethyl ether, carbon dioxide, nitrous oxide, or mixtures of these gases.

5

The oil spray formulations differ from the aerosol recipes in that no propellants are used.

- 10 The compounds of formula I and its respective compositions can also be used in mosquito coils and fumigating coils, smoke cartridges, vaporizer plates or long-term vaporizers and also in moth papers, moth pads or other heat-independent vaporizer systems.

- 15 Methods to control infectious diseases transmitted by insects (e.g. malaria, dengue and yellow fever, lymphatic filariasis, and leishmaniasis) with compounds of formula I and its respective compositions also comprise treating surfaces of huts and houses, air spraying and impregnation of curtains, tents, clothing items, bed nets, tsetse-fly trap or the like. Insecticidal compositions for application to fibers, fabric, knitgoods, nonwovens, netting material or foils and tarpaulins preferably comprise a mixture including the
- 20 Insecticide, optionally a repellent and at least one binder.

The impregnation of curtains and bednets is mostly done by dipping the textile material into emulsions or dispersions of the insecticide or spraying them onto the nets.

- 25 The compounds of formula I are also suitable for the protection of the seed and the seedlings' roots and shoots, preferably the seeds, against soil pests.

- Especially preferred is the protection of seeds from the group of cereals (e.g. wheat, barley, rye), canola, sugar beet, maize, sorghum, sunflower, cotton, rice, peas, colza,
- 30 potato, and market-garden crops like rice, wheat, barley, or rye.

- Conventional seed treatment formulations include for example flowable concentrates FS, solutions LS, powders for dry treatment DS, water dispersible powders WS or granules for slurry treatment, water soluble powders SS and emulsion ES. Application
- 35 to the seeds is carried out before sowing, either directly on the seeds or after having pregerminated the latter.

Preferred are FS formulations.

- 40 Preferred FS formulations of compounds of formula I for seed treatment comprise from 0.5 to 80% of the active ingredient, from 0,05 to 5 % of a wetter, from 0.5 to 15 % of a

dispersing agent, from 0,1 to 5 % of a thickener, from 5 to 20 % of an anti-freeze agent, from 0,1 to 2 % of an anti-foam agent, from 1 to 20 % of a pigment and/or a dye, from 0 to 15 % of a sticker /adhesion agent, from 0 to 75 % of a filler/vehicle, and from 0,01 to 1 % of a preservative.

5

In the treatment of seed, the application rates of the compound of formula I or compositions comprising it are generally from 0,1 g to 10 kg per 100 kg of seed, preferably from 1 g to 5 kg per 100 kg of seed, in particular from 1 g to 2,5 kg per 100 kg of seed. For specific crops such as lettuce the rate can be higher.

10

In the control of pests, the application of the compound of formula I or of the composition comprising it is carried out by spraying or dusting the seeds, the plants or the soil (and thereby the seeds) before or after sowing of the plants or before or after emergence of the plants.

15

A further subject of the invention is a method of treating the seed in the seed drill with a granular formulation containing the active ingredient or a composition comprising it, with optionally one or more solid or liquid, agriculturally acceptable carriers and/or optionally with one or more agriculturally acceptable surfactants. This method is advantageously employed in seedbeds of cereal, maize, cotton and sunflower. For cereals and maize, the rates for compounds of formula I are between 50 and 500 g/ha.

20

The invention also relates to the propagation product of plants, and especially the treated seed comprising, that is, coated with and/or containing, a compound of formula I or a composition comprising it. The term "coated with and/or containing" generally signifies that the active ingredient is for the most part on the surface of the propagation product at the time of application, although a greater or lesser part of the ingredient may penetrate into the propagation product, depending on the method of application. When the said propagation product is (re)planted, it may absorb the active ingredient.

30

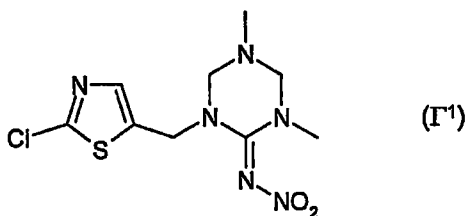
The seed comprises the inventive compounds or compositions comprising them in an amount of from 0,1 g to 10 kg per 100 kg of seed.

Compositions of this invention may also contain other active ingredients, for example other pesticides, insecticides, herbicides, fertilizers such as ammonium nitrate, urea, potash, and superphosphate, phytotoxicants and plant growth regulators, safeners and nematicides. These additional ingredients may be used sequentially or in combination with the above-described compositions, if appropriate also added only immediately prior to use (tank mix). For example, the plant(s) may be sprayed with a composition of this invention either before or after being treated with other active ingredients.

40

The following list of pesticides together with which the compounds according to the invention can be used, is intended to illustrate the possible combinations, but not to impose any limitation:

- 5 A.1. Organo(thio)phosphates: acephate, azamethiphos, azinphos-methyl, chlorpyrifos, chlorpyrifos-methyl, chlorfenvinphos, diazinon, dichlorvos, dicrotophos, dimethoate, disulfoton, ethion, fenitrothion, fenthion, isoxathion, malathion, methamidophos, methidathion, methyl-parathion, mevinphos, monocrotophos, oxydemeton-methyl, paraoxon, parathion, phenthoate, phosalone, phosmet, phosphamidon, phorate, phoxim, pirimi-
- 10 phos-methyl, profenofos, prothiofos, sulprophos, tetrachlorvinphos, terbufos, triazophos, trichlorfon;
- A.2. Carbamates: alanycarb, aldicarb, bendiocarb, benfuracarb, carbaryl, carbofuran, carbosulfan, fenoxycarb, furathlocarb, methiocarb, methomyl, oxamyl, pirimicarb, propoxur, thiodicarb, triazamate;
- 15 A.3. Pyrethroids: allethrin, bifenthrin, cyfluthrin, cyhalothrin, cyphenothrin, cypermethrin, alpha-cypermethrin, beta-cypermethrin, zeta-cypermethrin, deltamethrin, esfenvalerate, etofenprox, fenpropathrin, fenvalerate, imiprothrin, lambda-cyhalothrin, permethrin, prallethrin, pyrethrin I and II, resmethrin, silafluofen, tau-fluvalinate, tefluthrin, tetramethrin, tralomethrin, transfluthrin, profluthrin, dimefluthrin;
- 20 A.4. Growth regulators: a) chitin synthesis inhibitors: benzoylureas: chlorfluazuron, diflubenzuron, flucycloxuron, flufenoxuron, hexaflumuron, lufenuron, novaluron, te-flubenzuron, triflumuron; buprofezin, diofenolan, hexythiazox, etoxazole, clofentazine; b) ecdysone antagonists: halofenozide, methoxyfenozide, tebufenozide, azadirachtin; c) juvenoids: pyriproxyfen, methoprene, fenoxycarb; d) lipid biosynthesis inhibitors: spirotetramat, spiromesifen, spirotetramat;
- 25 A.5. Nicotinic receptor agonists/antagonists compounds: clothianidin, dinotefuran, imidacloprid, thiamethoxam, nitenpyram, acetamiprid, thiacloprid; the thiazol compound of formula I¹
- 30



- 35 A.6. GABA antagonist compounds: acetoprole, endosulfan, ethiprole, fipronil, vaniliprole, pyrafluprole, pyriprole, the phenylpyrazole compound of formula I²

- wherein A¹ is CH₃, Cl, Br, I, X is C-H, C-Cl, C-F or N, Y' is F, Cl, or Br, Y'' is hydrogen, F, Cl, CF₃, B¹ is hydrogen, Cl, Br, I, CN, B² is Cl, Br, CF₃, OCH₂CF₃, OCF₂H, and R^B is hydrogen, CH₃ or CH(CH₃)₂, and the malononitrile compounds as described in JP 2002 284608, WO 02/89579, WO 02/90320, WO 02/90321, WO 04/06677, WO 04/20399,
- 5 JP 2004 99597, WO 05/68423, WO 05/68432, or WO 05/63694, especially the malononitrile compounds CF₂HCF₂CF₂CF₂CH₂C(CN)₂CH₂CH₂CF₃ (2-(2,2,3,3,4,4,5,5-octafluoropentyl)-2-(3,3,3-trifluoropropyl)malononitrile), CF₃(CH₂)₂C(CN)₂CH₂(CF₂)₅CF₂H (2-(2,2,3,3,4,4,5,5,6,6,7,7-Dodecafluoro-heptyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), CF₃(CH₂)₂C(CN)₂(CH₂)₂C(CF₃)₂F (2-(3,4,4,4-
- 10 Tetrafluoro-3-trifluoromethyl-butyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), CF₃(CH₂)₂C(CN)₂(CH₂)₂(CF₂)₃CF₃ (2-(3,3,4,4,5,5,6,6,6-Nonafluoro-hexyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), CF₂H(CF₂)₃CH₂C(CN)₂CH₂(CF₂)₃CF₂H (2,2-Bis-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile), CF₃(CH₂)₂C(CN)₂CH₂(CF₂)₃CF₃ (2-(2,2,3,3,4,4,5,5,5-Nonafluoro-pentyl)-2-(3,3,3-trifluoro-propyl)-malononitrile),
- 15 CF₃(CF₂)₂CH₂C(CN)₂CH₂(CF₂)₃CF₂H (2-(2,2,3,3,4,4,4-Heptafluoro-butyl)-2-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile) and CF₃CF₂CH₂C(CN)₂CH₂(CF₂)₃CF₂H (2-(2,2,3,3,4,4,5,5-Octafluoro-pentyl)-2-(2,2,3,3,3-pentafluoro-propyl)-malononitrile).
- 20 The commercially available compounds of the group A may be found in The Pesticide Manual, 13th Edition, British Crop Protection Council (2003) among other publications. Thiamides of formula I² and their preparation have been described in WO 98/28279. Aminoisothiazole compounds of formula I³ and their preparation have been described in WO 00/06566. Lepimectin is known from Agro Project, PJB Publications Ltd, November 2004. Benclothiaz and its preparation have been described in EP-A1 454621.
- 25 Methidathion and Paraoxon and their preparation have been described in Farm Chemicals Handbook, Volume 88, Meister Publishing Company, 2001. Acetoprole and its preparation have been described in WO 98/28277. Metaflumizone and its preparation have been described in EP-A1 462 456. Flupyrazofos has been described in Pesticide Science 54, 1988, p.237-243 and in US 4822779. Pyrafluprole and its preparation have been described in JP 2002193709 and in WO 01/00614. Pyriprole and its preparation
- 30 have been described in WO 98/45274 and in US 6335357. Amidoflumet and its preparation have been described in US 6221890 and in JP 21010907. Flufenimer and its preparation have been described in WO 03/007717 and in WO 03/007718. Cyflumetofen and its preparation have been described in WO 04/080180.
- 35 Anthranilamides of formula I⁴ and their preparation have been described in WO 01/70671; WO 02/48137; WO 03/24222, WO 03/15518, WO 04/67528; WO 04/33468; and WO 05/118552. The malononitrile compounds CF₂HCF₂CF₂CF₂CH₂C(CN)₂CH₂CH₂CF₃ (2-(2,2,3,3,4,4,5,5-octafluoropentyl)-2-(3,3,3-trifluoropropyl)malononitrile), CF₃(CH₂)₂C(CN)₂CH₂(CF₂)₅CF₂H (2-
- 40 (2,2,3,3,4,4,5,5,6,6,7,7-Dodecafluoro-heptyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), CF₃(CH₂)₂C(CN)₂(CH₂)₂C(CF₃)₂F (2-(3,4,4,4-Tetrafluoro-3-trifluoromethyl-butyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), CF₃(CH₂)₂C(CN)₂(CH₂)₂(CF₂)₃CF₃ (2-

(3,3,4,4,5,5,6,6,6-Nonafluoro-hexyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), $\text{CF}_2\text{H}(\text{CF}_2)_3\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2,2-Bis-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_3$ (2-(2,2,3,3,4,4,5,5,5-Nonafluoro-pentyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), $\text{CF}_3(\text{CF}_2)_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,4-Heptafluoro-butyl)-2-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile) and $\text{CF}_3\text{CF}_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,5,5-Octafluoro-pentyl)-2-(2,2,3,3,3-pentafluoro-propyl)-malononitrile) have been described in WO 05/63694.

Preferred are mixtures with N-R'-2,2-dihalo-1-R''cyclo-propanecarboxamide-2-(2,6-dichloro- α,α,α -tri-fluoro-p-tolyl)hydrazone or N-R'-2,2-di(R''')propionamide-2-(2,6-dichloro- α,α,α -trifluoro-p-tolyl)-hydrazone, wherein R' is methyl or ethyl, halo is chloro or bromo, R'' is hydrogen or methyl and R''' is methyl or ethyl.

Some of the mixtures of the compounds of formula I with the above-mentioned pesticides are synergistic, that is, they contain the active mixing partner in synergistically effective amounts. Synergistic mixtures of compounds of formula I with the following pesticides are preferred:

Moreover, especially preferred with regard to their use according to the present invention are mixtures wherein the compound of formula II is selected from the groups A.3. (pyrethroids), A.4. (growth regulators), A.5. (nicotinic receptor agonists/antagonists compounds), A.6. (GABA antagonist compounds), A.7. (macrocyclic lactone insecticides), A.10. (uncoupler compounds), A.14. (sodium channel blocker compounds), or A.15. (various pesticide compounds).

Most preferred are mixtures wherein the compound of formula II is selected from the group A-1 consisting of bifenthrin, cyhalothrin, cypermethrin, alpha-cypermethrin, deltamethrin, lambda-cyhalothrin, permethrin; flufenoxuron, hexaflumuron, teflubenzuron, novaluron; clothianidin, acetamiprid, imidacloprid, thiamethoxam; fipronil, ethiprole; abamectin, emamectin, spinosad; chlorfenapyr; indoxacarb, metaflumizone; anthranilamide compounds of formula I⁴, malononitrile compounds as described in JP 2002 284608, WO 02/89579, WO 02/90320, WO 02/90321, WO 04/06677, WO 04/20399, JP 2004 99597, WO 05/68423, WO 05/68432, or WO 05/63694, especially the malononitrile compounds $\text{CF}_2\text{HCF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2\text{CH}_2\text{CF}_3$ (2-(2,2,3,3,4,4,5,5-octafluoropentyl)-2-(3,3,3-trifluoropropyl)malononitrile), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_5\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,5,5,6,6,7,7-Dodecafluoro-heptyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2(\text{CH}_2)_2\text{C}(\text{CF}_3)_2\text{F}$ (2-(3,4,4,4-Tetrafluoro-3-trifluoromethyl-butyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2(\text{CH}_2)_2(\text{CF}_2)_3\text{CF}_3$ (2-(3,3,4,4,5,5,6,6,6-Nonafluoro-hexyl)-2-(3,3,3-trifluoro-propyl)-malononitrile), $\text{CF}_2\text{H}(\text{CF}_2)_3\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2,2-Bis-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_3$ (2-(2,2,3,3,4,4,5,5,5-Nonafluoro-pentyl)-2-(3,3,3-trifluoro-propyl)-malononitrile),

CF₃(CF₂)₂CH₂C(CN)₂CH₂(CF₂)₃CF₂H (2-(2,2,3,3,4,4,4-Heptafluoro-butyl)-2-(2,2,3,3,4,4,5,5-octafluoro-pentyl)-malononitrile) and CF₃CF₂CH₂C(CN)₂CH₂(CF₂)₃CF₂H (2-(2,2,3,3,4,4,5,5-Octafluoro-pentyl)-2-(2,2,3,3,3-pentafluoro-propyl)-malononitrile), pymetrazine, pyridalyl.

5

Synergistic mixtures of the compound of formula I: 1-(2,6-dichloro-4-trifluoromethylphenyl)-3-(1-methyl-2,2-dichlorocyclopropyl)-5-methyl-1,2,4-triazole with one of the pesticides of group A-1 below are especially preferred.

- 10 Also especially preferred are synergistic mixtures of the compound of formula I: 1-(2,6-dichloro-4-trifluoromethylphenyl)-3-(2,2-dichlorocyclopropyl)-5-methyl-1,2,4-triazole with one of the pesticides of group A-1 below are especially preferred.

- 15 The synergistic mixtures advantageously reduce the dosage rate and / or enhance the spectrum of activity and / or combine know-down activity with prolonged control and / or resistance management. They allow enhanced control of pests compared to the control rates that are possible with the individual compounds.

- 20 The mixtures of compounds I and II, or the compounds I and II used simultaneously, that is jointly or separately, or in succession, the sequence, in the case of separate application, generally not having any effect on the result of the control measures, exhibit outstanding action against pests from the above-mentioned orders.

- 25 The compounds I and the compound II are usually applied in a weight ratio of from 100:1 to 1:100, preferably from 20:1 to 1:50, in particular from 5:1 to 1:20.

- 30 The synergistic mixtures according to the invention can be converted into the customary formulations as mentioned below for compounds of formula I. The ranges of the application rates also are as mentioned for compounds of formula I.

- The insects may be controlled by contacting the target parasite/pest, its food supply, habitat, breeding ground or its locus with a pesticidally effective amount of compounds of or compositions of formula I.

- 35 "Locus" means a habitat, breeding ground, plant, seed, soil, area, material or environment in which a pest or parasite is growing or may grow.

- 40 In general, "pesticidally effective amount" means the amount of active ingredient needed to achieve an observable effect on growth, including the effects of necrosis, death, retardation, prevention, and removal, destruction, or otherwise diminishing the occurrence and activity of the target organism. The pesticidally effective amount can vary for the various compounds/compositions used in the invention. A pesticidally ef-

fective amount of the compositions will also vary according to the prevailing conditions such as desired pesticidal effect and duration, weather, target species, locus, mode of application, and the like.

- 5 The compounds of formula I and its compositions can be used for protecting wooden materials such as trees, board fences, sleepers, etc. and buildings such as houses, outhouses, factories, but also construction materials, furniture, leathers, fibers, vinyl articles, electric wires and cables etc. from ants and/or termites, and for controlling ants and termites from doing harm to crops or human being (e.g. when the pests invade into
- 10 houses and public facilities). The compounds of formula I are applied not only to the surrounding soil surface or into the under-floor soil in order to protect wooden materials but it can also be applied to lumbered articles such as surfaces of the under-floor concrete, alcove posts, beams, plywoods, furniture, etc., wooden articles such as particle boards, half boards, etc. and vinyl articles such as coated electric wires, vinyl sheets,
- 15 heat insulating material such as styrene foams, etc. In case of application against ants doing harm to crops or human beings, the ant control composition of the present invention is directly applied to the nest of the ants or to its surrounding or via bait contact.

- The compounds or compositions of the invention can also be applied preventively to
- 20 places at which occurrence of the pests is expected.

- The compounds of formula I may also be used to protect growing plants from attack or infestation by pests by contacting the plant with a pesticidally effective amount of compounds of formula I. As such, "contacting" includes both direct contact (applying the
- 25 compounds/compositions directly on the pest and/or plant - typically to the foliage, stem or roots of the plant) and indirect contact (applying the compounds/compositions to the locus of the pest and/or plant).

- In the case of soil treatment or of application to the pests dwelling place or nest, the
- 30 quantity of active ingredient ranges from 0.0001 to 500 g per 100 m², preferably from 0.001 to 20 g per 100 m². Soil treatment of termites (Isoptera) is an especially preferred embodiment of the present invention.

- Customary application rates in the protection of materials are, for example, from 0.01 g
- 35 to 1000 g of active compound per m² treated material, desirably from 0.1 g to 50 g per m².

- Insecticidal compositions for use in the impregnation of materials typically contain from
- 40 0.001 to 95 weight %, preferably from 0.1 to 45 weight %, and more preferably from 1 to 25 weight % of at least one repellent and / or insecticide.

For use in bait compositions, the typical content of active ingredient is from 0.0001 weight % to 15 weight %, desirably from 0.001 weight % to 5% weight % of active compound. The composition used may also comprise other additives such as a solvent of the active material, a flavoring agent, a preserving agent, a dye or a bitter agent. Its attractiveness may also be enhanced by a special color, shape or texture.

For use in spray compositions, the content of active ingredient is from 0.001 to 80 weights %, preferably from 0.01 to 50 weight % and most preferably from 0.01 to 15 weight %.

For use in treating crop plants, the rate of application of the active ingredients of this invention may be in the range of 0.1 g to 4000 g per hectare, desirably from 25 g to 600 g per hectare, more desirably from 50 g to 500 g per hectare.

Compounds of formula I and compositions comprising them can also be used for controlling and preventing infestations and infections animals including warm-blooded animals (including humans) and fish. They are for example suitable for controlling and preventing infestations and infections in mammals such as cattle, sheep, swine, camels, deer, horses, pigs, poultry, rabbits, goats, dogs and cats, water buffalo, donkeys, fallow deer and reindeer, and also in fur-bearing animals such as mink, chinchilla and raccoon, birds such as hens, geese, turkeys and ducks and fish such as fresh- and salt-water fish such as trout, carp and eels.

Compounds of formula I and compositions comprising them are preferably used for controlling and preventing infestations and infections in domestic animals, such as dogs or cats.

Infestations in warm-blooded animals and fish include, but are not limited to, lice, biting lice, ticks, nasal bots, keds, biting flies, muscoid flies, flies, myiasitic fly larvae, chiggers, gnats, mosquitoes and fleas.

The compounds of formula I and compositions comprising them are suitable for systemic and/or non-systemic control of ecto- and/or endoparasites. They are active against all or some stages of development.

The compounds of formula I are especially useful for combating ectoparasites.

The compounds of formula I are especially useful for combating parasites of the following orders and species, respectively:

fleas (Siphonaptera), e.g. *Ctenocephalides felis*, *Ctenocephalides canis*, *Xenopsylla cheopis*, *Pulex irritans*, *Tunga penetrans*, and *Nosopsyllus fasciatus*,

- cockroaches (Blattaria - Blattodea), e.g. *Blattella germanica*, *Blattella asahinae*, *Periplaneta americana*, *Periplaneta japonica*, *Periplaneta brunnea*, *Periplaneta fuliginosa*, *Periplaneta australasiae*, and *Blatta orientalis*,
- 5 flies, mosquitoes (Diptera), e.g. *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*, *Anastrepha ludens*, *Anopheles maculipennis*, *Anopheles crucians*, *Anopheles albimanus*, *Anopheles gambiae*, *Anopheles freeborni*, *Anopheles leucosphyrus*, *Anopheles minimus*, *Anopheles quadrimaculatus*, *Calliphora vicina*, *Chrysomya bezziana*, *Chrysomya hominivorax*, *Chrysomya macellaria*, *Chrysops discalis*, *Chrysops silacea*, *Chrysops*
- 10 *atlanticus*, *Cochliomyia hominivorax*, *Cordylobia anthropophaga*, *Culicoides furens*, *Culex pipiens*, *Culex nigripalpus*, *Culex quinquefasciatus*, *Culex tarsalis*, *Culiseta inornata*, *Culiseta melanura*, *Dermatobia hominis*, *Fannia canicularis*, *Gasterophilus intestinalis*, *Glossina morsitans*, *Glossina palpalis*, *Glossina fuscipes*, *Glossina tachinoides*, *Haematobia irritans*, *Haplodiplosis equestris*, *Hippelates* spp., *Hypoderma lineata*, *Lep-*
- 15 *toconops torrens*, *Lucilia caprina*, *Lucilia cuprina*, *Lucilia sericata*, *Lycoria pectoralis*, *Mansonia* spp., *Musca domestica*, *Muscina stabulans*, *Oestrus ovis*, *Phlebotomus argentipes*, *Psorophora columbiae*, *Psorophora discolor*, *Prosimulium mixtum*, *Sarcophaga haemorrhoidalis*, *Sarcophaga* sp., *Simulium vittatum*, *Stomoxys calcitrans*, *Tabanus bovinus*, *Tabanus atratus*, *Tabanus lineola*, and *Tabanus similis*,
- 20 lice (Phthiraptera), e.g. *Pediculus humanus capitis*, *Pediculus humanus corporis*, *Pthirus pubis*, *Haematopinus eurysternus*, *Haematopinus suis*, *Linognathus vituli*, *Bovicola bovis*, *Menopon gallinae*, *Menacanthus stramineus* and *Solenopotes capillatus*.
- 25 ticks and parasitic mites (Parasitiformes): ticks (Ixodida), e.g. *Ixodes scapularis*, *Ixodes holocyclus*, *Ixodes pacificus*, *Rhiphicephalus sanguineus*, *Dermacentor andersoni*, *Dermacentor variabilis*, *Amblyomma americanum*, *Amblyomma maculatum*, *Ornithodoros hermsi*, *Ornithodoros turicata* and parasitic mites (Mesostigmata), e.g. *Ornithonyssus bacoti* and *Dermanyssus gallinae*,
- 30 Actiniedida (Prostigmata) und Acaridida (Astigmata) e.g. *Acarapis* spp., *Cheyletiella* spp., *Ornithocheyletia* spp., *Myobia* spp., *Psorergates* spp., *Demodex* spp., *Trombicula* spp., *Listrophorus* spp., *Acarus* spp., *Tyrophagus* spp., *Caloglyphus* spp., *Hypodectes* spp., *Pterolichus* spp., *Psoroptes* spp., *Chorioptes* spp., *Otodectes* spp., *Sarcoptes*
- 35 spp., *Notoedres* spp., *Knemidocoptes* spp., *Cytodites* spp., and *Laminosioptes* spp,
- Bugs (Heteroptera): *Cimex lectularius*, *Cimex hemipterus*, *Reduvius senilis*, *Triatoma* spp., *Rhodnius* spp., *Panstrongylus* spp. and *Arilus critatus*,
- 40 Anoplurida, e.g. *Haematopinus* spp., *Linognathus* spp., *Pediculus* spp., *Pthirus* spp., and *Solenopotes* spp,

Mallophagida (suborders Amblycerina and Ischnocerina), e.g. *Trimenopon* spp., *Menopon* spp., *Trinoton* spp., *Bovicola* spp., *Werneckiella* spp., *Lepikentron* spp., *Trichodectes* spp., and *Felicola* spp,

5 Roundworms Nematoda:

Wipeworms and Trichinosis (Trichosyringida), e.g. Trichinellidae (*Trichinella* spp.), (Trichuridae) *Trichuris* spp., *Capillaria* spp,

10 Rhabditida, e.g. *Rhabditis* spp, *Strongyloides* spp., *Helicephalobus* spp,

Strongylida, e.g. *Strongylus* spp., *Ancylostoma* spp., *Necator americanus*, *Bunostomum* spp. (Hookworm), *Trichostrongylus* spp., *Haemonchus contortus*., *Ostertagia* spp., *Cooperia* spp., *Nematodirus* spp., *Dictyocaulus* spp., *Cyathostoma* spp., *Oesophagostomum* spp., *Stephanurus dentatus*, *Ollulanus* spp., *Chabertia* spp., *Stephanurus dentatus* , *Syngamus trachea*, *Ancylostoma* spp., *Uncinaria* spp., *Globocephalus* spp., *Necator* spp., *Metastrongylus* spp., *Muellerius capillaris*, *Protostrongylus* spp., *Angiostrongylus* spp., *Parelaphostrongylus* spp. *Aleurostrongylus abstrusus*, and *Diocotophyma renale*,

20 Intestinal roundworms (Ascaridida), e.g. *Ascaris lumbricoides*, *Ascaris suum*, *Ascaridia galli*, *Parascaris equorum*, *Enterobius vermicularis* (Threadworm), *Toxocara canis*, *Toxascaris leonine*, *Skrjabinema* spp., and *Oxyuris equi*,

25 Camallanida, e.g. *Dracunculus medinensis* (guinea worm)

Spirurida, e.g. *Thelazia* spp. *Wuchereria* spp., *Brugia* spp., *Onchocerca* spp., *Dirofilaria* spp., *Dipetalonema* spp., *Setaria* spp., *Elaeophora* spp., *Spirocerca lupi*, and *Habronema* spp.,

30 Thorny headed worms (Acanthocephala), e.g. *Acanthocephalus* spp., *Macracanthorhynchus hirudinaceus* and *Oncicola* spp,

Planarians (Plathelminthes):

35 Flukes (Trematoda), e.g. *Faciola* spp., *Fascioloides magna*, *Paragonimus* spp., *Dicrocoelium* spp., *Fasciolopsis buski*, *Clonorchis sinensis*, *Schistosoma* spp., *Trichobilharzia* spp., *Alaria alata*, *Paragonimus* spp., and *Nanocyetes* spp,

40 Cercomeromorpha, in particular Cestoda (Tapeworms), e.g. *Diphyllobothrium* spp., *Tenia* spp., *Echinococcus* spp., *Dipylidium caninum*, *Multiceps* spp., *Hymenolepis* spp.,

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Mesocestoides spp., *Vampirolepis spp.*, *Moniezia spp.*, *Anoplocephala spp.*, *Sirometra spp.*, *Anoplocephala spp.*, and *Hymenolepis spp.*

5 The compounds of formula I and compositions containing them are particularly useful for the control of pests from the orders Diptera, Siphonaptera and Ixodida, especially for control of mosquitoes.

10 The use of the compounds of formula I and compositions containing them for combating flies is a further preferred embodiment of the present invention.

Furthermore, the use of the compounds of formula I and compositions containing them for combating fleas is especially preferred.

15 The use of the compounds of formula I and compositions containing them for combating ticks is a further preferred embodiment of the present invention.

The compounds of formula I also are especially useful for combating endoparasites (roundworms nematoda, thorny headed worms and planarians).

20 Administration can be carried out both prophylactically and therapeutically.

Administration of the active compounds is carried out directly or in the form of suitable preparations, orally, topically/dermally or parenterally.

25 For oral administration to warm-blooded animals, the formula I compounds may be formulated as animal feeds, animal feed premixes, animal feed concentrates, pills, solutions, pastes, suspensions, drenches, gels, tablets, boluses and capsules. In addition, the formula I compounds may be administered to the animals in their drinking water. For oral administration, the dosage form chosen should provide the animal with
30 0.01 mg/kg to 100 mg/kg of animal body weight per day of the formula I compound, preferably with 0.5 mg/kg to 100 mg/kg of animal body weight per day.

Alternatively, the formula I compounds may be administered to animals parenterally, for example, by intraruminal, intramuscular, intravenous or subcutaneous injection. The
35 formula I compounds may be dispersed or dissolved in a physiologically acceptable carrier for subcutaneous injection. Alternatively, the formula I compounds may be formulated into an implant for subcutaneous administration. In addition the formula I compound may be transdermally administered to animals. For parenteral administration, the dosage form chosen should provide the animal with 0.01 mg/kg to 100 mg/kg of
40 animal body weight per day of the formula I compound.

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- The formula I compounds may also be applied topically to the animals in the form of dips, dusts, powders, collars, medallions, sprays, shampoos, spot-on and pour-on formulations and in ointments or oil-in-water or water-in-oil emulsions. For topical application, dips and sprays usually contain 0.5 ppm to 5,000 ppm and preferably 1 ppm to 3,000 ppm of the formula I compound. In addition, the formula I compounds may be formulated as ear tags for animals, particularly quadrupeds such as cattle and sheep.

Suitable preparations are:

- 10 - Solutions such as oral solutions, concentrates for oral administration after dilution, solutions for use on the skin or in body cavities, pouring-on formulations, gels;
- Emulsions and suspensions for oral or dermal administration; semi-solid preparations;
- 15 - Formulations in which the active compound is processed in an ointment base or in an oil-in-water or water-in-oil emulsion base;
- Solid preparations such as powders, premixes or concentrates, granules, pellets, tablets, boluses, capsules; aerosols and inhalants, and active compound-containing shaped articles.
- 20

- Compositions suitable for injection are prepared by dissolving the active ingredient in a suitable solvent and optionally adding further ingredients such as acids, bases, buffer salts, preservatives, and solubilizers. The solutions are filtered and filled sterile.

- Suitable solvents are physiologically tolerable solvents such as water, alkanols such as ethanol, butanol, benzyl alcohol, glycerol, propylene glycol, polyethylene glycols, N-methyl-pyrrolidone, 2-pyrrolidone, and mixtures thereof.

- The active compounds can optionally be dissolved in physiologically tolerable vegetable or synthetic oils which are suitable for injection.

- Suitable solubilizers are solvents which promote the dissolution of the active compound in the main solvent or prevent its precipitation. Examples are polyvinylpyrrolidone, polyvinyl alcohol, polyoxyethylated castor oil, and polyoxyethylated sorbitan ester.

- Suitable preservatives are benzyl alcohol, trichlorobutanol, p-hydroxybenzoic acid esters, and n-butanol.

- Oral solutions are administered directly. Concentrates are administered orally after prior dilution to the use concentration. Oral solutions and concentrates are prepared

according to the state of the art and as described above for injection solutions, sterile procedures not being necessary.

5 Solutions for use on the skin are trickled on, spread on, rubbed in, sprinkled on or sprayed on.

10 Solutions for use on the skin are prepared according to the state of the art and according to what is described above for injection solutions, sterile procedures not being necessary.

15 Further suitable solvents are polypropylene glycol, phenyl ethanol, phenoxy ethanol, ester such as ethyl or butyl acetate, benzyl benzoate, ethers such as alkylene glycol alkylether, e.g. dipropylene glycol monomethylether, ketons such as acetone, methyl ethyl ketone, aromatic hydrocarbons, vegetable and synthetic oils, dimethylformamide, dimethylacetamide, transcitol, solketal, propylene carbonate, and mixtures thereof.

20 It may be advantageous to add thickeners during preparation. Suitable thickeners are inorganic thickeners such as bentonites, colloidal silicic acid, aluminium monostearate, organic thickeners such as cellulose derivatives, polyvinyl alcohols and their copolymers, acrylates and methacrylates.

25 Gels are applied to or spread on the skin or introduced into body cavities. Gels are prepared by treating solutions which have been prepared as described in the case of the injection solutions with sufficient thickener that a clear material having an ointment-like consistency results. The thickeners employed are the thickeners given above.

30 Pour-on formulations are poured or sprayed onto limited areas of the skin, the active compound penetrating the skin and acting systemically.

35 Pour-on formulations are prepared by dissolving, suspending or emulsifying the active compound in suitable skin-compatible solvents or solvent mixtures. If appropriate, other auxiliaries such as colorants, bioabsorption-promoting substances, antioxidants, light stabilizers, adhesives are added.

40 Suitable solvents which are: water, alkanols, glycols, polyethylene glycols, polypropylene glycols, glycerol, aromatic alcohols such as benzyl alcohol, phenylethanol, phenoxyethanol, esters such as ethyl acetate, butyl acetate, benzyl benzoate, ethers such as alkylene glycol alkyl ethers such as dipropylene glycol monomethyl ether, diethylene glycol mono-butyl ether, ketones such as acetone, methyl ethyl ketone, cyclic carbonates such as propylene carbonate, ethylene carbonate, aromatic and/or aliphatic hydrocarbons, vegetable or synthetic oils, DMF, dimethylacetamide, n-alkylpyrrolidones

such as methylpyrrolidone, n-butylpyrrolidone or n-octylpyrrolidone, N-methylpyrrolidone, 2-pyrrolidone, 2,2-dimethyl-4-oxy-methylene-1,3-dioxolane and glycerol formal.

- 5 Suitable colorants are all colorants permitted for use on animals and which can be dissolved or suspended.

- Suitable absorption-promoting substances are, for example, DMSO, spreading oils such as isopropyl myristate, dipropylene glycol pelargonate, silicone oils and copolymers thereof with polyethers, fatty acid esters, triglycerides, fatty alcohols.
- 10

Suitable antioxidants are sulfites or metabisulfites such as potassium metabisulfite, ascorbic acid, butylhydroxytoluene, butylhydroxyanisole, tocopherol.

- 15 Suitable light stabilizers are, for example, novantisolic acid.

Suitable adhesives are, for example, cellulose derivatives, starch derivatives, polyacrylates, natural polymers such as alginates, gelatin.

- 20 Emulsions can be administered orally, dermally or as injections.

Emulsions are either of the water-in-oil type or of the oil-in-water type.

- They are prepared by dissolving the active compound either in the hydrophobic or in the hydrophilic phase and homogenizing this with the solvent of the other phase with the aid of suitable emulsifiers and, if appropriate, other auxiliaries such as colorants, absorption-promoting substances, preservatives, antioxidants, light stabilizers, viscosity-enhancing substances.
- 25

- 30 Suitable hydrophobic phases (oils) are:

- liquid paraffins, silicone oils, natural vegetable oils such as sesame oil, almond oil, castor oil, synthetic triglycerides such as caprylic/capric biglyceride, triglyceride mixture with vegetable fatty acids of the chain length C₈-C₁₂ or other specially selected natural fatty acids, partial glyceride mixtures of saturated or unsaturated fatty acids possibly also containing hydroxyl groups, mono- and diglycerides of the C₈-C₁₀ fatty acids,
 - fatty acid esters such as ethyl stearate, di-n-butyl adipate, hexyl laurate, dipropylene glycol perlargonate, esters of a branched fatty acid of medium chain length with saturated fatty alcohols of chain length C₁₆-C₁₈, isopropyl myristate, isopropyl palmitate, caprylic/capric acid esters of saturated fatty alcohols of chain length C₁₂-C₁₈, isopropyl stearate, oleyl oleate, decyl oleate, ethyl oleate, ethyl lactate, waxy fatty acid esters such as synthetic duck coccygeal
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gland fat, dibutyl phthalate, diisopropyl adipate, and ester mixtures related to the latter,

- fatty alcohols such as isotridecyl alcohol, 2-octyldodecanol, cetylstearyl alcohol, oleyl alcohol, and
- 5 - fatty acids such as oleic acid and
- mixtures thereof.

Suitable hydrophilic phases are: water, alcohols such as propylene glycol, glycerol, sorbitol and mixtures thereof.

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Suitable emulsifiers are:

- non-ionic surfactants, e.g. polyethoxylated castor oil, polyethoxylated sorbitan monooleate, sorbitan monostearate, glycerol monostearate, polyoxyethyl stearate, alkylphenol polyglycol ether;
- 15 - ampholytic surfactants such as di-sodium N-lauryl-p-iminodipropionate or lecithin;
- anionic surfactants, such as sodium lauryl sulfate, fatty alcohol ether sulfates, mono/dialkyl polyglycol ether orthophosphoric acid ester monoethanolamine salt;
- 20 - cation-active surfactants, such as cetyltrimethylammonium chloride.

Suitable further auxiliaries are: substances which enhance the viscosity and stabilize the emulsion, such as carboxymethylcellulose, methylcellulose and other cellulose and starch derivatives, polyacrylates, alginates, gelatin, gum arabic, polyvinylpyrrolidone, polyvinyl alcohol, copolymers of methyl vinyl ether and maleic anhydride, polyethylene glycols, waxes, colloidal silicic acid or mixtures of the substances mentioned.

25

Suspensions can be administered orally or topically/dermally. They are prepared by suspending the active compound in a suspending agent, if appropriate with addition of other auxiliaries such as wetting agents, colorants, bioabsorption-promoting substances, preservatives, antioxidants, light stabilizers..

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Liquid suspending agents are all homogeneous solvents and solvent mixtures.

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Suitable wetting agents (dispersants) are the emulsifiers given above.

Other auxiliaries which may be mentioned are those given above.

40 Semi-solid preparations can be administered orally or topically/dermally. They differ from the suspensions and emulsions described above only by their higher viscosity.

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For the production of solid preparations, the active compound is mixed with suitable excipients, if appropriate with addition of auxiliaries, and brought into the desired form.

5 Suitable excipients are all physiologically tolerable solid inert substances. Those used are inorganic and organic substances. Inorganic substances are, for example, sodium chloride, carbonates such as calcium carbonate, hydrogencarbonates, aluminium ox-
ides, titanium oxide, silicic acids, argillaceous earths, precipitated or colloidal silica, or phosphates. Organic substances are, for example, sugar, cellulose, foodstuffs and feeds such as milk powder, animal meal, grain meals and shreds, starches.

10

Suitable auxiliaries are preservatives, antioxidants, and/or colorants which have been mentioned above.

15 Other suitable auxiliaries are lubricants and glidants such as magnesium stearate, stearic acid, talc, bentonites, disintegration-promoting substances such as starch or crosslinked polyvinylpyrrolidone, binders such as starch, gelatin or linear polyvinylpyrrolidone, and dry binders such as microcrystalline cellulose.

20 The compositions which can be used in the invention can comprise generally from about 0.001 to 95% of the compound of formula I.

Generally it is favorable to apply the compounds of formula I in total amounts of 0.5 mg/kg to 100 mg/kg per day, preferably 1 mg/kg to 50 mg/kg per day.

25 Ready-to-use preparations contain the compounds acting against parasites, preferably ectoparasites, in concentrations of 10 ppm to 80 per cent by weight, preferably from 0.1 to 65 per cent by weight, more preferably from 1 to 50 per cent by weight, most preferably from 5 to 40 per cent by weight.

30 Preparations which are diluted before use contain the compounds acting against ectoparasites in concentrations of 0.5 to 90 per cent by weight, preferably of 1 to 50 per cent by weight.

35 Furthermore, the preparations comprise the compounds of formula I against endoparasites in concentrations of 10 ppm to 2 per cent by weight, preferably of 0.05 to 0.9 per cent by weight, very particularly preferably of 0.005 to 0.25 per cent by weight.

In a preferred embodiment of the present invention, the compositions comprising the compounds of formula I are applied dermally / topically.

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In a further preferred embodiment, the topical application is conducted in the form of compound-containing shaped articles such as collars, medallions, ear tags, bands for fixing at body parts, and adhesive strips and foils.

- 5 Generally it is favorable to apply solid formulations which release compounds of formula I in total amounts of 10 mg/kg to 300 mg/kg, preferably 20 mg/kg to 200 mg/kg, most preferably 25 mg/kg to 160 mg/kg body weight of the treated animal in the course of three weeks.
- 10 For the preparation of the shaped articles, thermoplastic and flexible plastics as well as elastomers and thermoplastic elastomers are used. Suitable plastics and elastomers are polyvinyl resins, polyurethane, polyacrylate, epoxy resins, cellulose, cellulose derivatives, polyamides and polyester which are sufficiently compatible with the compounds of formula I. A detailed list of plastics and elastomers as well as preparation
- 15 procedures for the shaped articles is given e.g. in WO 03/086075.

- The active compounds can also be used as a mixture with synergists or with other active compounds which act against pathogenic endo- and ectoparasites. The following list of pesticides together with which the compounds according to the invention can be
- 20 used for controlling and preventing infestations and infections in warm-blooded animals and fish, is intended to illustrate the possible combinations, but not to impose any limitation:

- Organophosphates: Acephate, Chlorfenvinphos, Diazinon, Dichlorvos, Dicrotophos, Dimethoate, Ethion, Fenitrothion, Fenthion, Isoxathion, Malathion, Phenthoate, Phosalone, Phosmet, Phoxim, Pirimiphos-methyl, Profenofos, Prothiofos, Sulprophos, Triazophos, Trichlorfon, Quintofos, Coumaphos, Chlorphoxim, Bromophos-ethyl, 2,3-p-Dioxanedithiol-S,S-bis(O,O-diethylphosphorodithionat);
- 25

- 30 Carbamates: Alanycarb, Benfuracarb, Carbaryl, Carbosulfan, Fenoxycarb, Furathiocarb, Indoxacarb, Triazamate;

- Pyrethroids: alpha-Cypermethrin, Deltamethrin, Ethofenprox, Fenvalerate, Cyhalothrin, Lambda-Cyhalothrin, Permethrin, Silafluofen, Tau-Fluvalinate, Tralomethrin, Zeta-Cypermethrin, Flumethrin, Cyfluthrin and its enantiomers and stereomers, Cyperme-
- 35 thrin;

- Arthropod growth regulators: a) chitin synthesis inhibitors: benzoylureas: Chlorfluazuron, Cyromazine, Diflubenzuron, Flucycloxuron, Flufenoxuron, Hexaflumuron, Lufenuron, Novaluron, Teflubenzuron, Triflumuron; Buprofezin, Dlofenolan, Hexythiazox, Etoxazole, Clofentazine; b) ecdysone antagonists: Halofenozide, Methoxy-
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fenozide, Tebufenozide; c) juvenoids: Pyriproxyfen, Methoprene, Fenoxycarb; d) lipid biosynthesis inhibitors: Spirodiclofen;

(Neo)nicotinoids: Acetamiprid, Clothianidin, Flonicamid, Imidacloprid, Nitenpyram,
5 Thiachloprid, Thiamethoxam;

Synthetic coccidiosis compounds, polyetherantibiotics: Amprolium, Robenidin, Toltrazuril, Monensin, Salinomycin, Maduramicin, Lasalocid, Narasin, Semduramicin;

- 10 Various: Abamectin (Avermectins), Acequinocyl, Amitraz, Azadirachtin, Bifenazate, *Bacillus thuringiensis*, *Bacillus subtilis*, Cartap, Chlorfenapyr, Chlordimeform, Cyromazine, Diafenthluron, Dinetofuran, Diofenolan, Emamectin, Endosulfan, Epsiprantel, Ethiprole, Fenazaquin, Fipronil, Formetanate, Formetanate hydrochloride, Hydramethylnon, Indoxacarb, Metaflumizone, L-2,3,5,6-tetrahydro-6-phenyl-imidazothiazole, Levamisole, Milbemectin (Milbemycins), Moxidectin, Praziquantel, Pyrantel, Pyridaben, Pymetrozine, Selamectin, Spinosad, Sulfur, Tebufenpyrad, and Thiocyclam.
- 15

In general, "parasitically effective amount" means the amount of active ingredient needed to achieve an observable effect on growth, including the effects of necrosis,
20 death, retardation, prevention, and removal, destruction, or otherwise diminishing the occurrence and activity of the target organism. The parasitically effective amount can vary for the various compounds/compositions used in the invention. A parasitically effective amount of the compositions will also vary according to the prevailing conditions such as desired parasitidal effect and duration, target species, mode of applica-
25 tion, and the like.

Synthesis Examples

The compounds I obtained according to the protocols shown in the synthesis examples
30 below together with their physical data are listed in Table I which follows.

Example 1

Preparation of 3-(2,2-Dichloro-1-methyl-cyclopropyl)-1-(2,6-dichloro-4-trifluoromethyl-phenyl)-5-methyl-1H-[1,2,4]triazole

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50 g N-[1-(2,2,-Dichloro-1-methyl-cyclopropyl)-ethylidene]-N'-(2,6-dichloro-4-trifluoromethylphenyl)-hydrazine and 17,9 ml pyridine were dissolved in 1 L toluene. At 0-5°C, 51 g DDQ was added portionwise. After stirring at 25°C for 12 hours, 1L 5% NaOH solution was added, the mixture was extracted with ether and dried with MgSO₄. Re-

40 moval of the solvent gave 48,6 g of the above compound (mp. 107-116°C).

Furthermore, compound I-3 at a rate of 10 ppm showed 100% mortality of *Crematogaster spp.* at 24 hours after treatment.

2. Activity against Argentine ant (*Linepithema humile*), acrobat ant (*Crematogaster spp.*), carpenter ant (*Camponotus floridanus*), fire ant (*Solenopsis invicta*), and eastern subterranean termite (*Reticulitermes flavipes*) via soil contact

For ants, tests were conducted in Petri dishes. A thin layer of 1 % agar in water was dispensed into the dishes and Florida sandy soil was spread over the agar. The active ingredient was dissolved in acetone and dispensed over the sand. Dishes were vented to evaporate the acetone, infested with ants, and covered. A 20% honey water solution was placed in each dish. The dishes were maintained at 22°C and observed for mortality at various time intervals.

- For termites, a thin layer of 1% agar was dispensed into Petri dishes. A thin layer of pre-treated soil was spread over the agar. For soil treatment, the active ingredient was diluted in acetone on a weight-to-weight basis and incorporated into the soil. Termite workers were introduced into each dish. Filter paper served as a food source. Test dishes were held at about 25°C. Termites were observed daily for mortality (dead or unable to stand upright and showing only weak movement).

In these tests, compound I-3 at a rate of 1 weight % showed 100% mortality of *Reticulitermes flavipes* at 3 days after treatment.

- Furthermore, compound I-3 at a rate of 10 ppm showed 100% mortality of *Camponotus floridanus* at 24 hours after treatment.

3. Activity against Argentine ant (*Linepithema humile*), acrobat ant (*Crematogaster spp.*), carpenter ant (*Camponotus floridanus*), fire ant (*Solenopsis invicta*), house fly (*Musca domestica*), eastern subterranean termite (*Reticulitermes flavipes*), Formosan subterranean termite (*Coptotermes formosanus*), and German cockroach (*Blattella Germanica*) via bait

For Argentine ant, acrobat ant, and carpenter ant, tests were conducted in Petri dishes. Baits were prepared with either honey/water solutions or ground cat chow. Active ingredient in acetone was added to the bait. 0.2 ml of treated honey water solution or 150 mg of treated cat chow, placed in a cap, was added to each dish. The dishes were covered and maintained at a temperature of 22°C. The ants were observed for mortality daily.

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For the fire ants, corn grit was used as a bait matrix (0.1% active ingredient). Fire ant adults were placed into Petri dishes together with the bait. The ants were observed for mortality daily.

- 5 For house flies, bait tests were conducted with adults aged 2-5 days post-emergence. Active ingredient in acetone was applied to a bait matrix consisting of a mixture of powdered milk and sugar. House flies were placed into bait jars which were held at about 22°C and were observed at 4 hours after treatment for knockdown (death plus morbidity (unable to stay upright)).

- 10 For termites, active ingredient in acetone was applied to filter papers. % a.i. were calculated on basis of the weight of the filter paper. Bioassays were conducted with one treated filter and ca. 30 termite workers per test Petri dish. Test dishes were maintained at 25°C and observed daily for mortality (dead or moribund insects) or intoxication.

- 15 For cockroaches, boxes with ventilated lids were used as test arenas. The bait was prepared using ground cat chow, and the active ingredient in acetone was incorporated on a weight- to-weight ratio (0.03 grams of bait per box). The boxes were maintained at 20 22°C and observed daily for mortality of the cockroaches.

In these tests, compound I-3 at a rate of 0.005 weight % showed 100% mortality of *Reticulitermes flavipes* at three days after treatment.

- 25 4. Activity against yellowfever mosquito (*Aedes aegyptii*), house mosquito (*Culex quinquefasciatus*) and malaria mosquito (*Anopheles albimanus*) larvae via water treatment

- 30 Well plates were used as test arenas. The active ingredient was dissolved in acetone and diluted with water to obtain the concentrations needed. The final solutions containing appr. 1% acetone were placed into each well. Approximately 10 mosquito larvae (4th-instars) in 1 ml water were added to each well. Larvae were fed one drop of liver powder each day. The dishes were covered and maintained at 22°C. Mortality was recorded daily and dead larvae and live or dead pupae were removed daily. At the end 35 of the test remaining live larvae were recorded and percent mortality was calculated.

5. Activity against cotton aphid (*aphis gossypii*)

- 40 The active compounds were formulated in 50:50 acetone:water and 100 ppm Kinetic™ surfactant.

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Cotton plants at the cotyledon stage (one plant per pot) were infested by placing a heavily infested leaf from the main colony on top of each cotyledon. The aphids were allowed to transfer to the host plant overnight, and the leaf used to transfer the aphids was removed. The cotyledons were dipped in the test solution and allowed to dry. After 5 days, mortality counts were made.

In this test, compound I-3 at 300 ppm showed 100% mortality.

6. Activity against green peach aphid (*Myzus persicae*)

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The active compounds were formulated in 50:50 acetone:water and 100 ppm Kinetic™ surfactant.

Pepper plants in the 2nd leaf-pair stage (variety 'California Wonder') were infested with approximately 40 laboratory-reared aphids by placing infested leaf sections on top of the test plants. The leaf sections were removed after 24 hr. The leaves of the intact plants were dipped into gradient solutions of the test compound and allowed to dry. Test plants were maintained under fluorescent light (24 hour photoperiod) at about 25°C and 20-40% relative humidity. Aphid mortality on the treated plants, relative to mortality on check plants, was determined after 5 days.

In this test, compound I-3 at 300 ppm showed 100% mortality, whereas compound A at 300 ppm show no effect.

7. Activity against bean aphid (*aphis fabae*)

The active compounds were formulated in 50:50 acetone:water and 100 ppm Kinetic™ surfactant.

Nasturtium plants grown in Metro mix in the 1st leaf-pair stage (variety 'Mixed Jewle') were infested with approximately 2-30 laboratory-reared aphids by placing infested cut plants on top of the test plants. The cut plants were removed after 24 hr. Each plant was dipped into the test solution to provide complete coverage of the foliage, stem, protruding seed surface and surrounding cube surface and allowed to dry in the fume hood. The treated plants were kept at about 25°C with continuous fluorescent light. Aphid mortality was determined after 3 days.

In this test, compounds I-1 and I-3 at 300 ppm showed 100% mortality, whereas compound A showed no effect.

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8. Activity against silverleaf whitefly (*bemisia argentifolii*)

The active compounds were formulated in 50:50 acetone:water and 100 ppm Kinetic™ surfactant.

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Selected cotton plants were grown to the cotyledon state (one plant per pot). The cotyledons were dipped into the test solution to provide complete coverage of the foliage and placed in a well-vented area to dry. Each pot with treated seedling was placed in a plastic cup and 10 to 12 whitefly adults (approximately 3-5 day old) were introduced.

- 10 The insects were collected using an aspirator and an 0.6 cm, non-toxic Tygon® tubing (R-3603) connected to a barrier pipette tip. The tip, containing the collected insects, was then gently inserted into the soil containing the treated plant, allowing insects to crawl out of the tip to reach the foliage for feeding. The cups were covered with a reusable screened lid (150 micron mesh polyester screen PeCap from Tetko Inc). Test
- 15 plants were maintained in the holding room at about 25°C and 20-40% relative humidity for 3 days avoiding direct exposure to the fluorescent light (24 hour photoperiod) to prevent trapping of heat inside the cup. Mortality was assessed 3 days after treatment of the plants.

- 20 In this test, compounds I-1 and I-3 at 300 ppm showed 100% mortality.

9. Activity against brown planthopper (*nilaparvata lugens*)

- The active compounds were formulated in 50:50 acetone:water. Potted rice seedlings
- 25 were sprayed with 10 ml test solution, air dried, placed in cages and inoculated with 10 adults. Percent mortality was recorded after 24, 72 and 120 hours.

In this test, compounds I-1, I-2 and I-3 at 300 ppm showed 100% mortality.

- 30 10. Activity against cowpea aphid (*aphis craccivora*)

- The active compounds were formulated in 50:50 acetone:water. Potted cowpea plants colonized with 100 - 150 aphids of various stages were sprayed after the pest population has been recorded. Population reduction was recorded after 24, 72, and 120
- 35 hours.

In this test, compounds I-1, I-2 and I-3 at 300 ppm showed 100% mortality, whereas compound A showed no effect.

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pillieriana, *Spodoptera frugiperda*, *Spodoptera littoralis*, *Spodoptera litura*,
Thaumtopoea pityocampa, *Tortrix viridana*, *Trichoplusia ni* y *Zeiraphera canadensis*,

- escarabajos (coleópteros), por ejemplo, *Agrilus sinuatus*, *Agriotes lineatus*, *Agriotes*
5 *obscurus*, *Amphimallus solstitialis*, *Anisandrus dispar*, *Anthonomus grandis*,
Anthonomus pomorum, *Aphthona euphoridae*, *Athous haemorrhoidalis*, *Atomaria*
linearis, *Blastophagus piniperda*, *Blitophaga undata*, *Bruchus rufimanus*, *Bruchus*
pisorum, *Bruchus lentis*, *Byctiscus betulae*, *Cassida nebulosa*, *Cerotoma trifurcata*,
Cetonia aurata, *Ceuthorrhynchus assimilis*, *Ceuthorrhynchus napi*, *Chaetocnema*
10 *tibialis*, *Conoderus vespertinus*, *Crioceris asparagi*, *Ctenicera ssp.*, *Diabrotica*
longicornis, *Diabrotica semipunctata*, *Diabrotica 12-punctata* *Diabrotica speciosa*,
Diabrotica virgifera, *Epilachna varivestis*, *Epitrix hirtipennis*, *Eutinobothrus brasiliensis*,
Hilobius abietis, *Hypera brunneipennis*, *Hypera postica*, *Ips typographus*, *Lema*
bilineata, *Lema melanopus*, *Leptinotarsa decemlineata*, *Limonius californicus*,
15 *Lissorhoptrus oryzophilus*, *Melanotus communis*, *Meligethes aeneus*, *Melolontha*
hippocastani, *Melolontha melolontha*, *Oulema oryzae*, *Otiorrhynchus sulcatus*,
Otiorrhynchus ovatus, *Phaedon cochleariae*, *Phillobius piri*, *Phyllotreta chrysocephala*,
Phillophaga sp., *Phillopertha horticola*, *Phyllotreta nemorum*, *Phyllotreta striolata*,
Popillia japonica, *Sitona lineatus* y *Sitophilus granaria*,
20
moscas, mosquitos (dípteros), p.ej. *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*,
Anastrepha ludens, *Anopheles maculipennis*, *Anopheles crucians*, *Anopheles*
albimanus, *Anopheles gambiae*, *Anopheles freeborni*, *Anopheles leucosphyrus*,
Anopheles minimus, *Anopheles quadrimaculatus*, *Calliphora vicina*, *Ceratitis capitata*,
25 *Chrysomya bezziana*, *Chrysomya hominivorax*, *Chrysomya macellaria*, *Chrysops*

cucarachas (Blattaria - Blattodea), p.ej.. *Blattella germanica*, *Blattella asahinae*,
Periplaneta americana, *Periplaneta japonica*, *Periplaneta brunnea*, *Periplaneta*
fuliginosa, *Periplaneta australasiae*, y *Blatta orientalis*,

- 5 hemípteros (Hemiptera), p.ej. *Acrosternum hilare*, *Blissus leucopterus*, *Cyrtopeltis*
notatus, *Dysdercus cingulatus*, *Dysdercus intermedius*, *Eurygaster integriceps*,
Euschistus impictiventris, *Leptoglossus phillopus*, *Lygus lineolaris*, *Lygus pratensis*,
Nezara viridula, *Piesma quadrata*, *Solubea insularis*, *Thyanta perditor*, *Acyrtosiphon*
onobrychis, *Adelges laricis*, *Aphidula nasturtii*, *Aphis fabae*, *Aphis forbesi*, *Aphis pomi*,
10 *Aphis gossypii*, *Aphis grossulariae*, *Aphis schneideri*, *Aphis spiraecola*, *Aphis sambuci*,
Acyrtosiphon pisum, *Aulacorthum solani*, *Bemisia argentifolii*, *Brachycaudus cardui*,
Brachycaudus helichrysi, *Brachycaudus persicae*, *Brachycaudus prunicola*,
Brevicoryne brassicae, *Capitophorus horni*, *Cerosipha gossypii*, *Chaetosiphon*
fragaefolii, *Cryptomyzus ribis*, *Dreyfusia nordmannianae*, *Dreyfusia piceae*, *Dysaphis*
15 *radicola*, *Dysaulacorthum pseudosolani*, *Dysaphis plantaginea*, *Dysaphis piri*,
Empoasca fabae, *Hyalopterus pruni*, *Hyperomyzus lactucae*, *Macrosiphum avenae*,
Macrosiphum euphorbiae, *Macrosiphon rosae*, *Megoura viciae*, *Melanaphis pirarius*,
Metopolophium dirhodum, *Myzus persicae*, *Myzus ascalonicus*, *Myzus cerasi*, *Myzus*
varians, *Nasonovia ribis-nigri*, *Nilaparvata lugens*, *Pemphigus bursarius*, *Perkinsiella*
20 *saccharicida*, *Phorodon humuli*, *Psilla mali*, *Psilla piri*, *Rhopalomyzus ascalonicus*,
Rhopalosiphum maidis, *Rhopalosiphum padi*, *Rhopalosiphum insertum*, *Sappaphis*
mala, *Sappaphis mali*, *Schizaphis graminum*, *Schizoneura lanuginosa*, *Sitobion*
avenae, *Trialeurodes vaporariorum*, *Toxoptera aurantiiand*, *Viteus vitifolii*, *Cimex*
lectularius, *Cimex hemipterus*, *Reduvius senilis*, *Triatoma* spp., y *Arilus critatus*.

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- Mezclas más preferidas, donde el compuesto de la fórmula II es seleccionado del grupo A-1 consisten de: bifentrina, cihalotrina, cipermetrina, alfa-cipermetrina, deltametrina, lamda-cihalotrina, permetrina; flufenoxurona, hexaflumurona, teflubenzurona, novalurona; clotianidina, acetamiprid, imidacloprid, tiametoxam;
- 5 fipronilo, etiprol; abmamectina, emamectina, espinosad; clorfenapir; indoxacarb, metaflumizona; compuestos de antranilamida de la fórmula I⁴, compuestos de malononitrilo, tal y como se describen en la JP 2002 284608, WO 02/89579, WO 02/90320, WO 02/90321, WO 04/06677, WO 04/20399, JP 2004 99597, WO 05/68423, WO 05/68432, o WO 05/63694, especialmente, los compuestos de malononitrilo
- 10 $\text{CF}_2\text{HCF}_2\text{CF}_2\text{CF}_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2\text{CH}_2\text{CF}_3$ (2-(2,2,3,3,4,4,5,5-octafluoropentil)-2-(3,3,3-trifluoropropil)malononitrilo), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_5\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoro-heptil)-2-(3,3,3-trifluoro-propil)-malononitrilo), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2(\text{CH}_2)_2\text{C}(\text{CF}_3)_2\text{F}$ (2-(3,4,4,4-tetrafluoro-3-trifluorometil-butil)-2-(3,3,3-trifluoro-propil)-malononitrilo), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2(\text{CH}_2)_2(\text{CF}_2)_3\text{CF}_3$ (2-(3,3,4,4,5,5,6,6,6-
- 15 nonafluoro-hexil)-2-(3,3,3-trifluoro-propil)-malononitrilo), $\text{CF}_2\text{H}(\text{CF}_2)_3\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2,2-bis-(2,2,3,3,4,4,5,5-octafluoro-pentil)-malononitrilo), $\text{CF}_3(\text{CH}_2)_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_3$ (2-(2,2,3,3,4,4,5,5,5-nonafluoro-pentil)-2-(3,3,3-trifluoro-propil)-malononitrilo), $\text{CF}_3(\text{CF}_2)_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,4-heptafluoro-butil)-2-(2,2,3,3,4,4,5,5-octafluoro-pentil)-malononitrilo) y
- 20 $\text{CF}_3\text{CF}_2\text{CH}_2\text{C}(\text{CN})_2\text{CH}_2(\text{CF}_2)_3\text{CF}_2\text{H}$ (2-(2,2,3,3,4,4,5,5-octafluoro-pentil)-2-(2,2,3,3,3-pentafluoro-propil)-malononitrilo), pimetracina, piridalilo.

- Mezclas sinérgicas de compuestos de la fórmula I: 1-(2,6-dicloro-4-trifluorometilfenil)-3-(1-metil-2,2-diclorociclopropil)-5-metil-1,2,4-triazol con uno de los pesticidas del
- 25 grupo A-1 abajo indicadas son especialmente preferidas.

- pulgas (sifonápteros), p.ej. *Ctenocephalides felis*, *Ctenocephalides canis*, *Xenopsilla cheopis*, *Pulex irritans*, *Tunga penetrans*, y *Nosopsillus fasciatus*,
cucarachas (Blattaria - Blattodea), p.ej. *Blattella germanica*, *Blattella asahinae*,
Periplaneta americana, *Periplaneta japonica*, *Periplaneta brunnea*, *Periplaneta*
5 *fuliginosa*, *Periplaneta australasiae*, y *Blatta orientalis*,
- moscas, mosquitos (dípteros), p.ej. *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*,
Anastrepha ludens, *Anopheles maculipennis*, *Anopheles crucians*, *Anopheles albimanus*,
Anopheles gambiae, *Anopheles freeborni*, *Anopheles leucosyrus*, *Anopheles minimus*,
10 *Anopheles quadrimaculatus*, *Callifora vicina*, *Chrysomya bezziana*, *Chrysomya*
hominivorax, *Chrysomya macellaria*, *Chrysops discalis*, *Chrysops silacea*, *Chrysops*
atlanticus, *Cochliomyia hominivorax*, *Cordilobia anthropofaga*, *Culicoides furens*, *Culex*
pipiens, *Culex nigripalpus*, *Culex quinquefasciatus*, *Culex tarsalis*, *Culiseta inornata*,
Culiseta melanura, *Dermatobia hominis*, *Fannia canicularis*, *Gasterophilus intestinalis*,
15 *Glossina morsitans*, *Glossina palpalis*, *Glossina fuscipes*, *Glossina tachinoides*,
Haematobia irritans, *Haplodiplosis equestris*, *Hippelatos* spp., *Hypoderma lineata*,
Leptoconops torrens, *Lucilia caprina*, *Lucilia cuprina*, *Lucilia sericata*, *Lycoria*
pectoralis, *Mansonia* spp., *Musca domestica*, *Muscina stabulans*, *Oestrus ovis*,
Flebotomus argentipes, *Psorofora columbiae*, *Psorofora discolor*, *Prosimulium mixtum*,
20 *Sarcofaga haemorrhoidalis*, *Sarcofaga* sp., *Simulium vittatum*, *Stomoxys calcitrans*,
Tabanus bovinus, *Tabanus atratus*, *Tabanus lineola*, y *Tabanus similis*,
- pulgones (Ftiraaptera), p.ej. *Pediculus humanus capitis*, *Pediculus humanus corporis*,
Ptirus pubis, *Haematopinus eurytarnus*, *Haematopinus suis*, *Linognathus vituli*,
25 *Bovicola bovis*, *Menopon gallinae*, *Menacanthus stramineus* y *Solenopotes capillatus*.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/062719

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01N43/653 C07D249/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 957 094 A (PFIZER INC; PFIZER LIMITED) 17 November 1999 (1999-11-17) cited in the application the whole document	1-13
A	WO 00/24720 A (DOW AGROSCIENCES LLC) 4 May 2000 (2000-05-04) cited in the application the whole document	1-13

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *S* document member of the same patent family

Date of the actual completion of the international search

7 September 2006

Date of mailing of the international search report

15/09/2006

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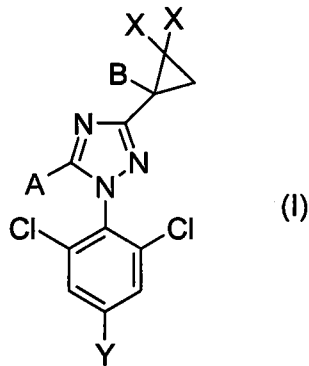
Gavriliu, Daniela

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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: A01N 043/653	
22) Fecha de solicitud:		(71) Solicitante(s) BASF AKTIENGESELLSCHAFT	
(30) Prioridad	(31) No. Prioridad 60/687,027	(32) Fecha 03/06/2005	(33) País US
		(72) Inventor(es) CHRISTOPHER KORADIN Y OTROS	
		(74) Apoderado: EMILIO FERRERO	
(85) Fecha limite inicio fase nacional: 03/01/2008		(87) Publicación internacional	
(86) Datos relativos a la presentación de la solicitud PCT		Fecha: 07/12/2006	
Fecha de presentación de la solicitud: 30/05/2006		N° publicación: WO 2006/128867 A1	
No. de solicitud PCT/EP2006/062719			
(54) Título: DERIVADOS DE UN 1-FENILTRIAZOL			

Reivindicación(es):

1. Compuestos de la fórmula (I)



donde

X es cloro o bromo;

Y es cloro o trifluorometilo y

A y B significan hidrógeno o metilo siendo preciso, que uno de de los radicales A o B signifique metilo;

o los enantiómeros o sales de los mismos.

2. Compuestos de la fórmula I según la reivindicación 1 donde B es metilo y X es cloro.

3. Compuestos de la fórmula I según la reivindicación 1 donde A es metilo y X es cloro.

4. 1-(2,6-Dicloro-4-trifluorometilfenil)-3-(1-metil-2,2-diclorociclopropil)-5-metil-1,2,4-triazol.

5. Uso de los compuestos de la fórmula I tal y como están definidos en las reivindicaciones 1 a 4 para combatir insectos o acáridos.

6. Un método para controlar insectos o acáridos poniendo el insecto o acárido o su suministro de comida, su habitat o áreas de cría en contacto con una cantidad efectiva

pesticida de compuestos o composiciones de la fórmula I, tal y como están definidos en las reivindicaciones 1 a 4.

7. Un método para proteger plantas crecientes frente al ataque o la infestación por insectos o acáridos aplicando sobre las hojas de las plantas o sobre el suelo o en el agua donde crecen una cantidad efectiva pesticida de composiciones o compuestos de la fórmula I tal y como se definen en las reivindicaciones 1 a 4.

8. El método según las reivindicaciones 6 o 7 donde los insectos o acáridos son seleccionados del orden de los isópteros, dípteros, blattaria (Blattodea), himenópteros, sifonápteros y acarina.

9. Un método para tratar, controlar, prevenir o proteger animales contra la infestación o infección por parásitos, que comprende administrar o aplicar a los animales oral, tópica o parenteralmente una cantidad efectiva antiparasitaria de composiciones o compuestos de la fórmula I tal y como se definen en las reivindicaciones 1 a 4 o sus enantiómeros o sales aceptables en la veterinaria.

10. Un procedimiento para la obtención de una composición para tratar, controlar, prevenir o proteger a animales frente a la infestación o infección por parásitos, que comprende una cantidad efectiva antiparasitaria de composiciones o compuestos de la fórmula I tal y como se definen en las reivindicaciones 1 a 4 o o sus enantiómeros o sales aceptables en la veterinaria.

11. El procedimiento según la reivindicación 10 donde los parásitos son seleccionados del orden de los dípteros, sifonápteros y ixódidos.

12. Composiciones que comprenden una cantidad efectiva pesticida o antiparasitaria de compuestos de la fórmula I tal y como se definen en las reivindicaciones 1 a 4 y un soporte aceptable en la agricultura y veterinaria.

13. Mezclas sinérgicas que comprenden compuestos de la fórmula I y otro pesticida en cantidades sinérgicamente efectivas.



Industria y Comercio

SUPERINTENDENCIA

REPÚBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Resolución no 11579

Radicación 98-47249

Por la cual se resuelve una revocatoria directa

LA JEFE DE LA DIVISIÓN DE SIGNOS DISTINTIVOS

en ejercicio de sus Facultades legales y en especial las que le confiere el artículo 15 numeral 1 del Decreto 2153 de 1992 y en el artículo 69 del Código Contencioso Administrativo y

CONSIDERANDO

PRIMERO.- Por escrito radicado ante esta Superintendencia, en fecha 3 de abril de 2002 el (la) doctor (a) Alvaro Correa Ordóñez representación de la sociedad Shering- Plough Ltd interpuso revocatoria directa contra la decisión contenida en la resolución no. 40370 de 2001 mediante la cual la División de Signos Distintivos concedió el registro de la marca Pegtron (nominativa) para distinguir productos de la clase 5 de La Clasificación Internacional de Niza. La revocatoria presentada cumple con el lleno de los requisitos y tiene por objeto, que se revoque la decisión, y se fundamenta de la siguiente manera:

"Su despacho, expidió la resolución 4370 del 30 de noviembre de 2001, ordenando el registro de la marca Pegtron, pero están mal anotados los productos que distingue esta marca, por lo cual pido se revoque parcialmente el artículo segundo de la mencionada resolución y se conceda como fue solicitada, o sea, para distinguir: Un agente antiviral e inmunomodulante de amplio espectro."

SEGUNDO.- En la presente actuación, se dará aplicación al inciso 1º. del artículo 143 de La Decisión 486 de La Comisión de la Comunidad Andina, concordante con el título 10 del capítulo 10, numeral 1.2.1.5. de la circular unica No. 10 de la Superintendencia de Industria y Comercio por la cual se reglamento parcialmente la anterior Decisión.

TERCERO.- Revisado el expediente de la referencia y la resolución recurrida, se pudo observar que efectivamente se cometió un error en cuanto a los productos, haciéndose necesario acceder a la corrección solicitada.

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Bogotá, D.C., Colombia

11579