CAVELIER ABOGADOS COLO 16452-841-010-7 ID-130675

4-,

IL
In d nstria

Comercio SUPER INTENDENCIA DE JNDUSTRLA

COMERCIO

S U P E R I N T E N D E N C I A flhIlIJIfIEIIIJIIIOIIIIIIIIIIIlII11111 III

No. 08-075699- -00000-0000
Fecha: 2008-07-22 16:17:02 Dep. 2020 NUECREACIONE
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 411 PRESENTACION Folios: 69

FORMULARIO UNICO DE SOLICITUD DIE PA I tN I
PCT

ENTRADA EN FASE NACIONAL

OSOLICITUDDE:
tI Patente de InvenciOn. 0 Patente de Modelo de Utilidad.

II CapItulo 1. 0 CapItulo H.

0 Nombre: BASF SE

sociedad constituida

existente bajo las IDENTIFICACION

SOLICITANTE [eyes de Alemania. C.C. 0 NIT D
(71)
DirecciOn: 67056 Ludwigshafen, C. E. 0 Otro 0
Alemania Cual

Domicilio: Ludwigshafen, Nümero
Alemania

Nombre: EMILIO FERRERO IDENTIFICACION Q DirecciOn: Carrera4a. No. 72-35 C.C. tI NIT 0

REPRESENTANTEC.E.

TelØfono: 347 36 11 El Otro 0
Fax: 2118650

OAPODERADO Cual E-mail: clientescamyp.com.
Domicilio: Bogota, Colombia. Nümero 438.019 T.P 31.929

0 1. Joseph ZAWIERUCHA 2. Oliver W. GLENN

100 Highfield Avenue, 1001 Oakgate Court,
Cary, Apex,

INVENTOR (ES) North Caroline 27519, North Caroline 27502,
(72) Estados Unidos de America Estados Unidos de America
3. Richard R. EVANS 4. Todd HORTON
8412 Lakewood Drive, 103 Alan Court,
Raleigh, Anderson,
North Caroline 27613, South Caroline 29625,
Estados Unidos de America Estados Unidos de America

5. Danniel D. BERAN 6. Joseph G. VOLLMER
1422 57TH Place, 2166 North 15th Street,
Des Moines, Laramic,
Iowa 50311, Wyoming 82072,
Estados Unidos de America Estados Unidos de America

7. Alane J-Bo BURNS 8. Jeffrey H. BIRK
5040 Bartons Enclave Ln, 2609 Sunystone Way,
Raleigh, Raleigh,
North Caroline 27163, North Caroline 27613,
Estados Unidos de America Estados Unidos de America

9. Derek W. MILLER 10.Timothy P. KNIGHT
1504 Redwater Brennchet, 7108 Manor Oaks,
Apex, Raleigh,
North Caroline 22502, North Caroline 27615,
Estados_Unidos_de_America Estados_Unidos_deAmerica

OPCT (86)
Solicitud Internacional No. PCT/EP2006/070009 Fecha: 20 de diciembre de 2006

Publicación Internacional No. WO 2007/071730 A3 Fecha: 28 de junio de 2007

1Ii

COLO 16452-841-010-7 tD-130675 T CAVEUER ABOGADOS

Y.U.

4

is

0

ulo (54
6 UN METODO PARA CONTROLAR MALEZAS ACUATICAS

Ciasificación Internacional (51) AOl N 043/042

G8)

Prioridad (33) Pals de Origen (32) Fecha (31) NUmero de Solicitud

siI NOD US 23 de diciembre de 2005 60/752,906

us 24 de mayo de 2006 60/802,791

Comprobante de pago No.: 0858,096 Fecha: 21 de Julio de 2008

10 Anexos:

Comprobante de pago de la tasa de presentaciôn de la solicitud por $ 501.000.00.
O Comprobante de pago por reivindicación de prioridad.
E.1 Documento que acredita la existencia y representaciôn legal cuando el solicitante sea persona
jurIdica.
Poderes, si fuere el caso.
0 Documento de cesión del inventor al solicitante o a su causante.
0 Declaraciones.
IEI Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
Traducción de la solicitud internacional al casteHano. (Resumen, descripciôn, reivindicaciones, dibujos)
O Copia del examen preliminar efectuado por la IPEA.
O Traducción del examen preliminar efectuado por la (PEA.
O De ser el caso, copia del contrato de acceso.
O De ser el caso, documento que acredite la licencia o autorizaciôn de uso de conocimientos
tradicionales de las comunidades indIgenas.
0 De ser el caso, certificado de depósito del material biolOgico.
Arte final 12x12

O De ser el caso, información sobre otras solicitudes de patente o titulos obtenidos en el
extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invenciOn
de esta solicitud.

II Otros: VER HOJA DE DOCUMENTOS ANEXOS

4

%I

CAVELIER ABOGADOS COLO 16452-841-010-7

DOCUMENTOS ANEXOS

1. Z Publicación Internacional WO 2007/071730 A3
DescripciOn:
PÆginasj. en el idioma original
PÆginas28 en espaæol
Reivindicaciones: Nümero (s) 9
Figuras: NUmero (s)

2. Z Forma PCT/ISAI2I0. Informe de Busqueda Internacional.

3. Extracto de publicación.

ID-130675

NO SE REALIZARON MODIFICACIONES EN LA

FASE INTERNACIONAL

CAYELlER 179
ABOGADOS
EDIFICIO SISKI
CARRERA 4a N’ 7245
BOGOTA, 8- COLOMBIA

REPRESENTACION Y PODER

Rpresenft.iOn y Pode re autentieación notarial y Apostille
para patentes,

Jelos e utilidad, diseæos industriales,
marcas de fÆbrica, nombres comerciales, ensefias, nombres de dominio, lemas comerciales, licencias.

Representation and Power-of- Attorney with notarial authentication and Apostille for patents, utility models, industrial designs, trademarks, commercial names, trade emblems, domain names, slogans, licenses.

REPRESENTATION AND POWER- OF- ATTORNEY

Yo (nosotros), abajo firmado (s)/I (we), the undersigned

BASF SE

domiciliado (s) en/of 67056 Ludwigshafen. Germany

ci presente nombramos a EMILIO FERRERO, tpa. 31929; LUZ
C, MENCIA DE PAEZ, tpa. 23555 y DANIEL PE1A, tpa. 65620,
d iciliados en La Carrera 4’ N° 72_35, Bogota, Colombia, en
o decimiento a to dispuesto en el parÆgrafo to del Articulo 543 del
C igo de Comercio, el primero como principal y Los demÆs como
su entes, en su orden, como mis (nuestros) representantes en todos los
as tos de propiedad industrial con facultad para recibir notificaciones y
no brar apoderados judiciales o extrajudiciales. El primer representante
s ente reemplazarª at principal en caso de ausencia o impedimento
te poral o definitivo de aqul. La misma regia se aplicarÆ cuando ci
s undo representante suplente haya de reemplazar at primero, o ci
t ero at segundo. En tales casos, el representante principal, o ci
P, mero, 0 segundo suplente, en su caso, o ambos, declararÆn su
i nción de no ejercer la representación mediante declaración
enticada por Notario POblico en Colombia, o por Notario u otro ncionario PUblico, o COnsul de Colombia, en el extranjero; y si Se tare de impedimento, con el certificado respectivo. Si aiguno de Los mbrados faltare definitivamente, ci siguiente tomarÆ su lugar. Cuando cesare Ia ausencia o impedimento del representante principal, o de su primero o segundo suplentes, en su caso, podrÆn ejercer La representaciOn, en su orden, uno u otros segfln ci caso, asumiØndola por ci solo hecho de ejercerla, cesando en ese momento ci ejercicio de La representaciOn por el primero, segundo o tercer suplente en su caso.

AdemÆs, confiero(conferimos) poder a los abogados arriba nombrados, para obtener la protecciOn de mi (nuestra) propiedad industrial y contra In competencia desleal, a cuyo efecto autorizo (amos) a los dichos apoderados para que me (nos) representen ante cualesquiera entidades o personas, ejerzan o no jurisdicciOn, especialmente ante las del orden administrativo, contencioso_administrativo y judicial, asi como los tribunales de arbitramento, en todo to concerniente a los siguientes asuntos: a) ObtenciOn de patentes de invenciOn, modelos de utilidad, y disefios industriales; el registro de marcas de fÆbrica, colectivas, defensivas, de servicio, lemas comerciales, nombres comerciales, ensefias, nombres de dominio, variedades vegetales y denominaciones de origen; su renovaciOn, traspaso, cambio de nombre o domicilio, cancelaciOn voluntaria; y ci registro de licencias de uso de esos derechos; b) Las acciones de competencia desleal, protecciOn del consumidor, oposiciones u observaciones, cancelaciOn administrativa y judicial, nulidad, medidas cautelares, concesiOn de licencias, la tutela, la

in due compliance with the terms of paragraph 1st. of article 543 of the Commercial Code, do hereby appoint EMILIO FERRERO, tpa. 31929; LUZ CLEMENCIA DE PAEZ, tpa. 23555 and DANIEL PE1A, tpa. 65620, domiciled at Carrera 4’ N° 72_35, Bogota, Colombia, the first as principal and the others as alternates, in the order oftheir appointment, as our representatives for all industrial property matters with faculty to receive notifications and to appoint attorneys in and out of Court. The first alternate shall replace the principal in case of his absence or of temporal or definitive impediment. The same rule will apply when the second alternate representative is to replace the first one, or when the third is to replace the first or second alternates in their turn, or both of them, second. In such cases, the principal representative, or the first or second alternates in their turn, or both of them, shall state their intention not to act as representatives through a declaration given before a Notary Public in Colombia, or before a Notary or another Public Official or a Colombian Consul abroad; and in case of impediment, the appropriate certificate shall suffice. If any of the appointees were to be definitely absent, the following alternate shall take his place. When the absence or impediment of the principal representative, or of the first or second alternate in their turn ceases, the representation can be taken again in their sequence, by the principal, the first or second alternate depending on case, and the mere fact or its exercise will suffice. The exercise of the representation by the first, second or third alternates in their turn shall end at such time.

In addition, we grapt7e tfavoucie abovenamed attorneys_at_law o’
Itag,

4offi the p8tin of my (our) Iq
industrial property andhe untmr competfrt6h"1s which purpose I (we) authorize the sn’ fsent me (us) before any authorities or persoor wi o q4risdittion, specially those administrative administrative contentious and jtidiciaL as well as before Arbitration Coutl,, in

matters concerning the following a) Obtainment
of patents utility models and ftiustial’ d1gl the registration of trademarks, collective, defensive and ’s ktiogans, commercial names, trade emblems, domain names, vegetal varieties and denominations of origin; its renewal, assignment, change of name or domicile, voluntary cancellation; and the registration of licenses of use of the above rights; b) Actions of unfair competition, protection to the consumer, oppositions or observations, administrative or Court cancellation, nullity, infringement, granting of licenses, the action for writ mandamus, the protection of trade secrets, and in general the civil, penal,

protección de secretos industriales, y en general los juicios civiles, penales, adminisativos o contencioso_administrativos relacionados con estos derechos; acciones y procesos que promovamos o se nos promuevan. Y para que en todos los asuntos arriba determinados, puedan sustituir este mandato, transigir, conciliar, admitir los hechos del proceso, desistir, cancelar, recibir, renunciar, y ratificar los actos de agentes oficiosos.

4

A

Of

and administrative suits relating to those rights; actions and suits instituted by me (us) or against me (us). And that in all the above matters they may substitute this Power ofAttorney, compromise, conciliate, admit the facts ofthe case, desist, cancel, receive, resign, and ratify acts done by representatives without a power of attorney.

Dado y firmado hoy/Given and signed this 3

rd day of April. 2008
PnAn Ludwigshafen am Rhein

por/by

Firma BASF SE

Signatura
(T?/7
C::??

Dr. Thomas Cimniak

’v4

Dr. Alexander Wallon

directors

U.R.Nr. 819 /2008

I, Ludwig Draxel-Fischer, notary public at Ludwigsha-
fen/Rhine, Federal Republic of Germany, hereby te-stify and confirm that the foregoing twice mentioned signatures of

1. graduate chemist Dr. Thomas Cimniak, chemist,
at Ludwigshafen/Rhine, personally known to me,

2. graduate chemist Dr. Alexander Wallon, chemist at
Ludwigshafen/Rhine, personally known to me,

are true and valid.

Graduate chemist Dr. Cimniak and graduate chemist
Dr. Wallon are acting on behalf of BASF SE at Lud-wigshafen/Rhine.

After having checked today the competent register of commerce, I herewith confirm that
graduate chemist Dr. Cimniak and graduate chemist Dr. Wallon are directors who are authorized to jointly represent
BASF SE (Societas Europaea = European Company),
Ludwigshafen/Rhine. I certify that this firm is a
legal person duly organized under the laws of the
Federal Republic of Germany and ander the laws of
the EUROPEAN UNION and that it is registered at the
District Court of Ludwigshafen/Germany (HR B 6000)

4# shafen/Rhine, this 3rd day of April, 2008

. ,

notary public

ccmio
D

roToc

JUL 21

Wert: 5.112,92 Euro

APOSTI L L E

(Convention de La Haye du 5 octobre 1961)

1. Land: Bundesrepublik Deutschland
Diese Offentliche Urkunde
2. ist unterschrieben von Notar
Draxel- Fischer
3. in seiner Eigenschaft als
Offentlicher Notar
4. sie 1st versehen mit dem Siegel/Stempel
des Notars Ludwig Draxel-Fischer
in Ludwigshafen am Rhein

Bestatigt

5. in Frankenthal (Pfalz)
6. am 7. April 2008
7. durch den Prâsidenten des Landgerichts
8. unter Nr. 91 Eb -511/08

9. Siegel/Stempel: 10. Unterschrift
Im Auftrag

(Christian KOneke)
Richter am Landgericht

Kostenvermerk:
Gebühr 12,--

Die Obereinstimmung var-stehender Abschrift mit
der Urschrift wird hiermit beglaubigt.

Ludwigshafen am Rhein
(Bundesrepublik Deutschland) den, 22. Januar 2008

GebUhrenwert: 2.000, --EUR

I hereby certify the copy reproduced above to be a true and correct copy of
the original record.

Ludwigshafen/Rhine
(Federal Republic of Germany), January 22, 2008

Notar/Notary Public

Value of fee: 2.000,--EUR

it

0

C

- - 4

. ;,

APOSTI LLE

(Convention de La Haye du 5 octobre 1961)

1. Land: Bundesrepublik *Deutschland
Diese Offentliche Urkunde
2. ist unterschrieben von Notar
Draxel- Fischer
3. in seiner Eigenschaft als
ä ffentlicher Notar
4. sie ist versehen mit dem Siegel/Stempel
des Notars Ludwig Draxel-Fischer
in Ludwigshafen am Rhein

Bestªtigt

5. in Frankenthal (Pfalz)
6. am 7. April 2008
7. durch den Präsidenten des Landgerichts
8. unter Nr. 91 Eb - 512/08

9. Siegel/Stempel: 10. Unterschrift
Im Auftrag

(Christian KOneke)
Richter am Landgericht

Kostenvermerk:
GebUhr 10,--

TRADUCCION OFICIAL 111/2008 DE UN DOCUMENTO ESCRITO EN INGLES Y EN ESPAOL DE ACUERDO CON EL CUAL BASF SE., EMPRESA DOMICILIADA EN 67056 LUDWIGSHAFEN, ALEMANIA, OTORGA PODER A
EMILIO FERRERO, TPA 31929, LUZ CLEMENCIA DE PAEZ, TPA 23555 Y
A DANIEL PEfJA, TPA 65620.
EXPEDIDO Y FIRMADO HOY 3 DE ABRIL DE 2008 EN LUDWIGSHAFEN AM
RHEIN, FOR DR. THOMAS CIMNIAK Y ALEXANDER WALLON, DIRECTORES
U.R.NR. 819/2008
Yo, Ludwig Draxel-Fischer, notario püblico de Ludwigshafen/Rhine, Repiiblica Federal de Alemania, por el presente certifico y confirmo que las dos firmas arriba mencionadas de 1- El quimico graduado Dr. Thomas Cimniak, quimico de Ludwigshafen/Rhine, personalmente conocido mio
2- El quimico graduado Dr. Alexander Wallon, quimico de
Ludwigshafen/Rhine, personalmente conocido mb
son veridicas y vÆlidas.
Los quImicos graduados, doctores Cimniak y Wallon actüan a nombre de BASF SE en Ludwigshafen/Rhine.
DespuØs de haber verificado hoy el registro de comercio pertinente, confirmo que los quimicos graduados Dr. Cimniak y Dr. Wallon son directores autorizados para representar conjuntamente a BASF SE (Emprs. uropea),
Ludwigshafen/Rhine Certifico que dicha firmaT uta persona,
juridica debidamente constituida de conformidad cthiJis2C yes
de la Republica Federal de Alemania y con las leyes la
UNION EUROPEA y que estÆ registrada en la ’Crt d11s’tJ’vbta
de Ludwigshafen/Alemania (HR B 6000)
Ludwigshafen/Rhine, 3 de abril de 2008.
Firma ilegible, notario piblico

0

4

TRADUCCION OFICIAL No. 14939

de un documento escnto en AlemÆn,efectuada por Luz Arriaga de Herber, resolución del Ministerlo de Justicia 599 del 6 de marzo 1978.-

Traducci6n de los sellos y autenticaciones en alemÆn que aparecen en el documento de representaciOn y poder, escrito en espaæole ingles, por medlo del cual BASF SE, domiciliada en 67056 Ludwigshafen, Alemania, nombra como sus representantes a EMILLO FERRERO, tpa. 31929; LUZ CLEMENCIA DE PAEZ, tpa 23555 y DANIEL PEf1A tpa. 65.620, domiciliados en la, Carrera 4 No. 72-35, Bogota, Colombia. Dado y firmado et 3 de abril de 2008 en Ludwigishafen am Rhein. Hay dos firmas ilegibles de los seæores Dr. Thomas Cimniak y Dr. Alexander Wallon.

Sigue certiflcación en ingles de las firmas antecedentespor

rio e

Ludwigshafen am Rhein, Ludwig Drexel-Fischer, el 3 de abril de 20 bjUR rft N 819/2008.

Fda.: firma ilegible. (hilo

oblea notarial). Valor: S. 112,92 Euros.

APOSTILLE

.-

(Convention de La Haye du 5 octobre 1961)

1. Pals: RepCiblica Federal de Alemania
Este documento piblico
2. Ha sido firmado por el notano Drexel-Fischer
3. Actuando en calidad de notano pblico
4. Lleva el sello oficial del notarlo Drexel-Fischer, notario de Ludwigshafen am Rhein

Certificado
S. en Frankenthal (Pfalz)
6. el 7 de abril de 2008

7. por el Presidente del Tribunal Regional
8. bajoel No. 91 Eb-511/08
9. SeHo

(Hilo y oblea del Tribunal Regional)

 3

Cv cr
- J

......r’i ,f

.4:’’4i’.s

AXt

i. fliit

10. Firma
p.e. Fdo.: firma (legible
(Christian KOneke)
Juez del Tribunal Regional

Costas:
Derechos 12,00

16 JUL 2LB

0

0

Copia certificada

1. BASF Aktiengesellschaft La BASF Aktiengesellschaft domiciliada en Ludwigshafen am Rhein, RepOblica Federal de Alemania, estuvo registrads hasta el 14.01.2008 en el
Registro de Comercio del Juzgado Munici I de Ludwigshafen am Rhein, Rep6blica Federal de Alemania Registro TDeaComercio- en le forma juridica del derecho alemAn como Sociedad An6nima bajo HRB 3000.
2 BASF SE

Por resoluci6n de la Asamblea General del 26.04.2007 la BASF Aktiengesellschaft por vfa del cambio de forma segun el plan de transformaci6n del 27.02.2007 se transform6 en (a BASF SE domiciliada. en Ludwigshafen am Rhein, Rep6blica Federal de Alemania.

La BASF SE domiciliada en Ludwigshafen am Rhein, Rep6blica Federal de Alemania, est(3 inscrits desde el 14.01.2008 en el Registro de Comercio del Juzgado Municipal de Ludwigshafen am Rhein, Repciblica Federal de

Alemania Registro de Comercio- en la forma juridica de Societas Europaea bajo HRB 6000.
Por consigulente, la BASF SE es la sucesora legal de la BASF Aktiengesellschaft.

Segfin lo estipulado en el Art. 37 Inc. 2 del Reglamento (CE) Nr. 2157/2001 del Consejo del 08 de octubre de 2001 sobre los estatutos de la Sociedad Europea (SE) esta transformaci6n no tuvo como consecuencia ni la disoluci6n de la sociedad ni la constituci6n de una nueva persona jurfdica.

3. Certificaci6n

Yo, el notario, certifico la sucesi6n antes descrita por haber tenido hoy a la vista los dos Registros Mercantiles antes mencionados.
Ludwigshafen am Rhein (Rep(iblica Federal de Alemania), 14. de enero de 2008 Fdo.: firma ilegible
Notario

(sello redondo en tinta)
Ludwig Draxel-Fischer

t-C

10

I*

(dorso)
Se certifies que Is copia antecedente coincide con su original. Ludwigshafen am Rhein
(Rep0blics Federal de Alemania)
22 de enero de, 2008.

Fdo.: firma flegible
Notario

(sello, redondo en tints)
Ludwig Draxel-Fischer

Derechos: 2.000,-- Euros

APOSTILLE

(Convention de La Haye du 5 octobre 1961)

1. Pais, Rep(iblica Federal de Alemania
Este documento p6blico
2. Ha sido firmado por el notado Draxel-Fischer 3, Actuando en calidad de notario, p6blico
4. Lieva el sello oficial del notarlo, Draxel-Fischer, notario de Ludwigshafen am Rhein

Certificado
5. en Frankenthal (Pfaiz)
6. el 7 de abril de 2008
7. por el Presidente del Tribunal Regional
8. bajo el No. 91 Eb 512108
9. Sello

(Hilo y oblea del Tribunal Regional)

IIPV

M*004

V??2-

10. Firma
p. e. Fdo.: firma ilegible
(Christian Kdneke)
Juez del Tribunal Regional

Costas:
Derechos 10, 00 f

ES TRADUCCION FIEL Y COMPLETA, de Is cual se deja copla en los archivos de estas oficinas para su confrontaci6n.

Bogotti, 9 de mayo de 2008
C. 3545

?:f: A!"

0

0

WO 2007/071730 PCT/EP2006/070009

A method for controlling aquatic weeds

This invention belongs to the field of agricultural chemistry and provides to the art com-pounds to control aquatic weeds. Such weeds clog waterways, plug up water-handling
5 equipment, and are often aesthetically unacceptable. They are cumbersome for
fisherman, swimmers, and watersports. The economic impact for control and management in general and on recreational areas in particular is estimated to be in the millions of dollars.

A typical representative for inventively controlled aquatic weeds is hydrilla that is known
10 as a submersed, very prolific, mat forming species, which can dominate the aquatic
system that it is present in. High densities of hydrilla interfere with various water uses.
A typical representative is Hydrilla verticillata.
Therefore, the development of herbicides effective against aquatic weeds is important. The control of certain aquatic weeds is discussed in the following art.
15

Generally, aquatic weeds and herbicidal or biological methods for controlling them are known, for example from L.W.J. Anderson, Pest Manag. Sci. 59, pages 801-813 (online 2003) or M.D. Netherland et al., Outlooks on Pest Management (Pesticide Outlook), pages 100-104 or J. Gallagher and W.T. Haller, Rev. Weed Sci., 1990, 5, 115-192.
20

One of the major herbicides used for the control of Hydrilla verticillata is fluridone (1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyll-4(1 H)-pyridinone).
It is known that a number of new biotypes of hydrilla have developed increased toler-ance or even resistance to fluridone. Therefore, there is a continuous demand to fur-
25 ther develop efficient herbicides for controlling aquatic weeds in general. Thus, the
need for a herbicide to control hydrilla, in particular Hydrilla verticillata, specifically their biotypes being tolerant or resistant to fluridone herbicide is warranted.

It has now been found that compounds of formula (1)
R

XJ N_

30 HO 0
’wherein

X is halogen and
R is halogen or CI-C6 alkyl,
and/or agriculturally acceptable salts thereof, optionally in combination with at least one
35 other herbicide, effectively provide growth suppression or control of submersed aquatic
weeds in general and of hydrilla in particular.

Chinoline derivatives in general, and 3,7-dichloroquinoline-B-carboxylic acid (quin-clorac) and 7-chloro-3-methylquinoline-8-carboxylic acid (quinmerac) in particular, are
40 known herbicides, which are described for example in US 4,497,651, US 4,632,696
and US 4,715,889.
Quinclorac is a known herbicide to be used for the protection of grains in general and
of rice in particular. The control of weeds in rice is described in a number of publica-tions.

45 J. Beck, M. Ito, S. Kashibuchi, Quinclorac (BAS 514) and its Herbicide-Combinations in
Transplanted Rice in Japan in: Proc. 12th Conf. ofAsia-Pacific Weed Science Society, 1989, 235-244 describe the control of several weeds which are typically present in paddy rice such as Echinachloa crus-galli, Cyperus difformis or Monochoria vaginalis

WO 20071071730 PCT/EP2006/070009
- 2.

by means of quinclorac either as a single herbicide or in combination with several other herbicides.
In J.E. Street, T. C. Mueller, Rice (Oryza sativa) Weed Control With Soil Applications of Quinclorac in: Weed Technology, 1993, 7, 600-604 the control of troublesome weeds
5 with regard to rice growth by application to dry or wet soil is described. The weeds un-
der regard have been barnyardgrass (Echinachloa crus-galli), pitted morningglory (Ipomoea facunose) and hemp sesbania (Sesbania exaltata).
The control of a mixture of different weeds in rice by means of e.g. quinclorac or quin-clorac and bensulfuron is described by M.O. Mabbayad, K. Moody, Herbicide seed
10 treatment for weed control in wet-seeded rice in: Tropical Pest Management, 1992,
38(l), 9-12.
The coating of different kinds of granules with quinclorac is described in M.P. Braverman, Weed Control in Rice (Oryza sativa) with Quinclorac and Bensulfuron
Coating of Granular Herbicides and Fertilizer in: Weed Technology, 1995, 9 494-498.
15 The weeds under regard have been ducksalad (Heteranthera limosa) and junglerice
(Echinachloa colona).

It is advantageous if the herbicides also fulfil one or more of the following requirements.
The compounds must be effective and efficient.
20 They should not be harmful to other plants than the ones to be controlled, to animals
and man.

They are preferably degradable within a reasonable timeframe and the degradation products are harmless as well.
It is desirable that the compositions comprising the compounds used to control aquatic
25 weeds have a slow activity and, therefore, less oxygen-depleting for the water. On the
other hand, it may also be desirable that the compositions have a high activity which allows to eliminate fast-growing aquatic weeds in a short timeframe.
The compositions according to the invention are useful for controlling submersed aquatic weeds. They provide unexpectedly superior control of hydrilla. The compounds,
30 therefore, provide a practical and economical method of achieving superior aquatic
activity.

The invention therefore provides a method for the control of aquatic weeds which com-prises applying a herbicidally effective amount of at least one compound of formula (1)
R

Xj N_

35 HO 0
wherein
X is halogen and
R is halogen or Cj-C6 alkyl,
and/or one or more agriculturally acceptable salts thereof to act on submersed aquatic
40 weeds and/or their aqueous habitat containing seeds or other propagating organs of
said aquatic weeds.

In a further aspect of the invention there is provided the use of a composition compris-
ing a herbicidally effective amount of a compound of formula (1) for controlling sub-
45 mersed aquatic weeds. In yet a further aspect of the invention there is provided a her-
bicidal composition for controlling submersed aquatic weeds which comprises a herbi-cidally effective amount of at least one compound of formula (1)

WO 2007/071730
. 3,

X

NTR

_ (1)

HO

0

wherein

5 X is halogen, and
R is halogen or Cl-C6 alkyl,

PCT/EP2006/070009

and/or one or more agriculturally acceptable salts or derivatives thereof.

10 The term "controlling" in this context means exhibiting aquatic-herbicidal action. This
means that the growth of at least one aquatic weed species is reduced or suppressed concerning number and/or size of its plants yielding in e.g. limited growth or death of
the weeds.

A weed generally is an unwanted plant. A plant is described as unwanted if its pres-
15 ence is not wanted in a particular place.
Aquatic weeds are unwanted plants that have adapted to living in or on aquatic envi-ronments. This includes water as well as water-saturated soil. Thus, their habitat means the living space of the plants including but not limited to water environment like sweet water or salt water sources, either as moving water or still water. Examples
20 thereof are lakes, rivers, streams, wetlands, ponds, creeks, swamps, canals, reser-
voirs, and ditches. Other examples are marine water environments like oceans, seas, gulfs, and straits. Examples of saturated soils are water-saturated fields, in particular paddy fields.

25 The symbols in formula (1) are further illustrated in the following.

Halogen denotes fluorine, chlorine, bromine or iodine.

The alkyl moiety mentioned in the definition of radical R and possible salts is a collec-
30 tive term for individual enumerations of the individual group members. The hydrocar-
bon chain may be straight-chain or branched.

Examples for such meanings are: - CI-C4-alkyl: for example: methyl, ethyl, n-propyl, 1-methylethyl, n-butyl, 1-
35 methylpropyl, 2-methylpropyl and 1,1-dimethylethyl;
Cl-C6-alkyl: Cl-C4-alkyl as mentioned above and also, for example: n-pentyl, 1 - methyl-butyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, n-hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-di-
40 methylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-
trimethylpropyl, I-ethyl-I -methylpropyl and 1-ethyl-3-methylpropyl.

The alkoxy moiety mentioned in the definition of possible salts is a collective term for individual enumerations of the individual group members. The hydrocarbon chain may
45 be straight-chain or branched.

Examples for such meanings are: - CI-C4-alkoxy: for example: methoxy, ethoxy, n-propoxy, 1-methylethoxy, n-butoxy,
1 -methylpropoxy, 2-methylpropoxy and 1, 1 -dimethylethoxy;

WO 2007/071730 PCTfEP2006/070009 -4-

- Cl-C6-alkoxy: Ci-C4-alkoxy as mentioned above and also, for example: n-pentoxy,
1 -methyl-butoxy, 2-methylbutoxy, 3-methylbutoxy, 2,2-dimethylpropoxy, 1 - ethylpropoxy, n-hexoxy, 1,1-dimethylpropoxy, 1,2-dimethylpropoxy, 1-methylpentoxy, 2-methylpentoxy, 3-methylpentoxy, 4-methylpentoxy, 1,1-dimethylbutoxy, 1,2-
5 dimethylbutoxy, 1,3-dimethylbutoxy, 2,2-dimethylbutoxy, 2,3-dimethylbutoxy, 3,3-dimethylbutoxy, 1 -ethylbutoxy, 2-ethylbutoxy, 1, 1,2-trimethylpropoxy, 1-ethyl-l-methylpropoxy and I-ethyl-3-methylpropoxy.

In a preferred embodiment of the invention X in compound of formula (1) is chlorine.
10

In a further preferred embodiment R in compound of formula (1) is chlorine or C, to C4 alkyl.
Particularly preferred R in compound of formula.(I) is chlorine or methyl, especially pre-ferred R is chlorine, also especially preferred R is methyl.
15

Particularly preferred are the compounds where X is chlorine and R is chlorine (quin-clorac) and where X is chlorine and R is methyl (quinmerac). Quinclorac is especially preferred. Further, quinmerac is especially preferred.

20 Aquatic weeds can be further distinguished.
"Emersed aquatic weeds" grow standing out of the water or in water-saturated soil. A typical representative for an emersed species is alligatorweed (Alternanthera philoxer-oides). Further examples are cattails, bulrushes, and purple loosestrife.
"Submersed aquatic weeds" grow with all or most of their vegetative tissue below the
25 water surface. Typical representatives for submersed species are hydrilla (Hydrilia)
and milfoil (Myriophylium). Further examples include sego pondweed, southern naiad, Egeria, and Potamogetum.

"Floating aquatic weeds" float on the water surface. Examples are duckweeds, water-
30 hyacinth, water-lettuce, water-fens, and water- lilies.
"Algae" are considered ’primitive’ plants but are often incorporated into the generic group of aquatic weeds.

"Controlling of submersed aquatic weeds" means that at least one submersed aquatic
35 weed is controlled.

When the inventive method (for controlling of submersed aquatic weeds) is applied in
the presence of emersed aquatic weeds and/or floating aquatic weeds and/or algae,
(simultaneous) controlling of emersed aquatic weeds and/or floating aquatic weeds
40 and/or algae may (also) take place.

41 A preferred embodiment of the invention comprises a method of using compounds of
formula (1), specifically quinclorac, for controlling hydrilla, especially preferred Hydrilla
Verticillata.
45

The method according to the invention may comprise
(1a) one or more compounds of formula (1) in the form of the free carboxylic acid or
(lb) one or more agriculturally acceptable salts of compounds of formula (1) or
(1c) mixtures comprising two or more compounds chosen from (1a) and (lb).
50

In general, those salts of compounds of formula (1) are suitable, wherein the acidic hy-drogen of the carboxylic group is substituted by a cation and the cation has no adverse effect on the action of the active compounds.

WO 2007/071730 PCT/EP2006/070009
- 5-

Preferred cations are the ions of the alkali metals, preferably of lithium, sodium and potassium, of the alkaline earth metals, preferably of calcium and magnesium, and of the transition metals, preferably of manganese, copper, zinc and iron, furthermore am-monium and substituted ammonium in which one to four hydrogen atoms are replaced
5 by Cl-C4-alkyl, hydroxy-Cl-C4-alkyl, Cl-C4-alkoxy-Cl-C4-alkyl, hydroxy-Cl-C4-alkoxy-Cl-
C4-alkyl, phenyl or benzyl, preferably ammonium, methylammonium, isopropylammo-nium, dimethylammonium, diisopropylammonium, trimethylammonjum, tetramethyl-ammonium, tetraethylammonium, tetrabutylammonium, 2-hydroxyethylammonium, 2-(2-hydroxyethoxy)eth-1-ylammonium, di(2-hydroxyeth-1-yl)ammonium, benzyl-
10 trimethylammonjum, benzyltriethylammonjum, furthermore phosphonium ions, sulfo-
nium ions, preferably tri(Cl-C4-alkyl)sulfonium such as trimethylsulfonium, and sul-foxonium ions, preferably tri(Cl-C4-alkyl)sulfoxonium.

Another particularly preferred embodiment of the invention comprises a method of us-
15 ing of compound of formula (1) for controlling submersed aquatic weeds wherein the
aquatic weeds are tolerant and/or resistant to the herbicide fluridone.

Another particularly preferred embodiment of the invention comprises a method of con-trolling submersed aquatic weeds which comprises allowing a herbicidally effective
20 amount of compounds of formula (1) and/or one or more agriculturally acceptable salts
thereof to act on the submersed aquatic weeds and/or its aqueous habitat containing seeds or other propagating organs of said aquatic weed in the presence of rice plants.

Compounds of formula (1) and/or one or more agriculturally acceptable salts thereof
25 can be used in combination with one or more other herbicide(s) or an agriculturally ac-
ceptable salt or derivative thereof.
In the following compounds of formula (1) and/or one or more agriculturally acceptable salts thereof and, where applicable, one or more other herbicide(s) or an agriculturally acceptable salt or derivative thereof will be designated as active compounds.
30

Examples of such other herbicide(s) are the herbicides (a) selected from the following classes a 1) to a 15):
al) lipid biosynthesis inhibitors;
a2) acetolactate synthase inhibitors (ALS inhibitors);
35 a3) photosynthesis inhibitors;
a4) protoporphyrinogen-IX oxidase inhibitors;
a5) bleacher herbicides;
a6) enolpyruvyl shikimate 3-phosphate synthase inhibitors (EPSP inhibitors);
a7) glutamine synthetase inhibitors;
40 a8) 7,8-dihydropteroate synthase inhibitors (DHP inhibitors);
a9) mitose inhibitors;
alO) inhibitors of the synthesis of long chain fatty acids (VLCFA inhibitors);
all) cellulose biosynthesis inhibitors;
a 12) decoupler herbicides;
45 al3) auxin herbicides;
al4) auxin transport inhibitors;
a15) other herbicides selected from the group consisting of benzoylprop, flamprop, flamprop-M, bromobutide, chlorflurenol, cinmethylin, methyldymuron, etobenzanid, fosamine, metam, pyributicarb, oxaziclornefone, dazomet, triaziflam, methyl bromide,
50 and endothal;
all including the agriculturally acceptable salts and the agriculturally acceptable deriva-tives thereof (e.g. esters, amides or N-oxides), provided those herbicides have a group that can be derivatized, preferably a carboxyl group, an amino group or a nitrogen atom that can be oxidized, more preferred a carboxyl group.
55

WO 2007/071730 PCT/EP2006/070009
- 8.

The herbicides of groups al) to a15) are known herbicides, see the quoted literature references and, for example, The Compendium of Pesticide Common Names (http://www.hclrss.demon.co.uk/index.htmi); Farm Chemicals Handbook 2000 Vol. 86, Meister Publishing Company, 2000; B. Hock, C. Fedtke, R. R. Schmidt, Herbizide,
5 Georg Thieme Verlag, Stuttgart 1995; W. H. Ahrens, Herbicide Handbook, 71h Edition,
Weed Science Society of America, 1994; K. K. Hatzios, Herbicide Handbook, Supple-ment to 7 1h Edition, Weed Science Society of America, 1998, and C.D.S. Tomlin, The Pesticide Manual, 13 1h ed., BCPC, Farnham 2003.
The categorization of the herbicides according to their mode of action is based on cur-
10 rent understanding. If a herbicide acts by more than one mode of action, this substance
was assigned to only one mode Of action.

If the compound (1) and/or one or more agriculturally acceptable salts thereof or the herbicides (a), are capable of forming geometrical isomers, for example E/Z isomers, it
15 is possible to use both the pure isomers and mixtures thereof in the compositions ac-
cording to the invention.

If the compound (1) and/or one or more agriculturally acceptable salts thereof or the herbicides (a) have one or more centers of chirality and, as a consequence, are pre-
20 sent as enantiomers or diastereomers, it is possible to use both the pure enantiomers
and diastereomers and their mixtures in the compositions according to the invention.

If the herbicides (a) are in form of their anionic salts, preferred cations are the same as
25 for the anionic salts of compounds of formula (1).

If the herbicides (a) are in form of their cationic salts, preferred anions are primarily chloride, bromide, fluoride, iodide, hydrogen sulfate, methyl sulfate, sulfate, dihydrogen phosphate, hydrogen phosphate, nitrate, dicarbonate, carbonate, hexafluorosilicate,
30 hexafluorophosphate, benzoate and the anions Of Cl-C4-alkanoic acids, preferably for-
mate, acetate, propionate and butyrate.

According to the invention, active compounds which carry a group that can be deriva-tized, preferably a carboxyl group, an amino group or a nitrogen that can be oxidized,
35 in particular a carboxyl group can, instead of the active compounds mentioned above,
also be employed in the form of an agriculturally acceptable derivative, for example as amides such as mono- or di-Cl-C6-alkylamides or arylamides, as esters, for example
as allyl esters, propargyl esters, Cl-Clo-alkyl esters or alkoxyalkyl esters, and also as thioesters, for example as Cl-Clo-alkyl thioesters.
40 Preferred mono- and di-Cl-C6-alkylam ides are the methyl- and the dimethylamides.
Preferred arylamides are, for example, the anilidines and the 2-chloroani I ides. Pre-ferred alkyl esters are, for example, the methyl, ethyl, propyl, isopropyl, butyl, isobutyl, pentyl, mexyl (1-methylhexyl) or isooctyl (2-ethylhexyl) esters. Preferred Cl-C4-alkoxy-Cl-C4-alkyl esters are the straight-chain or branched Cl-C4-alkoxyethyl esters, for ex-
45 ample the methoxyethyl, ethoxyethyl or butoxyethyl esters. An example of the straight-
chain or branched Cl-Clo-alkyl thioesters is the ethyl thioester.

In binary compositions which comprise compounds of formula (1) and at least one her-bicide (a), the weight ratio of the compounds of formula (1):herbicide (a) is usually in the
50 range from 1:500 to 10:1, preferably in the range from 1:100 to 10:1, in particular in the
range from 1:50 to 10:1 and particularly preferably in the range from 1:25 to 5:1.

Regarding combinations of compounds of formula (1) and herbicides (a), preference is given to those compositions of the invention which comprise compounds of formula (1)
55 in combination with at least one, preferably exactly one, herbicidally active compound

WO 2007/071730 PCT/EP2006/070009
. 9 -

selected from the group consisting of a2) ALS inhibitors, preferably imazapyr and imazomox; a5) bleacher herbicides, preferably fluridone; a13) auxin herbicides; a14) auxin transport inhibitors, preferably diflufenzopyr; and a15) endothal.

5 Particularly preferred are imazomox and fluridone, especially the combinations quin-
clorac + imazomox, quinclorac + fluridone, quinmerac + imazomox and quinmerac + fluridone.

For application ready-to-use preparations in the form of crop protection products can
10 be employed. Compounds of formula (1) and optionally one or more herbicide(s) (a)
may be present in suspended, emulsified or dissolved form and can be formulated jointly or separately. The application forms depend entirely on the intended use.

The preparations can be applied, for example, in the form of directly sprayable aque-
15 ous solutions, powders, suspensions, also highly-concentrated aqueous, oily or other
suspensions or dispersions, emulsions, oil dispersions, pastes, dusts, materials for spreading or granules, by means of spraying, atomizing, dusting, broadcasting or wa-tering. The use forms depend on the intended use; preferably, they should ensure the finest possible distribution of the active compounds. Coarser distribution might be de-
20 sired e.g. when a different activity is to be achieved.
Depending on the form in which the ready-to-use preparations are present, they com-prise one or more liquid or solid carriers, if appropriate surfactants and if appropriate further auxiliaries which are customary for formulating crop protection products. The person skilled in the art is sufficiently familiar with the recipes for such formulations.
25

The ready-to-use preparations may comprise auxiliaries, which are customary for for-mulating crop protection products, which auxiliaries may also comprise a liquid carrier.

Suitable inert additives with carrier function are essentially: ’mineral oil fractions of me-
30 dium to high boiling point, such as kerosene and diesel oil, furthermore coal tar oils and
oils of vegetable or animal origin, aliphatic, cyclic and aromatic hydrocarbons, e.g. par-affins, tetrahydronaphthalene, alkylated naphthalenes and their derivatives, alkylated benzenes and their derivatives, alcohols such as methanol, ethanol, propanal, butanol
and cyclohexanol, ketones such as cyclohexanone, strongly polar solvents, e.g.
35 amines such as N-methylpyrrolidone, and water.

Aqueous use forms can be prepared from emulsion concentrates, suspensions, pastes, wettable powders or water-dispersible granules by adding water. To prepare emul-sions, pastes or oil dispersions, the active compound(s) as such or dissolved in an oil
40 or solvent, can be homogenized in water by means of wetting agent, tackifier, dispers-
ant or emulsifier. Alternatively, it is possible to prepare concentrates consisting of ac-
tive compound(s), wetting agent, tackifier, dispersant or emulsifier and, if desired, sol-vent or oil, and these concentrates are suitable for dilution with water.

45 Suitable surfactants are the alkali metal salts, alkaline earth metal salts and ammonium
salts of aromatic sulfonic acids, e.g. ligno-, phenol-, naphthalene- and dibutylnaphtha-lenesulfonic acid, and of fatty acids, of alkyl- and alkylarylsulfonates, of alkyl sulfates, lauryl ether sulfates and fatty alcohol sulfates, and salts of sulfated hexa, hepta- and octadecanols and of fatty alcohol glycol ethers, condensates of sulfonated naphthalene
50 and its derivatives with formaldehyde, condensates of naphthalene or of the naphtha-
lenesulfonic acids with phenol and formaldehyde, polyoxyethylene octylphenol ether, ethoxylated isooctyl-, octyl- or nonylphenol, alkylphenyl polyglycol ethers, tributylphenyl polyglycol ether, alkylaryl polyether alcohols, isotridecyl alcohol, fatty alcohol/ethylene oxide condensates, ethoxylated castor oil, polyoxyethylene alkyl ether or polyoxypro-

WO 2007/071730 PCT/EP2006/070009 _10-

pylene alkyl ether, lauryl alcohol polyglycol ether acetate, sorbitol esters, lignosulfite waste liquors or methylcellu lose.

Powders, materials for spreading and dusts can be prepared by mixing or concomitant
5 gdnding of the active compounds with a solid carrier.

Granules, e.g. granules coated by active compound(s), granules impregnated by ac-tive compound(s) and granules wherein the active compound(s) are homogenously distributed, can be prepared by binding the active compound(s) to solid carriers. Solid
10 carriers are mineral earths such as silicas, silica gels, silicates, talc, kaolin, limestone,
lime, chalk, bole, loess, clay, dolomite, diatomaceous earth, calcium sulfate, magne-sium sulfate, magnesium oxide, ground synthetic materials, fertilizers such as ammo-nium sulfate, ammonium phosphate, ammonium nitrate, ureas, and products of vege-table origin such as cereal meal, tree bark meal, wood meal and nutshell meal, cellu-
15 lose powders, or other solid carriers.
The binding can be achieved e.g. by means of immersion, spraying or extrusion.

Preferred are liquid formulations and granules, specifically granules, which are prefera-
bly applied to the water column with granule applicators mounted on boats.
20

The concentrations of the active compound(s) in the ready-to-use preparations can be varied within wide ranges. In general, the formulations comprise from 0.001 to 98% by weight, preferably 0.01 to 95% by weight, of active compound(s). The active com-pound(s) are preferably employed in a purity of from 90% to 100%, preferably 95% to
25 100% (according to NMR spectrum).

The preparations can, for example, be formulated as follows:

1 20 parts by weight of the active compound(s) in question are dissolved in a com-
30 position composed of 80 parts by weight of alkylated benzene, 10 parts by weight
of the adduct of 8 to 10 mol of ethylene oxide to 1 mol of oleic acid N-monoethanolamide, 5 parts by weight of calcium dodecylbenzenesuffonate and 5
parts by weight of the adduct of 40 mol of ethylene oxide to 1 mol of castor oil.
Pouring the solution into 100 000 parts by weight of water and finely distributing it
35 therein gives an aqueous dispersion which comprises 0.02% by weight of the ac-
tive compound(s).

11 20 parts by weight of the active compound(s) in question are dissolved in a com-
position composed of 40 parts by weight of cyclohexanone, 30 parts by weight of
40 isobutanol, 20 parts by weight of the adduct of 7 mol of ethylene oxide to 1 mol of
isooctylphenol and 10 parts by weight of the adduct of 40 mol of ethylene oxide
to 1 mol of castor oil. Pouring the solution into 100 000 parts by weight of water
and finely distributing it therein gives an aqueous dispersion which comprises

45

0.02% by weight of the active compound(s).

111 20 parts by weight of the active compound(s) in question are dissolved in a com-
position composed of 25 parts by weight of cyclohexanone, 65 parts by weight of
a mineral oil fraction of boiling point 210 to 2800C and 10 parts by weight of the
adduct of 40 mol of ethylene oxide to 1 mol of castor oil. Pouring the solution into
50 100 000 parts by weight of water and finely distributing it therein gives an aque-
ous dispersion which comprises 0.02% by weight of the active compound(s).

IV 20 parts by weight of the active compound(s) in question are mixed thoroughly
with 3 parts by weight of sodium diisobutylnaphthalenesulfonate, 17 parts by
55 weight of the sodium salt of a lignosulfonic acid from a sulfite waste liquor and 60

WO 2007/071730 PCT/EP2006/070009

parts by weight of pulverulent silica gel, and the composition is ground in a ham-
mer mill. Finely distributing the composition in 20 000 parts by weight of water
gives a spray composition which comprises 0.1% by weight of the active com-
pound(s).
5

V 3 parts by weight of the active compound(s) in question are mixed with 97 parts
by weight of finely divided kaolin. This gives a dust which comprises 3% by
weight of the active compound(s).

10 VI 20 parts by weight of the active compound(s) in question are mixed intimately
with 2 parts by weight of calcium dodecylbenzenesulfonate, 8 parts by weight of
fatty alcohol polyglycol ether, 2 parts by weight of the sodium salt of a phenol-urea-formaldehyde condensate and 68 parts by weight of a paraffinic mineral oil.
This gives a stable oily dispersion.
15

VII 1 part by weight of the active compound(s) in question is dissolved in a composi-
tion composed of 70 parts by weight of cyclohexanone, 20 parts by weight of ethoxylated isooctylphenol and 10 parts by weight of ethoxylated castor oil. This gives a stable emulsion concentrate.
20

Vill 1 part by weight of the active compound(s) in question is dissolved in a composi-
tion composed of 80 parts by weight of cyclohexanone and 20 parts by weight of nonionic emulsifier based on ethoxylated castor oil (Wettol" EM 31, BASF AG).
This gives a stable emulsion concentrate.
25

The compounds of formula (1) and/or one or more agriculturally acceptable salts thereof and/or herbicide(s) (a) can be formulated jointly or separately.

The compounds of formula (1) and/or one or more agriculturally acceptable salts thereof
30 and/or herbicide(s) (a) can be applied jointly or separately, simultaneously or succes-
sively, before, during or after appearance of the aquatic weeds.

The required application rate of the pure compounds (1) and/or one or more agricultur-
ally acceptable salts thereof, optionally in combination with a further herbicide (a) with-
35 out formulation auxiliary, depends on the density of the undesired vegetation, on the
development stage of the plants, on the water-movement, on the climatic conditions of
the location where the composition is used and on the application method. In general,
the application rate is from 1 to 1000 ppb (parts per billion), preferably from 10 to 500
ppb and in particular from 250 to 500 ppb of active compound(s).
40

The preparations are applied to the water body as either a surface or subsurface appli-cation. Application can be carried out by customary spraying techniques using, for ex-ample, water as carrier and spray liquid rates of from about 50 to 1 000 1/ha (for exam-
ple from 300 to 400 I/ha). Application of the preparations by the low-volume and the
45 ultra-low-volume method is possible. In both methods small droplets with a high solids
content are formed and dispensed by means of a highly pressurized gas stream.
Also possible is the application of the preparations in the form of microgranules.

When applying compounds of formula (1) and/or one or more agriculturally acceptable
50 salts thereof by the method according to this invention the aquatic weeds in general are
controlled slowly, meaning the biomass of the aquatic weeds in aqueous systems, for example ponds, lakes, creeks, rivers or swamps is declining slowly and gradually. This
is a big advantage compared to other herbicides for control of the aquatic weeds for example the herbicide endothall - which is also used in controlling the aquatic weeds
55 and which exhibits very rapid, contact control of the aquatic weeds. Rapid, contact

WO 2007/071730 PCT/EP2006/070009
- 12-

biomass reduction under high infestation levels is in general undesirable in that it for example can lead to rapid oxygen depletion in the aqueous system, which then may lead for example to significant fish mortality.

5 For a more clear understanding of the invention, specific examples are set forth below.
These examples are merely illustrations and are not to be understood as limiting the scope and underlying principles of the invention in any way. Various modifications of
the invention in addition to those shown and described herein will become apparent to those skilled in the art from the following examples and foregoing description. Such
10 modifications are also intended to fall within the scope of the appended claims.

15

Examples:
Experiment 1. A greenhouse test was initiated to evaluate the effects of quinclorac for
the control of Hydrilla verticillata.

Materials and Methods:

20 To begin the experiment, PVC cylinders were filled and maintained with a volume of
4000 ml of dechlorinated water that was maintained at room temperature (240C). To each cylinder, an established hydrilla plant (potted in sand mixture) was transferred into
the water column. Hydrilla plants were selected for uniformity and length of shoot growth (approx 15 cm). Plants were allowed to equilibrate in the columns for 24 hrs
25 prior to herbicide treatment. Experimental treatments included an untreated control,
and quinclorac at 50, 250 and 500 ppb of actual acid equivalent of herbicide. Treat-ments were applied to water columns by the use of a pipette. Amount of herbicide ap-plied was based on the total volume of the cylinders (4000 ml). After initial herbicide treatment, the water columns were gently stirred to ensure uniform distribution. Treat-
30 ments were arranged as a completely random design with 3 replications. Each cylinder
was considered the experimental unit. Greenhouse conditions were maintained at 24/18’C (day/night) cycle for the duration of the experiment. Natural day length was supplemented with halogen lighting to provide a 14 hr photoperlod. Water level in the cylinders was periodically checked and maintained at the 4000 ml level for the duration
35 of the study. After 11 weeks of exposure, hydrilla shoot lengths were measured to as-
certain herbicide effects.
The results are presented in Table 1.

40 Table 1. Response of Hydrilla verticillata to static exposure of quinclorac herbicide at
11 weeks after treatment (WAT).

Treatment Rate Hydrilla Shoot Length
(ppb)
45

(cm)

Control --- 30.4
Quinclorac 50 15.0
Quinclorac 250 8.9
Quinclorac 500 6.5
50 LSD at 0.05 11.5

Results showed that after the exposure period, quinclorac had a significant effect on
the growth of hydrilla. In addition to the growth suppression, visual symptomology in-

WO 2007/071730
- 13.

PCT/EP2006/070009

cluded reduction in plant vigour and auxinic-like twisting of leaf tissue. Intensity of symptoms tended to be rate responsive.

Experiment 2. A greenhouse test was initiated to evaluate the effects of quinmerac and
5 quinclorac for the control of a mixed population of submersed weed species: Hydrilla
verticillata and Egeria densa.

Materials and Methods:

10 To begin the experiment, containers were filled and maintained with a volume of 4000
ml of distilled water that was maintained at room temperature (240C). To each con-tainer, established weed plants (potted in sand mixture) were transferred into the water column. Plants were selected for uniformity and length of shoot growth (approx 15 cm). Plants were allowed to equilibrate in the containers for 24 hrs prior to herbicide treat-
15 ment. Experimental treatments included an untreated control, quinmerac at 100, 250,
and 500 ppb, as well as, quinclorac at 250 ppb of actual acid equivalent of herbicide. Treatments were applied to water columns by the use of a pipette. Amount of herbicide applied was based on the total volume of the containers (4000 ml). After initial herbi- A cide treatment, the water columns were gently stirred to ensure uniform distribution.
20 Treatments were arranged as a completely random design with 3 replications. Each
container was considered the experimental unit. Greenhouse conditions were main-tained at 24/18’C (day1night) cycle for the duration of the experiment. Natural day length was supplemented with halogen lighting to provide a 14 hr photoperiod. Water
level in the containers was periodically checked and maintained at the 4000 ml level for
25 the duration of the study. After 12 weeks of exposure, weed shoot length and fresh
weights were measured to ascertain herbicide effects.
The results are presented in Table 2.

Table 2. Response of submersed weeds to static exposure of quinmerac and quin-
30 clorac herbicides at 12 weeks after treatment (WAT).

Treatment Rate Shoot Length Shoot Fresh
(ppb) (cm) (grams)

35 Control 37.3 6.8
Quinmerac 100 15.0 5.1
Quinmerac 250 8.9 0.5
Quinmerac 500 6.5 0.1
Quinclorac 250 15.7 1.5
40 LSD at 0.05 17.4 3.1

Results showed that after the exposure period, that there was a rate response ob-served with quinmerac on both weed shoot length and fresh weight. Significant reduc-
tion in both shoot length and fresh weight vs. the control was observed at the 250 and
45 500 ppb rates of quinmerac, as well as the 250 ppb rate of quinclorac. In addition to the
growth suppression, visual symptomology included reduction in plant vigour and auxinic-like twisting of leaf tissue, which was similar to that observed with quinclorac. Intensity of symptoms tended to be rate responsive.

’01

5

WO 2007/071730
- 14-
Claims

PCT/EP2006/070009

1. A method for controlling aquatic weeds which comprises applying a herbicidally
effective amount of at least one compound of formula (1)

wherein

R

xj N_f (1)

HO 0

10 X is halogen and
R is halogen or CI-C6 alkyl,

and/or one or more agriculturally acceptable salts thereof to submersed aquatic weeds and/or their aqueous habitat containing seeds or other propagating or-
15 gans of said aquatic weeds.

2. The method according to claim 1 wherein X is Cl.

20

3. The method according to claim I or 2 wherein R is Cl or Cl-C4 alkyl.

4. The method according to one or more of the preceding claims, wherein aquatic
weeds are selected from the genus of hydrilla.

5. The method according to one or more of the preceding claims, wherein the
25 aquatic weeds are tolerant andlor resistant to the herbicide fluridone.

6. The method according to one or more of the preceding claims conducted in the
presence of rice plants.

30 7. The method according to one or more of the preceding claims, wherein a herb!-
cidally effective amount of compounds of formula (1) and/or one or more agricul-
turally acceptable salts thereof are used in combination with at least one other
herbicide.

10

35 8. The method according to claim 7, wherein the at least other herbicide (a) is se-
lected from the following classes al) to a15):
al) lipid biosynthesis inhibitors;

10

a2)
a3)

acetolactate synthase inhibitors (ALS inhibitors);
photosynthesis inhibitors;
40 a4) protoporphyrinogen-IX oxidase inhibitors;
a5) bleacher herbicides;
a6) enolpyruvyl shikimate 3-phosphate synthase inhibitors (EPSP
inhibitors);
a7) glutamine synthase inhibitors;
45 a8) 7,8-dihydropteroate synthase inhibitors (DHP inhibitors);
a9) mitose inhibitors;
alO) inhibitors of the synthesis of long chain fatty acids (VLCFA inhibitors);
all) cellulose biosynthesis inhibitors;

A

746A

0

WO 2007/071730 PCT/EP2006/070009
- 15-

a12) decoupler herbicides;
a13) auxin herbicides;
a14) auxin transport inhibitors;
a15) other herbicides selected from the group consisting of benzoylprop,
5 flamprop, flamprop-M, bromobutide, chlorflurenol, cinmethylin,
methyldymuron, etobenzanid, fosamine, metam, pyributicarb,
oxaziclomefone, dazomet, triaziflam methyl bromide, and endothal;
all including the agriculturally acceptable salts and the agriculturally accept-
able derivatives thereof, provided those herbicides have a carboxyl group.
10

9. A herbicidal composition for controlling submersed aquatic weeds which com-
prises a herbicidally effective amount of at least one compound of formula (1)
R

Xj NT (1)
HO 0

wherein
15 X is halogen and
R is halogen or Cl-C6 alkyl,
and/or one or more agriculturally acceptable salts thereof.

10. The use of a composition according to claim 9 for controlling submersed aquatic
20 weeds.

WO 2007/071730 PCT/EP2006/070009

UN MtTODO PARA CONTROLAR MALEZAS ACuATICAS

Esta invenci6n pertenece al campo de la quimica agricola y proporciona a la t6cnica compuestos para controlar malezas acuciticas. Tales malezas taponan
5 canales, taponan equipo para manejo de agua son frecuentemente est6ticamente
inaceptables. Ellas son incomodas para los pescadores, nadadores y para los deportes acuiticos. El impacto econ6mico para el control y manejo en general y

00-

en 6reas recreacionales en particular se estima que es de millones de d6lares.

Is

lo Una maleza representativa tipica de malezas acu6ticas controladas por la
invenci6n es la hidrilla que se conoce corno una especie sumergida, muy prolifica, que forma un manto, que puede dominar el sistema acucitico en el que este presente. Una maleza representativa tipica es la Hydrilla verticillata.

15 Por lo tanto, es importante el desarrollo de herbicidas efectivos contra malezas
acu6ticas. El control de ciertas malezas acu6ticas se discute en la siguiente t6cnica.

Generalmente, las malezas acu6ticas y los m6todos biol6gicos o herbicidas para
20 controlarlas se conocen, por ejemplo de L.W.J. Anderson, Pest Manag. Sci. 59,
pages 801-813 (en linea 2003) o M. D. Netherland et al., Outlooks on Pest Management (Pesticide Outlook), p6ginas 100-104 o J. Gallagher y WT. Haller, Rev. Weed Sci., 1990, 5, 115-192.

25 Uno de los principales herbicidas utilizados para el control de Hydrilla verticillata es
fluridona (1 -metil-3-fenil-5-[3-(trifluorometil)fenil]-4(1 H)-piridinona).

WO 2007/071730 3 PCT/EP2006/070009 25

describe en un nOmero de publicaciones.

J. Beck, M. Ito, S. Kashibuchi, Quinclorac (BAS 514) and its Herbicide-Combinations in Transplanted rice in Japan in: Proc. 12th Conf of Asia-Pacific
5 Weed Science Society, 1989, 235-244 describe el control de varias malezas que
est6n tipicamente presentes en arroz paddy tal como Echinachloa crus-galli,
Cyperus difformis o Monochoria vaginalis por medio de quinclorac corno un herbicida Onico o en combinaci6n con varios otros herbicidas.

10 En JE. Street, TC. Mueller, rice (Oryza sativa) Weed Control With Soil Applications
of Quinclorac in: Weed Technology, 1993, 7 600-604 se describe el control de malezas problema6ticas con respecto al crecirniento de arroz mediante aplicaci6n
a suelo seco o hOmedo. Las malezas bajo consideraci6n han sido capin arroz (Echinachloa crus-galli), gloria de la matiana graneada (1pomoea lacunose) y
15 sesbania (Sesbania exaltata).

El control de una mezcla de diferentes malezas en arroz por medio de por ejemplo quinclorac o quinclorac y bensulfur6n se describe por M. 0. Mabbayad, K. Moody, Herbicide seed tratamiento for weed control in wet-seeded rice in: Tropical Pest
20 Management, 1992, 38(l), 9-12.

El recubrimiento de diferentes clases de gr6nulos con quinclorac se describe en
MP. Braverman, Weed Control in rice (Oryza sativa) with Quinclorac and Bensulturon Coating of Granular Herbicides and Fertilizer in: Weed Technology,
25 1995Y 9, 494-498. Las malezas bajo consideraci6n han sido buche de gallina
(Heteranthera limosa) y pasto colorado (Echinachloa colona).

F.

WO 2007/071730 4 PCT/EP2006/070009

Esto es ventajoso si los herbicidas tambi6n satisfacen uno o m6s de los siguientes requerimientos.

Los compuestos pueden ser efectivos y eficientes. Ellos no deben ser perjudiciales
5 a otras plantas diferentes a las controladas, a animales o al hombre.

Ellos son preferiblemente degradables dentro de un calendario razonable y los

00

productos de degradaci6n son bien inocuos.

1* 10 Es deseable que las composiciones que comprenden los compuestos utilizados
para controlar malezas acu6ticas tengan una actividad lenta y, por lo tanto, menor agotarniento, de oxigeno para el agua. Por otra parte, tambi6n se puede desear
que las composiciones tengan una alta actividad que permita eliminar malezas
acu6ticas de crecimiento rgipido en un calendario corto.

15

Las composiciones de, acuerdo con la invenci6n son Otiles para controlar malezas

40 acuAticas sumergidas. Ellos proporcionan control superior inesperado de hidrilla.
0 Los compuestos, por lo tanto, proporcionan un m6todo econ6mico y prActico para

lograr una actividad acu6tica superior.

20

La invenci6n por lo tanto proporciona un m6todo para el control de malezas
acu6ticas que comprende aplicar una cantidad herbicidamente efectiva de por lo
menos un compuesto de F6rmula (1)

25

WO 2007/071730 6 PCT/EP2006/070009

Esto significa que el crecimiento de por lo menos una especie de maleza acu6tica se reduce o suprime con relaci6n al nOmero y/o tamaFio de sus plantas que produce por ejemplo crecimiento limitado o muerte de la maleza. Una maleza generalmente es una planta no deseada. Una planta se describe como no
5 deseada si no se quiere su presencia en un lugar particular.

Las malezas acu;Aticas son plantas no deseadas que se han adaptado a vivir en o

#

sobre ambientes acu6iticos. Esto incluye agua asi como tambi6n suelo saturado de
agua. As!, su h6bitat significa el espacio de vida de [as plantas que inciuye pero no

0 10 se limita a ambiente de agua similar a fuentes de agua dulce o agua salada, como

agua o agua en movimiento. Ejemplos de estos son lagos, rios, corrientes,
humedales, charcas, ensenadas, pantanos, canales, embalses, y zanjas. Otros
ejemplos son ambientes de agua marinos similares a oc6anos, mares, golfos, y
estrechos. Ejemplos de suelos saturados son campos saturados de agua, en
15 particular campos paddy.

0 Los s[mbolos en la f6rmula (1) se ilustran adicionalmente en lo siguiente.
0

20

Hal6geno denota flOor, cloro, bromo o yodo.

La porci6n alquiio mencionada en la definici6n del radical R y posibles sales es un t6rmino colectivo para enumeraciones individuales de los miembros del grupo individual. La cadena hidrocarburo puede ser de cadena recta o ramificada.

25 Ejemplos para tales significados son:

alquilo Cl-C4: por ejemplo: metilo, etilo, n-propilo, 1-metiletilo, n-butilo, 1-

1

WO 2007/071730 8 PCT/EP2006/070009?5,0V%ki

En un modalidad preferida adicional R en el compuesto de F6rmula (1) es cloro o
alquilo C, a C4.

5 Se prefiere particularmente que R en el compuesto de F6rmula (1) sea cloro o
metilo, especialmente preferido R es cloro, tambi6n especialmente preferido R es
metilo.

Particularmente se prefieren los compuestos en donde X es cloro y R es cloro (quinclorac) y en donde X es cloro y R es metilo (quinmerac). El quinclorac es especialmente preferido. Adicionalmente, quinmerac es especialmente preferido.

Adicionalmente se pueden distinguir las malezas acuciticas.

15 Las "malezas acu;§ticas emergentes" crecen en reposo fuera del agua o en suelo
saturado con agua. Una maleza representativa tipica de una especie emergente
es lagunilla (Alternanthera philoxeroides). Ejernplos adicionales son totoras, junquillos, y arroyuela. Las "malezas acu6ticas surnergidas" crecen con todos o la mayoria de sus tejidos vegetativos bajo la superficie del agua. Malezas
2o representativas tipicas para especies surnergidas son Hidrilla (Hydrilla) y milhojas
(Myriophyllurn). Ejernplos adicionales incluyen luchecillo, Najas guadalupensis, Elodea, y Potarnogeturn.

Las "malezas acu6ticas flotantes" flotan en la superficie del agua. Ejernplos son
25 espirodela, jacinto acu6tico, lechuga de agua, helechos de agua, y firios de agua.

Las "algas" se consideran plantas ’primitivas’ pero son a menudo incorporadas en

WO 2007/071730 We PCT/EP2006/070009 *t,’

r-LI

10

el grupo gen6rico de malezas acubticas.

"Controlar malezas acuciticas sumergidas" significa que por lo menos se controla
una maleza acu6tica sumergida.

Cuando el m6todo inventivo (para controlar malezas acu6ticas sumergidas) se aplica en la presencia de malezas acu6ticas emergentes y/o malezas acu6ticas flotantes y/o algas, (simult;§neamente) puede tambi6n tener lugar el control de malezas acu6ticas emergentes y/o malezas acu;§ticas flotantes y/o algas.

Una modalidad preferida de la invenci6n comprende un m6todo para utilizar compuestos de F6rmula (1), especificamente quinclorac, para controlar hidrilla, especialmente preferido Hydrilla Verticillata.

15 El m6todo de acuerdo con la invenci6n puede comprender

(1a) uno o m6s compuestos de F6rmula (1) en la forma del 6cido carboxilico libre
M

20 (lb) una o m6is sales agricolamente aceptables de los compuestos de F6rmula
(1) o (1c) mezclas que comprenden dos o m6s compuestos escogidos de (1a) y (lb).

En general, aquellas sales de los compuestos de F6rmula (1) son adecuadas, en donde el hidr6geno acidico del grupo carboxilico se sustituye por un cati6n y el
25 cati6n no tiene efecto adverso en la acci6n de los compuestos activos.

Los cationes preferidos con los iones de los metales Mcali, preferiblemente de litio,

WO 2007/071730 16 PCUEP2006/070009??4 ’IV

R. R. Schmidt, Herbizide, Georg Tieme Verlag, Stuttgart 1995; W. H. Ahrens,
Herbicida Handbook, 7th Edition, Weed Science Society of America, 1994; K. K. Hatzios, Herbicida Handbook, Supplement to 7th Edition, Weed Science Society of America, 1998, y C. D. S. Tomlin, The Pesticide Manual, 13th ed., E3CPC, Farnham

5 2003.

La categorizaci6n de los herbicidas de acuerdo con su modo de acci6n se basa en

0 el conocimiento actual. Si un herbicida act0a por m6s de un modo de acci6n, esta

0 10

15

sustancia se asigna para solo un modo de acci6n.

Si el compuesto (1) y/o una o m6s sales agricolamente aceptables de estos o los
herbicidas (a), son capaces de formar is6meros geom6tricos, por ejemplo
is6meros E/Z, es posible usar los is6meros puros y mezclas de estos en las composiciones de acuerdo con la invenci6n.

Si el compuesto (1) y/o una o m6s sales agrfcolamente aceptables de estos o los
herbicidas (a) tienen uno o m6s centros de quiralidad y, como una consecuencia
0 est6n presentes como enanti6meros o diastere6meros, es posible usar los
enanti6meros, y diastere6meros y sus mezclas en [as composiciones de acuerdo
20 con la invenci6n.

Si los herbicidas (a) est6n en la forma de sales ani6nicas, los cationes preferidos
son los mismos como para las sales ani6nicas de los compuestos de F6rmula (1).

25 Si los herbicidas (a) est6n en la forma de sus sales cati6nicas, los aniones
preferidos principalmente son cloruro, bromuro, fluoruro, yoduro, hidr6geno sulfato, metil sulfato, sulfato, dihidr6geno fosfato, hidr6geno fosfato, nitrato, dicarbonato,

WO 2007/071730 18 PCT/EP2006/070009

(a), se da preferencia a aquellas composiciones de la invencio’n que comprenden compuestos de F6rmula (1) en combinaci6n con por lo menos un, preferiblemente exactamente un, compuesto herbicidamente activo seleccionado del grupo que
consiste de a2) inhibidores de ALS, preferiblemente imazapir y imazomox; a5)
5 herbicidas de blanqueo, preferiblemente fluridona; a13) herbicidas de auxina; a14)
inhibidores de transporte de auxina, preferiblemente diflufenzopir; y al 5) endotal.

10 Particularmente se prefieren imazomox y fluridona, especially las combinaciones
quinclorac + imazomox, quinclorac + fluridona, quinmerac + imazomox y
lo quinmerac + fluridona.

Las preparaciones listas para usar se pueden emplear para aplicaci6n en la forma
de productos de protecci6n para cultivo. Los compuestos de F6rmula (1) y opcionalmente uno o m6s herbicida(s) (a) pueden estar presentes en formas
15 suspendidas, emulsificadas o disueltas y se pueden formular juntas o en forma
separada. Las formas de aplicaci6n dependen en su totalidad del uso destinado.
0

fe Las preparaciones se pueden aplicar, por ejemplo, en la forma de soluciones

acuosas esparcibles directamente, polvos, suspensiones, tambi6n acuosos
2o altamente concentrados, aceitosos u otras suspensiones o dispersiones,
emulsiones, dispersiones en aceite, pastas, polvillos, materiales para rociado o
gr6nulos, por medio de rociado, atomizado, espulverizado, difusi6n o riego. Las
formas de uso dependen del uso destinado; preferiblemente, ellas deben asegurar
la distribuci6n mcis fina posible de los compuestos activos. La distribuci6n m;§s
25 gruesa podria ser deseada por ejemplo cuando se va a alcanzar una actividad
diferente.

WO 2007/071730 19 PCT/EP2006/070009

Dependiendo de la forma en la que est6n presentes las preparaciones listas para utilizar, ellas comprenden uno o m6s portadores liquidos o s6lidos, si es apropiado tensoactivos, si adicionalmente son apropiados los auxiliares habituales para formulacift de productos de protecci6n para cultivos. La persona experta en la
5 t6cnica es suficientemente familiar con las recetas para tales formulaciones.

Las preparaciones listas para uso pueden comprender auxiliares, que son habituales para formulaci6n de productos de protecci6n para cultivos, cuyos auxiliares pueden tambi6n comprender un portador liquido.

10

Los aditivos inertes adecuados con funci6n de portados son esencialmente: fracciones de aceite mineral de punto de ebullici6n medio a alto, tal como
queroseno y gasoil, adicionalmente aceites de alquitr6n de hulla y aceites de
origen vegetal o animal, hidrocarburos alif6ticos, ciclicos y arom6ticos, por ejemplo
15 parafinas, tetrahidronaftaleno, naftalenos alquilados y sus derivados, bencenos
alquilados y sus derivados, alcoholes tales como metanol, etanol, propanol,
butanol y ciclohexanol, cetonas tales como ciclohexanona, disolventes

fa fuertemente polares, por ejemplo aminas tales como N-metilpirrolidona, y agua.

20 Se pueden preparar formas de uso acuosas de concentrados de emulsi6n,
suspensiones, pastas, polvos hurnectables o gr;§nulos dispersos en agua. Para
preparar emulsiones, pastas u dispersiones en aceite, ei compuesto activo (s)
como tal o disuelto en un aceite o disolvente, se puede homogenizar en agua por
medio de agente humectante, agente pegajosidad, dispersante o emulgente.
25 Alternativamente, es posible preparar concentrados que consisten de compuesto
activo (s), agente humectante, agente pegajosidad, dispersante o emulgente y, si
se desea, disolvente u aceite, y estos concentrado son adecuados para diluci6n

WO 2007/071730 21 PCT/EP2006/070009

tal como harina de cereal, harina de corteza de 6rbol, harina de madera y harina
de c6scara de nuez, polvos de celulosa, u otros portadores s6lidos.

La uni6n se puede lograr por ejemplo por medio de inmersi6n, rociado o extrusi6n.

Se prefieren las formulaciones liquidas y gr6nulos, especificamente gr6nulos, que
se aplican preferiblemente a la columna de agua con aplicadores de gr6nulo

montados en barcos.

0 10 Las concentraciones de los compuestos activos en las preparaciones listas para

0

uso se pueden variar dentro de amplios rangos. En general, las formulaciones comprenden de 0.001 a 98% en peso, preferiblemente 0.01 a 95% en peso, de compuestos activos. Los compuestos activos se emplean preferiblemente en una
pureza de 90% a 100%, preferiblemente 95% a 100% (de acuerdo con el espectro
15 RMN).
Las preparaciones pueden, por ejemplo, ser formuladas como sigue:

1 20 partes en peso de los compuestos activos en cuesti6n se disuelven en
una composici6n compuesta de 80 partes en peso de benceno alquilado, 10
20 partes en peso del aducto de 8 a 10 mol de 6xido de etileno a 1 mol de
6cido oleico N-monoetanolamida, 5 partes en peso de dodecilbencenosulfonato de calcio y 5 partes en peso del aducto de 40 mol
de 6xido de etileno a 1 mol de aceite de ricino. Verter la soluci6n en 100
000 partes en peso de agua y distribuirla finamente all! da una dispersi6n
25 acuosa que comprende 0.02% en peso de los compuestos activos.

11 20 partes en peso de los compuestos activos en cuesti6n se disuelven en

WO 2007/071730 22 PCT/EP2006/070009

una composici6n compuesta de 40 partes en peso de ciclohexanona, 30
partes en peso de isobutanol, 20 partes en peso del aducto de 7 mol de
6xido de etileno a 1 mol de isooctilfenol y 10 partes en peso del aducto de
40 mol de 6xido de etileno a 1 mol de aceite de ricino. Verter la soluci6n en
5 100 000 partes en peso de agua y distribuirla finamente alli da una
dispersi6n acuosa que comprende 0.02% en peso de los compuestos

activos.

44
111 20 partes en peso de los compuestos activos en cuesti6n se disuelven en
10 una composici6n compuesta de 25 partes en peso de ciclohexanona, 65
partes en peso de una fracci6n de aceite mineral de punto de ebullici6n 210
a 2800 C y 10 partes en peso del aducto de 40 mol de 6xido de etileno a 1
mol de aceite de ricino. Verter la soluci6n en 100 000 partes en peso de
agua y distribuirla finamente all! da una dispersi6n acuosa que comprende
15 0.02% en peso de los compuestos activos.

0 IV 20 partes en peso de los compuestos activos en cuesti6n se mezclan a

fondo con 3 partes en peso de diisobutilnaftalenosulfonato de sodio, 17
partes en peso de la sal de sodio de un 6cido lignosulf6nico de un licor con
20 residuo de sulfito y 60 partes en peso de gel de silice pulverulenta, y la
composici6n se muele en un molino de martillo. Distribuir finamente la
composici6n en 20 000 partes en peso de agua da una composici6n de
rociado que comprende 0.1 % en peso de los compuestos activos.

25 V 3 partes en peso de los compuestos activos en cuesti6n se mezclan con 97
partes en peso de caolin finamente dividido. Esto da un polvillo que comprende 3% en peso de los compuestos activos.

WAKE
COUNTY
NORTH CAROLINA

Wake County Register of Deeds Post Office Box 1897
Raleigh, North Carolina 27602-1897

STATE OF NORTH CAROLINA

WAKE COUNTY

Laura M. Riddick
Register Of Deeds

CERTIFICATE OF REGISTER OF DEEDS THAT NOTARY PUBLIC WAS ACTING NOTARY
AT TIMIE OF SIGNATURE

I, LAURA M. RIDDICK, REGISTER OF DEEDS OF THE AFORESAID COUNTY AND

STATE, DO HEREBY CERTIFY THAT SCOTT DOMINY WAS, AT THE TIME OF

Is

SIGNING THE FOREGOING (OR ANNEXED) CERTIFICATE, A DULY COMMISSIONED

AND QUALIFIED NOTARY PUBLIC IN AND FOR THE COUNTY OF WAKE, STATE OF

NORTH CAROLINA, AND AS SUCH FULL FAITH AND CREDIT IS DUE TO HIS

OFFICIAL ACTS; AND, FURTHER, THAT HIS SIGNATURE THERETO IS IN HIS OWN PROPER HANDWRITING.

IN TESTIMONY WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL OF

OFFICE THIS, THE 25TH DAY OF JULY, 2008.

*?EGISTER OF DEEDS

El"’, rn &? BEPUTY /ASS&ST-AN+-
(SEAL)

I # 4

State of North Carolina
County of W,41e-(

ss.:

sSeo71D.,.-,,Z, a Notary Public for the aforementioned jurisdiction, I
do hereby certify that 111,4we J--&,64,,,eN5 personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal
this 17’* day of T,?,ve, 2008

My Commission Expires "?O

0

Signature of Notary F?iublic
Name: Sca]??tv

STATE OF

NORTT-T

CAROLINA

(Convention de La Haye 5 octobre 1961)

1. COUNTRY: UNITED STATES OF AMERICA
2. This Public Document
has been signed b ANN M. TURNER
3. acting in the capacity of DEPUTY REGISTER OF DEEDS
LAURA M. RIDDICK, REGISTER OF DEEDS

4. bears the seal/stamp of COUNTY OF WAKE, NORTH CAROLINA

CERTIFIED

5. at Raleigh, North Carolina
6. the 30TH DAY OF JULY, 2008

7. by Secretary of State or Deputy Secretary of State, State of North Carolina
8. No 20214

9. Seal/Stamp 10. Signature

By: *yy e s

ry
Deputy rXry fState

Secretary of State

STATE OF NORTT-T

CAROLINA

APOSTILLE
(Convention de La Haye 5 octobre 1961)

1. COUNTRY: UNITED STATES OF AMERICA
2. This Public Document
has been signed by ANN M. TURNER
3. acting in the capacity 0 DEPUTY REGISTER OF DEEDS
LAURA M. RIDDICK, REGISTER OF DEEDS

4. bears the seal/stamp of COUNTY OF WAKE, NORTH CAROLINA

CERTIFIED

5. at Raleigh, North Carolina
6. the 30TH DAY OF JULY, 2008

7. by Secretary of State or Deputy Secretary of State, State of North Carolina
8. No 20209

9. Seal/Stamp 10. Signature

By: a ey ynry Deputy S etary f State

Secretary of State

WAKE
COUNTY
NORTH CAROLINA

Wake County Register of Deeds Post Office Box 1897
Raleigh, North Carolina 27602-1897

STATE OF NORTH CAROLINA

WAKE COUNTY

Laura M. Riddick
Register Of Deeds

CERTIFICATE OF REGISTER OF DEEDS THAT NOTARY PUBLIC WAS ACTING NOTARY
is AT TIMIE OF SIGNATURE

1, LAURA M. RIDDICK, REGISTER OF DEEDS OF THE AFORESAID COUNTY AND

STATE, DO HEREBY CERTIFY THAT SCOTT DOMINY WAS, AT THE TIME OF

SIGNING THE FOREGOING (OR ANNEXED) CERTIFICATE, A DULY COMMISSIONED AND QUALIFIED NOTARY PUBLIC IN AND FOR THE COUNTY OF WAKE, STATE OF NORTH CAROLINA, AND AS SUCH FULL FAITH AND CREDIT IS DUE TO HIS

OFFICIAL ACTS; AND, FURTHER, THAT HIS SIGNATURE THERETO IS IN HIS OV*’N PROPER HANDWRITING.

IN TESTIN40NY WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL OF

OFFICE THIS, THE 25TH DAY OF JULY, 2008.

REGISTER OF DEEDS

DEPUTY / ASSIST20?9-
(SEAL)

k

State of North Carolina
) ss.:
County of Olee

1, a Notary Public for the aforementioned jurisdiction, do hereby certify that D20?Kk *,’//" personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal
this 714 day of 2008
e?’.001 C’017TO T 0

- - w....

My Commission Expires 9-14--?60J

0

Signature of Notary rublic

Name: I5IIiO/7-,Q’vw,’RL’Iz

STATE OF

NORTI-T

CAROLINA

APOSTILLE
(Convention de La Haye 5 octobre 1961)

1. COUNTRY: UNITED STATES OF AMERICA

2. This Public Document

has been signed by ANN M. TURNER

3. acting in the capacity of DEPUTY REGISTER OF DEEDS
LAURA M. RIDDICK, REGISTER OF DEEDS

4. bears the seal/stamp o COUNTY OF WAKE, NORTH CAROLINA

CERTIFIED

5. at Raleigh, North Carolina

6. the 30TH DAY OF JULY, 2008

7. by Secretary of State or Deputy Secretary of State, State of North Carolina
8. No 20210

9. Seal/Stamp 10. Signature

By: a6ley 4ynry
?fttate

12 t 6
Deputy

4

tary

Secretary of State

Wake County Register of Deeds
Post Office Box 1897

WAKE Raleigh, North Carolina 27602-1897
COUNTY
NORTH CAROLINA

STATE OF NORTH CAROLINA

WAKE COUNTY

Laura M. Riddick
Register Of Deeds

CERTIFICATE OF REGISTER OF DEEDS THAT NOTARY PUBLIC WAS ACTING NOTARY
AT TIME OF SIGNATURE

1, LAURA M. RIDDICK, REGISTER OF DEEDS OF THE AFORESAID COUNTY AND STATE, DO HEREBY CERTIFY THAT SCOTT DOMINY WAS, AT THE TIME OF SIGNING THE FOREGOING (OR ANNEXED) CERTIFICATE, A DULY COMMISSIONED AND QUALIFIED NOTARY PUBLIC IN AND FOR THE COUNTY OF WAKE, STATE OF NORTH CAROLINA, AND AS SUCH FULL FAITH AND CREDIT IS DUE TO HIS OFFICIAL ACTS; AND, FURTHER, THAT HIS SIGNATURE THERETO IS IN HIS OWN PROPER HANDWRITING.

IN TESTIMONY WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL OF OFFICE THIS, THE 25TH DAY OF JULY, 2008.

REGISTER OF DEEDS

PA.aj m / L"’.

DEPUTY / AS&FAPANT
(SEAL)

State of North Carolina
) ss.:
County of WA&

19610 a Notary Public for the aforementioned jurisdiction,
do hereby certify that X Pey //, /-3, A?A(personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal

this 9A day of 14IV 2008
100elt"Tun*’?

My Commission Expires

0

Signature of Notary"Public
Name:

0

STATE OF

NORTT-T I
CAROLINA

Department or The Secretary or Slate

(Convention de La Haye 5 octobre 1961)

1. COUNTRY: UNITED STATES OF AMERICA

2. This Public Document
has been signed by ANN M. TURNER
3. acting in the capacity of_P_ DEPUTY REGISTER OF DEEDS
LAURA M. RIDDICK, REGISTER OF DEEDS

4. bears the seal/stamp of COUNTY OF WAKE, NORTH CAROLINA

CERTIFIED

5. at Raleigh, North Carolina
6. the 30TH DAY OF JULY, 2008

7. by Secretary of State or Deputy Secretary of State, State of North Carolina
8. No 20212

9. Seal/Stamp 10. Signature

rl loll
AP

floz(?- j10644el?
Secretary of State

Wake County Register of Deeds
Post Office Box 1897

WAKE Raleigh, North Carolina 27602-1897
COUNTY
NORTH CAROLINA

STATE OF NORTH CAROLINA

WAKE COUNTY

Laura M. Riddick

Register Of Deeds \10

CERTIFICATE OF REGISTER OF DEEDS THAT NOTARY PUBLIC WAS ACTING NOTARY
AT TIME OF SIGNATURE

1, LAURA M. RIDDICK, REGISTER OF DEEDS OF THE AFORESAID COUNTY AND STATE, DO HEREBY CERTIFY THAT SCOTT DOMINY WAS, AT THE TIME OF SIGNING THE FOREGOING (OR ANNEXED) CERTIFICATE, A DULY COMMISSIONED AND QUALIFIED NOTARY PUBLIC IN AND FOR THE COUNTY OF WAKE, STATE OF NORTH CAROLINA, AND AS SUCH FULL FAITH AND CREDIT IS DUE TO HIS OFFICIAL ACTS; AND, FURTHER, THAT HIS SIGNATURE THERETO IS IN HIS OWN PROPER HANDWRITING.

IN TESTIMONY WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL OF OFFICE THIS, THE 25TH DAY OF JULY, 2008.

REGISTER OF DEEDS

MAI
DEPUTY/ SS A’I ff.
(SEAL)

Al State of North Carolina

County

.

of

ss.:

i, Scoro ""Z a Notary Public for the aforementioned jurisdiction,
do hereby certify that ?br personally appeared before me this day and acknowledge the due execution of the foregoing instrument.

Witness my hand and official seal
this 9 dav of J, 2008
..0?11*0"Uolt!?

f4 Omwev
9-10-2008

My Commission Expires 9-16

El

Signature of Notary PAC
Name:

0

WO 2007/071730 24 PCVEP2006/07004?5›

sales agricolamente aceptables de estos, opcionalmente en combinaci6n con un herbicida (a) adicional con auxiliares de formulaci6n,,depende de la densidad de la vegetaci6n no deseada, de la etapa de desarrollo de las plantas, del movimiento
del agua, de las condiciones clim6ticas de la ubicaci6n en donde se utiliza la
5 composici6n y del m6todo de aplicaci6n. En general, la proporci6n de aplicaci6n
es de 1 a 1000 ppb (partes por bill6n), preferiblemente de 10 a 500 ppb y en
particular de 250 a 500 ppb de los compuestos activos.

Las preparaciones se aplican a la masa de agua como una aplicaci6n de
& 10 superficie o subsuperficie. La aplicaci6n se Ileva a cabo mediante t6cnicas de
rociado habituales utilizando, por ejemplo, agua as carrier como portador y proporciones liquidas de rociado de aproximadamente 50 a 1 000 1/ha (por
ejemplo de 300 a 400 1/ha). Es posible la aplicaci6n de las preparaciones mediante
los m6todos de volumen-bajo y volumen-ultra-bajo. En ambos m6todos se forman
15 gotitas pequehas con un alto contenido de s6lidos se dispensan por medio de una
corriente de gas altamente presurizada. Tambi6n es posible la aplicaci6n de las
Is preparaciones en la forma de microgr6inulos.

0

Cuando se aplica compuestos de F6rmula (1) y/o una o m6s sales agricolamente
20 aceptables de estos mediante el m&todo de acuerdo con esta invenci6n las
malezas acu6ticas en general se controlan lentamente, lo que significa que la biomasa de las malezas acu6iticas en sistemas acuosos, por ejemplo charcas, lagos, ensenadas, rios o pantanos se reduce lenta y gradualmente. Esto es una ventaja grande comparado con otros herbicidas para el control de las malezas
25 acu6ticas -por ejemplo el herbicida endothall- que tambi6n se utiliza en controlar
las malezas acuMicas y que exhibe muy r6pido contacto en el control de las malezas acu6ticas. La reducci6n r6pida de la biomasa de contacto bajo niveles de

WO 2007/071730 25 PCT/EP2006/070009

alta infestaci6n es en general no deseable ya que esto por ejemplo agota r6pida de oxigeno en el sisterna acuoso, que luego puede

:

conducir por ejemplo a
mortalidad significativa de peces. Para un entendimiento m6s claro de [a invenci6n, se establecen adelante ejemplos especificos. Estos ejemplos son
5 solamente ilustrativos y no se entienden con limitantes del alcance y principios
subyacentes de la invenci6n en ninguna manera. Varias modificaciones de la invenci6n en adici6n a aquellas mostradas y descritas aqui Ilegar6n a ser evidentes a aquellos expertos en la t6cnica a partir de los siguientes ejemplos y la anterior descripci6n. Tales modificaciones est6n tambi6n destinadas a caer dentro
lo del alcance de las reivindicaciones adjuntas.

Ejemplos:

Experimento 1. Se inicia una prueba del invernadero para evaluar los efectos de
15 quinclorac para el control de Hydrilla verticillata.

10 Materiales y ML&todos:
40
Para iniciar el experimento, se Ilenan cilindros de PVC y se mantienen con un
20 volumen de 4000 mL de agua desclorinada que se mantiene a temperatura
ambiente (24’ C). A cada cilindro, una planta de hidrilla establecida (conservadas
en mezcla de arena) se transfiere en la columna de agua. Las plantas de hidrilla
se seleccionan para uniformidad y longitud de crecimiento de brote (aproximadamente 15 cm). Las plantas se les permite equilibrar en las columnas
25 durante 24 hrs antes del tratamiento herbicida. Los tratamientos experimentales
incluyen un control no tratado, y quinclorac a 50, 250 y 500 ppb del equivalente del 6cido actual del herbicida. Los tratamientos se aplican a las colum9as de agua

WO 2007/071730 26 PCT/EP2006/070009

mediante el uso de una pipeta. La cantidad de herbicida apropiada se basa en el volumen total de los cilindros, (4000 ml). Despu6s del tratarniento herbicida inicial, las columnas de agua se agitan gentilmente para asegurar distribuci6n uniforme. Los tratarnientos se disponen como un diseho completamente aleatorio con 3
5 r6plicas. Cada cilindro se considera la unidad de experimento. Se mantienen las
condiciones del invernadero, a 24/180 C ciclo (dia/noche) durante la duraci6n del experimento. La duraci6n del dia natural se complementa con alumbrado de hal6geno para proporcionar un fotoperiodo de 14 horas. El nivel del agua en los cilindros se revisa peri6dicamente y se mantienen al nivel de 400 ml durante la
10 duraci6n del estudio. Despu6s de 11 semanas de exposici6n, se miden las
longitudes del brote de hidrilla para comprobar los efectos herbicidas. Se presentan los resultados en la Tabla 1.

Tabla 1. Respuesta de Hydrilla verticillata a exposicion est6tica de herbicida
15 quinclorac en 11 semanas despu6s de tratarniento (WAT).
Tratarniento Proporci6n Longitud del brote de
Hidrilla

(ppb) (cm)
Control 30.4
Quinclorac 50 15.0
Quinclorac 250 8.9
Quinclorac 500 6.5
LSD a 0.05 11.5

Los resultados muestran que despu6s del periodo de exposici6n, el quinclorac tiene un efecto significativo en el crecimiento de hidrilla. En adici6n a la supresion
del crecimiento, la sintomatologla visual incluye la reducci6n en el vigor de la planta y torci6n similar a auxinico del tejido de la hoja. La intensidad de los
20 sintomas tienden a ser sensibles a la proporci6n.

WO 2007/071730 27 PCT/EP2006/070009

Experimento 2. Una prueba del invernadero se inicia para evaluar los efectos de quinmerac y quinclorac para el control de una poblaci6n mezclada de especies de
maleza sumergidas: Hydrilla verticillata y Egeria densa.

5 Materiales y M6todos:

Para iniciar el experimento, se Henan los contenedles y se mantienen con un

9 volumen de 4000 mL de agua destilada que se mantiene a temperatura ambiente
(24’ C). A cada contenedor, las malezas establecidas (conservadas en mezcla de
10 arena) se transfieren en la columna de agua. Las plantas se seleccionan para
uniformidad y longitud de crecimiento del brote (aproximadamente 15 cm). Las
plantas se les permite, equilibrar en los contenedores durante 24 hrs antes del tratamiento herbicida. Los tratamientos experimentales incluyen un control no
tratado, quinmerac a 100, 250, y 500 ppb, asi como tambi6n, quinclorac a 250 ppb
15 del equivalente del 6cido actual del herbicida. Los tratamientos se aplican a las
columnas de agua mediante el uso de una pipeta. La cantidad de herbicida

0 apropiada se basa en el volumen total de los contenedores (4000 ml). Despu6s del

tratamiento herbicida inicial, las columnas de agua se agitan gentilmente para
asegurar distribuci6n uniforme. Los tratamientos se disponen como un diseho
20 completamente aleatorio con 3 r6plicas. Cada contenedor se considera la unidad
de experimento. Se mantienen las condiciones del invernadero a 24/18* C ciclo (dia/noche) durante la duraci6n del experimento. La duraci6n del dia natural se complementa con alumbrado de hal6geno para proporcionar un fotoperiodo de 14 horas. El nivel del agua en los contenedores se revisa peri6dicamente y se
25 mantienen al nivel de 400 ml durante la duraci6n del estudio. Despu6s de 12
semanas de exposici6n, se miden la longitud del brote de maleza y el peso fresco para comprobar los efectos herbicidas. Se presentan los resultados en la Tabla 2.

0

9

E

WO 2007/071730 32

RESUMEN

PCT/EP2006/070009

La presente invenci6n se relaciona con un m6todo para el control de malezas acu6ticas que comprende aplicar una cantidad herbicidamente efectiva de por lo
s menos un compuesto de F6rmula (1)

en donde X es hal6geno y R es hal6geno o alquilo Cl-C6, y/o una o m6s sales
10 agricolamente aceptables de estos para actuar sobre malezas acAticas surnergidas y/o su h6bitat acuoso que contiene semillas u otros 6rganos de propagaci6n de dichas malezas acu6ticas.

&I’I’MMILI Aorl^hl A t1r- A ?I›r%^M-r

0

0

17,

0

International aPPlIcation No

PCT/EP2006/070009

CLASSIFICATION OF SUBJECT MATTER

INV. A01N43/42 A01P13/02

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)
AOIN

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, WPI Data, CHEM ABS Data, CAB Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category* Citation of document, with Indication, where appropriate, of the relevant passages Relevant to claim No.

X DATABASE CAB [Online] 1-3,5-10 CAB INTERNATIONAL, WALLINGFORD, OXON, GB; A.ZOSCHKE ET AL.: "CGA142’464 plus
BAS-514, a new timing-flexible herbicide combination for broadspectrum weed control in rice (Oryza sativa L.) in South Korea" XP002464635
retrieved from STN-INTERNATIONAL
Database accession no. 91:73631 CABA abstract

biological terms BT: "Potamogeton;
Potamogetonaceae; Najadales"
& PROCEEDINGS, 12TH ASIAN-PACIFIC WEED
SCIENCE SOCIETY CONFERENCE, no. 1, 1989,
pages 245-253,

Further documents are listed In the continuation of Box C. See patent family annex.

Special categories of cited documents:
’T’ later document published after the International filing date
’A’ document defining the general state of the art which Is not or priority date and not in conflict with the application but
considered to be of particular relevance cited to understand the principle or theory underlying the
’E’ earlier document but published on or after the International

Invention

filing date W document of particular relevance; the claimed Invention

cannot be considered novel or cannot be considered to ’U document which may throw doubts on priority clalm(s) or Involve an Inventive step when the document is taken alone which Is cited to establish the publication date of another ’Y’ citation or other special reason (as specified) document of particular relevance; the claimed Invention
cannot be considered to involve an inventive step when the 10’ document referring to an oral disclosure, use, exhibition or document Is combined with one or more other such docu other means ments, such combination being obvious to a person skilled

’P’ document published prior to the International filing date but In the art.
later than the priority date claimed W document member of the same patent family
Date of the actual completion of the International search Date of mailing of the International search report

16 January 2008 20/02/2008

Name and mailing address of the ISAI Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2
NL 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo ni,
Fax: (+31-70) 340-3016 Lamers, Wolfram

ull"?? I 11zW210 (second sheet) (April 2005)

0

0

0

0

Z1171114A I 1UPIAL tor.AHUH KRZI’VK I

International application No
PCT/EP2006/070009
C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category* Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No.

X DATABASE CA [online] 1-3,5-10
CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US;
XP002464636
retrieved from STN-INTERNATIONAL Database accession no. 141:84041 CA abstract

index terms IT: "Potamogeton distinctus" CN 1 401 232 A (ZHONGKAI AGRICULTURAL CHEMICAL) 12 March 2003 (2003-03-12)
- & DATABASE WPI Week 200349
Derwent Publications Ltd., London, GB; AN 2003-514337
XP002464652

CN 1 401 232 A (ZHONGKAI AGRIC CHEM CO

LTD) 12 March 2003 (2003-03-12) abstract

X "The e -Pesticide Manual (Thirteenth 9
Edition) Version 3.0"
2003, BRITISH CROP PROTECTION COUNCIL
XP002464632

entry 712: "Quinclorac"
Y the whole document 1-3,5-10

X "The e-Pesticide Manual (Thirteenth 9
Edition) Version 3.0"
2003, BRITISH CROP PROTECTION COUNCIL
XP002464633

entry 713: "Quinmerac"
Y the whole document 1-3,5-10

A KLINGMAN ET AL: "AQUATIC-WEED CONTROL" 4
WEED SCIENCE, WEED SCIENCE SOCIETY OF

AMERICA, CHAMPAIGN, IL, US, 1982, pages 383-402, XP002962279

ISSN: 0043-1745

Y page 389; tables 29-1 1-3,5-10

Y "The e-Pesticide Manual (Thirteenth 1-3,5-10 Edition) Version 3.01,

2003, BRITISH CROP PROTECTION COUNCIL
XP002464634

entry 211: 112,4-D"
the whole document

X KAY S H ET AL: "RESPONSE OF TWO 9

ALLIGATORWEED BIOTYPES TO QUINCLORAC" JOURNAL OF AQUATIC PLANT MANAGEMENT,

SOCIETY, WASHINGTON, DC,, US,
vol. 30, 1992, pages 35-40, XPOO8086947
ISSN: 0146-6623
the whole document

u" PCTASA/210 (continuation at second sheet) (Apru 2oo5)

r

0

0

0

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES
Industria y Comercio EXTRACTO PARA PUBLICACION
???E N D L N C I A SOLICITUD DE PATENTE DE INVENCION PCT

(21) No de solicitud: (51) Int Cl: A01 N 0431042

22) Fecha de solicitud: (71)Solicitante(s) BASF SE

(30) Prioridad (31) Prioridad (32) Fecha (33) Pais
60/752,906 23/12/2005 us
60/802,791 24105/2006 US (72) Inventor(es) JOSEPH ZAWIERUCHA
Y OTROS

(74) Apoderado: EMILIO FERRERO

(85) Fecha limite inicio fase nacional: 23/07/2008 (87) Publicaci6n internacional
(86) Datos relativos a la presentaci6n de la solicitud PCT Fecha: 28/06/2007
Fecha de presentaci6n de la solicitud: 20/12/2006 N’ publicaci6n: WO 20071071730 A3
No. de solicitud PCT/EP2006/07009

(54) Titulo: UN METODO PARA CONTROLAR MALEZAS ACUATICAS

Reivindicaci6n(es):

1. Un m6todo para controlar malezas acu6ticas que
comprende aplicar una cantidad herbicidamente efectiva de
por lo menos un compuesto de F6rmula (1)

en donde X es hal6geno y

R es hal6geno o alquilo Cl-C6,

y/o una o rn?s sales agricolamente aceptables de estos para malezas ac&icas surnergidas y/o su hkitat acuoso que contienen semillas u otros 6rganos de propagaci6n de dichas malezas ac&icas.

2. El m6todo de acuerdo con la reivindicaci6n 1 en
donde X es Cl.

3. El m6todo de acuerdo con la reivindicaci6n 1 o 2 en
donde R es Cl o alquilo Cl-C4.

4. El m6todo de acuerdo con una o m6s de las
reivindicaciones precedentes, en donde las malezas acu6ticas se seleccionan del g6nero de hidrilla.

5. El m6todo de acuerdo con una o rn?s de las
reivindicaciones precedentes, en donde las malezas acuAticas son tolerantes y/o resistentes al herbicida de fluridona.

6.

1
El m6todo de acuerdo con una o m6s de las reivindicaciones precedentes conducidas en la presencia de plantas de arroz.

7. El m6todo de acuerdo con una o rn?s de las
reivindicaciones precedentes, en donde una cantidad herbicidamente efectiva de los compuestos de F6rmula (1) y/o una o m6s sales agricolamente aceptables de estos se utilizan

en combinaci6n con por lo menos otro herbicida.

8. El m6todo de acuerdo con la reivindicaci6n 7, en donde por lo menos otro herbicida (a) se selecciona de las siguientes clases al) a al 5):

al) inhibidores de biosintesis de lipidos;
a2) inhibidores de acetolactato sintasa (inhibidores ALS);
a3) inhibidores de fotosintesis;
a4) inhibidores de protoporfirinogen-IX oxidasa;
a5) herbicidas de blanqueo;
a6) inhibidores de enolpiruvilshikimato-3-fosfato sintasa (Inhibidores EPSP);
a7) inhibidores de glutarnina sintasa;
a8) inhibidores de 7,8-dihidropteroate sintasa (inhibidores DHP);
a9) inhibidores de mitosa;
a10) inhibidores de la sintesis de 6cidos grasos de cadena larga (Inhibidores VLCFA);
all) inhibidores de biosintesis de celulosa;
al 2) herbicidas desacopladores;
a13) herbicidas de auxina;
a14) inhibidores de transporte de auxina;
al 5) otros herbicidas seleccionados del grupo quQ consiste de benzoilprop, flamprop, flamprop-M, bromobutida, clorflurenol, cinmetilin, metildimur6n, etobenzanid, fosamina, metarn, piributicarb, oxaziclornefona, dazomet, triaziflarn bromuro de metilo, y endothal;

todos incluyen las sales agricolamente aceptables y los derivados agricolamente aceptables de estos, proporcionando aquellos herbicidas que tienen un grupo carboxilo.

9. Una composici6n herbicida para controlar malezas acu6ticas surnergidas que comprende una cantidad herbicidamente efectiva de por lo menos un compuesto de F6rmula (1)

Revisar evaluaci6n: Introducci6n a los Proyectos y al Disefio de Diagramas de Red Pdgina I de 3

’ 0

101

APLICACi6N DE HERRAMIENTAS INFORmATICAS PARA LA AUTOMATIZACION DE PROYECTOS: MICROSOFT@ PROJECT - 138734 1 8734 ACTIVIDAIDES > GWAIDEAPREN-R1ZAJE.Y S PR,_.QYECtjd?SENODE Q.I.A.G.RAMA.S.. DE RED > REVISAR, EvAwjobw iNTRODUCC16N A LOS PROYECTOS Y AL DISEN-O DE DIAGRAMAS DE RED

L6Revisar evaluaci6n: Introducci6n a los Proyectos y al Disefio de

Diagramas do Red

Usuarlo sandra patricia lopez villate
Enviado 6/10/09 15:16

Introduc

Nombre lntroducci6n a los Proyectos y al Diseho de Diagramas de Red
Estado mpletado
Puntuacl6n 8 de Duntos

Tiempo transcurrido 0 horas\,24hRinutos y 36 segundos de 1 horas y 0 minutos permitidos.
Instrucciones Lea muy enidamente y conteste las preguntas.

Mucha suerte..

Pre 1 1 puntos
De acuerdo al siguiente diagra a. que actividades preceden a la actividad --- -------

H

"EA]

....

Respuesta seleccioni- ada:?/ C. Las actividadles E? y H.

Pregunta 2
La Ruta Critica en un diagrama de red es:

1 de 1 puntos

Respuesta / D. Es la ruta m6s larga, en la que las actividades deben realizarse
seloccionada: en el tiempo estipulado, ya que si se atrasa una de ellas, se atrasa el
proyecto.

Pregunta 3 1 de 1 puntos
41-a holgura de una actividad que se encuentra er ruta crftica es de? Escribir la respuesta en
n6meros.

Respuesta seleccionada:,’ 0

- Pregunta 4 1 de 1 puntos
6La etapa en los proyectos que permite regular los procesos en ejecuci6n, administrar lo
planeado, realizar actualizaciones o correciones del plan es?

11

9

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

No. 08-075699- -00000-0000

Fecha: 2008-07-22 16-17:02 Dep. 2020 NUECREACIONI
Tra.11 PATENTEMI Eve: 378 FASENACIONALI

Folios: 69
Act, 411 PRESENTACION

Industria y Come
SUPERINTENDENCIA

REQUISITOS MINIMOS PARA ADMISION A TRAMITE PCT

PATENTE DE INVENCION MODELO DE UTILIDAD

Indicaci6n de que se solicita la concesi6n de una patente
Datos de’identificaci6n del solicitante o de la persona que presenta la solicitud Descripci6n de!a invenci6n
+ Dibujos de ser estos pertinentes
Comprobante de pago de las tasas establecidas

COMPLETA INCOMPLETA

DISEF40 INDUSTRIAL []

Indicaci6n de que se solicita el registro, de Dise.ho Industrlal
Datos de identificaci6n del solicitante o de la persona que presenta la solic’itud

Representaci6n gr6fica y fotogr6fica’del Diseho Industrial o muestra del + material que incorpora el diseilo
+ Comprobarite de pagQ de)as tasas establecidas

COMPLETA

ESQUEMA DE TRAZADO

INCOMPLETA [I

Indicadi6n de que?e solicita el registro de un..Esquema de Trazado
Datos de identificaci6n del solicitante 0 de la persona que presenta la solicitud
+ Representac!6n’ gr6fica del esquema trazado
Comprobante de pago de las tasas establecidas

COMPLETA [I

- -i:5(H

Firma Responsable

Fecha ’?(31 zz - C?b C---%

INCOMPLETA []

Carrera 13 No. 27-00 Piso 5, 7 y 10 Conmutador: 3 82 08 40
Fax: 350 52 20
&mall:
’

lnfo(d-)sic.gov.co
WWW.Sic.gov.co
BogotA, D.C., Colombia

P-?

REPUBLICA DE COLOMBIA

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Bogot&,

2020

Doctor(a)
FERRERO EMILIO

Apoderado(a) y/o Representante de
BASF SE

REFERENCIA Radicaci6n No. 8 75699
Solicitud internacional PCT/EP2006/070009
Fecha inicio fase nacional 23/07/2008
Trdmite 11
Evento 378
Actuaci6n 430
10
Oficio No.

111
1

4?w?

Como resultado del examen de forma, realizado con fundamento en el articulo 38 de
la Decisi6n 486 de la Comisi6n de la Comunidad Andina, articulo 27 del Tratado de
Cooperaci6n en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular
finica de la Superintendencia de Industria y Comercio, se le comunica que:

1. La solicitud no contiene la copia del documento en que consta la cesi6n del
derecho a la patente del inventor al solicitante o a su causante. (Art. 26-k)
Decisi6n 486. Cuando se trate de documentos otorgados en el extranjero, deben
legalizarse de conformidad con lo dispuesto por los articulos 259 y 260 del C6digo
de Procedimiento Civil.

En cumplimiento de lo dispuesto por el articulo 39 de la Decisi6n 486, se le
requiere para que dentro del t6rmino de dos meses siguientes a la fecha de
notificaci6n del presente oficio, complete los requisitos anteriormente enunciados.
En caso de no dar cumplimiento al presente requerimiento, la solicitud se
considerard abandonada y perderd su prelaci6n.

Notifiquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal
e), del capitulo quintq,<?l titulo primero de la Circular Unica No.10 de 2001.

ALIX CARM[EfffA CtSPEDES DE VERGEL
Jefe de la/divisi6n de Nuevas Creaciones

El (,.??rior requerimiento fue notificado por fijaci6n en lista de
fecha 2 2 AGO. 2oue
jfernand