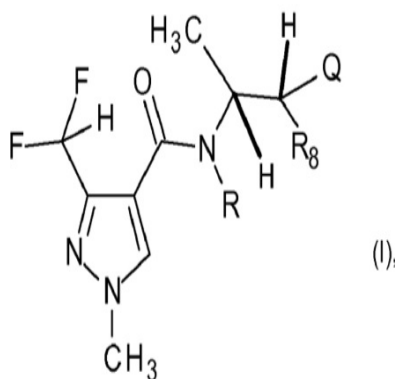


DIRECCIÓN DE NUEVAS CREACIONES

SOLICITUD FASE NACIONAL - PCT



1	Título de la Invención (200 caracteres o espacios máximos)		
COMPOSICIONES FUNGICIDAS			
2	Datos del Solicitante		
	Nombre:	SYNGENTA PARTICIPATIONS AG	Dirección Electrónica: notificaciones.patentes@roclaw.co
	Dirección:	SCHWARZWALDALLEE 215, CH-4058 BASEL (CH)	Domicilio/País de constitución: SUIZA - BASEL - BASEL
	Identificación: ☐ CEDULA DE CIUDADANIA ☐ CEDULA DE EXTRANJERIA ☒ EMPRESA EXTRANJERA ☐ NIT ☐ PASAPORTE		
	Número:	129936-	
3	Solicitantes		

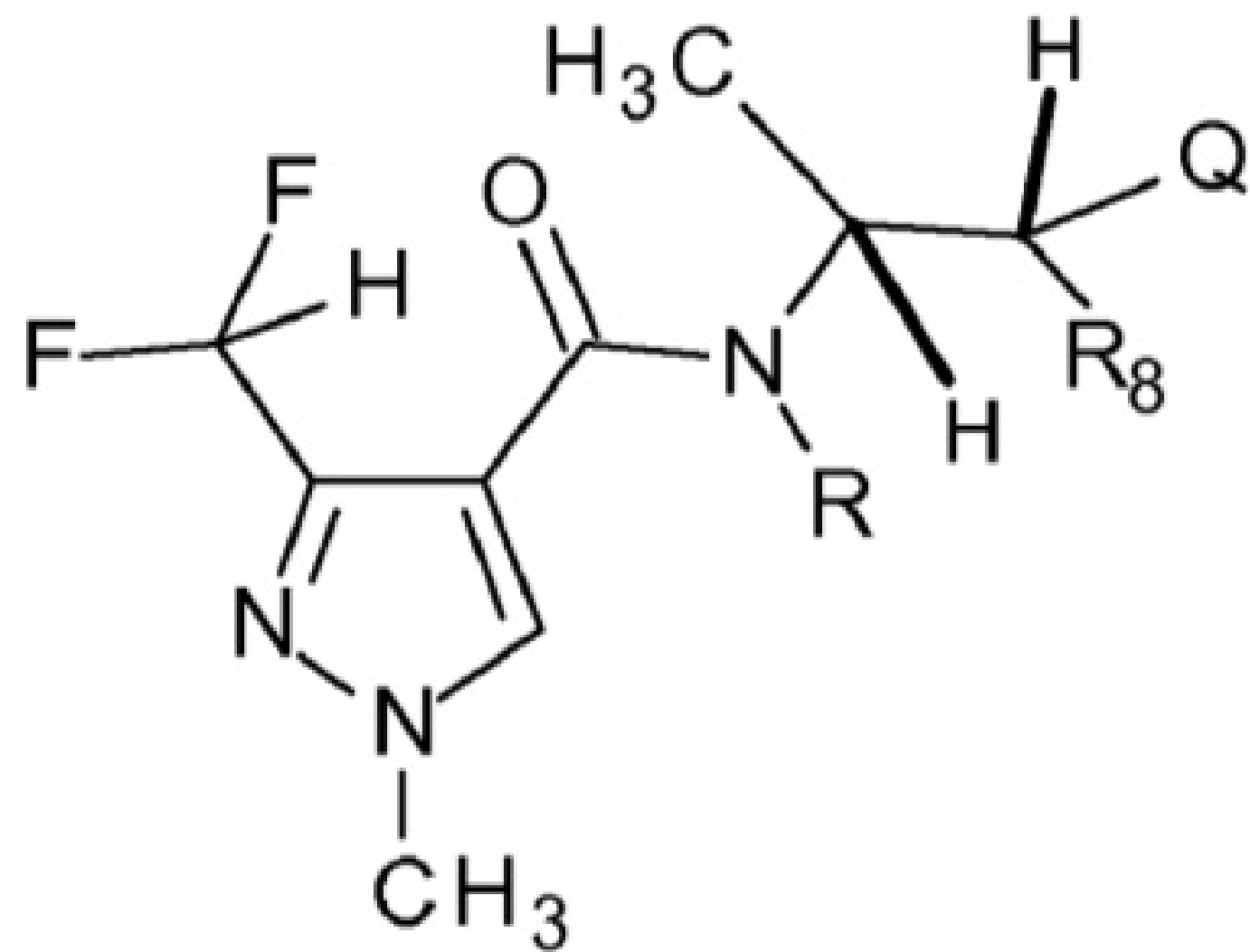
Apellidos - Nombres o Razón Social		Tipo	Identificación
1.	SYNGENTA PARTICIPATIONS AG	EE	129936
4	Datos del Inventor		
Nombre:		Gina Mercia SWART	Dirección Electrónica: notificaciones.patentes@roclaw.co
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Identificación: ☐ CEDULA DE CIUDADANIA ☐ CEDULA DE EXTRANJERIA ☐ EMPRESA EXTRANJERA ☐ NIT ☐ PASAPORTE ☒ No Aplica Número: -			
5	Inventor(es)		
Apellidos - Nombres		Domicilio	
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2.	OOSTENDORP Michael	SUIZA	
6	Datos Inventor(es)		
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2.	SUIZA	BASEL	BASEL
		Schwarzwaldallee 215, CH-4058 Basel (CH)	
7	Datos del Representante Legal / Apoderado		

Nombre:	J. IAN RAISBECK	Dirección Electrónica:	notificaciones.patentes@roclaw.co
Dirección:	Calle 90 No. 19- 41, Oficina 404	Domicilio/País de constitución:	COLOMBIA - BOGOTA D.C. - BOGOTA D.C.
Identificación: ☒ CEDULA DE CIUDADANIA ☐ CEDULA DE EXTRANJERIA ☐ EMPRESA EXTRANJERA ☐ NIT ☐ PASAPORTE Número: 79376996-			
Presentación de Poder			
Año de Radicación			
Número de Radicación			
8	Datos Solicitud: PCT / WO		
Número Solicitud:	PCT/EP2014/070591	Fecha Solicitud:	26/09/2014
Número Publicacion:	WO2015/049168	Fecha Publicacion:	09/04/2015
9	Declaraciones de prioridad	☒ SI ☐ NO	
1.	(33) País de origen EUROP PATENT ORGANIZATION(EPO)	Codigo del país EP	(31) No. Solicitud 13187219.4
			(32) Fecha 03/10/2013
10	Reivindicaciones		
Número reivindicaciones:		8	Pago Reivindicaciones: No
11	Reducción de tasas.		
Declaro que carezco de medios económicos para presentar la solicitud de patente. ☐ SI ☒ NO Nota: En caso de ser persona natural y carecer de medios económicos, y por lo tanto, aplique la reducción de tasas a que se refiere la resolución vigente en tarifas, debe firmar la presente solicitud bajo la gravedad de juramento.			
☐ Micro, pequeñas y medianas empresas ☐ Universidades públicas o privadas ☐ Entidades sin ánimo de lucro			

Debe aportar los documentos que se indican en el numeral 17 de anexos

12 Documentos Anexos

- ☒ Reivindicaciones
- ☒ Descripción
- ☐ Dibujos y/o Figuras
- ☒ Resumen
- ☐ Certificado Depósito Material Biológico
- ☐ Uso de Conocimiento tradicional
- ☐ Listado de secuencias
- ☒ Artes finales 12 x 12 cm
- ☒ Poderes, si fuere el caso
- ☐ Copia de la primera solicitud si se reivindica prioridad
- ☐ Traducción simple de la primera solicitud, si se reivindica prioridad
- ☒ Otros Anexos



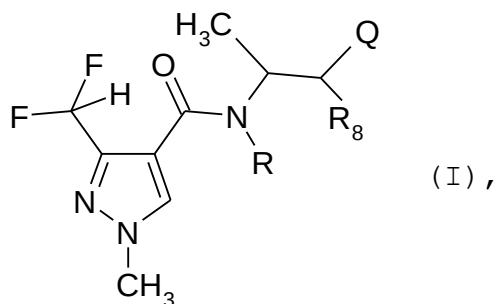
(I),

Composiciones fungicidas

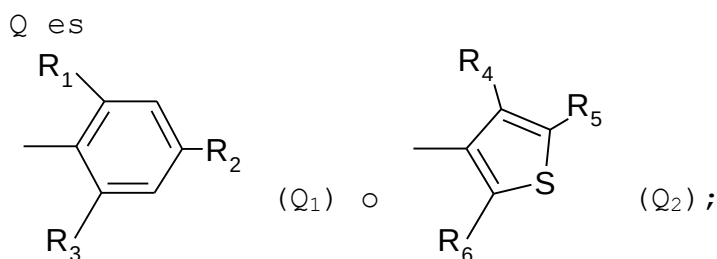
La presente invención se refiere a composiciones fungicidas novedosas para el tratamiento de enfermedades fitopatógenas de plantas útiles, especialmente hongos fitopatógenos, y a un método para controlar dichas enfermedades y/u hongos en plantas útiles.

En los documentos WO 2008/148570, WO 2010/063700, WO 2010/084078 y WO 2008/151828 se describe que ciertos derivados de pirazolilcarboxamida presentan actividad biológica contra hongos fitopatógenos. Por otro lado, existe constancia de varios compuestos fungicidas de diferentes clases químicas, los cuales son fungicidas vegetales que se aplican a varios cultivos de plantas cultivadas. Sin embargo, la tolerancia de los cultivos y la actividad contra los hongos fitopatógenos que atacan a las plantas no siempre satisfacen las necesidades de las prácticas agrícolas en muchos casos y aspectos. Para solucionar este problema, en el documento WO 2012/041874 se han proporcionado algunas mezclas binarias de pirazolilcarboxamidas con ciertos fungicidas.

La presente invención proporciona un método para controlar enfermedades fitopatógenas en plantas útiles o en material de propagación de estas, el cual comprende aplicar a las plantas útiles, el emplazamiento de estas o el material de propagación de estas, una combinación de componentes (A) y (B), en una cantidad sinérgicamente eficaz, donde el componente (A) es un compuesto de fórmula I



donde
R es hidrógeno o metoxi;



donde

R₁ es hidrógeno, halógeno o alquilo C₁-C₆;

5 R₂ es hidrógeno, halógeno, alquilo C₁-C₆, alquenilo C₂-C₆, alquinilo C₃-C₆, (cicloalquil C₃-C₆)-(alquinilo C₃-C₆), halofenoxi, halofenil-(alquinilo C₃-C₆), C(alquil C₁-C₄)=NO-(alquilo C₁-C₄), haloalquilo C₁-C₆, haloalcoxi C₁-C₆, haloalquenilo C₂-C₆ o haloalqueniloxi
10 C₂-C₆;

R₃ es hidrógeno, halógeno o alquilo C₁-C₆;

R₄, R₅ y R₆, independientemente unos de otros, son hidrógeno, halógeno o -≡-R₇; con la condición de que al menos uno de los grupos R₄, R₅ y R₆ no sea hidrógeno;

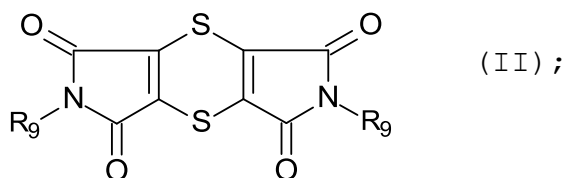
15 R₇ es hidrógeno, alquilo C₁-C₆, haloalquilo C₁-C₆ o alcoxialquilo C₁-C₄; y

R₈ es hidrógeno o metoxi;

y sales, estereoisómeros, diastereoisómeros, enantiómeros y tautómeros agroquímicamente aceptables de
20 estos compuestos;

y el componente (B) es un compuesto seleccionado del grupo constituido por

(B1) un compuesto de fórmula (II),



25

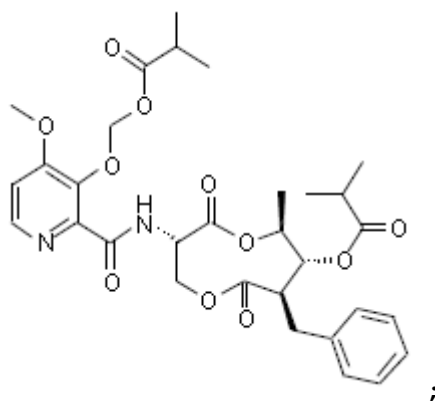
donde ambos R₉ son idénticos y representan metilo, etilo, n-propilo o isopropilo;

(B2) fenpirazamina;

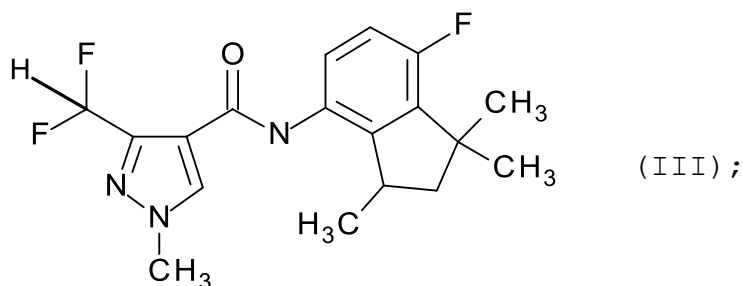
(B3) isofetamida;

- (B4) oxatiapiprolina;
- (B5) tolprocarb;
- (B6) flufenoxistrobina;
- (B7) BLAD;

5 (B8) UK-2A procide, es decir, isobutirato de (3*S*, 6*S*, 7*R*, 8*R*)-8-bencil-3-(3-((isobutiriloxi)metoxi)-4-metoxipicolinamido)-6-metil-4,9-dioxo-1,5-dioxonan-7-ilo, que presenta la siguiente estructura

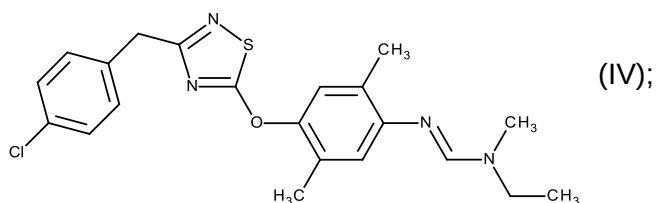


10 (B9) el compuesto de fórmula (III)

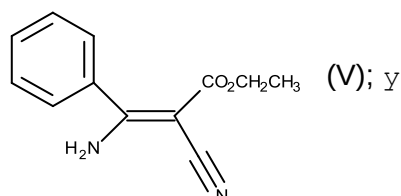


- (B10) coumoxistrobina;
- (B11) mandestrobina;
- (B12) tebufloquina;

15 (B13) triclopiricarb;
(B14) el compuesto de fórmula IV

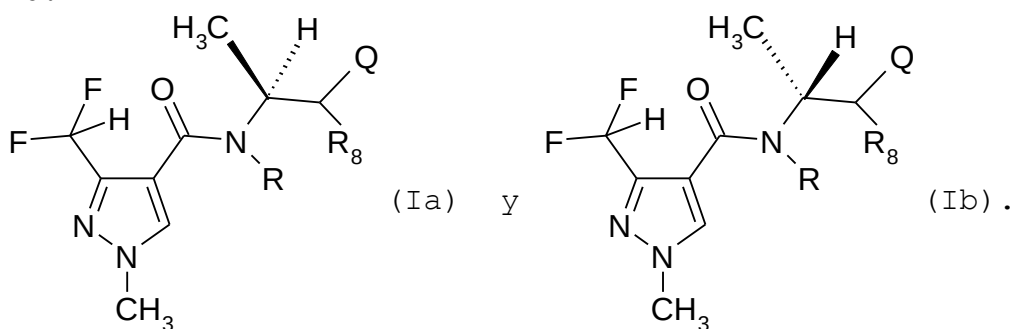


(B15) el compuesto de fórmula V



5 (B16) mandipropamida o sales agroquímicamente aceptables de estos.

Los compuestos de fórmula I donde R_8 es hidrógeno pueden existir en las dos formas enantioméricas de fórmula Ia y Ib:



10

La invención engloba ambas formas enantioméricas de los compuestos de fórmula (I). Los compuestos de fórmula (I) y su preparación se describen en WO 2010/063700, WO 2010/084078 y WO 2008/151828.

15 Se ha descubierto que el uso de los componentes (B) combinados con el componente (A) puede mejorar sorprendente y considerablemente la eficacia de este último contra hongos y viceversa. Además, el método de la invención es eficaz contra una gama más amplia de tales hongos que se
20 pueden combatir con los principios activos de este método, cuando se usan por sí solos.

En general, la relación ponderal del componente (A) frente al componente (B) es de 1000:1 a 1:1000, especialmente de 50:1 a 1:50, más especialmente en una
25 relación de 40:1 a 1:40, incluso más especialmente en una relación de 20:1 a 1:20, incluso aún más especialmente de

10:1 a 1:10, y muy especialmente de 5:1 y 1:5. Se da especial preferencia a una relación de 2:1 a 1:2 y también se prefiere especialmente una relación de 4:1 a 2:1. Se prefieren relaciones individuales específicas que incluyan
 5 las relaciones de 1:1, 5:1, 5:2, 5:3, 5:4, 4:1, 4:2, 4:3, 3:1, 3:2, 2:1, 1:5, 2:5, 3:5, 4:5, 1:4, 2:4, 3:4, 1:3, 2:3, 1:2, 1:600, 1:300, 1:150, 1:100, 1:50, 1:40, 1:35, 1:20, 2:35, 4:35, 1:10, 1:75, 2:75, 4:75, 1:6000, 1:3000, 1:1500, 1:350, 2:350, 4:350, 1:750, 2:750 y 4:750. Se
 10 sobreentenderá que estas relaciones de mezcla incluyen, por un lado, relaciones ponderales y además, por otro lado, relaciones molares.

Sorprendentemente se ha descubierto que ciertas relaciones ponderales entre el componente (A) y el
 15 componente (B) son capaces de producir actividad sinérgica. Por lo tanto, otro aspecto de la invención son composiciones en las que el componente (A) y el componente (B) están presentes en la composición en cantidades que producen un efecto sinérgico. Esta actividad sinérgica se
 20 refleja en que la actividad fungicida de la composición que comprende el componente (A) y el componente (B) es mayor que la suma de las actividades fungicidas del componente (A) y el componente (B). Esta actividad sinérgica amplía el rango de acción del componente (A) y el componente (B) de
 25 dos formas. En primer lugar, las tasas de aplicación del componente (A) y el componente (B) se reducen mientras la acción sigue siendo igualmente buena, esto significa que la mezcla de los principios activos sigue ofreciendo un alto grado de control de fitopatógenos incluso cuando los dos
 30 componentes individuales se han vuelto totalmente ineficaces en un rango de tasa de aplicación tan bajo. En segundo lugar, existe una ampliación considerable del espectro de fitopatógenos que se puede controlar.

Existe un efecto sinérgico siempre que la acción de
 35 una combinación de principios activos sea superior a la suma de las acciones de los componentes individuales. La acción que cabe esperar E para una combinación determinada

de principios activos sigue la denominada fórmula de COLBY y se puede calcular según se indica a continuación (COLBY, S.R. "Calculating synergistic and antagonistic responses of herbicide combination", *Weeds*, Vol. 15, páginas 20-22; 1967):

ppm = miligramos de principio activo (= p.a.) por litro de mezcla de pulverización

X = % de acción por parte del principio activo (A) empleando p ppm de principio activo

Y = % de acción por parte del principio activo (B) empleando q ppm de principio activo.

Según COLBY, la acción (aditiva) esperada de los principios activos (A) + (B) empleando p + q ppm de principio activo es $E = X + Y - \frac{X \cdot Y}{100}$

Si la acción realmente observada (O) es mayor que la acción esperada (E), entonces la acción de la combinación será superaditiva, es decir, existe un efecto sinérgico. En términos matemáticos, la sinergia se corresponde con un valor positivo de la diferencia (O-E). En el caso de la adición puramente complementaria de actividades (actividad esperada), dicha diferencia (O-E) es cero. Un valor negativo de dicha diferencia (O-E) indica una pérdida de actividad en comparación con la actividad esperada.

Sin embargo, además de la propia acción sinérgica con relación a la actividad fungicida, las composiciones de acuerdo con la invención también pueden presentar otras propiedades beneficiosas sorprendentes. Algunos ejemplos que se pueden mencionar de estas propiedades beneficiosas son: una degradabilidad más favorable; un comportamiento toxicológico y/o ecotoxicológico mejorado; o características mejoradas de las plantas útiles, que incluyen: emergencia, rendimientos de los cultivos, un sistema de raíces más desarrollado, mayor ahijamiento, aumento de la altura de la planta, mayor limbo, menos hojas basales muertas, vástagos más resistentes, color de las hojas más verde, menor necesidad de fertilizantes, menor

necesidad de semillas, vástagos más productivos, floración más temprana, madurez del grano temprana, menor vuelco de la planta (encamado), mayor crecimiento de los brotes, mayor resistencia de la planta y germinación temprana.

5 Algunas composiciones de acuerdo con la invención presentan una acción sistémica y se pueden emplear como fungicidas para el tratamiento de semillas, tierra y follaje.

10 Con las composiciones de acuerdo con la invención es posible inhibir o exterminar los microorganismos fitopatógenos que se desarrollan en las plantas o en partes de las plantas (frutos, flores, hojas, tallos, tubérculos, raíces) en diferentes plantas útiles, a la vez que también se protegen las partes de las plantas que crecen más tarde
15 frente al ataque de microorganismos fitopatógenos.

Las composiciones de acuerdo con la invención se pueden aplicar a los microorganismos fitopatógenos, a las plantas útiles, al emplazamiento de estas, a su material de propagación, a productos almacenados o materiales técnicos
20 expuestos a sufrir el ataque de microorganismos.

Las composiciones de acuerdo con la invención se pueden aplicar antes o después de la infección por parte de los microorganismos de las plantas útiles, el material de propagación de estas, productos almacenados o materiales
25 técnicos.

Otro aspecto de la presente invención es un método para controlar enfermedades provocadas por fitopatógenos en plantas útiles o en el material de propagación de estas que comprende aplicar a las plantas útiles, al emplazamiento de
30 estas o a su material de propagación una composición de acuerdo con la invención. Se prefiere un método que comprende aplicar una composición de acuerdo con la invención a las plantas útiles o al emplazamiento de estas, más preferentemente a las plantas útiles. Se prefiere aún
35 más un método que comprende aplicar al material de propagación de las plantas útiles una composición de acuerdo con la invención.

Los componentes (B) son conocidos. La fenpirazamina está registrada con el N.º de Reg. del C.A. 473798-59-3 y se describe en EP1072598A1. La isofetamida está registrada con el N.º de Reg. del C.A. 875915-78-9 y se describe en WO 2006/016708. La oxatiapiprolina está registrada con el N.º de Reg. del C.A. 1003318-67-9 y se describe en WO2008/013622. El tolprocarb está registrado con el N.º de Reg. del C.A. 911499-62-2 y se describe en EP1681285A1. La flufenoxistrobina está registrada con el N.º de Reg. del C.A. 918162-02-4 y se describe en WO 2007/000098. BLAD (banda de *Lupinus albus* doce) es un polipéptido de 20 kDa. Existe de forma natural en plantas de *Lupinus* durante una fase breve de su desarrollo. Es un producto de descomposición estable del catabolismo de la β -conglutina y representa su proteína principal para el almacenamiento de semillas. Está compuesto por 173 residuos aminoacídicos y está codificado por un fragmento interno (519 nucleótidos, depositado en el GenBank con el número de acceso ABB13526) del gen que codifica el precursor de la beta-conglutina de *Lupinus* (1791 nucleótidos, publicado en el GenBank con el número de acceso AAS97865). BLAD se describe con detalle, por ejemplo, en WO 2012/049215. El compuesto de fórmula II se describe, por ejemplo, en WO 2012/123426 y WO2012/139889. UK-2A procede se describe específicamente como el compuesto N.º 23 en WO 03/035617 y como el compuesto de fórmula II en WO 2011/103240. El compuesto de fórmula III se describe en WO 2012/084812. La coumoxistrobina está registrada con el N.º de Reg. CAS 850881-70-8 y se describe en WO 2005/044813. La mandestrobina está registrada con el N.º de Reg. CAS 173662-97-0 y se describe en WO 95/27693. La tebufloquina está registrada con el N.º de Reg. CAS 376645-78-2 y se describe en WO 01/92231 como el compuesto N.º 2 de la Tabla 1. El triclopiricarb está registrado con el N.º de Reg. CAS 902760-40-1 y se describe en WO 2006/081759. El compuesto de fórmula IV está registrado con el N.º de Reg. CAS 1202781-91-6, su denominación química es N'-[4-[[3-[(4-

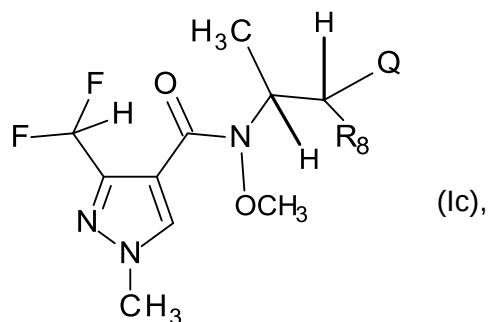
clorofenil)metil]-1,2,4-tiadiazol-5-il]oxi]-2,5-dimetilfenil]-N-etil-N-metilmetanimidamida y se describe, por ejemplo, en WO 2009/156098. El compuesto de fórmula V (fenamacrilo) se describe, por ejemplo, en *Crop Protection* 27, (2008), 90-95, en *Chemical & Pharmaceutical Bulletin* (1965), 13(7), 828-87 y en CN1559210A. La mandipropamida está registrada con el N.º de Reg. CAS 298-04-4 y se describe, por ejemplo, en EP 1282595B1. Los compuestos de fórmula I, en particular el compuesto 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida, también son útiles para el control de enfermedades de la madera, por ejemplo, *Acremonium* spp., *Botryosphaeria* spp., *Botryosphaeria obtuse*, *Botryosphaeria dothidea*, *Cephalosporium* spp., *Eutypa lata*, *Formitiporia mediteranea*, *Phaemoniella chlamydospora*, *Phaeoacremonium aleophilum*, *Phialophora* spp. y *Phomopsis viticola* en uvas. El uso de inhibidores de SDHI para este fin también se describe en WO 2013/124275.

A lo largo de este documento, el término "composición" se refiere a las diferentes mezclas o combinaciones de componentes (A) y (B), por ejemplo, en una forma única "ya mezclada", en una mezcla de pulverización combinada compuesta por formulaciones diferentes de cada uno de los componentes que son principios activos, tal como una "mezcla de tanque", y en un uso combinado de cada principio activo cuando estos se aplican de manera secuencial, es decir, uno después del otro en un periodo razonablemente corto tal como unas horas o días. El orden de aplicación de los componentes (A) y (B) no es esencial para realizar la presente invención.

Como componentes (A) se prefieren compuestos de fórmula (I) donde Q es Q₁, donde R₁, R₂ y R₃ son preferentemente halógeno, en particular cloro; R es metoxi y R₈ es hidrógeno.

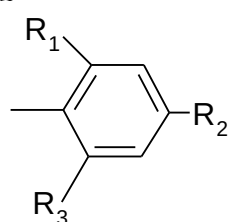
Los componentes (A) preferidos se enumeran en la siguiente Tabla 1:

Tabla 1: Compuestos de fórmula Ic:

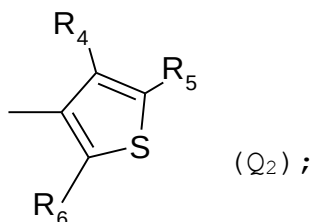


donde

Q es



o



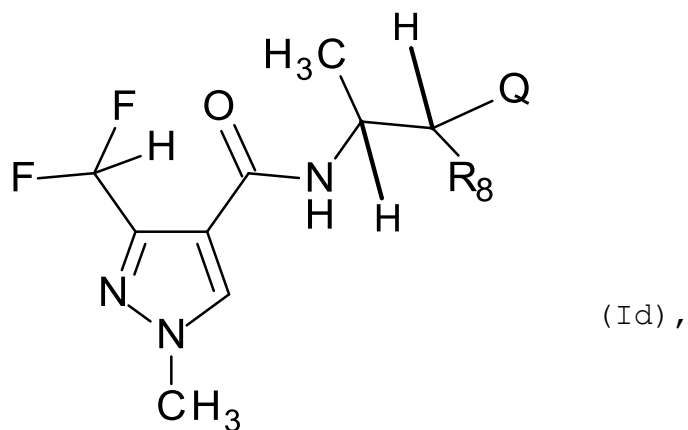
5

Compuesto N.º	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
1.001	Cl	Cl	Cl	Q ₁	-	-	-	H
1.002	Cl	H	Cl	Q ₁	-	-	-	H
1.003	Cl	Cl	H	Q ₁	-	-	-	H
1.004	Cl	Br	Cl	Q ₁	-	-	-	H
1.005	Br	Br	Br	Q ₁	-	-	-	H
1.006	H	Cl	H	Q ₁	-	-	-	H
1.007	H	Br	H	Q ₁	-	-	-	H
1.008	H	CF ₃	H	Q ₁	-	-	-	H
1.009	-	-	-	Q ₂	Cl	Cl	Cl	H
1.010	-	-	-	Q ₂	Cl	H	Cl	H
1.011	-	-	-	Q ₂	H	Cl	Cl	H
1.012	-	-	-	Q ₂	Cl	Cl	Br	H
1.013	-	-	-	Q ₂	Cl	H	Br	H
1.014	-	-	-	Q ₂	H	Cl	Br	H
1.015	-	-	-	Q ₂	H	Cl	H	H
1.016	-	-	-	Q ₂	Cl	H	H	H
1.017	Cl	Cl	Cl	Q ₁	-	-	-	OCH ₃
1.018	Cl	H	Cl	Q ₁	-	-	-	OCH ₃

Compuesto N.º	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
1.019	Cl	Cl	H	Q ₁	-	-	-	OCH ₃
1.020	Cl	Br	Cl	Q ₁	-	-	-	OCH ₃
1.021	Br	Br	Br	Q ₁	-	-	-	OCH ₃
1.022	H	Cl	H	Q ₁	-	-	-	OCH ₃
1.023	H	Br	H	Q ₁	-	-	-	OCH ₃
1.024	H	CF ₃	H	Q ₁	-	-	-	OCH ₃
1.025	-	-	-	Q ₂	Cl	Cl	Cl	OCH ₃
1.026	-	-	-	Q ₂	Cl	H	Cl	OCH ₃
1.027	-	-	-	Q ₂	H	Cl	Cl	OCH ₃
1.028	-	-	-	Q ₂	Cl	Cl	Br	OCH ₃
1.029	-	-	-	Q ₂	Cl	H	Br	OCH ₃
1.030	-	-	-	Q ₂	H	Cl	Br	OCH ₃
1.031	-	-	-	Q ₂	H	Cl	H	OCH ₃
1.032	-	-	-	Q ₂	Cl	H	H	OCH ₃

Otros componentes (A) preferidos se enumeran en la siguiente Tabla 2:

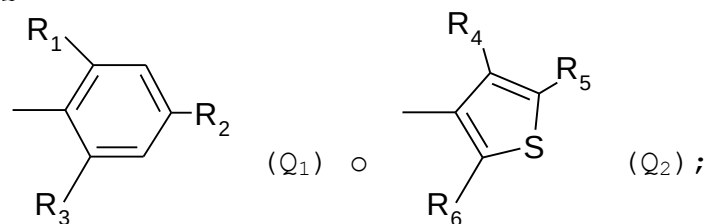
Tabla 2: Compuestos de fórmula Id:



5

donde

Q es

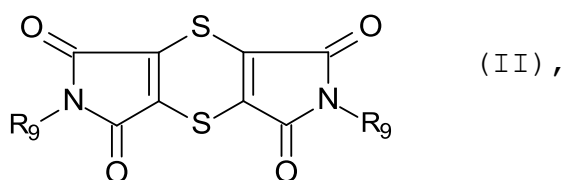


Compuesto N.º	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
2.001	Cl	Cl	Cl	Q ₁	-	-	-	H
2.002	Cl	H	Cl	Q ₁	-	-	-	H
2.003	Cl	Cl	H	Q ₁	-	-	-	H
2.004	Cl	Br	Cl	Q ₁	-	-	-	H
2.005	Br	Br	Br	Q ₁	-	-	-	H
2.006	H	Cl	H	Q ₁	-	-	-	H
2.007	H	Br	H	Q ₁	-	-	-	H
2.008	H	CF ₃	H	Q ₁	-	-	-	H
2.009	-	-	-	Q ₂	Cl	Cl	Cl	H
2.010	-	-	-	Q ₂	Cl	H	Cl	H
2.011	-	-	-	Q ₂	H	Cl	Cl	H
2.012	-	-	-	Q ₂	Cl	Cl	Br	H
2.013	-	-	-	Q ₂	Cl	H	Br	H
2.014	-	-	-	Q ₂	H	Cl	Br	H
2.015	-	-	-	Q ₂	H	Cl	H	H
2.016	-	-	-	Q ₂	Cl	H	H	H
2.017	Cl	Cl	Cl	Q ₁	-	-	-	OCH ₃
2.018	Cl	H	Cl	Q ₁	-	-	-	OCH ₃
2.019	Cl	Cl	H	Q ₁	-	-	-	OCH ₃
2.020	Cl	Br	Cl	Q ₁	-	-	-	OCH ₃
2.021	Br	Br	Br	Q ₁	-	-	-	OCH ₃
2.022	H	Cl	H	Q ₁	-	-	-	OCH ₃
2.023	H	Br	H	Q ₁	-	-	-	OCH ₃
2.024	H	CF ₃	H	Q ₁	-	-	-	OCH ₃
2.025	-	-	-	Q ₂	Cl	Cl	Cl	OCH ₃
2.026	-	-	-	Q ₂	Cl	H	Cl	OCH ₃
2.027	-	-	-	Q ₂	H	Cl	Cl	OCH ₃
2.028	-	-	-	Q ₂	Cl	Cl	Br	OCH ₃
2.029	-	-	-	Q ₂	Cl	H	Br	OCH ₃
2.030	-	-	-	Q ₂	H	Cl	Br	OCH ₃
2.031	-	-	-	Q ₂	H	Cl	H	OCH ₃
2.032	-	-	-	Q ₂	Cl	H	H	OCH ₃

Un componente (A) preferido particular es el compuesto N.º 1.001 (3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida). Se prefieren especialmente mezclas que comprenden, como
 5 componente (A), 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida y un componente (B).

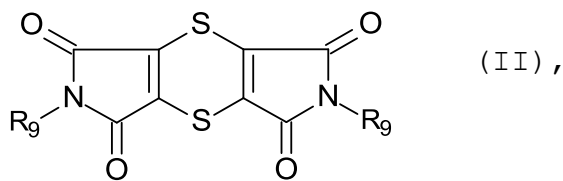
Se prefieren las siguientes mezclas binarias de componentes (A) con componentes (B) (la abreviatura "TX" se
 10 refiere a: "un compuesto seleccionado del grupo constituido por los compuestos descritos específicamente en las Tablas 1 y 2 de la presente invención"):

Un compuesto de fórmula (II)



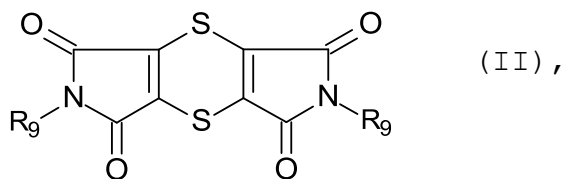
15 donde ambos R₉ son idénticos y representan metilo + TX;

un compuesto de fórmula (II)



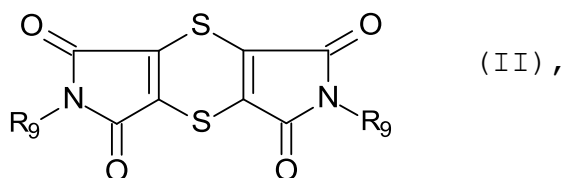
20 donde ambos R₉ son idénticos y representan etilo + TX;

un compuesto de fórmula (II)



donde ambos R₉ son idénticos y representan *n*-propilo + TX;

un compuesto de fórmula (II)



5

donde ambos R₉ son idénticos y representan isopropilo + TX;

fenpirazamina + TX;

isofetamida + TX;

10 oxatiapiprolina + TX;

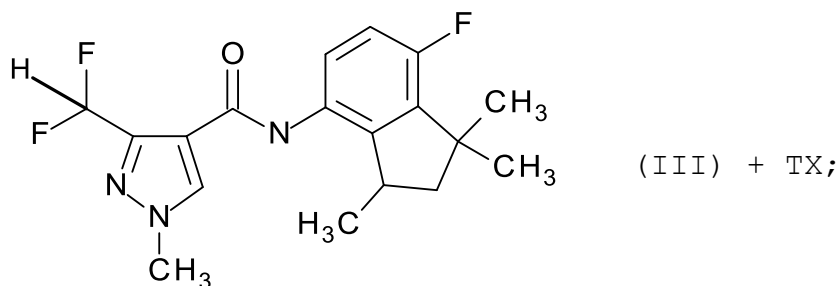
tolprocarb + TX;

flufenoxistrobina + TX;

BLAD + TX;

UK-2A procide + TX;

15 el compuesto de fórmula (III)



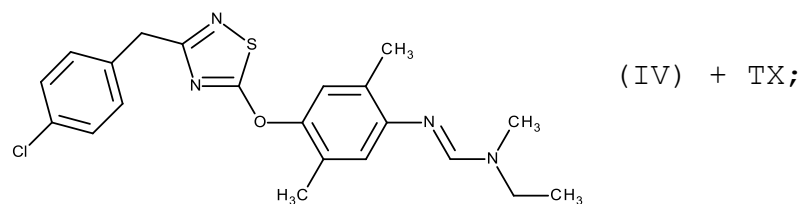
coumoxistrobina + TX;

mandestrobina + TX;

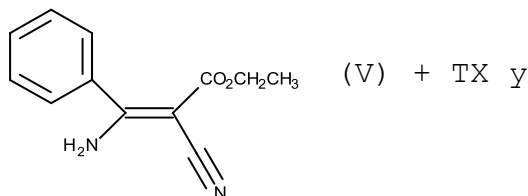
tebufloquina + TX;

20 (B13) triclopiricarb + TX;

(B14) el compuesto de fórmula (IV)



(B15) el compuesto de fórmula (V)



(B16) mandipropamida + TX.

5 Las mezclas binarias particularmente preferidas de componentes (A) con componentes (B) son aquellas en las que el componente B se selecciona del grupo constituido por un compuesto de fórmula (II) (es decir, B1), fenpirazamina (B2), oxatiapiprolina (B4), tolprocarb (B5),
 10 flufenoxistrobina (B6), el compuesto de fórmula (III) (B9), coumoxistrobina (B10), mandestrobina (B11), tebufloquina (B12), triclopiricarb (B13) y el compuesto de fórmula (V) (B14), y cada uno de ellos se combina con TX. En particular cuando el componente B es la fórmula (II), se
 15 prefiere la variante donde R⁹ es metilo.

Las combinaciones muy particularmente preferidas de la invención incluyen: un compuesto de fórmula (II) (es decir, B1), en particular donde R⁹ es metilo, con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-
 20 triclorofenil)etil]pirazol-4-carboxamida como componente A; fenpirazamina (B2) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; oxatiapiprolina (B4) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-
 25 triclorofenil)etil]pirazol-4-carboxamida como componente A; tolprocarb (B5) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; flufenoxistrobina (B6) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-
 30 triclorofenil)etil]pirazol-4-carboxamida como componente A; el compuesto de fórmula (III) (B9) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-

triclorofenil)etil]pirazol-4-carboxamida como componente A; coumoxistrobina (B10) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; mandestrobina (B11) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; tebufloquina (B12) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; triclopiricarb (B13) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A; y el compuesto de fórmula (V) (B14) con 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida como componente A.

Las combinaciones de principios activos son eficaces contra microorganismos perjudiciales, tales como microorganismos, que provocan enfermedades fitopatógenas, en particular contra bacterias y hongos fitopatógenos.

Las combinaciones de principios activos son eficaces especialmente contra hongos fitopatógenos que pertenecen a las siguientes clases: Ascomicetos (p. ej., *Venturia*, *Podosphaera*, *Erysiphe*, *Monilinia*, *Mycosphaerella*, *Uncinula*); Basidiomicetos (p. ej., el género *Hemileia*, *Rhizoctonia*, *Phakopsora*, *Puccinia*, *Ustilago*, *Tilletia*); Hongos imperfectos (también conocidos como Deuteromicetos; p. ej., *Botrytis*, *Helminthosporium*, *Rhynchosporium*, *Fusarium*, *Septoria*, *Cercospora*, *Alternaria*, *Pyricularia* y *Pseudocercospora*); Oomicetos (p. ej., *Phytophthora*, *Peronospora*, *Pseudoperonospora*, *Albugo*, *Bremia*, *Pythium*, *Pseudosclerospora*, *Plasmopara*).

De acuerdo con la invención, las "plantas útiles" suelen comprender las siguientes especies de plantas: vides; cereales tales como trigo, cebada, centeno o avena; remolacha tal como la remolacha azucarera o remolacha forrajera; frutas tales como pomos, drupas o frutas del bosque, por ejemplo, manzanas, peras, ciruelas, duraznos, almendras, cerezas, fresas, frambuesas o moras; plantas

leguminosas tales como alubias, lentejas, guisantes o soya; plantas oleosas tales como colza, mostaza, amapola, aceitunas, girasoles, coco, plantas de aceite de ricino, granos de cacao o maníes; plantas cucurbitáceas tales como calabazas, pepinos o melones; plantas que producen fibras tales como algodón, lino, cáñamo o yute; frutas cítricas tales como naranjas, limones, pomelos o mandarinas; hortalizas tales como espinacas, lechuga, espárragos, coles, zanahorias, cebollas, tomates, papas, cucurbitáceas o pimientos; lauráceas tales como aguacates, canela o alcanfor; maíz; tabaco; frutos secos; café; caña de azúcar; té; vides; lúpulos; durián; bananas; plantas de goma natural; pasto o plantas ornamentales tales como flores, arbustos, árboles latifolios o perennifolios, por ejemplo, coníferas. Esta lista no representa ninguna limitación.

Se debe sobreentender que la expresión "plantas útiles" también incluye plantas útiles que se han modificado para que sean tolerantes a herbicidas, tales como bromoxinilo, o a clases de herbicidas (tales como, por ejemplo, inhibidores de HPPD, inhibidores de ALS, por ejemplo, primisulfurón, prosulfurón y trifloxisulfurón, inhibidores de EPSPS (5-enolpirovil-shikimato-3-fosfato-sintasa), inhibidores de GS (glutamina-sintetasa)), como resultado de métodos convencionales de cultivo selectivo o de ingeniería genética. Un ejemplo de un cultivo que ha sido modificado para que sea tolerante a imidazolinonas, p. ej., imazamox, mediante métodos convencionales de cultivo selectivo (mutagénesis) es la colza de verano Clearfield® (canola). Los ejemplos de cultivos que se han modificado para que sean tolerantes a herbicidas o clases de herbicidas mediante métodos de ingeniería genética incluyen las variedades de maíz resistentes a glufosinato y glifosato, comercializadas con los nombres comerciales RoundupReady®, Herculex I® y LibertyLink®.

Se debe sobreentender que la expresión "plantas útiles" también incluye plantas útiles que se han transformado mediante el uso de técnicas de ADN

recombinante, las cuales permiten sintetizar una o más toxinas que actúan selectivamente tales como, por ejemplo, las conocidas por proceder de bacterias que producen toxinas, especialmente las del género *Bacillus*.

5 Las toxinas que pueden ser expresadas por estas plantas transgénicas incluyen, por ejemplo, proteínas insecticidas, por ejemplo, proteínas insecticidas de *Bacillus cereus* o *Bacillus popilliae*; o proteínas insecticidas de *Bacillus thuringiensis* tales como δ -
 10 endotoxinas, por ejemplo, CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) o Cry9c, o proteínas insecticidas vegetativas (VIP), por ejemplo, VIP1, VIP2, VIP3 o VIP3A; o proteínas insecticidas de nematodos que colonizan bacterias, por ejemplo,
 15 *Photorhabdus* spp. o *Xenorhabdus* spp., tales como *Photorhabdus luminescens*, *Xenorhabdus nematophilus*; toxinas producidas por animales tales como toxinas de escorpiones, toxinas de arácnidos, toxinas de avispa y otras neurotoxinas específicas de insectos; toxinas producidas
 20 por hongos tales como toxinas de *Streptomyces*, lectinas de plantas tales como lectinas de guisante, lectinas de cebada o lectinas de la campanilla de invierno; aglutininas; inhibidores de proteinasas tales como inhibidores de tripsina, inhibidores de serina-proteasa,
 25 inhibidores de patatina, cistatina, papaína; proteínas que desactivan ribosomas (RIP) tales como ricina, RIP del maíz, abrina, lufina, saporina o briodina; enzimas que participan en el metabolismo de esteroides tales como 3-hidroxiesteroide-oxidasa, ecdiesteroide-UDP-glicosil-
 30 transferasa, colesterol-oxidasas, inhibidores de ecdisona, HMG-COA-reductasa, bloqueadores de canales iónicos tales como bloqueadores de canales de sodio o calcio, esterasa de la hormona juvenil, receptores de hormonas diuréticas,

estilbeno-sintasa, bibencil-sintasa, quitinasas y glucanasas.

En el contexto de la presente invención, por δ -endotoxinas se entenderá, por ejemplo, CryIA(b), CryIA(c),
 5 CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) o Cry9c, o proteínas insecticidas vegetativas (VIP), por ejemplo, VIP1, VIP2, VIP3 o VIP3A, también expresamente toxinas híbridas, toxinas truncadas y toxinas modificadas. Las toxinas híbridas se producen por recombinación mediante una
 10 nueva combinación de diferentes dominios de estas proteínas (remítase, por ejemplo, a WO 02/15701). Un ejemplo de una toxina truncada es una CryIA(b) truncada, que se expresa en el maíz Bt11 de Syngenta Seed SAS, como se describe a continuación. En el caso de las toxinas modificadas, se
 15 reemplaza uno o más aminoácidos de la toxina natural. En tales reemplazos de aminoácidos, preferentemente se insertan secuencias de reconocimiento de proteasas artificiales en la toxina, como, por ejemplo, en el caso de CryIIIA055, en el que una secuencia de reconocimiento de
 20 catepsina-D se inserta en una toxina CryIIIA (remítase a WO 03/018810).

Se describen ejemplos de estas toxinas o plantas transgénicas capaces de sintetizar estas toxinas en, por ejemplo, EP-A-0 374 753, WO 93/07278, WO 95/34656, EP-A-0
 25 427 529, EP-A-451 878 y WO 03/052073.

Los procesos para preparar estas plantas transgénicas son generalmente conocidos por los expertos en la técnica y se describen, por ejemplo, en las publicaciones mencionadas previamente. Los ácidos desoxirribonucleicos de tipo CryI y
 30 su preparación se describen, por ejemplo, en WO 95/34656, EP-A-0 367 474, EP-A-0 401 979 y WO 90/13651.

La toxina contenida en las plantas transgénicas les confiere tolerancia a insectos dañinos. Estos insectos pueden pertenecer a cualquier grupo taxonómico de insectos,

pero suelen pertenecer especialmente al grupo de los escarabajos (coleópteros), insectos con dos alas (dípteros) y mariposas (lepidópteros).

Se conocen plantas transgénicas que contienen uno o
 5 más genes que codifican una resistencia insecticida y expresan una o más toxinas, y algunas de ellas se pueden adquirir de proveedores comerciales. Algunos ejemplos de estas plantas son: YieldGard® (variedad de maíz que expresa una toxina CryIA(b)); YieldGard Rootworm®
 10 (variedad de maíz que expresa una toxina CryIIIB(b1)); YieldGard Plus® (variedad de maíz que expresa una toxina CryIA(b) y una toxina CryIIIB(b1)); Starlink® (variedad de maíz que expresa una toxina Cry9(c)); Herculex I® (variedad de maíz que expresa una toxina CryIF(a2) y la
 15 enzima fosfinotricina-*N*-acetiltransferasa (PAT) para obtener tolerancia al herbicida glufosinato de amonio); NuCOTN 33B® (variedad de algodón que expresa una toxina CryIA(c)); Bollgard I® (variedad de algodón que expresa una toxina CryIA(c)); Bollgard II® (variedad de algodón que
 20 expresa una toxina CryIA(c) y una toxina CryIIA(b)); VIPCOT® (variedad de algodón que expresa una toxina VIP); NewLeaf® (variedad de papa que expresa una toxina CryIIIA); NatureGard® y Protecta®.

Otros ejemplos de estos cultivos transgénicos son los
 25 siguientes:

1. **Maíz Bt11** de Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St. Sauveur, Francia, número de registro C/FR/96/05/10. Consiste en *Zea mays* que se ha modificado genéticamente para que sea resistente al ataque del gusano barrenador del maíz europeo (*Ostrinia nubilalis* y *Sesamia nonagrioides*) mediante la expresión transgénica de una toxina CryIA(b) truncada. El maíz Bt11 también expresa transgénicamente la enzima PAT para obtener tolerancia al herbicida glufosinato de amonio.

35 2. **Maíz Bt176** de Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St. Sauveur, Francia, número de registro C/FR/96/05/10. Consiste en *Zea mays* que se ha modificado

genéticamente para que sea resistente al ataque del gusano barrenador del maíz europeo (*Ostrinia nubilalis* y *Sesamia nonagrioides*) mediante la expresión transgénica de una toxina CryIA(b). El maíz Bt176 también expresa transgénicamente la enzima PAT para obtener tolerancia al herbicida glufosinato de amonio.

3. **Maíz MIR604** de Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St. Sauveur, Francia, número de registro C/FR/96/05/10. Consiste en maíz que se ha modificado para que sea resistente a insectos mediante la expresión transgénica de una toxina CryIIIA modificada. Esta toxina es Cry3A055 modificada mediante la inserción de una secuencia de reconocimiento de la proteasa catepsina D. La preparación de estas plantas de maíz transgénicas se describe en WO 03/018810.

4. **Maíz MON 863** de Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Bruselas, Bélgica, número de registro C/DE/02/9. MON 863 expresa una toxina CryIIIB(b1) y presenta resistencia a ciertos insectos coleópteros.

5. **Algodón IPC 531** de Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Bruselas, Bélgica, número de registro C/ES/96/02.

6. **Maíz 1507** de Pioneer Overseas Corporation, Avenue Tedesco, 7 B-1160 Bruselas, Bélgica, número de registro C/NL/00/10. Consiste en maíz modificado genéticamente para que exprese la proteína Cry1F, con el fin de obtener resistencia a ciertos insectos lepidópteros, y para que exprese la proteína PAT, con el fin de obtener tolerancia al herbicida glufosinato de amonio.

7. **Maíz NK603 × MON 810** de Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Bruselas, Bélgica, número de registro C/GB/02/M3/03. Consiste en variedades de maíz híbridas cultivadas de forma selectiva con métodos convencionales mediante el cruce de las variedades modificadas genéticamente NK603 y MON 810. El maíz NK603 × MON 810 expresa transgénicamente la proteína CP4 EPSPS, obtenida de la cepa CP4 de *Agrobacterium* sp., la cual

confiere tolerancia al herbicida Roundup® (contiene glifosato), y también expresa una toxina CryIA(b) obtenida de *Bacillus thuringiensis* subesp. *kurstaki*, la cual proporciona tolerancia a ciertos lepidópteros, incluido el gusano barrenador del maíz europeo.

También se describen cultivos transgénicos de plantas resistentes a insectos en el Informe del BATS (Zentrum für Biosicherheit und Nachhaltigkeit, Zentrum BATS, Clarastrasse 13, 4058 Basilea, Suiza) de 2003 (<http://bats.ch>).

Se debe sobreentender que la expresión "plantas útiles" también incluye las plantas útiles que se han transformado utilizando técnicas de ADN recombinante, las cuales permiten sintetizar sustancias antipatógenas con una acción selectiva tales como, por ejemplo, las denominadas "proteínas relacionadas con la patogénesis" (PRP, remítase, p. ej., a EP-A-0 392 225). Algunos ejemplos de estas sustancias antipatógenas y de plantas transgénicas capaces de sintetizar estas sustancias antipatógenas se describen, por ejemplo, en EP-A-0 392 225, WO 95/33818 y EP-A-0 353 191. Generalmente, los expertos en la técnica estarán familiarizados con los métodos de producción de este tipo de plantas transgénicas y estos se describen, por ejemplo, en las publicaciones mencionadas anteriormente.

Las sustancias antipatógenas que pueden ser expresadas por tales plantas transgénicas incluyen, por ejemplo, bloqueadores de canales iónicos, tales como bloqueadores de canales de sodio y calcio, por ejemplo, las toxinas víricas KP1, KP4 o KP6; estilbeno-sintasas; bibencil-sintasas; quitinasas; glucanasas; las denominadas "proteínas relacionadas con la patogénesis" (PRP; remítase, por ejemplo, a EP-A-0 392 225); sustancias antipatógenas producidas por microorganismos, por ejemplo, antibióticos peptídicos o antibióticos heterocíclicos (remítase, por ejemplo, a WO 95/33818) o factores proteicos o polipeptídicos que participan en la defensa de la planta contra patógenos (denominados "genes de resistencia a

enfermedades de plantas", como se describe en WO 03/000906).

Las plantas útiles de gran interés en relación con la presente invención son cereales; soya; arroz; colza
5 oleaginosa; pomos; drupas; maníes; café; té; frutillas; pasto; vides y hortalizas, tales como tomates, papas, cucurbitáceas y lechuga.

Se pretende que el término "emplazamiento" de una planta útil, tal como se emplea en la presente, abarque el
10 lugar en el que se cultivan las plantas útiles, donde se siembran los materiales de propagación vegetal de las plantas útiles o donde se colocarán los materiales de propagación vegetal de las plantas útiles en el suelo. Un ejemplo de este emplazamiento es un campo en el que se
15 producen plantas de cultivo.

Se sobreentenderá que la expresión "material de propagación vegetal" se refiere a partes generativas de la planta, tales como las semillas, las cuales se pueden emplear para la multiplicación de la última, y a material
20 vegetativo, tal como esquejes o tubérculos, por ejemplo, papas. Se pueden mencionar, por ejemplo, semillas (en el sentido estricto), raíces, frutos, tubérculos, bulbos, rizomas y partes de plantas. También se pueden mencionar plantas germinadas y plántulas que se van a trasplantar después de su germinación o después de que emerjan del
25 suelo. Estas plántulas se pueden proteger antes de trasplantarlas mediante un tratamiento total o parcial de inmersión. Preferentemente, se sobreentenderá que el "material de propagación vegetal" se refiere a las
30 semillas.

Otro aspecto de la presente invención consiste en un método para proteger sustancias naturales de origen animal y/o vegetal, las cuales se han apartado de su ciclo vital natural, y/o sus formas procesadas contra el ataque de
35 hongos, el cual comprende aplicar a dichas sustancias naturales de origen animal y/o vegetal o a sus formas

procesadas una combinación de componentes (A) y (B) en una cantidad sinérgicamente eficaz.

De acuerdo con la presente invención, la expresión "sustancias naturales de origen vegetal, las cuales se han
5 apartado de su ciclo vital natural" se refiere a plantas o partes de estas que se han recolectado apartándolas de su ciclo vital natural y que están en forma recién recolectada. Algunos ejemplos de estas sustancias naturales de origen vegetal son tallos, hojas, tubérculos, semillas,
10 frutos o granos. De acuerdo con la presente invención, se sobreentenderá que la expresión "forma procesada de una sustancia natural de origen vegetal" se refiere a una forma de una sustancia natural de origen vegetal que es el resultado de un proceso de modificación. Estos procesos de
15 modificación se pueden emplear para transformar la sustancia natural de origen vegetal en una forma de dicha sustancia que se pueda almacenar mejor (un producto de almacenamiento). Algunos ejemplos de dichos procesos de modificación son presecado, humidificación, trituración,
20 molienda, pulverización, compresión o tostado. Dentro de la definición de una forma procesada de una sustancia natural de origen vegetal también se incluye la madera, ya sea en forma de madera cruda, tal como la madera para la construcción, barreras y postes eléctricos, o en forma de
25 artículos acabados tales como objetos o muebles hechos de madera.

De acuerdo con la presente invención, se sobreentenderá que la expresión "sustancias naturales de origen animal, las cuales se han apartado de su ciclo vital
30 natural, y/o sus formas procesadas" se refiere a material de origen animal tal como pieles, curtidos, cueros, pelo y similares.

Las combinaciones de acuerdo con la presente invención pueden prevenir efectos desfavorables tales como
35 descomposición, decoloración o moho.

Una realización preferida consiste en un método para proteger sustancias naturales de origen vegetal, las cuales

se han apartado de su ciclo vital natural, y/o sus formas procesadas contra el ataque de hongos, el cual comprende aplicar a dichas sustancias naturales de origen animal y/o vegetal o a sus formas procesadas una combinación de
5 componentes (A) y (B) en una cantidad sinérgicamente eficaz.

Otra realización preferida consiste en un método para proteger frutas, preferentemente pomos, drupas, bayas y cítricos, las cuales se han apartado de su ciclo vital
10 natural, y/o sus formas procesadas, el cual comprende aplicar a dichas frutas y/o a sus formas procesadas una combinación de componentes (A) y (B) en una cantidad sinérgicamente eficaz.

Las combinaciones de la presente invención también se
15 pueden emplear en el campo de la protección de material industrial contra el ataque de hongos. De acuerdo con la presente invención, la expresión "material industrial" se refiere a material inerte que ha sido preparado para utilizarlo en la industria. Por ejemplo, los materiales
20 industriales que se desea proteger contra el ataque de hongos pueden ser pegamentos, rellenos gelatinosos, papel, paneles, productos textiles, alfombras, cuero, madera, construcciones, pinturas, artículos de plástico, lubricantes refrigerantes, fluidos hidráulicos acuosos y
25 otros materiales que pueden ser infestados o descompuestos por microorganismos. Entre los materiales que se han de proteger, también se pueden mencionar los sistemas de calefacción y refrigeración, sistemas de ventilación y aire acondicionado y partes de plantas de producción, por
30 ejemplo, circuitos de agua para refrigerar, que se pueden ver afectados por la multiplicación de microorganismos. Las combinaciones de acuerdo con la presente invención pueden prevenir efectos desfavorables tales como descomposición, decoloración o moho.

35 Las combinaciones de la presente invención también se pueden emplear en el campo de la protección de material técnico contra el ataque de hongos. De acuerdo con la

presente invención, la expresión "material técnico" incluye papel, alfombras, construcciones, sistemas de calefacción y refrigeración, sistemas de ventilación y aire acondicionado, y similares. Las combinaciones de acuerdo con la presente invención pueden prevenir efectos desfavorables tales como descomposición, decoloración o moho.

Las combinaciones de acuerdo con la presente invención son particularmente eficaces contra oídios; royas; especies de manchas foliares; mohos y añublos tempranos; especialmente contra *Septoria*, *Puccinia*, *Erysiphe*, *Pyrenophora* y *Tapesia* en cereales; *Phakopsora* en soya; *Hemileia* en café; *Phragmidium* en rosas; *Alternaria* en papas, tomates y cucurbitáceas; *Sclerotinia* en pasto, hortalizas, girasol y colza oleaginosa; podredumbre negra de las raíces, hormiga roja de fuego, oídio, moho gris y enfermedad de brazo muerto en vides; *Botrytis cinerea* en frutas; *Monilinia* spp. en frutas y *Penicillium* spp. en frutas.

Las combinaciones de acuerdo con la presente invención son, además, particularmente eficaces contra enfermedades que se transmiten a través de las semillas y el suelo tales como *Alternaria* spp., *Ascochyta* spp., *Botrytis cinerea*, *Cercospora* spp., *Claviceps purpurea*, *Cochliobolus sativus*, *Colletotrichum* spp., *Epicoccum* spp., *Fusarium graminearum*, *Fusarium moniliiforme*, *Fusarium oxysporum*, *Fusarium proliferatum*, *Fusarium solani*, *Fusarium subglutinans*, *Gäumannomyces graminis*, *Helminthosporium* spp., *Microdochium nivale*, *Phoma* spp., *Pyrenophora graminea*, *Pyricularia oryzae*, *Rhizoctonia solani*, *Rhizoctonia cerealis*, *Sclerotinia* spp., *Septoria* spp., *Sphacelotheca reilliana*, *Tilletia* spp., *Typhula incarnata*, *Urocystis occulta*, *Ustilago* spp. o *Verticillium* spp.; en particular contra patógenos de cereales tales como trigo, cebada, centeno o avena; maíz; arroz; algodón; soya; pasto; remolacha azucarera; colza oleaginosa; papas; legumbres tales como arvejas, lentejas o garbanzos; y girasol.

Las combinaciones de acuerdo con la presente invención son, además, particularmente eficaces contra enfermedades que se producen tras la recolección tales como *Botrytis cinerea*, *Colletotrichum musae*, *Curvularia lunata*, *Fusarium semitecum*, *Geotrichum candidum*, *Monilinia fructicola*, *Monilinia fructigena*, *Monilinia laxa*, *Mucor piriformis*, *Penicilium italicum*, *Penicilium solitum*, *Penicillium digitatum* o *Penicillium expansum*, en particular contra patógenos de frutas tales como pomelos, por ejemplo, manzanas y peras, drupas, por ejemplo, duraznos y ciruelas, cítricos, melones, papaya, kiwi, mango, bayas, por ejemplo, frutillas, aguacates, granadas y plátanos, y frutos secos.

La cantidad que se debe aplicar de una combinación de la invención dependerá de varios factores tales como los compuestos empleados; el sujeto del tratamiento tal como, por ejemplo, plantas, suelo o semillas; el tipo de tratamiento tal como, por ejemplo, pulverización, espolvoreación o revestimiento de semillas; el propósito del tratamiento tal como, por ejemplo, profiláctico o terapéutico; el tipo de hongo que se desea controlar o el tiempo de aplicación.

Las mezclas que comprenden un compuesto de fórmula I seleccionado a partir de la tabla 1 y 2 y uno o más principios activos según se describen anteriormente se pueden aplicar, por ejemplo, en una forma única "ya mezclada", en una mezcla de pulverización combinada compuesta por formulaciones diferentes de cada uno de los componentes que son principios activos, tal como una "mezcla de tanque", y en un uso combinado de cada principio activo cuando estos se aplican de manera secuencial, es decir, uno después del otro en un periodo razonablemente corto tal como unas horas o días. El orden de aplicación de los compuestos de fórmula I seleccionados a partir de la tabla 1 y los principios activos según se describen anteriormente no es esencial para llevar a la práctica la presente invención.

Algunas de dichas combinaciones de acuerdo con la invención presentan una acción sistémica y se pueden emplear como fungicidas para el tratamiento de semillas, tierra y follaje.

5 Con las combinaciones de acuerdo con la invención, es posible inhibir o exterminar los microorganismos fitopatógenos que se desarrollan en las plantas o en partes de las plantas (frutos, flores, hojas, tallos, tubérculos, raíces) en diferentes plantas útiles, a la vez que también
10 se protegen las partes de las plantas que crecen más tarde frente al ataque de microorganismos fitopatógenos.

Las combinaciones de la presente invención son de particular interés para el control de un gran número de hongos en varias plantas útiles o sus semillas,
15 especialmente en cultivos de campo tales como papas, tabaco y remolachas azucareras, y trigo, centeno, cebada, avena, arroz, maíz, césped, algodón, soya, colza oleaginosa, legumbres, girasol, café, caña de azúcar, fruta y plantas ornamentales en horticultura y viticultura, en verduras
20 tales como pepinos, alubias y cucurbitáceas.

Las combinaciones de acuerdo con la invención se aplican tratando los hongos, las plantas útiles, el emplazamiento de estas, el material de propagación de estas, las sustancias naturales de origen animal y/o
25 vegetal, las cuales se han apartado de su ciclo vital natural, y/o sus formas procesadas, o los materiales industriales amenazados por el ataque de hongos, con una combinación de componentes (A) y (B) preferiblemente en una cantidad sinérgicamente eficaz.

30 Las combinaciones de acuerdo con la invención se pueden aplicar antes o después de la infección por parte de los hongos de las plantas útiles, el material de propagación de estas, las sustancias naturales de origen animal y/o vegetal, las cuales se han apartado de su ciclo
35 vital natural, y/o sus formas procesadas, o los materiales industriales.

Las composiciones de acuerdo con la invención son particularmente adecuadas para controlar las siguientes enfermedades de plantas:

- 5 especies de *Alternaria* en frutas y hortalizas,
- especies de *Ascochyta* en legumbres,
- Botrytis cinerea* en frutillas, tomates, girasol,
- legumbres, hortalizas y uvas,
- Cercospora arachidicola* en maníes,
- Cochliobolus sativus* en cereales,
- 10 especies de *Colletotrichum* en legumbres,
- especies de *Erysiphe* en cereales,
- Erysiphe cichoracearum* y *Sphaerotheca fuliginea* en
- cucurbitáceas,
- especies de *Fusarium* en cereales y maíz,
- 15 *Gäumannomyces graminis* en cereales y césped,
- especies de *Helminthosporium* en maíz, arroz y papas,
- Hemileia vastatrix* en café,
- especies de *Microdochium* en trigo y centeno,
- especies de *Phakopsora* en soya,
- 20 especies de *Puccinia* en cereales, cultivos latifolios
- y plantas perennes,
- especies de *Pseudocercosporella* en cereales,
- Phragmidium mucronatum* en rosas,
- especies de *Podosphaera* en frutas,
- 25 especies de *Pyrenophora* en cebada,
- Pyricularia oryzae* en arroz,
- Ramularia collo-cygni* en cebada,
- especies de *Rhizoctonia* en algodón, soya, cereales,
- maíz, papas, arroz y césped,
- 30 *Rhynchosporium secalis* en cebada y centeno,
- especies de *Sclerotinia* en césped, lechuga, hortalizas
- y colza oleaginosa,
- especies de *Septoria* en cereales, soya y hortalizas,
- Sphacelotheca reilliana* en maíz,
- 35 especies de *Tilletia* en cereales,
- Uncinula necator*, *Guignardia bidwellii* y *Phomopsis*
- viticola* en vides,

Urocystis occulta en centeno,
 especies de *Ustilago* en cereales y maíz,
 especies de *Venturia* en frutas,
 especies de *Monilinia* en frutas,
 5 especies de *Penicillium* en cítricos y manzanas.

Las combinaciones de acuerdo con la invención son principios activos valiosos a nivel preventivo y/o curativo en el campo del control de plagas, incluso con tasas de aplicación bajas, que tienen un espectro biocida muy favorable y son bien toleradas por especies de sangre
 10 caliente, peces y plantas. Los principios activos de acuerdo con la invención que son particularmente conocidos por su acción insecticida actúan contra todas o alguna de las etapas del desarrollo de plagas animales normalmente
 15 sensibles, pero también resistentes, tales como insectos o representantes del orden de los ácaros. La actividad insecticida o acaricida de las combinaciones de acuerdo con la invención puede manifestarse directamente, es decir, en la destrucción de las plagas, la cual se produce
 20 inmediatamente o poco tiempo después, por ejemplo, durante la ecdisis, o indirectamente, por ejemplo, en una tasa reducida de oviposición y/o eclosión, correspondiendo una actividad satisfactoria a una tasa de destrucción (mortalidad) de al menos un 50-60%.

25 Algunos ejemplos de las plagas de animales mencionadas previamente son:

del orden de los ácaros, por ejemplo,
Acarus siro, *Aceria sheldoni*, *Aculus schlechtendali*,
Amblyomma spp., *Argas* spp., *Boophilus* spp., *Brevipalpus*
 30 spp., *Bryobia praetiosa*, *Calipitrimerus* spp., *Chorioptes* spp.,
Dermanyssus gallinae, *Eotetranychus carpini*, *Eriophyes* spp.,
Hyalomma spp., *Ixodes* spp., *Olygonychus pratensis*,
Ornithodoros spp., *Panonychus* spp., *Phyllocoptruta oleivora*,
Polyphagotarsonemus latus,
 35 *Psoroptes* spp., *Rhipicephalus* spp., *Rhizoglyphus* spp.,
Sarcoptes spp., *Tarsonemus* spp. y *Tetranychus* spp.;

del orden de los anopluros, por ejemplo,

Haematopinus spp., *Linognathus* spp., *Pediculus* spp.,
Pemphigus spp. y *Phylloxera* spp.;

del orden de los coleópteros, por ejemplo,

Agriotes spp., *Anthonomus* spp., *Atomaria linearis*,
5 *Chaetocnema tibialis*, *Cosmopolites* spp., *Curculio* spp.,
Dermestes spp., *Diabrotica* spp., *Epilachna* spp., *Eremnus*
spp., *Leptinotarsa decemlineata*, *Lissorhoptrus* spp.,
Melolontha spp., *Oryzaephilus* spp., *Otiorhynchus* spp.,
Phlyctinus spp., *Popillia* spp., *Psylliodes* spp.,
10 *Rhizopertha* spp., *Scarabeidae*, *Sitophilus* spp., *Sitotroga*
spp., *Tenebrio* spp., *Tribolium* spp. y *Trogoderma* spp.;

del orden de los dípteros, por ejemplo,

Aedes spp., *Antherigona soccata*, *Bibio hortulanus*,
Calliphora erythrocephala, *Ceratitis* spp., *Chrysomyia* spp.,
15 *Culex* spp., *Cuterebra* spp., *Dacus* spp., *Drosophila*
melanogaster, *Fannia* spp., *Gastrophilus* spp., *Glossina*
spp., *Hypoderma* spp., *Hyppobosca* spp., *Liriomyza* spp.,
Lucilia spp., *Melanagromyza* spp., *Musca* spp., *Oestrus* spp.,
Orseolia spp., *Oscinella frit*, *Pegomyia hyoscyami*, *Phorbia*
20 spp., *Rhagoletis pomonella*, *Sciara* spp., *Stomoxys* spp.,
Tabanus spp., *Tannia* spp. y *Tipula* spp.;

del orden de los heterópteros, por ejemplo,

Cimex spp., *Distantiella theobroma*, *Dysdercus* spp.,
Euchistus spp., *Eurygaster* spp., *Leptocorisa* spp., *Nezara*
25 spp., *Piesma* spp., *Rhodnius* spp., *Sahlbergella singularis*,
Scotinophara spp. y *Triatoma* spp.;

del orden de los homópteros, por ejemplo,

Aleurothrixus floccosus, *Aleyrodes brassicae*,
Aonidiella spp., *Aphididae*, *Aphis* spp., *Aspidiotus* spp.,
30 *Bemisia tabaci*, *Ceroplaster* spp., *Chrysomphalus aonidium*,
Chrysomphalus dictyospermi, *Coccus hesperidum*, *Empoasca*
spp., *Eriosoma larigerum*, *Erythroneura* spp., *Gascardia*
spp., *Laodelphax* spp., *Lecanium corni*, *Lepidosaphes* spp.,
Macrosiphus spp., *Myzus* spp., *Nephotettix* spp., *Nilaparvata*
35 spp., *Parlatoria* spp., *Pemphigus* spp., *Planococcus* spp.,
Pseudaulacaspis spp., *Pseudococcus* spp., *Psylla* spp.,
Pulvinaria aethiopica, *Quadraspidiotus* spp., *Rhopalosiphum*

spp., *Saissetia* spp., *Scaphoideus* spp., *Schizaphis* spp.,
Sitobion spp., *Trialeurodes vaporariorum*, *Trioza erytreae* y
Unaspis citri;

del orden de los himenópteros, por ejemplo,

5 *Acromyrmex*, *Atta* spp., *Cephus* spp., *Diprion* spp.,
Diprionidae, *Gilpinia polytoma*, *Hoplocampa* spp., *Lasius*
spp., *Monomorium pharaonis*, *Neodiprion* spp., *Solenopsis*
spp. y *Vespa* spp.;

del orden de los isópteros, por ejemplo,

10 *Reticulitermes* spp.;

del orden de los lepidópteros, por ejemplo,

Acleris spp., *Adoxophyes* spp., *Aegeria* spp., *Agrotis*
spp., *Alabama argillaceae*, *Amylois* spp., *Anticarsia*
gemmatalis, *Archips* spp., *Argyrotaenia* spp., *Autographa*
15 spp., *Busseola fusca*, *Cadra cautella*, *Carposina*
nipponensis, *Chilo* spp., *Choristoneura* spp., *Clysia*
ambiguella, *Cnaphalocrocis* spp., *Cnephasia* spp., *Cochylis*
spp., *Coleophora* spp., *Crocidolomia binotalis*,
Cryptophlebia leucotreta, *Cydia* spp., *Diatraea* spp.,
20 *Diparopsis castanea*, *Earias* spp., *Ephestia* spp., *Eucosma*
spp., *Eupoecilia ambiguella*, *Euproctis* spp., *Euxoa* spp.,
Grapholita spp., *Hedya nubiferana*, *Heliothis* spp., *Hellula*
undalis, *Hyphantria cunea*, *Keiferia lycopersicella*,
Leucoptera scitella, *Lithocollethis* spp., *Lobesia botrana*,
25 *Lymantria* spp., *Lyonetia* spp., *Malacosoma* spp., *Mamestra*
brassicae, *Manduca sexta*, *Operophtera* spp., *Ostrinia*
nubilalis, *Pammene* spp., *Pandemis* spp., *Panolis flammea*,
Pectinophora gossypiella, *Phthorimaea operculella*, *Pieris*
rapae, *Pieris* spp., *Plutella xylostella*, *Prays* spp.,
30 *Scirpophaga* spp., *Sesamia* spp., *Sparganothis* spp.,
Spodoptera spp., *Synanthedon* spp., *Thaumetopoea* spp.,
Tortrix spp., *Trichoplusia ni* e *Yponomeuta* spp.;

del orden de los malófagos, por ejemplo,

Damalinea spp. y *Trichodectes* spp.;

35 del orden de los ortópteros, por ejemplo,

Blatta spp., *Blattella* spp., *Gryllotalpa* spp.,
Leucophaea maderae, *Locusta* spp., *Periplaneta* spp. y
Schistocerca spp.;

del orden de los psocópteros, por ejemplo,
5 *Liposcelis* spp.;

del orden de los sifonápteros, por ejemplo,
Ceratophyllus spp., *Ctenocephalides* spp. y *Xenopsylla*
cheopis;

del orden de los tisanópteros, por ejemplo,
10 *Frankliniella* spp., *Hercinothrips* spp., *Scirtothrips*
aurantii, *Taeniothrips* spp., *Thrips palmi* y *Thrips tabaci*;

del orden de los tisanuros, por ejemplo,
Lepisma saccharina;

nematodos, por ejemplo, nematodos noduladores de las
15 raíces, anguílulas del tallo y nematodos foliares;

especialmente *Heterodera* spp., por ejemplo, *Heterodera*
schachtii, *Heterodora avenae* y *Heterodora trifolii*;
Globodera spp., por ejemplo, *Globodera rostochiensis*;
Meloidogyne spp., por ejemplo, *Meloidogyne incognita* y
20 *Meloidogyne javanica*; *Radopholus* spp., por ejemplo,
Radopholus similis; *Pratylenchus*, por ejemplo, *Pratylenchus*
neglectans y *Pratylenchus penetrans*; *Tylenchulus*, por
ejemplo, *Tylenchulus semipenetrans*; *Longidorus*,
Trichodorus, *Xiphinema*, *Ditylenchus*, *Aphelenchoides* y
25 *Anguina*;

pulguillas de las crucíferas (*Phyllotreta* spp.);

larvas de las raíces (*Delia* spp.) y

gorgojo de la vaina de la col (*Ceutorhynchus* spp.).

Las combinaciones de acuerdo con la invención se
30 pueden emplear para controlar, es decir, contener o
exterminar, plagas animales de los tipos mencionados
previamente que se desarrollan en plantas útiles en
agricultura, en horticultura y en bosques, o en órganos de
plantas útiles tales como frutos, flores, follaje, tallos,
35 tubérculos o raíces, y en algunos casos incluso los órganos
de las plantas útiles que se forman posteriormente se
mantienen protegidos contra estas plagas animales.

Cuando el componente (A) se aplica a las plantas útiles, se aplica con una tasa de 5 a 2000 g de p.a./ha, particularmente de 10 a 1000 g de p.a./ha, p. ej., 50, 75, 100 o 200 g de p.a./ha, junto con de 1 a 5000 g de p.a./ha, particularmente de 2 a 2000 g de p.a./ha, p. ej., 100, 250, 500, 800, 1000, 1500 g de p.a./ha del componente (B), dependiendo de la clase de agente químico empleado como componente (B).

En la práctica agrícola, las tasas de aplicación de la combinación de acuerdo con la invención dependen del tipo de efecto deseado y habitualmente están comprendidas entre 20 y 4000 g de combinación total por hectárea.

Cuando las combinaciones de la presente invención se emplean para el tratamiento de semillas, en general, son suficientes una tasas de 0.001 a 50 g de un compuesto de fórmula I por kg de semillas, preferentemente de 0.01 a 10 g por kg de semillas y de 0.001 a 50 g de un compuesto del componente (B) por kg de semillas, preferentemente de 0.01 a 10 g por kg de semillas.

La invención también proporciona composiciones fungicidas que comprenden una combinación de componentes (A) y (B) mencionada previamente, en una cantidad sinérgicamente eficaz, junto con un portador aceptable en agricultura y opcionalmente un surfactante. En dichas composiciones, la relación ponderal de (A) frente a (B) está comprendida preferentemente entre 1000 : 1 y 1: 1000.

Las composiciones de la invención se pueden emplear en cualquier forma convencional, por ejemplo, en forma de un paquete doble, un polvo para el tratamiento de semillas en seco (SS), una emulsión para el tratamiento de semillas (ES), un concentrado fluido para el tratamiento de semillas (CF), una solución para el tratamiento de semillas (LS), un polvo dispersable en agua para el tratamiento de semillas (DS), una suspensión de cápsulas para el tratamiento de semillas (CF), un gel para el tratamiento de semillas (GF), un concentrado emulsionable (CE), un concentrado en suspensión (CS), una suspoemulsión (SE), una suspensión de

cápsulas (SC), un gránulo dispersable en agua (GD), un gránulo emulsionable (GE), una emulsión de agua en aceite (EAc), una emulsión de aceite en agua (EAg), una microemulsión (ME), una dispersión oleosa (DO), un fluido miscible en aceite (FAC), un líquido miscible en aceite (LAc), un concentrado soluble (SL), una suspensión de volumen ultrabajo (SU), un líquido de volumen ultrabajo (LU), un concentrado técnico (CT), un concentrado dispersable (CD), un polvo humectable (PH) o cualquier formulación técnicamente factible combinada con adyuvantes aceptables en agricultura.

Estas composiciones se pueden producir empleando métodos convencionales, p. ej., mezclando los principios activos con materiales inertes de formulación adecuados (diluyentes, disolventes, rellenos y opcionalmente otros ingredientes de formulación tales como surfactantes, biocidas, anticongelantes, adherentes, espesantes y compuestos que proporcionen efectos adyuvantes). Cuando se desee obtener una eficacia de larga duración, también se pueden emplear formulaciones de liberación lenta convencionales. En particular, las formulaciones que se van a aplicar en formas de pulverización, tales como los concentrados dispersables en agua (p. ej., CE, CS, CD, DO, SE, EAg, EAc y similares), polvos humectables y gránulos, pueden contener surfactantes tales como agentes humectantes y dispersantes y otros compuestos que proporcionen efectos adyuvantes, p. ej., el producto de condensación del formaldehído con sulfonato de naftaleno, un sulfonato de alquilarilo, un sulfonato de lignina, un sulfato de alquilo graso, alquilfenol etoxilado y un alcohol graso etoxilado.

Una formulación de revestimiento de semillas se aplica con métodos conocidos *per se* a las semillas, empleando la combinación de la invención y un diluyente en una forma de formulación de revestimiento de semillas adecuada, p. ej., como una suspensión acuosa o en una forma de polvo seco que tenga una adherencia satisfactoria a las semillas. Estas formulaciones de revestimiento de semillas son de uso común

en la técnica. Las formulaciones de revestimiento de semillas pueden contener los principios activos individuales o la combinación de principios activos en forma encapsulada, p. ej., como cápsulas o microcápsulas de liberación lenta.

En general, las formulaciones incluyen de un 0.01 a un 90% en peso de agente activo, de un 0 a un 20% de surfactante aceptable en agricultura y de un 10 a un 99.99% de materiales inertes y adyuvantes de formulación sólidos o líquidos, estando constituido el agente activo por al menos el compuesto de fórmula I, junto con el componente (B) y (C) y opcionalmente otros agentes activos, particularmente microbiocidas, conservantes o análogos. Las formas concentradas de las composiciones contienen generalmente entre aproximadamente un 2 y un 80%, preferentemente entre aproximadamente un 5 y un 70% en peso de agente activo. Las formas de aplicación de la formulación pueden contener, por ejemplo, entre un 0.01 y un 20% en peso, preferentemente entre un 0.01 y un 5% en peso de agente activo. Aunque los productos comerciales se formularán preferentemente como concentrados, el usuario final normalmente empleará formulaciones diluidas.

Los ejemplos que se presentan a continuación sirven para ilustrar la invención; en ellos "principio activo" denota una mezcla de compuesto I y compuestos del componente (B) en una relación de mezcla específica.

Ejemplos de formulaciones

<u>Polvos humectables</u>	a)	b)	c)
principio activo [I : comp. (B) = 1:3(a), 1:2(b), 1:1(c)]	25%	50%	75%
lignosulfonato de sodio	5%	5%	-
laurilsulfato de sodio	3%	-	5%
diisobutilnaftalenosulfonato de sodio	-	6%	10%
éter fenólico de polietilenglicol (7-8 mol de óxido de etileno)	-	2%	-

ácido silícico muy disperso	5%	10%	10%
caolín	62%	27%	-

El principio activo se mezcla completamente con los adyuvantes y la mezcla se muele completamente en un molino adecuado para obtener polvos humectables que se pueden diluir con agua para obtener suspensiones de la
5 concentración deseada.

<u>Polvos para el tratamiento de</u>	a)	b)	c)
<u>semillas en seco</u>			
principio activo [I : comp. (B) = 1:3(a), 1:2(b), 1:1(c)]	25%	50%	75%
aceite mineral ligero	5%	5%	5%
ácido silícico muy disperso	5%	5%	-
caolín	65%	40%	-
talco	-		20

El principio activo se mezcla completamente con los adyuvantes y la mezcla se muele completamente en un molino adecuado para obtener polvos que se pueden utilizar
10 directamente para el tratamiento de semillas.

Concentrado emulsionable

principio activo (I : comp. (B) = 1:6)	10%
éter octilfenólico de polietilenglicol (4-5 mol de óxido de etileno)	3%
dodecylbencenosulfonato de calcio	3%
éter poliglicólico de aceite de ricino (35 mol de óxido de etileno)	4%
ciclohexanona	30%
mezcla de xileno	50%

Las emulsiones de cualquier dilución requerida, que se pueden utilizar en la protección de plantas, se pueden obtener a partir de este concentrado por dilución con agua.

<u>Polvos finos</u>	a)	b)	c)
principio activo [I : comp. (B) = 1:6(a), 1:2(b), 1:10(c)]	5%	6%	4%
talco	95%	-	-
caolín	-	94%	-
relleno mineral	-	-	96%

Los polvos listos para usar se obtienen mezclando el principio activo con el portador y moliendo la mezcla en un molino adecuado. Los polvos de este tipo también se pueden emplear en revestimientos en seco para semillas.

5

Gránulos extrusores

principio activo (I : comp. (B) = 2:1)	15%
lignosulfonato de sodio	2%
carboximetilcelulosa	1%
caolín	82%

El principio activo se mezcla y muele con los adyuvantes, y la mezcla se humedece con agua. La mezcla se extrude y posteriormente se seca en una corriente de aire.

Gránulos recubiertos

principio activo (I : comp. (B) = 1:10)	8%
polietilenglicol (peso molecular 200)	3%
caolín	89%

10

El principio activo finamente molido se aplica uniformemente, en una mezcladora, sobre el caolín humedecido con polietilenglicol. De esta forma se obtienen los gránulos no recubiertos con polvo.

Concentrado en suspensión

principio activo (I : comp. (B) = 1:8)	40%
propilenglicol	10%
éter nonilfenólico de polietilenglicol (15 mol de óxido de etileno)	6%
lignosulfonato de sodio	10%

carboximetilcelulosa	1%
aceite de silicona (en forma de una emulsión al 75% en agua)	1%
agua	32%

Se crea una mezcla íntima entre el principio activo finamente molido y los adyuvantes para obtener un concentrado en suspensión a partir del cual se pueden obtener suspensiones de cualquier dilución deseada por dilución con agua. Utilizando estas diluciones, se pueden tratar tanto plantas vivas como el material de propagación vegetal y se pueden proteger contra infestaciones de microorganismos mediante pulverización, vertido o inmersión.

10 Concentrado fluido para el tratamiento de semillas

principio activo (I : comp. (B) = 1:8)	40%
propilenglicol	5%
copolímero de OE/OP en butanol	2%
triestirenofenol con 10-20 moles de OE	2%
1,2-bencisotiazolin-3-ona (en forma de una solución al 20% en agua)	0.5%
sal cálcica de pigmento monoazo	5%
aceite de silicona (en forma de una emulsión al 75% en agua)	0.2%
agua	45.3%

Se crea una mezcla íntima entre el principio activo finamente molido y los adyuvantes para obtener un concentrado en suspensión a partir del cual se pueden obtener suspensiones de cualquier dilución deseada por dilución con agua. Utilizando estas diluciones, se pueden tratar tanto plantas vivas como el material de propagación vegetal y se pueden proteger contra infestaciones de microorganismos mediante pulverización, vertido o inmersión.

20 Suspensión de cápsulas de liberación lenta

28 partes de una combinación del compuesto de fórmula I y un componente (B), o de cada uno de estos compuestos por separado, se mezclan con 2 partes de un disolvente

aromático y 7 partes de diisocianato de tolueno/mezcla de polimetileno-poliisocianato de fenilo (8:1). Esta mezcla se emulsiona en una mezcla de 1.2 partes de alcohol polivinílico, 0.05 partes de un desespumante y 51.6 partes de agua, hasta que se obtiene el tamaño de partícula deseado. Se añade a esta emulsión una mezcla de 2.8 partes de 1,6-diaminohexano en 5.3 partes de agua. Se agita la mezcla hasta que la reacción de polimerización finaliza.

La suspensión de cápsulas obtenida se estabiliza añadiendo 0.25 partes de un espesante y 3 partes de un agente dispersante. La formulación de suspensión de cápsulas contiene un 28% de los principios activos. El diámetro medio de una cápsula es de 8-15 micras.

La formulación resultante se aplica a las semillas como una suspensión acuosa en un aparato adecuado para dicho fin.

EJEMPLOS BIOLÓGICOS

Ensayos de cultivos líquidos en placas de pocillos:

Se mezclaron directamente en un caldo de nutrientes fragmentos de micelas o suspensiones de conidias de un hongo, recién preparados a partir de cultivos líquidos del hongo o preparados a partir de un depósito criogénico. Se diluyeron soluciones en DMSO del compuesto de ensayo (máx. de 10 mg/ml) con Tween20 al 0.025% en un factor de 50 y se pipetearon 10 µl de esta solución a una placa de microtitulación (formato de 96 pocillos). A continuación, se añadió el caldo de nutrientes que contenía los fragmentos de micelas/espores fúngicas para obtener la concentración final del compuesto de ensayo. Las placas de ensayo se incubaron en la oscuridad a 24 °C y un 96% de HR. La inhibición del crecimiento fúngico se determinó fotométricamente y visualmente después de 2-4 días, dependiendo del patosistema, y se calculó el porcentaje de actividad antifúngica con relación a la muestra de referencia no tratada.

***Alternaria solani* / cultivo líquido:**

Se mezclaron conidias del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 2-3 días después de la aplicación.

10 **Botryotinia fuckeliana (Botrytis cinerea) / cultivo líquido**

Se mezclaron conidias del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de Vogels). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 3 días después de la aplicación.

20 **Fusarium culmorum / cultivo líquido:**

Se mezclaron conidias del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 3 días después de la aplicación.

30 **Gaeumannomyces graminis / cultivo líquido:**

Se mezclaron fragmentos de micelas del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96

pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 3-4 días después de la aplicación.

Monographella nivalis (*Microdochium nivale*) / cultivo líquido:

Se mezclaron conidias del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 3-4 días después de la aplicación.

Mycosphaerella graminicola (*Septoria tritici*) / cultivo líquido:

Se mezclaron conidias del hongo procedentes de un depósito criogénico directamente en un caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) del compuesto de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía las esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó fotométricamente y visualmente 4 días después de la aplicación.

Pythium ultimum (marchitamiento fúngico de las plántulas)/ cultivo líquido:

Se mezclaron directamente fragmentos de micelas y oosporas de un cultivo líquido recién cultivado del hongo en caldo de nutrientes (caldo de dextrosa de papa PDB). Después de colocar una solución (DMSO) de los compuestos de ensayo en una placa de microtitulación (formato de 96 pocillos), se añadió el caldo de nutrientes que contenía la

mezcla de micelas/esporas fúngicas. Las placas de ensayo se incubaron a 24 °C y la inhibición del crecimiento se determinó visualmente 2-3 días después de la aplicación.

RESULTADOS

5 En las Tablas 3-38 a continuación se muestran ejemplos representativos de los resultados de los ensayos expuestos anteriormente. Estos datos demuestran que se observa actividad fungicida sinérgica para cada una de las siguientes combinaciones: un compuesto de fórmula (I) y (B1) un compuesto de fórmula (II), un compuesto de fórmula (I) y (B2) fenpirazina, un compuesto de fórmula (I) y (B4) oxatiapiprolina, un compuesto de fórmula (I) y (B5) tolprocarb, un compuesto de fórmula (I) y (B6) flufenoxistrobina, un compuesto de fórmula (I) y (B9) el compuesto de fórmula (III), un compuesto de fórmula (I) y (B10) coumoxistrobina, un compuesto de fórmula (I) y (B11) mandestrobina, un compuesto de fórmula (I) y (B12) tebufloquina, un compuesto de fórmula (I) y (B13) triclopiricarb, un compuesto de fórmula (I) y (B14) el compuesto de fórmula (IV), en ensayos contra uno o más de los hongos expuestos anteriormente. En cada caso, el compuesto de fórmula (I) evaluado fue el compuesto 1.001 (es decir, 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida).

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Tabla 3. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) - en este caso, donde R⁹ es metilo - contra *Pythium ultimum* en PDB

Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
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			(%)			
0.0063	0.0000	n/a	11	-	-	-
0.0125	0.0000		0	-	-	-
0.0250	0.0000		0	-	-	-
0.0500	0.0000		0	-	-	-
0.1000	0.0000		2	-	-	-
0.2000	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	25	-	-
0.0000	0.5000		-	1	-	-
0.0063	0.2500	1:40	-	-	99	33
0.0125	0.5000		-	-	99	1
0.0250	0.5000	1:20	-	-	100	1
0.0250	0.2500	1:10	-	-	100	25
0.0500	0.5000		-	-	100	1
0.1000	0.5000	1:5	-	-	99	3
0.1000	0.2500	2:5	-	-	99	27
0.2000	0.5000		-	-	100	1

Tabla 4. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) - en este caso, donde R⁹ es metilo - contra *Fusarium culmorum* en PDB

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Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	7	-	-	-
0.0031	0.0000		19	-	-	-
0.0063	0.0000		14	-	-	-
0.0125	0.0000		20	-	-	-
0.0250	0.0000		38	-	-	-
0.0500	0.0000		46	-	-	-

0.0000	0.0625	n/a	-	0	-	-
0.0000	0.1250		-	6	-	-
0.0016	0.0625	1:40	-	-	48	7
0.0031	0.1250		-	-	95	23
0.0031	0.0625	1:20	-	-	59	19
0.0063	0.1250		-	-	95	19
0.0125	0.1250	1:10	-	-	100	24
0.0125	0.0625	1:5	-	-	50	20
0.0250	0.1250		-	-	99	41
0.0250	0.0625	2:5	-	-	68	38
0.0500	0.1250		-	-	100	49

Tabla 5. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) - en este caso, donde R⁹ es metilo - contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0004	0.0000	n/a	0	-	-	-
0.0008	0.0000		0	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		0	-	-	-
0.0000	0.0078	n/a	-	42	-	-
0.0004	0.0078	1:20	-	-	47	42
0.0008	0.0078	1:10	-	-	69	42
0.0016	0.0078	1:5	-	-	87	42
0.0031	0.0078	2:5	-	-	91	42

Tabla 6. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) -

en este caso, donde R⁹ es metilo - contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels

Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	16	-	-	-
0.0031	0.0000		49	-	-	-
0.0063	0.0000		61	-	-	-
0.0125	0.0000		79	-	-	-
0.0000	0.0156	n/a	-	0	-	-
0.0000	0.0313		-	12	-	-
0.0000	0.0625		-	21	-	-
0.0016	0.0625	1:40	-	-	80	33
0.0016	0.0313	1:20	-	-	47	26
0.0031	0.0625		-	-	85	60
0.0063	0.0156	1:10	-	-	93	69
0.0063	0.0313	1:5	-	-	73	66
0.0063	0.0625		-	-	94	83
0.0063	0.0156	2:5	-		68	61

Tabla 7. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) - en este caso, donde R⁹ es metilo - contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	36	-	-	-

0.0016	0.0000		57	-	-	-
0.0031	0.0000		81	-	-	-
0.0000	0.0078	n/a	-	11	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	0	-	-
0.0000	0.0625		-	0	-	-
0.0000	0.1250		-	2	-	-
0.0008	0.0313	1:40	-	-	44	36
0.0016	0.0625		-	-	75	57
0.0031	0.1250		-	-	90	82
0.0016	0.0313	1:20	-	-	70	57
0.0016	0.0156	1:10	-	-	65	57
0.0016	0.0078	1:5	-	-	71	61

Tabla 8. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B1) el compuesto de fórmula (II) - en este caso, donde R⁹ es metilo - contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB

Com- puesto 1.001 (ppm)	(B1) (ppm)	Propor- ción de comp. 1.001: (B1)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B1) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	15	-	-	-
0.0016	0.0000		34	-	-	-
0.0031	0.0000		81	-	-	-
0.0000	0.0156	n/a	-	15	-	-
0.0000	0.0313		-	15	-	-
0.0008	0.0313	1:40	-	-	66	28
0.0008	0.0156	1:20	-	-	42	28
0.0016	0.0313		-	-	88	44
0.0016	0.00156	1:10	-	-	50	44
0.0031	0.0313				98	83

Tabla 9. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B2) fenpirazamina contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B2) (ppm)	Propor- ción de comp. 1.001: (B2)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B2) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	37	-	-	-
0.0016	0.0000		64	-	-	-
0.0000	0.0313	n/a	-	0	-	-
0.0000	0.0625		-	1	-	-
0.0008	0.0313	1:40	-	-	42	37
0.0016	0.0625		-	-	75	64

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Tabla 10. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B4) oxatiapiprolina contra *Pythium ultimum* en PDB

Com- puesto 1.001 (ppm)	(B4) (ppm)	Propor- ción de comp. 1.001: (B4)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B4) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	0	-	-	-
0.0031	0.0000		0	-	-	-
0.0000	0.0625	n/a	-	61	-	-
0.0016	0.0625	1:40	-	-	82	61
0.0016	0.0625	1:20	-	-	76	61

Tabla 11. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B4) oxatiapiprolina contra *Alternaria solani* in PDB

Com- puesto 1.001 (ppm)	(B4) (ppm)	Propor- ción de comp. 1.001: (B4)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B4) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	42	-	-	-
0.0016	0.0000		68	-	-	-
0.0000	0.0039	n/a	-	0	-	-
0.0000	0.0078		-	4	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	0	-	-
0.0008	0.0039	1:4	-	-	55	42
0.0008	0.0078	1:10	-	-	49	45
0.0008	0.0156	1:20	-	-	50	42
0.0008	0.0313	1:40	-	-	64	42
0.0016	0.0625		-	-	78	68

5 **Tabla 12. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B4) oxatiapiprolina contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB**

Com- puesto 1.001 (ppm)	(B4) (ppm)	Propor- ción de comp. 1.001: (B4)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B4) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	54	-	-	-
0.0000	0.0313	n/a	-	8	-	-
0.0000	0.0625		-	4	-	-
0.0016	0.0313	1:20	-	-	65	58

0.0016	0.0625	1:40	-	-	67	56
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Tabla 13. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B5) tolprocarb contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B5) (ppm)	Propor- ción de comp. 1.001: (B5)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B5) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	51	-	-	-
0.0016	0.0000		69	-	-	-
0.0031	0.0000		82	-	-	-
0.0000	0.0391	n/a	-	0	-	-
0.0000	0.0781		-	0	-	-
0.0000	0.3125		-	0	-	-
0.0008	0.3125	1.40	-	-	59	51
0.0016	0.0391	1:25	-	-	78	69
0.0031	0.0781		-	-	93	82
0.0031	0.3125	1:100	-	-	91	82

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Tabla 14. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B5) tolprocarb contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB

Com- puesto 1.001 (ppm)	(B5) (ppm)	Propor- ción de comp. 1.001: (B5)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B5) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	47	-	-	-
0.0000	0.0391	n/a	-	7	-	-
0.0000	0.0781		-	1	-	-

0.0000	0.1563		-	4	-	-
0.0000	0.6250		-	1	-	-
0.0016	0.0391	1:25	-	-	59	50
0.0016	0.0781	1:50	-	-	52	48
0.0016	0.1563	1:100	-	-	60	49
0.0016	0.6250	1:400	-	-	68	47

Tabla 15. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B6) flufenoxistrobina contra *Fusarium culmorum* en PDB

Com- puesto 1.001 (ppm)	(B6) (ppm)	Propor- ción de comp. 1.001: (B6)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B6) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0250	0.0000	n/a	24	-	-	-
0.0500	0.0000		49	-	-	-
0.1000	0.0000		51	-	-	-
0.2000	0.0000		55	-	-	-
0.0000	0.0500	n/a	-	5	-	-
0.0000	0.1000		-	3	-	-
0.0000	0.2000		-	12	-	-
0.0250	0.1000	1:4	-	-	57	27
0.0500	0.2000		-	-	70	55
0.0250	0.0500	1:2	-	-	43	28
0.0500	0.1000		-	-	63	50
0.1000	0.2000		-	-	68	57
0.1000	0.1000	1:1	-	-	63	52
0.2000	0.2000		-	-	71	60
0.2000	0.1000	2:1	-	-	66	56

Tabla 16. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B6) flufenoxistrobina contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B6) (ppm)	Propor- ción de comp. 1.001: (B6)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B6) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0004	0.0000	n/a	0	-	-	-
0.0008	0.0000		2	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		4	-	-	-
0.0000	0.0008	n/a	-	23	-	-
0.0000	0.0016		-	51		
0.0004	0.0016	1:4	-	-	83	51
0.0004	0.0008	1:2	-	-	41	23
0.0008	0.0016		-	-	70	52
0.0016	0.0016	1:1	-	-	67	51
0.0031	0.0016	2:1	-	-	58	52

5 **Tabla 17. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B6) flufenoxistrobina contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels**

Com- puesto 1.001 (ppm)	(B6) (ppm)	Propor- ción de comp. 1.001: (B6)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B6) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	26	-	-	-
0.0031	0.0000		44	-	-	-
0.0063	0.0000		62	-	-	-

0.0000	0.0063	n/a	-	17	-	-
0.0000	0.0125		-	23	-	-
0.0000	0.0250		-	33	-	-
0.0016	0.0063	1:4	-	-	44	38
0.0031	0.0125		-	-	65	57
0.0063	0.0250		-	-	85	75

Tabla 18. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B6) flufenoxistrobina contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B6) (ppm)	Propor- ción de comp. 1.001: (B6)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B6) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	65	-	-	-
0.0000	0.0016	n/a	-	6	-	-
0.0000	0.0063		-	1	-	-
0.0016	0.0016	1:1	-	-	74	67
0.0016	0.0063	1:4	-	-	72	65

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Tabla 19. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B6) flufenoxistrobina contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB

Com- puesto 1.001 (ppm)	(B6) (ppm)	Propor- ción de comp. 1.001: (B6)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B6) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	33	-	-	-
0.0031	0.0000		83	-	-	-
0.0000	0.0031	n/a	-	17	-	-

0.0000	0.0063		-	23	-	-
0.0000	0.0125		-	33	-	-
0.0016	0.0031	1:2	-	-	43	33
0.0016	0.0063	1:4	-	-	48	37
0.0031	0.0125		-	-	94	84

Tabla 20. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B9) el compuesto de fórmula (III) contra *Monographella nivalis* (*Microdochium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B9) (ppm)	Propor- ción de comp. 1.001: (B9)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B9) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0250	0.0000	n/a	5	-	-	-
0.0500	0.0000		51	-	-	-
0.0000	0.1250	n/a	-	0	-	-
0.0000	0.5000		-	0	-	-
0.0000	1.0000		-	10	-	-
0.0250	1.0000	1:40	-	-	47	14
0.0500	0.1250	2:5	-	-	62	51
0.0500	0.5000	1:10	-	-	62	51

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Tabla 21. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B9) el compuesto de fórmula (III) contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels

Com- puesto 1.001 (ppm)	(B9) (ppm)	Propor- ción de comp. 1.001: (B9)	Inhibi- ción del comp. 1.001	Inhibi- ción (B9) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
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			(%)			
0.0004	0.0000	n/a	8	-	-	-
0.0008	0.0000		21	-	-	-
0.0016	0.0000		33	-	-	-
0.0000	0.0039	n/a	-	14	-	-
0.0000	0.0078		-	19	-	-
0.0000	0.0156		-	31	-	-
0.0000	0.0313		-	52	-	-
0.0004	0.0156	1:40	-	-	68	37
0.0008	0.0313		-	-	71	63
0.0016	0.0625		-	-	81	71
0.0004	0.0078	1:20	-	-	53	25
0.0008	0.0156		-	-	60	46
0.0016	0.0039	2:5	-	-	51	42

Tabla 22. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B9) el compuesto de fórmula (III) contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B9) (ppm)	Propor- ción de comp. 1.001: (B9)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B9) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0004	0.0000	n/a	21	-	-	-
0.0008	0.0000		52	-	-	-
0.0016	0.0000		74	-	-	-
0.0000	0.0078	n/a	-	0	-	-
0.0000	0.0156		-	11	-	-
0.0000	0.0313		-	5	-	-
0.0000	0.0625		-	22	-	-
0.0004	0.0156	1:40	-	-	62	29
0.0008	0.0313		-	-	78	54
0.0016	0.0625		-	-	89	80

0.0004	0.0078	1:20	-	-	41	21
0.0008	0.0156		-	-	72	57
0.0016	0.0313		-	-	85	75
0.0008	0.0078	1:10	-	-	58	52

Tabla 23. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B9) el compuesto de fórmula (III) contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB

Com- puesto 1.001 (ppm)	(B9) (ppm)	Propor- ción de comp. 1.001: (B9)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B9) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	19	-	-	-
0.0016	0.0000		54	-	-	-
0.0000	0.0039	n/a	-	0	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	9	-	-
	0.0625		-	7	-	-
0.0008	0.0313	1:40	-	-	46	26
0.0016	0.0625				86	57
0.0016	0.0313	1:20	-	-	69	58
0.0016	0.00156	1:10	-	-	62	54
0.0016	0.0156	2:5	-	-	62	54

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Tabla 24. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B10) coumoxistrobina contra *Fusarium culmorum* en PDB

Com- puesto 1.001 (ppm)	(B10) (ppm)	Propor- ción de comp. 1.001: (B10)	Inhibi- ción del comp. 1.001	Inhibi- ción (B10) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
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			(%)			
0.0250	0.0000	n/a	27	-	-	-
0.0500	0.0000		49	-	-	-
0.1000	0.0000		55	-	-	-
0.2000	0.0000		59	-	-	-
0.0000	0.0500	n/a	-	12	-	-
0.0000	0.1000		-	8	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.1000	1:4	-	-	54	33
0.0500	0.2000		-	-	68	54
0.0250	0.0500	1:2	-	-	43	36
0.0500	0.1000		-	-	64	53
0.1000	0.2000		-	-	70	60
0.2000	0.2000	1:1	-	-	70	63

Tabla 25. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B10) coumoxistrobina contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B10) (ppm)	Propor- ción de comp. 1.001: (B10)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B10) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0004	0.0000	n/a	2	-	-	-
0.0008	0.0000		3	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		1	-	-	-
0.0063	0.0000		0	-	-	-
0.0000	0.0008	n/a	-	46	-	-
0.0000	0.0016		-	81	-	-
0.0004	0.0016	1:4	-	-	96	81
0.0004	0.0008	1:2	-	-	83	47
0.0008	0.0016		-	-	100	82

0.0008	0.0008	1:1	-	-	64	48
0.0031	0.0008	4:1	-	-	52	46
0.0063	0.0016		-	-	98	81

Tabla 26. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B10) coumoxistrobina contra *Mycosphaerella graminicola* (*Septoria tritici*) en PDB

Com- puesto 1.001 (ppm)	(B10) (ppm)	Propor- ción de comp. 1.001: (B10)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B10) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0016	0.0000	n/a	34	-	-	-
0.0031	0.0000		82	-	-	-
0.0000	0.0016	n/a	-	5	-	-
0.0000	0.0031		-	13	-	-
0.0000	0.0063		-	31	-	-
0.0016	0.0063	1:4	-	-	76	54
0.0016	0.0031	1:2	-	-	66	43
0.0031	0.0063		-	-	97	87
0.0016	0.0016	1:1	-	-	48	37

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Tabla 27. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B11) mandestrobina contra *Fusarium culmorum* en PDB

Com- puesto 1.001 (ppm)	(B11) (ppm)	Propor- ción de comp. 1.001: (B11)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B11) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0250	0.0000	n/a	34	-	-	-
0.0500	0.0000		54	-	-	-

0.1000	0.0000		55	-	-	-
0.2000	0.0000		57	-	-	-
0.0000	0.1000	n/a	-	0	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.1000	1:4	-	-	58	34
0.0500	0.2000		-	-	67	59
0.0500	0.1000	1:2	-	-	63	54
0.1000	0.2000		-	-	68	60
0.2000	0.2000	1:1	-	-	68	62
0.2000	0.1000	2:1	-	-	64	57

Tabla 28. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B11) mandestrobina contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B11) (ppm)	Propor- ción de comp. 1.001: (B11)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B11) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0063	0.0000	n/a	4	-	-	-
0.0250	0.0000		5	-	-	-
0.0500	0.0000		48	-	-	-
0.0000	0.0250	n/a	-	0	-	-
0.0063	0.0250	1:4	-	-	93	4
0.0500	0.0250	1:2	-	-	67	48
0.0250	0.0250	1:1			72	5

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Tabla 29. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B11) mandestrobina contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels

Com-	(B11)	Propor-	Inhibi-	Inhibi-	Inhibi-	Actividad
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puesto 1.001 (ppm)	(ppm)	ción de comp. 1.001: (B11)	ción del comp. 1.001 (%)	ción (B11) (%)	ción combina- da (%)	(aditiva) esperada (Colby)
0.0016	0.0000	n/a	29	-	-	-
0.0063	0.0000		61	-	-	-
0.0125	0.0000		79	-	-	-
0.0000	0.0016	n/a	-	5	-	-
0.0000	0.0250		-	0	-	-
0.0000	0.0500		-	8	-	-
0.0063	0.0250	1:4	-	-	71	61
0.0125	0.0500		-	-	90	80
0.0016	0.0016	1:1	-	-	42	32

Tabla 30. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B11) mandestrobina contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B11) (ppm)	Propor- ción de comp. 1.001: (B11)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B11) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	42	-	-	-
0.0016	0.0000		68	-	-	-
0.0000	0.0008	n/a	-	0	-	-
0.0000	0.0016		-	3	-	-
0.0000	0.0031		-	0	-	-
0.0000	0.0063		-	12	-	-
0.0008	0.0031	1:4	-	-	52	42
0.0016	0.0063		-	-	86	72
0.0008	0.0016	1:2	-	-	54	44
0.0008	0.0008	1:1	-	-	54	42

5 **Tabla 31. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B11) mandestrobina contra *Gaeumannomyces graminis* en PDB**

Com- puesto 1.001 (ppm)	(B11) (ppm)	Propor- ción de comp. 1.001: (B11)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B11) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0250	0.0000	n/a	0	-	-	-
0.0500	0.0000		0	-	-	-
0.2000	0.0000		0	-	-	-
0.0000	0.0500	n/a	-	17	-	-
0.0000	0.1000		-	53	-	-
0.0250	0.1000	1:4	-	-	59	53
0.0250	0.0500	1:2	-	-	48	17
0.0500	0.1000		-	-	59	53
0.2000	0.1000	2:1	-	-	69	53

Tabla 32. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B12) tebufloquina contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto 1.001 (ppm)	(B12) (ppm)	Propor- ción de comp. 1.001: (B12)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B12) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0063	0.0000	n/a	0	-	-	-
0.0125	0.0000		0	-	-	-
0.0250	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	7	-	-

0.0000	0.5000		-	60	-	-
0.0063	0.2500	1:40	-	-	45	7
0.0125	0.5000		-	-	82	60
0.0125	0.2500	1:20	-	-	42	7
0.0250	0.5000		-	-	76	60

Tabla 33. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B12) tebufloquina contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels

Com- puesto 1.001 (ppm)	(B12) (ppm)	Propor- ción de comp. 1.001: (B12)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B12) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0063	0.0000	n/a	38	-	-	-
0.0031	0.0000		54	-	-	-
0.0000	0.0313	n/a	-	5	-	-
0.0000	0.1250		-	0	-	-
0.0031	0.1250	1:40	-	-	60	54
0.0016	0.0313	1:20	-	-	46	41

Tabla 34. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B12) tebufloquina contra *Alternaria solani* en PDB

Com- puesto 1.001 (ppm)	(B12) (ppm)	Propor- ción de comp. 1.001: (B12)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B12) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0008	0.0000	n/a	51	-	-	-

0.0000	0.0156	n/a	-	0	-	-
0.0000	0.0313		-	1	-	-
0.0008	0.0156	1:20	-	-	63	51
0.0008	0.0313	1:40	-	-	66	52

Tabla 35. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B13) triclopiricarb contra *Fusarium culmorum* en PDB

Com- puesto 1.001 (ppm)	(B13) (ppm)	Propor- ción de comp. 1.001: (B13)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B13) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0250	0.0000	n/a	29	-	-	-
0.0500	0.0000		53	-	-	-
0.1000	0.0000		57	-	-	-
0.2000	0.0000		55	-	-	-
0.0000	0.0500	n/a	-	11	-	-
0.0000	0.1000		-	10	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.0500	1:2	-	-	49	37
0.0500	0.1000		-	-	65	58
0.1000	0.2000				69	62
0.0250	0.1000	1:4	-	-	65	37
0.0500	0.2000		-	-	71	59
0.2000	0.2000	1:1	-	-	73	61
0.2000	0.1000	2:1	-	-	69	60

5

Tabla 36. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B13) triclopiricarb contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

Com- puesto	(B13) (ppm)	Propor- ción de	Inhibi- ción	Inhibi- ción	Inhibi- ción	Actividad (aditiva)
----------------	----------------	--------------------	-----------------	-----------------	-----------------	------------------------

1.001 (ppm)		comp. 1.001: (B13)	del comp. 1.001 (%)	(B13) (%)	combina- da (%)	esperada (Colby)
0.0004	0.0000	n/a	4	-	-	-
0.0008	0.0000		1	-	-	-
0.0016	0.0000		0	-	-	-
0.0125	0.0000		0	-	-	-
0.0000	0.0016	n/a	-	23	-	-
0.0000	0.0031		-	51	-	-
0.0004	0.0016	1:4	-	-	40	27
0.0008	0.0031		-	-	92	51
0.0016	0.0031	1:2	-	-	63	51
0.0125	0.0031	4:1	-	-	59	51

Tabla 37. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B13) triclopíricarb contra *Botryotinia fuckeliana* (*Botrytis cinerea*) en caldo de Vogels

Com- puesto 1.001 (ppm)	(B13) (ppm)	Propor- ción de comp. 1.001: (B13)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B13) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0031	0.0000	n/a	40	-	-	-
0.0063	0.0000		60	-	-	-
0.0000	0.0125	n/a	-	8	-	-
0.0000	0.0250		-	18	-	-
0.0031	0.0125	1:4	-	-	57	44
0.0063	0.0250		-	-	82	67

Tabla 38. Actividad fungicida del compuesto de fórmula (I) (compuesto 1.001) y (B14) el compuesto de formula IV contra *Monographella nivalis* (*Michrodocium nivale*) en PDB

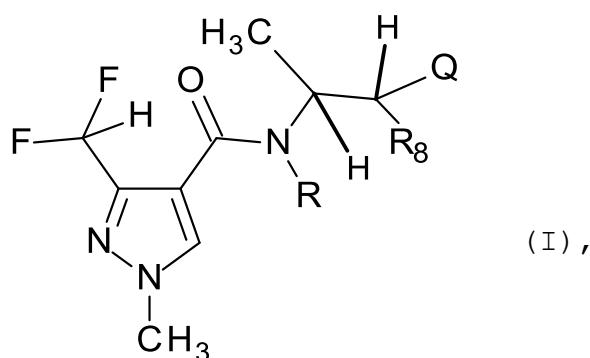
Com- puesto 1.001 (ppm)	(B14) (ppm)	Propor- ción de comp. 1.001: (B14)	Inhibi- ción del comp. 1.001 (%)	Inhibi- ción (B14) (%)	Inhibi- ción combina- da (%)	Actividad (aditiva) esperada (Colby)
0.0063	0.0000	n/a	0	-	-	-
0.0125	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	40	-	-
0.0063	0.2500	1:40	-	-	54	40
0.0125	0.2500	1.20	-	-	59	40

5 Se hace constar que, con relación a esta fecha, el mejor método conocido por la solicitante para llevar a la práctica la citada invención, es el que resulta claro de la presente descripción de la invención.

REIVINDICACIONES:

Habiéndose descrito la invención como antecede, se reclama como propiedad lo contenido en las siguientes reivindicaciones:

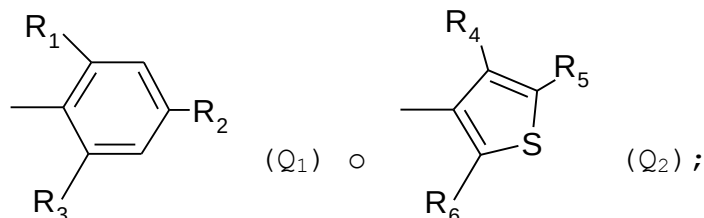
- 5 1. Una composición adecuada para el control de enfermedades provocadas por fitopatógenos que comprende como componente (A) un compuesto de fórmula I



donde

10 R es hidrógeno o metoxi;

Q es



donde

R₁ es hidrógeno, halógeno o alquilo C₁-C₆;

15 R₂ es hidrógeno, halógeno, alquilo C₁-C₆, alquenilo C₂-C₆, alquinilo C₃-C₆, (cicloalquil C₃-C₆)-(alquinilo C₃-C₆), halofenoxi, halofenil-(alquinilo C₃-C₆), C(alquil C₁-C₄)=NO-(alquilo C₁-C₄), haloalquilo C₁-C₆,

haloalcoxi C₁-C₆, haloalquenilo C₂-C₆ o haloalqueniloxi
20 C₂-C₆;

R₃ es hidrógeno, halógeno o alquilo C₁-C₆; con la condición de que al menos uno de los grupos R₁, R₂ y R₃ no sea hidrógeno;

R₄, R₅ y R₆, independientemente unos de otros, son
25 hidrógeno, halógeno o -≡-R₇; con la condición de que al menos uno de los grupos R₄, R₅ y R₆ no sea hidrógeno;

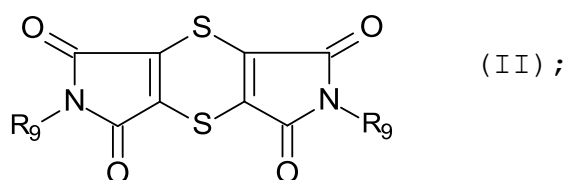
R_7 es hidrógeno, alquilo C_1-C_6 , haloalquilo C_1-C_6 o alcoxialquilo C_1-C_4 ; y

R_8 es hidrógeno o metoxi;

y sales, estereoisómeros, diastereoisómeros, enantiómeros y tautómeros agroquímicamente aceptables de estos compuestos;

y como componente (B) un compuesto seleccionado del grupo constituido por

(B1) un compuesto de fórmula (II),



donde ambos R_9 son idénticos y representan metilo, etilo, *n*-propilo o isopropilo;

(B2) fenpirazamina;

(B3) isofetamida;

(B4) oxatiapiprolina;

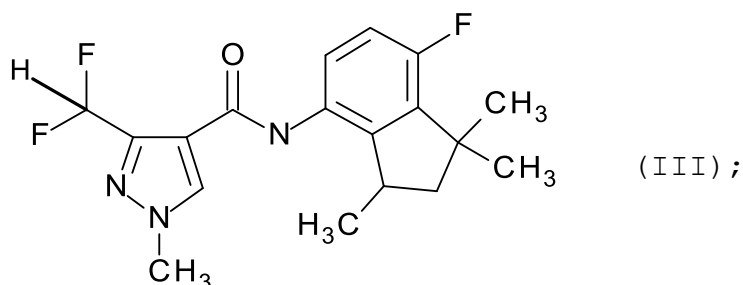
(B5) tolprocarb;

(B6) flufenoxistrobina;

(B7) BLAD;

(B8) UK-2A procide;

(B9) el compuesto de fórmula (III)



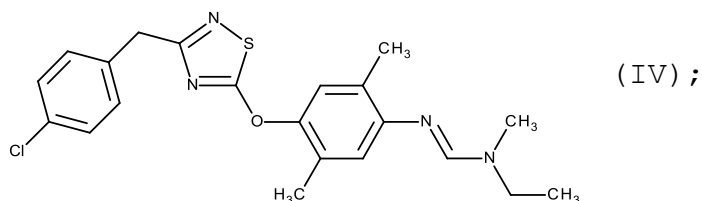
(B10) coumoxistrobina;

(B11) mandestrobina;

(B12) tebufloquina;

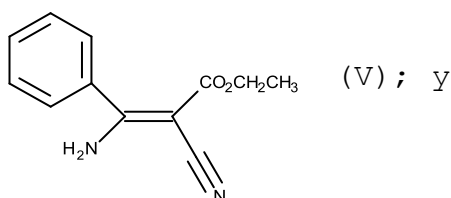
(B13) triclopiricarb;

(B14) el compuesto de fórmula (IV)



5

(B15) el compuesto de fórmula V

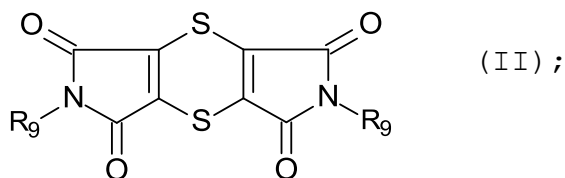


(B16) mandipropamida; o sales agroquímicamente aceptables de estos.

10 2. La composición de acuerdo con la reivindicación 1, donde el componente (A) es el compuesto 3-(difluorometil)-N-metoxi-1-metil-N-[1-metil-2-(2,4,6-triclorofenil)etil]pirazol-4-carboxamida.

15 3. La composición de acuerdo con la reivindicación 1 o la reivindicación 2, donde el componente (B) es:

(B1) un compuesto de fórmula (II)

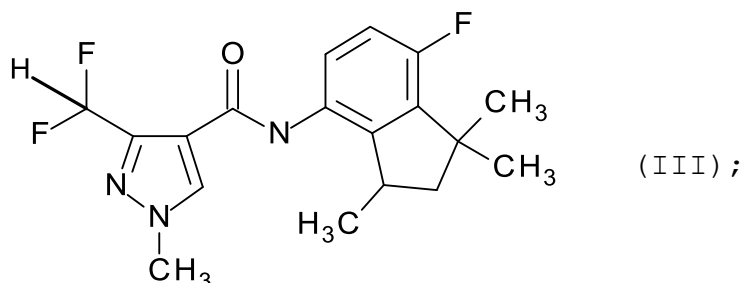


20 donde ambos R₉ son idénticos y representan metilo, etilo, n-propilo o isopropilo;

(B2) fenpirazamina;

(B4) oxatiapiprolina;

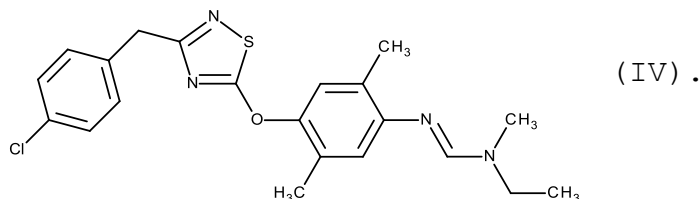
- (B5) tolprocarb;
 (B6) flufenoxistrobina;
 (B9) el compuesto de fórmula (III)



5

- (B10) coumoxistrobina;
 (B11) mandestrobina;
 (B12) tebufloquina;
 (B13) triclopyricarb; o
 (B14) el compuesto de fórmula (IV)

10



4. La composición de acuerdo con cualquiera de las reivindicaciones 1-3, donde los componentes (A) y (B) están presentes en una cantidad sinérgicamente eficaz.

5. La composición de acuerdo con cualquiera de las reivindicaciones precedentes, donde la relación ponderal de (A) frente a (B) está comprendida entre 1000:1 y 1:1000.

6. La composición de acuerdo con cualquiera de las reivindicaciones precedentes, que comprende además un adyuvante y/o portador aceptable en agricultura.

7. Un método para controlar enfermedades en plantas útiles o en el material de propagación de estas provocadas por fitopatógenos, que comprende aplicar a las plantas útiles, el emplazamiento de estas o el material de

propagación de estas, una composición como la definida en cualquiera de las reivindicaciones 1-6.

8. Un método para proteger sustancias naturales de origen animal y/o vegetal, las cuales han sido sustraídas
 5 del ciclo vital natural, y/o sus formas procesadas, que comprende aplicar a dichas sustancias naturales de origen animal y/o vegetal o a sus formas procesadas una combinación de componentes (A) y (B) como la definida en cualquiera de las reivindicaciones 1-6.

CESIÓN - PAÍSES DEL TRATADO DE COOPERACIÓN EN MATERIA DE
PATENTES (PCT)

Por una buena y valiosa contraprestación, cuyo recibo y
cantidad suficiente se confirma por la presente,

SWART, Gina Mercia
Syngenta Crop Protection AG
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Basel
4058
Switzerland
Citizenship: South Africa
Country of Residence: Switzerland

OOSTENDORP, Michael
Syngenta Crop Protection Münchwilen AG
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Citizenship: Germany
Country of Residence: Switzerland

ha(n) vendido y cedido, y por medio de lo presente, vende y
cede por la presente a

**SYNGENTA PARTICIPATIONS AG, Schwarzwaldallee 215, 4058 Basel,
Switzerland**

Sus sucesoras y cesionarias, el derecho, título e interés
completo, por lo que respecta a todos los países miembros del
Tratado de Cooperación en Materia de Patentes (PCT) en y
sobre

(1) todas las invenciones y descubrimientos descritos en la
familia de patentes de Syngenta **80348**

Incluso aquellos descritos en COMPOSICIONES FUNGICIDAS

País / Número de Solicitud / Fecha de Presentación
EP / 13187219.4 / 03 Oct 2013

(2) dicha(s) solicitud(es) de patente y toda(s) la(s)
solicitud(es) de patente presentada(s) en relación con la
invención, incluso toda(s) la(s) solicitud(es)
internacional(es) de patente;

- (3) todas las solicitudes de fase nacional de dicha(s) solicitud(es) de patente internacional;
- (4) todas las continuaciones (incluso continuación en partes) y divisiones de toda(s) de dicha(s) solicitud(es) de patente (incluso demás continuaciones y divisiones, tales como, pero no limitadas a continuaciones de continuaciones y continuaciones de divisiones), ((2)-(4) más adelante llamado colectivamente "solicitudes de patente");
- (5) todas las patentes que se conceden sobre cualquiera de dichas solicitudes de patente;
- (6) todos los registros y confirmaciones de, o certificados de importación con base de una o más de dichas patentes;
- (7) todas las sustituciones, nuevas emisiones, renovaciones y extensiones de dichas patentes, certificados de re-examinación emitidos para dichas patentes y certificados de protección complementaria basándose por completo o en parte en dichas patentes;
- (8) cada derecho prioritario basado o que se pueda basar en o que surge de dichas invenciones, dichas solicitudes de patentes y dichas patentes;

Autorizando a dicha Cesionaria para que presente solicitudes de patente en cualquier o todos los países o cualquier o todos dichas invenciones en nombre del abajo firmante o en nombre de dicha Cesionaria o de otra forma según pueda considerar aconsejable dicha Cesionaria, bajo el Convenio Internacional o de otra forma; autorizando por la presente a todas las Oficinas de Patentes para que emitan o transfieran todas dichas patentes a dicha Cesionaria de acuerdo con la presente; dicha Cesionaria todos los documentos legales incluso peticiones, especificaciones, juramentos, cesiones, renunciaciones de invenciones, declaraciones y declaraciones juradas legales en forma y fondo que puedan solicitarse por parte de dicha Cesionaria, para proporcionar a dicha Cesionaria todos los hechos relacionados con dichas invenciones o el historial de las mismas y cualquier y todos los documentos, fotografías, modelos, muestras u otras pruebas físicas que puedan incorporar dichas invenciones y a testificar en cualquier procedimiento relacionado con dichas invenciones, solicitudes de patentes y/o patentes.

Por la presente, el (los) abajo firmante(s) concede(n) a un representante autorizado de la Cesionaria la facultad para que inserte en la presente Cesión cualquier identificación adicional que sea necesaria o deseable para cumplir las normas de cualquier Oficina de Patentes para la inscripción de la presente Cesión.

Esta Cesión se considera en vigor el 1 de septiembre de 2014.

Nombre del Inventor / Firma del Inventor

SWART, Gina Mercia

Firma ilegible

Testigo

Firma ilegible

Nombre del Inventor / Firma del Inventor

OOSTENDORP, Michael

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Testigo

Firma ilegible

Thomann, Tanja

Solicitante(s) / Firma del Solicitante(s)

Firma ilegible

SYNGENTA PARTICIPATIONS AG

Jan Grössinger

Solicitante(s) / Firma del Solicitante(s)

Firma ilegible

SYNGENTA PARTICIPATIONS AG

Sabrina Balsiger

Syngenta reference: 80348-FAM-REG-ORG-NAT

ASSIGNMENT – PATENT COOPERATION TREATY (PCT) COUNTRIES

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged,

SWART, Gina Mercia
Syngenta Crop Protection AG
Schwarzwaldallee 215
Basel
4058
Switzerland
Citizenship: South Africa
Country of Residence: Switzerland

OOSTENDORP, Michael
Syngenta Crop Protection Münchwilen AG
Schaffhauserstrasse
Stein
4332
Switzerland
Citizenship: Germany
Country of Residence: Switzerland

has/have sold and assigned, and by these presents hereby sells and assigns, unto

SYNGENTA PARTICIPATIONS AG, Schwarzwaldallee 215, 4058, Basel, Switzerland

its successors and assigns, the entire right, title and interest, so far as concerns all countries that are members of the Patent Cooperation Treaty (PCT) in and to

(1) all inventions and discoveries described in Syngenta Patent Family **80348**

including those described in

FUNGICIDAL COMPOSITIONS

Country / Application Number / Filing Date
EP / 13187219.4 / 03 Oct 2013

- (2) said patent application(s) and all patent application(s) filed in respect of the invention, including all International Patent Application(s);
- (3) all national phase patent applications of said International Patent Application(s);
- (4) all continuations (including continuation-in-parts) and divisions of all of said patent application(s) (including further continuations and divisions such as, but not limited to, continuations of continuations and continuations of divisions), ((2)-(4) hereinafter referred to collectively as “patent applications”);
- (5) all patents that are granted on any of said patent applications;

- (6) all registrations and confirmations of, and importation certificates based on, one or more of said patents;
- (7) all substitutes, reissues, renewals and extensions of said patents, reexamination certificates issued for said patents and supplementary protection certificates based in whole or in part on said patents;
- (8) every priority right that is or may be predicated upon or arise from said inventions, said patent applications and said patents;

said Assignee being hereby authorized to file patent applications in any or all countries or any or all said inventions in the name of the undersigned or in the name of said Assignee or otherwise as said Assignee may deem advisable, under the International Convention or otherwise; all Patent Offices being hereby authorized to issue or transfer all said patents to said Assignee in accordance herewith;

this assignment being under covenant, not only that full power to make the same is had by the undersigned, but also that such assigned right is not encumbered by any grant, license, or other right theretofore given, and that the undersigned will to all acts reasonably serving to ensure that the said inventions, patent applications and patents shall be held and enjoyed by said Assignee as fully and entirely as the same could have been held and enjoyed by the undersigned if this assignment had not been made, and particularly to execute and deliver to said Assignee all lawful documents including petitions, specifications, oaths, assignments, invention disclaimers, declarations, and lawful affidavits in form and substance which may be requested by said Assignee, to furnish said Assignee with all facts relating to said inventions or the history thereof and any and all documents, photographs, models, samples or other physical exhibits which may embody said inventions, and to testify in any proceedings relating to said inventions, patent applications, and/or patents.

The undersigned hereby grants/grant an authorized representative of Assignee the power to insert in this Assignment any further identification that may be necessary or desirable to comply with the rules of any Patent Office for recordation of this Assignment.

This Assignment is deemed to be effective on 1 September 2014

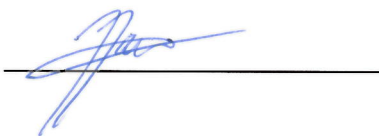
Syngenta reference: 80348-FAM-REG-ORG-NAT

Inventor(s) / Signature(s)



SWART, Gina Mercia

Witness



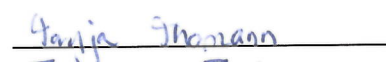
Syngenta reference: 80348-FAM-REG-ORG-NAT

Inventor(s) / Signature(s)



OOSTENDORP, Michael

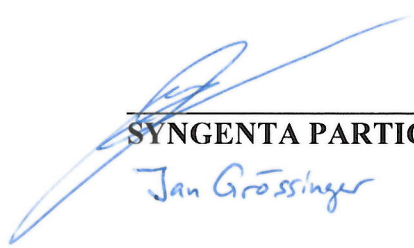
Witness



Thomann, Tanja

Syngenta reference: 80348-FAM-REG-ORG-NAT

Applicant(s) / Signature



SYNGENTA PARTICIPATIONS AG

Jan Grössinger

Applicant(s) / Signature



SYNGENTA PARTICIPATIONS AG

Sabrina Balsiger

ATTESTATION

I, the undersigned Civil Law Notary of Basel, Switzerland, Mathias Kuster, certify herewith that the signatures attached heretofore are the genuine signatures of **Ms. Gina Mercia Swart**, South African citizen, residing in Magden/AG, Switzerland; and of **Mr. Michael Oostendorp**, German citizen, residing in Stein/AG, Switzerland.

I further certify that the signatures attached heretofore are the genuine signatures of **Mr. Jan Grössinger**, citizen of Affoltern am Albis, Switzerland, residing in Aarau, Switzerland; and of **Ms. Sabrina Balsiger**, citizen of Belp, Switzerland, residing in Basel, Switzerland; both acting for **Syngenta Participations AG**, in Basel, Switzerland, both as proxy holders and both with joint signature.

The authenticity of the signatures was established by means of comparison.

BASEL, Switzerland, this 16th (sixteenth) day of October 2014 (two thousand and fourteen)



M. Kuster, Notar

Leg.Prot.Nr. 345 /2014

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/EP2014/070591	International filing date (day/month/year) 26.09.2014	Priority date (day/month/year) 03.10.2013
International Patent Classification (IPC) or both national classification and IPC INV. A01N43/26 A01N43/34 A01N43/50 A01N43/54 A01N43/78 A01N43/90 A01P3/00 A01N43/42		
Applicant SYNGENTA PARTICIPATIONS AG		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Telephone No. +49 89 2399-0	
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - ☐ on paper
 - ☐ in electronic form
 - b. (time)
 - ☐ in the international application as filed
 - ☐ together with the international application in electronic form
 - ☐ subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

see separate sheet

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of

☐ the entire international application

☒ claims Nos. 1-8(partially)

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international search (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed (*specify*):

☒ no international search report has been established for the whole application or for said claims Nos. 1-8(partially)

☐ a meaningful opinion could not be formed without the sequence listing; the applicant did not, within the prescribed time limit:

☐ furnish a sequence listing on paper complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.

☐ furnish a sequence listing in electronic form complying with the standard provided for in Annex C of the Administrative Instructions, and such listing was not available to the International Searching Authority in a form and manner acceptable to it.

☐ pay the required late furnishing fee for the furnishing of a sequence listing in response to an invitation under Rules 13*ter*.1(a) or (b).

☐ See Supplemental Box for further details

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has, within the applicable time limit:
- ☐ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-8(partially)

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	<u>1-8(partially)</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-8(partially)</u>
Industrial applicability (IA)	Yes: Claims	<u>1-8(partially)</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item I

Basis of the report

This written opinion is based on the first invention.

Re Item IV

Lack of unity of invention

Reference is made to the following documents:

- D1 WO 2012/130686 A2 (BAYER CROPSOURCE AG [DE]; SEITZ THOMAS [DE]; WACHENDORFF-NEUMANN ULRI) 4 October 2012 (2012-10-04)
- D2 WO 2011/128843 A1 (BASF SE [DE]; MUELLER BERND [DE]; JABS THORSTEN [DE]; LOHMANN JAN KLAAS) 20 October 2011 (2011-10-20)
- D3 WO 2011/051243 A1 (BAYER CROPSOURCE AG [DE]; CRISTAU PIERRE [FR]; TSUCHIYA TOMOKI [DE];) 5 May 2011 (2011-05-05)
- D4 WO 2012/146125 A1 (SYNGENTA PARTICIPATIONS AG [CH]; HAAS ULRICH JOHANNES [CH]; HERMANN DI) 1 November 2012 (2012-11-01)
- D5 WO 2013/007550 A1 (SYNGENTA PARTICIPATIONS AG [CH]; CORSI CAMILLA [CH]; BOBBIO CARLA [DE]) 17 January 2013 (2013-01-17)

1. This Authority considers that the application does not meet the requirements of unity of invention and that there are 12 groups of inventions covered by the claims, namely:

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound selected from the group consisting of (B1) dithiino-tetracarboximide of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

II) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) fenpyrazamine or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

III) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) isofetamid or (B16) mandipropamid or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

IV) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B4) oxathiapiprolin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

V) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B5) tolprocarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

VI) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B6) flufenoxystrobin, (B10) coumoxystrobin, (B11) mandestrobin or (B13) triclopyricarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

VII) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B7) BLAD or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

VIII) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B8) UK-2A procide or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

IX) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B9) of formula (III) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

X) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B12) tebufloquin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

XI) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B14) corresponding to formula (IV) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

XII) 1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B15) of formula (V) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

2. The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The only technical feature linking the inventions is the provision of synergistic compositions suitable for control of diseases caused by phytopathogens comprising a compound of formula (A) and another fungicide. However, documents D1, D2 and D5 disclose synergistic compositions used for control of diseases caused by phytopathogens comprising a compound of formula (A) and another fungicide. There is no other positive technical feature linking all the different inventions due to the big difference in structure and mechanism of action of the fungicides (B) used in the mixtures.

The technical problem to be solved by all the inventions is the provision of additional synergistic compositions for the control of diseases caused by phytopathogens comprising a pyrazole fungicide of formula (I) and another fungicide. The solution to this problem are the different mentioned inventions which are, as indicated above, not

linked by a positive common technical feature which forms a single general inventive concept -taking into account that synergistic compositions for the same use comprising a pyrazole fungicide of formula (I) and another fungicide are already known in the state of the art, as mentioned above.

Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the technical feature linking the different inventions allow for a relationship to be established between the said inventions, which involves a single general inventive concept. In conclusion, there is no technical feature linking the inventions which makes a contribution over the prior art and can be considered as a special technical feature within the meaning of Rule 13.2 PCT.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

First invention

1. The first invention relates to 1) a composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound selected from the group consisting of (B1) dithiino-tetracarboximide of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

Novelty

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-8 is not novel in the sense of Article 33(2) PCT.

Document D1 discloses synergistic mixtures comprising a compound of formula (I), namely 1H-pyrazole-4-carboxamide, N-[2-(2,4-dichlorophenyl)-2-methoxy-1-methylethyl]-3-(difluoromethyl)-1-methyl- and a dithiino-tetracarboximide compound of formula (II). This document discloses more specifically the mixture of RN

1401464-23-0 comprising 1H-pyrazole-4-carboxamide, N-[2-(2,4-dichlorophenyl)-2-methoxy-1-methylethyl]-3-(difluoromethyl)-1-methyl- of CRN 1092400-95-7 and 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone of CRN 16114-35-5. These mixtures are used in control of phytopathogenic fungi of plants or crops. Moreover, this document relates to a method for curatively or preventively controlling the phytopathogenic fungi of plants or crops with the above-mentioned compositions, to the use of these compositions for the treatment of seeds and to a method for protecting a seed.

Inventive step

3. If the applicant wishes to render said claims novel by means of amendments, then he ought to show that there is any special technical feature that is not obvious with respect to the desired objective and preferably is causative to an unexpected technical effect. Only in this case could such a feature contribute to an inventive step with respect to D1 to D5 according to Art. 33(3) PCT.

Re Item VII

Re Item VIII

Certain defects in and observations on the international application

1. The subject-matter of claim 7 is not clearly disclosed, contrary to Art. 6 PCT due to the use of the terms "propagation material thereof", which has no generally admitted meaning in the art, leading to lack of clarity.

2. The subject-matter of claim 8 is not clearly disclosed, contrary to Art. 6 PCT due to the use of the terms "natural substances of plant origin", which has no generally admitted meaning in the art, leading to lack of clarity taking into account that this expression can mean that the substances are obtained from a plant directly or that they can be synthesized in the laboratory but being of the same nature as those ones produced by the plant or that they are derivatives of substances obtained from plants,...

3. The subject-matter of claim 8 is not clearly disclosed, contrary to Art. 6 PCT due to the use of the terms "natural substances of animal origin", which has no generally admitted meaning in the art, leading to lack of clarity taking into account that this expression can mean that the substances are obtained from an animal directly or that they can be synthesized in the laboratory but being of the same nature of those ones produced by the animal or that they are derivatives of substances obtained from animals or they can even be an animal in a certain developing stage...

4. The subject-matter of claim 8 comprises a therapeutical method of treatment of a human or animal being. The European Patent Office does not allow claims for such a method but protection can be obtained for the compounds or compositions used in such a method of treatment.
 5. The terms "and the like" used in the description are vague and unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the scope of the protection unclear (Art. 6 PCT).
 6. The use of the word "about", especially in connection with numerical values, is generally regarded as rendering the determination of the exact scope of the protection difficult. When used in a claim as well as in the description, this results in lack of clarity, contrary to Art. 6 PCT. Therefore, the description needs to be adequately redrafted by deletion of said word in each of its occurrences.
 7. The relative term "substantially" has no general accepted meaning in the art and is regarded as unclear since its meaning is ambiguous (Art. 6 PCT). The description should not have being drafted using such a term.
 8. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D1-D5 is not mentioned in the description, nor are these documents identified therein.
 9. If the applicant decides to proceed further with the present application, in order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, he is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).
 10. In order to facilitate the examination of the conformity of the amended application with the requirements of Article 19 and 34(2)(b) PCT, the applicant should clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.
- The applicant should submit these indications in handwritten form on a copy of the relevant parts of the application as filed as well as provide a clean copy.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 80348-WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2014/070591	International filing date (<i>day/month/year</i>) 26 September 2014 (26-09-2014)	(Earliest) Priority Date (<i>day/month/year</i>) 3 October 2013 (03-10-2013)
Applicant SYNGENTA PARTICIPATIONS AG		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 10 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____
☐ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2014/070591

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2014/070591

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A01N43/26 A01N43/90	A01N43/34 A01P3/00
	A01N43/50 A01N43/42	A01N43/54 A01N43/78
ADD.		
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) A01N		
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 practicable, search terms used) EPO-Internal, WPI Data, CHEM ABS Data, BEILSTEIN Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/130686 A2 (BAYER CROPSOURCE AG [DE]; SEITZ THOMAS [DE]; WACHENDORFF-NEUMANN ULRI) 4 October 2012 (2012-10-04) the whole document; in particular the claims, the example and table A -----	1-8
Y	WO 2011/128843 A1 (BASF SE [DE]; MUELLER BERND [DE]; JABS THORSTEN [DE]; LOHMANN JAN KLAA) 20 October 2011 (2011-10-20) the whole document; in particular claims 1-3 and 8-11 and compositions comprising the pyrazol compound of formula I of the present application with RN 1092400-95-7 ----- -/-	1-8
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 November 2014		Date of mailing of the international search report 22/01/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Lorenzo Varela, M

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2014/070591

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2011/051243 A1 (BAYER CROPS SCIENCE AG [DE]; CRISTAU PIERRE [FR]; TSUCHIYA TOMOKI [DE];) 5 May 2011 (2011-05-05) the whole document; in particular the claims and the compositions comprising compound of formula I of the present application with RN 1092400-95-7 -----	1-8
Y	WO 2012/146125 A1 (SYNGENTA PARTICIPATIONS AG [CH]; HAAS ULRICH JOHANNES [CH]; HERMANN DI) 1 November 2012 (2012-11-01) the whole document; in particular the mixture with RN 1404445-99-3 made of the pyridine compound with CRN 1404441-86-6 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 and as well the mixture with RN 1404446-13-4 made of the pyridine compound of CRN 1404442-29-0 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 -----	1-8
Y	WO 2013/007550 A1 (SYNGENTA PARTICIPATIONS AG [CH]; CORSI CAMILLA [CH]; BOBBIO CARLA [DE]) 17 January 2013 (2013-01-17) the whole document; in particular pages 88 and 89 and the mixture with RN 1418305-86-8 made of the mixture of the isoxazol compound with CRN 1229605-96-2 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 -----	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2014/070591

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012130686 A2	04-10-2012	CA 2830790 A1	04-10-2012
		CN 103607892 A	26-02-2014
		CO 6801739 A2	29-11-2013
		CR 20130483 A	17-10-2013
		EP 2688408 A2	29-01-2014
		JP 2014508792 A	10-04-2014
		KR 20140024336 A	28-02-2014
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound selected from the group consisting of (B1) dithiino-tetracarboximide of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

2. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) fenpyrazamine or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

3. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) isofetamid or (B16) or mandipropamid or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

4. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B4) oxathiapiprolin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

5. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B5) tolprocarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

6. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole

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compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B6) flufenoxystrobin, (B10) coumoxystrobin, (B11) mandestrobin or (B13) triclopyricarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

7. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B7) BLAD or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

8. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B8) UK-2A procide or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination

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of components (A) and (B) as defined above.

9. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B9) of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

10. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B12) tebufloquin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

11. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B14) corresponding to formula (IV) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a

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composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

12. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B15) of formula (V) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.



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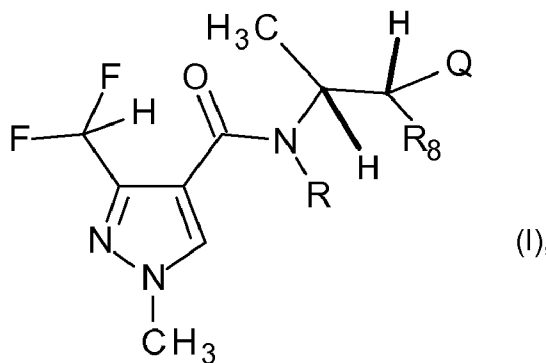
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(54) Title: FUNGICIDAL COMPOSITIONS



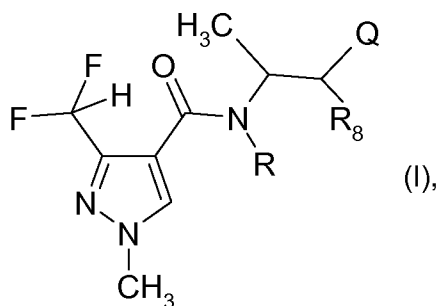
(57) Abstract: The present invention relates to novel fungicidal compositions for the treatment of phytopathogenic diseases of useful plants, especially phytopathogenic fungi, and to a method of controlling such phytopathogenic diseases on useful plants. In particular compositions suitable for control of diseases caused by phytopathogens comprise a mixture of a compound of formula (I), with a compound selected from compounds known for their fungicidal activity; and a method of controlling diseases on useful plants using such compositions.

FUNGICIDAL COMPOSITIONS

The present invention relates to novel fungicidal compositions for the treatment of phytopathogenic diseases of useful plants, especially phytopathogenic fungi, and to a method of controlling such diseases, and/or fungi, on useful plants.

It is known from WO2008/148570, WO 2010/063700, WO 2010/084078 and WO 2008/151828 that certain pyrazolyl-carboxamide derivatives have biological activity against phytopathogenic fungi. On the other hand various fungicidal compounds of different chemical classes are widely known as plant fungicides for application in various crops of cultivated plants. However, crop tolerance and activity against phytopathogenic plant fungi do not always satisfy the needs of agricultural practice in many incidents and aspects. In order to overcome this problem, some binary mixtures of pyrazolyl-carboxamides with certain fungicides have been provided in WO 2012/041874.

The present invention provides a method of controlling phytopathogenic diseases on useful plants or on propagation material thereof, which comprises applying to the useful plants, the locus thereof or propagation material thereof a combination of components (A) and (B), in a synergistically effective amount, wherein component (A) is a compound of formula (I)

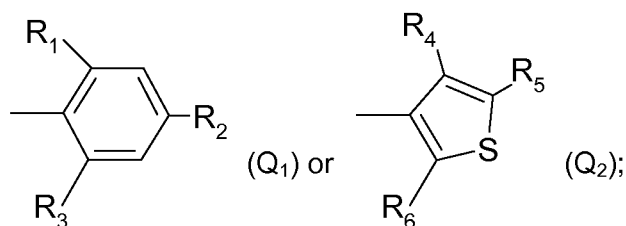


wherein

R is hydrogen or methoxy;

Q is

- 2 -



wherein

R₁ is hydrogen, halogen or C₁-C₆alkyl;

R₂ is hydrogen, halogen, C₁-C₆alkyl, C₂-C₆alkenyl, C₃-C₆alkinyl, C₃-C₆cycloalkyl-C₃-C₆alkinyl,
 5 halophenoxy, halophenyl-C₃-C₆alkinyl, C(C₁-C₄alkyl)=NO-C₁-C₄alkyl, C₁-C₆haloalkyl,
 C₁-C₆haloalkoxy, C₂-C₆haloalkenyl, or C₂-C₆haloalkenyloxy;

R₃ is hydrogen, halogen, C₁-C₆alkyl;

R₄, R₅ and R₆, independently from each other, are hydrogen, halogen or =R₇; with the
 proviso that at least one of R₄, R₅ and R₆ is different from hydrogen;

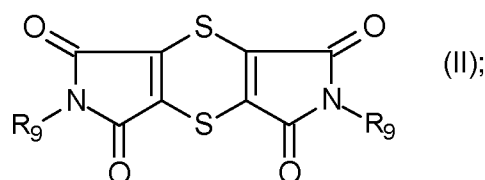
10 R₇ is hydrogen, C₁-C₆alkyl, C₁-C₆haloalkyl or C₁-C₄alkoxyalkyl; and

R₈ is hydrogen or methoxy;

and agrochemically acceptable salts, stereoisomers, diastereoisomers, enantiomers and
 tautomers of those compounds;

and component (B) is a compound selected from the group consisting of

15 (B1) a compound of formula (II)



wherein both R₉ are identical and represent methyl, ethyl, n-propyl or isopropyl;

(B2) fenpyrazamine;

(B3) isofetamid;

20 (B4) oxathiapiprolin;

(B5) tolprocarb;

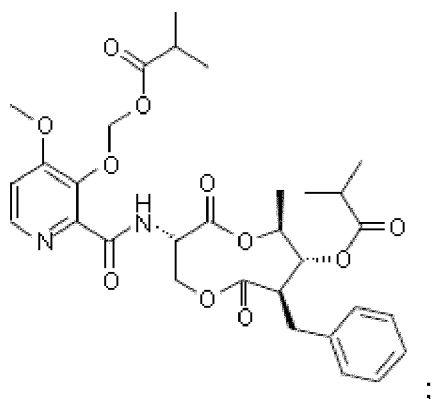
(B6) flufenoxystrobin;

(B7) BLAD;

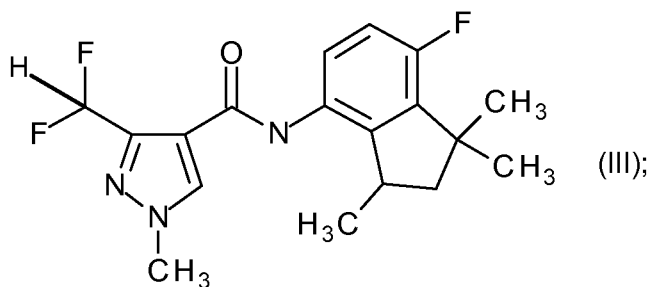
(B8) UK-2A procide i.e. (3S,6S,7R,8R)-8-benzyl-3-(3-((isobutyroxy)methoxy)-4-

25 methoxypicolinamido)-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl isobutyrate having the following
 structure

- 3 -



(B9) the compound of formula (III)



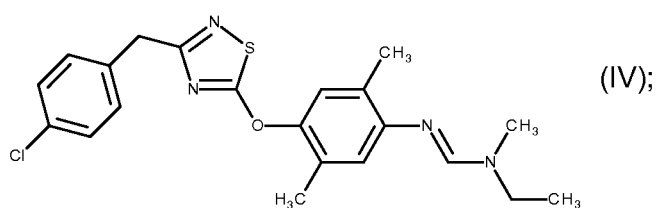
(B10) coumoxystrobin;

5 (B11) mandestrobin;

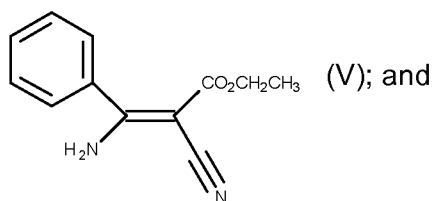
(B12) tebufloquin;

(B13) triclopyricarb;

(B14) the compound of formula IV

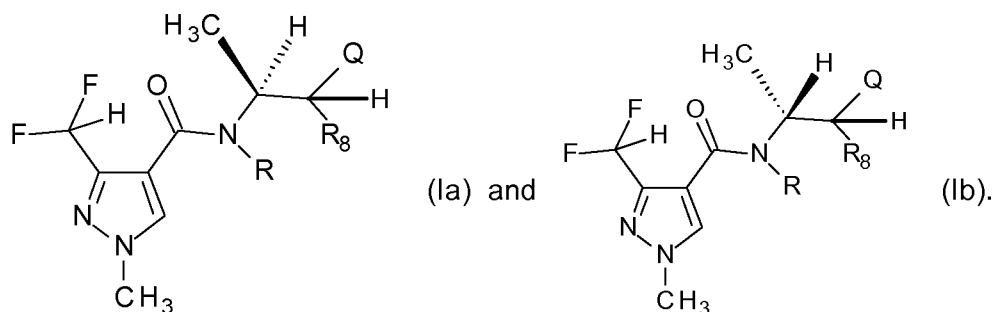


10 (B15) the compound of formula V



(B16) mandipropamid; or agrochemically acceptable salts thereof.

The compounds of formula (I) wherein R_8 is hydrogen can occur in the two enantiomeric forms of formula (Ia) and (Ib):



5 The invention encompasses both enantiomeric forms of the compounds of formula (I). The compounds of formula (I) and their preparation are described in WO 2010/063700, WO 2010/084078 and WO 2008/151828.

It has been found that the use of components (B) in combination with component (A) surprisingly and substantially may enhance the effectiveness of the latter against fungi, and
 10 vice versa. Additionally, the method of the invention is effective against a wider spectrum of such fungi that can be combated with the active ingredients of this method, when used solely.

In general, the weight ratio of component (A) to component (B) is from 1000:1 to 1:1000, especially from 50:1 to 1:50, more especially in a ratio from 40:1 to 1:40, even more
 15 especially in a ratio of from 20:1 to 1:20, even more especially still from 10:1 to 1:10, and very especially from 5:1 and 1:5. Special preference is given to a ratio of from 2:1 to 1:2, and a ratio of from 4:1 to 2:1 is also especially preferred. Specific individual ratios that are preferred include the ratio of 1:1, 5:1, 5:2, 5:3, 5:4, 4:1, 4:2, 4:3, 3:1, 3:2, 2:1, 1:5, 2:5, 3:5, 4:5, 1:4, 2:4, 3:4, 1:3, 2:3, 1:2, 1:600, 1:300, 1:150, 1:100, 1:50, 1:40, 1:35, 1:20, 2:35,
 20 4:35, 1:10 1:75, 2:75, 4:75, 1:6000, 1:3000, 1:1500, 1:350, 2:350, 4:350, 1:750, 2:750, and 4:750.

It has been found, surprisingly, that certain weight ratios of component (A) to component (B) are able to give rise to synergistic activity. Therefore, a further aspect of the invention are compositions, wherein component (A) and component (B) are present in the
 25 composition in amounts producing a synergistic effect. This synergistic activity is apparent from the fact that the fungicidal activity of the composition comprising component (A) and component (B) is greater than the sum of the fungicidal activities of component (A) and component (B). This synergistic activity extends the range of action of component (A) and

component (B) in two ways. Firstly, the rates of application of component (A) and component (B) are lowered whilst the action remains equally good, meaning that the active ingredient mixture still achieves a high degree of phytopathogen control even where the two individual components have become totally ineffective in such a low application rate range.

5 Secondly, there is a substantial broadening of the spectrum of phytopathogens that can be controlled.

A synergistic effect exists whenever the action of an active ingredient combination is greater than the sum of the actions of the individual components. The action to be expected E for a given active ingredient combination obeys the so-called COLBY formula and can be
10 calculated as follows (COLBY, S.R. "Calculating synergistic and antagonistic responses of herbicide combination", Weeds, Vol. 15, pages 20-22; 1967):

ppm = milligrams of active ingredient (= a.i.) per liter of spray mixture

X = % action by active ingredient (A) using p ppm of active ingredient

Y = % action by active ingredient (B) using q ppm of active ingredient.

15 According to COLBY, the expected (additive) action of active ingredients (A)+(B) using

p+q ppm of active ingredient is
$$E = X + Y - \frac{X \cdot Y}{100}$$

If the action actually observed (O) is greater than the expected action (E), then the action of the combination is super-additive, i.e. there is a synergistic effect. In mathematical terms, synergism corresponds to a positive value for the difference of (O-E). In the case of purely
20 complementary addition of activities (expected activity), said difference (O-E) is zero. A negative value of said difference (O-E) signals a loss of activity compared to the expected activity.

However, besides the actual synergistic action with respect to fungicidal activity, the compositions according to the invention can also have further surprising advantageous
25 properties. Examples of such advantageous properties that may be mentioned are: more advantageous degradability; improved toxicological and/or ecotoxicological behaviour; or improved characteristics of the useful plants including: emergence, crop yields, more developed root system, tillering increase, increase in plant height, bigger leaf blade, less dead basal leaves, stronger tillers, greener leaf colour, less fertilizers needed, less seeds
30 needed, more productive tillers, earlier flowering, early grain maturity, less plant verse (lodging), increased shoot growth, improved plant vigor, and early germination.

Some compositions according to the invention have a systemic action and can be used as foliar, soil and seed treatment fungicides.

With the compositions according to the invention it is possible to inhibit or destroy the phytopathogenic microorganisms which occur in plants or in parts of plants (fruit, blossoms, leaves, stems, tubers, roots) in different useful plants, while at the same time the parts of plants which grow later are also protected from attack by phytopathogenic microorganisms.

5 The compositions according to the invention can be applied to the phytopathogenic microorganisms, the useful plants, the locus thereof, the propagation material thereof, storage goods or technical materials threatened by microorganism attack.

10 The compositions according to the invention may be applied before or after infection of the useful plants, the propagation material thereof, storage goods or technical materials by the microorganisms.

15 A further aspect of the present invention is a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof a composition according to the invention. Preferred is a method, which comprises applying to the useful plants or to the locus thereof a composition according to the invention, more preferably to the useful plants. Further preferred is a method, which comprises applying to the propagation material of the useful plants a composition according to the invention.

20 The components (B) are known. Fenpyrazamine is registered under the C.A. Reg. No. 473798-59-3 and disclosed in EP1072598A1. Isofetamid is registered under the C.A. Reg. No. 875915-78-9 and disclosed in WO 2006/016708. Oxathiapiprolin is registered under the C.A. Reg. No. 1003318-67-9 and disclosed in WO2008/013622. Tolprocarb is registered under the C.A. Reg. No. 911499-62-2 and disclosed in EP1681285A1. Flufenoxystrobin is registered under the C.A. Reg. No. 918162-02-4 and disclosed in WO 2007/000098.

25 BLAD (banda de Lupinus albus doce) is a 20 kDa polypeptide. It occurs naturally in Lupinus plants during a short phase of their development. It is a stable breakdown product of β -conglutin catabolism, their major seed storage protein. It is composed of 173 amino acid residues, and encoded by an internal fragment (519 nucleotides, deposited in GenBank under the accession number ABB13526) of the gene encoding the precursor of beta-conglutin from Lupinus (1791 nucleotides, published in GenBank, under the accession number AAS97865). BLAD is described in detail for example in WO 2012/049215.

30 The compound of formula II is described, for example, in WO 2012/123426 and WO2012/139889. UK-2A procide is specifically disclosed as compound No. 23 in WO 03/035617 and as the compound of formula II in WO 2011/103240. The compound of formula III is described in WO 2012/084812. Coumoxystrobin is registered under the CAS

Reg. No. 850881-70-8 and disclosed in WO 2005/044813. Mandestrobin is registered under the CAS Reg. No. 173662-97-0 and disclosed in WO 95/27693. Tebufloquin is registered under the CAS Reg. No. 376645-78-2 and described in WO 01/92231 as compound No. 2 in Table 1. Triclopyricarb is registered under the CAS Reg. No. 902760-40-1 and described in WO 2006/081759. The compound of formula IV is registered under the CAS Reg. No. 1202781-91-6, its chemical designation is N'-[4-[[3-[(4-chlorophenyl)methyl]-1,2,4-thiadiazol-5-yl]oxy]-2,5-dimethylphenyl]-N-ethyl-N-methyl-methanimidamide and is described for example, in WO 2009/156098. The compound of formula V (phenamacril) is, for example, described in Crop Protection 27, (2008), 90-95, in Chemical & Pharmaceutical Bulletin (1965), 13(7), 828-87 and in CN1559210A. Mandipropamid is registered under the CAS Reg. No. 298-04-4 and described for example in EP 1282595B1. The compounds of formula I, in particular the compound 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide, are also useful for the control of wood diseases, for example Acremonium spp., Botryosphaeria spp, Botryosphaeria obtuse, Botryosphaeria dothidea, Cephalosporium spp., Eutypa lata, Formitiporia mediteranea, Phaemoniella chlamydospora, Phaeoacremonium aleophilum, Phialophora spp. and Phomopsis viticola in grapes. The use of SDHI inhibitors for this purpose is also described in WO 2013/124275.

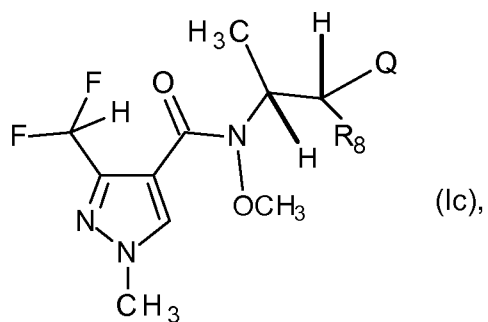
Throughout this document the expression "composition" means the various mixtures or combinations of components (A) and (B), for example in a single "ready-mix" form, in a combined spray mixture composed from separate formulations of the single active ingredient components, such as a "tank-mix", and in a combined use of the single active ingredients when applied in a sequential manner, i.e. one after the other with a reasonably short period, such as a few hours or days. The order of applying the components (A) and (B) is not essential for working the present invention.

As components (A) are compounds of formula (I) preferred, wherein Q is Q₁, wherein R₁, R₂ and R₃ are preferably halogen, in particular chloro; R is methoxy and R₈ is hydrogen.

Preferred components (A) are listed in the following Table 1:

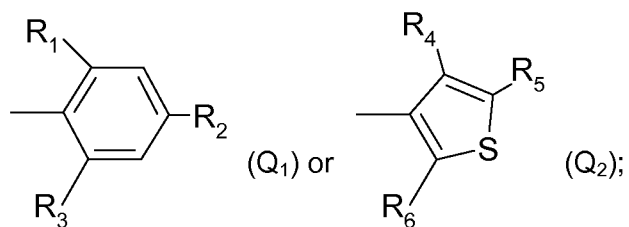
Table 1: Compounds of formula Ic:

- 8 -



wherein

Q is



5

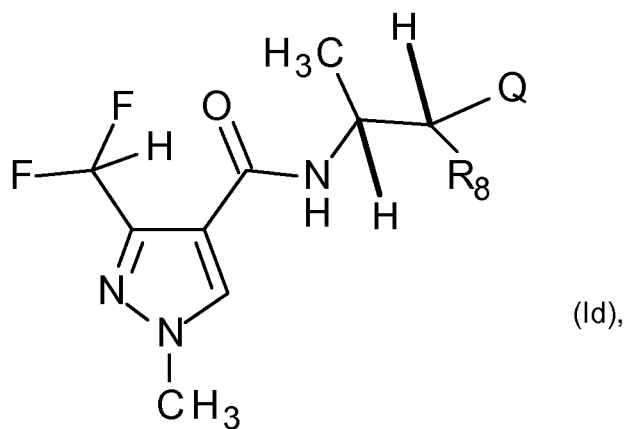
Compound No.	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
1.001	Cl	Cl	Cl	Q ₁	-	-	-	H
1.002	Cl	H	Cl	Q ₁	-	-	-	H
1.003	Cl	Cl	H	Q ₁	-	-	-	H
1.004	Cl	Br	Cl	Q ₁	-	-	-	H
1.005	Br	Br	Br	Q ₁	-	-	-	H
1.006	H	Cl	H	Q ₁	-	-	-	H
1.007	H	Br	H	Q ₁	-	-	-	H
1.008	H	CF ₃	H	Q ₁	-	-	-	H
1.009	-	-	-	Q ₂	Cl	Cl	Cl	H
1.010	-	-	-	Q ₂	Cl	H	Cl	H
1.011	-	-	-	Q ₂	H	Cl	Cl	H
1.012	-	-	-	Q ₂	Cl	Cl	Br	H
1.013	-	-	-	Q ₂	Cl	H	Br	H
1.014	-	-	-	Q ₂	H	Cl	Br	H

Compound No.	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
1.015	-	-	-	Q ₂	H	Cl	H	H
1.016	-	-	-	Q ₂	Cl	H	H	H
1.017	Cl	Cl	Cl	Q ₁	-	-	-	OCH ₃
1.018	Cl	H	Cl	Q ₁	-	-	-	OCH ₃
1.019	Cl	Cl	H	Q ₁	-	-	-	OCH ₃
1.020	Cl	Br	Cl	Q ₁	-	-	-	OCH ₃
1.021	Br	Br	Br	Q ₁	-	-	-	OCH ₃
1.022	H	Cl	H	Q ₁	-	-	-	OCH ₃
1.023	H	Br	H	Q ₁	-	-	-	OCH ₃
1.024	H	CF ₃	H	Q ₁	-	-	-	OCH ₃
1.025	-	-	-	Q ₂	Cl	Cl	Cl	OCH ₃
1.026	-	-	-	Q ₂	Cl	H	Cl	OCH ₃
1.027	-	-	-	Q ₂	H	Cl	Cl	OCH ₃
1.028	-	-	-	Q ₂	Cl	Cl	Br	OCH ₃
1.029	-	-	-	Q ₂	Cl	H	Br	OCH ₃
1.030	-	-	-	Q ₂	H	Cl	Br	OCH ₃
1.031	-	-	-	Q ₂	H	Cl	H	OCH ₃
1.032	-	-	-	Q ₂	Cl	H	H	OCH ₃

Further preferred components (A) are listed in the following Table 2:

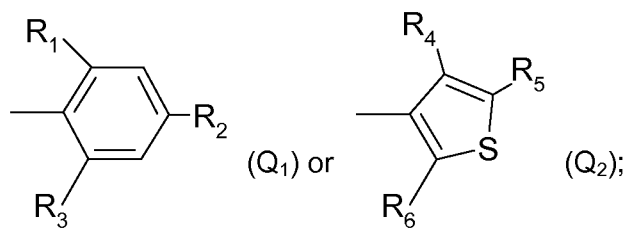
Table 2: Compounds of formula Id:

- 10 -



wherein

Q is



5

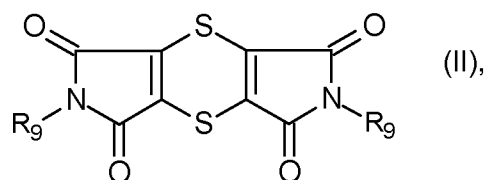
Compound No.	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
2.001	Cl	Cl	Cl	Q ₁	-	-	-	H
2.002	Cl	H	Cl	Q ₁	-	-	-	H
2.003	Cl	Cl	H	Q ₁	-	-	-	H
2.004	Cl	Br	Cl	Q ₁	-	-	-	H
2.005	Br	Br	Br	Q ₁	-	-	-	H
2.006	H	Cl	H	Q ₁	-	-	-	H
2.007	H	Br	H	Q ₁	-	-	-	H
2.008	H	CF ₃	H	Q ₁	-	-	-	H
2.009	-	-	-	Q ₂	Cl	Cl	Cl	H
2.010	-	-	-	Q ₂	Cl	H	Cl	H
2.011	-	-	-	Q ₂	H	Cl	Cl	H
2.012	-	-	-	Q ₂	Cl	Cl	Br	H

Compound No.	R ₁	R ₂	R ₃	Q	R ₄	R ₅	R ₆	R ₈
2.013	-	-	-	Q ₂	Cl	H	Br	H
2.014	-	-	-	Q ₂	H	Cl	Br	H
2.015	-	-	-	Q ₂	H	Cl	H	H
2.016	-	-	-	Q ₂	Cl	H	H	H
2.017	Cl	Cl	Cl	Q ₁	-	-	-	OCH ₃
2.018	Cl	H	Cl	Q ₁	-	-	-	OCH ₃
2.019	Cl	Cl	H	Q ₁	-	-	-	OCH ₃
2.020	Cl	Br	Cl	Q ₁	-	-	-	OCH ₃
2.021	Br	Br	Br	Q ₁	-	-	-	OCH ₃
2.022	H	Cl	H	Q ₁	-	-	-	OCH ₃
2.023	H	Br	H	Q ₁	-	-	-	OCH ₃
2.024	H	CF ₃	H	Q ₁	-	-	-	OCH ₃
2.025	-	-	-	Q ₂	Cl	Cl	Cl	OCH ₃
2.026	-	-	-	Q ₂	Cl	H	Cl	OCH ₃
2.027	-	-	-	Q ₂	H	Cl	Cl	OCH ₃
2.028	-	-	-	Q ₂	Cl	Cl	Br	OCH ₃
2.029	-	-	-	Q ₂	Cl	H	Br	OCH ₃
2.030	-	-	-	Q ₂	H	Cl	Br	OCH ₃
2.031	-	-	-	Q ₂	H	Cl	H	OCH ₃
2.032	-	-	-	Q ₂	Cl	H	H	OCH ₃

A particular preferred component (A) is the compound No. 1.001 (3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide). Especially preferred mixtures comprise as component (A) 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide and one component (B).

The following binary mixtures of components (A) with components (B) are preferred (the abbreviation "TX" means: "one compound selected from the group consisting of the compounds specifically described in Tables 1 and 2 of the present invention"):

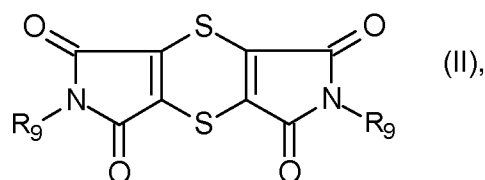
A compound of formula (II)



5

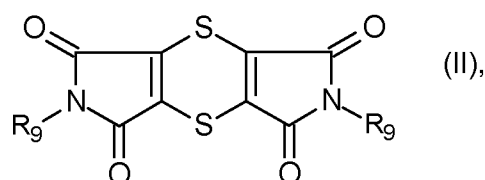
wherein both R₉ are identical and represent methyl + TX;

a compound of formula (II)



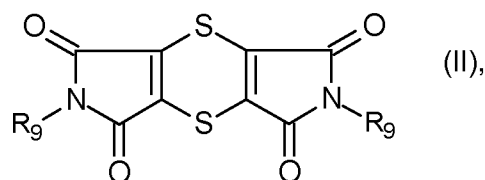
10 wherein both R₉ are identical and represent ethyl + TX;

a compound of formula (II)



wherein both R₉ are identical and represent n-propyl + TX;

15 a compound of formula (II)



wherein both R₉ are identical and represent isopropyl + TX;

fenpyrazamine + TX;

20 isofetamid + TX;

- 13 -

oxathiapirolin + TX;

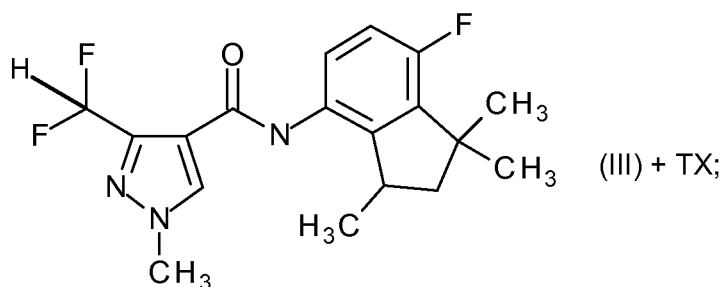
tolprocarb + TX;

flufenoxystrobin + TX;

BLAD + TX;

5 UK-2A procide + TX;

the compound of formula (III)



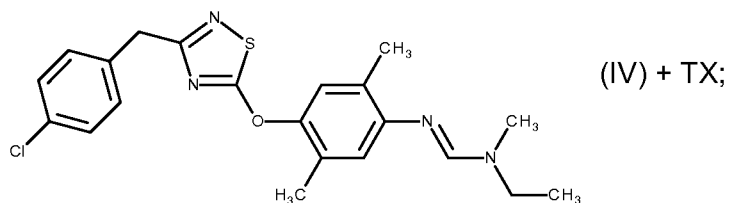
coumoxystrobin + TX;

mandestrobin + TX;

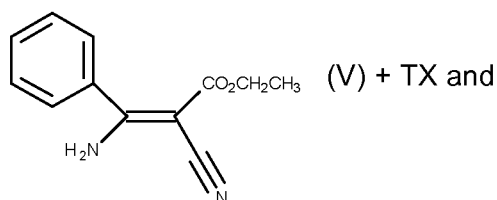
10 tebufloquin + TX;

(B13) triclopyricarb + TX;

(B14) the compound of formula (IV)



15 (B15) the compound of formula (V)



(B16) mandipropamid + TX.

Particularly preferred binary mixtures of components (A) with components (B) are those wherein component B is selected from the group consisting of a compound of formula

20 (II) (i.e. B1), fenpyrazamine (B2), oxathiapirolin (B4), tolprocarb (B5), flufenoxystrobin (B6), the compound of formula (III) (B9), coumoxystrobin (B10), mandestrobin (B11), tebufloquin

(B12), triclopyricarb (B13) and the compound of formula (V) (B14), and each is combined with TX. In particular where component B is formula (II), the variant where R⁹ is methyl is preferred.

Very particularly preferred combinations of the invention include: a compound of formula (II) (i.e. B1), in particular where R⁹ is methyl, with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; fenpyrazamine (B2) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; oxathiapiprolin (B4) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; tolprocarb (B5) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; flufenoxystrobin (B6) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; the compound of formula (III) (B9) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; coumoxystrobin (B10) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; mandestrobin (B11) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; tebufloquin (B12) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; triclopyricarb (B13) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A; and the compound of formula (V) (B14) with 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide as component A.

The active ingredient combinations are effective against harmful microorganisms, such as microorganisms, that cause phytopathogenic diseases, in particular against phytopathogenic fungi and bacteria.

The active ingredient combinations are effective especially against phytopathogenic fungi belonging to the following classes: Ascomycetes (e.g. *Venturia*, *Podosphaera*, *Erysiphe*, *Monilinia*, *Mycosphaerella*, *Uncinula*); Basidiomycetes (e.g. the genus *Hemileia*, *Rhizoctonia*, *Phakopsora*, *Puccinia*, *Ustilago*, *Tilletia*); Fungi imperfecti (also known as Deuteromycetes; e.g. *Botrytis*, *Helminthosporium*, *Rhynchosporium*, *Fusarium*, *Septoria*, *Cercospora*, *Alternaria*, *Pyricularia* and *Pseudocercospora*); Oomycetes (e.g.

Phytophthora, Peronospora, Pseudoperonospora, Albugo, Bremia, Pythium, Pseudosclerospora, Plasmopara).

According to the invention "useful plants" typically comprise the following species of plants: grape vines; cereals, such as wheat, barley, rye or oats; beet, such as sugar beet or
5 fodder beet; fruits, such as pomes, stone fruits or soft fruits, for example apples, pears, plums, peaches, almonds, cherries, strawberries, raspberries or blackberries; leguminous plants, such as beans, lentils, peas or soybeans; oil plants, such as rape, mustard, poppy, olives, sunflowers, coconut, castor oil plants, cocoa beans or groundnuts; cucumber plants, such as marrows, cucumbers or melons; fibre plants, such as cotton, flax, hemp or jute;
10 citrus fruit, such as oranges, lemons, grapefruit or mandarins; vegetables, such as spinach, lettuce, asparagus, cabbages, carrots, onions, tomatoes, potatoes, cucurbits or paprika; lauraceae, such as avocados, cinnamon or camphor; maize; tobacco; nuts; coffee; sugar cane; tea; vines; hops; durian; bananas; natural rubber plants; turf or ornamentals, such as flowers, shrubs, broad-leaved trees or evergreens, for example conifers. This list does not
15 represent any limitation.

The term "useful plants" is to be understood as including also useful plants that have been rendered tolerant to herbicides like bromoxynil or classes of herbicides (such as, for example, HPPD inhibitors, ALS inhibitors, for example primisulfuron, prosulfuron and trifloxysulfuron, EPSPS (5-enol-pyrovyl-shikimate-3-phosphate-synthase) inhibitors, GS
20 (glutamine synthetase) inhibitors) as a result of conventional methods of breeding or genetic engineering. An example of a crop that has been rendered tolerant to imidazolinones, e.g. imazamox, by conventional methods of breeding (mutagenesis) is Clearfield® summer rape (Canola). Examples of crops that have been rendered tolerant to herbicides or classes of herbicides by genetic engineering methods include glyphosate- and
25 glufosinate-resistant maize varieties commercially available under the trade names RoundupReady®, Herculex I® and LibertyLink®.

The term "useful plants" is to be understood as including also useful plants which have been so transformed by the use of recombinant DNA techniques that they are capable of synthesising one or more selectively acting toxins, such as are known, for example, from
30 toxin-producing bacteria, especially those of the genus Bacillus.

Toxins that can be expressed by such transgenic plants include, for example, insecticidal proteins, for example insecticidal proteins from Bacillus cereus or Bacillus popliae; or insecticidal proteins from Bacillus thuringiensis, such as δ -endotoxins, e.g. CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) or Cry9c, or vegetative

insecticidal proteins (VIP), e.g. VIP1, VIP2, VIP3 or VIP3A; or insecticidal proteins of bacteria colonising nematodes, for example *Photorhabdus* spp. or *Xenorhabdus* spp., such as *Photorhabdus luminescens*, *Xenorhabdus nematophilus*; toxins produced by animals, such as scorpion toxins, arachnid toxins, wasp toxins and other insect-specific neurotoxins; toxins produced by fungi, such as *Streptomyces* toxins, plant lectins, such as pea lectins, barley lectins or snowdrop lectins; agglutinins; proteinase inhibitors, such as trypsin inhibitors, serine protease inhibitors, patatin, cystatin, papain inhibitors; ribosome-inactivating proteins (RIP), such as ricin, maize-RIP, abrin, luffin, saporin or bryodin; steroid metabolism enzymes, such as 3-hydroxysteroidoxidase, ecdysteroid-UDP-glycosyl-transferase, cholesterol oxidases, ecdysone inhibitors, HMG-COA-reductase, ion channel blockers, such as blockers of sodium or calcium channels, juvenile hormone esterase, diuretic hormone receptors, stilbene synthase, bibenzyl synthase, chitinases and glucanases.

In the context of the present invention there are to be understood by δ -endotoxins, for example CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) or Cry9c, or vegetative insecticidal proteins (VIP), for example VIP1, VIP2, VIP3 or VIP3A, expressly also hybrid toxins, truncated toxins and modified toxins. Hybrid toxins are produced recombinantly by a new combination of different domains of those proteins (see, for example, WO 02/15701). An example for a truncated toxin is a truncated CryIA(b), which is expressed in the Bt11 maize from Syngenta Seed SAS, as described below. In the case of modified toxins, one or more amino acids of the naturally occurring toxin are replaced. In such amino acid replacements, preferably non-naturally present protease recognition sequences are inserted into the toxin, such as, for example, in the case of CryIIIA055, a cathepsin-D-recognition sequence is inserted into a CryIIIA toxin (see WO 03/018810)

Examples of such toxins or transgenic plants capable of synthesising such toxins are disclosed, for example, in EP-A-0 374 753, WO 93/07278, WO 95/34656, EP-A-0 427 529, EP-A-451 878 and WO 03/052073.

The processes for the preparation of such transgenic plants are generally known to the person skilled in the art and are described, for example, in the publications mentioned above. CryI-type deoxyribonucleic acids and their preparation are known, for example, from WO 95/34656, EP-A-0 367 474, EP-A-0 401 979 and WO 90/13651.

The toxin contained in the transgenic plants imparts to the plants tolerance to harmful insects. Such insects can occur in any taxonomic group of insects, but are especially

commonly found in the beetles (Coleoptera), two-winged insects (Diptera) and butterflies (Lepidoptera).

Transgenic plants containing one or more genes that code for an insecticidal resistance and express one or more toxins are known and some of them are commercially available. Examples of such plants are: YieldGard® (maize variety that expresses a CryIA(b) toxin); YieldGard Rootworm® (maize variety that expresses a CryIIIB(b1) toxin); YieldGard Plus® (maize variety that expresses a CryIA(b) and a CryIIIB(b1) toxin); Starlink® (maize variety that expresses a Cry9(c) toxin); Herculex I® (maize variety that expresses a CryIF(a2) toxin and the enzyme phosphinothricine N-acetyltransferase (PAT) to achieve tolerance to the herbicide glufosinate ammonium); NuCOTN 33B® (cotton variety that expresses a CryIA(c) toxin); Bollgard I® (cotton variety that expresses a CryIA(c) toxin); Bollgard II® (cotton variety that expresses a CryIA(c) and a CryIIA(b) toxin); VIPCOT® (cotton variety that expresses a VIP toxin); NewLeaf® (potato variety that expresses a CryIIIA toxin); NatureGard® and Protecta®.

Further examples of such transgenic crops are:

1. **Bt11 Maize** from Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St.

Sauveur, France, registration number C/FR/96/05/10. Genetically modified *Zea mays* which has been rendered resistant to attack by the European corn borer (*Ostrinia nubilalis* and *Sesamia nonagrioides*) by transgenic expression of a truncated CryIA(b) toxin. Bt11 maize also transgenically expresses the enzyme PAT to achieve tolerance to the herbicide glufosinate ammonium.

2. **Bt176 Maize** from Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St.

Sauveur, France, registration number C/FR/96/05/10. Genetically modified *Zea mays* which has been rendered resistant to attack by the European corn borer (*Ostrinia nubilalis* and *Sesamia nonagrioides*) by transgenic expression of a CryIA(b) toxin. Bt176 maize also transgenically expresses the enzyme PAT to achieve tolerance to the herbicide glufosinate ammonium.

3. **MIR604 Maize** from Syngenta Seeds SAS, Chemin de l'Hobit 27, F-31 790 St.

Sauveur, France, registration number C/FR/96/05/10. Maize which has been rendered insect-resistant by transgenic expression of a modified CryIIIA toxin. This toxin is Cry3A055 modified by insertion of a cathepsin-D-protease recognition sequence. The preparation of such transgenic maize plants is described in WO 03/018810.

4. **MON 863 Maize** from Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Brussels, Belgium, registration number C/DE/02/9. MON 863 expresses a CryIIIB(b1) toxin and has resistance to certain Coleoptera insects.

5. **IPC 531 Cotton** from Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Brussels, Belgium, registration number C/ES/96/02.

6. **1507 Maize** from Pioneer Overseas Corporation, Avenue Tedesco, 7 B-1160 Brussels, Belgium, registration number C/NL/00/10. Genetically modified maize for the expression of the protein Cry1F for achieving resistance to certain Lepidoptera insects and of the PAT protein for achieving tolerance to the herbicide glufosinate ammonium.

7. **NK603 × MON 810 Maize** from Monsanto Europe S.A. 270-272 Avenue de Tervuren, B-1150 Brussels, Belgium, registration number C/GB/02/M3/03. Consists of conventionally bred hybrid maize varieties by crossing the genetically modified varieties NK603 and MON 810. NK603 × MON 810 Maize transgenically expresses the protein CP4 EPSPS, obtained from *Agrobacterium sp.* strain CP4, which imparts tolerance to the herbicide Roundup® (contains glyphosate), and also a CryIA(b) toxin obtained from *Bacillus thuringiensis subsp. kurstaki* which brings about tolerance to certain Lepidoptera, include the European corn borer.

Transgenic crops of insect-resistant plants are also described in BATS (Zentrum für Biosicherheit und Nachhaltigkeit, Zentrum BATS, Clarastrasse 13, 4058 Basel, Switzerland) Report 2003, (<http://bats.ch>).

The term "useful plants" is to be understood as including also useful plants which have been so transformed by the use of recombinant DNA techniques that they are capable of synthesising antipathogenic substances having a selective action, such as, for example, the so-called "pathogenesis-related proteins" (PRPs, see e.g. EP-A-0 392 225). Examples of such antipathogenic substances and transgenic plants capable of synthesising such antipathogenic substances are known, for example, from EP-A-0 392 225, WO 95/33818, and EP-A-0 353 191. The methods of producing such transgenic plants are generally known to the person skilled in the art and are described, for example, in the publications mentioned above.

Antipathogenic substances which can be expressed by such transgenic plants include, for example, ion channel blockers, such as blockers for sodium and calcium channels, for example the viral KP1, KP4 or KP6 toxins; stilbene synthases; bibenzyl synthases; chitinases; glucanases; the so-called "pathogenesis-related proteins" (PRPs;

see e.g. EP-A-0 392 225); antipathogenic substances produced by microorganisms, for example peptide antibiotics or heterocyclic antibiotics (see e.g. WO 95/33818) or protein or polypeptide factors involved in plant pathogen defence (so-called "plant disease resistance genes", as described in WO 03/000906).

5 Useful plants of elevated interest in connection with present invention are cereals; soybean; rice; oil seed rape; pome fruits; stone fruits; peanuts; coffee; tea; strawberries; turf; vines and vegetables, such as tomatoes, potatoes, cucurbits and lettuce.

 The term "locus" of a useful plant as used herein is intended to embrace the place on which the useful plants are growing, where the plant propagation materials of the useful
10 plants are sown or where the plant propagation materials of the useful plants will be placed into the soil. An example for such a locus is a field, on which crop plants are growing.

 The term "plant propagation material" is understood to denote generative parts of a plant, such as seeds, which can be used for the multiplication of the latter, and vegetative material, such as cuttings or tubers, for example potatoes. There may be mentioned for
15 example seeds (in the strict sense), roots, fruits, tubers, bulbs, rhizomes and parts of plants. Germinated plants and young plants which are to be transplanted after germination or after emergence from the soil, may also be mentioned. These young plants may be protected before transplantation by a total or partial treatment by immersion. Preferably "plant propagation material" is understood to denote seeds.

20 A further aspect of the instant invention is a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms against attack of fungi, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) in a synergistically effective amount.

25 According to the instant invention, the term "natural substances of plant origin, which have been taken from the natural life cycle" denotes plants or parts thereof which have been harvested from the natural life cycle and which are in the freshly harvested form. Examples of such natural substances of plant origin are stalks, leaves, tubers, seeds, fruits or grains. According to the instant invention, the term "processed form of a natural substance
30 of plant origin" is understood to denote a form of a natural substance of plant origin that is the result of a modification process. Such modification processes can be used to transform the natural substance of plant origin in a more storable form of such a substance (a storage good). Examples of such modification processes are pre-drying, moistening, crushing, comminuting, grounding, compressing or roasting. Also falling under the definition of a

processed form of a natural substance of plant origin is timber, whether in the form of crude timber, such as construction timber, electricity pylons and barriers, or in the form of finished articles, such as furniture or objects made from wood.

According to the instant invention, the term “natural substances of animal origin, which
5 have been taken from the natural life cycle and/or their processed forms” is understood to denote material of animal origin such as skin, hides, leather, furs, hairs and the like.

The combinations according the present invention can prevent disadvantageous effects such as decay, discoloration or mold.

A preferred embodiment is a method of protecting natural substances of plant origin,
10 which have been taken from the natural life cycle, and/or their processed forms against attack of fungi, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) in a synergistically effective amount.

A further preferred embodiment is a method of protecting fruits, preferably pomes,
15 stone fruits, soft fruits and citrus fruits, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said fruits and/or their processed forms a combination of components (A) and (B) in a synergistically effective amount.

The combinations of the present invention may also be used in the field of protecting industrial material against attack of fungi. According to the instant invention, the term
20 “industrial material” denotes non-live material which have been prepared for use in industry. For example, industrial materials which are intended to be protected against attack of fungi can be glues, sizes, paper, board, textiles, carpets, leather, wood, constructions, paints, plastic articles, cooling lubricants, aqueous hydraulic fluids and other materials which can be infested with, or decomposed by, microorganisms. Cooling and heating systems,
25 ventilation and air conditioning systems and parts of production plants, for example cooling-water circuits, which may be impaired by multiplication of microorganisms may also be mentioned from amongst the materials to be protected. The combinations according the present invention can prevent disadvantageous effects such as decay, discoloration or mold.

30 The combinations of the present invention may also be used in the field of protecting technical material against attack of fungi. According to the instant invention, the term “technical material” includes paper; carpets; constructions; cooling and heating systems; ventilation and air conditioning systems and the like. The combinations according the

present invention can prevent disadvantageous effects such as decay, discoloration or mold.

The combinations according to the present invention are particularly effective against powdery mildews; rusts; leafspot species; early blights and molds; especially against
5 Septoria, Puccinia, Erysiphe, Pyrenophora and Tapesia in cereals; Phakopsora in soybeans; Hemileia in coffee; Phragmidium in roses; Alternaria in potatoes, tomatoes and cucurbits; Sclerotinia in turf, vegetables, sunflower and oil seed rape; black rot, red fire, powdery mildew, grey mold and dead arm disease in vine; Botrytis cinerea in fruits; Monilinia spp. in fruits and Penicillium spp. in fruits.

10 The combinations according to the present invention are furthermore particularly effective against seedborne and soilborne diseases, such as Alternaria spp., Ascochyta spp., Botrytis cinerea, Cercospora spp., Claviceps purpurea, Cochliobolus sativus, Colletotrichum spp., Epicoccum spp., Fusarium graminearum, Fusarium moniliforme, Fusarium oxysporum, Fusarium proliferatum, Fusarium solani, Fusarium subglutinans,
15 Gäumannomyces graminis, Helminthosporium spp., Microdochium nivale, Phoma spp., Pyrenophora graminea, Pyricularia oryzae, Rhizoctonia solani, Rhizoctonia cerealis, Sclerotinia spp., Septoria spp., Sphacelotheca reilliana, Tilletia spp., Typhula incarnata, Urocystis occulta, Ustilago spp. or Verticillium spp.; in particular against pathogens of cereals, such as wheat, barley, rye or oats; maize; rice; cotton; soybean; turf; sugarbeet; oil
20 seed rape; potatoes; pulse crops, such as peas, lentils or chickpea; and sunflower.

The combinations according to the present invention are furthermore particularly effective against post harvest diseases such as Botrytis cinerea, Colletotrichum musae, Curvularia lunata, Fusarium semitectum, Geotrichum candidum, Monilinia fructicola, Monilinia fructigena, Monilinia laxa, Mucor piriformis, Penicillium italicum, Penicillium solitum,
25 Penicillium digitatum or Penicillium expansum in particular against pathogens of fruits, such as pomefruits, for example apples and pears, stone fruits, for example peaches and plums, citrus, melons, papaya, kiwi, mango, berries, for example strawberries, avocados, pomegranates and bananas, and nuts.

The amount of a combination of the invention to be applied, will depend on various
30 factors, such as the compounds employed; the subject of the treatment, such as, for example plants, soil or seeds; the type of treatment, such as, for example spraying, dusting or seed dressing; the purpose of the treatment, such as, for example prophylactic or therapeutic; the type of fungi to be controlled or the application time.

The mixtures comprising a compound of formula I selected from table 1 and 2 and one or more active ingredients as described above can be applied, for example, in a single "ready-mix" form, in a combined spray mixture composed from separate formulations of the single active ingredient components, such as a "tank-mix", and in a combined use of the single active ingredients when applied in a sequential manner, i.e. one after the other with a reasonably short period, such as a few hours or days. The order of applying the compounds of formula I selected from table 1 and the active ingredients as described above is not essential for working the present invention.

Some of said combinations according to the invention have a systemic action and can be used as foliar, soil and seed treatment fungicides.

With the combinations according to the invention it is possible to inhibit or destroy the phytopathogenic microorganisms which occur in plants or in parts of plants (fruit, blossoms, leaves, stems, tubers, roots) in different useful plants, while at the same time the parts of plants which grow later are also protected from attack by phytopathogenic microorganisms.

The combinations of the present invention are of particular interest for controlling a large number of fungi in various useful plants or their seeds, especially in field crops such as potatoes, tobacco and sugarbeets, and wheat, rye, barley, oats, rice, maize, lawns, cotton, soybeans, oil seed rape, pulse crops, sunflower, coffee, sugarcane, fruit and ornamentals in horticulture and viticulture, in vegetables such as cucumbers, beans and cucurbits.

The combinations according to the invention are applied by treating the fungi, the useful plants, the locus thereof, the propagation material thereof, the natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, or the industrial materials threatened by fungus attack with a combination of components (A) and (B), preferably in a synergistically effective amount.

The combinations according to the invention may be applied before or after infection of the useful plants, the propagation material thereof, the natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, or the industrial materials by the fungi.

The combinations according to the invention are particularly useful for controlling the following plant diseases:

Alternaria species in fruit and vegetables,

Ascochyta species in pulse crops,

Botrytis cinerea in strawberries, tomatoes, sunflower, pulse crops, vegetables and grapes,

- Cercospora arachidicola in peanuts,
Cochliobolus sativus in cereals,
Colletotrichum species in pulse crops,
Erysiphe species in cereals,
- 5 Erysiphe cichoracearum and Sphaerotheca fuliginea in cucurbits,
Fusarium species in cereals and maize,
Gäumannomyces graminis in cereals and lawns,
Helminthosporium species in maize, rice and potatoes,
Hemileia vastatrix on coffee,
- 10 Microdochium species in wheat and rye,
Phakopsora species in soybean,
Puccinia species in cereals, broadleaf crops and perennial plants,
Pseudocercospora species in cereals,
Phragmidium mucronatum in roses,
- 15 Podosphaera species in fruits,
Pyrenophora species in barley,
Pyricularia oryzae in rice,
Ramularia collo-cygni in barley,
Rhizoctonia species in cotton, soybean, cereals, maize, potatoes, rice and lawns,
- 20 Rhynchosporium secalis in barley and rye,
Sclerotinia species in lawns, lettuce, vegetables and oil seed rape,
Septoria species in cereals, soybean and vegetables,
Sphacelotheca reilliana in maize,
Tilletia species in cereals,
- 25 Uncinula necator, Guignardia bidwellii and Phomopsis viticola in vines,
Urocystis occulta in rye,
Ustilago species in cereals and maize,
Venturia species in fruits,
Monilinia species on fruits,
- 30 Penicillium species on citrus and apples.

The combinations according to the invention are preventively and/or curatively valuable active ingredients in the field of pest control, even at low rates of application, which have a very favorable biocidal spectrum and are well tolerated by warm-blooded species, fish and plants. The active ingredients according to the invention which are partially known

for their insecticidal action act against all or individual developmental stages of normally sensitive, but also resistant, animal pests, such as insects or representatives of the order Acarina. The insecticidal or acaricidal activity of the combinations according to the invention can manifest itself directly, i.e. in destruction of the pests, which takes place either
5 immediately or only after some time has elapsed, for example during ecdysis, or indirectly, for example in a reduced oviposition and/or hatching rate, a good activity corresponding to a destruction rate (mortality) of at least 50 to 60%.

Examples of the abovementioned animal pests are:

from the order *Acarina*, for example,

- 10 Acarus siro, Aceria sheldoni, Aculus schlechtendali, Amblyomma spp., Argas spp., Boophilus spp., Brevipalpus spp., Bryobia praetiosa, Calipitimerus spp., Chorioptes spp., Dermanyssus gallinae, Eotetranychus carpini, Eriophyes spp., Hyalomma spp., Ixodes spp., Olygonychus pratensis, Ornithodoros spp., Panonychus spp., Phyllocoptura oleivora, Polyphagotarsonemus latus, Psoroptes spp., Rhipicephalus spp., Rhizoglyphus spp., Sarcoptes
15 spp., Tarsonemus spp. and Tetranychus spp.;

from the order *Anoplura*, for example,

Haematopinus spp., Linognathus spp., Pediculus spp., Pemphigus spp. and Phylloxera spp.;

from the order *Coleoptera*, for example,

- 20 Agriotes spp., Anthonomus spp., Atomaria linearis, Chaetocnema tibialis, Cosmopolites spp., Curculio spp., Dermestes spp., Diabrotica spp., Epilachna spp., Eremnus spp., Leptinotarsa decemlineata, Lissorhoptrus spp., Melolontha spp., Orycaephilus spp., Otiorhynchus spp., Phlyctinus spp., Popillia spp., Psylliodes spp., Rhizopertha spp., Scarabeidae, Sitophilus spp., Sitotroga spp., Tenebrio spp., Tribolium spp. and Trogoderma spp.;

- 25 from the order *Diptera*, for example,

Aedes spp., Antherigona soccata, Bibio hortulanus, Calliphora erythrocephala, Ceratitis spp., Chrysomyia spp., Culex spp., Cuterebra spp., Dacus spp., Drosophila melanogaster, Fannia spp., Gastrophilus spp., Glossina spp., Hypoderma spp., Hyppobosca spp., Liriomyza spp., Lucilia spp., Melanagromyza spp., Musca spp., Oestrus spp., Orseolia spp., Oscinella frit, Pegomyia hyoscyami, Phorbia spp., Rhagoletis pomonella, Sciara spp., Stomoxys
30 spp., Tabanus spp., Tannia spp. and Tipula spp.;

from the order *Heteroptera*, for example,

Cimex spp., Distantiella theobroma, Dysdercus spp., Euchistus spp., Eurygaster spp., Lep-
 tocorisa spp., Nezara spp., Piesma spp., Rhodnius spp., Sahlbergella singularis, Scotino-
 phara spp. and Triatoma spp.;

from the order *Homoptera*, for example,

- 5 Aleurothrixus floccosus, Aleyrodes brassicae, Aonidiella spp., Aphididae, Aphis spp., Aspi-
 diotus spp., Bemisia tabaci, Ceroplaster spp., Chrysomphalus aonidium, Chrysomphalus
 dictyospermi, Coccus hesperidum, Empoasca spp., Eriosoma larigerum, Erythroneura spp.,
 Gascardia spp., Laodelphax spp., Lecanium corni, Lepidosaphes spp., Macrosiphus spp.,
 Myzus spp., Nephrotettix spp., Nilaparvata spp., Parlatoria spp., Pemphigus spp., Planococ-
 10 cus spp., Pseudaulacaspis spp., Pseudococcus spp., Psylla spp., Pulvinaria aethiopica,
 Quadraspidiotus spp., Rhopalosiphum spp., Saissetia spp., Scaphoideus spp., Schizaphis
 spp., Sitobion spp., Trialeurodes vaporariorum, Trioza erytreae and Unaspis citri;
 from the order *Hymenoptera*, for example, Acromyrmex, Atta spp., Cephus spp., Diprion
 spp., Diprionidae, Gilpinia polytoma, Hoplocampa spp., Lasius spp., Monomorium
 15 pharaonis, Neodiprion spp., Solenopsis spp. and Vespa spp.;

from the order *Isoptera*, for example,

Reticulitermes spp.;

from the order *Lepidoptera*, for example,

- Acleris spp., Adoxophyes spp., Aegeria spp., Agrotis spp., Alabama argillaceae, Amylois
 20 spp., Anticarsia gemmatilis, Archips spp., Argyrotaenia spp., Autographa spp., Busseola
 fusca, Cadra cautella, Carposina nipponensis, Chilo spp., Choristoneura spp., Clysia ambi-
 guella, Cnaphalocrocis spp., Cnephasia spp., Cochylis spp., Coleophora spp., Crocidolomia
 binotalis, Cryptophlebia leucotreta, Cydia spp., Diatraea spp., Diparopsis castanea, Earias
 spp., Ephestia spp., Eucosma spp., Eupoecilia ambiguella, Euproctis spp., Euxoa spp., Gra-
 25 pholita spp., Hedya nubiferana, Heliothis spp., Hellula undalis, Hyphantria cunea, Keiferia
 lycopersicella, Leucoptera scitella, Lithocollethis spp., Lobesia botrana, Lymantria spp., Ly-
 onetia spp., Malacosoma spp., Mamestra brassicae, Manduca sexta, Operophtera spp.,
 Ostrinia nubilalis, Pammene spp., Pandemis spp., Panolis flammea, Pectinophora gossypi-
 ela, Phthorimaea operculella, Pieris rapae, Pieris spp., Plutella xylostella, Prays spp., Scir-
 30 pophaga spp., Sesamia spp., Sparganothis spp., Spodoptera spp., Synanthedon spp.,
 Thaumetopoea spp., Tortrix spp., Trichoplusia ni and Yponomeuta spp.;

from the order *Mallophaga*, for example,

Damalinea spp. and Trichodectes spp.;

from the order *Orthoptera*, for example,

Blatta spp., Blattella spp., Gryllotalpa spp., Leucophaea maderae, Locusta spp., Periplaneta spp. and Schistocerca spp.;

from the order *Psocoptera*, for example,

Liposcelis spp.;

5 from the order *Siphonaptera*, for example,

Ceratophyllus spp., Ctenocephalides spp. and Xenopsylla cheopis;

from the order *Thysanoptera*, for example,

Frankliniella spp., Hercinothrips spp., Scirtothrips aurantii, Taeniothrips spp., Thrips palmi and Thrips tabaci;

10 from the order *Thysanura*, for example,

Lepisma saccharina;

nematodes, for example root knot nematodes, stem eelworms and foliar nematodes;

especially Heterodera spp., for example Heterodera schachtii, Heterodora avenae and

Heterodora trifolii; Globodera spp., for example Globodera rostochiensis; Meloidogyne spp.,

15 for example Meloidogyne incognita and Meloidogyne javanica; Radopholus spp., for

example Radopholus similis; Pratylenchus, for example Pratylenchus neglectans and

Pratylenchus penetrans; Tylenchulus, for example Tylenchulus semipenetrans; Longidorus,

Trichodorus, Xiphinema, Ditylenchus, Aphelenchoides and Anguina;

crucifer flea beetles (Phyllotreta spp.);

20 root maggots (Delia spp.) and

cabbage seedpod weevil (Ceutorhynchus spp.).

The combinations according to the invention can be used for controlling, i. e.

containing or destroying, animal pests of the abovementioned type which occur on useful

plants in agriculture, in horticulture and in forests, or on organs of useful plants, such as

25 fruits, flowers, foliage, stalks, tubers or roots, and in some cases even on organs of useful

plants which are formed at a later point in time remain protected against these animal pests.

When applied to the useful plants the component (A) is applied at a rate of 5 to 2000

g a.i./ha, particularly 10 to 1000 g a.i./ha, e.g. 50, 75, 100 or 200 g a.i./ha, in association

with 1 to 5000 g a.i./ha, particularly 2 to 2000 g a.i./ha, e.g. 100, 250, 500, 800, 1000, 1500

30 g a.i./ha of component (B), depending on the class of chemical employed as component (B).

In agricultural practice the application rates of the combination according to the invention depend on the type of effect desired, and typically range from 20 to 4000 g of total combination per hectare.

When the combinations of the present invention are used for treating seed, rates of 0.001 to 50 g of a compound of formula I per kg of seed, preferably from 0.01 to 10g per kg of seed, and 0.001 to 50 g of a compound of component (B), per kg of seed, preferably from 0.01 to 10g per kg of seed, are generally sufficient.

5 The invention also provides fungicidal compositions comprising a combination of components (A) and (B) as mentioned above in a synergistically effective amount, together with an agriculturally acceptable carrier, and optionally a surfactant. In said compositions, the weight ratio of (A) to (B) is preferably between 1000 : 1 and 1 : 1000.

10 The compositions of the invention may be employed in any conventional form, for example in the form of a twin pack, a powder for dry seed treatment (DS), an emulsion for seed treatment (ES), a flowable concentrate for seed treatment (FS), a solution for seed treatment (LS), a water dispersible powder for seed treatment (WS), a capsule suspension for seed treatment (CF), a gel for seed treatment (GF), an emulsion concentrate (EC), a suspension concentrate (SC), a suspo-emulsion (SE), a capsule suspension (CS), a water
15 dispersible granule (WG), an emulsifiable granule (EG), an emulsion, water in oil (EO), an emulsion, oil in water (EW), a micro-emulsion (ME), an oil dispersion (OD), an oil miscible flowable (OF), an oil miscible liquid (OL), a soluble concentrate (SL), an ultra-low volume suspension (SU), an ultra-low volume liquid (UL), a technical concentrate (TK), a dispersible concentrate (DC), a wettable powder (WP) or any technically feasible formulation in
20 combination with agriculturally acceptable adjuvants.

Such compositions may be produced in conventional manner, e.g. by mixing the active ingredients with appropriate formulation inerts (diluent, solvents, fillers and optionally other formulating ingredients such as surfactants, biocides, anti-freeze, stickers, thickeners and compounds that provide adjuvancy effects). Also conventional slow release
25 formulations may be employed where long lasting efficacy is intended. Particularly formulations to be applied in spraying forms, such as water dispersible concentrates (e.g. EC, SC, DC, OD, SE, EW, EO and the like), wettable powders and granules, may contain surfactants such as wetting and dispersing agents and other compounds that provide adjuvancy effects, e.g. the condensation product of formaldehyde with naphthalene
30 sulphonate, an alkylarylsulphonate, a lignin sulphonate, a fatty alkyl sulphate, and ethoxylated alkylphenol and an ethoxylated fatty alcohol.

A seed dressing formulation is applied in a manner known per se to the seeds employing the combination of the invention and a diluent in suitable seed dressing formulation form, e.g. as an aqueous suspension or in a dry powder form having good

adherence to the seeds. Such seed dressing formulations are known in the art. Seed dressing formulations may contain the single active ingredients or the combination of active ingredients in encapsulated form, e.g. as slow release capsules or microcapsules.

In general, the formulations include from 0.01 to 90% by weight of active agent, from 5 0 to 20% agriculturally acceptable surfactant and 10 to 99.99% solid or liquid formulation inerts and adjuvant(s), the active agent consisting of at least the compound of formula I together with component (B) and (C), and optionally other active agents, particularly microbiocides or conservatives or the like. Concentrated forms of compositions generally contain in between about 2 and 80%, preferably between about 5 and 70% by weight of 10 active agent. Application forms of formulation may for example contain from 0.01 to 20% by weight, preferably from 0.01 to 5% by weight of active agent. Whereas commercial products will preferably be formulated as concentrates, the end user will normally employ diluted formulations.

The Examples which follow serve to illustrate the invention, "active ingredient" 15 denoting a mixture of compound I and compounds of component (B) in a specific mixing ratio.

Formulation Examples

Wettable powders

	a)	b)	c)
active ingredient [I : comp (B) = 1:3(a), 1:2(b), 1:1(c)]	25 %	50 %	75 %
sodium lignosulfonate	5 %	5 %	-
sodium lauryl sulfate	3 %	-	5 %
sodium diisobutyl naphthalenesulfonate	-	6 %	10 %
phenol polyethylene glycol ether (7-8 mol of ethylene oxide)	-	2 %	-
highly dispersed silicic acid	5 %	10 %	10 %
Kaolin	62 %	27 %	-

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

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Powders for dry seed treatment

	a)	b)	c)
active ingredient [I : comp (B) = 1:3(a), 1:2(b), 1:1(c)]	25 %	50 %	75 %
light mineral oil	5 %	5 %	5 %
highly dispersed silicic acid	5 %	5 %	-
Kaolin	65 %	40 %	-
Talcum	-	-	20

The active ingredient is thoroughly mixed with the adjuvants and the mixture is thoroughly ground in a suitable mill, affording powders that can be used directly for seed treatment.

Emulsifiable concentrate

active ingredient (I : comp (B) = 1:6)	10 %
octylphenol polyethylene glycol ether (4-5 mol of ethylene oxide)	3 %
calcium dodecylbenzenesulfonate	3 %
castor oil polyglycol ether (35 mol of ethylene oxide)	4 %
Cyclohexanone	30 %
xylene mixture	50 %

Emulsions of any required dilution, which can be used in plant protection, can be obtained

5 from this concentrate by dilution with water.

Dusts

	a)	b)	c)
Active ingredient [I : comp (B) = 1:6(a), 1:2(b), 1:10(c)]	5 %	6 %	4 %
talcum	95 %	-	-
Kaolin	-	94 %	-
mineral filler	-	-	96 %

Ready-for-use dusts are obtained by mixing the active ingredient with the carrier and grinding the mixture in a suitable mill. Such powders can also be used for dry dressings for seed.

Extruder granules

Active ingredient (I : comp (B) = 2:1)	15 %
sodium lignosulfonate	2 %

- 30 -

carboxymethylcellulose	1 %
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Kaolin	82 %
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The active ingredient is mixed and ground with the adjuvants, and the mixture is moistened with water. The mixture is extruded and then dried in a stream of air.

Coated granules

Active ingredient (I : comp (B) = 1:10)	8 %
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polyethylene glycol (mol. wt. 200)	3 %
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Kaolin	89 %
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5 The finely ground active ingredient is uniformly applied, in a mixer, to the kaolin moistened with polyethylene glycol. Non-dusty coated granules are obtained in this manner.

Suspension concentrate

active ingredient (I : comp (B) = 1:8)	40 %
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propylene glycol	10 %
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nonylphenol polyethylene glycol ether (15 mol of ethylene oxide)	6 %
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Sodium lignosulfonate	10 %
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carboxymethylcellulose	1 %
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silicone oil (in the form of a 75 % emulsion in water)	1 %
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Water	32 %
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10 The finely ground active ingredient is intimately mixed with the adjuvants, giving a suspension concentrate from which suspensions of any desired dilution can be obtained by dilution with water. Using such dilutions, living plants as well as plant propagation material can be treated and protected against infestation by microorganisms, by spraying, pouring or immersion.

Flowable concentrate for seed treatment

active ingredient (I : comp (B) = 1:8)	40 %
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propylene glycol	5 %
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copolymer butanol PO/EO	2 %
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tristyrenephenole with 10-20 moles EO	2 %
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1,2-benzisothiazolin-3-one (in the form of a 20% solution in water)	0.5 %
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- 31 -

monoazo-pigment calcium salt	5 %
Silicone oil (in the form of a 75 % emulsion in water)	0.2 %
Water	45.3 %

The finely ground active ingredient is intimately mixed with the adjuvants, giving a suspension concentrate from which suspensions of any desired dilution can be obtained by dilution with water. Using such dilutions, living plants as well as plant propagation material can be treated and protected against infestation by microorganisms, by spraying, pouring or immersion.

Slow Release Capsule Suspension

28 parts of a combination of the compound of formula I and a component (B), or of each of these compounds separately, are mixed with 2 parts of an aromatic solvent and 7 parts of toluene diisocyanate/polymethylene-polyphenylisocyanate-mixture (8:1). This mixture is emulsified in a mixture of 1.2 parts of polyvinylalcohol, 0.05 parts of a defoamer and 51.6 parts of water until the desired particle size is achieved. To this emulsion a mixture of 2.8 parts 1,6-diaminohexane in 5.3 parts of water is added. The mixture is agitated until the polymerization reaction is completed.

The obtained capsule suspension is stabilized by adding 0.25 parts of a thickener and 3 parts of a dispersing agent. The capsule suspension formulation contains 28% of the active ingredients. The medium capsule diameter is 8-15 microns.

The resulting formulation is applied to seeds as an aqueous suspension in an apparatus suitable for that purpose.

BIOLOGICAL EXAMPLES

Liquid culture tests in well plates:

Mycelia fragments or conidia suspensions of a fungus, prepared either freshly from liquid cultures of the fungus or from cryogenic storage, were directly mixed into nutrient broth.

DMSO solutions of the test compound (max. 10 mg/ml) was diluted with 0.025% Tween20 by factor 50 and 10 µl of this solution was pipetted into a microtiter plate (96-well format).

The nutrient broth containing the fungal spores/mycelia fragments was then added to give an end concentration of the tested compound. The test plates were incubated in the dark at

24°C and 96% rh. The inhibition of fungal growth was determined photometrically and

visually after 2 – 4 days, depending on the pathosystem, and percent antifungal activity relative to the untreated check was calculated.

Alternaria solani / liquid culture:

- 5 Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). After placing a (DMSO) solution of test compound into a microtiter plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were incubated at 24°C and the inhibition of growth was determined photometrically and visually 2-3 day after application.

10

Botryotinia fuckeliana (Botrytis cinerea) / liquid culture:

- Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (Vogels broth). After placing a (DMSO) solution of test compound into a microtiter plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were
15 incubated at 24°C and the inhibition of growth was determined photometrically and visually 3 days after application.

Fusarium culmorum / liquid culture:

- Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB
20 potato dextrose broth). After placing a (DMSO) solution of test compound into a microtiter plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were incubated at 24°C and the inhibition of growth was determined photometrically and visually 3 days after application.

25 **Gaeumannomyces graminis** / liquid culture:

- Mycelial fragments of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). After placing a (DMSO) solution of test compound into a microtiter plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were incubated at 24°C and the inhibition of growth was determined
30 photometrically and visually 3-4 days after application.

Monographella nivalis (Microdochium nivale) / liquid culture :

Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). After placing a (DMSO) solution of test compound into a microtiter

plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were incubated at 24°C and the inhibition of growth was determined photometrically and visually 3-4 days after application.

5 **Mycosphaerella graminicola (Septoria tritici) / liquid culture:**

Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). After placing a (DMSO) solution of test compound into a microtiter plate (96-well format), the nutrient broth containing the fungal spores was added. The test plates were incubated at 24°C and the inhibition of growth was determined photometrically and visually 4 days after application.

Pythium ultimum seedling damping off/ liquid culture:

Mycelia fragments and oospores of a newly grown liquid culture of the fungus were directly mixed into nutrient broth (PDB potato dextrose broth). After placing a (DMSO) solution of the test compounds into a microtiter plate (96-well format), the nutrient broth containing the fungal mycelia/spore mixture was added. The test plates were incubated at 24°C and the inhibition of growth was determined visually 2-3 days after application.

20 **RESULTS**

Representative examples of results from the tests outlined above are shown below in Tables 3 to 38. These data shown that synergistic fungicidal activity is observed for each of the following combinations, a compound of formula (I) and (B1) a compound of formula (II), a compound of formula (I) and a (B2) fenpyrazine, a compound of formula (I) and (B4) oxathiapiprolin, a compound of formula (I) and (B5) tolprocarb, a compound of formula (I) and (B6) flufenoxystrobin, a compound of formula (I) and (B9) the compound of formula (III), a compound of formula (I) and (B10) coumoxystrobin, a compound of formula (I) and (B11) mandestrobin, a compound of formula (I) and B12) tebufloquin, a compound of formula (I) and (B13) triclopyricarb, a compound of formula (I) and (B14) the compound of formula (IV), in tests against one or more of the fungi as outlined above. In each case, the compound of formula (I) tested was compound 1.001 (i.e. 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide).

Table 3 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II) – in this case wherein R⁹ is methyl - against *Pythium ultimum* in PDB

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound 1.001:(B1)	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0063	0.0000	n/a	11	-	-	-
0.0125	0.0000		0	-	-	-
0.0250	0.0000		0	-	-	-
0.0500	0.0000		0	-	-	-
0.1000	0.0000		2	-	-	-
0.2000	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	25	-	-
0.0000	0.5000		-	1	-	-
0.0063	0.2500	1:40	-	-	99	33
0.0125	0.5000		-	-	99	1
0.0250	0.5000	1:20	-	-	100	1
0.0250	0.2500	1:10	-	-	100	25
0.0500	0.5000		-	-	100	1
0.1000	0.5000	1:5	-	-	99	3
0.1000	0.2500	2:5	-	-	99	27
0.2000	0.5000		-	-	100	1

5 Table 4 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II) – in this case wherein R⁹ is methyl - against *Fusarium culmorum* in PDB

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound 1.001:(B1)	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	7	-	-	-
0.0031	0.0000		19	-	-	-
0.0063	0.0000		14	-	-	-
0.0125	0.0000		20	-	-	-
0.0250	0.0000		38	-	-	-
0.0500	0.0000		46	-	-	-
0.0000	0.0625	n/a	-	0	-	-
0.0000	0.1250		-	6	-	-
0.0016	0.0625	1:40	-	-	48	7
0.0031	0.1250		-	-	95	23
0.0031	0.0625	1:20	-	-	59	19
0.0063	0.1250		-	-	95	19
0.0125	0.1250	1:10	-	-	100	24
0.0125	0.0625	1:5	-	-	50	20
0.0250	0.1250		-	-	99	41
0.0250	0.0625	2:5	-	-	68	38
0.0500	0.1250		-	-	100	49

10 Table 5 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II) – in this case wherein R⁹ is methyl - against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition	Expected (additive) activity
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		1.001:(B1)			(%)	(Colby)
0.0004	0.0000	n/a	0	-	-	-
0.0008	0.0000		0	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		0	-	-	-
0.0000	0.0078	n/a	-	42	-	-
0.0004	0.0078	1:20	-	-	47	42
0.0008	0.0078	1:10	-	-	69	42
0.0016	0.0078	1:5	-	-	87	42
0.0031	0.0078	2:5	-	-	91	42

5 **Table 6 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II)) – in this case wherein R⁹ is methyl - against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth**

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound 1.001:(B1)	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	16	-	-	-
0.0031	0.0000		49	-	-	-
0.0063	0.0000		61	-	-	-
0.0125	0.0000		79	-	-	-
0.0000	0.0156	n/a	-	0	-	-
0.0000	0.0313		-	12	-	-
0.0000	0.0625		-	21	-	-
0.0016	0.0625	1:40	-	-	80	33
0.0016	0.0313	1:20	-	-	47	26
0.0031	0.0625		-	-	85	60
0.0063	0.0156	1:10	-	-	93	69
0.0063	0.0313	1:5	-	-	73	66
0.0063	0.0625		-	-	94	83
0.0063	0.0156	2:5	-	-	68	61

10 **Table 7 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II)) – in this case wherein R⁹ is methyl - against *Alternaria solani* in PDB**

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound 1.001:(B1)	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	36	-	-	-
0.0016	0.0000		57	-	-	-
0.0031	0.0000		81	-	-	-
0.0000	0.0078	n/a	-	11	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	0	-	-
0.0000	0.0625		-	0	-	-
0.0000	0.1250		-	2	-	-
0.0008	0.0313	1:40	-	-	44	36
0.0016	0.0625		-	-	75	57
0.0031	0.1250		-	-	90	82

0.0016	0.0313	1:20	-	-	70	57
0.0016	0.0156	1:10	-	-	65	57
0.0016	0.0078	1:5	-	-	71	61

Table 8 Fungicidal activity of compound of formula (I) (compound 1.001) and (B1) the compound of formula (II),) – in this case wherein R⁹ is methyl -against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

Compound 1.001 (ppm)	(B1) (ppm)	Ratio compound 1.001:(B1)	Compound 1.001 inhibition (%)	(B1) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	15	-	-	-
0.0016	0.0000		34	-	-	-
0.0031	0.0000		81	-	-	-
0.0000	0.0156	n/a	-	15	-	-
0.0000	0.0313		-	15	-	-
0.0008	0.0313	1:40	-	-	66	28
0.0008	0.0156	1:20	-	-	42	28
0.0016	0.0313		-	-	88	44
0.0016	0.00156	1:10	-	-	50	44
0.0031	0.0313				98	83

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Table 9 Fungicidal activity of compound of formula (I) (compound 1.001) and (B2) fenpyrazamine against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B2) (ppm)	Ratio compound 1.001:(B2)	Compound 1.001 inhibition (%)	(B2) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	37	-	-	-
0.0016	0.0000		64	-	-	-
0.0000	0.0313	n/a	-	0	-	-
0.0000	0.0625		-	1	-	-
0.0008	0.0313	1:40	-	-	42	37
0.0016	0.0625		-	-	75	64

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Table 10 Fungicidal activity of compound of formula (I) (compound 1.001) and (B4) oxathiapiprolin against *Pythium ultimum* in PDB

Compound 1.001 (ppm)	(B4) (ppm)	Ratio compound 1.001:(B4)	Compound 1.001 inhibition (%)	(B4) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	0	-	-	-
0.0031	0.0000		0	-	-	-
0.0000	0.0625	n/a	-	61	-	-
0.0016	0.0625	1:40	-	-	82	61
0.0016	0.0625	1:20	-	-	76	61

15

Table 11 Fungicidal activity of compound of formula (I) (compound 1.001) and (B4) oxathiapiprolin, against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B4) (ppm)	Ratio compound	Compound 1.001 inhibition (%)	(B4) Inhibition (%)	Combined inhibition	Expected (additive) activity
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		1.001:(B4)			(%)	(Colby)
0.0008	0.0000	n/a	42	-	-	-
0.0016	0.0000		68	-	-	-
0.0000	0.0039	n/a	-	0	-	-
0.0000	0.0078		-	4	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	0	-	-
0.0008	0.0039	1:4	-	-	55	42
0.0008	0.0078	1:10	-	-	49	45
0.0008	0.0156	1:20	-	-	50	42
0.0008	0.0313	1:40	-	-	64	42
0.0016	0.0625		-	-	78	68

Table 12 Fungicidal activity of compound of formula (I) (compound 1.001) and (B4) oxathiapiprolin, against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

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Compound 1.001 (ppm)	(B4) (ppm)	Ratio compound 1.001:(B4)	Compound 1.001 inhibition (%)	(B4) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	54	-	-	-
0.0000	0.0313	n/a	-	8	-	-
0.0000	0.0625		-	4	-	-
0.0016	0.0313	1:20	-	-	65	58
0.0016	0.0625	1:40	-	-	67	56

Table 13 Fungicidal activity of compound of formula (I) (compound 1.001) and (B5) tolprocarb, against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B5) (ppm)	Ratio compound 1.001:(B5)	Compound 1.001 inhibition (%)	(B5) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	51	-	-	-
0.0016	0.0000		69	-	-	-
0.0031	0.0000		82	-	-	-
0.0000	0.0391	n/a	-	0	-	-
0.0000	0.0781		-	0	-	-
0.0000	0.3125		-	0	-	-
0.0008	0.3125	1.40	-	-	59	51
0.0016	0.0391	1:25	-	-	78	69
0.0031	0.0781		-	-	93	82
0.0031	0.3125	1:100	-	-	91	82

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Table 14 Fungicidal activity of compound of formula (I) (compound 1.001) and (B5) tolprocarb, against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

Compound 1.001 (ppm)	(B5) (ppm)	Ratio compound 1.001:(B5)	Compound 1.001 inhibition (%)	(B5) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	47	-	-	-
0.0000	0.0391	n/a	-	7	-	-

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0.0000	0.0781		-	1	-	-
0.0000	0.1563		-	4	-	-
0.0000	0.6250		-	1	-	-
0.0016	0.0391	1:25	-	-	59	50
0.0016	0.0781	1:50	-	-	52	48
0.0016	0.1563	1:100	-	-	60	49
0.0016	0.6250	1:400	-	-	68	47

Table 15 Fungicidal activity of compound of formula (I) (compound 1.001) and (B6) flufenoxystrobin, against *Fusarium culmorum* in PDB

Compound 1.001 (ppm)	(B6) (ppm)	Ratio compound 1.001:(B6)	Compound 1.001 inhibition (%)	(B6) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	24	-	-	-
0.0500	0.0000		49	-	-	-
0.1000	0.0000		51	-	-	-
0.2000	0.0000		55	-	-	-
0.0000	0.0500	n/a	-	5	-	-
0.0000	0.1000		-	3	-	-
0.0000	0.2000		-	12	-	-
0.0250	0.1000	1:4	-	-	57	27
0.0500	0.2000		-	-	70	55
0.0250	0.0500	1:2	-	-	43	28
0.0500	0.1000		-	-	63	50
0.1000	0.2000		-	-	68	57
0.1000	0.1000	1:1	-	-	63	52
0.2000	0.2000		-	-	71	60
0.2000	0.1000	2:1	-	-	66	56

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Table 16 Fungicidal activity of compound of formula (I) (compound 1.001) and (B6) flufenoxystrobin, against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B6) (ppm)	Ratio compound 1.001:(B6)	Compound 1.001 inhibition (%)	(B6) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0004	0.0000	n/a	0	-	-	-
0.0008	0.0000		2	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		4	-	-	-
0.0000	0.0008	n/a	-	23	-	-
0.0000	0.0016		-	51	-	-
0.0004	0.0016	1:4	-	-	83	51
0.0004	0.0008	1:2	-	-	41	23
0.0008	0.0016		-	-	70	52
0.0016	0.0016	1:1	-	-	67	51
0.0031	0.0016	2:1	-	-	58	52

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Table 17 Fungicidal activity of compound of formula (I) (compound 1.001) and (B6) flufenoxystrobin, against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth

Compound 1.001	(B6)	Ratio	Compound 1.001	(B6) Inhibition	Combined	Expected
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(ppm)	(ppm)	compound 1.001:(B6)	inhibition (%)	(%)	inhibition (%)	(additive) activity (Colby)
0.0016	0.0000	n/a	26	-	-	-
0.0031	0.0000		44	-	-	-
0.0063	0.0000		62	-	-	-
0.0000	0.0063	n/a	-	17	-	-
0.0000	0.0125		-	23	-	-
0.0000	0.0250		-	33	-	-
0.0016	0.0063	1:4	-	-	44	38
0.0031	0.0125		-	-	65	57
0.0063	0.0250		-	-	85	75

Table 18 Fungicidal activity of compound of formula (I) (compound 1.001) and (B6) flufenoxystrobin, against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B6) (ppm)	Ratio compound 1.001:(B6)	Compound 1.001 inhibition (%)	(B6) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	65	-	-	-
0.0000	0.0016	n/a	-	6	-	-
0.0000	0.0063		-	1	-	-
0.0016	0.0016	1:1	-	-	74	67
0.0016	0.0063	1:4	-	-	72	65

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Table 19 Fungicidal activity of compound of formula (I) (compound 1.001) and (B6) flufenoxystrobin, against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

Compound 1.001 (ppm)	(B6) (ppm)	Ratio compound 1.001:(B6)	Compound 1.001 inhibition (%)	(B6) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	33	-	-	-
0.0031	0.0000		83	-	-	-
0.0000	0.0031	n/a	-	17	-	-
0.0000	0.0063		-	23	-	-
0.0000	0.0125		-	33	-	-
0.0016	0.0031	1:2	-	-	43	33
0.0016	0.0063	1:4	-	-	48	37
0.0031	0.0125		-	-	94	84

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Table 20 Fungicidal activity of compound of formula (I) (compound 1.001) and (B9) the compound of formula (III), against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B9) (ppm)	Ratio compound 1.001:(B9)	Compound 1.001 inhibition (%)	(B9) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	5	-	-	-
0.0500	0.0000		51	-	-	-
0.0000	0.1250	n/a	-	0	-	-

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0.0000	0.5000		-	0	-	-
0.0000	1.0000		-	10	-	-
0.0250	1.0000	1:40	-	-	47	14
0.0500	0.1250	2:5	-	-	62	51
0.0500	0.5000	1:10	-	-	62	51

Table 21 Fungicidal activity of compound of formula (I) (compound 1.001) and (B9) the compound of formula (III), against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth

Compound 1.001 (ppm)	(B9) (ppm)	Ratio compound 1.001:(B9)	Compound 1.001 inhibition (%)	(B9) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0004	0.0000	n/a	8	-	-	-
0.0008	0.0000		21	-	-	-
0.0016	0.0000		33	-	-	-
0.0000	0.0039	n/a	-	14	-	-
0.0000	0.0078		-	19	-	-
0.0000	0.0156		-	31	-	-
0.0000	0.0313		-	52	-	-
0.0004	0.0156	1:40	-	-	68	37
0.0008	0.0313		-	-	71	63
0.0016	0.0625		-	-	81	71
0.0004	0.0078	1:20	-	-	53	25
0.0008	0.0156		-	-	60	46
0.0016	0.0039	2:5	-	-	51	42

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Table 22 Fungicidal activity of compound of formula (I) (compound 1.001) and (B9) the compound of formula (III), against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B9) (ppm)	Ratio compound 1.001:(B9)	Compound 1.001 inhibition (%)	(B9) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0004	0.0000	n/a	21	-	-	-
0.0008	0.0000		52	-	-	-
0.0016	0.0000		74	-	-	-
0.0000	0.0078	n/a	-	0	-	-
0.0000	0.0156		-	11	-	-
0.0000	0.0313		-	5	-	-
0.0000	0.0625		-	22	-	-
0.0004	0.0156	1:40	-	-	62	29
0.0008	0.0313		-	-	78	54
0.0016	0.0625		-	-	89	80
0.0004	0.0078	1:20	-	-	41	21
0.0008	0.0156		-	-	72	57
0.0016	0.0313		-	-	85	75
0.0008	0.0078	1:10	-	-	58	52

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Table 23 Fungicidal activity of compound of formula (I) (compound 1.001) and (B9) the compound of formula (III), against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

Compound 1.001 (ppm)	(B9) (ppm)	Ratio compound 1.001:(B9)	Compound 1.001 inhibition (%)	(B9) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	19	-	-	-
0.0016	0.0000		54	-	-	-
0.0000	0.0039	n/a	-	0	-	-
0.0000	0.0156		-	0	-	-
0.0000	0.0313		-	9	-	-
	0.0625		-	7	-	-
0.0008	0.0313	1:40	-	-	46	26
0.0016	0.0625				86	57
0.0016	0.0313	1:20	-	-	69	58
0.0016	0.00156	1:10	-	-	62	54
0.0016	0.0156	2:5	-	-	62	54

Table 24 Fungicidal activity of compound of formula (I) (compound 1.001) and (B10) coumoxystrobin, against *Fusarium culmorum* in PDB

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Compound 1.001 (ppm)	(B10) (ppm)	Ratio compound 1.001:(B10)	Compound 1.001 inhibition (%)	(B10) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	27	-	-	-
0.0500	0.0000		49	-	-	-
0.1000	0.0000		55	-	-	-
0.2000	0.0000		59	-	-	-
0.0000	0.0500	n/a	-	12	-	-
0.0000	0.1000		-	8	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.1000	1:4	-	-	54	33
0.0500	0.2000		-	-	68	54
0.0250	0.0500	1:2	-	-	43	36
0.0500	0.1000		-	-	64	53
0.1000	0.2000		-	-	70	60
0.2000	0.2000	1:1	-	-	70	63

Table 25 Fungicidal activity of compound of formula (I) (compound 1.001) and (B10) coumoxystrobin, against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B10) (ppm)	Ratio compound 1.001:(B10)	Compound 1.001 inhibition (%)	(B10) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0004	0.0000	n/a	2	-	-	-
0.0008	0.0000		3	-	-	-
0.0016	0.0000		0	-	-	-
0.0031	0.0000		1	-	-	-
0.0063	0.0000		0	-	-	-
0.0000	0.0008	n/a	-	46	-	-
0.0000	0.0016		-	81	-	-
0.0004	0.0016	1:4	-	-	96	81
0.0004	0.0008	1:2	-	-	83	47
0.0008	0.0016		-	-	100	82

0.0008	0.0008	1:1	-	-	64	48
0.0031	0.0008	4:1	-	-	52	46
0.0063	0.0016		-	-	98	81

Table 26 Fungicidal activity of compound of formula (I) (compound 1.001) and (B10) coumoxystrobin, against *Mycosphaerella graminicola* (*Septoria tritici*) in PDB

Compound 1.001 (ppm)	(B10) (ppm)	Ratio compound 1.001:(B10)	Compound 1.001 inhibition (%)	(B10) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	34	-	-	-
0.0031	0.0000		82	-	-	-
0.0000	0.0016	n/a	-	5	-	-
0.0000	0.0031		-	13	-	-
0.0000	0.0063		-	31	-	-
0.0016	0.0063	1:4	-	-	76	54
0.0016	0.0031	1:2	-	-	66	43
0.0031	0.0063		-	-	97	87
0.0016	0.0016	1:1	-	-	48	37

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Table 27 Fungicidal activity of compound of formula (I) (compound 1.001) and (B11) mandestrobin, against *Fusarium culmorum* in PDB

Compound 1.001 (ppm)	(B11) (ppm)	Ratio compound 1.001:(B11)	Compound 1.001 inhibition (%)	(B11) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	34	-	-	-
0.0500	0.0000		54	-	-	-
0.1000	0.0000		55	-	-	-
0.2000	0.0000		57	-	-	-
0.0000	0.1000	n/a	-	0	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.1000	1:4	-	-	58	34
0.0500	0.2000		-	-	67	59
0.0500	0.1000	1:2	-	-	63	54
0.1000	0.2000		-	-	68	60
0.2000	0.2000	1:1	-	-	68	62
0.2000	0.1000	2:1	-	-	64	57

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Table 28 Fungicidal activity of compound of formula (I) (compound 1.001) and (B11) mandestrobin, against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B11) (ppm)	Ratio compound 1.001:(B11)	Compound 1.001 inhibition (%)	(B11) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0063	0.0000	n/a	4	-	-	-
0.0250	0.0000		5	-	-	-
0.0500	0.0000		48	-	-	-
0.0000	0.0250	n/a	-	0	-	-
0.0063	0.0250	1:4	-	-	93	4
0.0500	0.0250	1:2	-	-	67	48
0.0250	0.0250	1:1	-	-	72	5

Table 29 Fungicidal activity of compound of formula (I) (compound 1.001) and (B11) mandestrobin, against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth

Compound 1.001 (ppm)	(B11) (ppm)	Ratio compound 1.001:(B11)	Compound 1.001 inhibition (%)	(B11) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0016	0.0000	n/a	29	-	-	-
0.0063	0.0000		61	-	-	-
0.0125	0.0000		79	-	-	-
0.0000	0.0016	n/a	-	5	-	-
0.0000	0.0250		-	0	-	-
0.0000	0.0500		-	8	-	-
0.0063	0.0250	1:4	-	-	71	61
0.0125	0.0500	-	-	-	90	80
0.0016	0.0016	1:1	-	-	42	32

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Table 30 Fungicidal activity of compound of formula (I) (compound 1.001) and (B11) mandestrobin, against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B11) (ppm)	Ratio compound 1.001:(B11)	Compound 1.001 inhibition (%)	(B11) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	42	-	-	-
0.0016	0.0000		68	-	-	-
0.0000	0.0008	n/a	-	0	-	-
0.0000	0.0016		-	3	-	-
0.0000	0.0031		-	0	-	-
0.0000	0.0063		-	12	-	-
0.0008	0.0031	1:4	-	-	52	42
0.0016	0.0063	-	-	-	86	72
0.0008	0.0016	1:2	-	-	54	44
0.0008	0.0008	1:1	-	-	54	42

10

Table 31 Fungicidal activity of compound of formula (I) (compound 1.001) and (B11) mandestrobin, against *Gaeumannomyces graminis* in PDB

Compound 1.001 (ppm)	(B11) (ppm)	Ratio compound 1.001:(B11)	Compound 1.001 inhibition (%)	(B11) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	0	-	-	-
0.0500	0.0000		0	-	-	-
0.2000	0.0000		0	-	-	-
0.0000	0.0500	n/a	-	17	-	-
0.0000	0.1000		-	53	-	-
0.0250	0.1000	1:4	-	-	59	53
0.0250	0.0500	1:2	-	-	48	17
0.0500	0.1000	-	-	-	59	53
0.2000	0.1000	2:1	-	-	69	53

Table 32 Fungicidal activity of compound of formula (I) (compound 1.001) and (B12) tebufloquin, against *Monographella nivalis* (*Microdochium nivale*) in PDB

Compound 1.001 (ppm)	(B12) (ppm)	Ratio compound 1.001:(B12)	Compound 1.001 inhibition (%)	(B12) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0063	0.0000	n/a	0	-	-	-
0.0125	0.0000		0	-	-	-
0.0250	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	7	-	-
0.0000	0.5000		-	60	-	-
0.0063	0.2500	1:40	-	-	45	7
0.0125	0.5000		-	-	82	60
0.0125	0.2500	1:20	-	-	42	7
0.0250	0.5000		-	-	76	60

5

Table 33 Fungicidal activity of compound of formula (I) (compound 1.001) and (B12) tebufloquin, against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth

Compound 1.001 (ppm)	(B12) (ppm)	Ratio compound 1.001:(B12)	Compound 1.001 inhibition (%)	(B12) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0063	0.0000	n/a	38	-	-	-
0.0031	0.0000		54	-	-	-
0.0000	0.0313	n/a	-	5	-	-
0.0000	0.1250		-	0	-	-
0.0031	0.1250	1:40	-	-	60	54
0.0016	0.0313	1:20	-	-	46	41

10

Table 34 Fungicidal activity of compound of formula (I) (compound 1.001) and (B12) tebufloquin, against *Alternaria solani* in PDB

Compound 1.001 (ppm)	(B12) (ppm)	Ratio compound 1.001:(B12)	Compound 1.001 inhibition (%)	(B12) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0008	0.0000	n/a	51	-	-	-
0.0000	0.0156	n/a	-	0	-	-
0.0000	0.0313		-	1	-	-
0.0008	0.0156	1:20	-	-	63	51
0.0008	0.0313	1:40	-	-	66	52

15

Table 35 Fungicidal activity of compound of formula (I) (compound 1.001) and (B13) triclopyricarb, against *Fusarium culmorum* in PDB

20

Compound 1.001 (ppm)	(B13) (ppm)	Ratio compound 1.001:(B13)	Compound 1.001 inhibition (%)	(B13) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0250	0.0000	n/a	29	-	-	-
0.0500	0.0000		53	-	-	-
0.1000	0.0000		57	-	-	-
0.2000	0.0000		55	-	-	-
0.0000	0.0500	n/a	-	11	-	-
0.0000	0.1000		-	10	-	-
0.0000	0.2000		-	11	-	-
0.0250	0.0500	1:2	-	-	49	37
0.0500	0.1000		-	-	65	58
0.1000	0.2000		-	-	69	62
0.0250	0.1000	1:4	-	-	65	37
0.0500	0.2000		-	-	71	59
0.2000	0.2000	1:1	-	-	73	61
0.2000	0.1000	2:1	-	-	69	60

Table 36 Fungicidal activity of compound of formula (I) (compound 1.001) and (B13) triclopyricarb, against *Monographella nivalis* (*Michrodocium nivale*) in PDB

Compound 1.001 (ppm)	(B13) (ppm)	Ratio compound 1.001:(B13)	Compound 1.001 inhibition (%)	(B13) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0004	0.0000	n/a	4	-	-	-
0.0008	0.0000		1	-	-	-
0.0016	0.0000		0	-	-	-
0.0125	0.0000		0	-	-	-
0.0000	0.0016	n/a	-	23	-	-
0.0000	0.0031		-	51	-	-
0.0004	0.0016	1:4	-	-	40	27
0.0008	0.0031		-	-	92	51
0.0016	0.0031	1:2	-	-	63	51
0.0125	0.0031	4:1	-	-	59	51

5

Table 37 Fungicidal activity of compound of formula (I) (compound 1.001) and (B13) triclopyricarb, against *Botryotinia fuckeliana* (*Botrytis cinerea*) in Vogels Broth

Compound 1.001 (ppm)	(B13) (ppm)	Ratio compound 1.001:(B13)	Compound 1.001 inhibition (%)	(B13) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0031	0.0000	n/a	40	-	-	-
0.0063	0.0000		60	-	-	-
0.0000	0.0125	n/a	-	8	-	-
0.0000	0.0250		-	18	-	-
0.0031	0.0125	1:4	-	-	57	44
0.0063	0.0250		-	-	82	67

10

Table 38 Fungicidal activity of compound of formula (I) (compound 1.001) and (B14) the compound of formula IV, against *Monographella nivalis* (*Michrodocium nivale*) in PDB

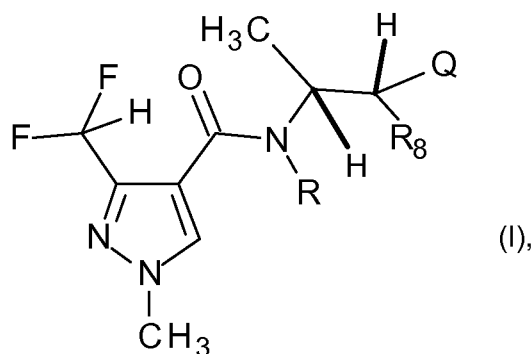
- 46 -

Compound 1.001 (ppm)	(B14) (ppm)	Ratio compound 1.001:(B14)	Compound 1.001 inhibition (%)	(B14) Inhibition (%)	Combined inhibition (%)	Expected (additive) activity (Colby)
0.0063	0.0000	n/a	0	-	-	-
0.0125	0.0000		0	-	-	-
0.0000	0.2500	n/a	-	40	-	-
0.0063	0.2500	1:40	-	-	54	40
0.0125	0.2500	1:20	-	-	59	40

CLAIMS:

1. A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a compound of formula (I)

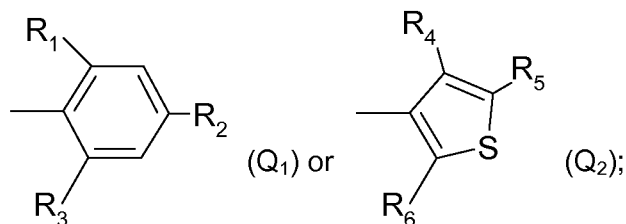
5



wherein

R is hydrogen or methoxy;

Q is



10

wherein

R₁ is hydrogen, halogen or C₁-C₆alkyl;

R₂ is hydrogen, halogen, C₁-C₆alkyl, C₂-C₆alkenyl, C₃-C₆alkinyl, C₃-C₆cycloalkyl-C₃-C₆alkinyl, halophenoxy, halophenyl-C₃-C₆alkinyl, C(C₁-C₄alkyl)=NO-C₁-C₄alkyl, C₁-C₆haloalkyl,

15

C₁-C₆haloalkoxy, C₂-C₆haloalkenyl, or C₂-C₆haloalkenyloxy;

R₃ is hydrogen, halogen or C₁-C₆alkyl; with the proviso that at least one of R₁, R₂ and R₃ is different from hydrogen;

R₄, R₅ and R₆, independently from each other, are hydrogen, halogen or -R₇; with the proviso that at least one of R₄, R₅ and R₆ is different from hydrogen;

20

R₇ is hydrogen, C₁-C₆alkyl, C₁-C₆haloalkyl or C₁-C₄alkoxyalkyl; and

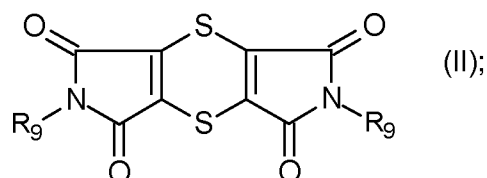
R₈ is hydrogen or methoxy;

and agrochemically acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds;

and as component (B) a compound selected from the group consisting of

(B1) a compound of formula (II)

5



wherein both R₉ are identical and represent methyl, ethyl, n-propyl or isopropyl;

(B2) fenpyrazamine;

10

(B3) isofetamid;

(B4) oxathiapiprolin;

(B5) tolprocarb;

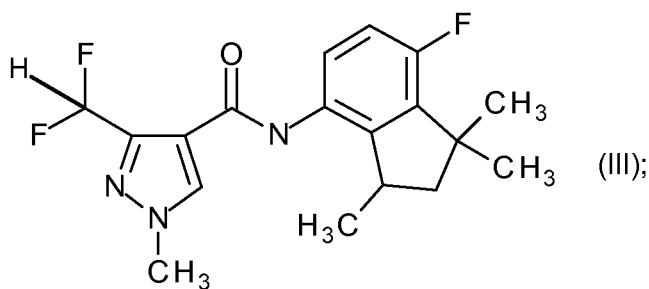
(B6) flufenoxystrobin;

(B7) BLAD;

15

(B8) UK-2A procide;

(B9) the compound of formula (III)



(B10) coumoxystrobin;

20

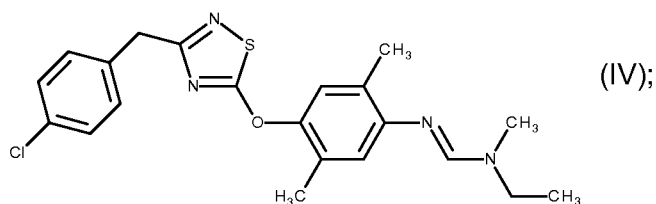
(B11) mandestrobin;

(B12) tebufloquin;

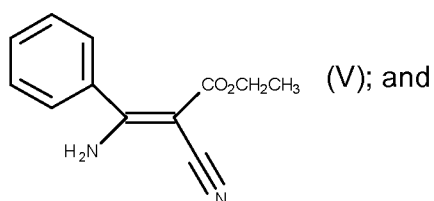
(B13) triclopyricarb;

(B14) the compound of formula (IV)

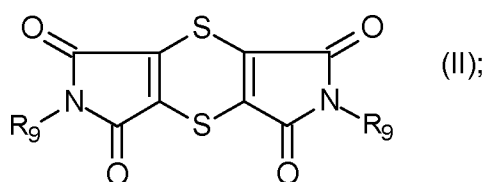
- 49 -



(B15) the compound of formula V



- 5 (B16) mandipropamid; or agrochemically acceptable salts thereof.
2. The composition according to claim 1, wherein component (A) is the compound 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide.
- 10 3. The composition according to claim 1 or claim 2, wherein component (B) is:
(B1) a compound of formula (II)



15

wherein both R₉ are identical and represent methyl, ethyl, n-propyl or isopropyl;

(B2) fenpyrazamine;

(B4) oxathiapiprolin;

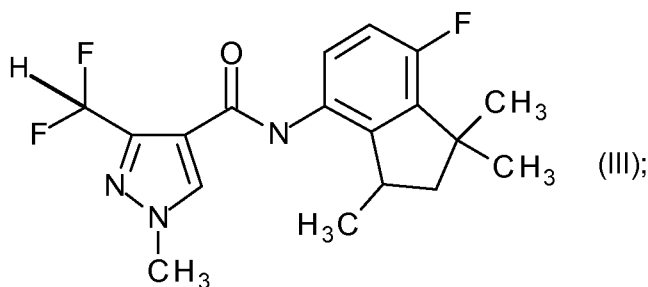
(B5) tolprocarb;

20

(B6) flufenoxystrobin;

(B9) the compound of formula (III)

- 50 -



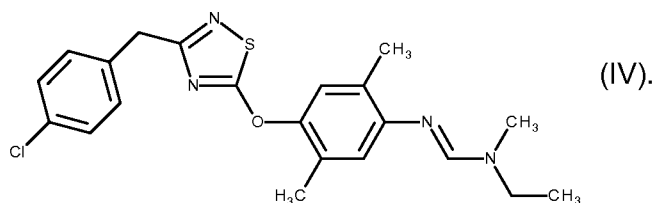
(B10) coumoxystrobin;

(B11) mandestrobin;

5 (B12) tebufloquin;

(B13) triclopyricarb; or

(B14) the compound of formula (IV)



- 10 4. The composition according to any one of claims 1 to 3, wherein components (A) and (B) are present in a synergistically effective amount.
5. The composition according to any one of the preceding claims, wherein the weight ratio of (A) to (B) is from 1000 : 1 to 1 : 1000.
- 15 6. The composition according to any one of the preceding claims further comprising an agriculturally acceptable adjuvant and/or carrier.
7. A method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined in any one of claims 1 to 6.
- 20 8. A method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises
- 25

applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined in any one of claims 1 to 6.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2014/070591

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2014/070591

A. CLASSIFICATION OF SUBJECT MATTER INV. A01N43/26 A01N43/34 A01N43/50 A01N43/54 A01N43/78 A01N43/90 A01P3/00 A01N43/42 ADD.		
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) A01N		
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 practicable, search terms used) EPO-Internal, WPI Data, CHEM ABS Data, BEILSTEIN Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/130686 A2 (BAYER CROPSOURCE AG [DE]; SEITZ THOMAS [DE]; WACHENDORFF-NEUMANN ULRI) 4 October 2012 (2012-10-04) the whole document; in particular the claims, the example and table A -----	1-8
Y	WO 2011/128843 A1 (BASF SE [DE]; MUELLER BERND [DE]; JABS THORSTEN [DE]; LOHMANN JAN KLAAS) 20 October 2011 (2011-10-20) the whole document; in particular claims 1-3 and 8-11 and compositions comprising the pyrazol compound of formula I of the present application with RN 1092400-95-7 ----- -/-	1-8
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 November 2014		Date of mailing of the international search report 22/01/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Lorenzo Varela, M

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2014/070591

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2011/051243 A1 (BAYER CROPS SCIENCE AG [DE]; CRISTAU PIERRE [FR]; TSUCHIYA TOMOKI [DE];) 5 May 2011 (2011-05-05) the whole document; in particular the claims and the compositions comprising compound of formula I of the present application with RN 1092400-95-7 -----	1-8
Y	WO 2012/146125 A1 (SYNGENTA PARTICIPATIONS AG [CH]; HAAS ULRICH JOHANNES [CH]; HERMANN DI) 1 November 2012 (2012-11-01) the whole document; in particular the mixture with RN 1404445-99-3 made of the pyridine compound with CRN 1404441-86-6 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 and as well the mixture with RN 1404446-13-4 made of the pyridine compound of CRN 1404442-29-0 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 -----	1-8
Y	WO 2013/007550 A1 (SYNGENTA PARTICIPATIONS AG [CH]; CORSI CAMILLA [CH]; BOBBIO CARLA [DE]) 17 January 2013 (2013-01-17) the whole document; in particular pages 88 and 89 and the mixture with RN 1418305-86-8 made of the mixture of the isoxazol compound with CRN 1229605-96-2 and the pyrazol compound of formula I of the present application with CRN 1228284-64-7 -----	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2014/070591

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012130686 A2	04-10-2012	CA 2830790 A1 CN 103607892 A CO 6801739 A2 CR 20130483 A EP 2688408 A2 JP 2014508792 A KR 20140024336 A US 2014073503 A1 WO 2012130686 A2	04-10-2012 26-02-2014 29-11-2013 17-10-2013 29-01-2014 10-04-2014 28-02-2014 13-03-2014 04-10-2012
WO 2011128843 A1	20-10-2011	AU 2011241866 A1 CA 2794616 A1 CN 102843910 A CR 20120544 A EA 201201406 A1 EP 2557927 A1 JP 2013527154 A KR 20130052732 A US 2013035229 A1 WO 2011128843 A1	08-11-2012 20-10-2011 26-12-2012 29-11-2012 30-04-2013 20-02-2013 27-06-2013 23-05-2013 07-02-2013 20-10-2011
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WO 2012146125 A1	01-11-2012	AR 086110 A1 US 2014335201 A1 UY 34039 A WO 2012146125 A1	20-11-2013 13-11-2014 30-11-2012 01-11-2012
WO 2013007550 A1	17-01-2013	AR 087086 A1 UY 34189 A WO 2013007550 A1	12-02-2014 28-02-2013 17-01-2013

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound selected from the group consisting of (B1) dithiino-tetracarboximide of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

2. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) fenpyrazamine or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

3. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B2) isofetamid or (B16) or mandipropamid or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the

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useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

4. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B4) oxathiapiprolin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

5. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B5) tolprocarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

6. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole

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compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B6) flufenoxystrobin, (B10) coumoxystrobin, (B11) mandestrobin or (B13) triclopyricarb or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

7. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B7) BLAD or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

8. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B8) UK-2A procide or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination

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of components (A) and (B) as defined above.

9. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B9) of formula (II) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

10. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound which is (B12) tebufloquin or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

11. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B14) corresponding to formula (IV) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a

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composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

12. claims: 1-8(partially)

1) A composition suitable for control of diseases caused by phytopathogens comprising as component (A) a pyrazole compound of formula (I) and agrochemical acceptable salts, stereoisomers, diastereoisomers, enantiomers and tautomers of those compounds; and as component (B) a compound (B15) of formula (V) or agrochemical acceptable salts thereof; 2) a method of controlling diseases on useful plants or on propagation material thereof caused by phytopathogens, which comprises applying to the useful plants, the locus thereof or propagation material thereof, a composition as defined above and 3) a method of protecting natural substances of plant and/or animal origin, which have been taken from the natural life cycle, and/or their processed forms, which comprises applying to said natural substances of plant and/or animal origin or their processed forms a combination of components (A) and (B) as defined above.

Power of Attorney

Poder

The undersigned,

El suscrito,

SYNGENTA PARTICIPATIONS AG

domiciled in

domiciliado en

Schwarzwaldallee 215, CH-4058 Basel, Switzerland

by means of this document hereby grants to **J. Ian Raisbeck, identified with Citizenship Identification No. 79.376.996 and Professional Card No. 135.799, and/or Natalia Castro, identified with Citizenship Identification No. 52.008.577 and Professional Card No. 70.997**, full and sufficient Power of Attorney to defend any and all of our interests, including to file, prosecute, obtain, defend and enforce, where applicable, any and all of our Patents for Inventions, Patents for Utility Models, Layout-Designs (topographies) of Integrated Circuits, Industrial Designs, Trademarks, Slogans, Trade Names, Commercial Emblems, Geographical Indications, Obtainer's Certificates, Copyrights, Domain Names, Trade Secrets, Health Registrations, or any other intellectual property right in the Republic of Colombia, to which end it empowers them to take all steps necessary before any administrative or judicial authority of any class for the objects stated, to file suits, complaints, petitions, recourses, replies and oppositions, pay taxes and annuities, request testimonies, receive documents and securities, abandon applications, collect refunds, desist, settle, conciliate or negotiate. Sufficient power is hereby granted to receive notifications on our behalf, to answer before any authority in the matter of all claims and demands that may be presented in connection with the objects stated, giving them likewise power to substitute this power and revoke such substitutions.

por medio del presente otorga a **J. Ian Raisbeck, identificado con Cédula de Ciudadanía No. 79.376.996 y con Tarjeta Profesional 135.799, y/o Natalia Castro, identificada con Cédula de Ciudadanía No. 52.008.577 y con Tarjeta Profesional No. 70.997**, poder amplio y suficiente para defender cualquiera y todos nuestros intereses, incluyendo presentar, tramitar, obtener, defender y hacer respetar, en lo aplicable, todas y cualquiera de nuestras Patentes de Invención, Patentes de Modelo de Utilidad, Esquemas de Trazados de Circuitos Integrados, Diseños Industriales, Marcas, Lemas Comerciales, Nombres Comerciales, Enseñas Comerciales, Denominaciones de Origen, Certificados de Obtentor, Derechos de Autor, Nombres de Dominio, Secretos Empresariales, Registros Sanitarios, o cualquier otro bien de propiedad intelectual en la República de Colombia, a cuyo efecto los faculta para dar todos los pasos necesarios ante cualquier autoridad administrativa o judicial de cualquier jerarquía para cumplir con lo encomendado, presentar demandas, denuncias, solicitudes, recursos, respuestas y oposiciones, pagar impuestos y anualidades, solicitar testimonios, recibir documentos y valores, desistir, transigir, y percibir. Se concede poder suficiente para recibir notificaciones a nuestro nombre, responder ante cualquier autoridad a todas las reclamaciones o demandas que por motivo de lo encomendado se presentaren, dándoles asimismo facultad para sustituir el presente y revocar dichas sustituciones.

Name/Nombre: Heather Blue HARVEY & Simon REEVES

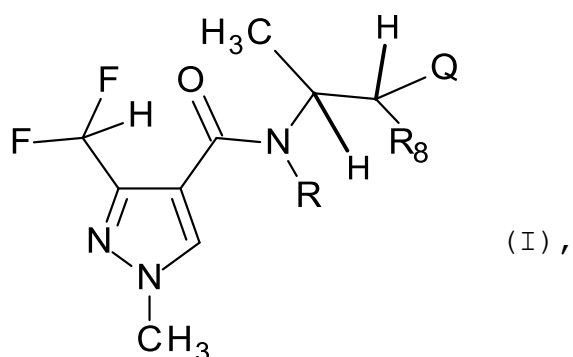
Signature/Firma:

Date/Fecha: 16 July 2015

City, Country/Ciudad, País: Basel, Switzerland

Resumen

La presente invención se refiere a composiciones fungicidas novedosas para el tratamiento de enfermedades fitopatógenas de plantas útiles, especialmente hongos fitopatógenos, y a un método para controlar dichas enfermedades fitopatógenas en plantas útiles. En particular, composiciones adecuadas para el control de enfermedades provocadas por fitopatógenos, que comprenden una mezcla de un compuesto de fórmula I



con un compuesto seleccionado entre los compuestos conocidos por su actividad fungicida y un método para controlar enfermedades en plantas útiles utilizando dichas composiciones.