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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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Solicitud de Patente de Invención titulada: "Insecticidas a base de neonicotinoides y de estrobilurinas"

Solicitante: Bayer CropScience AG

RESPUESTA AL AUTO NOTIFICADO POR FIJACIÓN EN LISTA NO. 104
DEL 18 DE MARZO DE 2011, OFICIO NO. 05141 (EXAMEN DE FONDO)

ÁLVARO CORREA ORDÓÑEZ, mayor de edad y vecino de Bogotá D.C., identificado tal como aparece al pie de mi firma, en mi carácter de apoderado de la sociedad en referencia, doy respuesta al auto emanado por ese Despacho dentro del término de prórroga solicitado en mi memorial 07-063511-00007-0000 de fecha 14 de junio de 2011:

1. Objeciones del Examinador

1.1 De la solicitud de patente

Considera su Despacho que los ejemplos presentados serían insuficientes para soportar las reivindicaciones y no habría divulgación completa de la invención.

1.2 Reivindicaciones

Se considera que no hay un adecuado sustento a las mezclas que se presentan en las reivindicaciones.

Se menciona que la reivindicación 5 no estaría descrita adecuadamente por cuanto no se mencionan los compuestos activos y adyuvantes específicos.

De los procedimientos de las reivindicaciones 9 y 10 se dice que no presentan las características técnicas suficientes para diferenciarlos de los del estado de la técnica.

Del procedimiento de la reivindicación 11 se dice, también, que no presenta las características técnicas suficientes.

De la reivindicación 12 se dice que no es patentable por cuanto se refiere a una semilla y de las reivindicaciones 6 a 8 también se dicen que no son patentables por cuanto se refieren a usos.

1.3 Unidad de Invención

En cuanto a la unidad de invención su Despacho considera que no habría unidad de invención por cuanto las mezclas de compuestos hacen referencia a compuestos conocidos y además, de diferentes clases y por lo tanto estructuras.

Se considera, además, que la sinergia no puede considerarse como el concepto común inventivo.

2. Argumentos a favor de la patentabilidad de la solicitud

2.1 Descripción y reivindicaciones

En respuesta a sus observaciones el solicitante ha decidido limitar de manera notoria las reivindicaciones y por lo tanto junto con este escrito allega un nuevo capítulo reivindicatorio.

Adicionalmente, Se han eliminado las reivindicaciones 6 a 8 y 12.

En cuanto a la reivindicación 5 el solicitante considera que dicha reivindicación si define de manera adecuada el agente que se pretende proteger porque, además de las partes que lo componen, se establecen las proporciones en que deben aparecer dichas partes. Los adyuvantes son claros para un experto en la técnica.

En relación con la objeción a las reivindicaciones 9, 10 y 11 el solicitante desea manifestar que no todos los procedimientos poseen más de una etapa, algunos poseen una sola etapa y son novedosos e inventivos. Por otro lado es claro que siendo el agente nuevo el proceso necesariamente es nuevo y al ser nuevo es diferente. Por lo tanto solicito, de la manera más comedida, que se retire la objeción.

Finalmente, en relación con la unidad de invención el solicitante desea manifestar que discrepa de la opinión de su Despacho en cuanto a la falta de unidad de invención. Un grupo de productos corresponde a los neonicotinoides y el otro a las estrobilurinas. Por lo tanto es claro que existe unidad de invención por cuanto cada grupo de compuestos corresponde a una clase específica de compuestos activos. Por lo tanto solicito se retire dicha observación.

En cuanto al hecho de si los agentes son secundarios, terciarios o de cualquier otro orden, lo que es claro es que independientemente de este hecho el agente obtenido por la mezcla de los compuestos indicados tiene efecto sinérgico. Por otro lado y tal como lo solicitó su Despacho, en las nuevas reivindicaciones solo permanecen los compuestos que aparecen mencionados en los ejemplo. Adicionalmente, el solicitante allega junto con esta respuesta nuevas pruebas que demuestran el carácter inventivo del agente objeto de la presente solicitud y se soportan las mezclas de imidacloprid, clothianidin, acetamiprid y thiacloprid con pyraclostrobin o picoxystrobin.

En virtud de lo anterior, solicito que se acepten las razones expuestas en el presente documento y en consecuencia, se otorgue el privilegio de patente de invención para el invento que se tramita en este expediente.

Atentamente,



ÁLVARO CORREA ORDÓÑEZ
C.C.No.79.143.366 de Usaquén
T.P.20.281

Anexos: Capítulo reivindicatorio modificado
 Datos de prueba adicionales

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REIVINDICACIONES

1. Agente, que abarca una mezcla con efecto sinérgico, constituida por, al menos un compuesto elegido entre
 - (a) Clothianidin, Imidacloprid, Thiacloprid, Acetamiprid,y, al menos, un compuesto elegido entre
 - (b) Picoxystrobin y Pyraclostrobin.
2. Agente según la reivindicación 1, caracterizado porque abarca una mezcla con efecto sinérgico del compuesto Clothianidin y, al menos, un compuesto elegido entre Picoxystrobin y Pyraclostrobin.
3. Agente según la reivindicación 1, caracterizado porque abarca una mezcla con efecto sinérgico del compuesto Imidacloprid y, al menos, un compuesto elegido entre Picoxystrobin y Pyraclostrobin.
4. Agente según la reivindicación 1, caracterizado porque abarca una mezcla con efecto sinérgico del compuesto Thiacloprid y, al menos, un compuesto elegido entre Picoxystrobin y Pyraclostrobin.
5. Agente según una de las reivindicaciones 1 a 4, caracterizado porque la proporción en peso entre el producto activo (a) y el producto activo del grupo (b), según la reivindicación 1, se encuentre entre 1000:1 y 1:100.
6. Procedimiento para la protección de las semillas y de las plantas caracterizado porque se tratan las semillas con un agente según la reivindicación 1.
7. Procedimiento para la lucha contra las plagas y/o contra los hongos, caracterizado porque se dejan actuar agentes según la reivindicación 1 sobre las plagas y/o sobre su medio ambiente.
8. Procedimiento para la obtención de agentes pesticidas, caracterizado porque se combina una mezcla con efecto sinérgico, según la reivindicación 1 con agentes extendedores y/o con sustancias tensioactivas.

Formula for the efficacy of the combination of two compounds

The expected efficacy of a given combination of two compounds is calculated as follows (see Colby, S.R., „Calculating Synergistic and antagonistic Responses of Herbicide Combinations“, Weeds 15, pp. 20-22, 1967):

If

X is the efficacy expressed in % mortality of the untreated control for test compound A at a concentration of m ppm or m g/ha,

Y is the efficacy expressed in % mortality of the untreated control for test compound B at a concentration of n ppm or m g/ha,

E is the efficacy expressed in % mortality of the untreated control using the mixture of A and B at m and n ppm or m and n g/ha,

$$\text{then is } E = X + Y - \frac{X \times Y}{100}$$

If the observed insecticidal efficacy of the combination is higher than the one calculated as „E“, then the combination of the two compounds is more than additive, i.e., there is a synergistic effect.

Example A

Spodoptera frugiperda test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycoether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cotton leaves (*Gossypium hirsutum*) are treated by being sprayed with the preparation of the active compound of the desired concentration and are infested with the fall army worm (*Spodoptera frugiperda*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the caterpillars have been killed; 0 % means that none of the caterpillars have been killed.

In this test, for example, the following combination according to the invention shows a synergistic effect compared to the single compounds:

Table A: Spodoptera frugiperda – Test

<u>Active Ingredient</u>	<u>Concentration</u> <u>in ppm</u>	<u>Mortality</u> <u>in % after 3^d</u>
Picoxystrobin	20	0
Pyraclostrobin	20	0
Imidacloprid	20	50
Picoxystrobin + Imidacloprid		<u>obs.*</u> <u>cal.**</u>
(1 : 1)	20 + 20	60 50
according to the invention		
Pyraclostrobin + Imidacloprid		<u>obs.*</u> <u>cal.**</u>
(1 : 1)	20 + 20	60 50
according to the invention		
Trifloxystrobin	20	0
Trifloxystrobin + Imidacloprid		<u>obs.*</u> <u>cal.**</u>
(1 : 1)	20 + 20	20 50
State of the Art		

* obs. = observed insecticidal efficacy
 ** cal. = efficacy calculated with Colby-formula

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Example B

Phaedon cochleariae - Larvae test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycoether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound of the desired concentration and are infested with larvae of the Mustard Beetle (*Phaedon cochleariae*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the beetle larvae have been killed; 0 % means that none of the beetle larvae have been killed.

In this test, for example, the following combination according to the invention shows a synergistic effect superior to the prior state of the art:

Table B: *Phaedon cochleariae* – Test

<u>Active Ingredient</u>	<u>Concentration</u> <u>in ppm</u>	<u>Mortality</u> <u>in % after 3^d</u>
Picoxystrobin	100	0
Pyraclostrobin	100	0
Clothianidin	20 4	50 25
Picoxystrobin + Clothianidin (1 : 25) according to the invention	100 + 4	<u>obs.</u> * <u>cal.</u> ** 35 25
Pyraclostrobin + Clothianidin (1 : 5) (1 : 25) according to the invention	100 + 20 100 + 4	<u>obs.</u> * <u>cal.</u> ** 75 50 35 25
Trifloxystrobin	100	0
Trifloxystrobin + Clothianidin (1 : 5) (1 : 25) State of the Art	100 + 20 100 + 4	<u>obs.</u> * <u>cal.</u> ** 60 50 15 25

*obs. = observed insecticidal efficacy
** cal. = efficacy calculated with Colby-formula

Example C

Plutella xylostella test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycoether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound of the desired concentration and are infested with larvae of the Diamond Back Moth (*Plutella xylostella*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the caterpillars have been killed; 0 % means that none of the caterpillars have been killed.

In this test, for example, the following combination according to the invention shows a synergistic effect compared to the single compounds:

Table C: *Plutella xylostella* – Test

<u>Active Ingredient</u>	<u>Concentration</u> <u>in ppm</u>	<u>Mortality</u> <u>in % after 1^d</u>
Picoxystrobin	100	10
Pyraclostrobin	100	10
Clothianidin	20	0
Picoxystrobin + Clothianidin (1 : 5) according to the invention	100 + 20	<u>obs.*</u> <u>cal.**</u> 20 10
Pyraclostrobin + Clothianidin (1 : 5) according to the invention	100 + 20	<u>obs.*</u> <u>cal.**</u> 20 10
Trifloxystrobin	100	0
Trifloxystrobin + Clothianidin (1 : 5) State of the Art	100 + 20	<u>obs.*</u> <u>cal.**</u> 5 0

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula

Example D

Phaedon cochleariae test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycoether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound at the desired concentration and are infested with larvae of the mustard beetle (*Phaedon cochleariae*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the beetle larvae have been killed; 0 % means that none of the beetle larvae have been killed.

According to the present application in this test e.g. the following combination shows a synergistic effect in comparison to the single compounds:

Table D
plant damaging insects
Phaedon cochleariae test

<u>Active ingredient</u>	<u>Concentration</u>	<u>Efficacy</u>
	<u>in ppm</u>	<u>in % after 1^d</u>
Pyraclostrobin	100	0
Imidacloprid	100	15
Pyraclostrobin + Imidacloprid (1 : 1) according to the invention	100 + 100	<u>obs.*</u> <u>cal.**</u> 45 15

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula

Example E

Spodoptera frugiperda test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycolether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound at the desired concentration and are infested with larvae of the fall army worm (*Spodoptera frugiperda*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the caterpillars have been killed; 0 % means that none of the caterpillars have been killed.

According to the present application in this test e.g. the following combination shows a synergistic effect in comparison to the single compounds:

Table E
plant damaging insects
Spodoptera frugiperda test

<u>Active ingredient</u>	<u>Concentration</u>	<u>Efficacy</u>
	<u>in ppm</u>	<u>in % after 3d</u>
Pyraclostrobin	100	0
Imidacloprid	100	20
Pyraclostrobin + Imidacloprid (1 : 1) according to the invention	100 + 100	<u>obs.*</u> <u>cal.**</u> 65 20

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula

Example F

Phaedon cochleariae larvae - test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycolether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound at the desired concentration and are infested with larvae of the mustard beetle (*Phaedon cochleariae*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the beetle larvae have been killed; 0 % means that none of the beetle larvae have been killed.

According to the present application in this test e.g. the following combination shows a synergistic effect in comparison to the single compounds:

Table F: Phaedon cochleariae test

<u>Active ingredient</u>	<u>Concentration</u> <u>in ppm</u>	<u>Efficacy</u> <u>in % after 3^d</u>
Pyraclostrobin	200	0
Acetamiprid	100	55
Pyraclostrobin + Acetamiprid (2 : 1) according to the invention	200 + 100	<u>obs.*</u> <u>cal.**</u> 75 55

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula

Example G

Plutella xylostella test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycoether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cabbage leaves (*Brassica oleracea*) are treated by being sprayed with the preparation of the active compound at the desired concentration and are infested with larvae of the diamond back moth (*Plutella xylostella*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the caterpillars have been killed; 0 % means that none of the caterpillars have been killed.

According to the present application in this test e.g. the following combinations show a synergistic effect in comparison to the single compounds:

Table G: *Plutella xylostella* test

<u>Active ingredient</u>	<u>Concentration</u> <u>in ppm</u>	<u>Efficacy</u> <u>in % after 1^d</u>
Pyraclostrobin	200	0
Acetamiprid	100	0
Pyraclostrobin + Acetamiprid (2 : 1) according to the invention	200 + 100	<u>obs.*</u> <u>cal.**</u> 35 0

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula

Example H

Spodoptera frugiperda test

Solvent: 7 parts by weight of dimethylformamide

Emulsifier: 2 parts by weight of alkylaryl polyglycolether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Cotton leaves (*Gossypium hirsutum*) are treated by being sprayed with the preparation of the active compound at the desired concentration and are infested with larvae of the fall army worm (*Spodoptera frugiperda*) as long as the leaves are still moist.

After the specified period of time, the mortality in % is determined. 100 % means that all the caterpillars have been killed; 0 % means that none of the caterpillars have been killed.

According to the present application in this test e.g. the following combination shows a synergistic effect in comparison to the single compounds:

Table H: Spodoptera frugiperda test

<u>Active ingredient</u>	<u>Concentration</u>	<u>Efficacy</u>
	<u>in ppm</u>	<u>in % after 2^d</u>
Pyraclostrobin	200	0
Thiacloprid	100	10
Pyraclostrobin + Thiacloprid (2 : 1) according to the invention	200 + 100	<u>obs.*</u> <u>cal.**</u> 30 10

* obs. = observed insecticidal efficacy

** cal. = efficacy calculated with Colby-formula