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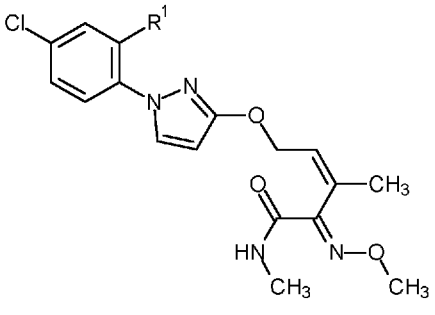
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(54) Title: METHOD FOR CONTROLLING FUNGUS

(57) Abstract: Method for controlling Fungus A method for controlling or preventing infestation of soybean plants by Asian soybean rust, and a method for controlling or preventing infestation of plants by fungi which have a F129L mutation in the mitochondrial cytochrome b, the methods comprising applying a fungicidally effective amount of a compound of formula (I), wherein R^1 is hydrogen or halogen, preferably hydrogen or chloro, to the plants, to parts thereof or the locus thereof: (I).



(I).

WO 2021/053136 A1

Method for Controlling Fungus

The present invention relates to the use of a specific strobilurin compound to control Asian soybean rust and to its use to control certain fungicide-resistant fungal strains.

Asian soybean rust *(Phakopsora pachyrhizi*) is a serious fungal pathogen of soybean crops and new ways to satisfactorily control it are needed.

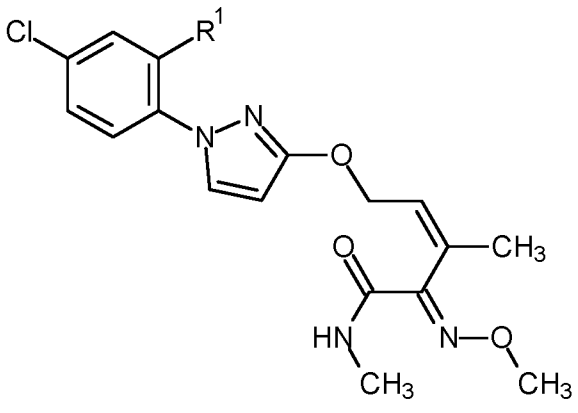
WO 2013/092224 describes the use of a broad range of strobilurin-type compounds specifically for controlling fungi which contain a G143A mutation in the mitochondrial cytochrome b conferring resistance to Qo inhibitors. In a long list of potential target fungi running from page 31, line 16 to page 34, line 4, there is a single mention of Asian soybean rust on page 32, line 34.

WO 2014202421 describes mixtures of the strobilurin-type compounds described in WO 2014202421 with other fungicides. In a long list of potential target fungi running from page 84, line 2 to page 87, line 21, there is a single mention of Asian soybean rust on page 86, line 13.

WO2018/153707 describes two crystal forms of a specific strobilurin compound falling within the general scope of WO 2013/092224. There is no mention of the control of Asian soybean rust.

Surprisingly, it has been found that (*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, the compound disclosed in WO 2018/153707, provides for excellent control of Asian soybean rust *(Phakopsora pachyrhizi*) while also having relatively low phytotoxicity to soybean plants.

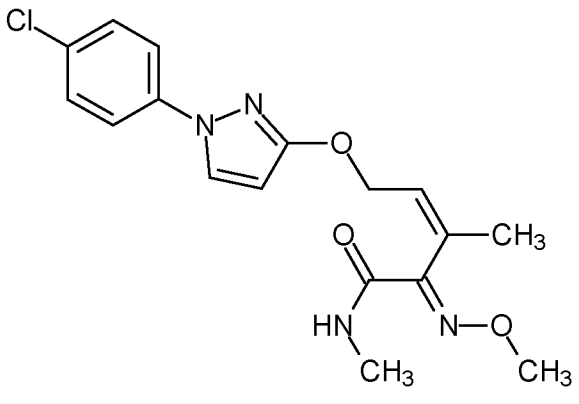
According to the present invention, there is provided a method for controlling or preventing infestation of soybean plants by Asian soybean rust, the method comprising applying a fungicidally effective amount of compounds of formula (I), wherein R^1 is hydrogen or halogen, preferably hydrogen or chloro, to the plants, to parts thereof or the locus thereof:



(I)

Surprisingly, it has also been found that the compounds of formula I provide for good control of a broader range fungal species that have a particular mutation F129L in the mitochondrial cytochrome b conferring resistance to known Qo inhibitors, for example strobilurins such as azoxystrobin, pyraclostrobin, picoxystrobin, and trifloxystrobin or fenamidone or famoxadone. The control of such resistant fungi has not been previously disclosed.

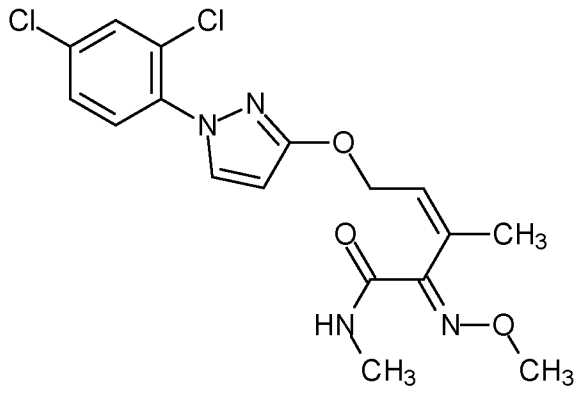
Preferably, the present invention relates to compound I-A (*Z*,2*E*)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, of the following formula:



(I-A),

in any suitable crystalline form, N-oxide or agrochemically acceptable salts thereof.

Preferably, the present invention relates to compound (I-B), (*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)-pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, of the following formula:



(I-B),

in any suitable crystalline form, N-oxide or agrochemically acceptable salts thereof.

Advantageously, the present invention may also relate to mixtures of compounds I-A and I-B, in any suitable crystalline form, N-oxides or agrochemically acceptable salts thereof.

According to a second aspect of the present invention, there is provided a method for controlling or preventing infestation of plants by fungi which have a F129L mutation in the mitochondrial cytochrome b, the method comprising applying a fungicidally effective amount a compound of formula (I) the plants, to parts thereof or the locus thereof.

Fungi that are known to have the F129L mutation in wild populations include *Zymoseptoria tritici* (Septoria blotch), *Alternaria solani (*Alternaria leaf spot)*, Pyrenophora teres* (net blotch) *Pyrenophora tritici repentis* (wheat tan spot), *Phakopsora pachyrhizi* (Asian soybean rust), *Rhizoctonia solani* (Rice sheath blight), *Plasmopara viticola* (Grape downy mildew), *Passalora fulva* (Tomato leaf mould), *Pyricularia grisea* (Turf grey leaf spot)*, and Pythium aphanidermatum* (Turf Pythium blight).

The F129L mutation is particularly important in the mechanism of resistance of wild populations of Asian soybean rust *(Phakopsora pachyrhizi*) while the G143A mutation mentioned in

the prior art does not or not significantly contribute to resistance in wild populations of Asian soybean rust.

Preferably the fungi which have a F129L mutation in the mitochondrial cytochrome b are Asian soybean rust *(Phakopsora pachyrhizi)*.Preferably the plants are soybean.

The compounds of formula (I) can advantageously be made according to the methods described in WO 2013/092224 and WO 2018/153707. These methods can be used to produce various crystal forms of the compound referred to as A and B in WO 2018/153707. Each of these forms as well as any other crystal forms can be used in the method of the present invention.

Soybean (*Glycine max*) is a widely cultivated crop plant. Soybean is to be understood as including also soybean 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 (glutamine synthetase) inhibitors or PPO (protoporphyrinogen-oxidase) inhibitors) as a result of conventional methods of breeding or genetic engineering.

Soybean also includes plants which have been transformed by the use of recombinant DNA techniques so that they are capable of synthesising one or more selectively acting toxins, such as are known, for example, from toxin-producing bacteria, especially those of the genus Bacillus.

Toxins that can be expressed by such transgenic plants include, for example, insecticidal proteins from *Bacillus cereus* or *Bacillus popilliae*; or insecticidal proteins from Bacillus thuringiensis, such as δ-endotoxins, e.g. Cry1Ab, Cry1Ac, Cry1F, Cry1Fa2, Cry2Ab, Cry3A, Cry3Bb1 or Cry9C, or vegetative insecticidal proteins (Vip), e.g. Vip1, Vip2, Vip3 or Vip3A.

The term “locus” as used herein means fields in or on which plants are growing, or where seeds of cultivated plants are sown, or where seed will be placed into the soil. It includes soil, seeds, and seedlings, as well as established vegetation.

The term “plants” refers to all physical parts of a plant, including seeds, seedlings, roots, stems, stalks and foliage.

The compounds of formula (I) may be used alone or, preferably, together with the adjuvants conventionally employed in the art of formulation. To this end, it may be conveniently formulated in known manner to emulsifiable concentrates, coatable pastes, directly sprayable or dilutable solutions or suspensions, dilute emulsions, wettable powders, soluble powders, dusts, granulates, and also encapsulations e.g. in polymeric substances. As with the type of the compositions, the methods of application, such as spraying, atomising, dusting, scattering, coating or pouring, are chosen in accordance with the intended objectives and the prevailing circumstances. The compositions may also contain further adjuvants such as stabilizers, antifoams, viscosity regulators, binders or tackifiers as well as fertilizers, micronutrient donors or other formulations for obtaining special effects.

Suitable carriers and adjuvants, e.g., for agricultural use, can be solid or liquid and are substances useful in formulation technology, e.g. natural or regenerated mineral substances, solvents, dispersants, wetting agents, tackifiers, thickeners, binders or fertilizers. Such carriers are for example described in WO 97/33890.

The compounds of formula (I) is normally used in the form of compositions and can be applied to the crop area or plant to be treated, simultaneously or in succession with further compounds. These further compounds can be, e.g., fertilizers or micronutrient donors or other preparations, which influence

the growth of plants. They can also be selective herbicides or non-selective herbicides as well as insecticides, fungicides, bactericides, nematicides, molluscicides or mixtures of several of these preparations, if desired together with further carriers, surfactants or application promoting adjuvants customarily employed in the art of formulation.

The compounds of formula (I) may be used in the form of a fungicidal composition for controlling or protecting against fungi. Fungicidal compositions generally comprise at least one compound formula (I) an agriculturally acceptable carrier and optionally an adjuvant. An agricultural acceptable carrier is for example a carrier that is suitable for agricultural use. Agricultural carriers are well known in the art. Preferably, said composition may comprise at least one or more pesticidally active compounds, for example an additional fungicidal active ingredient in addition to the compounds of formula (I).

The compounds of formula (I) may be the sole active ingredient of a composition or it may be admixed with one or more additional active ingredients such as a pesticide, fungicide, synergist, nutrient, herbicide or plant growth regulator where appropriate.

Controlling or preventing means reducing infestation by soybean rust, to such a level that an improvement is demonstrated.

A preferred method of controlling or preventing an infestation of crop plants by soybean rust which comprises the application of the compounds of formula (I), or an agrochemical composition which contains the compound, is foliar application. The frequency of application and the rate of application will depend on the risk of infestation. However, the compounds of formula (I) can also penetrate the plant through the roots via the soil (systemic action) by drenching the locus of the plant with a liquid formulation, or by applying the compounds in solid form to the soil, e.g., in granular form (soil application).

A formulation, e.g. a composition containing the compounds of formula (I), and, if desired, a solid or liquid adjuvant or monomers for encapsulating the compounds of formula (I), may be prepared in a known manner, typically by intimately mixing and/or grinding the compound with extenders, for example solvents, solid carriers and, optionally, surface active compounds (surfactants).

Advantageous rates of application are normally from 5 g to 2 kg of active ingredient (a.i.) per hectare (ha), preferably from 10 g to 1 kg a.i./ha, most preferably from 20 g to 600 g a.i./ha. When used as seed drenching agent, convenient dosages are from 10 mg to 1 g of active substance per kg of seeds.

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 10 g per kg of seed are generally sufficient.

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 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 combination with agriculturally acceptable adjuvants.

Such compositions may be produced in conventional manner, e.g., by mixing the active ingredients with appropriate formulation inerts (diluents, 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 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 sulphonate, an alkylarylsulphonate, a lignin sulphonate, a fatty alkyl sulphate, and ethoxylated alkylphenol and an ethoxylated fatty alcohol.

In general, the formulations include from 0.01 to 90% by weight of active agent, from 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 compounds 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 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.

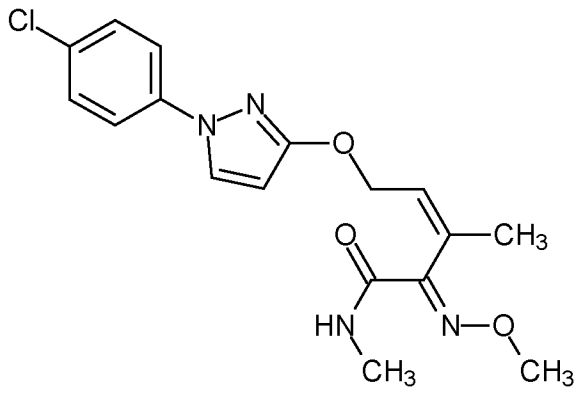
Examples

The examples which follow serve to illustrate the invention. The compounds of the invention can be distinguished from known compounds by virtue of greater efficacy at low application rates, which can be verified by the person skilled in the art using the experimental procedures outlined in the Examples, using lower application rates if necessary, for example 50 ppm, 12.5 ppm, 6 ppm, 3 ppm, 1.5 ppm, 0.8 ppm or 0.2 ppm.

The compounds of formula (I) may possess any number of benefits including, *inter alia*, advantageous levels of biological activity for protecting plants against diseases that are caused by fungi or superior properties for use as agrochemical active ingredients (for example, greater biological activity, an advantageous spectrum of activity, an increased safety profile (including improved crop tolerance), improved physico-chemical properties, or increased biodegradability).

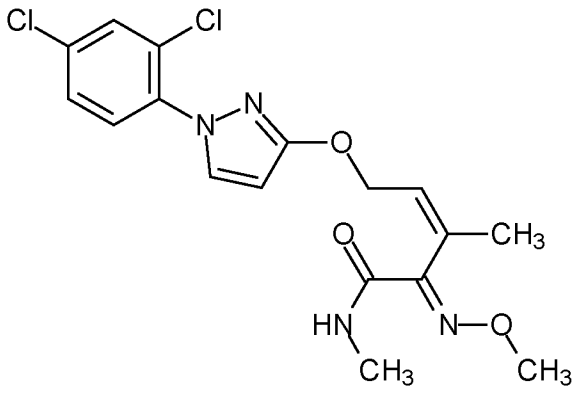
The compounds of formula (I) advantageously comprise one or more of the following specific compounds (I):

(*Z*,2*E*)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide (Compound of formula (I-A)),



(I-A);

(*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide (Compound of formula (I-B)):



(I-B);

mixtures, N-oxides or agrochemically acceptable salts thereof.

List of Abbreviations

$CDCl_3$	= chloroform-d
d	= doublet
DMF	= dimethylformamide
h	= hours
m	= multiplet
MHz	= mega hertz
s	= singlet

Preparation Example 1: Preparation of the compound of formula (I-B).

1.1 1-(2,4-Dichloro-phenyl)-3-((Z)-3-tributylstannanyl-but-2-enyloxy)-1H-pyrazole

The reaction was carried out under a protective atmosphere of nitrogen. To 16.8 g (64.2 mmol) triphenylphosphine and 24.3 g (67.2 mmol) (Z)-3-tributyhstannanyl-but-2-en-1-ol in 700 mL tetrahydrofuran (THF) were added with stirring at about -70 degrees centigrade 13.6 g (67.2 mmol) azodicarbonic acid diisopropyl ester. The mixture was stirred at this temperature for 5 minutes. After

addition of 14.0 g (61.2 mmol) 1-(2,4-dichlorophenyl)-3-hydroxypyrazole at about -70 degrees centigrade a red suspension was formed. The mixture was allowed to warm up to ambient temperature and stirred overnight.

After removal of the solvents *in vacuo* the residue was stirred with 500 mL of n-hexane and filtered. The solid residue was washed three times with n-hexane and the combined hexane solutions were concentrated *in vacuo* to yield 40.1 g of crude product. Purification by chromatography on silica with heptane/ methyl-*tert*-butylether (MTBE) 20:1 to 10:1 yielded 52.7 g of sufficient purity for the next reaction.

1.2 Methyl (*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-3-methyl-pent-3-enoate

To 770 mg (1.34 mmol) bis(dibenzylidenacetone)-palladium and 0.62 g (2.67 mmol) tri(2-furyl)phosphine in 100 mL 1,4-dioxane, 25.5 g (44.6 mmol) 1-(2,4-dichloro-phenyl)-3-((Z)-3-tributylstannanyl-but-2-enyloxy)-1-H-pyrazole and 9.17 g (46.8 mmol) hydroxamic acid bromide were added with stirring. Stirring was continued for about 15 h at 84 degrees centigrade. After removal of the solvents *in vacuo* 80 mL MTBE and 80 mL of a 15 percent aqueous solution of potassium fluoride were added and stirred for about 1 h at ambient temperature. After filtration the organic layer was collected. The aqueous phase was washed twice with 15 mL MTBE each. The combined organic phases were dried with sodium sulphate. After filtration the solvents were removed *in vacuo* to yield 14.0 g oil of sufficient purity (H-NMR) for the next reaction.

1.3 (*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide (Compound of formula (I-B)).

The product from several of the above reactions, which have partly been run on a larger scale, was used in the following experiment. Methyl (*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-3-methyl-pent-3-enoate (930 g, 2.34 mol) were dissolved in 5.0 L THF with stirring. A 40 percent solution of methyl amine in water (1226 g, 15.8 mol) were added by pump within 1 minute and stirred overnight at ambient temperature. After removal of most of the solvent *in vacuo* (at about 50 degrees centigrade, 75 mbar) the crude product was dissolved in 5.0 L of toluene at about 40 degrees centigrade with stirring for 30 minutes. The aqueous layer was removed at this temperature. 0.5 L of 15 percent aqueous sodium chloride solution was added and 1.5 L of the aqueous layer was removed afterwards. The toluene solution was washed with 2.0 L of 10 percent aqueous sodium chloride solution and the solvent was removed *in vacuo* (at about 60 degrees centigrade, 1 mbar). 860 g of crude product was collected and stirred with 1.1 L of diisopropyl ether, filtrated and washed twice with 300 mL of cold diisopropyl ether each. The solvent was removed *in vacuo* to yield 454 g of compound of formula I-B as a finely crystalline solid.

^{1}H-NMR ($CDCl_3$): δ = 1.95 (s); 2.87 (d); 3.95 (s); 4.55 (d); 5.90 (d); 5.95 (t); 6.70 (broad); 7.30 (d); 7.45-7.55 (m); 7.70 (d), chemical purity determined via HPLC (wavelength 254 nm; column: Chromolith

SpeedROD RP-18e 50-4.6 mm; gradient: 0.1 percent trifluoroacetic acid; water: acetonitrile 1:20 to 20: 1 in 5.5 minutes): > 98 percent.

Compound I-A may advantageously be prepared in an analogue manner.

Biological examples of fungicidal activity against F129L mutant strains of pathogenic fungi

Resistant fungal strains were collected from areas where the relevant resistance was reported in the literature or had been observed in agronomic practice. The existence of the relevant mutation was confirmed by genetic sequencing using qPCR.

Biological Examples Series 1:

Sub-mitochondrial particles were prepared from the sensitive (wild type) and the mutant field isolate strains (F129L mutation) according to the published procedures and stored at -80ºC.
NADH oxidase activity was measured spectrophotometrically by monitoring the oxidation of NADH at 340 nm over a period time. A 100 µL reaction was set up in which compounds at various dilutions were preincubated with the submitochondrial particles appropriately diluted in 20 mM potassium dihydrogen ortho-phosphate, pH 8 for 15 min at room temperature. The reaction was initiated by addition of 1 mM NADH and absorbance was measured at 340 nm at regular interval for 30 minutes. Percentage inhibition was calculated and plotted against concentration and EC50 was calculated.

Table 1: *in vitro* activity against *Zymoseptoria tritici*

Compound	Sensitive *Zymoseptoria tritici* isolate (wild type) (S-EC50) [µM]	Resistant *Zymoseptoria tritici* isolate (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.004	0.004
Azoxystrobin	0.022	0.191
Metyltetraprole	0.002	0.005
Compound (I-B)	0.002	0.004
Compound (I-A)	0.012	0.025

Biological Examples Series 2

Phakopsora pachyrhizi strains were adjusted in solution to 20'000 spores mL^{-1} and incubated in combination with test compounds at different rates. After 3 hours the activity of test compounds was calculated based on the hyphal length of the spores at different rates compared to the response of spores of an uncontaminated check as fungicidal activity. EC50 of resistant strain as well as EC50 of sensitive strain was determined by calculating activity data, set out in table 2.

Table 2: *in vitro* activity against *Phakopsora pachyrhizi*

Compound	Sensitive *Phakopsora pachyrhizi* (wild type) (S-EC50) [µM]	Resistant *Phakopsora pachyrhizi* (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.22	0.14
Azoxystrobin	0.13	0.91
Metyltetraprole	>10	>10
Compound (I-B)	0.2	0.58

Biological Examples Series 3

Zymoseptoria tritici (leaf blotch):

Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). A DMSO solution of the test compounds was placed into a microtiter plate (96-well format) and the nutrient broth containing the fungal spores was added to it. The test plates were incubated at 24° C and the inhibition of growth was determined photometrically after 72 hrs.

Table 3: *in vitro* activity against *Zymoseptoria tritici*

Compound	Sensitive *Zymoseptoria tritici isolate* (wild type) (S-EC50) [µM]	Resistant *Zymoseptoria tritici* isolate (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.01	0.01
Azoxystrobin	0.04	0.7
Metyltetraprole	0.004	0.02
Compound (I-B)	0.003	0.02

Alternaria solani (early blight tomato/potato):

Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). A DMSO solution of the test compounds was placed into a microtiter plate (96-well format) and the nutrient broth containing the fungal spores was added to it. The test plates were incubated at 24° C and the inhibition of growth was determined photometrically after 48 hrs.

Table 4: *in vitro* activity against *Alternaria solani*

Compound	Sensitive *Alternaria solani* isolate (wild type) (S-EC50) [µM]	Resistant *Alternaria solani* (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.1	0.45
Azoxystrobin	0.02	2.5
Metyltetraprole	0.05	0.1
Compound (I-B)	0.04	0.6

Pyrenophora teres (Net blotch):

Conidia of the fungus from cryogenic storage were directly mixed into nutrient broth (PDB potato dextrose broth). A DMSO solution of the test compounds was placed into a microtiter plate (96-well format) and the nutrient broth containing the fungal spores was added to it. The test plates were incubated at 24° C and the inhibition of growth was determined photometrically after 72 hrs at 620 nm, as set out in table 5.

Table 5: *in vitro* activity against *Pyrenophora teres*

Compound	Sensitive *Pyrenophora teres* (wild type) (S-EC50) [µM]	Resistant *Pyrenophora teres* (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.03	0.02
Azoxystrobin	0.03	0.9
Metyltetraprole	0.03	0.03
Compound (I-B)	0.02	0.06

Phakopsora pachyrhizi (Soybean rust):

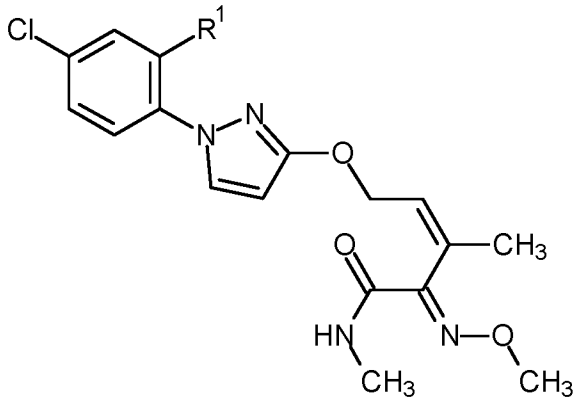
Soybean leaf disks are placed on agar in multiwell plates (24-well format) and sprayed with test solutions. After drying, the leaf disks are inoculated with a spore suspension of the fungus. After appropriate incubation the activity of a compound is assessed approx.12 dpi (days after inoculation) as preventive fungicidal activity, as set out in table 6.

Table 6: Activity against *Phakopsora pachyrhizi*

Compound	Sensitive *Phakopsora pachyrhizi* (wild type) (S-EC50) [µM]	Resistant *Phakopsora pachyrhizi* (F129L mutation) (R-EC50) [µM]
Trifloxystrobin	0.1	0.206
Azoxystrobin	0.152	2.943
Metyltetraprole	23.6	>60
Compound (I-B)	2.0	19.6
Compound (I-A)	3.8	20.5

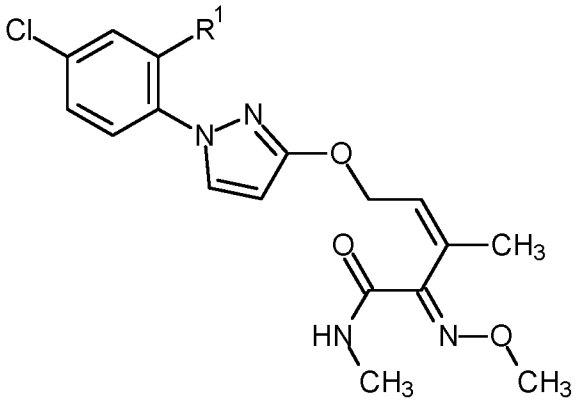
Claims:

1. A method for controlling or preventing infestation of soybean plants by Asian soybean rust, the method comprising applying a fungicidally effective amount of compounds of formula (I), wherein R^1 is hydrogen or halogen, preferably hydrogen or chloro, to the plants, to parts thereof or the locus thereof:



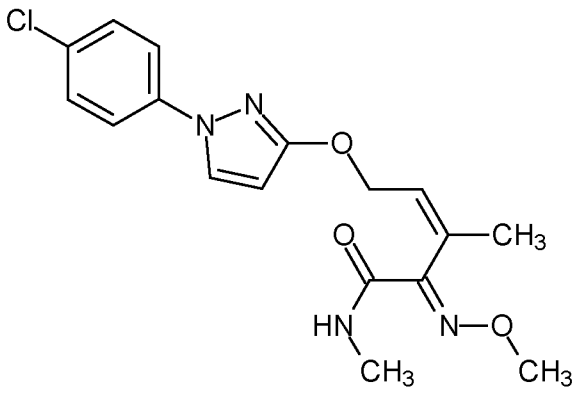
(I).

2. A method for controlling or preventing infestation of plants by fungi which have a F129L mutation in the mitochondrial cytochrome b, the method comprising applying a fungicidally effective amount of compounds of formula (I), wherein R^1 is hydrogen or halogen, preferably hydrogen or chloro, to the plants, to parts thereof or the locus thereof:



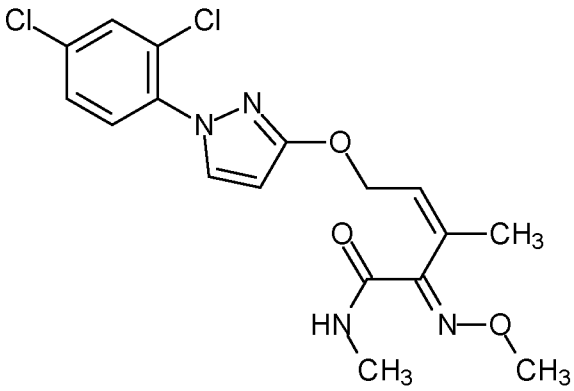
(I).

3. A method according to claim 1 or claim 2, wherein the compound is selected of from (*Z*,2*E*)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide (Compound of formula (I-A)),



(I-A);

(*Z*,2*E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide (Compound of formula (I-B)),



(I-B); and/or mixtures thereof.

4. A method according to claim 2 or 3, in which the fungi which have a F129L mutation in the mitochondrial cytochrome b are selected from *Zymoseptoria tritici* (Septoria blotch), *Alternaria solani (*Alternaria leaf spot)*, Pyrenophora teres* (net blotch) *and Phakopsora pachyrhizi* (Asian soybean rust)*.*

5. A method according to claim 4 in which the fungi which have a F129L mutation in the mitochondrial cytochrome b are Asian soybean rust.

6. A method according to any one of claims 2 to 5 in which the plants are soybean.

7. A method according to any one of claims 1 to 6 in which the compound of formula I is applied in the form of a composition further comprising at least one additional active ingredient and/or an agrochemically-acceptable diluent or carrier.

8. A method according to any of the previous claims in which the compound of formula I is applied at a rate of 10 g to 1 kg per hectare.

9. Use of a compound of formula (I) to control Asian soybean rust on soybean plants.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/076095

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01N43/56 A01P3/00
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, CHEM ABS Data, WPI 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 2016/142224 A1 (BASF SE [DE]) 15 September 2016 (2016-09-15) page 1, line 5 - page 2, line 43 page 19, line 28 - page 20, line 40 page 22, line 7 - line 39 example 3 -----	1,3,6-8
X	WO 2017/157910 A1 (BASF SE [DE]) 21 September 2017 (2017-09-21) page 1, line 5 - line 43 page 2, line 26 - page 3, line 42 page 4, line 33 - page 5, line 20 table 1 page 7, line 15 - line 39 ----- -/--	2-4,7,8

[X] Further documents are listed in the continuation of Box C.

[X] 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

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"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	Date of mailing of the international search report
7 October 2020	22/10/2020

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Zanobini, Alessandra

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Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HARUKA SUEMOTO ET AL: "Metyltetraprole, a novel putative complex III inhibitor, targets known QoI-resistant strains of Zymoseptoria tritici and Pyrenophora teres : Metyltetraprole targets QoI-resistant Zymoseptoria tritici and Pyrenophora teres", PEST MANAGEMENT SCIENCE, vol. 75, no. 4, 17 January 2019 (2019-01-17), pages 1181-1189, XP055627605, ISSN: 1526-498X, DOI: 10.1002/ps.5288 abstract Introduction; page 1181 Introduction; page 1182 page 1184, paragraphs 3.3, 3.4 - page 1185; figure 1 page 1187, left-hand column, paragraph second - right-hand column, paragraph first -----	1-9
A	ANA C KLOSOWSKI ET AL: "Detection of the F129L mutation in the cytochrome b gene in Phakopsora pachyrhizi : F129L mutation in the CYTB gene in P. pachyrhizi", PEST MANAGEMENT SCIENCE, vol. 72, no. 6, 1 June 2016 (2016-06-01), pages 1211-1215, XP055720325, ISSN: 1526-498X, DOI: 10.1002/ps.4099 abstract introduction; page 1211 Discussion and Conclusion; page 1214 - page 1215 -----	1-9
A	CASPAR LANGENBACH ET AL: "Fighting Asian Soybean Rust", FRONTIERS IN PLANT SCIENCE, vol. 7, 7 June 2016 (2016-06-07), XP055680580, DOI: 10.3389/fpls.2016.00797 abstract page 3, left-hand column - right-hand column, paragraph first page 8, left-hand column, paragraph third - right-hand column, paragraph first biocontrol and Conclusion; page 8, right-hand column -----	1-9

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2020/076095

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		US 2019082695 A1	21-03-2019
		WO 2017157910 A1	21-09-2017