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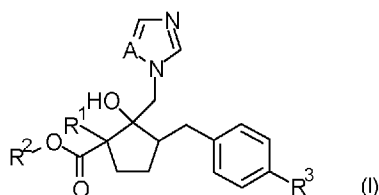
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(54) Title: FUNGICIDAL COMPOSITIONS



(57) Abstract: A composition suitable for control of diseases caused by phytopathogens comprising (A) a compound of formula (I) wherein R¹ is methyl or ethyl, R² is hydrogen, C₁-C₃alkyl, C₁-C₃alkenyl, C₁-C₃alkynyl, R³ is halogen and A is CH or N; and (B) at least one compound selected from compounds known for their fungicidal activity; and a method of controlling diseases on useful plants, especially leaf spot diseases on cereals.



FUNGICIDAL COMPOSITIONS

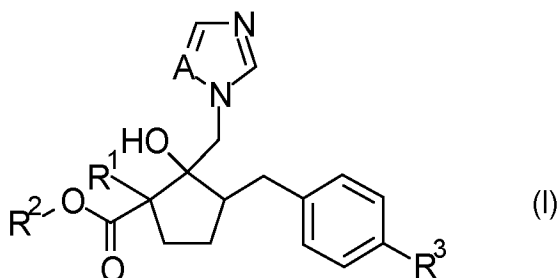
The present invention relates to novel fungicidal compositions suitable for control of diseases caused by phytopathogens, especially phytopathogenic fungi and to a method of controlling diseases on useful plants, especially fruits and vegetables.

5

It is known from WO 2013/077265, WO 2015/083436, WO 2015/083437 and WO 2015/083438 that certain cyclopentane derivatives and mixtures comprising said cyclopentane derivatives have biological activity against phytopathogenic fungi. On the other hand various fungicidal compounds of different chemical classes are widely known as plant
10 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. Especially pathogens which cause leaf spot diseases, like *Mycosphaerella arachidis*, the causal agent of peanut leaf spot disease, *Corynespora cassicola*, the causal agent of target spot of tomato and soybeans and *Septoria* spp. which cause leaf spots on a broad range of important crops, like wheat and soybean,
15 but also mildews, like *Uncinula necator*, causal agent of grape powdery mildew and molds, like *Botrytis cinerea*, causal agent of gray mold of different crop plants, become an increasingly important problem in crop production, resulting in considerable yield losses. Many customary fungicides are unsuitable for controlling leaf spot diseases, powdery
20 mildews and molds or their action against *Septoria* species like *Zymoseptoria tritici*, *Septoria glycines*, but also against *Uncinula necator* and *Botrytis cinerea* is unsatisfactory.

Out of the above-mentioned needs of agricultural practice for increased crop tolerance and/or increased activity against phytopathogenic fungi, such as leaf spots, powdery mildews
25 and molds, there is therefore proposed in accordance with the present invention a novel composition suitable for control of diseases caused by phytopathogens comprising:

(A) a compound of formula I



wherein R¹ is methyl or ethyl, R² is hydrogen, C₁-C₃alkyl, C₁-C₃alkenyl, C₁-C₃alkynyl, R³ is halogen and A is CH or N; and

(B) at least one compound selected from the group consisting of aminopyrifin,

benzothiofostrobin, coumoxystrobin, cyclobutirfluram, dichlobentiazox, enoxastrobin,

5 fenaminostrobin, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram,

flufenoxystrobin, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid,

isoflucypram, oxathiapiprolin, picarbutrazox, pydiflumetofen, pyrapropoyne, pyraziflumid,

pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, triclopyricarb, 2-(difluoromethyl)-N-(1,1-

dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-

10 phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-

ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-

triazol-1-yl)propan-2-ol, 2-[6-(4-chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-

1-yl)propan-2-ol, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-

pent-3-enamide, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-

15 dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-

[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-

methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-

(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl]

(2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate, 2,2-difluoro-N-[6-[[1-(1-

20 methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxy-acetamide, N-methyl-

4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide, 3-[2-(1-chlorocyclopropyl)-3-(2-

fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile, 3-[2-(1-chlorocyclopropyl)-3-(3-

chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile.

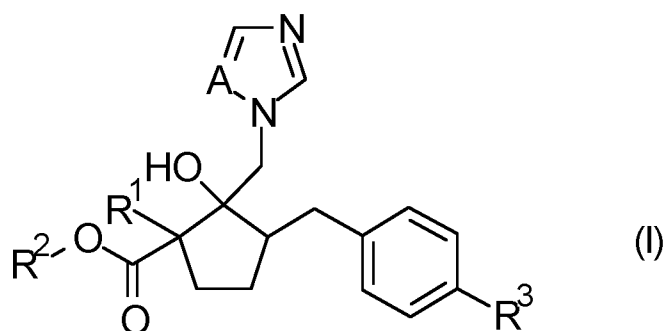
25 The presence of more than one asymmetric carbon atoms in a compound of formula I means that the compounds may occur in optically isomeric forms, i.e. enantiomeric or diastereomeric forms. Also atropisomers may occur as a result of restricted rotation about a single bond. The present invention includes all those possible isomeric forms and mixtures thereof for a compound of formula I. Likewise, formula I is intended to include all possible

30 tautomers. The present invention includes all possible tautomeric forms for a compound of formula I, and also a racemic compound, i.e. a mixture of at least two enantiomers in a ration of substantially 50:50.

In each case, the compounds of formula I according to the invention are in free form, in oxidized form as a N-oxide or in salt form, e.g. an agronomically usable salt form.

N-oxides are oxidized forms of tertiary amines or oxidized forms of nitrogen containing heteroaromatic compounds. They are described for instance in the book "Heterocyclic N-oxides" by A. Albin and S. Pietra, CRC Press, Boca Raton 1991.

- 5 Preferred compositions comprising (A) a compound of formula I



wherein R¹ is methyl, R² is methyl or ethyl, R³ is fluoro or chloro and A is N; and

- (B) at least one compound selected from the group consisting of aminopyrifen,
 10 dichlobentiazox, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, fluindapyr,
 fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin,
 pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin,
 tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-
 (2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-
 15 fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-
 (trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,2E)-5-[1-(2,4-
 dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-
 dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-
 pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-
 20 1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
 yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-
 pyridine-2-carbonyl)amino]propanoate.

- It has been found that the use of component (B) in combination with component (A)
 25 surprisingly and substantially enhance the effectiveness of the latter against fungi, and 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.

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.

The invention covers all stereoisomers and mixtures thereof in any ratio.

A preferred embodiment of the invention is represented by those compositions which comprise as component A) a compound of formula (I), wherein R¹ is methyl, and most preferably wherein R¹ is methyl, R² is methyl, R³ is chloro and A is N; or R¹ is methyl, R² is ethyl, R³ is chloro and A is N; or R¹ is methyl, R² is methyl, R³ is fluoro and A is N.

These preferred compounds of formula (I) are:

methyl 3-[(4-chlorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.1);
ethyl 3-[(4-chlorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.2); and
methyl 3-[(4-fluorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.3).

A further preferred embodiment of the invention is represented by those compositions which comprise as component B) a fungicide selected from aminopyrifen, dichlobentiazox, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-

yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate.

Especially preferred compositions according to the invention comprise as component (A) a
 5 compound selected from methyl 3-[(4-chlorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.1), ethyl 3-[(4-chlorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.2) and methyl 3-[(4-fluorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate (compound A-1.3) and as component (B) a compound
 10 selected from aminopyrifen, dichlobentiazox, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-
 15 formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-
 20 methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate.

The compounds of formula (I) may be prepared in analogous manner as outlined in WO
 25 2013/077265 by chemical reactions known in the art.

The components (B) are known. Most of the components (B) are referred to hereinabove by a so-called "ISO common name" or another "common name" being used in individual cases or a trademark name.

30 The following preferred components (B) are included in the Pesticide Manual Online ("E-pesticide Manual") by the British Crop Production Council and in the Compendium of Pesticide Common Names by Alan Wood: aminopyrifen, benzothiofostobin, coumoxystobin, cyclobutrifluram, dichlobentiazox, enoxastobin, fenaminostobin, fenpicoxamid,

fenpyrazamine, florylpioxamid, flubeneteram, flufenoxystrobin, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin, picarbutrazox, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, triclopyricarb.

5

Further preferred compounds include: 2-(Difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide as disclosed in WO 2019/224175; N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine as disclosed in WO 2017/005710; N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine as disclosed in
 10 WO 2016/202742; 2-[6-(4-Bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol as disclosed in WO 2018/145921; 2-[6-(4-Chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol as disclosed in WO 2018/145921; (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide as disclosed in WO 2013/092224; (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-
 15 dimethyl-pent-3-enamide as disclosed in WO 2018/153707; 1-(5,6-Dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline as disclosed in WO 2017/016915; 1-[6-(Difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline as disclosed in WO 2017/016915; 2,2-Difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide as disclosed in WO 2017/076742; N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
 20 yl]benzenecarbothioamide as disclosed in WO 2017/211649; [1-Methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate as disclosed in WO 2019/173665; 2,2-Difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxy-acetamide as disclosed in WO 2017/178819; N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide as disclosed in WO 2017/174158; 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile as disclosed
 25 in WO 2016/156290; 3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile as disclosed in WO 2016/156290.

Examples of especially suitable compounds as component (B) are compounds selected from
 30 the following group P: aminopyrifin, dichlobentiazox, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-

N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate.

- 10 Throughout this document the expression “composition” stands for 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, 15 such as a few hours or days. The order of applying the components (A) and (B) is not essential for working the present invention.

Further examples for compositions according to the present invention which comprise three active ingredients are defined as embodiments E1, E2 and E3:

20

Preferred Embodiment E1:

The term “TX1” herein means: “the compound A-1.1 + a compound selected from the group P”. Preferred examples include the following compositions: Aminopyrifin + TX1,

benzothiofloxin + TX1, coumoxystrobin + TX1, cyclobutirfluram + TX1, dichlobentiaxox +

25 TX1, enoxastrobin + TX1, fenaminostrobin + TX1, fenpicoxamid + TX1, fenpyrazamine +

TX1, florylpioxamid + TX1, flubeneteram + TX1, flufenoxystrobin + TX1, fluindapyr + TX1,

fluopimomide + TX1, fluoxapiprolin + TX1, ipflufenquin + TX1, isofetamid + TX1,

isoflucypram + TX1, oxathiapiprolin + TX1, picarbutrazox + TX1, pydiflumetofen + TX1,

pyrapropoyne + TX1, pyraziflumid + TX1, pyriofenone + TX1, pyrisoxazole + TX1,

30 quinofumelin + TX1, tolprocarb + TX1, triclopyricarb + TX1, 2-(difluoromethyl)-N-(1,1-

dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide + TX1, N'-(2-chloro-5-methyl-4-

phenoxy-phenyl)-N-ethyl-N-methyl-formamidine + TX1, N'-[2-chloro-4-(2-fluorophenoxy)-5-

methyl-phenyl]-N-ethyl-N-methyl-formamidine + TX1, 2-[6-(4-bromophenoxy)-2-

(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX1, 2-[6-(4-chlorophenoxy)-2-

(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX1, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX1, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX1, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline + TX1, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline + TX1, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide + TX1, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide + TX1, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate + TX1, 2,2-difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxyacetamide + TX1, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide + TX1, 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX1, 3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX1.

15 Preferred Embodiment E2:

The term "TX2" herein means: "the compound A-1.2 + a compound selected from the group P". Preferred examples include the following compositions: Aminopyrifin + TX2, benzothiofostobin + TX2, coumoxystrobin + TX2, cyclobutirfluram + TX2, dichlobentiazox + TX2, enoxastrobin + TX2, fenaminostrobin + TX2, fenpicoxamid + TX2, fenpyrazamine + TX2, florylpioxamid + TX2, flubeneteram + TX2, flufenoxystrobin + TX2, fluindapyr + TX2, fluopimomide + TX2, fluoxapiprolin + TX2, ipflufenquin + TX2, isofetamid + TX2, isoflucypram + TX2, oxathiapiprolin + TX2, picarbutrazox + TX2, pydiflumetofen + TX2, pyrapropoyne + TX2, pyraziflumid + TX2, pyriofenone + TX2, pyrisoxazole + TX2, quinofumelin + TX2, tolprocarb + TX2, triclopyricarb + TX2, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide + TX2, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine + TX2, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine + TX2, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX2, 2-[6-(4-chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX2, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX2, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX2, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline + TX2, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline + TX2, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide + TX2, N-methyl-4-[5-

(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide + TX2, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate + TX2, 2,2-difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxyacetamide + TX2, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide + TX2, 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX2, 3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX2.

Preferred Embodiment E3:

- 10 The term "TX3" herein means: "the compound A-1.3 + a compound selected from the group P". Preferred examples include the following compositions: Aminopyrifin + TX3, benzothiostrobin + TX3, coumoxystrobin + TX3, cyclobutrifluram + TX3, dichlobentiazox + TX3, enoxastrobin + TX3, fenaminostrobin + TX3, fenpicoxamid + TX3, fenpyrazamine + TX3, florylpioxad + TX3, flubeneteram + TX3, flufenoxystrobin + TX3, fluindapyr + TX3, 15 fluopimomide + TX3, fluoxapiprolin + TX3, ipflufenquin + TX3, isofetamid + TX3, isoflucypram + TX3, oxathiapiprolin + TX3, picarbutrazox + TX3, pydiflumetofen + TX3, pyrapropoyne + TX3, pyraziflumid + TX3, pyriofenone + TX3, pyrisoxazole + TX3, quinofumelin + TX3, tolprocarb + TX3, triclopyricarb + TX3, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide + TX3, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidin + TX3, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidin + TX3, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX3, 2-[6-(4-chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol + TX3, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX3, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide + TX3, 25 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline + TX3, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline + TX3, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide + TX3, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide + TX3, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate + TX3, 2,2-difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxyacetamide + TX3, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide + TX3, 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX3, 30

3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile + TX3.

The preferred embodiments E1, E2 and E3 define compositions according to the present invention which comprise 3 active ingredients. In said embodiments, the mixing partner selected from the group P has to be different from the other described mixing partners. For example, the composition "aminopyrifin + TX1" means compositions comprising as active ingredients cyproconazole, the compound A-1.1 + a compound selected from the group P. In said compositions, the compound selected from the group P is different from aminopyrifin.

The following compositions are particularly preferred: A composition comprising (A) compound A-1.1 and (B) a compound selected from the group P. An example of such a composition is a composition comprising the compound A-1.1 and the first compound from the group P, which is aminopyrifin.

The compositions according to the invention are effective against harmful microorganisms, such as microorganisms, that cause phytopathogenic diseases, in particular against phytopathogenic fungi and bacteria. The compositions according to the invention 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, Zymoseptoria, 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 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; 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 represent
5 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
10 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. 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
15 been rendered tolerant to herbicides or classes of herbicides by genetic engineering methods include glyphosate- and 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
20 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 toxin-producing bacteria, especially those of the genus Bacillus.

The term "useful plants" is to be understood as including also useful plants which have been
25 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,
30 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.

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 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.

- 5 The term "plant propagation material" is understood to denote generative parts of the 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 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
10 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.

- In a further aspect, the present appliciaton also relates to plant propagation material coated
15 with the compositions according to the invention.

- The compositions of the present invention may also be used in the field of protecting storage goods against attack of fungi. According to the present invention, the term "storage goods" is understood to denote natural substances of vegetable and/or animal origin and their
20 processed forms, which have been taken from the natural life cycle and for which long-term protection is desired. Storage goods of vegetable origin, such as plants or parts thereof, for example stalks, leaves, tubers, seeds, fruits or grains, can be protected in the freshly harvested state or in processed form, such as pre-dried, moistened, comminuted, ground, pressed or roasted. Also falling under the definition of storage goods is timber, whether in the
25 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. Storage goods of animal origin are hides, leather, furs, hairs and the like. The compositions according the present invention can prevent disadvantageous effects such as decay, discoloration or mold. Preferably "storage goods" is understood to denote natural substances of vegetable origin
30 and/or their processed forms, more preferably fruits and their processed forms, such as pomes, stone fruits, soft fruits and citrus fruits and their processed forms. In another preferred embodiment of the invention "storage goods" is understood to denote wood.

Therefore a further aspect of the present invention is a method of protecting storage goods, which comprises applying to the storage goods a composition according to the invention.

The compositions of the present invention may also be used in the field of protecting technical material against attack of fungi. According to the present invention, the term “technical material” includes paper; carpets; constructions; cooling and heating systems; wall-boards; ventilation and air conditioning systems and the like; preferably “technical material” is understood to denote wall-boards. The compositions according the present invention can prevent disadvantageous effects such as decay, discoloration or mold.

The compositions according to the 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*, *Gäumannomyces graminis*, *Helminthosporium* spp., *Microdochium nivale*, *Phoma* spp., *Pyrenophora graminea*, *Pyricularia oryzae*, *Rhizoctonia solani*, *Rhizoctonia cerealis*, *Sclerotinia* spp., *Zymoseptoria* 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 seed rape; potatoes; pulse crops, such as peas, lentils or chickpea; and sunflower.

The compositions according to the 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*, *Penicilium italicum*, *Penicilium solitum*, *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 compositions according to the invention are particularly useful for controlling the following diseases on the following crops: *Alternaria* species in fruit and vegetables and potato; *Botrytis cinerea* in strawberries, tomatoes, sunflower, pulse crops, vegetables and

grapes; *Rhizoctonia solani* in potato and vegetables, *Uncinula necator* in grape, *Cladosporium cucumerinum*, *Didymella bryoniae*, *Sphaerotheca fuliginea* and *Glomerella lagenarium* in cucurbits, *Leveillula taurica* in cucurbits and solanaceous crops, *Fusarium* spp in cereals, *Leptosphaeria* spp. in cereals, *Septoria* spp in cereals, like *Zymoseptoria tritici*,
5 *Septoria* species in oilseed crops, like *Septoria glycines*, *Cercospora* species in tomato, legumes, penatus and oilseed crops, like *Mycosphaerella arachidicola* in peanuts, or *Cercospora sojae* and *Cercospora kikuchii* in soybeans.

- 10 However, besides the actual synergistic action with respect to fungicidal activity, the compositions according to the invention can also have further surprising advantageous 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
15 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 needed, more productive tillers, earlier flowering, early grain maturity, less plant verse (lodging), increased shoot growth, improved plant vigor, and early germination.
- 20 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,
25 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 compositions according to the invention can be applied to the phytopathogenic microorganisms, the useful plants, the locus thereof, the propagation material thereof,
30 storage goods or technical materials threatened by microorganism attack.

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.

The amount of a composition according to the invention to be applied, will depend on various 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
5 type of fungi to be controlled or the application time.

When applied to the useful plants component (A) is typically 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, typically in association with 1 to 5000 g a.i./ha, particularly 2 to 2000 g a.i./ha, e.g. 100, 250, 500, 800,
10 1000, 1500 g a.i./ha of component (B).

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

When the compositions according to the invention are used for treating seed, rates of 0.001 to 50 g of a compound of component (A) 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.

The composition 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
25 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),
30 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 at least one appropriate inert formulation adjuvant (for example, 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.

The compositions according to the invention may also comprise further pesticides, such as, for example, fungicides, insecticides or herbicides.

A seed dressing formulation is applied in a manner known per se to the seeds employing the compositions according to 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 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 a compound of component (A) together with a compound of component (B), 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.

Further characteristics of compositions comprising compounds of formula (I), their application methods to plants and their use rates are as described for compositions comprising

compounds of formula (I) and additionally at least one component (B) as described above. Their application can be both before and after the infection of the plants or parts thereof with the fungi. The treatment is preferably carried out prior to the infection. When a compound of formula (I) is used on its own, the application rates in the method according to the invention are as described above, e.g. typical are rates 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. Compounds of formula (I) can be applied to the plants once or more than once during a growing season. For use in the method according to the invention, the compounds of formula (I) can be converted into the customary formulations described above, e.g. solutions, emulsions, suspensions, dusts, powders, pastes and granules. The use form will depend on the particular intended purpose; in each case, it should ensure a fine and even distribution of the compound of formula (I).

The term "plant" as used herein includes seedlings, bushes and crops of fruits and vegetables.

The Examples which follow serve to illustrate the invention, "active ingredient" denotes a mixture of component (A) and component (B) in a specific mixing ratio. The same formulations can be used for compositions comprising only a compound of formula (I) as the active ingredient.

Formulation Examples

Wettable powders

	a)	b)
active ingredient [A]: B) = 1:3(a), 1:1(b)]	25 %	75 %
sodium lignosulfonate	5 %	-
sodium lauryl sulfate	3 %	5 %
sodium diisobutyl naphthalenesulfonate (7-8 mol of ethylene oxide)	-	10 %
highly dispersed silicic acid	5 %	10 %
kaolin	62 %	-

The active ingredient is thoroughly mixed with the other formulation components 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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<u>Powders for dry seed treatment</u>	a)	b)
active ingredient [A] : B) = 1:3(a), 1:1(b)]	25 %	75 %
light mineral oil	5 %	5 %
highly dispersed silicic acid	5 %	-
kaolin	65 %	-
talc	-	20

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

Emulsifiable concentrate

active ingredient (A): 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 %

5

Emulsions of any required dilution, which can be used in plant protection, can be obtained from this concentrate by dilution with water.

<u>Dustable powders</u>	a)	b)
active ingredient [A] : B) = 1:6(a), 1:10(b)]	5 %	6 %
talcum	95 %	-
kaolin	-	94 %

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

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<u>Extruded granules</u>	<u>% w/w</u>
active ingredient (A) : B) = 2:1)	15 %
sodium lignosulfonate	2 %
sodium alkyl naphthalene sulfonate	1 %
kaolin	82 %

The active ingredient is mixed and ground with the other formulation components, and the mixture is moistened with water. The mixture is extruded and then dried in a stream of air.

5 Suspension concentrate

active ingredient (A) : B) = 1:8)	40 %
propylene glycol	10 %
nonylphenol polyethylene glycol ether (15 mol of ethylene oxide)	6 %
sodium lignosulfonate	10 %
carboxymethylcellulose	1 %
silicone oil (in the form of a 75 % emulsion in water)	1 %
water	32 %

The finely ground active ingredient is intimately mixed with the other formulation components, giving a suspension concentrate which can be diluted in water at any desired rate. 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 (A) : B) = 1:8)	40 %
propylene glycol	5 %
copolymer butanol PO/EO	2 %
tristyrenephenole ethoxylate (with 10-20 moles EO)	2 %
1,2-benzisothiazolin-3-one	0.5 %
monoazo-pigment calcium salt	5 %
silicone oil (in the form of a 75 % emulsion in water)	0.2 %
water	45.3 %

- 20 -

The finely ground active ingredient is intimately mixed with the other formulation components, giving a suspension concentrate which can be diluted further in water to be applied to seeds. Using such dilutions, propagation material can be treated and protected against infestation by microorganisms, by spraying, pouring or immersion.

5

Accordingly, a further aspect of the present invention is a method of controlling leaf spot diseases on plants which comprises applying to the plants, the locus thereof or propagation material thereof a composition comprising a compound of formula (I).

10 Preferred is a method wherein the phytopathogen is attacking plants and causing diseases, like leaf spots, powdery mildews, and fungal blight diseases.

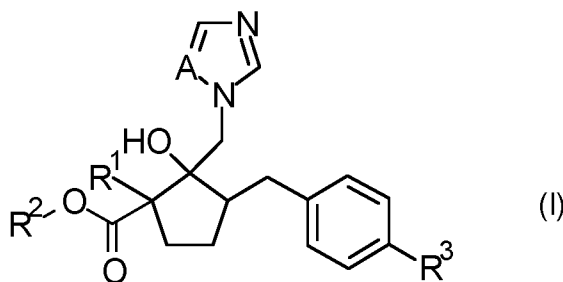
Preferred is a method, which comprises applying to the plants or to the locus thereof a composition comprising a compound of formula (I), preferably to the plants.

15

Further preferred is a method, which comprises applying to the propagation material of the plants a composition comprising a compound of formula (I).

20 The methods according to the invention, especially when a compound of formula (I) is used in combination with at least one compound (B) as described above, also allows good control of other harmful fungi frequently encountered in plants.

Preferred is a method of controlling diseases on oilseeds and cereals, especially caused by leaf spot diseases, which comprises applying to the useful plants, the locus thereof or
25 propagation material thereof a composition comprising a compound of formula (I)



wherein R¹ is methyl, R² is methyl or ethyl, R³ is fluoro or chloro and A is N.

In general, the weight ratio of component (A) to component (B) is from 2000 : 1 to 1 : 1000.

The weight ratio of component (A) to component (B) is preferably from 100 : 1 to 1 : 100;

more preferably from 20 : 1 to 1 : 50, yet more preferably from 12 : 1 to 1 : 25; yet more preferably from 10 : 1 to 1 : 10, again more preferably from 5 : 1 to 1 : 15; and most preferably from 2 : 1 to 1 : 5.

- 5 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 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
- 10 greater than the sum of the fungicidal activities of component (A) and of 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
- 15 become totally ineffective in such a low application rate range. 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

20 given active ingredient combination obeys the so-called COLBY formula and can be 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

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

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,

30 synergism corresponds to a positive value for the difference of (O-E). In the case of purely 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.

Biological Examples*Corynespora cassiicola* (target spot of soybean, target leaf spot of tomato):

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 3-4 days at 620nm.

Pyrissoxazole	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	20	
1	0	70	
0.5	0	20	
0.25	0	0	
0.125	0	0	
0.0625	0	0	
1	0.03	100	76
0.5	0.03	100	36
0.25	0.03	90	20
0.125	0.03	70	20
0.0625	0.03	50	20

Mycosphaerella arachidis syn. *Cercospora arachidicola* (Brown leaf spot of peanut):

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 5-6 days at 620nm.

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Pyriofenone	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
20	0	0	
10	0	0	
5	0	0	
2.5	0	0	
1.25	0	0	
0.6125	0	0	
20	0.03	90	70
10	0.03	90	70
5	0.03	90	70
2.5	0.03	90	70
1.25	0.03	90	70
0.6125	0.03	90	70

Flufenoxystrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
0.05	0	90	
0.025	0	50	
0.0125	0	20	
0.006125	0	0	
0.05	0.03	100	97
0.025	0.03	90	85
0.0125	0.03	90	76
0.006125	0.03	90	70

Fenaminostrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
0.0125	0	70	
0.00625	0	50	
0.003125	0	20	
0.0125	0.03	90	91
0.00625	0.03	90	85
0.003125	0.03	90	76

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Triclopyricarb	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
0.025	0	20	
0.0125	0	0	
0.006125	0	0	
0.025	0.03	90	76
0.0125	0.03	90	70
0.006125	0.03	90	70

Florylpicoxamid	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
0.0125	0	50	
0.00625	0	0	
0.003125	0	0	
0.0125	0.03	90	85
0.00625	0.03	90	70
0.003125	0.03	90	70

Oxathiapiprolin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
20	0	0	
10	0	0	
5	0	0	
2.5	0	0	
20	0.03	90	70
10	0.03	90	70
5	0.03	90	70
2.5	0.03	90	70

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Pyrisoxazole	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
0.25	0	90	
0.125	0	20	
0.0625	0	0	
0.25	0.03	100	97
0.125	0.03	90	76
0.0625	0.03	90	70

Fenpyrazamine	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
20	0	90	
10	0	70	
5	0	0	
2.5	0	0	
20	0.03	100	97
10	0.03	90	91
5	0.03	90	70
2.5	0.03	90	70

Tolprocarb	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	70	
20	0	0	
10	0	0	
5	0	0	
2.5	0	0	
20	0.03	90	70
10	0.03	90	70
5	0.03	90	70
2.5	0.03	90	70

Septoria glycines (brown spot):

- 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 visually after 72 hrs.

Fluopimomide	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
20	0	0	
10	0	0	
5	0	0	
2.5	0	0	
20	0.03	70	50
10	0.03	70	50
5	0.03	70	50
2.5	0.03	70	50

Pyriofenone	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
20	0	0	
10	0	0	
5	0	0	
2.5	0	0	
1.25	0	0	
20	0.03	70	50
10	0.03	70	50
5	0.03	70	50
2.5	0.03	90	50
1.25	0.03	70	50

5

Pyraziflumid	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.25	0	90	
0.125	0	70	
0.0625	0	50	
0.25	0.03	100	95
0.125	0.03	100	85
0.0625	0.03	90	75

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Cyclobutrifluram	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0,2	0	90	
0.1	0	90	
0.05	0	70	
0.025	0	50	
0.0125	0	20	
0,2	0.03	100	95
0.1	0.03	100	95
0.05	0.03	100	85
0.025	0.03	90	75
0.0125	0.03	70	60

Coumoxystrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.05	0	90	
0.025	0	20	
0.0125	0	0	
0.05	0.03	100	95
0.025	0.03	90	60
0.0125	0.03	70	50

Enoxastrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.025	0	100	
0.0125	0	70	
0.00625	0	20	
0.025	0.03	100	100
0.0125	0.03	100	85
0.00625	0.03	70	60

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Benzothiofostrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.025	0	90	
0.0125	0	70	
0.006125	0	0	
0.025	0.03	100	95
0.0125	0.03	90	85
0.006125	0.03	70	50

Flufenoxystrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.1	0	90	
0.05	0	50	
0.025	0	20	
0.1	0.03	100	95
0.05	0.03	90	75
0.025	0.03	70	60

Fenaminostrobin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0.025	0	90	
0.0125	0	50	
0.00625	0	20	
0.025	0.03	100	95
0.0125	0.03	100	75
0.00625	0.03	70	60

Triclopyricarb	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0,2	0	100	
0.1	0	70	
0.05	0	20	
0,2	0.03	100	100
0.1	0.03	100	85
0.05	0.03	70	60

- 29 -

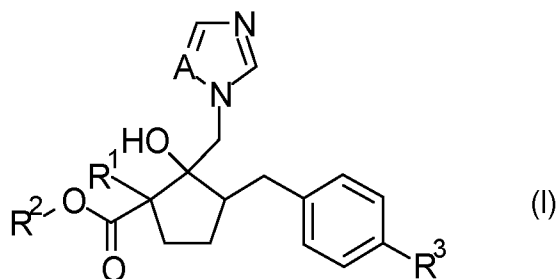
Fenpyrazamine	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
20	0	20	
10	0	0	
5	0	0	
20	0.03	90	60
10	0.03	70	50
5	0.03	50	50

Quinofumelin	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
5	0	20	
2.5	0	0	
1.25	0	0	
5	0.03	70	60
2.5	0.03	70	50
1.25	0.03	50	50

Aminopyrifen	Compound A-1.1	Observed	COLBY Expected
ppm	ppm	Activity (%)	Activity (%)
0	0.03	50	
0,2	0	70	
0.1	0	50	
0.05	0	20	
0.025	0	0	
0,2	0.03	100	85
0.1	0.03	100	75
0.05	0.03	90	60
0.025	0.03	70	50

Claims

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



wherein R¹ is methyl or ethyl, R² is hydrogen, C₁-C₃alkyl, C₁-C₃alkenyl, C₁-C₃alkynyl, R³ is halogen and A is CH or N; or an agrochemically acceptable salt or N-oxide thereof, and

(B) at least one compound selected from the group consisting of aminopyrifin, benzothiofostrobin, coumoxystrobin, cyclobutrifluram, dichlobentiazox, enoxastrobin, fenaminostrobin, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, flufenoxystrobin, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapiprolin, picarbutrazox, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, triclopyricarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, 2-[6-(4-chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl](2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate, 2,2-difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxy-acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide, 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile, 3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile, or combinations thereof.

2. A composition according to claim 1, wherein in compound (A), R¹ is methyl, R² is methyl or ethyl, R³ is fluoro or chloro and A is N, or an agrochemically acceptable salt or N-oxide thereof.

5 3. A composition according to anyone of claims 1 and 2, wherein R¹ in compound (A) is methyl.

4. A composition according to anyone of the previous claims, wherein R² in compound (A) is methyl or ethyl.

10

5. A composition according to anyone of the previous claims, wherein R³ in compound (A) is fluoro or chloro.

15 6. A composition according to anyone of the previous claims, wherein A in compound (A) is N.

7. A composition according to claim 1, wherein compound (A) is methyl 3-[(4-chlorophenyl)-methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate, ethyl 3-[(4-chlorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentane-
 20 carboxylate, or methyl 3-[(4-fluorophenyl)methyl]-2-hydroxy-1-methyl-2-(1,2,4-triazol-1-ylmethyl)cyclopentanecarboxylate, and wherein component (B) is a fungicide selected from aminopyrifen, dichlobentiazox, fenpicoxamid, fenpyrazamine, florylpiroxamid, flubeneteram, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin, isofetamid, isoflucypram, oxathiapi-
 25 prolin, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-
 30 dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate, or combinations thereof.

8. A composition according to any the preceding claims, wherein the weight ratio of (A) to (B) is from 2000: 1 to 1: 1000.

9. A composition according to claim 8, wherein the weight ratio of (A) to (B) is in the range of
5 from 100:1 to 1:100; 20:1 to 1:40; 12:1 to 1:25; 5:1 to 1:15; 2:1 to 1:5.

10. A composition according to any of claims 1 to 9, wherein the composition comprises at least one or more other insecticidally, acaricidally, nematocidally and/or fungicidally active agent(s).

10

11. A composition according to claim 10, wherein the further active agents comprise one or more pesticides selected from the group consisting of: at least one compound selected from the group consisting of aminopyrifen, dichlobentiaxox, fenpicoxamid, fenpyrazamine, florylpioxamid, flubeneteram, fluindapyr, fluopimomide, fluoxapiprolin, ipflufenquin,
15 isofetamid, isoflucypram, oxathiapiprolin, pydiflumetofen, pyrapropoyne, pyraziflumid, pyriofenone, pyrisoxazole, quinofumelin, tolprocarb, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-
20 yl)propan-2-ol, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide, [1-methyl-2-(o-tolyl)propyl]
25 (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propanoate, preferably wherein the at least one or more further pesticide is selected from the group defined herein above, but different from Component (B).

12. A composition according to any one of claims 1 to 11, further comprising an agriculturally
30 acceptable carrier and, optionally, a surfactant and/or one or more formulation adjuvants.

13. 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 claim 1.

14. A method according to claim 13, wherein the composition components (A) and (B) are applied in a simultaneous, intermittent, or sequential manner.

15. A coated plant propagation material, wherein the coating of the plant propagation
5 material comprises applying a composition according to any one of claims 1 to 12.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2021/051515

A. CLASSIFICATION OF SUBJECT MATTER

INV. A01N43/653 A01N43/80 A01N43/40 A01N37/36 A01N37/50
A01N47/24 A01N43/78 A01N43/16 A01N47/16 A01N43/60
A01N47/12 A01P3/00

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	EP 3 078 265 A1 (KUREHA CORP [JP]) 12 October 2016 (2016-10-12)	1-15
Y	claims examples	1-15

X	EP 3 335 560 A1 (SUMITOMO CHEMICAL CO [JP]) 20 June 2018 (2018-06-20)	1-15
Y	claims examples	1-15

X	US 2019/000081 A1 (HIROTOMI DAI [JP] ET AL) 3 January 2019 (2019-01-03)	1-15
Y	claims examples	1-15

	-/-	



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

14 April 2021

Date of mailing of the international search report

17/06/2021

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
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Galley, Carl

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2021/051515

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2016/270398 A1 (MIYAKE TAIJI [JP] ET AL) 22 September 2016 (2016-09-22)	1-15
Y	claims examples	1-15

X	WO 2019/007717 A1 (BASF SE [DE]) 10 January 2019 (2019-01-10)	1-15
Y	claims	1-15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2021/051515

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.:

1-15(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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:

(A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and

(B) at least one compound selected from the group (unknown mode of action) consisting of aminopyrifin, flubeneteram, ipflufenquin, picarbutrazox, pyrapropoyne, quinofumelin, 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide, N'-(2-chloro-5-methyl-4-phenoxyphenyl)-N-ethyl-N-methyl-formamidine, N'-[2-chloro-4-(2-fluorophenoxy)-5-methyl-phenyl]-N-ethyl-N-methyl-formamidine, (Z,2E)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, (Z,2E)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-N,3-dimethyl-pent-3-enamide, 1-(5,6-dimethyl-3-pyridyl)-4,4-difluoro-3,3-dimethyl-isoquinoline, 1-[6-(difluoromethyl)-5-methyl-3-pyridyl]-4,4-difluoro-3,3-dimethyl-isoquinoline, 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzene carbothioamide, [1-methyl-2-(o-tolyl)propyl] (2S)-2-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]propionate, 2,2-difluoro-N-[6-[[1-(1-methyltetrazol-5-yl)benzimidazole-2-yl]oxymethyl]-2-pyridyl]-2-phenoxy-acetamide, N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide, 3-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile, 3-[2-(1-chlorocyclopropyl)-3-(3-chloro-2-fluorophenyl)-2-hydroxy-propyl]imidazole-4-carbonitrile, or combinations thereof.

2. claims: 1-6, 8-15(all partially)

A composition suitable for control of diseases caused by phytopathogens comprising:

(A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and

(B) at least one compound selected from benzothiofostrobin (QoI-fungicide).

3. claims: 1-6, 8-15(all partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from coumoxystrobin (QoI-fungicide).

4. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from the group (SDHI fungicides) consisting of cyclobutrifluram, fluindapyr, isofetamid, isoflucypram, pydiflumetofen, pyraziflumid, pyriofenone, or combinations thereof.

5. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from dichlobentiazox (host plant defence inductors).

6. claims: 1-6, 8-15(all partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from enoxastrobin (QoI-fungicide).

7. claims: 1-6, 8-15(all partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from fenaminstrobin (QoI-fungicide).

8. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

salt or N-oxide thereof, and
 (B) at least one compound selected from the group consisting of fenpicoxamid, florylpioxamid, or combinations thereof.

9. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from the group consisting of fenpyrazamid, pyrisoxazole, 2-[6-(4-bromophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, 2-[6-(4-chlorophenoxy)-2-(trifluoromethyl)-3-pyridyl]-1-(1,2,4-triazol-1-yl)propan-2-ol (mefentrifluconazole), (SBI-fungicides), or combinations thereof.

10. claims: 1-6, 8-15(all partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from flufenoxystrobin (QoI-fungicide).

11. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from the group consisting of fluopimomide, pyriofenone (cytoskeleton and motor protein-fungicides), or combinations thereof.

12. claims: 1-15(partially)

A composition suitable for control of diseases caused by phytopathogens comprising:
 (A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
 (B) at least one compound selected from the group consisting of fluoxapiprolin, oxathiapiprolin (OSBPI-fungicides), or combinations thereof.

13. claims: 1-15(partially)

A composition suitable for control of diseases caused by

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

phytopathogens comprising:
(A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
(B) at least one compound selected from tolprocarb
(MBI-P-fungicides).

14. claims: 1-6, 8-15(all partially)

A composition suitable for control of diseases caused by
phytopathogens comprising:
(A) a compound of formula I, or an agrochemically acceptable salt or N-oxide thereof, and
(B) at least one compound selected from triclopyricarb
(QoI-fungicide).

INTERNATIONAL SEARCH REPORT

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