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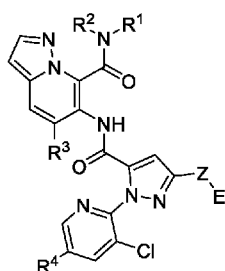
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(54) Title: A PESTICIDALLY ACTIVE MIXTURE COMPRISING PYRAZOLOPYRIDINE ANTHRANILAMIDE COMPOUND, OXIDES OR SALTS THEREOF



(I)

(57) Abstract: The present invention relates to a pesticidal active mixture comprising pyrazolopyridine anthranilamide compound of formula (I), oxides or a salt thereof, Formula (I) wherein, R¹, R², R³, R⁴, Z and E are as defined in the description, and at least one insecticidally active compound (II) or at least one fungicidally active compound (III).



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TITLE OF THE INVENTION: A PESTICIDALLY ACTIVE MIXTURE COMPRISING
PYRAZOLOPYRIDINE ANTHRANILAMIDE COMPOUND, OXIDES OR SALTS THEREOF

FIELD OF THE INVENTION:

The present invention relates to a pesticidal active mixture which comprises at least one pesticidally active pyrazolopyridine anthranilamide compound of formula (I), oxides or a salt thereof as a component (1) and at least one insecticidally active compound (II) or at least one fungicidally active compound (III) as a component (2). Further, the present invention relates to a method for controlling invertebrate pests and/or phytopathogenic fungi of plants, to the use of the mixture for seed treatment, to a method for protecting seeds and to the corresponding treated seeds.

10 BACKGROUND OF THE INVENTION:

One of the problem/needs in controlling pests is to reduce the application rates of the pesticide in order to reduce or avoid environmental or toxicological effects while, at the same time, achieving effective pest control. The need to have pest control agents effective against a broad spectrum of pests is another challenge.

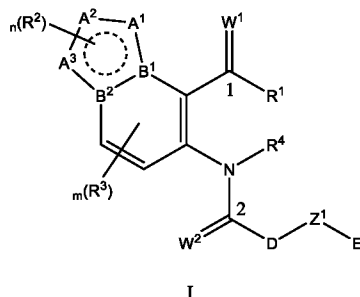
15 There also exists the need for pest control agents that provide quick action as well as long lasting activity in order to reduce the number of applications.

Another difficulty in relation to the use of solo pesticides is that the repeated and exclusive application in most of the cases leads to natural or adapted resistance against the pesticidally active compound. Therefore, there is a need for pest control means that help prevent or overcome resistance.

20 Furthermore, there is a desire for pesticidal active mixtures which, when applied, improve plant health, increase vitality of plant propagation or enhance yield.

Therefore, obtaining a pesticidal active mixture that demonstrates a higher controlling effect with reduced environmental or toxicological effects in addition to addressing one or more of the above discussed problems, is highly desirable.

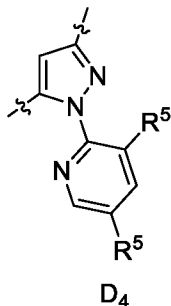
25 WO2019123195 discloses a compound of the following formula



wherein,

W¹ and W² represent O; B¹ and A¹ represent N; B², A³ and A⁴ represent C;

D is fragment D₄



wherein x is hydrogen, fluorine or chlorine;

5 Z¹ represent direct bond or O;

E is selected from the group consisting of halogen, cyano, C₁-C₆ alkyl, C₃-C₆ cycloalkyl, C₃-C₈ cycloalkylalkyl, C₁-C₆ haloalkyl, C₁-C₆ alkoxy and C₁-C₆ haloalkoxy;

R¹ represents NR¹⁰R¹¹ wherein R¹⁰ is hydrogen or methyl;

R³ represents cyano, halogen, methyl and trifluoromethyl;

10 R⁴ represents hydrogen;

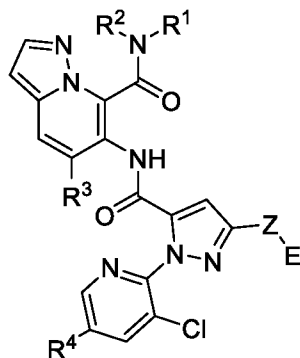
R⁵ represents hydrogen, halogen;

R¹¹ represents C₁-C₆ alkyl, C₃-C₈ cycloalkyl, and C₄-C₈ cycloalkyl-C₁-C₆ alkyl; n and m represents an integer 0-2.

15 Surprisingly, it has been found that the pesticidal active mixture according to the present invention not only brings about the additive enhancement of the spectrum of action with respect to the pest/phytopathogen to be controlled, that was in principle to be expected, but also achieves a synergistic effect. The synergistic effect of the pesticidal active mixture of the present invention helps to reduce the application rate of component (1) selected from pyrazolopyridine anthranilamide compounds of formula (I) and component (2) which is at least one additional insecticidally active
20 compound (II) or at least one fungicidally active compound (III) by maintaining the level of efficacy even if the two individual compounds alone have become less or close to ineffective at such low application rates. Also it allows a substantial broadening of the spectrum of phytopathogens that can be controlled by, at the same time, increasing the safety in use.

25 **SUMMARY OF THE INVENTION:**

Accordingly, the present invention provides a pesticidal active mixture comprising a component (1) as pyrazolopyridine anthranilamide compound of formula (I), oxides or a salt thereof,



Formula (I)

- 5 wherein, R¹, R², R³, R⁴, Z, and E are as defined in the description,
- and a component (2) which is at least one insecticidally active compound (II) selected from the group consisting of:
- (II-1) Acetylcholinesterase (AChE) inhibitors,
 - (II-2) GABA-gated chloride channel blockers,
 - 10 (II-3) Sodium channel modulators,
 - (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators,
 - (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I,
 - (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators,
 - (II-7) Juvenile hormone mimics,
 - 15 (II-8) Miscellaneous non-specific (multi-site) inhibitors,
 - (II-9) Chordotonal organ TRPV channel modulators,
 - (II-10) Mite growth inhibitors affecting CHS1,
 - (II-11) Microbial disruptors of insect midgut membranes,
 - (II-12) Inhibitors of mitochondrial ATP synthase,
 - 20 (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient,
 - (II-14) Nicotinic acetylcholine receptor (nAChR) channel blockers,
 - (II-15) Inhibitors of the chitin biosynthesis affecting CHS1,
 - (II-16) Inhibitors of the chitin biosynthesis type 1,
 - (II-17) Moulting disruptors,
 - 25 (II-18) Ecdyson receptor agonists,
 - (II-19) Octopamin receptor agonists,
 - (II-20) Mitochondrial complex III electron transport inhibitors,
 - (II-21) Mitochondrial complex I electron transport inhibitors,

- (II-22) Voltage-dependent sodium channel blockers,
- (II-23) Inhibitors of the acetyl CoA carboxylase,
- (II-24) Mitochondrial complex IV electron transport inhibitors,
- (II-25) Mitochondrial complex II electron transport inhibitors,
- 5 (II-26) Ryanodine receptor-modulators,
- (II-27) Chordotonal organ Modulators – undefined target site,
- (II-28) GABA-gated chloride channel allosteric modulators,
- (II-29) Baculoviruses,
- (II-30) Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II,
- 10 (II-31) Insecticidal active compounds of unknown or uncertain mode of action,
- (II-32) Biopesticides, and
- (II-33) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or nematocidal activity.

Another aspect of the present invention provides a pesticidal active mixture comprising
 15 pyrazolopyridine anthranilamide compound of formula (I), oxides or a salt thereof as a component (1), and a component (2) is at least one fungicidally active compound (III) selected from the group consisting of:

- (A) inhibitors of the ergosterol synthesis,
- (B) inhibitors of the respiratory chain at complex I or II,
- 20 (C) inhibitors of the respiratory chain at complex III,
- (D) inhibitors of the mitosis and cell division,
- (E) compounds capable of having a multisite action,
- (F) compounds capable of inducing a host defense,
- (G) inhibitors of the amino acid and/or protein biosynthesis,
- 25 (H) inhibitors of the ATP production,
- (I) inhibitors of the cell wall synthesis,
- (J) inhibitors of the lipid and membrane synthesis,
- (K) inhibitors of the melanine biosynthesis,
- (L) inhibitors of the nucleic acid synthesis,
- 30 (M) inhibitors of the signal transduction,
- (N) compounds capable of acting as uncoupler,
- (O) other fungicides,
- (P) HDAC inhibitors, and
- (Q) compounds capable to act as a safener.
- 35 In yet another aspect, the present invention provides a method for controlling invertebrate pests and/or phytopathogenic fungi of plants, comprising the step of applying a pesticidal active mixture to the pest

and/or microorganisms and/or their habitat including plants, plant parts, seeds, fruits or to the soil.

DETAILED DESCRIPTION OF THE INVENTION:

DEFINITIONS:

- 5 In the definitions of the symbols given in the above formulae, collective terms were used which are generally representative of the following substituents:

The term "hydrogen" encompasses also isotopes of hydrogen, preferably deuterium and tritium, more preferably deuterium.

- 10 The term "halogen" (also in combinations such as haloalkyl, haloalkoxy etc.) encompasses fluorine, chlorine, bromine and iodine, and preferably fluorine, chlorine, bromine.

- The term "alkyl" (including in combinations such as alkylthio, alkoxy etc.) encompasses saturated, straight-chain or branched hydrocarbyl radicals having 1 to 6 carbon atoms, for example C1-C6-alkyl, such as methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, 1,1-dimethylethyl, pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1,2,2-trimethylpropyl, 1-ethyl-1-methylpropyl, 1-ethyl-2-methylpropyl, heptyl and octyl. If the alkyl is at the end of a composite substituent, as, for example, in cycloalkyl-alkyl, the part of the composite substituent at the start, for example the alkyl, may be mono- or polysubstituted identically or differently and independently by cycloalkyl.
- 15
20

The term "cycloalkyl" means alkyl closed to form a ring. Non-limiting examples include but are not limited to cyclopropyl, cyclopentyl and cyclohexyl. This definition also applies to cycloalkyl as a part of a composite substituent, for example cycloalkyl-alkyl etc., unless specifically defined elsewhere.

- 25 Depending on the nature of the substituents, the compounds of formula (I) of the present invention or the combining partner forming the part of pesticidal active mixture can be present as mixtures of different possible isomeric forms, in particular of stereoisomers, such as, for example, E and Z, threo and erythro, and also optical isomers, and, if appropriate, also of tautomers. If applicable, compounds of formula (I) or the combining partner forming the part of pesticidal active mixture comprise both the E and the Z isomers, and also the threo and erythro, and the optical isomers, any mixtures of these isomers, and the possible tautomeric forms.
- 30

Any of the compounds of formula (I) or the combining partner forming the part of pesticidal active mixture can exist in one or more optical, geometric or chiral isomer forms depending on the number

of asymmetric centres in the compound. The compound of formula (I) or the combining partner forming the part of pesticidal active mixture include all the optical isomers and to their racemic or scalemic mixtures (the term "scalemic" denotes a mixture of enantiomers in different proportions), and to the mixtures of all the possible stereoisomers, in all proportions. The diastereomers and/or the optical isomers can be separated according to the methods which are known per se by a person ordinary skilled in the art.

Any of the compounds of formula (I) or the combining partner forming the part of pesticidal active mixture can also exist in one or more geometric isomer forms depending on the number of double bonds in the compound. The compound of formula (I) or the combining partner forming the part of pesticidal active mixture include all geometric isomers and to all possible mixtures, in all proportions. The geometric isomers can be separated according to general methods, which are known per se by a person ordinary skilled in the art.

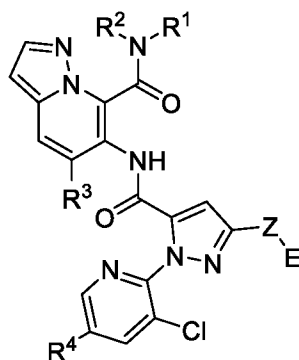
Depending on the nature of the substituents, the compounds of formula (I) can also exist in one or more geometric isomer forms depending on the relative position (*syn/anti* or *cis/trans*) of the substituents of ring B. The invention thus relates equally to all *syn/anti* (or *cis/trans*) isomers and to all possible *syn/anti* (or *cis/trans*) mixtures, in all proportions. The *syn/anti* (or *cis/trans*) isomers can be separated according to general methods, which are known per se by the man ordinary skilled in the art.

The compound of formula (I) can be reacted with acids to give salts.

Examples of inorganic acids are hydrohalic acids, such as hydrogen fluoride, hydrogen chloride, hydrogen bromide and hydrogen iodide, sulfuric acid, phosphoric acid and nitric acid, and acidic salts, such as NaHSO₄ and KHSO₄.

Suitable organic acids are, for example, formic acid, carbonic acid and alkanolic acids, such as acetic acid, trifluoroacetic acid, trichloroacetic acid and propionic acid, and also glycolic acid, thiocyanic acid, lactic acid, succinic acid, citric acid, benzoic acid, cinnamic acid, oxalic acid, alkylsulfonic acids (sulfonic acids having straight-chain or branched alkyl groups having 1 to 20 carbon atoms), arylsulfonic acids or disulfonic acids (aromatic groups, such as phenyl and naphthyl, which carry one or two sulfonic acid groups), alkylphosphonic acids (phosphonic acids having straight-chain or branched alkyl groups having 1 to 20 carbon atoms), arylphosphonic acids or diposphonic acids (aromatic radicals, such as phenyl and naphthyl, which carry one or two phosphonic acid groups), where the alkyl and aryl groups may carry further substituents, for example *p*-toluenesulfonic acid, salicylic acid, *p*-aminosalicylic acid, 2-phenoxybenzoic acid, 2-acetoxybenzoic acid, etc.

In view of the above, the present invention provides a pesticidal mixture comprising a mixture of at least one pesticidally active mixture comprising component (1) as pyrazolopyridine anthranilamide compound of formula (I), oxides or salts thereof.



Formula (I)

wherein,

5 R^1 is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_5 cycloalkyl, C_3 - C_5 cycloalkyl- C_1 - C_6 alkyl and C_1 - C_6 alkyl- C_3 - C_5 cycloalkyl;

R^2 is selected from the group consisting of hydrogen and methyl;

R^3 is selected from the group consisting of methyl, fluorine, chlorine, bromine and trifluoromethyl;

R^4 is selected from the group consisting of hydrogen, fluorine and chlorine;

Z represent direct bond or O;

10 E is selected from the group consisting of halogen, cyano, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 cycloalkyl and C_4 - C_8 cycloalkylalkyl; or salts thereof; and
at least one insecticidally active compound (II) or at least one fungicidally active compound (III) as a component (2);

wherein, at least one insecticidally active compound (II) selected from the group consisting of:

- 15 (II-1) Acetylcholinesterase (AChE) inhibitors,
 (II-2) GABA-gated chloride channel blockers,
 (II-3) Sodium channel modulators,
 (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators,
 (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I,
 20 (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators,
 (II-7) Juvenile hormone mimics,
 (II-8) Miscellaneous non-specific (multi-site) inhibitors,
 (II-9) Chordotonal organ TRPV channel modulators,
 (II-10) Mite growth inhibitors affecting CHS1,
 25 (II-11) Microbial disruptors of insect midgut membranes,
 (II-12) Inhibitors of mitochondrial ATP synthase,
 (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient,
 (II-14) Nicotinic acetylcholine receptor (nAChR) channel blockers,

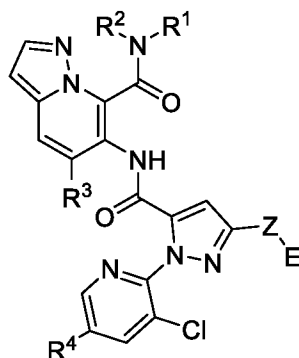
- (II-15) Inhibitors of the chitin biosynthesis affecting CHS1,
(II-16) Inhibitors of the chitin biosynthesis type 1,
(II-17) Moulting disruptors,
(II-18) Ecdyson receptor agonists,
5 (II-19) Octopamin receptor agonists,
(II-20) Mitochondrial complex III electron transport inhibitors,
(II-21) Mitochondrial complex I electron transport inhibitors,
(II-22) Voltage-dependent sodium channel blockers,
(II-23) Inhibitors of the acetyl CoA carboxylase,
10 (II-24) Mitochondrial complex IV electron transport inhibitors,
(II-25) Mitochondrial complex II electron transport inhibitors,
(II-26) Ryanodine receptor-modulators,
(II-27) Chordotonal organ Modulators – undefined target site,
(II-28) GABA-gated chloride channel allosteric modulators,
15 (II-29) Baculoviruses,
(II-30) Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II,
(II-31) Insecticidal active compounds of unknown or uncertain mode of action,
(II-32) Biopesticides, and
(II-33) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or
20 nematocidal activity;

and at least one fungicidally active compound (III) selected from the group consisting of:

- (A) inhibitors of the ergosterol synthesis,
(B) inhibitors of the respiratory chain at complex I or II,
(C) inhibitors of the respiratory chain at complex III,
25 (D) inhibitors of the mitosis and cell division,
(E) compounds capable of having a multisite action,
(F) compounds capable of inducing a host defense,
(G) inhibitors of the amino acid and/or protein biosynthesis,
(H) inhibitors of the ATP production,
30 (I) inhibitors of the cell wall synthesis,
(J) inhibitors of the lipid and membrane synthesis,
(K) inhibitors of the melanine biosynthesis,
(L) inhibitors of the nucleic acid synthesis,
(M) inhibitors of the signal transduction,
35 (N) compounds capable of acting as uncoupler,
(O) other fungicides,

- (P) HDAC inhibitors, and
 (Q) compounds capable to act as a safener.

In one embodiment, the present invention provides a pesticidal active mixture comprising component (1) as pyrazolopyridine anthranilamide compound of formula (I), oxides or salts thereof,



Formula (I)

wherein,

R¹ is selected from the group consisting of C₁-C₆ alkyl, C₃-C₅ cycloalkyl, C₃-C₅ cycloalkyl-C₁-C₆ alkyl and C₁-C₆ alkyl-C₃-C₅ cycloalkyl;

10 R² is selected from the group consisting of hydrogen and methyl;

R³ is selected from the group consisting of methyl, fluorine, chlorine, bromine and trifluoromethyl;

R⁴ is selected from the group consisting of hydrogen, fluorine and chlorine;

Z represent direct bond or O; and

15 E is selected from the group consisting of halogen, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₃-C₆ cycloalkyl and C₄-C₈ cycloalkylalkyl; or salts thereof;

and component (2) is at least one insecticidally active compound (II) selected from the group consisting of:

(II-1) Acetylcholinesterase (AChE) inhibitors selected from the class of

20 (II-1A) carbamates including alanycarb (Z001), aldicarb (Z002), bendiocarb (Z003), benfuracarb (Z004), butocarboxim (Z005), butoxycarboxim (Z006), carbaryl (Z007), carbofuran (Z008), carbosulfan (Z009), ethiofencarb (Z010), fenobucarb (Z011), formetanate (Z012), furathiocarb (Z013), isoprocarb (Z014), methiocarb (Z015), methomyl (Z016), metolcarb (Z017), oxamyl (Z018), pirimicarb (Z019), propoxur (Z020), thiodicarb (Z021), thiofanox (Z022), triazamate (Z023), trimethacarb (Z024), XMC (Z025), and xylycarb (Z026); or

25 (II-1B) organophosphates including acephate (Z027), azamethiphos (Z028), azinphos-ethyl (Z029), azinphosmethyl (Z030), cadusafos (Z031), chlorethoxyfos (Z032), chlorfenvinphos (Z033), chlormephos (Z034), chlorpyrifos (Z035), chlorpyrifos-methyl (Z036), coumaphos (Z037), cyanophos

(Z038), demeton-s-methyl (Z039), diazinon (Z040), dichlorvos/ddvp (Z041), dicrotophos (Z042), dimethoate (Z043), dimethylvinphos (Z044), disulfoton (Z045), epn (Z046), ethion (Z047), ethoprophos (Z048), famphur (Z049), fenamiphos (Z050), fenitrothion (Z051), fenthion (Z052), fosthiazate (Z053), heptenophos (Z054), imicyafos (Z055), isofenphos (Z056), isopropyl o-
5 (methoxyaminothio-phosphoryl) salicylate (Z057), isoxathion (Z058), malathion (Z059), mecarbam (Z060), methamidophos (Z061), methidathion (Z062), mevinphos (Z063), monocrotophos (Z064), naled (Z065), omethoate (Z066), oxydemeton-methyl (Z067), parathion (Z068), parathion-methyl (Z069), phenthoate (Z070), phorate (Z071), phosalone (Z072), phosmet (Z073), phosphamidon (Z074), phoxim (Z075), pirimiphos-methyl (Z076), profenofos (Z077), propetamphos (Z078),
10 prothiofos (Z079), pyraclofos (Z080), pyridaphenthion (Z081), quinalphos (Z082), sulfotep (Z083), tebupirimfos (Z084), temephos (Z085), terbufos (Z086), tetrachlorvinphos (Z087), thiometon (Z088), triazophos (Z089), trichlorfon (Z090), and vamidothion (Z091);

(II-2) GABA-gated chloride channel blockers selected from the class of

(II-2A) Cyclodiene Organochlorines including chlordane (Z092) and endosulfan (Z093); or

15 (II-2B) Phenylpyrazoles (Fiproles) including ethiprole (Z094), fipronil (Z095), flufiprole (Z096), pyrafluprole (Z097) and pyriprole (Z0918);

(II-3) Sodium channel modulators selected from the class of

(II-3A) Pyrethroids/Pyrethrins including acrinathrin (Z099), allethrin (Z100), d-*cis-trans* allethrin (Z101), d-*trans*-allethrin (Z102), bifenthrin (Z103), bioallethrin (Z104), bioallethrin s-cyclopentenyl
20 isomer (Z105), bioresmethrin (Z106), cycloprothrin (Z107), cyfluthrin (Z108), *beta*-cyfluthrin (Z109), cyhalothrin (Z110), *lambda*-cyhalothrin (Z111), *gamma*-cyhalothrin (Z112), cypermethrin (Z113), *alpha*-cypermethrin (Z114), *beta*-cypermethrin (Z115), *theta*-cypermethrin (Z116), *zeta*-cypermethrin (Z117), cyphenothrin [(1r)-*trans*- isomers (Z118), deltamethrin (Z119), empenthrin [(*ez*)-(1r)- isomers] (Z120), esfvalerate (Z121), etofenprox (Z122), fenpropathrin (Z123), fenvalerate (Z124),
25 flucythrinate (Z125), flumethrin (Z126), tau-fluvalinate (Z127), halfenprox (Z128), imiprothrin (Z129), meperfluthrin (Z130), metofluthrin (Z131), momfluorothrin (Z132), kadethrin (Z133), permethrin (Z134), phenothrin [(1r)-*trans*-isomer] (Z134), prallethrin (Z135), profluthrin (Z136), pyrethrins (pyrethrum) (Z137), resmethrin (Z138), silafluofen (Z139), tefluthrin (Z140), tetramethylfluthrin (Z141), tetramethrin (Z142), tetramethrin [(1r)-isomers] (Z143), tralomethrin
30 (Z144) and transfluthrin (Z145); or

(II-3B) DDT (Z146) or methoxychlor (Z147)

(II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators selected from the class of

(II-4A) Neonicotinoids including acetamiprid (Z148), clothianidin (Z149), dinotefuran (Z150), imidacloprid (Z151), nitenpyram (Z152), thiacloprid (Z153), thiamethoxam (Z154), 1-[(6-chloro-3-

- pyridinyl)methyl]-2,3,5,6,7,8-hexahydro-9-nitro-(5S,8R)-5,8-epoxy-H-imidazo[1,2-a]azepine (Z155); 1-[(6-chloro-3-pyridyl)methyl]-2-nitro-1-[(E)-pentylideneamino]guanidine (Z156); and 1-[(6-chloro-3-pyridyl)methyl]-7-methyl-8-nitro-5-propoxy-3,5,6,7-tetrahydro-2H-imidazo[1,2-a]pyridine (Z157); or
- 5 (II-4B) Nicotine (Z158); or
- (II-4C) Sulfoximines including sulfoxaflor (Z159); or
- (II-4D) Butenolides including flupyradifurone (Z160); or
- (II-4E) Mesoionics including triflumezopyrim (Z161), and dichloromezotiaze (Z162),
- (II-4F) Flupyrimin (Z163),
- 10 (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I selected from the class of spinosyns including spinetoram (Z164) and spinosad (Z165),
- (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators selected from the class avermectins/Milbemycins including abamectin (Z166), emamectin benzoate (Z167), lepimectin (Z168) and milbemectin (Z169),
- 15 (II-7) Juvenile hormone mimics selected from the class of
- (II-7A) Juvenile hormone analogues including hydroprene (Z170), kinoprene (Z171) and methoprene (Z172); or
- (II-7B) Fenoxycarb (Z173); or
- (II-7C) Pyriproxyfen (Z174),
- 20 (II-8) Miscellaneous non-specific (multi-site) inhibitors selected from the class of
- (II-8A) Alkyl halides including methyl bromide (Z175) and other alkyl halides (Z176); or
- (II-8B) Chloropicrin (Z177); or
- (II-8C) Fluorides including cryolite (sodium aluminium fluoride) (Z178) and sulfuryl fluoride (Z179); or
- 25 (II-8D) Borates including borax (Z180), boric acid (Z181), disodium octaborate (Z182), sodium borate (Z183), and sodium metaborate (Z184); or
- (II-8E) Tartar emetic (Z185); or
- (II-8F) Methyl isothiocyanate generators including dazomet (Z186) and metam (Z187),
- (II-9) Chordotonal organ TRPV channel modulators selected from the class of

- (II-9A) Pyridine azomethine derivatives including pymetrozine (Z188), and pyrifluquinazon (Z189);
or
- (II-9B) Pyropenes including afidopyropen (Z190),
- (II-10) Mite growth inhibitors affecting CHS1 selected from the class of
- 5 (II-10A) Clofentezine (Z191), Hexythiazox (Z192) and Diflovidazin (Z193); or
- (II-10B) Etoxazole (Z194),
- (II-11) Microbial disruptors of insect midgut membranes selected from the class of
- (II-11A) *Bacillus thuringiensis* (Z195) and the insecticidal proteins they produce, including *bacillus thuringiensis* or *bacillus sphaericus* and the insecticidal proteins they produce such as *bacillus thuringiensis* subsp. *Israelensis*, *bacillus thuringiensis* subsp. *Aizawai*, *bacillus thuringiensis* subsp. *kurstaki* and *bacillus thuringiensis* subsp. *Tenebrionis*, or the B.t crop proteins: Cry1Ab, Cry1Ac, Cry1Fa, Cry1A.105, Cry2Ab, Vip3A, mCry3A, Cry3Ab, Cry3Bb and Cry34/35Ab1,
- 10
- (II-12) Inhibitors of mitochondrial ATP synthase selected from the class of
- 15 (II-12A) Diafenthuron (Z197); or
- (II-12B) Organotin miticides including azocyclotin (Z198), cyhexatin (Z199) and fenbutatin oxide (Z200), or
- (II-12C) Propargite (Z201), or
- (II-12D) Tetradifon (Z202),
- 20 (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient selected from the class of
- (II-13A) Pyrroles including chlorfenapyr (Z203); or
- (II-13B) Dinitrophenols including DNOC (Z204); or
- (II-13C) Sulfluramid (Z205),
- 25 (II-14) Nicotinic acetylcholine receptor (nAChR) channel blockers selected from the class of nereistoxin analogues including bensultap (Z206), cartap hydrochloride (Z207), thiocyclam (Z208) and thiosultap-sodium (Z209),
- (II-15) Inhibitors of the chitin biosynthesis affecting CHS1 selected from the class of bzoylureas including bistrifluron (Z210), chlorfluazuron (Z211), diflubenzuron (Z212), flucycloxuron (Z213), flufenoxuron (Z214), hexaflumuron (Z215), lufenuron (Z216), novaluron (Z217), noviflumuron
- 30 (Z218), teflubenzuron (Z219) and triflumuron (Z220),

- (II-16) Inhibitors of the chitin biosynthesis type 1 including buprofezin (Z221),
- (II-17) Moulting disruptors, Dipteran, including cyromazine (Z222),
- (II-18) Ecdyson receptor agonists selected from the class of diacylhydrazines including methoxyfenozide (Z223), tebufenozide (Z224), halofenozide (Z225), fufenozide (Z226) and
5 chromafenozide (Z227);
- (II-19) Octopamin receptor agonists, including amitraz (Z228),
- (II-20) Mitochondrial complex III electron transport inhibitors selected from the class of
- (II-20A) Hydramethylnon (Z229); or
- (II-20B) Acequinocyl (Z230); or
- 10 (II-20C) Fluacrypyrim (Z231); or
- (II-20D) Bifenazate (Z232),
- (II-21) Mitochondrial complex I electron transport inhibitors selected from the class of
- (II-21A) METI acaricides and insecticides including fenazaquin (Z233), fenpyroximate (Z234), pyrimidifen (Z235), pyridaben (Z236), tebufenpyrad (Z237) and tolfenpyrad (Z238); or
- 15 (II-21B) Rotenone (Z239),
- (II-22) Voltage-dependent sodium channel blockers selected from the class of
- (II-22A) Oxadiazines including indoxacarb (Z240); or
- (II-22B) Semicarbazones including metaflumizone (Z241); or
- (II-22C) 1-[(E)-[2-(4-cyanophenyl)-1-[3-(trifluoromethyl)phenyl]ethylidene]amino]-3-[4-
20 (difluoromethoxy)phenyl]urea (Z242),
- (II-22D) 2-[3-(ethanesulfonyl)pyridin-2-yl]-5-[trifluoro(methanesulfonyl)]-1,3-benzoxazole (oxazosulfonyl) (Z243),
- (II-23) Inhibitors of the acetyl CoA carboxylase selected from the class of tetrone and Tetramic acid derivatives including spirodiclofen (Z244), spiromesifen (Z245), spiropidion (Z246), and
25 spirotetramat (Z247),
- (II-24) Mitochondrial complex IV electron transport inhibitors selected from the class of
- (II-24A) Phosphides including aluminium phosphide (Z248), calcium phosphide (Z249), phosphine (Z250) and zinc phosphide (Z251); or
- (II-24B) Cyanides including calcium cyanide (Z252), potassium cyanide (Z253) and sodium cyanide
30 (Z254),

- (II-25) Mitochondrial complex II electron transport inhibitors selected from the class of
- (II-25A) *Beta*-ketonitrile derivatives including cyenopyrafen (Z255) and cyflumetofen (Z256), or
- (II-25B) Caboxanilides including pyflubumide (Z257),
- (II-26) Ryanodine receptor-modulators from the class of diamides including flubendiamide (Z258),
- 5 chlorantraniliprole (Rynaxypyr®) (Z259), cyantraniliprole (Cyazypyr®) (Z260), cyclaniliprole (Z260), tetraniliprole (Z261), tetra-chlorantraniliprole (Z262), (R)-3-Chlor-N1-{2-methyl-4-[1,2,2,2-tetrafluor-1-(trifluormethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonyl)phthalamid (Z263); (S)-3-Chlor-N1-{2-methyl-4-[1,2,2,2-tetrafluor-1-(trifluormethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonyl)phthalamid (Z264); methyl-2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)benzoyl]-1,2-dimethylhydrazinecarboxylate (Z265); N-[2-(5-amino-1,3,4-thiadiazol-2-yl)-4-chloro-6-methyl-phenyl]-5-bromo-2-(3-chloro-2-pyridyl)pyrazole-3-carboxamide (Z266); 5-chloro-2-(3-chloro-2-pyridyl)-N-[2,4-dichloro-6-[(1-cyano-1-methyl-ethyl)carbamoyl]phenyl]pyrazole-3-carboxamide (Z267); 5-bromo-N-[2,4-dichloro-6-(methylcarbamoyl)phenyl]-2-(3,5-dichloro-2-pyridyl)pyrazole-3-carboxamide (Z268); N-[2-(tert-butylcarbamoyl)-4-chloro-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(fluoromethoxy)pyrazole-3-carboxamide (Z269); N2-(1-cyano-1-methyl-ethyl)-N1-(2,4-dimethylphenyl)-3-iodo-phthalamide (Z270); and 3-chloro-N2-(1-cyano-1-methyl-ethyl)-N1-(2,4-dimethylphenyl)phthalamide (Z271),
- (II-27) Chordotonal organ Modulators – undefined target site including flonicamid (Z272),
- (II-28) GABA-gated chloride channel allosteric modulators selected from the class of
- 20 (II-28A) Meta-diamides including broflanilide (Z273); or
- (II-28B) Isoxazolines including fluxametamide (Z274); Isocycloseram (Z275),
- (II-29) Baculoviruses selected from the class of
- (II-29A) Granuloviruses (GVs) including *cydia pomonella* GV (Z276) and *Thaumatotibia leucotreta* GV (Z277); or
- 25 (II-29B) Nucleopolyhedroviruses (NPVs) including *anticarsia gemmatalis* MNPV (Z278), and *helioverpa armigera* NPV (Z279),
- (II-30) Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II including GS omega/kappa HXTX-Hv1a peptide (Z280),
- (II-31) Insecticidal active compounds of unknown or uncertain mode of action including
- 30 Afidopyropen (Z281), azadirachtin (Z282), amidoflumet (Z283), benzoximate (Z284), benzpyrimoxan (Z285), bifcnazate (Z286), bromopropylate (Z287), chinomethionat (Z288), cryolite (Z289), dicofol (Z290), flufenerim (Z291), flometoquin (Z292), fluhexafon (Z293), fluensulfone (Z294), flupyradifurone (Z295), lime sulphur (Z296), mancozeb (Z297), piperonyl butoxide (Z298),

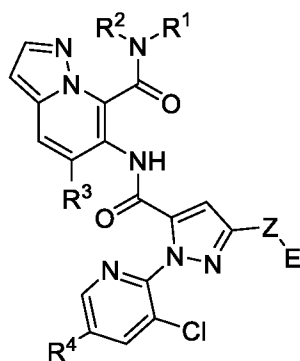
pyridalyl (Z299), pyrifluquinazon (Z300), sulfoxaflor (Z301), sulphur (Z302), 4-[5-(3,5-Dichlorophenyl)-5-trifluoromethyl-4,5-dihydro-isoxazol-3-yl]-2-methyl-N-[(2,2,2-trifluoro-ethylcarbamoyl)-methyl]-benzamide (Z303); cyclopropaneacetic acid (Z304); 1,1'-[(3S,4R,4aR,6S,6aS,12R,12aS,12bS)-4-[(2-cyclopropylacetyl)oxy]methyl]-1,3,4,4a,5,6,6a,12,12a,12b-decahydro-12-hydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridinyl)-2H,11H-naphtho[2,1-b]pyrano[3,4-e]pyran-3,6-diyl]ester (Z305); 11-(4-chloro-2,6-dimethylphenyl)-12-hydroxy-1,4-dioxo-9-azadispiro[4.2.4.2]-tetradec-11-en-10-one (Z306); 3-(4'-fluoro-2,4-dimethylbiphenyl-3-yl)-4-hydroxy-8-oxa-1-azaspiro[4.5]dec-3-en-2-one (Z307); 1-[2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl]-3-(trifluoromethyl)-1H-1,2,4-triazole-5-amine (Z308); or actives on basis of *Bacillus firmus* (Votivo, II-1582) (Z309); (E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z310); (E/Z)—N-[1-[(6-chloro-5-fluoro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z311); (E/Z)—2,2,2-trifluoro-N-[1-[(6-fluoro-3-pyridyl)methyl]-2-pyridylidene]acetamide (Z312); (E/Z)—N-[1-[(6-bromo-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z313); (E/Z)—N-[1-[1-(6-chloro-3-pyridyl)ethyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z314);

(E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (Z315); (E/Z)-2-chloro-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (Z316); (E/Z)—N-[1-[(2-chloropyrimidin-5-yl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z317); (E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,3,3,3-pentafluoro-propanamide) (Z318); triflumezopyrim (Z319); 4-[5-[3-chloro-5-(trifluoromethyl)phenyl]-5-(trifluoromethyl)-4H-isoxazol-3-yl]-N-[2-oxo-2-(2,2,2-trifluoroethylamino)ethyl]naphthalene-1-carboxamide (Z312); 3-[3-chloro-5-(trifluoromethyl)phenyl]-4-oxo-1-(pyrimidin-5-ylmethyl)pyrido[1,2-a]pyrimidin-1-ium-2-olate (Z313); 8-chloro-N-[2-chloro-5-methoxyphenyl)sulfonyl]-6-trifluoromethyl)-imidazo[1,2-a]pyridine-2-carboxamide (Z314); 4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4H-isoxazol-3-yl]-2-methyl-N-(1-oxothietan-3-yl)benzamide (Z315); 5-[3-[2,6-dichloro-4-(3,3-dichloroallyloxy)phenoxy]propoxy]-1H-pyrazole (Z316); Dimpropyridaz (Z317); Tyclopyrazoflor (Z318) and Nicofluprole (Z319),

(II-32) Biopesticides selected from the class of Microbial pesticides with insecticidal, acaricidal, molluscicidal and/or nematocidal activity including *Bacillus firmus* (Z320), *B.t. ssp. galleriae*, *B.t. ssp. kurstaki*, *Beauveria bassiana* (Z321), *Burkholderia* sp. (Z322), *Chromobacterium subtsugae* (Z323), *Isaria fumosorosea* (Z324), *Lecanicillium longisporum* (Z325), *L. muscarium* (formerly *Verticillium lecanii*) (Z326), *Metarhizium anisopliae* (Z327), *M. anisopliae* var. *acridum* (Z328), *Paecilomyces fumosoroseus* Apopka strain 97 (Z329), *P. lilacinus* (Z330), *Paenibacillus poppiliae* (Z331), *Pasteuria* spp. (Z332), *P. nishizawae* (Z333), *P. reneformis* (Z334), *P. usagae* (Z335), *Pseudomonas fluorescens* (Z336), *Steinernema feltiae* (Z337), *Streptomyces galbus* (Z338), *Wolbachia pipientis* (Zap) (Z339), *Bacillus amyloliquefaciens* (Z373), *Bacillus subtilis* (Z374), *Lecanicillium lecanii* (Z375), *Purpureocillium lilacinum* (Z376) and *Burkholderia rinojenses* (Z377) and

(II-33) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or nematocidal activity including L-carvone (Z340); citral (Z341); (E,Z)-7,9-dodecadien-1-yl acetate (Z342); ethyl formate (Z343); (E,Z)-2,4-ethyl decadienoate (pear ester) (Z344); (Z,Z,E)-7,11,13-hexadecatrienal (Z345); heptyl butyrate (Z346); isopropyl myristate (Z347); lavanulyl senecioate (Z348); 2-methyl 1-butanol (Z349); methyl eugenol (Z350); methyl jasmonate (Z351); (E,Z)-2,13-octadecadien-1-ol (Z352); (E,Z)-2,13-octadecadien-1-ol acetate (Z353); (E,Z)-3,13-octadecadien-1-ol (Z354), R-1-octen-3-ol (Z355); pentatermanone (Z356); potassium silicate (Z357); sorbitol actanoate (Z358); (E,Z,Z)-3,8,11-tetradecatrienyl acetate (Z359); (Z,E)-9,12-tetradecadien-1-yl acetate (Z360); Z-7-tetradecen-2-one (Z361), Z-9-tetradecen-1-yl acetate (Z362); Z-11-tetradecenal (Z363); Z-11-tetradecen-1-ol (Z364); *Acacia negra* extract (Z365); extract of grapefruit seeds and pulp (Z366); extract of *Chenopodium ambrosioidae* (Z367); fatty acid monoester with glycerol or propanediol (Z368), Catnip oil (Z369); Neem oil (Z370); Quillay extract (Z371) and *Tagetes* oil (Z372).

Particularly, the pyrazolopyridine anthranilamide compound of formula (I), comprising as component (1) in the pesticidal active mixture is



Formula (I)

wherein,

R¹ is selected from the group consisting of C₁-C₆ alkyl, C₃-C₅ cycloalkyl, C₃-C₅ cycloalkyl-C₁-C₆ alkyl and C₁-C₆ alkyl-C₃-C₅ cycloalkyl;

R² is selected from the group consisting of hydrogen and methyl;

R³ is selected from the group consisting of methyl, fluorine, chlorine, bromine and trifluoromethyl;

R⁴ is selected from the group consisting of hydrogen, fluorine and chlorine;

Z represent direct bond or O; and

E is selected from the group consisting of halogen, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₃-C₆ cycloalkyl and C₄-C₈ cycloalkylalkyl; or salts thereof;

More particularly, the pyrazolopyridine anthranilamide compound of formula (I) is selected from the group consisting of

- (I-I) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-II) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 5 (I-III) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-IV) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 10 (I-V) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-VI) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-VII) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 15 (I-VIII) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-IX) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 20 (I-X) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XI) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-(cyclopropylmethyl)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XII) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 25 (I-XIII) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XIV) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 30 (I-XV) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XVI) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XVII) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 35

- (I-XVIII) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XIX) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 5 (I-XX) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-5-methyl-N-(1-methylcyclopropyl)pyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XXI) N-(tert-butyl)-6-(1-(3,5-dichloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XXII) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N,5-
10 dimethylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XXIII) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XXIV) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- 15 (I-XXV) 5-bromo-6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-methylpyrazolo[1,5-a]pyridine-7-carboxamide;
- (I-XXVI) 5-bromo-6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropylpyrazolo[1,5-a]pyridine-7-carboxamide.

In a preferred embodiment, the pesticidal active mixture according to the invention comprising
20 component (2) as at least one insecticidally active compound (II) selected from:

- (II-2) GABA-gated chloride channel blockers;
- (II-3) Sodium channel modulators (Pyrethroids/Pyrethrins);
- (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators;
- (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I;
- 25 (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators;
- (II-7) Juvenile hormone mimics;
- (II-9) Chordotonal organ TRPV channel modulators;
- (II-11) Microbial disruptors of insect midgut membranes;
- (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient;
- 30 (II-22) Voltage-dependent sodium channel blockers;
- (II-28) GABA-gated chloride channel allosteric modulators; and
- (II-31) Insecticidal active compounds of unknown or uncertain mode of action

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as
insecticidally active compound of formula (II) selected from the group (II-1) acetylcholinesterase
35 (AChE) inhibitors as defined above, in particular (II-1B) organophosphates, especially preferred
acephate (Z027).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-9B) pyropenes as defined above, especially preferred afidopyropen (Z190).

5 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-2) GABA-gated chloride channel blockers as defined above, in particular group (II-2B) - Phenylpyrazoles (Fiproles), especially preferred fipronil (Z095).

10 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-3) Sodium channel modulators as defined above, in particular group (II-3A) (Pyrethroids/Pyrethrins), especially preferred bifenthrin (Z103), cypermethrin (Z113).

15 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators as defined above, in particular avermectins/Milbemycins, especially preferred abamectin (Z166) and emamectin benzoate (Z167).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-28) GABA-gated chloride channel allosteric modulators as defined above, in particular (II-28A) meta-diamides, especially preferred broflanilide (Z273).

20 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-28) GABA-gated chloride channel allosteric modulators as defined above, in particular (II-28B) isoxazolines, especially preferred fluxametamide (Z274).

25 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group insecticidal active compounds of unknown or uncertain mode of action as defined above, especially preferred benzpyrimoxan (Z285), flometoquin (Z292), pyridalyl (Z299), dimpropyridaz (Z317), tyclopyrazoflor (Z318), isocycloseram (Z275), fluhexafon (Z293).

30 In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-13) uncouplers of oxidative phosphorylation via disruption of the proton gradient as defined above, in particular (II-13A) pyrroles, especially preferred chlorfenapyr (Z203).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-4) nicotinic acetylcholine

receptor (nAChR) competitive modulators as defined above, in particular (II-4A) neonicotinoids, especially preferred clothianidin (Z149), imidacloprid (Z151), thiamethoxam (Z154).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-4) nicotinic acetylcholine receptor (nAChR) competitive modulators as defined above, especially preferred (II-4F) flupyrimin (Z163).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-4) nicotinic acetylcholine receptor (nAChR) competitive modulators as defined above, in particular (II-4E) mesoionics, especially preferred triflumezopyrim (Z161).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-12) inhibitors of mitochondrial ATP synthase as defined above, in particular (II-12A) diafenthiuron (Z197).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-22) voltage-dependent sodium channel blockers as defined above, in particular (II-22A) oxadiazines, especially preferred indoxacarb (Z240).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-22) voltage-dependent sodium channel blockers as defined above, in particular (II-22B) semicarbazones especially preferred metaflumizone (Z241).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-22) voltage-dependent sodium channel blockers as defined above, in particular (II-22D) oxazosulfonyl (Z243).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-9) chordotonal organ TRPV channel modulators as defined, in particular (II-9A) pyridine azomethine derivatives, especially preferred pymetrozine (Z188).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-7) juvenile hormone mimics as defined above, especially preferred (II-7C) pyriproxyfen (Z174).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-23) inhibitors of the acetyl

CoA carboxylase as defined above, in particular tetronic and tetramic acid derivatives, especially preferred spiroadiclofen (Z244) and spiropidion (Z246).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-5) nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I as defined above, in particular spinosyns, especially preferred spinetoram (Z164) and spinosad (Z165).

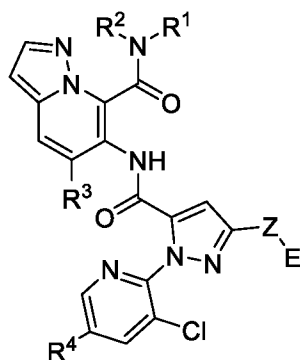
In one embodiment, the pesticidal active mixture according to invention comprise component (2) as insecticidally active compound of formula (II) selected from the group (II-15) inhibitors of the chitin biosynthesis affecting CHS1 as defined above, in particular benzoylureas especially preferred teflubenzuron (Z219).

In one embodiment, the pesticidal active mixture according to invention comprise component (2) as selected from the group (II-11) microbial disruptors of insect midgut membranes as defined above, especially preferred *Bacillus thuringiensis*.

In a preferred embodiment, the pesticidal active mixture according to the invention comprise component (2) as at least one insecticidally active compound of formula (II) selected from Abamectin (Z166), Acephate (Z027), acetamiprid (Z148), Afidopyropen (Z190), alpha-cypermethrin (Z114), Bifenthrin (Z103), Broflanilide (Z273), Benzpyrimoxan (Z285), buprofezin (Z221), Chlorfenapyr (Z203), Clothianidin (Z149), cyhalothrin (Z110), Cypermethrin (Z113), Diafenthiuron (Z197), Dimpropridaz (Z3170), dinotefuran (Z150), Emamectin benzoate (Z167), flonicamid (Z272), Fluxametamide (Z274), Flupyrimin (Z163), Fipronil (Z095), Fluhexafon (Z293), Flometoquin (Z292), Imidacloprid (Z151), Indoxacarb (Z240), Isocycloseram (Z275), Metaflumizone (Z241), Oxazosulfonyl (Z243), Pyridalyl (Z299), Pymetrozine (Z188), Pyriproxyfen (Z174), Spiroadiclofen (Z244), Spiropidion (Z246), Spinetoram (Z164), Spinosad (Z165), spirotetramat (Z247), Thiamethoxam (Z154), Teflubenzuron (Z219), thiacloprid (Z153), Triflumezopyrim (Z161) and Tyclopyrazoflor (Z318).

In a preferred embodiment, the pesticidal active mixture according to the invention comprise (2) at least one biopesticides selected from *Azadirachtin* (Z282), *Bacillus firmus* (Z320), *Bacillus thuringiensis* (Z195), *Bacillus amyloliquefaciens* (Z373), *Bacillus subtilis* (Z374), *Beauveria bassiana* (Z321), *Lecanicillium lecanii* (Z375), *Metarhizium anisopliae* (Z327), *Purpureocillium lilacinum* (Z376) and *Burkholderia rinojenses* (Z377).

In another embodiment, the present invention provides a pesticidal active mixture comprising component (1) as pyrazolopyridine anthranilamide compound of formula (I), oxides or salts thereof,



Formula (I)

wherein,

R^1 is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_5 cycloalkyl, C_3 - C_5 cycloalkyl- C_1 - C_6 alkyl and C_1 - C_6 alkyl- C_3 - C_5 cycloalkyl;

R^2 is selected from the group consisting of hydrogen and methyl;

R^3 is selected from the group consisting of methyl, fluorine, chlorine, bromine and trifluoromethyl;

R^4 is selected from the group consisting of hydrogen, fluorine and chlorine;

Z represent direct bond or O; and

E is selected from the group consisting of halogen, cyano, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 cycloalkyl and C_4 - C_8 cycloalkylalkyl; or salts thereof;

and a component (2) as a fungicidally active compound (III) selected from the group consisting of:

(A) Inhibitors of the ergosterol biosynthesis including (A001) cyproconazole; (A002) difenoconazole; (A003) epoxiconazole; (A004) fenhexamid; (A005) fenpropidin; (A006) fenpropimorph; (A007) fenpyrazamine; (A008) fluquinconazole; (A009) flutriafol; (A010) imazalil; (A011) imazalil sulfate; (A012) ipconazole; (A013) metconazole; (A014) myclobutanil; (A015) paclobutrazol; (A016) prochloraz; (A017) propiconazole; (A018) prothioconazole; (A019) pyrisoxazole; (A020) spiroxamine; (A021) tebuconazole; (A022) tetraconazole; (A023) triadimenol; (A024) tridemorph; (A025) triticonazole; (A026) (1R,2S,5S)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol; (A027) (1S,2R,5R)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol, (A028) (2R)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A029) (2R)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A030) (2R)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A031) (2S)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A032) (2S)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A033) (2S)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A034) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol;

(A035) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol; (A036) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol; (A037) 1-((2R,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl)methyl-1H-1,2,4-triazole; (A038) 1-((2S,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl)methyl-1H-1,2,4-triazole; (A039) 1-[[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazol-5-yl thiocyanate; (A040) 1-[[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazol-5-yl thiocyanate; (A041) 1-[[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazol-5-yl thiocyanate; (A042) 2-[(2R,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A043) 2-[(2R,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A044) 2-[(2R,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A045) 2-[(2R,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A046) 2-[(2S,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A047) 2-[(2S,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A048) 2-[(2S,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A049) 2-[(2S,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A050) 2-[1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A051) 2-[2-chloro-4-(2,4-dichlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A052) 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A053) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A054) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)pentan-2-ol; (A055) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A056) 2-[[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A057) 2-[[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A058) 2-[[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A059) 5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-yl)methylcyclopentanol; (A060) 5-(allylsulfanyl)-1-[[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazole; (A061) 5-(allylsulfanyl)-1-[[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazole; (A062) 5-(allylsulfanyl)-1-[[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl]-1H-1,2,4-triazole; (A063) N'-(2,5-dimethyl-4-[[3-(1,1,2,2-tetrafluoroethoxy)phenyl]sulfanyl]phenyl)-N-ethyl-N-methylimidoforamide; (A064) N'-(2,5-dimethyl-4-[[3-(2,2,2-trifluoroethoxy)phenyl]sulfanyl]phenyl)-N-ethyl-N-methylimidoforamide; (A065) N'-(2,5-dimethyl-4-[[3-(2,2,3,3-tetrafluoropropoxy)phenyl]sulfanyl]phenyl)-N-ethyl-N-

methylimidoforamamide; (A066) N'-(2,5-dimethyl-4-{[3-(pentafluoroethoxy)phenyl]sulfanyl}phenyl)-N-ethyl-N-methylimidoforamamide; (A067) N'-(2,5-dimethyl-4-{3-[(1,1,2,2-tetrafluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-methylimidoforamamide; (A068) N'-(2,5-dimethyl-4-{3-[(2,2,2-trifluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-methylimidoforamamide;

5 (A069) N'-(2,5-dimethyl-4-{3-[(2,2,3,3-tetrafluoropropyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-methylimidoforamamide; (A070) N'-(2,5-dimethyl-4-{3-[(pentafluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-methylimidoforamamide; (A071) N'-(2,5-dimethyl-4-phenoxyphenyl)-N-ethyl-N-methylimidoforamamide; (A072) N'-(4-{[3-(difluoromethoxy)phenyl]sulfanyl}-2,5-dimethylphenyl)-N-ethyl-N-methylimidoforamamide; (A073) N'-(4-{3-[(difluoromethyl)sulfanyl]phenoxy}-2,5-

10 dimethylphenyl)-N-ethyl-N-methylimidoforamamide; (A074) N'-[5-bromo-6-(2,3-dihydro-1H-inden-2-yloxy)-2-methylpyridin-3-yl]-N-ethyl-N-methylimidoforamamide; (A075) N'-{4-[(4,5-dichloro-1,3-thiazol-2-yl)oxy]-2,5-dimethylphenyl}-N-ethyl-N-methylimidoforamamide; (A076) N'-{5-bromo-6-[(1R)-1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoforamamide; (A077) N'-{5-bromo-6-[(1S)-1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-

15 methylimidoforamamide; (A078) N'-{5-bromo-6-[(cis-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoforamamide; (A079) N'-{5-bromo-6-[(trans-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoforamamide; (A080) N'-{5-bromo-6-[1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoforamamide; (A081)

20 mefentrifluconazole; (A082) ipfentrifluconazole; (A083) 1-(2,4-difluorophenyl)-2-(1H-1,2,4-triazol-1-yl)-1-[1-(2,6-difluoro-4-chlorophenoxy)cyclopropyl]ethanol; and (A084) 1-[2-(1-chlorocyclopropyl)-3-(2-fluorophenyl)-2-hydroxypropyl]-1H-imidazole-5-carbonitrile,

(B) Inhibitors of the respiratory chain at complex I or II including (B001) benzovindiflupyr; (B002) bixafen; (B003) boscalid; (B004) carboxin; (B005) fluopyram; (B006) flutolanil; (B007) fluxapyroxad; (B008) furametpyr; (B009) isofetamid; (B010) isopyrazam (anti-epimeric enantiomer

25 1R,4S,9S); (B011) isopyrazam (anti-epimeric enantiomer 1S,4R,9R); (B012) isopyrazam (anti-epimeric racemate 1RS,4SR,9SR); (B013) isopyrazam (mixture of syn-epimeric racemate 1RS,4SR,9RS and anti-epimeric racemate 1RS,4SR,9SR); (B014) isopyrazam (syn-epimeric enantiomer 1R,4S,9R); (B015) isopyrazam (syn-epimeric enantiomer 1S,4R,9S); (B016) isopyrazam (syn-epimeric racemate 1RS,4SR,9RS); (B017) penflufen; (B018) penthiopyrad; (B019)

30 pydiflumetofen; (B020) pyraziflumid; (B021) sedaxane; (B022) 1,3-dimethyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide; (B023) 1,3-dimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B024) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B025) 1-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-carboxamide; (B026) 2-fluoro-

35 6-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)benzamide; (B027) 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-

carboxamide; (B028) 3-(difluoromethyl)-1-methyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B029) 3-(difluoromethyl)-1-methyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B030) 3-(difluoromethyl)-N-(7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1-methyl-1H-pyrazole-4-carboxamide (Fluindapyr); (B031) 3-(difluoromethyl)-N-[(3R)-7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-carboxamide; (B032) 3-(difluoromethyl)-N-[(3S)-7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-carboxamide; (B033) 5,8-difluoro-N-[2-(2-fluoro-4-{[4-(trifluoromethyl)pyridin-2-yl]oxy}phenyl)ethyl]quinazolin-4-amine; (B034) N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B035) N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B036) N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B037) N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B038) N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B039) N-[(1R,4S)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B040) N-[(1S,4R)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B041) N-[1-(2,4-dichlorophenyl)-1-methoxypropan-2-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B042) N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B043) N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B044) N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B045) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-1H-pyrazole-4-carboxamide; (B046) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B047) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B048) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carbothioamide; (B049) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B050) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B051) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B052) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B053) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B054) N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B055) N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B056) N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-

fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B057) 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-2,3-dihydro-1H-inden-4-yl)nicotinamide; (B058) pyrapropoyne; (B059) inpyrfluxam; and (B060) isoflucypram,

(C) Inhibitors of the respiratory chain at complex III including (C001) ametocradin; (C002) amisulbrom; (C003) azoxystrobin; (C004) coumethoxystrobin; (C005) coumoxystrobin; (C006) cyazofamid; (C007) dimoxystrobin; (C008) enoxastrobin; (C009) famoxadone; (C010) fenamidone; (C011) flufenoxystrobin; (C012) fluoxastrobin; (C013) kresoxim-methyl; (C014) metominostrobin; (C015) orysastrobin; (C016) picoxystrobin; (C017) pyraclostrobin; (C018) pyrametostrobin; (C019) pyraoxystrobin; (C020) trifloxystrobin; (C021) (2E)-2-{2-[[[(1E)-1-(3-[(E)-1-fluoro-2-phenylvinyl]oxy]phenyl)ethylidene]amino]oxy]methyl]phenyl}-2-(methoxyimino)-N-methylacetamide; (C022) (2E,3Z)-5-[[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy]-2-(methoxyimino)-N,3-dimethylpent-3-enamide; (C023) (2R)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide; (C024) (2S)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide; (C025) (3S,6S,7R,8R)-8-benzyl-3-[[3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-yl]carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl-2-methylpropanoate (Fenpicoxamid); (C026) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide (Mandestrobin); (C027) N-(3-ethyl-3,5,5-trimethylcyclohexyl)-3-formamido-2-hydroxybenzamide; (C028) (2E,3Z)-5-[[1-(4-chloro-2-fluorophenyl)-1H-pyrazol-3-yl]oxy]-2-(methoxyimino)-N,3-dimethylpent-3-enamide; (C029) methyl {5-[3-(2,4-dimethylphenyl)-1H-pyrazol-1-yl]-2-methylbenzyl} carbamate; (C030) 1-(2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-methylphenyl)-1,4-dihydro-4-methyl-5H-tetrazol-5-one (Metyltetraprole); and (C031) florylpicoxamid,

(D) Inhibitors of the mitosis and cell division including (D001) carbendazim; (D002) diethofencarb; (D003) ethaboxam; (D004) fluopicolide; (D005) pencycuron; (D006) thiabendazole; (D007) thiophanate-methyl; (D008) zoxamide; (D009) 3-chloro-4-(2,6-difluorophenyl)-6-methyl-5-phenylpyridazine; (D010) 3-chloro-5-(4-chlorophenyl)-4-(2,6-difluorophenyl)-6-methylpyridazine; (D011) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-trifluorophenyl)pyridazine; (D012) 4-(2-bromo-4-fluorophenyl)-N-(2,6-difluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D013) 4-(2-bromo-4-fluorophenyl)-N-(2-bromo-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D014) 4-(2-bromo-4-fluorophenyl)-N-(2-bromophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D015) 4-(2-bromo-4-fluorophenyl)-N-(2-chloro-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D016) 4-(2-bromo-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D017) 4-(2-bromo-4-fluorophenyl)-N-(2-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D018) 4-(2-chloro-4-fluorophenyl)-N-(2,6-difluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D019) 4-(2-chloro-4-fluorophenyl)-N-(2-chloro-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D020) 4-(2-chloro-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D021) 4-(2-chloro-4-

fluorophenyl)-N-(2-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D022) 4-(4-chlorophenyl)-5-(2,6-difluorophenyl)-3,6-dimethylpyridazine; (D023) N-(2-bromo-6-fluorophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D024) N-(2-bromophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; and (D025) N-(4-chloro-2,6-difluorophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine,

(E) Compounds capable to have a multisite action including (E001) bordeaux mixture; (E002) captafol; (E003) captan; (E004) chlorothalonil; (E005) copper hydroxide; (E006) copper naphthenate; (E007) copper oxide; (E008) copper oxychloride; (E009) copper(II) sulfate; (E010) dithianon; (E011) dodine; (E012) folpet; (E013) mancozeb; (E014) maneb; (E015) metiram; (E016) metiram zinc; (E017) oxine-copper; (E018) propineb; (E019) sulfur and sulfur preparations including calcium polysulfide; (E020) thiram; (E021) zineb; (E022) ziram; and (E023) 6-ethyl-5,7-dioxo-6,7-dihydro-5H-pynolo[3',4':5,6][1,4]dithiino[2,3-c][1,2]thiazole-3-carbonitrile,

(F) Compounds capable to induce a host defence including (F001) acibenzolar-S-methyl; (F002) isotianil; (F003) probenazole; and (F004) tiadinil,

(G) Inhibitors of the amino acid and/or protein biosynthesis including (G001) cyprodinil; (G002) kasugamycin; (G003) kasugamycin hydrochloride hydrate; (G004) oxytetracycline; (G005) pyrimethanil; (G006) 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline;

(H) Inhibitors of the ATP production including (H001) silthiofam;

(I) Inhibitors of the cell wall synthesis including (I001) benthiavalicarb; (I002) dimethomorph; (I003) flumorph; (I004) iprovalicarb; (I005) mandipropamid; (I006) pyrimorph; (I007) valifenalate; (I008) (2E)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one; and (I009) (2Z)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one,

(J) Inhibitors of the lipid and membrane synthesis including (J001) propamocarb; (J002) propamocarb hydrochloride; and (J003) tolclofos-methyl,

(K) Inhibitors of the melanin biosynthesis including (K001) tricyclazole; (K002) 2,2,2-trifluoroethyl {3-methyl-1-[(4-methylbenzoyl)amino]butan-2-yl} carbamate;

(L) Inhibitors of the nucleic acid synthesis including (L001) benalaxyl; (L002) benalaxyl-M (kiralaxyl); (L003) metalaxyl; and (L004) metalaxyl-M (mefenoxam),

(M) Inhibitors of the signal transduction including (M001) fludioxonil; (M002) iprodione; (M003) procymidone; (M004) proquinazid; (M005) quinoxifen; and (M006) vinclozolin,

(N) Compounds capable to act as an uncoupler including (N001) fluazinam; and (N002) meptyldinocap,

(O) Further compounds including (O001) abscisic acid; (O002) benthiazole; (O003) bethoxazin;

(O004) capsimycin; (O005) carvone; (O006) chinomethionat; (O007) cufraneb; (O008) cyflufenamid; (O009) cymoxanil; (O010) cyprosulfamide; (O011) flutianil; (O012) fosetyl-aluminium; (O013) fosetyl-calcium; (O014) fosetyl-sodium; (O015) methyl isothiocyanate; (O016) metrafenone; (O017) mildiomyacin; (O018) natamycin; (O019) nickel dimethyldithiocarbamate; (O020) nitrothal-isopropyl; 5 (O021) oxamocarb; (O022) oxathiapiprolin; (O023) oxyfenthiin; (O024) pentachlorophenol and salts; (O025) phosphorous acid and its salts; (O026) propamocarb-fosetilate; (O027) pyriofenone (chlazafenone); (O028) tebufloquin; (O029) tecloftalam; (O030) tolnifanide; (O031) 1-(4-{4-[(5R)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone; (O032) 1-(4-{4-[(5S)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone; (O033) 2-(6-benzylpyridin-2-yl)quinazoline; (O034) 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone; (O035) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone; (O036) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-chloro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone; 15 (O037) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-fluoro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone; (O038) 2-[6-(3-fluoro-4-methoxyphenyl)-5-methylpyridin-2-yl]quinazoline; (O039) 2-[(5R)-3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-chlorophenyl methanesulfonate; (O040) 2-[(5S)-3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-chlorophenylmethanesulfonate; (O041) 2-[2-[(7,8-difluoro-2-methylquinolin-3-yl)oxy]-6-fluorophenyl]propan-2-ol; (O042) 2-[2-fluoro-6-[(8-fluoro-2-methylquinolin-3-yl)oxy]phenyl]propan-2-ol; (O043) 2-[3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-25 chlorophenylmethanesulfonate; (O044) 2-[3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]phenylmethanesulfonate; (O045) 2-phenylphenol and salts; (O046) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline; (O047) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (Quinofumelin); (O048) 4-amino-5-fluoropyrimidin-2-ol (tautomeric form: 4-amino-5-fluoropyrimidin-2(1H)-one); (O049) 4-oxo-4-[(2-phenylethyl)amino]butanoic acid; (O050) 5-amino-1,3,4-thiadiazole-2-thiol; (O051) 5-chloro-N'-phenyl-N'-(prop-2-yn-1-yl)thiophene-2-sulfonohydrazide; (O052) 5-fluoro-2-[(4-fluorobenzyl)oxy]pyrimidin-4-amine; (O053) 5-fluoro-2-[(4-methylbenzyl)oxy]pyrimidin-4-amine; (O054) 9-fluoro-2,2-dimethyl-5-(quinolin-3-yl)-2,3-dihydro-35 1,4-benzoxazepine; (O055) but-3-yn-1-yl{6-[[[(Z)-(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino]oxy)methyl]pyridin-2-yl}carbamate; (O056) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate; (O057) phenazine-1-carboxylic acid; (O058) propyl 3,4,5-

trihydroxybenzoate; (O059) quinolin-8-ol; (O060) quinolin-8-ol sulfate (2:1); (O061) tert-butyl {6-
[[[(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino]oxy)methyl]pyridin-2-yl} carbamate;
(O062) 5-fluoro-4-imino-3-methyl-1-[(4-methylphenyl)sulfonyl]-3,4-dihydropyrimidin-2(1H)-one;
(O063) fluoxapiprolin; (O064) pyridachlometyl; (O065) ipflufenquin; and (O066) aminopyrifin, and

5 (P) Inhibitors of histone deacetylase including (P001) N-(1-ethylcyclopropyl)-4-[5-(trifluoromethyl)-
1,2,4-oxadiazol-3-yl]benzamide; (P002) N-(2-isopropylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-
oxadiazol-3-yl]benzamide; (P003) N-(2-methylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
yl]benzamide; (P004) N-(1-methylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
yl]benzamide; (P005) N-(2-ethylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide;
10 (P006) N-(2,4-difluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P007) 5-
(trifluoromethyl)-3-[4-[[3-(trifluoromethyl)-1,2,4-triazol-1-yl]methyl]phenyl]-1,2,4-oxadiazole; (P008)
2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1,2,4-triazole-3-carbonitrile; (P009)
ethyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate; (P010)
N-cyclopropyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-
15 carboxamide; (P011) N,N-dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
yl]phenyl]methyl]pyrazole-4-carboxamide; (P012) N-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-
oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide; (P013) N,N,-dimethyl-H[4-[5-
(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1,2,4-triazol-3-amine; (P014) 3-[4-[(5-
ethylsulfanyl)-1,2,4-triazol-1-yl]methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P015) 3-[4-
20 (triazolo[4,5-b]pyridin-1-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P016) 3-[4-
(triazolo[4,5-b]pyridin-2-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P017) 3-[4-
(triazolo[4,5-b]pyridin-3-ylmethyl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P018) methyl 1-[[4-
[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate; (P019) ethyl 1-[[3-
fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate; (P020)
25 *N,N*-diethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide;
(P021) *N*-methoxy-*N*-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-
4-carboxamide; (P022) propyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-
yl]phenyl]methyl]pyrazole-4-carboxylate; (P023) *N*-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-
oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide; (P024) *N*-ethyl-1-[[4-[5-(trifluoromethyl)-
30 1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide; (P025) 1-[[4-[5-(trifluoromethyl)-1,2,4-
oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide; (P026) *N*-methoxy-1-[1-[[4-[5-
(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazol-4-yl]methanimine; (P027) ethyl 1-[1-
[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]ethyl]pyrazole-4-carboxylate; (P028) 1-[[4-[5-
(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one; (P029) 1-[[4-[5-
35 (trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]piperidin-2-one; (P030) 4-[[4-[5-
(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]morpholin-3-one; (P031) 4,4-dimethyl-2-[[4-[5-

(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P032) 2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P033) 5,5-dimethyl-2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P034) 3,3-dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P035) 1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P036) 1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P037) 2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]oxazinan-3-one; (P038) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P039) 3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]oxazolidin-2-one; (P040) 1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]imidazolidin-2-one; (P041) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-3,3-dimethyl-piperidin-2-one; (P042) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P043) 2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-4,4-dimethyl-isoxazolidin-3-one; (P044) 2-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P045) 2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P046) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]azepan-2-one; (P047) N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P048) 2,2-dimethyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]but-3-ynamide; (P049) N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]butanamide; (P050) 3-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]butanamide; (P051) 2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]prop-2-enamide; (P052) 2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]butanamide; (P053) 2-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]; (P054) 3,3,3-trifluoro-N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P055) 3,3,3-trifluoro-N-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P056) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]butanamide; (P057) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-3,3,3-trifluoro-propanamide; (P058) 2-(difluoromethoxy)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]acetamide; (P059) 2-methoxy-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P060) 1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P061) 1-ethyl-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P062) 1-ethoxy-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P063) 1-methoxy-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]; (P064) 1,1-diethyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P065) N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]cyclopropanecarboxamide; (P066) N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pent-4-ynamide; (P067) N-methoxy-2-methyl-N-[[4-[5-

(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]prop-2-enamide; (P068) N,2-dimethoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P069) N-cyclopropyl-3,3,3-trifluoro-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P070) 2,2-difluoro-N-(2-methoxyethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]cyclopropanecarboxamide; (P071) N-ethyl-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P072) N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-N-methoxy-propanamide; (P073) 2-methoxy-N-(2,2,2-trifluoroethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]acetamide; (P074) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-N-methoxy-cyclopropane carboxamide; (P075) 2-(difluoromethoxy)-N-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]acetamide; (P076) N-ethoxy-2-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P077) N-isopropyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]tetrahydrofuran-2-carboxamide; (P078) 1-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P079) 3-cyclopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P080) 3-ethoxy-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P081) 3-allyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P082) 1-cyclopropyl-3-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P083) 3-isopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P084) 1-methoxy-3-prop-2-ynyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P085) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-1-methoxy-3-methyl-urea; (P086) 3-(cyclopropylmethyl)-1-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P087) 1-ethyl-3-(2,2,2-trifluoroethyl)-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P088) 1,3-dimethoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P089) 3-ethyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]urea; (P090) N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P091) N-[(E)-methoxyiminomethyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P092) N-[(Z)-methoxyiminomethyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P093) N-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]cyclopropanecarboxamide; (P094) N-(2-fluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P095) 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide; (P096) N-allyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]acetamide; (P097) N-[(E)-N-methoxy-C-methyl-carbonimidoyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P098) N-[(Z)-N-methoxy-C-methyl-carbonimidoyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P100) N-allyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]propanamide; (P101) 4,4-dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P102) N-

methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide; and (P103) 5-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one.

In a preferred embodiment, the pesticidal active mixture according to the invention comprise component (2) as at least one fungicidally active compound (III) selected from:

- 5 (A) Inhibitors of the ergosterol synthesis;
 (B) Inhibitors of the respiratory chain at complex I or II;
 (C) Inhibitors of the respiratory chain at complex III;
 (D) Inhibitors of the mitosis and cell division;
 (E) Compounds capable to have a multisite action;
 10 (L) Inhibitors of the nucleic acid synthesis;
 (M) Inhibitors of the signal transduction;
 (N) Compounds capable to act as an uncoupler; and
 (P) Inhibitors of histone deacetylase.

In another preferred embodiment, the pesticidal active mixture according to the invention comprises
 15 compound (II) as at least one fungicidally active compound selected from (A001) cyproconazole, (A002) difenoconazole, (A003) epoxiconazole, (A006) fenpropimorph, (A009) flutriafol, (A013) metconazole, (A017) propiconazole, (A018) prothioconazole, (A021) tebuconazole, (A022) tetraconazol, (A081) mefentrifluconazole, (B001) benzovindiflupyr, (B002) bixafen, (B005) fluopyram, (B007) fluxapyroxad, (B019) pydiflumetofen, (B30) fluindapyr, (B059) inpyrfluxam,
 20 (C003) azoxystrobin, (C012) fluoxastrobin (C014) metominostrobin, (C017) pyraclostrobin, (C016) picoxystrobin, (C020) trifloxystrobin, (C025) (3S,6S,7R,8R)-8-benzyl-3-[(3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-yl)carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl-2-methylpropanoate (Fenpicoxamid), (C030) 1-(2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-methylphenyl)-1,4-dihydro-4-methyl-5H-tetrazol-5-one (Metyltetraprole), (D001)
 25 carbendazim, (D007) thiophanate-methyl, (E004) chlorothalonil, (E010) dithianon, (E013) mancozeb, (E020) thiram, (F002) Isotianil, (F003) Probenazole, (L003) metalaxyl, (M001) fludioxonil, (N001) fluazinam, (O022) Oxathiapiprolin, (O043) 2-{3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}-3-chlorophenyl
 methanesulfonate (fluoxapiprolin), (O046) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-
 30 yl)quinoline, (O047) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (Quinofumelin), (O065) ipflufenquin and (P094) N-(2-fluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide.

In a more preferred embodiment, the pesticidal active mixture according to the invention comprise component (2) as at least one fungicidally active compound (III) selected from (C003) Azoxystrobin,

(C017) Pyraclostrobin, (L003) Metalaxyl, (D007) Thiophanate-methyl, (B007) Fluxapyroxad, (M001) Fludioxonil, (F003) Probenazole, (F002) Isotianil and (B005) Fluopyram.

The following combinations exemplify specific embodiments of the agrochemical composition according to the present invention.

- 5 Following combinations listed in Table-1, wherein component (1) (compound of formula (I), a group represented by the expression "(I)" comprising of compounds (I-I), (I-II), (I-III), (I-IV), (I-V), (I-VI), (I-VII), (I-VIII), (I-IX), (I-X), (I-XI), (I-XII), (I-XIII), (I-XIV), (I-XV), (I-XVI), (I-XVII), (I-XVIII), (I-XIX), (I-XX), (I-XXI), (I-XXII), (I-XXIII), (I-XXIV), (I-XXV) and (I-XXVI) and component (2) is selected from the groups II-1) to II-33) as defined herein

10 **Table-1:**

(I)+(II-1A), (I)+(II-1B), (I)+(II-2A), (I)+(II-2B), (I)+(II-3A), (I)+(II-3B), (I)+(II-4A), (I)+(II-4B), (I)+(II-4C), (I)+(II-4D), (I)+(II-4E), (I)+(II-5), (I)+(II-6), (I)+(II-7A), (I)+(II-7B), (I)+(II-7C), (I)+(II-8A), (I)+(II-8B), (I)+(II-8C), (I)+(II-8D), (I)+(II-8E), (I)+(II-8F), (I)+(II-9A), (I)+(II-9B), (I)+(II-10A), (I)+(II-10B), (I)+(II-11A), (I)+(II-12A), (I)+(II-12B), (I)+(II-12C), (I)+(II-12D), (I)+(II-13A),
 15 (I)+(II-13B), (I)+(II-13C), (I)+(II-14), (I)+(II-15), (I)+(II-16), (I)+(II-17), (I)+(II-18), (I)+(II-19), (I)+(II-20A), (I)+(II-20B), (I)+(II-20C), (I)+(II-20D), (I)+(II-21A), (I)+(II-21B), (I)+(II-22A), (I)+(II-22B), (I)+(II-22C), (I)+(II-23), (I)+(II-24A), (I)+(II-24B), (I)+(II-25A), (I)+(II-25B), (I)+(II-26), (I)+(II-27), (I)+(II-28A), (I)+(II-28B), (I)+(II-29A), (I)+(II-29B), (I)+(II-30), (I)+(II-31), (I)+(II-32), (I)+(II-33).

- 20 In particular, combinations listed in Table-1A, wherein component (1) (compound of formula (I), a group represented by the expression "(I)" comprising of compounds (I-I), (I-II), (I-III), (I-IV), (I-V), (I-VI), (I-VII), (I-VIII), (I-IX), (I-X), (I-XI), (I-XII), (I-XIII), (I-XIV), (I-XV), (I-XVI), (I-XVII), (I-XVIII), (I-XIX), (I-XX), (I-XXI), (I-XXII), (I-XXIII), (I-XXIV), (I-XXV) and (I-XXVI) and component (2) is selected from the compounds Z001) to Z377) as defined herein

25 **Table-1A:**

(I)+(Z001), (I)+(Z002), (I)+(Z003), (I)+(Z004), (I)+(Z005), (I)+(Z006), (I)+(Z007), (I)+(Z008), (I)+(Z009), (I)+(Z010), (I)+(Z011), (I)+(Z012), (I)+(Z013), (I)+(Z014), (I)+(Z015), (I)+(Z016), (I)+(Z017), (I)+(Z018), (I)+(Z019), (I)+(Z020), (I)+(Z021), (I)+(Z022), (I)+(Z023), (I)+(Z024), (I)+(Z025), (I)+(Z026), (I)+(Z027), (I)+(Z028), (I)+(Z029), (I)+(Z030), (I)+(Z031), (I)+(Z032),
 30 (I)+(Z033), (I)+(Z034), (I)+(Z035), (I)+(Z036), (I)+(Z037), (I)+(Z038), (I)+(Z039), (I)+(Z040), (I)+(Z041), (I)+(Z042), (I)+(Z043), (I)+(Z044), (I)+(Z045), (I)+(Z046), (I)+(Z047), (I)+(Z048), (I)+(Z049), (I)+(Z050), (I)+(Z051), (I)+(Z052), (I)+(Z053), (I)+(Z054), (I)+(Z055), (I)+(Z056), (I)+(Z057), (I)+(Z058), (I)+(Z059), (I)+(Z060), (I)+(Z061), (I)+(Z062), (I)+(Z063), (I)+(Z064), (I)+(Z065), (I)+(Z066), (I)+(Z067), (I)+(Z068), (I)+(Z069), (I)+(Z070), (I)+(Z071), (I)+(Z072),

(I)+(Z073), (I)+(Z074), (I)+(Z075), (I)+(Z076), (I)+(Z077), (I)+(Z078), (I)+(Z079), (I)+(Z080),
(I)+(Z081), (I)+(Z082), (I)+(Z083), (I)+(Z084), (I)+(Z085), (I)+(Z086), (I)+(Z087), (I)+(Z088),
(I)+(Z089), (I)+(Z090), (I)+(Z091), (I)+(Z092), (I)+(Z093), (I)+(Z094), (I)+(Z095), (I)+(Z096),
(I)+(Z097), (I)+(Z098), (I)+(Z099), (I)+(Z100), (I)+(Z101), (I)+(Z102), (I)+(Z103), (I)+(Z104),
5 (I)+(Z105), (I)+(Z106), (I)+(Z107), (I)+(Z108), (I)+(Z109), (I)+(Z110), (I)+(Z111), (I)+(Z112),
(I)+(Z113), (I)+(Z114), (I)+(Z115), (I)+(Z116), (I)+(Z117), (I)+(Z118), (I)+(Z119), (I)+(Z120),
(I)+(Z121), (I)+(Z122), (I)+(Z123), (I)+(Z124), (I)+(Z125), (I)+(Z126), (I)+(Z127), (I)+(Z128),
(I)+(Z129), (I)+(Z130), (I)+(Z131), (I)+(Z132), (I)+(Z133), (I)+(Z134), (I)+(Z135), (I)+(Z136),
(I)+(Z137), (I)+(Z138), (I)+(Z139), (I)+(Z140), (I)+(Z141), (I)+(Z142), (I)+(Z143), (I)+(Z144),
10 (I)+(Z145), (I)+(Z146), (I)+(Z147), (I)+(Z148), (I)+(Z149), (I)+(Z150), (I)+(Z151), (I)+(Z152),
(I)+(Z153), (I)+(Z154), (I)+(Z155), (I)+(Z156), (I)+(Z157), (I)+(Z158), (I)+(Z159), (I)+(Z160),
(I)+(Z161), (I)+(Z162), (I)+(Z163), (I)+(Z164), (I)+(Z165), (I)+(Z166), (I)+(Z167), (I)+(Z168),
(I)+(Z169), (I)+(Z170), (I)+(Z171), (I)+(Z172), (I)+(Z173), (I)+(Z174), (I)+(Z175), (I)+(Z176),
(I)+(Z177), (I)+(Z178), (I)+(Z179), (I)+(Z180), (I)+(Z181), (I)+(Z182), (I)+(Z183), (I)+(Z184),
15 (I)+(Z185), (I)+(Z186), (I)+(Z187), (I)+(Z188), (I)+(Z189), (I)+(Z190), (I)+(Z191), (I)+(Z192),
(I)+(Z193), (I)+(Z194), (I)+(Z195), (I)+(Z196), (I)+(Z197), (I)+(Z198), (I)+(Z199), (I)+(Z200),
(I)+(Z201), (I)+(Z202), (I)+(Z203), (I)+(Z204), (I)+(Z205), (I)+(Z206), (I)+(Z207), (I)+(Z208),
(I)+(Z209), (I)+(Z210), (I)+(Z211), (I)+(Z212), (I)+(Z213), (I)+(Z214), (I)+(Z215), (I)+(Z216),
(I)+(Z217), (I)+(Z218), (I)+(Z219), (I)+(Z220), (I)+(Z221), (I)+(Z222), (I)+(Z223), (I)+(Z224),
20 (I)+(Z225), (I)+(Z226), (I)+(Z227), (I)+(Z228), (I)+(Z229), (I)+(Z230), (I)+(Z231), (I)+(Z232),
(I)+(Z233), (I)+(Z234), (I)+(Z235), (I)+(Z236), (I)+(Z237), (I)+(Z238), (I)+(Z239), (I)+(Z240),
(I)+(Z241), (I)+(Z242), (I)+(Z243), (I)+(Z244), (I)+(Z245), (I)+(Z246), (I)+(Z247), (I)+(Z248),
(I)+(Z249), (I)+(Z250), (I)+(Z251), (I)+(Z252), (I)+(Z253), (I)+(Z254), (I)+(Z255), (I)+(Z256),
(I)+(Z257), (I)+(Z258), (I)+(Z259), (I)+(Z260), (I)+(Z261), (I)+(Z262), (I)+(Z263), (I)+(Z264),
25 (I)+(Z265), (I)+(Z266), (I)+(Z267), (I)+(Z268), (I)+(Z269), (I)+(Z270), (I)+(Z271), (I)+(Z272),
(I)+(Z273), (I)+(Z274), (I)+(Z275), (I)+(Z276), (I)+(Z277), (I)+(Z278), (I)+(Z279), (I)+(Z280),
(I)+(Z281), (I)+(Z282), (I)+(Z283), (I)+(Z284), (I)+(Z285), (I)+(Z286), (I)+(Z287), (I)+(Z288),
(I)+(Z289), (I)+(Z290), (I)+(Z291), (I)+(Z292), (I)+(Z293), (I)+(Z294), (I)+(Z295), (I)+(Z296),
(I)+(Z297), (I)+(Z298), (I)+(Z299), (I)+(Z300), (I)+(Z301), (I)+(Z302), (I)+(Z303), (I)+(Z304),
30 (I)+(Z305), (I)+(Z306), (I)+(Z307), (I)+(Z308), (I)+(Z309), (I)+(Z310), (I)+(Z311), (I)+(Z312),
(I)+(Z313), (I)+(Z314), (I)+(Z315), (I)+(Z316), (I)+(Z317), (I)+(Z318), (I)+(Z319), (I)+(Z320),
(I)+(Z321), (I)+(Z322), (I)+(Z323), (I)+(Z324), (I)+(Z325), (I)+(Z326), (I)+(Z327), (I)+(Z328),
(I)+(Z329), (I)+(Z330), (I)+(Z331), (I)+(Z332), (I)+(Z333), (I)+(Z334), (I)+(Z335), (I)+(Z336),
(I)+(Z337), (I)+(Z338), (I)+(Z339), (I)+(Z340), (I)+(Z341), (I)+(Z342), (I)+(Z343), (I)+(Z344),
35 (I)+(Z345), (I)+(Z346), (I)+(Z347), (I)+(Z348), (I)+(Z349), (I)+(Z350), (I)+(Z351), (I)+(Z352),
(I)+(Z353), (I)+(Z354), (I)+(Z355), (I)+(Z356), (I)+(Z357), (I)+(Z358), (I)+(Z359), (I)+(Z360),
(I)+(Z361), (I)+(Z362), (I)+(Z363), (I)+(Z364), (I)+(Z365), (I)+(Z366), (I)+(Z367), (I)+(Z368),

(I)+(Z369), (I)+(Z370), (I)+(Z371), (I)+(Z372), (I)+(Z373), (I)+(Z374), (I)+(Z375), (I)+(Z376) and (I)+(Z377).

In one embodiment, the weight ratio of component (1) to component (2) is between 500:1 and 1:500 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

5 In one embodiment, the weight ratio of component (1) to component (2) is between 100:1 and 1:100 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

In one embodiment, the weight ratio of component (1) to component (2) is between 50:1 and 1:50 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

10 In one embodiment, the weight ratio of component (1) to component (2) is between 20:1 and 1:20 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

In one embodiment, the weight ratio of component (1) to component (2) is between 5:1 and 1:5 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

In one embodiment, the weight ratio of component (1) to component (2) is between 3:1 and 1:3 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

15 In one embodiment, the weight ratio of component (1) to component (2) is between 2:1 and 1:2 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

In one embodiment, the weight ratio of component (1) to component (2) is 1:1 in combinations [(I) + (II-1A) to [(I) + (II-33)] or [(I) + (Z001)] to [(I) + (Z377)] of Table: 1.

20 Following combinations listed in Table-2, wherein component (1) is compound (I-I) and component (2) selected from the groups II-1) to II-33) as defined herein

Table-2:

(I-I)+(II-1A), (I-I)+(II-1B), (I-I)+(II-2A), (I-I)+(II-2B), (I-I)+(II-3A), (I-I)+(II-3B), (I-I)+(II-4A), (I-I)+(II-4B), (I-I)+(II-4C), (I-I)+(II-4D), (I-I)+(II-4E), (I-I)+(II-5), (I-I)+(II-6), (I-I)+(II-7A), (I-I)+(II-7B), (I-I)+(II-7C), (I-I)+(II-8A), (I-I)+(II-8B), (I-I)+(II-8C), (I-I)+(II-8D), (I-I)+(II-8E), (I-I)+(II-8F),
 25 (I-I)+(II-9A), (I-I)+(II-9B), (I-I)+(II-10A), (I-I)+(II-10B), (I-I)+(II-11A), (I-I)+(II-12A), (I-I)+(II-12B), (I-I)+(II-12C), (I-I)+(II-12D), (I-I)+(II-13A), (I-I)+(II-13B), (I-I)+(II-13C), (I-I)+(II-14), (I-I)+(II-15), (I-I)+(II-16), (I-I)+(II-17), (I-I)+(II-18), (I-I)+(II-19), (I-I)+(II-20A), (I-I)+(II-20B), (I-I)+(II-20C), (I-I)+(II-20D), (I-I)+(II-21A), (I-I)+(II-21B), (I-I)+(II-22A), (I-I)+(II-22B), (I-I)+(II-22C), (I-I)+(II-23), (I-I)+(II-24A), (I-I)+(II-24B), (I-I)+(II-25A), (I-I)+(II-25B), (I-I)+(II-26), (I-I)+(II-27), (I-I)+(II-28A), (I-I)+(II-28B), (I-I)+(II-29A), (I-I)+(II-29B), (I-I)+(II-30), (I-I)+(II-31), (I-I)+(II-32), (I-I)+(II-33).

30 In particular, combinations listed in Table-2A, wherein component (1) is compound (I-I) and component (2) selected from the compounds (Z001) to (Z377)] as defined herein

D)+(Z246), (I-I)+(Z247), (I-I)+(Z248), (I-I)+(Z249), (I-I)+(Z250), (I-I)+(Z251), (I-I)+(Z252), (I-I)+(Z253), (I-I)+(Z254), (I-I)+(Z255), (I-I)+(Z256), (I-I)+(Z257), (I-I)+(Z258), (I-I)+(Z259), (I-I)+(Z260), (I-I)+(Z261), (I-I)+(Z262), (I-I)+(Z263), (I-I)+(Z264), (I-I)+(Z265), (I-I)+(Z266), (I-I)+(Z267), (I-I)+(Z268), (I-I)+(Z269), (I-I)+(Z270), (I-I)+(Z271), (I-I)+(Z272), (I-I)+(Z273), (I-I)+(Z274), (I-I)+(Z275), (I-I)+(Z276), (I-I)+(Z277), (I-I)+(Z278), (I-I)+(Z279), (I-I)+(Z280), (I-I)+(Z281), (I-I)+(Z282), (I-I)+(Z283), (I-I)+(Z284), (I-I)+(Z285), (I-I)+(Z286), (I-I)+(Z287), (I-I)+(Z288), (I-I)+(Z289), (I-I)+(Z290), (I-I)+(Z291), (I-I)+(Z292), (I-I)+(Z293), (I-I)+(Z294), (I-I)+(Z295), (I-I)+(Z296), (I-I)+(Z297), (I-I)+(Z298), (I-I)+(Z299), (I-I)+(Z300), (I-I)+(Z301), (I-I)+(Z302), (I-I)+(Z303), (I-I)+(Z304), (I-I)+(Z305), (I-I)+(Z306), (I-I)+(Z307), (I-I)+(Z308), (I-I)+(Z309), (I-I)+(Z310), (I-I)+(Z311), (I-I)+(Z312), (I-I)+(Z313), (I-I)+(Z314), (I-I)+(Z315), (I-I)+(Z316), (I-I)+(Z317), (I-I)+(Z318), (I-I)+(Z319), (I-I)+(Z320), (I-I)+(Z321), (I-I)+(Z322), (I-I)+(Z323), (I-I)+(Z324), (I-I)+(Z325), (I-I)+(Z326), (I-I)+(Z327), (I-I)+(Z328), (I-I)+(Z329), (I-I)+(Z330), (I-I)+(Z331), (I-I)+(Z332), (I-I)+(Z333), (I-I)+(Z334), (I-I)+(Z335), (I-I)+(Z336), (I-I)+(Z337), (I-I)+(Z338), (I-I)+(Z339), (I-I)+(Z340), (I-I)+(Z341), (I-I)+(Z342), (I-I)+(Z343), (I-I)+(Z344), (I-I)+(Z345), (I-I)+(Z346), (I-I)+(Z347), (I-I)+(Z348), (I-I)+(Z349), (I-I)+(Z350), (I-I)+(Z351), (I-I)+(Z352), (I-I)+(Z353), (I-I)+(Z354), (I-I)+(Z355), (I-I)+(Z356), (I-I)+(Z357), (I-I)+(Z358), (I-I)+(Z359), (I-I)+(Z360), (I-I)+(Z361), (I-I)+(Z362), (I-I)+(Z363), (I-I)+(Z364), (I-I)+(Z365), (I-I)+(Z366), (I-I)+(Z367), (I-I)+(Z368), (I-I)+(Z369), (I-I)+(Z370), (I-I)+(Z371), (I-I)+(Z372), (I-I)+(Z373), (I-I)+(Z374), (I-I)+(Z375), (I-I)+(Z376) and (I-I)+(Z377).

20 Table 3:

Combination [(I-II) + (II-1A) to [(I-II) + (II-33)] or [(I-II) + (Z001)] to [(I-II) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z386)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-II).

Table 4:

25 Combination [(I-III) + (II-1A) to [(I-III) + (II-33)] or [(I-III) + (Z001)] to [(I-III) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-III).

Table 5:

30 Combination [(I-IV) + (II-1A) to [(I-IV) + (II-33)] or [(I-IV) + (Z001)] to [(I-IV) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-IV).

Table 6:

Combination [(I-V) + (II-1A) to [(I-V) + (II-33)] or [(I-V) + (Z001)] to [(I-V) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-V).

Table 7:

- 5 Combination [(I-VI) + (II-1A) to [(I-VI) + (II-33)] or [(I-VI) + (Z001)] to [(I-VI) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-VI).

Table 8:

- 10 Combination [(I-VII) + (II-1A) to [(I-VII) + (II-33)] or [(I-VII) + (Z001)] to [(I-VII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-VII).

Table 9:

- 15 Combination [(I-VIII) + (II-1A) to [(I-VIII) + (II-33)] or [(I-VIII) + (Z001)] to [(I-VIII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-VIII).

Table 10:

Combination [(I-IX) + (II-1A) to [(I-IX) + (II-33)] or [(I-IX) + (Z001)] to [(I-IX) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-IX).

- 20 **Table 11:**

Combination [(I-X) + (II-1A) to [(I-X) + (II-33)] or [(I-X) + (Z001)] to [(I-X) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-X).

Table 12:

- 25 Combination [(I-XI) + (II-1A) to [(I-XI) + (II-33)] or [(I-XI) + (Z001)] to [(I-XI) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XI).

Table 13:

- 30 Combination [(I-XII) + (II-1A) to [(I-XII) + (II-33)] or [(I-XII) + (Z001)] to [(I-XII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XII).

Table 14:

Combination [(I-XIII) + (II-1A) to [(I-XIII) + (II-33)] or [(I-XIII) + (Z001)] to [(I-XIII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XIII).

Table 15:

5 Combination [(I-XIV) + (II-1A) to [(I-XIV) + (II-33)] or [(I-XIV) + (Z001)] to [(I-XIV) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XIV).

Table 16:

10 Combination [(I-XV) + (II-1A) to [(I-XV) + (II-33)] or [(I-XV) + (Z001)] to [(I-XV) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XV).

Table 17:

15 Combination [(I-XVI) + (II-1A) to [(I-XVI) + (II-33)] or [(I-XVI) + (Z001)] to [(I-XVI) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XVI).

Table 18:

Combination [(I-XVII) + (II-1A) to [(I-XVII) + (II-33)] or [(I-XVII) + (Z001)] to [(I-XVII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XVII).

20 **Table 19:**

Combination [(I-XVIII) + (II-1A) to [(I-XVIII) + (II-33)] or [(I-XVIII) + (Z001)] to [(I-XVIII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XVIII).

Table 20:

25 Combination [(I-XIX) + (II-1A) to [(I-XIX) + (II-33)] or [(I-XIX) + (Z001)] to [(I-XIX) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XIX).

Table 21:

30 Combination [(I-XX) + (II-1A) to [(I-XX) + (II-33)] or [(I-XX) + (Z001)] to [(I-XX) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XX).

Table 22:

Combination [(I-XXI) + (II-1A) to [(I-XXI) + (II-33)] or [(I-XXI) + (Z001)] to [(I-XXI) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXI).

Table 23:

5 Combination [(I-XXII) + (II-1A) to [(I-XXII) + (II-33)] or [(I-XXII) + (Z001)] to [(I-XXII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXII).

Table 24:

10 Combination [(I-XXIII) + (II-1A) to [(I-XXIII) + (II-33)] or [(I-XXIII) + (Z001)] to [(I-XXIII) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXIII).

Table 25:

15 Combination [(I-XXIV) + (II-1A) to [(I-XXIV) + (II-33)] or [(I-XXIV) + (Z001)] to [(I-XXIV) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXIV).

Table 26:

Combination [(I-XXV) + (II-1A) to [(I-XXV) + (II-33)] or [(I-XXV) + (Z001)] to [(I-XXV) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXV).

Table 27:

20 Combination [(I-XXVI) + (II-1A) to [(I-XXVI) + (II-33)] or [(I-XXVI) + (Z001)] to [(I-XXVI) + (Z377)] are defined as combination [(I-I) + (II-1A) to [(I-I) + (II-33)] or [(I-I) + (Z001)] to [(I-I) + (Z377)] of Table 2, wherein compound (I-I) in each mixture is replaced with compound (I-XXVI).

25 Preferably, following combinations listed in Table-1A, wherein, component (1) is compound (I) and component (2) selected from compounds (Z001) to (Z377) as defined herein.

(I)+Broflanilide (Z273), (I)+Bifenthrin (Z103), (I)+Emamectin benzoate (Z167), (I)+Indoxacarb (Z240), (I)+Fluxametamide (Z274), (I)+Spinosad (Z165), (I)+Spinetoram (Z164), (I)+Imidacloprid (Z151), (I)+Thiamethoxam (Z154), (I)+Clothianidin (Z149), (I)+Afidopyropen (Z190), (I)+Triflumezopyrim (Z161), (I)+*Bacillus thuringiensis* (Z195), (I)+Dimpropridaz (Z317),
 30 (I)+Tyclopyrazoflor (Z318), (I)+Isocycloseram (Z275), (I)+Flometoquin (Z292), (I)+Fipronil (Z095), (I)+Pyridalyl (Z299), (I)+ oxazosulfonyl (Z243), (I)+Chlorfenapyr (Z203), (I)+Metaflumizone (Z241), (I)+Pyriproxyfen (Z174), (I)+Abamectin (Z166), (I)+Pymetrozine (Z188).

Following combinations listed in Table-28, wherein component (1) (compound of formula (I), a group represented by the expression "(I)" comprising of compounds (I-I), (I-II), (I-III), (I-IV), (I-V), (I-VI), (I-VII), (I-VIII), (I-IX), (I-X), (I-XI), (I-XII), (I-XIII), (I-XIV), (I-XV), (I-XVI), (I-XVII), (I-XVIII), (I-XIX), (I-XX), (I-XXI), (I-XXII), (I-XXIII), (I-XXIV), (I-XXV) and (I-XXVI) and component (2) is selected from the groups A) to P) as defined herein.

Table-28:

(I)+(A001), (I)+(A002), (I)+(A003), (I)+(A004), (I)+(A005), (I)+(A006), (I)+(A007), (I)+(A008),
 (I)+(A009), (I)+(A010), (I)+(A011), (I)+(A012), (I)+(A013), (I)+(A014), (I)+(A015), (I)+(A016),
 (I)+(A017), (I)+(A018), (I)+(A019), (I)+(A020), (I)+(A021), (I)+(A022), (I)+(A023), (I)+(A024),
 10 (I)+(A025), (I)+(A026), (I)+(A027), (I)+(A028), (I)+(A029), (I)+(A030), (I)+(A031), (I)+(A032),
 (I)+(A033), (I)+(A034), (I)+(A035), (I)+(A036), (I)+(A037), (I)+(A038), (I)+(A039), (I)+(A040),
 (I)+(A041), (I)+(A042), (I)+(A043), (I)+(A044), (I)+(A045), (I)+(A046), (I)+(A047), (I)+(A048),
 (I)+(A049), (I)+(A050), (I)+(A051), (I)+(A052), (I)+(A053), (I)+(A054), (I)+(A055), (I)+(A056),
 (I)+(A057), (I)+(A058), (I)+(A059), (I)+(A060), (I)+(A061), (I)+(A062), (I)+(A063), (I)+(A064),
 15 (I)+(A065), (I)+(A066), (I)+(A067), (I)+(A068), (I)+(A069), (I)+(A070), (I)+(A071), (I)+(A072),
 (I)+(A073), (I)+(A074), (I)+(A075), (I)+(A076), (I)+(A077), (I)+(A078), (I)+(A079), (I)+(A080),
 (I)+(A081), (I)+(A082), (I)+(A083), (I)+(A084), (I)+(B001), (I)+(B002), (I)+(B003), (I)+(B004),
 (I)+(B005), (I)+(B006), (I)+(B007), (I)+(B008), (I)+(B009), (I)+(B010), (I)+(B011), (I)+(B012),
 (I)+(B013), (I)+(B014), (I)+(B015), (I)+(B016), (I)+(B017), (I)+(B018), (I)+(B019), (I)+(B020),
 20 (I)+(B021), (I)+(B022), (I)+(B023), (I)+(B024), (I)+(B025), (I)+(B026), (I)+(B027), (I)+(B028),
 (I)+(B029), (I)+(B030), (I)+(B031), (I)+(B032), (I)+(B033), (I)+(B034), (I)+(B035), (I)+(B036),
 (I)+(B037), (I)+(B038), (I)+(B039), (I)+(B040), (I)+(B041), (I)+(B042), (I)+(B043), (I)+(B044),
 (I)+(B045), (I)+(B046), (I)+(B047), (I)+(B048), (I)+(B049), (I)+(B050), (I)+(B051), (I)+(B052),
 (I)+(B053), (I)+(B054), (I)+(B055), (I)+(B056), (I)+(B057), (I)+(B058), (I)+(B059), (I)+(B060),
 25 (I)+(C001), (I)+(C002), (I)+(C003), (I)+(C004), (I)+(C005), (I)+(C006), (I)+(C007), (I)+(C008),
 (I)+(C009), (I)+(C010), (I)+(C011), (I)+(C012), (I)+(C013), (I)+(C014), (I)+(C015), (I)+(C016),
 (I)+(C017), (I)+(C018), (I)+(C019), (I)+(C020), (I)+(C021), (I)+(C022), (I)+(C023), (I)+(C024),
 (I)+(C025), (I)+(C026), (I)+(C027), (I)+(C028), (I)+(C029), (I)+(C030), (I)+(D001), (I)+(D002),
 (I)+(D003), (I)+(D004), (I)+(D005), (I)+(D006), (I)+(D007), (I)+(D008), (I)+(D009), (I)+(D010),
 30 (I)+(D011), (I)+(D012), (I)+(D013), (I)+(D014), (I)+(D015), (I)+(D016), (I)+(D017), (I)+(D018),
 (I)+(D019), (I)+(D020), (I)+(D021), (I)+(D022), (I)+(D023), (I)+(D024), (I)+(D025), (I)+(E001),
 (I)+(E002), (I)+(E003), (I)+(E004), (I)+(E005), (I)+(E006), (I)+(E007), (I)+(E008), (I)+(E009),
 (I)+(E010), (I)+(E011), (I)+(E012), (I)+(E013), (I)+(E014), (I)+(E015), (I)+(E016), (I)+(E017),
 (I)+(E018), (I)+(E019), (I)+(E020), (I)+(E021), (I)+(E022), (I)+(E023), (I)+(F001), (I)+(F002),
 35 (I)+(F003), (I)+(F004), (I)+(G001), (I)+(G002), (I)+(G003), (I)+(G004), (I)+(G005), (I)+(G006),
 (I)+(H001), (I)+(I001), (I)+(I002), (I)+(I003), (I)+(I004), (I)+(I005), (I)+(I006), (I)+(I007),

(I)+(I008), (I)+(I009), (I)+(J001), (I)+(J002), (I)+(J003), (I)+(K001), (I)+(K002), (I)+(L001), (I)+(L002), (I)+(L003), (I)+(L004), (I)+(M001), (I)+(M002), (I)+(M003), (I)+(M004), (I)+(M005), (I)+(M006), (I)+(N001), (I)+(N002), (I)+(O001), (I)+(O002), (I)+(O003), (I)+(O004), (I)+(O005), (I)+(O006), (I)+(O007), (I)+(O008), (I)+(O009), (I)+(O010), (I)+(O011), (I)+(O012), (I)+(O013),
 5 (I)+(O014), (I)+(O015), (I)+(O016), (I)+(O017), (I)+(O018), (I)+(O019), (I)+(O020), (I)+(O021), (I)+(O022), (I)+(O023), (I)+(O024), (I)+(O025), (I)+(O026), (I)+(O027), (I)+(O028), (I)+(O029), (I)+(O030), (I)+(O031), (I)+(O032), (I)+(O033), (I)+(O034), (I)+(O035), (I)+(O036), (I)+(O037), (I)+(O038), (I)+(O039), (I)+(O040), (I)+(O041), (I)+(O042), (I)+(O043), (I)+(O044), (I)+(O045), (I)+(O046), (I)+(O047), (I)+(O048), (I)+(O049), (I)+(O050), (I)+(O051), (I)+(O052), (I)+(O053),
 10 (I)+(O054), (I)+(O055), (I)+(O056), (I)+(O057), (I)+(O058), (I)+(O059), (I)+(O060), (I)+(O061), (I)+(O062), (I)+(O063), (I)+(O064), (I)+(O065), (I)+(O066) (I)+(P001), (I)+(P002), (I)+(P003), (I)+(P004), (I)+(P005), (I)+(P006), (I)+(P007), (I)+(P008), (I)+(P009), (I)+(P010), (I)+(P011), (I)+(P012), (I)+(P013), (I)+(P014), (I)+(P015), (I)+(P016), (I)+(P017), (I)+(P018), (I)+(P019), (I)+(P020), (I)+(P021), (I)+(P022), (I)+(P023), (I)+(P024), (I)+(P025), (I)+(P026), (I)+(P027),
 15 (I)+(P028), (I)+(P029), (I)+(P030), (I)+(P031), (I)+(P032), (I)+(P033), (I)+(P034), (I)+(P035), (I)+(P036), (I)+(P037), (I)+(P038), (I)+(P039), (I)+(P040), (I)+(P041), (I)+(P042), (I)+(P043), (I)+(P044), (I)+(P045), (I)+(P046), (I)+(P047), (I)+(P048), (I)+(P049), (I)+(P050), (I)+(P051), (I)+(P052), (I)+(P053), (I)+(P054), (I)+(P055), (I)+(P056), (I)+(P057), (I)+(P058), (I)+(P059), (I)+(P060), (I)+(P061), (I)+(P062), (I)+(P063), (I)+(P064), (I)+(P065), (I)+(P066), (I)+(P067),
 20 (I)+(P068), (I)+(P069), (I)+(P070), (I)+(P071), (I)+(P072), (I)+(P073), (I)+(P074), (I)+(P075), (I)+(P076), (I)+(P077), (I)+(P078), (I)+(P079), (I)+(P080), (I)+(P081), (I)+(P082), (I)+(P083), (I)+(P084), (I)+(P085), (I)+(P086), (I)+(P087), (I)+(P088), (I)+(P089), (I)+(P090), (I)+(P091), (I)+(P092), (I)+(P093), (I)+(P094), (I)+(P095), (I)+(P096), (I)+(P097), (I)+(P098), (I)+(P099), (I)+(P100), (I)+(P101), (I)+(P102), (I)+(P103).

25 In one embodiment the weight ratio of component (1) to component (2) is between 500:1 and 1:500 in combinations [(I) + (A001) to [(I) + (P103)] of Table: 28.

In one embodiment the weight ratio of component (1) to component (2) is between 100:1 and 1:100 in combinations [(I) + (A001) to [(I) + (P103)] of Table: 28.

30 In one embodiment the weight ratio of component (1) to component (2) is between 50:1 and 1:50 in combinations [(I) + (A001) to [(I) + (P103)] of Table: 28.

In one embodiment the weight ratio of component (1) to component (2) is between 20:1 and 1:20 in combinations [(I) + (A001) to [(I) + (P103)] of Table: 28.

In one embodiment the weight ratio of component (1) to component (2) is between 5:1 and 1:5 in combinations [(I) + (A001) to [(I) + (P103)] of Table: 28.

In one embodiment the weight ratio of componenet (1) to component (2) is between 3:1 and 1:3 in combinations [(I) + (A001)] to [(I) + (P103)] of Table: 28.

In one embodiment the weight ratio of componenet (1) to component (2) is between 2:1 and 1:2 in combinations [(I) + (A001)] to [(I) + (P103)] of Table: 28.

- 5 In one embodiment the weight ratio of componenet (1) to component (2) is 1:1 in combinations [(I) + (A001)] to [(I) + (P103)] of Table: 28.

Following combinations listed in Table-29, wherein, component (1) is compound (I-I) and component (2) selected from the groups A) to P) as defined herein.

Table 29:

- 10 (I-I)+(A001), (I-I)+(A002), (I-I)+(A003), (I-I)+(A004), (I-I)+(A005), (I-I)+(A006), (I-I)+(A007), (I-I)+(A008), (I-I)+(A009), (I-I)+(A010), (I-I)+(A011), (I-I)+(A012), (I-I)+(A013), (I-I)+(A014), (I-I)+(A015), (I-I)+(A016), (I-I)+(A017), (I-I)+(A018), (I-I)+(A019), (I-I)+(A020), (I-I)+(A021), (I-I)+(A022), (I-I)+(A023), (I-I)+(A024), (I-I)+(A025), (I-I)+(A026), (I-I)+(A027), (I-I)+(A028), (I-I)+(A029), (I-I)+(A030), (I-I)+(A031), (I-I)+(A032), (I-I)+(A033), (I-I)+(A034), (I-I)+(A035), (I-I)+(A036), (I-I)+(A037), (I-I)+(A038), (I-I)+(A039), (I-I)+(A040), (I-I)+(A041), (I-I)+(A042), (I-I)+(A043), (I-I)+(A044), (I-I)+(A045), (I-I)+(A046), (I-I)+(A047), (I-I)+(A048), (I-I)+(A049), (I-I)+(A050), (I-I)+(A051), (I-I)+(A052), (I-I)+(A053), (I-I)+(A054), (I-I)+(A055), (I-I)+(A056), (I-I)+(A057), (I-I)+(A058), (I-I)+(A059), (I-I)+(A060), (I-I)+(A061), (I-I)+(A062), (I-I)+(A063), (I-I)+(A064), (I-I)+(A065), (I-I)+(A066), (I-I)+(A067), (I-I)+(A068), (I-I)+(A069), (I-I)+(A070), (I-I)+(A071), (I-I)+(A072), (I-I)+(A073), (I-I)+(A074), (I-I)+(A075), (I-I)+(A076), (I-I)+(A077), (I-I)+(A078), (I-I)+(A079), (I-I)+(A080), (I-I)+(A081), (I-I)+(A082), (I-I)+(A083), (I-I)+(A084), (I-I)+(B001), (I-I)+(B002), (I-I)+(B003), (I-I)+(B004), (I-I)+(B005), (I-I)+(B006), (I-I)+(B007), (I-I)+(B008), (I-I)+(B009), (I-I)+(B010), (I-I)+(B011), (I-I)+(B012), (I-I)+(B013), (I-I)+(B014), (I-I)+(B015), (I-I)+(B016), (I-I)+(B017), (I-I)+(B018), (I-I)+(B019), (I-I)+(B020), (I-I)+(B021), (I-I)+(B022), (I-I)+(B023), (I-I)+(B024), (I-I)+(B025), (I-I)+(B026), (I-I)+(B027), (I-I)+(B028), (I-I)+(B029), (I-I)+(B030), (I-I)+(B031), (I-I)+(B032), (I-I)+(B033), (I-I)+(B034), (I-I)+(B035), (I-I)+(B036), (I-I)+(B037), (I-I)+(B038), (I-I)+(B039), (I-I)+(B040), (I-I)+(B041), (I-I)+(B042), (I-I)+(B043), (I-I)+(B044), (I-I)+(B045), (I-I)+(B046), (I-I)+(B047), (I-I)+(B048), (I-I)+(B049), (I-I)+(B050), (I-I)+(B051), (I-I)+(B052), (I-I)+(B053), (I-I)+(B054), (I-I)+(B055), (I-I)+(B056), (I-I)+(B057), (I-I)+(B058), (I-I)+(B059), (I-I)+(B060), (I-I)+(C001), (I-I)+(C002), (I-I)+(C003), (I-I)+(C004), (I-I)+(C005), (I-I)+(C006), (I-I)+(C007), (I-I)+(C008), (I-I)+(C009), (I-I)+(C010), (I-I)+(C011), (I-I)+(C012), (I-I)+(C013), (I-I)+(C014), (I-I)+(C015), (I-I)+(C016), (I-I)+(C017), (I-I)+(C018), (I-I)+(C019), (I-I)+(C020), (I-I)+(C021), (I-I)+(C022), (I-I)+(C023), (I-I)+(C024), (I-I)+(C025), (I-I)+(C026), (I-I)+(C027), (I-I)+(C028), (I-I)+(C029), (I-I)+(C030), (I-I)+(D001), (I-I)+(D002), (I-I)+(D003), (I-I)+(D004), (I-I)+(D005), (I-I)+(D006), (I-I)+(D007), (I-I)+(D008), (I-
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D)+(D009), (I-I)+(D010), (I-I)+(D011), (I-I)+(D012), (I-I)+(D013), (I-I)+(D014), (I-I)+(D015), (I-I)+(D016), (I-I)+(D017), (I-I)+(D018), (I-I)+(D019), (I-I)+(D020), (I-I)+(D021), (I-I)+(D022), (I-I)+(D023), (I-I)+(D024), (I-I)+(D025), (I-I)+(E001), (I-I)+(E002), (I-I)+(E003), (I-I)+(E004), (I-I)+(E005), (I-I)+(E006), (I-I)+(E007), (I-I)+(E008), (I-I)+(E009), (I-I)+(E010), (I-I)+(E011), (I-I)+(E012), (I-I)+(E013), (I-I)+(E014), (I-I)+(E015), (I-I)+(E016), (I-I)+(E017), (I-I)+(E018), (I-I)+(E019), (I-I)+(E020), (I-I)+(E021), (I-I)+(E022), (I-I)+(E023), (I-I)+(F001), (I-I)+(F002), (I-I)+(F003), (I-I)+(F004), (I-I)+(G001), (I-I)+(G002), (I-I)+(G003), (I-I)+(G004), (I-I)+(G005), (I-I)+(G006), (I-I)+(H001), (I-I)+(I001), (I-I)+(I002), (I-I)+(I003), (I-I)+(I004), (I-I)+(I005), (I-I)+(I006), (I-I)+(I007), (I-I)+(I008), (I-I)+(I009), (I-I)+(J001), (I-I)+(J002), (I-I)+(J003), (I-I)+(K001), (I-I)+(K002), (I-I)+(L001), (I-I)+(L002), (I-I)+(L003), (I-I)+(L004), (I-I)+(M001), (I-I)+(M002), (I-I)+(M003), (I-I)+(M004), (I-I)+(M005), (I-I)+(M006), (I-I)+(N001), (I-I)+(N002), (I-I)+(O001), (I-I)+(O002), (I-I)+(O003), (I-I)+(O004), (I-I)+(O005), (I-I)+(O006), (I-I)+(O007), (I-I)+(O008), (I-I)+(O009), (I-I)+(O010), (I-I)+(O011), (I-I)+(O012), (I-I)+(O013), (I-I)+(O014), (I-I)+(O015), (I-I)+(O016), (I-I)+(O017), (I-I)+(O018), (I-I)+(O019), (I-I)+(O020), (I-I)+(O021), (I-I)+(O022), (I-I)+(O023), (I-I)+(O024), (I-I)+(O025), (I-I)+(O026), (I-I)+(O027), (I-I)+(O028), (I-I)+(O029), (I-I)+(O030), (I-I)+(O031), (I-I)+(O032), (I-I)+(O033), (I-I)+(O034), (I-I)+(O035), (I-I)+(O036), (I-I)+(O037), (I-I)+(O038), (I-I)+(O039), (I-I)+(O040), (I-I)+(O041), (I-I)+(O042), (I-I)+(O043), (I-I)+(O044), (I-I)+(O045), (I-I)+(O046), (I-I)+(O047), (I-I)+(O048), (I-I)+(O049), (I-I)+(O050), (I-I)+(O051), (I-I)+(O052), (I-I)+(O053), (I-I)+(O054), (I-I)+(O055), (I-I)+(O056), (I-I)+(O057), (I-I)+(O058), (I-I)+(O059), (I-I)+(O060), (I-I)+(O061), (I-I)+(O062), (I-I)+(O063), (I-I)+(O064), (I-I)+(O065), (I-I)+(O066) (I-I)+(P001), (I-I)+(P002), (I-I)+(P003), (I-I)+(P004), (I-I)+(P005), (I-I)+(P006), (I-I)+(P007), (I-I)+(P008), (I-I)+(P009), (I-I)+(P010), (I-I)+(P011), (I-I)+(P012), (I-I)+(P013), (I-I)+(P014), (I-I)+(P015), (I-I)+(P016), (I-I)+(P017), (I-I)+(P018), (I-I)+(P019), (I-I)+(P020), (I-I)+(P021), (I-I)+(P022), (I-I)+(P023), (I-I)+(P024), (I-I)+(P025), (I-I)+(P026), (I-I)+(P027), (I-I)+(P028), (I-I)+(P029), (I-I)+(P030), (I-I)+(P031), (I-I)+(P032), (I-I)+(P033), (I-I)+(P034), (I-I)+(P035), (I-I)+(P036), (I-I)+(P037), (I-I)+(P038), (I-I)+(P039), (I-I)+(P040), (I-I)+(P041), (I-I)+(P042), (I-I)+(P043), (I-I)+(P044), (I-I)+(P045), (I-I)+(P046), (I-I)+(P047), (I-I)+(P048), (I-I)+(P049), (I-I)+(P050), (I-I)+(P051), (I-I)+(P052), (I-I)+(P053), (I-I)+(P054), (I-I)+(P055), (I-I)+(P056), (I-I)+(P057), (I-I)+(P058), (I-I)+(P059), (I-I)+(P060), (I-I)+(P061), (I-I)+(P062), (I-I)+(P063), (I-I)+(P064), (I-I)+(P065), (I-I)+(P066), (I-I)+(P067), (I-I)+(P068), (I-I)+(P069), (I-I)+(P070), (I-I)+(P071), (I-I)+(P072), (I-I)+(P073), (I-I)+(P074), (I-I)+(P075), (I-I)+(P076), (I-I)+(P077), (I-I)+(P078), (I-I)+(P079), (I-I)+(P080), (I-I)+(P081), (I-I)+(P082), (I-I)+(P083), (I-I)+(P084), (I-I)+(P085), (I-I)+(P086), (I-I)+(P087), (I-I)+(P088), (I-I)+(P089), (I-I)+(P090), (I-I)+(P091), (I-I)+(P092), (I-I)+(P093), (I-I)+(P094), (I-I)+(P095), (I-I)+(P096), (I-I)+(P097), (I-I)+(P098), (I-I)+(P099), (I-I)+(P100), (I-I)+(P101), (I-I)+(P102), (I-I)+(P103).

Table 30:

Combination [(I-II) + (A001) to [(I-II) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-II).

Table 31:

- 5 Combination [(I-III) + (A001) to [(I-III) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-III).

Table 32:

Combination [(I-IV) + (A001) to [(I-IV) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-IV).

Table 33:

10 Combination [(I-V) + (A001) to [(I-V) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-V).

Table 34:

- 15 Combination [(I-VI) + (A001) to [(I-VI) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-VI).

Table 35:

Combination [(I-VII) + (A001) to [(I-VII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-VII).

Table 36:

- 20 Combination [(I-VIII) + (A001) to [(I-VIII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-VIII).

Table 37:

- 25 Combination [(I-IX) + (A001) to [(I-IX) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-IX).

Table 38:

Combination [(I-X) + (A001) to [(I-X) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-X).

Table 39:

- 30 Combination [(I-XI) + (A001) to [(I-XI) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XI).

Table 40:

Combination [(I-XII) + (A001) to [(I-XII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XII).

Table 41:

- 5 Combination [(I-XIII) + (A001) to [(I-XIII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XIII).

Table 42:

- 10 Combination [(I-XIV) + (A001) to [(I-XIV) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XIV).

Table 43:

Combination [(I-XV) + (A001) to [(I-XV) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XV).

- 15 **Table 44:**

Combination [(I-XVI) + (A001) to [(I-XVI) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XVI).

Table 45:

- 20 Combination [(I-XVII) + (A001) to [(I-XVII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XVII).

Table 46:

- 25 Combination [(I-XVIII) + (A001) to [(I-XVIII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XVIII).

Table 47:

- 30 Combination [(I-XIX) + (A001) to [(I-XIX) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XIX).

Table 48:

Combination [(I-XX) + (A001) to [(I-XX) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XX).

Table 49:

Combination [(I-XXI) + (A001) to [(I-XXI) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXI).

Table 50:

Combination [(I-XXII) + (A001) to [(I-XXII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXII).

Table 51:

Combination [(I-XXIII) + (A001) to [(I-XXIII) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXIII).

Table 52:

Combination [(I-XXIV) + (A001) to [(I-XXIV) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXIV).

Table 53:

Combination [(I-XXV) + (A001) to [(I-XXV) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXV).

Table 54:

Combination [(I-XXVI) + (A001) to [(I-XXVI) + (P103)] are defined as combination [(I-I) + (A001) to [(I-I) + (P103)] of Table 29, wherein compound (I-I) in each mixture is replaced with compound (I-XXVI).

Following combinations listed in Table-28, wherein, component (1) is compound (I) and component (2) selected from the groups A) to P) as defined herein.

(I)+ (A001) cyproconazole, (I)+(A002) difenoconazole, (I)+(A004) tetraconazol, (I)+(A006) fenpropimorph, (I)+(A009) flutriafol, (I)+(A013) metconazole, (I)+(A017) propiconazole, (I)+(A018) prothioconazole, (I)+ (A021) tebuconazole, (I)+(A022) epoxiconazole, (I)+(A081) mefentrifluconazole, (I)+(B001) benzovindiflupyr, (I)+ (B002) bixafen, (I)+(B005) fluopyram,

(I)+(B007) fluxapyroxad, (I)+ (B019) pydiflumetofen, (I)+ (B30) fluindapyr, (I)+ (B038) isoflucyram, (I)+ (B059) inpyrfluxam, (I)+ (C003) azoxystrobin, (I)+ (C012) fluoxastrobin (I)+(C014) metominostrobin, (I)+ (C017) pyraclostrobin, (I)+ (C016) picoxystrobin, (I)+ (C020) trifloxystrobin, (I)+(C025) (3S,6S,7R,8R)-8-benzyl-3-[(3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-yl)carbonylamino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl-2-methylpropanoate (Fenpicoxamid), (I)+ (C030) 1-(2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-methylphenyl)-1,4-dihydro-4-methyl-5H-tetrazol-5-one (Metyltetraprole), (I)+(D001) carbendazim, (I)+(D007) thiophanate-methyl, (I)+(E004) chlorothalonil, (I)+(E010) dithianon, (I)+(E013) mancozeb, (I)+(E020) thiram, (I)+(F002) Isotianil, (I)+(F003) Probenazole (L003) metalaxyl, (I)+(M001) fludioxonil, (I)+(N001) fluazinam, (I)+(O022) Oxathiapiprolin, (I)+(O043) 2-{3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}-3-chlorophenyl methanesulfonate (fluoxapiprolin), (I)+(O046) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (I)+(O047) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (Quinofumelin), (I)+ (O065) ipflufenquin, and (I)+ (P094)N-(2-fluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide.

Preferably, following combinations listed in Table-29, wherein, component (1) is compound (I) and component (2) selected from the groups A) to P) as defined herein.

(I)+(C003), (I)+(C017), (I)+(L003), (I)+ (D007), (I)+ (B007), (I)+ (M001), (I)+(F003), (I)+(F002), (I)+(B005).

20 In another embodiment, the mixture according to the invention is a mixture of one active compound of formula (I) with at least one active component (2).

In another embodiment, the mixture according to the invention is a mixture of one active compound of formula (I) with two active components (2) as compound (II) or with two active components (2) as compound (III), or with one active component (2) as compound (II) and a further active component (2), e.g. selected from compound (III), as described herein (ternary mixture).

25 In another embodiment, the mixture according to the invention is a mixture of one active compound of formula (I) with three active components (2), or with three active compounds selected from group compound (II) and compound (III), wherein at least one compound is selected from Compound (II) (4-way mixture).

30 The compounds of formula (I) can be obtained by various routes in analogy to processes and examples disclosed in WO2019123195.

The mixtures according to the present invention are in particular suitable for efficiently controlling arthropod pests such as arachnids, myriapedes, insects and nematodes.

Insects, Arachnids and Nematodes

The mixtures according to the present invention are especially suitable for efficiently combating the following pests:

Insects from the order of the lepidopterans (Lepidoptera), for example *Acronicta major*, *Adoxophyes orana*, *Aedia leucomelas*, *Agrotis* spp. such as *Agrotis fucosa*, *Agrotis segetum*, *Agrotis ipsilon*;
 5 *Alabama argillacea*, *Anticarsia gemmatalis*, *Anticarsia* spp., *Argyresthia conjugella*, *Autographa gamma*, *Barathra brassicae*, *Bucculatrix thurberiella*, *Bupalus piniarius*, *Cacoecia murinana*, *Cacoecia podana*, *Capua reticulana*, *Carpocapsa pomonella*, *Cheimatobia brumata*, *Chilo* spp. such as *Chilo suppressalis*; *Choristoneura fumiferana*, *Choristoneura occidentalis*, *Cirphis unipuncta*,
 10 *Clysia ambiguella*, *Cnaphalocerus* spp., *Cydia pomonella*, *Dendrolimus pini*, *Diaphania nitidalis*, *Diatraea grandiosella*, *Earias insulana*, *Elasmopalpus lignosellus*, *Ephestia cautella*, *Ephestia kuehniella*, *Eupoecilia ambiguella*, *Euproctis chrysorrhoea*, *Euxoa* spp., *Evetria bouliana*, *Feltia* spp. such as *Feltia subterranean*; *Galleria mellonella*, *Grapholitha funebrana*, *Grapholitha molesta*,
 15 *Helicoverpa* spp. such as *Helicoverpa armigera*, *Helicoverpa zea*; *Heliothis* spp. such as *Heliothis armigera*, *Heliothis virescens*, *Heliothis zea*; *Hellula undalis*, *Hibernia defoliaria*, *Hofmannophila pseudospretella*, *Homona magnanima*, *Hyphantria cunea*, *Hyponomeuta padella*, *Hyponomeuta malinellus*, *Keiferia lycopersicella*, *Lambdina fiscellaria*, *Laphygma* spp. such as *Laphygma exigua*;
 20 *Leucoptera coffeella*, *Leucoptera scitella*, *Lithocolletis blancardella*, *Lithophane antennata*, *Lobesia botrana*, *Loxagrotis albicosta*, *Loxostege sticticalis*, *Lymantria* spp. such as *Lymantria dispar*, *Lymantria monacha*; *Lyonetia clerkella*, *Malacosoma neustria*, *Mamestra* spp. such as *Mamestra brassicae*; *Mocis repanda*, *Mythimna separata*, *Orgyia pseudotsugata*, *Oria* spp., *Ostrinia* spp. such as *Ostrinia nubilalis*;
 25 *Oulema oryzae*, *Panolis flammea*, *Pectinophora* spp. such as *Pectinophora gossypiella*; *Peridroma saucia*, *Phalera bucephala*, *Phthorimaea* spp. such as *Phthorimaea operculella*; *Phyllocnistis citrella*, *Pieris* spp. such as *Pieris brassicae*, *Pieris rapae*; *Plathypena scabra*, *Plutella maculipennis*, *Plutella xylostella*, *Prodenia* spp., *Pseudaletia* spp., *Pseudoplusia includens*, *Pyrausta nubilalis*, *Rhyacionia frustrana*, *Scrobipalpula absoluta*, *Sitotroga cerealella*,
 30 *Sparganothis pilleriana*, *Spodoptera* spp. such as *Spodoptera frugiperda*, *Spodoptera littoralis*, *Spodoptera litura*; *Thaumatopoea pityocampa*, *Thermesia gemmatalis*, *Tinea pellionella*, *Tineola bisselliella*, *Tortrix viridana*, *Trichoplusia* spp. such as *Trichoplusia ni*; *Tuta absoluta*, and *Zeiraphera canadensis*, beetles (Coleoptera), for example *Acanthoscehdes obtectus*,
 35 *Adoretus* spp., *Agelastica alni*, *Agrilus sinuatus*, *Agriotes* spp. such as *Agriotes fuscicollis*, *Agriotes lineatus*, *Agriotes obscurus*; *Amphimallus solstitialis*, *Anisandrus dispar*, *Anobium punctatum*, *Anomala rufocuprea*, *Anoplophora* spp. such as *Anoplophora glabripennis*; *Anthonomus* spp. such as *Anthonomus grandis*, *Anthonomus pomorum*; *Anthrenus* spp., *Aphthona euphoridae*, *Apogonia* spp., *Athous haemorrhoidalis*, *Atomaria* spp. such as *Atomaria linearis*;
 40 *Attagenus* spp., *Aulacophora femoralis*, *Blastophagus piniperda*, *Blitophaga undata*, *Bruchidius obtectus*, *Bruchus* spp. such as *Bruchus lentis*, *Bruchus pisorum*, *Bruchus rufimanus*; *Byctiscus*

betulae, *Callosobruchus chinensis*, *Cassida nebulosa*, *Cerotoma trifurcata*, *Cetonia aurata*,
Ceuthorhynchus spp. such as *Ceuthorhynchus assimilis*, *Ceuthorhynchus napi*; *Chaetocnema*
tibialis, *Cleonus mendicus*, *Conoderus* spp. such as *Conoderus vespertinus*;
Cosmopolites spp., *Costelytra zealandica*, *Crioceris asparagi*, *Cryptorhynchus lapathi*, *Ctenicera* ssp.
5 such as *Ctenicera destructor*; *Curculio* spp., *Dectes texanus*, *Dermestes* spp., *Diabrotica* spp. such
as *Diabrotica 12-punctata* *Diabrotica speciosa*, *Diabrotica longicornis*, *Diabrotica semipunctata*,
Diabrotica virgifera; *Epilachna* spp. such as *Epilachna varivestis*, *Epilachna vigintioctomaculata*;
Epitrix spp. such as *Epitrix hirtipennis*; *Eutinobothrus brasiliensis*, *Faustinus cubae*, *Gibbium*
psylloides, *Heteronychus arator*, *Hylamorphia elegans*, *Hylobius abietis*, *Hylotrupes bajulus*, *Hypera*
10 *brunneipennis*, *Hypera postica*, *Hypothenemus* spp., *Ips typographus*, *Lachnosterna consanguinea*,
Lema bilineata, *Lema melanopus*, *Leptinotarsa* spp. such as *Leptinotarsa decemlineata*; *Limonium*
californicus, *Lissorhoptrus oryzophilus*, *Lissorhoptrus oryzophilus*, *Lixus* spp., *Lyctus* spp. such
as *Lyctus bruneus*; *Melanotus communis*, *Meligethes* spp. such as *Meligethes aeneus*; *Melolontha*
hippocastani, *Melolontha melolontha*, *Migdolus* spp., *Monochamus* spp. such as *Monochamus*
15 *alternatus*; *Naupactus xanthographus*, *Niptus hololeucus*, *Oryctes rhinoceros*, *Oryzaephilus*
surinamensis, *Otiorrhynchus sulcatus*, *Otiorrhynchus ovatus*, *Otiorrhynchus sulcatus*, *Oulema oryzae*,
Oxycetonia jucunda, *Phaedon cochleariae*, *Phyllobius pyri*, *Phyllopertha horticola*,
Phyllophaga spp., *Phyllotreta* spp. such as *Phyllotreta chrysocephala*, *Phyllotreta nemorum*,
Phyllotreta striolata; *Phyllophaga* spp., *Phyllopertha horticola*, *Popillia japonica*,
20 *Premnotrypes* spp., *Psylliodes chrysocephala*, *Ptinus* spp., *Rhizobius ventralis*, *Rhizopertha dominica*,
Sitona lineatus, *Sitophilus* spp. such as *Sitophilus granaria*, *Sitophilus zeamais*; *Sphenophorus* spp.
such as *Sphenophorus levis*; *Stemechus* spp. such as *Stemechus subsignatus*;
Symphyletes spp., *Tenebrio molitor*, *Tribolium* spp. such as *Tribolium castaneum*;
Trogoderma spp., *Tychius* spp., *Xylotrechus* spp., and *Zabrus* spp. such as *Zabrus tenebrioides*,
25 flies, mosquitoes (Diptera), e.g. *Aedes* spp. such as *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*;
Anastrepha ludens, *Anopheles* spp. such as *Anopheles albimanus*, *Anopheles crucians*, *Anopheles*
freeborni, *Anopheles gambiae*, *Anopheles leucosphyrus*, *Anopheles maculipennis*, *Anopheles*
minimus, *Anopheles quadrimaculatus*, *Anopheles sinensis*; *Biblio hortulanus*, *Calliphora*
erythrocephala, *Calliphora vicina*, *Cerafitis capitata*, *Ceratitis capitata*, *Chrysomyia* spp. such
30 as *Chrysomya bezziana*, *Chrysomya hominivorax*, *Chrysomya macellaria*; *Chrysops atlanticus*,
Chrysops discalis, *Chrysops silacea*, *Cochliomyia* spp. such as *Cochliomyia hominivorax*;
Contarinia spp. such as *Contarinia sorghicola*; *Cordylobia anthropophaga*, *Culex* spp. such as *Culex*
nigripalpus, *Culex pipiens*, *Culex quinquefasciatus*, *Culex tarsalis*, *Culex tritaeniorhynchus*;
Culicoides furens, *Culiseta inornata*, *Culiseta melanura*, *Cuterebra* spp., *Dacus cucurbitae*, *Dacus*
35 *oleae*, *Dasineura brassicae*, *Delia* spp. such as *Delia antique*, *Delia coarctata*, *Delia platura*, *Delia*
radicum; *Dermatobia hominis*, *Drosophila* spp., *Fannia* spp. such as *Fannia canicularis*;
Gastrophilus spp. such as *Gasterophilus intestinalis*; *Geomyza Tripunctata*, *Glossina fuscipes*,

Glossina morsitans, *Glossina palpalis*, *Glossina tachinoides*, *Haematobia irritans*, *Haplodiplosis equestris*, *Hippelates* spp., *Hylemyia* spp. such as *Hylemyia platura*; *Hypoderma* spp. such as *Hypoderma lineata*; *Hyppobosca* spp., *Leptoconops torrens*, *Liriomyza* spp. such as *Liriomyza sativae*, *Liriomyza trifolii*; *Lucilia* spp. such as *Lucilia caprina*, *Lucilia cuprina*, *Lucilia sericata*;

5 *Lycoria pectoralis*, *Mansonia titillanus*, *Mayetiola* spp. such as *Mayetiola destructor*; *Musca* spp. such as *Musca autumnalis*, *Musca domestica*; *Muscina stabulans*, *Oestrus* spp. such as *Oestrus ovis*; *Opomyza florum*, *Oscinella* spp. such as *Oscinella frit*; *Pegomya hysocyami*, *Phlebotomus argentipes*, *Phorbia* spp. such as *Phorbia antiqua*, *Phorbia brassicae*, *Phorbia coarctata*; *Prosimulium mixtum*, *Psila rosae*, *Psorophora columbiae*, *Psorophora discolor*, *Rhagoletis cerasi*, *Rhagoletis pomonella*,

10 *Sarcophaga* spp. such as *Sarcophaga haemorrhoidalis*; *Simulium vittatum*, *Stomoxys* spp. such as *Stomoxys calcitrans*; *Tabanus* spp. such as *Tabanus atratus*, *Tabanus bovinus*, *Tabanus lineola*, *Tabanus similis*; *Tannia* spp., *Tipula oleracea*, *Tipula paludosa*, and *Wohlfahrtia* spp., thrips (Thysanoptera), e.g. *Baliothrips biformis*, *Dichromothrips corbeti*, *Dichromothrips* spp., *Enneothrips flavens*, *Frankliniella* spp. such as *Frankliniella fusca*,

15 *Frankliniella occidentalis*, *Frankliniella tritici*; *Heliethrips* spp., *Hercinothrips femoralis*, *Kakothrips* spp., *Rhipiphorothrips cruentatus*, *Scirtothrips* spp. such as *Scirtothrips citri*; *Taeniothrips cardamoni*, *Thrips* spp. such as *Thrips oryzae*, *Thrips palmi*, *Thrips tabaci*; termites (Isoptera), e.g. *Calotermes flavicollis*, *Coptotermes formosanus*, *Heterotermes aureus*, *Heterotermes longiceps*, *Heterotermes tenuis*, *Leucotermes flavipes*,

20 *Odontotermes* spp., *Reticulitermes* spp. such as *Reticulitermes speratus*, *Reticulitermes flavipes*, *Reticulitermes grassei*, *Reticulitermes lucifugus*, *Reticulitermes santonensis*, *Reticulitermes virginicus*; *Termes natalensis*, cockroaches (Blattaria-Blattodea), e.g. *Acheta domesticus*, *Blatta orientalis*, *Blattella asahinae*, *Blattella germanica*, *Gryllotalpa* spp., *Leucophaea maderae*, *Locusta* spp., *Melanoplus* spp., *Periplaneta americana*, *Periplaneta australasiae*, *Periplaneta*

25 *brunnea*, *Periplaneta fuliginosa*, *Periplaneta japonica*, bugs, aphids, leafhoppers, whiteflies, scale insects, cicadas (Hemiptera), e.g. *Acrosternum* spp. such as *Acrosternum hilare*; *Acyrtosiphon* spp. such as *Acyrtosiphon onobrychis*, *Acyrtosiphon pisum*; *Adelges laricis*, *Aeneolamia* spp., *Agonosцена* spp., *Aleurodes* spp., *Aleurolobus barodensis*, *Aleurothrixus* spp., *Amrasca* spp., *Anasa tristis*, *Antestiopsis* spp., *Anuraphis cardui*,

30 *Aonidiella* spp., *Aphanostigma piri*, *Aphidula nasturtii*, *Aphis* spp. such as *Aphis fabae*, *Aphis forbesi*, *Aphis gossypii*, *Aphis grossulariae*, *Aphis pomi*, *Aphis sambuci*, *Aphis schneideri*, *Aphis spiraecola*; *Arboridia apicalis*, *Arilus critatus*, *Aspidiella* spp., *Aspidiotus* spp., *Atanus* spp., *Aulacorthum solani*, *Bemisia* spp. such as *Bemisia argentifolii*, *Bemisia tabaci*; *Blissus* spp. such as *Blissus leucopterus*; *Brachycaudus cardui*, *Brachycaudus helichrysi*, *Brachycaudus persicae*, *Brachycaudus prunicola*,

35 *Brachycolus* spp., *Brevicoryne brassicae*, *Calligypona marginata*, *Calocoris* spp., *Campylomma livida*, *Capitophorus horni*, *Carneocephala fulgida*, *Cavelerius* spp., *Ceraplastes* spp., *Ceratovacuna lanigera*, *Cercopidae*, *Cerosipha gossypii*, *Chaetosiphon fragaefolii*, *Chionaspis tegalensis*, *Chlorita*

onukii, *Chromaphis juglandicola*, *Chrysomphalus ficus*, *Cicadulina mbila*, *Cimex* spp. such as *Cimex hemipterus*, *Cimex lectularius*; *Coccomytilus halli*, *Coccus* spp., *Creontiades dilutus*, *Cryptomyzus ribis*, *Cryptomyzus ribis*, *Cyrtopeltis notatus*, *Dalbulus* spp., *Dasyneus piperis*, *Dialeurades* spp., *Diaphorina* spp., *Diaspis* spp., *Dichelops furcatus*, *Diconocoris hewetti*,
5 *Doralis* spp., *Dreyfusia nordmanniana*, *Dreyfusia piceae*, *Drosicha* spp., *Dysaphis* spp. such as *Dysaphis plantaginea*, *Dysaphis pyri*, *Dysaphis radicola*; *Dysaulacorthum pseudosolani*, *Dysdercus* spp. such as *Dysdercus cingulatus*, *Dysdercus intermedius*; *Dysmicoccus* spp., *Empoasca* spp. such as *Empoasca fabae*, *Empoasca solana*; *Eriosoma* spp., *Erythroneura* spp., *Eurygaster* spp. such as *Eurygaster integriceps*; *Euschelis bilobatus*, *Euschistus* spp. such as *Euschistus heros*, *Euschistus impictiventris*, *Euschistus servus*;
10 *Geococcus coffeae*, *Halyomorpha* spp. such as *Halyomorpha halys*; *Heliopeltis* spp., *Homalodisca coagulata*, *Horcias nobilellus*, *Hyalopterus pruni*, *Hyperomyzus lactucae*, *Icerya* spp., *Idiocerus* spp., *Idioscopus* spp., *Laodelphax striatellus*, *Lecanium* spp., *Lepidosaphes* spp., *Leptocoris* spp., *Leptoglossus phyllopus*, *Lipaphis erysimi*,
15 *Lygus* spp. such as *Lygus hesperus*, *Lygus lineolaris*, *Lygus pratensis*; *Macropes excavatus*, *Macrosiphum* spp. such as *Macrosiphum rosae*, *Macrosiphum avenae*, *Macrosiphum euphorbiae*; *Mahanarva fimbriolata*, *Megacopta cribraria*, *Megoura viciae*, *Melanaphis pyrarius*, *Melanaphis sacchari*, *Metcafiella* spp., *Metopolophium dirhodum*, *Miridae* spp., *Monellia costalis*, *Monelliopsis pecanis*, *Myzus* spp. such as *Myzus ascalonicus*, *Myzus cerasi*, *Myzus persicae*, *Myzus varians*;
20 *Nasonovia ribis-nigri*, *Nephotettix* spp. such as *Nephotettix malayanus*, *Nephotettix nigropictus*, *Nephotettix parvus*, *Nephotettix virescens*; *Nezara* spp. such as *Nezara viridula*; *Nilaparvata lugens*, *Oebalus* spp., *Oncometopia* spp., *Orthezia praelonga*, *Parabemisia myricae*, *Paratrioza* spp., *Parlatoria* spp., *Pemphigus* spp. such as *Pemphigus bursarius*; *Pentomidae*, *Peregrinus maidis*, *Perkinsiella saccharicida*, *Phenacoccus* spp., *Phloeomyzus passerinii*, *Phorodon humuli*, *Phylloxera* spp., *Piesma quadrata*, *Piezodorus* spp. such as *Piezodorus guildinii*, *Pinnaspis aspidistrae*, *Planococcus* spp., *Protopulvinaria pyriformis*, *Psallus seriatus*, *Pseudacysta perseae*, *Pseudaulacaspis pentagona*, *Pseudococcus* spp. such as *Pseudococcus comstocki*; *Psylla* spp. such as *Psylla mali*, *Psylla piri*; *Pteromalus* spp., *Pyrilla* spp., *Quadraspidiotus* spp., *Quesada gigas*, *Rastrococcus* spp., *Reduvius senilis*, *Rhodnius* spp., *Rhopalomyzus ascalonicus*, *Rhopalosiphum* spp.
25 such as *Rhopalosiphum pseudobrassicae*, *Rhopalosiphum insertum*, *Rhopalosiphum maidis*, *Rhopalosiphum padi*; *Sagatodes* spp., *Sahlbergella singularis*, *Saissetia* spp., *Sappaphis mala*, *Sappaphis mali*, *Scaphoides titanus*, *Schizaphis graminum*, *Schizoneura lanuginosa*, *Scotinophora* spp., *Selenaspis articulatus*, *Sitobion avenae*, *Sogata* spp., *Sogatella furcifera*, *Solubea insularis*, *Stephanitis nashi*, *Stictocephala festina*, *Tenalaphara malayensis*, *Thyanta* spp.
30 such as *Thyanta perditor*; *Tibraca* spp., *Tinocallis caryaefoliae*, *Tomaspis* spp., *Toxoptera* spp. such as *Toxoptera aurantii*; *Trialeurodes* spp. such as *Trialeurodes vaporariorum*; *Triatoma* spp., *Triozoa* spp., *Typhlocyba* spp., *Unaspis* spp. such as *Unaspis yanonensis*; and *Viteus*

vitifolii, ants, bees, wasps, sawflies (Hymenoptera), e.g. *Athalia rosae*, *Atta capiguara*, *Atta cephalotes*, *Atta cephalotes*, *Atta laevigata*, *Atta robusta*, *Atta sexdens*, *Atta texana*, *Bombus* spp., *Camponotus floridanus*, *Crematogaster* spp., *Dasymutilla occidentalis*, *Diprion* spp., *Dolichovespula maculata*, *Hoplocampa* spp. such as *Hoplocampa minuta*, *Hoplocampa testudinea*; *Lasius* spp. such as *Lasius niger*, *Linepithema humile*, *Monomorium pharaonis*, *Paravespula germanica*, *Paravespula pennsylvanica*, *Paravespula vulgaris*, *Pheidole megacephala*, *Pogonomyrmex barbatus*, *Pogonomyrmex californicus*, *Polistes rubiginosa*, *Solenopsis geminata*, *Solenopsis invicta*, *Solenopsis richteri*, *Solenopsis xyloni*, *Vespa* spp. such as *Vespa crabro*, and *Vespa squamosa*, crickets, grasshoppers, locusts (Orthoptera), e.g. *Acheta domestica*, *Calliptamus italicus*, *Chortoicetes terminifera*, *Dociostaurus maroccanus*, *Gryllotalpa africana*, *Gryllotalpa gryllotalpa*, *Hieroglyphus daganensis*, *Kraussaria angulifera*, *Locusta migratoria*, *Locustana pardalina*, *Melanoplus bivittatus*, *Melanoplus femurrubrum*, *Melanoplus mexicanus*, *Melanoplus sanguinipes*, *Melanoplus spretus*, *Nomadacris septemfasciata*, *Oedaleus senegalensis*, *Schistocerca americana*, *Schistocerca gregaria*, *Tachycines asynamorus*, and *Zonozerus variegatus*,

5 Arachnids (Arachnida), such as acari, e.g. of the families Argasidae, Ixodidae and Sarcoptidae, such as *Amblyomma* spp. (e.g. *Amblyomma americanum*, *Amblyomma variegatum*, *Amblyomma maculatum*), *Argas* spp. (e.g. *Argas persicus*), *Boophilus* spp. (e.g. *Boophilus annulatus*, *Boophilus decoloratus*, *Boophilus microplus*), *Dermacentor silvarum*, *Dermacentor andersoni*, *Dermacentor variabilis*, *Hyalomma* spp. (e.g. *Hyalomma truncatum*), *Ixodes* spp. (e.g. *Ixodes ricinus*, *Ixodes rubicundus*, *Ixodes scapularis*, *Ixodes holocyclus*, *Ixodes pacificus*), *Ornithodoros* spp. (e.g. *Ornithodoros moubata*, *Ornithodoros hermsi*, *Ornithodoros turicata*), *Ornithonyssus bacoti*, *Otobius megnini*, *Dermanyssus gallinae*, *Psoroptes* spp. (e.g. *Psoroptes ovis*), *Rhipicephalus* spp. (e.g. *Rhipicephalus sanguineus*, *Rhipicephalus appendiculatus*, *Rhipicephalus evertsi*), *Rhizoglyphus* spp., *Sarcoptes* spp. (e.g. *Sarcoptes scabiei*), and *Eriophyidae* spp. such

20 as *Acaria sheldoni*, *Aculops* spp. (e.g. *Aculops pelekassi*) *Aculus* spp. (e.g. *Aculus schlechtendali*), *Epitrimerus pyri*, *Phyllocoptruta oleivora* and *Eriophyes* spp. (e.g. *Eriophyes sheldoni*); *Tarsonemidae* spp. such as *Hemitarsonemus* spp., *Phytonemus pallidus* and *Polyphagotarsonemus latus*, *Stenotarsonemus* spp.; *Tenuipalpidae* spp. such as *Brevipalpus* spp. (e.g. *Brevipalpus phoenicis*); *Tetranychidae* spp. Such

25 as *Eotetranychus* spp., *Eutetranychus* spp., *Oligonychus* spp., *Tetranychus cinnabarinus*, *Tetranychus kanzawai*, *Tetranychus pacificus*, *Tetranychus telarius* and *Tetranychus urticae*; *Bryobia praetiosa*, *Panonychus* spp. (e.g. *Panonychus ulmi*, *Panonychus citri*), *Metatetranychus* spp. and *Oligonychus* spp. (e.g. *Oligonychus pratensis*), *Vasates lycopersici*; *Araneida*, e.g. *Latrodectus mactans*, and *Loxosceles reclusa*. And *Acarus siro*, *Chorioptes* spp., *Scorpio maurus*

30 fleas (Siphonaptera), e.g. *Ceratophyllus* spp., *Ctenocephalides felis*, *Ctenocephalides canis*, *Xenopsylla cheopis*, *Pulex irritans*, *Tunga penetrans*, and *Nosopsyllus fasciatus*, silverfish, firebrat (Thysanura), e.g. *Lepisma saccharina* and *Thermobia domestica*,

centipedes (Chilopoda), e.g. *Geophilus* spp., *Scutigera* spp. such as *Scutigera coleoptrata*; millipedes (Diplopoda), e.g. *Blaniulus guttulatus*, *Narceus* spp., Earwigs (Dermaptera), e.g. *forficula auricularia*, lice (Phthiraptera), e.g. *Damalinia* spp., *Pediculus* spp. such as *Pediculus humanus capitis*, *Pediculus humanus corporis*; *Pthirus pubis*, *Haematopinus* spp. such as *Haematopinus eurysternus*, *Haematopinus suis*; *Linognathus* spp. such as *Linognathus vituli*; *Bovicola bovis*, *Menopon gallinae*, *Menacanthus stramineus* and *Solenopotes capillatus*, *Trichodectes* spp., springtails (Collembola), e.g. *Onychiurus* ssp. such as *Onychiurus armatus*.

The mixtures according to the present invention are also suitable for efficiently controlling nematodes: Plant parasitic nematodes such as root knot nematodes, *Meloidogyne hapla*, *Meloidogyne incognita*, *Meloidogyne javanica*, and other *Meloidogyne* species; cyst-forming nematodes, *Globodera rostochiensis* and other *Globodera* species; *Heterodera avenae*, *Heterodera glycines*, *Heterodera schachtii*, *Heterodera trifolii*, and other *Heterodera* species; Seed gall nematodes, *Anguina* species; Stem and foliar nematodes, *Aphelenchoides* species such as *Aphelenchoides besseyi*; Sting nematodes, *Belonolaimus longicaudatus* and other *Belonolaimus* species; Pine nematodes, *Bursaphelenchus lignicolus Mamiya et Kiyohara*, *Bursaphelenchus xylophilus* and other *Bursaphelenchus* species; Ring nematodes, *Criconema* species, *Criconemella* species, *Criconemoides* species, *Mesocriconema* species; Stem and bulb nematodes, *Ditylenchus destructor*, *Ditylenchus dipsaci* and other *Ditylenchus* species; Awl nematodes, *Dolichodorus* species; Spiral nematodes, *Helicotylenchus multicinctus* and other *Helicotylenchus* species; Sheath and sheathoid nematodes, *Hemicycliophora* species and *Hemicriconemoides* species; *Hirshmanniella* species; Lance nematodes, *Hoploaimus* species; false rootknot nematodes, *Nacobbus* species; Needle nematodes, *Longidorus elongatus* and other *Longidorus* species; Lesion nematodes, *Pratylenchus brachyurus*, *Pratylenchus neglectus*, *Pratylenchus penetrans*, *Pratylenchus curvatus*, *Pratylenchus goodeyi* and other *Pratylenchus* species; Burrowing nematodes, *Radopholus similis* and other *Radopholus* species; Reniform nematodes, *Rotylenchus robustus*, *Rotylenchus reniformis* and other *Rotylenchus* species; *Scutellonema* species; Stubby root nematodes, *Trichodorus primitivus* and other *Trichodorus* species, *Paratrichodorus* species; Stunt nematodes, *Tylenchorhynchus claytoni*, *Tylenchorhynchus dubius* and other *Tylenchorhynchus* species; Citrus nematodes, *Tylenchulus* species such as *Tylenchulus semipenetrans*; Dagger nematodes, *Xiphinema* species; and other plant parasitic nematode species.

Examples of further pests which may be controlled by the pesticidal mixture of the present invention include: from the class of the Bivalva, for example, *Dreissena* spp.; from the class of the Gastropoda, for

example, *Arion* spp., *Biomphalaria* spp., *Bulinus* spp., *Deroceras* spp., *Galba* spp., *Lymnaea* spp., *Oncomelania* spp., *Succinea* spp.; from the class of the helminths, for example, *Ancylostoma duodenale*,

Ancylostoma ceylanicum, *Ancylostoma braziliensis*, *Ancylostoma* spp., *Ascaris lumbricoides*,
Ascaris spp., *Brugia malayi*, *Brugia timori*,
unostomum spp., *Chabertia* spp., *Clonorchis* spp., *Cooperia* spp., *Dicrocoelium* spp., *Dictyocaulus*
filaria, *Diphyllbothrium latum*, *Dracunculus medinensis*, *Echinococcus granulosus*, *Echinococcus*
5 *multilocularis*, *Enterobius vermicularis*, *Faciola* spp., *Haemonchus* spp. such as *Haemonchus*
contortus; *Heterakis* spp., *Hymenolepis nana*, *Hyostrogylus* spp., *Loa Loa*,
Nematodirus spp., *Oesophagostomum* spp., *Opisthorchis* spp., *Onchocerca volvulus*,
Ostertagia spp., *Paragonimus* spp., *Schistosomen* spp., *Strongyloides fuelleborni*, *Strongyloides*
stercoralis, *Strongyloides* spp., *Taenia saginata*, *Taenia solium*, *Trichinella spiralis*, *Trichinella*
10 *nativa*, *Trichinella britovi*, *Trichinella nelsoni*, *Trichinella pseudospiralis*,
Trichostrongylus spp., *Trichuris trichiura*, *Wuchereria bancrofti*; from the order of the Isopoda, for
example, *Armadillidium vulgare*, *Oniscus asellus*, *Porcellio scaber*; and from the order of the
Symphyla, for example, *Scutigera immaculata*.

Further examples of pest species which may be controlled by the pesticidal mixture of the present
15 invention include: *Anisoplia austriaca*, *Apamea* spp., *Austroasca viridigrisea*, *Baliothrips biformis*,
Caenorhabditis elegans, *Cephus* spp., *Ceutorhynchus napi*, *Chaetocnema aridula*, *Chilo auricilius*,
Chilo indicus, *Chilo polychrysus*, *Chortiocetes terminifera*, *Cnaphalocroci medinalis*,
Cnaphalocrosis spp., *Colias eurytheme*, *Collops* spp., *Cornitermes cumulans*,
Creontiades spp., *Cyclocephala* spp., *Dalbulus maidis*, *Deraceras reticulatum*, *Diatrea saccharalis*,
20 *Dichelops furcatus*, *Di cladispa armigera*, *Diloboderus* spp. such as *Diloboderus abderus*;
Edessa spp., *Epinotia* spp., *Formicidae*, *Geocoris* spp., *Globitermes sulfureus*, *Gryllotalpidae*,
Halotydeus destructor, *Hipnodes bicolor*, *Hydrellia philippina*,
Julus spp., *Laodelphax* spp., *Leptocorsia acuta*, *Leptocorsia oratorius*, *Liogenys fuscus*,
Lucillia spp., *Lyogenys fuscus*, *Mahanarva* spp., *Maladera matrida*,
25 *Marasmia* spp., *Mastotermes* spp., *Mealybugs*, *Megascelis* ssp, *Metamasius hemipterus*,
Microtheca spp., *Mocis latipes*, *Murgantia* spp., *Mythemina separata*, *Neocapritermes opacus*,
Neocapritermes parvus, *Neomegalotomus* spp., *Neotermes* spp., *Nymphula depunctalis*, *Oebalus*
pugnax, *Orseolia* spp. such as *Orseolia oryzae*; *Oxycaraenus hyalinipennis*, *Plusia* spp., *Pomacea*
canaliculata, *Procornitermes* spp., *Procornitermes triacifer*,
30 *Psylloides* spp., *Rachiplusia* spp., *Rhodopholus* spp., *Scaptocoris castanea*,
Scaptocoris spp., *Scirpophaga* spp. such as *Scirpophaga incertulas*, *Scirpophaga innotata*;
Scotinophara spp. such as *Scotinophara coarctata*; *Sesamia* spp. such as *Sesamia inferens*, *Sogaella*
frucifera, *Solenopsis geminata*, *Spissistilus* spp., *Stalk borer*, *Stenchaetothrips biformis*,
Steneotarsonemus pinki, *Sylepta derogata*, *Telehin licus*, and *Trichostrongylus* spp.

35 The mixtures of the present invention are particularly useful for controlling insects, preferably
sucking or piercing insects such as insects from the genera *Thysanoptera*, *Diptera* and *Hemiptera*, and

chewing-biting pests such as insects from the genera of *Lepidoptera* and *Coleoptera*, in particular the following species: *Thysanoptera*: *Frankliniella fusca*, *Frankliniella occidentalis*, *Frankliniella tritici*, *Scirtothrips citri*, *Thrips oryzae*, *Thrips palmi* and *Thrips tabaci*, *Diptera*, e.g. *Aedes aegypti*, *Aedes albopictus*, *Aedes vexans*, *Anastrepha ludens*, *Anopheles maculipennis*, *Anopheles crucians*, *Anopheles albimanus*, *Anopheles gambiae*, *Anopheles freeborni*, *Anopheles leucosphyrus*, *Anopheles minimus*, *Anopheles quadrimaculatus*, *Calliphora vicina*, *Ceratitis capitata*, *Chrysomya bezziana*, *Chrysomya hominivorax*, *Chrysomya macellaria*, *Chrysops discalis*, *Chrysops silacea*, *Chrysops atlanticus*, *Cochliomyia hominivorax*, *Contarinia sorghicola*, *Cordylobia anthropophaga*, *Culicoides furens*, *Culex pipiens*, *Culex nigripalpus*, *Culex quinquefasciatus*, *Culex tarsalis*, *Culiseta inornata*, *Culiseta melanura*, *Dacus cucurbitae*, *Dacus oleae*, *Dasineura brassicae*, *Delia antique*, *Delia coarctata*, *Delia platura*, *Delia radicum*, *Dermatobia hominis*, *Fannia canicularis*, *Geomyza Tripunctata*, *Gasterophilus intestinalis*, *Glossina morsitans*, *Glossina palpalis*, *Glossina fuscipes*, *Glossina tachinoides*, *Haematobia irritans*, *Haplodiplosis equestris*, *Hippelates* spp., *Hylemyia platura*, *Hypoderma lineata*, *Leptoconops torrens*, *Liriomyza sativae*, *Liriomyza trifolii*, *Lucilia caprina*, *Lucilia cuprina*, *Lucilia sericata*, *Lycoria pectoralis*, *Mansonia titillanus*, *Mayetiola destructor*, *Musca autumnalis*, *Musca domestica*, *Muscina stabulans*, *Oestrus ovis*, *Opomyza florum*, *Oscinella frit*, *Pegomya hysocyami*, *Phorbia antiqua*, *Phorbia brassicae*, *Phorbia coarctata*, *Phlebotomus argentipes*, *Psorophora columbiae*, *Psila rosae*, *Psorophora discolor*, *Prosimulium mixtum*, *Rhagoletis cerasi*, *Rhagoletis pomonella*, *Sarcophaga haemorrhoidalis*, *Sarcophaga* spp., *Simulium vittatum*, *Stomoxys calcitrans*, *Tabanus bovinus*, *Tabanus atratus*, *Tabanus lineola*, and *Tabanus similis*, *Tipula oleracea*, and *Tipula paludosa*; *Hemiptera*, in particular aphids: *Acyrtosiphon onobrychis*, *Adelges laricis*, *Aphidula nasturtii*, *Aphis fabae*, *Aphis forbesi*, *Aphis pomi*, *Aphis gossypii*, *Aphis grossulariae*, *Aphis schneideri*, *Aphis spiraecola*, *Aphis sambuci*, *Acyrtosiphon pisum*, *Aulacorthum solani*, *Brachycaudus cardui*, *Brachycaudus helichrysi*, *Brachycaudus persicae*, *Brachycaudus prunicola*, *Brevicoryne brassicae*, *Capitophorus horni*, *Cerosipha gossypii*, *Chaetosiphon fragaefolii*, *Cryptomyzus ribis*, *Dreyfusia nordmanniana*, *Dreyfusia piceae*, *Dysaphis radicola*, *Dysaulacorthum pseudosolani*, *Dysaphis plantaginea*, *Dysaphis pyri*, *Empoasca fabae*, *Hyalopterus pruni*, *Hyperomyzus lactucae*, *Macrosiphum avenae*, *Macrosiphum euphorbiae*, *Macrosiphon rosae*, *Megoura viciae*, *Melanaphis pyrarius*, *Metopolophium dirhodum*, *Myzodes persicae*, *Myzus ascalonicus*, *Myzus cerasi*, *Myzus varians*, *Nasonovia ribis-nigri*, *Nilaparvata lugens*, *Pemphigus bursarius*, *Perkinsiella saccharicida*, *Phorodon humuli*, *Psylla mali*, *Psylla piri*, *Rhopalomyzus ascalonicus*, *Rhopalosiphum maidis*, *Rhopalosiphum padi*, *Rhopalosiphum insertum*, *Sappaphis mala*, *Sappaphis mali*, *Schizaphis graminum*, *Schizoneura lanuginosa*, *Sitobion avenae*, *Trialeurodes vaporariorum*, *Toxoptera aurantiand*, and *Viteus vitifolii*.

Lepidoptera, in particular: *Agrotis ipsilon*, *Agrotis segetum*, *Alabama argillacea*, *Anticarsia gemmatalis*, *Argyresthia conjugella*, *Autographa gamma*, *Bupalus piniarius*, *Cacoecia murinana*, *Capua reticulana*, *Cheimatobia brumata*, *Choristoneura fumiferana*, *Choristoneura occidentalis*,
 5 *Earias insulana*, *Elasmopalpus lignosellus*, *Eupoecilia ambiguella*, *Evetria bouliana*, *Feltia subterranea*, *Galleria mellonella*, *Grapholitha funebrana*, *Grapholitha molesta*, *Heliothis armigera*, *Heliothis virescens*, *Heliothis zea*, *Hellula undalis*, *Hibernia defoliaria*, *Hyphantria cunea*, *Hyponomeuta malinellus*, *Keiferia lycopersicella*, *Lambdina fiscellaria*, *Laphygma exigua*,
 10 *Leucoptera coffeella*, *Leucoptera scitella*, *Lithocolletis blancardella*, *Lobesia botrana*, *Loxostege sticticalis*, *Lymantria dispar*, *Lymantria monacha*, *Lyonetia clerkella*, *Malacosoma neustria*, *Mamestra brassicae*, *Orgyia pseudotsugata*, *Ostrinia nubilalis*, *Panolis flammea*, *Pectinophora gossypiella*, *Peridroma saucia*, *Phalera bucephala*, *Phthorimaea operculella*, *Phyllocnistis citrella*, *Pieris brassicae*, *Plathypena scabra*, *Plutella xylostella*, *Pseudoplusia includens*, *Rhyacionia frustrana*, *Scrobipalpus absoluta*, *Sitotroga cerealella*, *Sparganothis pilleriana*, *Spodoptera*
 15 *frugiperda*, *Spodoptera littoralis*, *Spodoptera litura*, *Thaumatopoea pityocampa*, *Tortrix viridana*, *Trichoplusia ni* and *Zeiraphera canadensis*.

The mixtures of the present invention are particularly useful for controlling insects from the order of *Coleoptera*, in particular *Agrilus sinuatus*, *Agriotes lineatus*, *Agriotes obscurus*, *Amphimallus solstitialis*, *Anisandrus dispar*, *Anthonomus grandis*, *Anthonomus pomorum*, *Aphthona euphoridae*,
 20 *Athous haemorrhoidalis*, *Atomaria linearis*, *Blastophagus piniperda*, *Blitophaga undata*, *Bruchus rufimanus*, *Bruchus pisorum*, *Bruchus lentis*, *Byctiscus betulae*, *Cassida nebulosa*, *Cerotoma trifurcata*, *Cetonia aurata*, *Ceuthorrhynchus assimilis*, *Ceuthorrhynchus napi*, *Chaetocnema tibialis*, *Conoderus vespertinus*, *Crioceris asparagi*, *Ctenicera ssp.*, *Diabrotica longicornis*, *Diabrotica semipunctata*, *Diabrotica 12-punctata*, *Diabrotica speciosa*, *Diabrotica virgifera*, *Epilachna*
 25 *varivestis*, *Epitrix hirtipennis*, *Eutinobothrus brasiliensis*, *Hylobius abietis*, *Hypera brunneipennis*, *Hypera postica*, *Ips typographus*, *Lema bilineata*, *Lema melanopus*, *Leptinotarsa decemlineata*, *Limonius californicus*, *Lissorhoptrus oryzophilus*, *Melanotus communis*, *Meligethes aeneus*, *Melolontha hippocastani*, *Melolontha melolontha*, *Oulema oryzae*, *Otiorrhynchus sulcatus*, *Otiorrhynchus ovatus*, *Phaedon cochleariae*, *Phyllobius pyri*, *Phyllotreta chrysocephala*,
 30 *Phyllophaga sp.*, *Phyllopertha horticola*, *Phyllotreta nemorum*, *Phyllotreta striolata*, *Popillia japonica*, *Sitona lineatus* and *Sitophilus granaria*.

The mixtures of the present invention are particularly useful for controlling insects of the orders *Lepidoptera*, *Coleoptera*, *Hemiptera* and *Thysanoptera*.

The mixtures of the present invention are especially suitable for efficiently combating pests like
 35 insects from the order of the lepidopterans (*Lepidoptera*), beetles (*Coleoptera*), flies and mosquitoes (*Diptera*), thrips (*Thysanoptera*), termites (*Isoptera*), bugs, aphids, leafhoppers, whiteflies, scale

insects, cicadas (*Hemiptera*), ants, wasps, sawflies (*Hymenoptera*), crickets, grasshoppers, locusts (*Orthoptera*), and also Arachnoidea, such as arachnids (*Acarina*).

The term “mixture” as used herein includes combinations.

5 The present invention also provides methods for controlling insects, acarids, nematodes or phytopathogenic fungi comprising contacting the insect, acarid, nematode or phytopathogenic fungi or their food supply, habitat, breeding grounds or their locus with a pesticidally effective amount of the mixture of the present invention.

10 Moreover, the present invention also relates to a method of protecting plants from the attack or infestation by insects, acarids, nematodes or phytopathogenic fungi comprising contacting the plant, or the soil or water in which the plant is growing, with a pesticidally effective amount of a mixture of the present invention.

15 The invention also provides a method for the protection of plant propagation material, preferably seeds, from soil insects and seedlings, roots and shoots from soil and foliar insects or fungi, which comprises contacting the plant propagation material as e.g. the seeds before sowing and/or after pregermination with a pesticidally effective amount of a mixture of the present invention.

The invention also provides seeds comprising the mixture of the present invention.

The invention also provides pesticidal compositions, comprising a liquid or solid carrier and the pesticidal active mixture of the present invention.

20 The invention also relates to the use of the pesticidal active mixture for combating insects, acarids, nematodes or phytopathogenic fungi.

The mixture(s) of the compound of formula (I) with at least one active compound (II) or at least one active compound (III) are herein referred to as “mixture(s) according to the invention”.

In a specific embodiment, the mixture according to the invention is a mixture of one active compound of formula (I) with another active compound (II) (binary mixture).

25 In a specific embodiment, the mixture according to the invention is a mixture of one active compound of formula (I) with another active compound (III) (binary mixture).

Phytopathogenic Fungi

Non-limiting examples of pathogens of fungal diseases which can be treated in accordance with the present invention include:

30 Diseases caused by powdery mildew pathogens, for example *Blumeria* species, for example *Blumeria graminis*; *Podosphaera* species, for example *Podosphaera leucotricha*; *Sphaerotheca* species, for example *Sphaerotheca fuliginea*; *Uncinula* species, for example *Uncinula necator*; *Erysiphe* species, for example *Erysiphe cichoracearu*;

diseases caused by rust disease pathogens, for example *Gymnosporangium* species, for example *Gymnosporangium sabiniae*; *Hemileia* species, for example *Hemileia vastatrix*; *Phakopsora* species, for example *Phakopsora pachyrhizi* or *Phakopsora meibomiae*; *Puccinia* species, for example *Puccinia recondita*, *Puccinia graminis* or *Puccinia striiformis*, and *Puccinia melanocephala*;
 5 *Uromyces* species, for example *Uromyces appendiculatus*;

In particular, *Cronartium ribicola* (White pine blister rust); *Gymnosporangium juniperi-virginianae* (Cedar-apple rust); *Hemileia vastatrix* (Coffee rust); *Phakopsora meibomiae* and *P. pachyrhizi* (Soybean rust); *Puccinia coronata* (Crown Rust of Oats and Ryegrass); *Puccinia graminis* (Stem rust of wheat and Kentucky bluegrass, or black rust of cereals); *Puccinia hemerocallidis* (Daylily rust);
 10 *Puccinia persistens subsp. triticina* (wheat rust or 'brown or red rust'); *Puccinia sorghi* (rust in corn); *Puccinia striiformis* ('Yellow rust' in cereals); *Puccinia melanocephala*; *Uromyces appendiculatus* (rust of beans); *Uromyces phaseoli* (Bean rust); *Puccinia melanocephala* ('Brown rust' in sugarcane); *Puccinia kuehnii* ('Orange rust' in sugarcane).

diseases caused by pathogens from the group of the Oomycetes, for example *Albugo* species, for
 15 example *Albugo candida*; *Bremia* species, for example *Bremia lactucae*; *Peronospora* species, for example *Peronospora pisi* or *P. brassicae*; *Phytophthora* species, for example *Phytophthora infestans*; *Plasmopara* species, for example *Plasmopara viticola*; *Pseudoperonospora* species, for example *Pseudoperonospora humuli* or *Pseudoperonospora cubensis*; *Pythium* species, for example *Pythium ultimum*;

leaf blotch diseases and leaf wilt diseases caused, for example, by *Alternaria* species, for example
 20 *Alternaria solani*; *Cercospora* species, for example *Cercospora beticola*; *Cladosporium* species, for example *Cladosporium cucumerinum*; *Cochliobolus* species, for example *Cochliobolus sativus* (conidial form: *Drechslera*, syn: *Helminthosporium*) or *Cochliobolus miyabeanus*; *Colletotrichum* species, for example *Colletotrichum lindemuthianum*; *Cycloconium* species, for example *Cycloconium oleaginum*; *Diaporthe* species, for example *Diaporthe citri*; *Elsinoe* species, for example *Elsinoe fawcettii*; *Gloeosporium* species, for example *Gloeosporium laeticolor*; *Glomerella* species, for example *Glomerella cingulata*; *Guignardia* species, for example *Guignardia bidwelli*; *Leptosphaeria* species, for example *Leptosphaeria maculans*; *Magnaporthe* species, for example *Magnaporthe grisea*; *Microdochium* species, for example *Microdochium nivale*; *Mycosphaerella* species, for
 30 example *Mycosphaerella graminicola*, *Mycosphaerella arachidicola* or *Mycosphaerella fijiensis*; *Phaeosphaeria* species, for example *Phaeosphaeria nodorum*; *Pyrenophora* species, for example *Pyrenophora teres* or *Pyrenophora tritici repentis*; *Ramularia* species, for example *Ramularia collo-cygni* or *Ramularia areola*; *Rhynchosporium* species, for example *Rhynchosporium secalis*; *Septoria* species, for example *Septoria apii* or *Septoria lycopersici*; *Stagonospora* species, for example
 35 *Stagonospora nodorum*; *Typhula* species, for example *Typhula incarnata*; *Venturia* species, for example *Venturia inaequalis*;

5 root and stem diseases caused, for example, by *Corticium* species, for example *Corticium graminearum*; *Fusarium* species, for example *Fusarium oxysporum*; *Gaeumannomyces* species, for example *Gaeumannomyces graminis*; *Plasmodiophora* species, for example *Plasmodiophora brassicae*; *Rhizoctonia* species, for example *Rhizoctonia solani*; *Sarocladium* species, for example *Sarocladium oryzae*; *Sclerotium* species, for example *Sclerotium oryzae*; *Tapesia* species, for example *Tapesia acuformis*; *Thielaviopsis* species, for example *Thielaviopsis basicola*; *Ganoderma* species, for example *Ganoderma lucidum*;

10 ear and panicle diseases (including corn cobs) caused, for example, by *Alternaria* species, for example *Alternaria spp.*; *Aspergillus* species, for example *Aspergillus flavus*; *Cladosporium* species, for example *Cladosporium cladosporioides*; *Claviceps* species, for example *Claviceps purpurea*; *Fusarium* species, for example *Fusarium culmorum*; *Gibberella* species, for example *Gibberella zeae*; *Monographella* species, for example *Monographella nivalis*; *Stagnospora* species, for example *Stagnospora nodorum*;

15 diseases caused by smut fungi, for example *Sphacelotheca* species, for example *Sphacelotheca reiliana*; *Tilletia* species, for example *Tilletia caries* or *Tilletia controversa*; *Urocystis* species, for example *Urocystis occulta*; *Ustilago* species, for example *Ustilago nuda*;

20 fruit rot caused, for example, by *Aspergillus* species, for example *Aspergillus flavus*; *Botrytis* species, for example *Botrytis cinerea*; *Penicillium* species, for example *Penicillium expansum* or *Penicillium purpurogenum*; *Rhizopus* species, for example *Rhizopus stolonifer*; *Sclerotinia* species, for example *Sclerotinia sclerotiorum*; *Verticillium* species, for example *Verticillium alboatrum*;

25 seed- and soil-borne rot and wilt diseases, and also diseases of seedlings, caused, for example, by *Alternaria* species, for example *Alternaria brassicicola*; *Aphanomyces* species, for example *Aphanomyces euteiches*; *Ascochyta* species, for example *Ascochyta lentis*; *Aspergillus* species, for example *Aspergillus flavus*; *Cladosporium* species, for example *Cladosporium herbarum*; *Cochliobolus* species, for example *Cochliobolus sativus* (conidial form: *Drechslera*, *Bipolaris* Syn: *Helminthosporium*); *Colletotrichum* species, for example *Colletotrichum coccodes*; *Fusarium* species, for example *Fusarium culmorum*; *Gibberella* species, for example *Gibberella zeae*; *Macrophomina* species, for example *Macrophomina phaseolina*; *Microdochium* species, for example *Microdochium nivale*; *Monographella* species, for example *Monographella nivalis*; *Penicillium* species, for example *Penicillium expansum*; *Phoma* species, for example *Phoma lingam*; *Phomopsis* species, for example *Phomopsis sojiae*; *Phytophthora* species, for example *Phytophthora cactorum*; *Pyrenophora* species, for example *Pyrenophora graminea*; *Pyricularia* species, for example *Pyricularia oryzae*; *Pythium* species, for example *Pythium ultimum*; *Rhizoctonia* species, for example *Rhizoctonia solani*; *Rhizopus* species, for example *Rhizopus oryzae*; *Sclerotium* species, for example *Sclerotium rolfsii*; *Septoria*

species, for example *Septoria nodorum*; *Typhula* species, for example *Typhula incarnata*; *Verticillium* species, for example *Verticillium dahliae*;

cancers, galls and witches' broom caused, for example, by *Nectria* species, for example *Nectria galligena*;

5 wilt diseases caused, for example, by *Monilinia* species, for example *Monilinia laxa*;

deformations of leaves, flowers and fruits caused, for example, by *Exobasidium* species, for example *Exobasidium vexans*; *Taphrina* species, for example *Taphrina deformans*;

degenerative diseases in woody plants, caused, for example, by *Esca* species, for example *Phaeomoniella chlamydospora*, *Phaeoacremonium aleophilum* or *Fomitiporia mediterranea*;

10 *Ganoderma* species, for example *Ganoderma boninense*;

diseases of flowers and seeds caused, for example, by *Botrytis* species, for example *Botrytis cinerea*;

diseases of plant tubers caused, for example, by *Rhizoctonia* species, for example *Rhizoctonia solani*; *Helminthosporium* species, for example *Helminthosporium solani*;

diseases caused by bacterial pathogens, for example *Xanthomonas* species, for example *Xanthomonas campestris* pv. *oryzae*; *Pseudomonas* species, for example *Pseudomonas syringae* pv. *lachrymans*; *Erwinia* species, for example *Erwinia amylovora*; *Ralstonia* species, for example *Ralstonia solanacearum*;

Fungal diseases on roots and the stem base caused, for example, by black root rot (*Calonectria crotalariae*), charcoal rot (*Macrophomina phaseolina*), fusarium blight or wilt, root rot, and pod and collar rot (*Fusarium oxysporum*, *Fusarium orthoceras*, *Fusarium semitectum*, *Fusarium equiseti*), mycoleptodiscus root rot (*Mycleptodiscus terrestris*), neocosmospora (*Neocosmospora vasinfecta*), pod and stem blight (*Diaporthe phaseolorum*), stem canker (*Diaporthe phaseolorum* var. *caulivora*), phytophthora rot (*Phytophthora megasperma*), brown stem rot (*Phialophora gregata*), pythium rot (*Pythium aphanidermatum*, *Pythium irregulare*, *Pythium debaryanum*, *Pythium myriotylum*, *Pythium ultimum*), rhizoctonia root rot, stem decay, and damping-off (*Rhizoctonia solani*), sclerotinia stem decay (*Sclerotinia sclerotiorum*), sclerotinia southern blight (*Sclerotinia rolfsii*), thielaviopsis root rot (*Thielaviopsis basicola*).

Plants which can be treated in accordance with the invention include the following: *Rosaceae* sp (for example pome fruits such as apples, pears, apricots, cherries, almonds and peaches), *Ribesioideae* sp., *Juglandaceae* sp., *Betulaceae* sp., *Anacardiaceae* sp., *Fagaceae* sp., *Moraceae* sp., *Oleaceae* sp., *Actinidaceae* sp., *Lauraceae* sp., *Musaceae* sp. (for example banana trees and plantations), *Rubiaceae* sp. (for example coffee), *Theaceae* sp., *Sterculiaceae* sp., *Rutaceae* sp. (for example lemons, oranges and grapefruit); *Vitaceae* sp. (for example grapes); *Solanaceae* sp. (for example tomatoes, peppers), *Liliaceae* sp., *Asteraceae* sp. (for example lettuce), *Umbelliferae* sp., *Cruciferae* sp., *Chenopodiaceae* sp.,

Cucurbitaceae sp. (for example cucumber), *Alliaceae sp.* (for example leek, onion), *Papilionaceae sp.* (for example peas); major crop plants, such as *Poaceae/Gramineae sp.* (for example maize, turf, cereals such as wheat, rye, rice, barley, oats, millet and triticale), *Asteraceae sp.* (for example sunflower), *Brassicaceae sp.* (for example white cabbage, red cabbage, broccoli, cauliflower, Brussels sprouts, pak choi, kohlrabi, radishes, and oilseed rape, mustard, horseradish and cress), *Fabaceae sp.* (for example bean, peanuts), *Papilionaceae sp.* (for example soya bean), *Solanaceae sp.* (for example potatoes), *Chenopodiaceae sp.* (for example sugar beet, fodder beet, swiss chard, beetroot); Malvaceae (for example cotton); useful plants and ornamental plants for gardens and wooded areas; and genetically modified varieties of each of these plants.

10 The pesticidal active mixture of the present invention or the composition comprising them can be used for curative or protective/preventive control of phytopathogenic fungi. The present invention therefore also relates to curative and protective methods for controlling phytopathogenic fungi by the use of the pesticidal active mixture of the present invention or the composition comprising them, which are applied to the seed, the plant or plant parts, the fruit or the soil in which the plants grow.

15 The fact that the pesticidal active mixture of the present invention or the composition comprising them are well tolerated by plants at the concentrations required for controlling plant diseases allows the treatment of above-ground parts of plants, of propagation stock and seeds, and of the soil.

According to the invention, all plants and plant parts can be treated. By plants is meant all plants and plant populations such as desirable and undesirable wild plants, cultivars and plant varieties (whether
20 or not protectable by plant variety or plant breeder's rights). Cultivars and plant varieties can be plants obtained by conventional propagation and breeding methods which can be assisted or supplemented by one or more biotechnological methods such as by use of double haploids, protoplast fusion, random and directed mutagenesis, molecular or genetic markers or by bioengineering and genetic engineering methods. By plant parts is meant all above ground and below ground parts and organs of
25 plants such as shoot, leaf, blossom and root, whereby for example leaves, needles, stems, branches, blossoms, fruiting bodies, fruits and seed as well as roots, conns and rhizomes are listed. Crops and vegetative and generative propagating material, for example cuttings, conns, rhizomes, runners and seeds also belong to plant parts.

The pesticidal active mixture of the present invention or the composition comprising them, when they
30 are well tolerated by plants, have favorable homeotherm toxicity and are well tolerated by the environment, are suitable for protecting plants and plant organs, for enhancing harvest yields, for improving the quality of the harvested material. They can preferably be used as crop protection compositions. They are active against normally sensitive and resistant species and against all or some stages of development.

35 Plants which can be treated in accordance with the present invention include the following main crop

plants: maize, soya bean, alfalfa, cotton, sunflower, *Brassica* oil seeds such as *Brassica napus* (e.g. canola, rapeseed), *Brassica rapa*, *B.juncea* (e.g. (field) mustard) and *Brassica carinata*, *Arecaceae* sp. (e.g. oilpalm, coconut), rice, wheat, sugar beet, sugar cane, oats, rye, barley, millet and sorghum, triticale, flax, nuts, grapes and vine and various fruit and vegetables from various botanic taxa, e.g.

5 *Rosaceae* sp. (e.g. pome fruits such as apples and pears, but also stone fruits such as apricots, cherries, almonds, plums and peaches, and berry fruits such as strawberries, raspberries, red and black currant and gooseberry), *Ribesioideae* sp., *Juglandaceae* sp., *Betulaceae* sp., *Anacardiaceae* sp., *Fagaceae* sp., *Aforaceae* sp., *Oleaceae* sp. (e.g. olive tree), *Actinidaceae* sp., *Lauraceae* sp. (e.g. avocado, cinnamon, camphor), *Afusaceae* sp. (e.g. banana trees and plantations), *Rubiaceae* sp. (e.g. coffee), *Theaceae* sp.

10 (e.g. tea), *Sterculiaceae* sp., *Rutaceae* sp. (e.g. lemons, oranges, mandarins and grapefruit); *Solanaceae* sp. (e.g. tomatoes, potatoes, peppers, capsicum, aubergines, tobacco), *Liliaceae* sp., *Compositae* sp. (e.g. lettuce, artichokes and chicory - including root chicory, endive or common chicory), *Umbelliferae* sp. (e.g. carrots, parsley, celery and celeriac), *Cucurbitaceae* sp. (e.g. cucumbers - including gherkins, pumpkins, watermelons, calabashes and melons), *Alliaceae* sp. (e.g. leeks and

15 onions), *Cruciferae* sp. (e.g. white cabbage, red cabbage, broccoli, cauliflower, Brussels sprouts, pak choi, kohlrabi, radishes, horseradish, cress and chinese cabbage), *Leguminosae* sp. (e.g. peanuts, peas, lentils and beans - e.g. common beans and broad beans), *Chenopodiaceae* sp. (e.g. Swiss chard, fodder beet, spinach, beetroot), *Linaceae* sp. (e.g. hemp), *Cannabaceae* sp. (e.g. cannabis), *Malvaceae* sp. (e.g. okra, cocoa), *Papaveraceae* (e.g. poppy), *Asparagaceae* (e.g. asparagus); useful plants and

20 ornamental plants in the garden and woods including turf, lawn, grass and *Stevia rebaudiana*; and in each case genetically modified types of these plants.

In particular, the pesticidal active mixture of the present invention or the composition comprising them, are suitable for controlling the following plant diseases:

Albugo spp. (white rust) on ornamentals, vegetables (e. g. *A. candida*) and sunflowers (e. g. *A. tragopogonis*); *Alternaria* spp. (*Alternaria* leaf spot) on vegetables, rape (*A brassicola* or *brassicae*),

25 sugar beets (*A tenuis*), fruits, rice, soybeans, potatoes (e. g. *A solani* or *A alternata*), tomatoes (e. g. *A solani* or *A alternata*) and wheat; *Aphanomyces* spp. on sugar beets and vegetables; *Ascochyta* spp. on cereals and vegetables, e. g. *A tritici* (anthracnose) on wheat and *A hordei* on barley; *Bipolaris* and *Drechslera* spp. (teleomorph: *Cochliobolus* spp.), e.g. Southern leaf blight (*D. maydis*) or Northern

30 leaf blight (*B. zeicola*) on corn, e. g. spot blotch (*B. sorokiniana*) on cereals and e. g. *B. oryzae* on rice and turfs; *Blumeria* (formerly *Erysiphe*) *graminis* (powdery mildew) on cereals (e.g. on wheat or barley); *Botrytis cinerea* (teleomorph: *Botryotinia fuckeliana*: grey mold) on fruits and berries (e.g. strawberries), vegetables (e.g. lettuce, carrots, celery and cabbages), rape, flowers, vines, forestry plants and wheat; *Bremia lactucae* (downy mildew) on lettuce; *Ceratocystis* (syn.

35 *Ophiostoma*) spp. (rot or wilt) on broad leaved trees and evergreens, e.g. *C. ulmi* (Dutch elm disease) on elms; *Cercospora* spp. (*Cercospora* leaf spots) on corn (e.g. Gray leaf spot: *C.*

zeaemaydis), rice, sugar beets (e.g. *C. beticola*), sugar cane, vegetables, coffee, soybeans (e.g. *C. soja* or *C. kikuchii*) and rice; *Cladosporium* spp. on tomatoes (e.g. *C. fulvum*: leaf mold) and cereals, e.g. *C. herbarum* (black ear) on wheat; *Claviceps purpurea* (ergot) on cereals; *Cochliobolus* (anamorph: *Helminthosporium* of *Bipolaris*) spp. (leaf spots) on corn (*C. carbonum*), cereals (e.g. *C. sativus*, anamorph: *B. sorokiniana*) and rice (e.g. *C. miyabeanus*, anamorph: *H. oryzae*); *Colletotrichum* (teleomorph: *Glomerella*) spp. (anthracnose) on cotton (e.g. *C. gossypii*), corn (e.g. *C. graminicola*: Anthracnose stalk rot), fruits, potatoes (e.g. *C. coccodes*: black dot), vegetables like beans (e.g. *C. lindemuthianum*) and soybeans (e.g. *C. truncatum* or *C. gloeosporioides*); *Corticium* spp., e.g. *C. sasakii* (sheath blight) on rice; *Corynespora cassiicola* (leaf spots) on soybeans and ornamentals; *Cyloconium* spp., e.g. *C. oleaginum* on olive trees; *Cylindrocarpon* spp. (e.g. fruit tree canker or young vine decline, teleomorph: *Nectria* or *Neonectria* spp.) on fruit trees, vines (e.g. *C. liriodendri*, teleomorph: *Neonectria liriodendri*: Black Foot Disease) and ornamentals; *Dematophora* (teleomorph: *Rosellinia*) *necatrix* (root and stem rot) on soybeans; *Diaporthe* spp., e.g. *D. phaseolorum* (damping off) on soybeans; *Drechslera* (syn. *Helminthosporium*, teleomorph: *Pyrenophora*) spp. on corn, cereals, such as barley (e.g. *D. teres*, net blotch) and wheat (e.g. *D. tritici-repentis*: tan spot), rice and turf; Esca (dieback, apoplexy) on vines, caused by *Formitiporia* (syn. *Phellinus*) *punctata*, *F. mediterranea*, *Phaeoconiella chlamydospora* (earlier *Phaeoacremonium chlamydosporum*), *Phaeoacremonium aleophilum* and/or *Botryosphaeria obtusa*; *Elsinoe* spp. on pome fruits (*E. pyn*), soft fruits (*E. veneta*: anthracnose) and vines (*E. ampelina*: anthracnose); *Entyloma oryzae* (leaf smut) on rice; *Epicoccum* spp. (black mold) on wheat; *Erysiphe* spp. (powdery mildew) on sugar beets (*E. betae*), vegetables (e.g. *E. pist*), such as cucurbits (e.g. *E. cichoracearum*), cabbages, rape (e.g. *E. cruciferarum*); *Eutypa lata* (*Eutypa* canker or dieback, anamorph: *Cytosporina lata*, syn. *Libertella blepharis*) on fruit trees, vines and ornamental woods; *Exserohilum* (syn. *Helminthosporium*) spp. on corn (e.g. *E. turcicum*); *Fusarium* (teleomorph: *Gibberella*) spp. (wilt, root or stem rot) on various plants, such as *F. graminearum* or *F. culmorum* (root rot, scab or head blight) on cereals (e.g. wheat or barley), *F. oxysporum* on tomatoes, *F. solani* (f. sp. *glycines* now syn. *F. virguliforme*) and *F. tucumaniae* and *F. brasiliense* each causing sudden death syndrome on soybeans, and *F. verticillioides* on corn; *Gaeumannomyces graminis* (take-all) on cereals (e.g. wheat or barley) and corn; *Gibberella* spp. on cereals (e.g. *G. zae*) and rice (e.g. *G. fujikuroi*: Bakanae disease); *Glomerella cingulata* on vines, pome fruits and other plants and *G. gossypii* on cotton; Grainstaining complex on rice; *Guignardia bidwellii* (black rot) on vines; *Gymnosporangium* spp. on rosaceous plants and junipers, e.g. *G. sabinae* (rust) on pears; *Helminthosporium* spp. (syn. *Drechslera*, teleomorph: *Cochliobolus*) on corn, cereals and rice; *Hemileia* spp., e.g. *H. vastatrix* (coffee leaf rust) on coffee; *Isariopsis clavispora* (syn. *Cladosporium vitis*) on vines; *Macrophomina phaseolina* (syn. *phaseoft*) (root and stem rot) on soybeans and cotton; *Microdochium* (syn. *Fusarium*) *nivale* (pink snow mold) on cereals (e.g.

wheat or barley); *Microsphaera diffusa* (powdery mildew) on soybeans; *Monilinia* spp., e.g. *M. laxa*, *M. fructicola* and *M. fructigena* (bloom and twig blight, brown rot) on stone fruits and other rosaceous plants; *Mycosphaerella* spp. on cereals, bananas, soft fruits and ground nuts, such as e. g. *M. graminicola* (anamorph: *Septoria tritici*, Septoria blotch) on wheat or *M. fijiensis* (black Sigatoka disease) on bananas; *Peronospora* spp. (downy mildew) on cabbage (e.g. *P. brassicae*), rape (e.g. *P. parasitica*), onions (e.g. *P. destructor*), tobacco (*P. tabacina*) and soybeans (e.g. *P. manshurica*); *Phakopsora pachyrhizi* and *P. meibomia* (soybean rust) on soybeans; *Phialophora* spp. e.g. on vines (e.g. *P. tracheiphila* and *P. tetraspora*) and soybeans (e.g. *P. gregata*: stem rot); *Phoma lingam* (root and stem rot) on rape and cabbage and *P. betae* (root rot, leaf spot and damping-off) on sugar beets; *Phomopsis* spp. on sunflowers, vines (e. g. *P. viticola*: can and leaf spot) and soybeans (e.g. stem rot: *P. phaseoli*, teleomorph: *Diaporthe phaseolorum*); *Phy*
soderma maydis (brown spots) on corn; *Phytophthora* spp. (wilt, root, leaf, fruit and stem root) on various plants, such as paprika and cucurbits (e.g. *P. capsici*), soybeans (e. g. *P. megasperma*, syn. *P. sojae*), potatoes and tomatoes (e. g. *P. infestans*: late blight) and broad leaved trees (e.g. *P. ramorum*: sudden oak death); *Plasmodiophora brassicae* (club root) on cabbage, rape, radish and other plants; *Plasmopara* spp., e.g. *P. viticola* (grapevine downy mildew) on vines and *P. halstedii* on sunflowers; *Podosphaera* spp. (powdery mildew) on rosa ceous plants, hop, pome and soft fruits, e.g. *P. leucotricha* on apples; *Polymyxa* spp., e.g. on cereals, such as barley and wheat (*P. graminis*) and sugar beets (*P. betae*) and thereby transmitted viral diseases;
Pseudocercospora herpotrichoides (eyespot, teleomorph: *Tapesia yallundae*) on cereals, e.g. wheat or barley; *Pseudoperonospora* (downy mildew) on various plants, e.g. *P. cubensis* on cucurbits or *P. humili* on hop; *Pseudopezizcula tracheiphila* (red fire disease or, rotbrenner', anamorph: *Phialophora*) on vines; *Puccinia* spp. (rusts) on various plants, e.g. *P. triticea* (brown or leaf rust), *P. striiformis* (stripe or yellow rust), *P. hordei* (dwarf rust), *P. graminis* (stem or black rust) or *P. recondita* (brown or leaf rust) on cereals, such as e.g. wheat, barley or rye, *P. kuehnii* (orange rust) on sugar cane and *P. asparagi* on asparagus; *Pyrenophora* (anamorph: *Drechslera*) *tritici-repentis* (tan spot) on wheat or *P. teres* (net blotch) on barley; *Pyricularia* spp., e.g. *P. oryzae* (teleomorph: *Magnaporthe grisea*, rice blast) on rice and *P. grisea* on turf and cereals; *Pythium* spp. (damping-off) on turf, rice, corn, wheat, cotton, rape, sunflowers, soybeans, sugar
beets, vegetables and various other plants (e. g. *P. ultimum* or *P. aphanidermatum*); *Ramularia* spp., e. g. *R. collo-cygni* (Ramularia leaf spots, Physiological leaf spots) on barley and *R. beticola* on sugar beets; *Rhizoctonia* spp. on cotton, rice, potatoes, turf, corn, rape, potatoes, sugar beets, vegetables and various other plants, e. g. *R. solani* (root and stem rot) on soybeans, *R. solani* (sheath blight) on rice or *R. cerealis* (Rhizoctonia spring blight) on wheat or barley; *Rhizopus stolonifer* (black mold, soft rot)
on strawberries, carrots, cabbage, vines and tomatoes; *Rhynchosporium secalis* (scald) on barley, rye and triticale; *Sa rocladium oryzae* and *S. attenuatum* (sheath rot) on rice; *Sclerotinia* spp. (stem rot or white mold) on vegetables and field crops, such as rape, sunflowers (e. g. *S. sclerotiorum*) and soy

beans (e.g. *S. rolfii* or *S. sclerotiorum*); *Septoria* spp. on various plants, e. g. *S. glycines* (brown spot) on soybeans, *S. tritici* (Septoria blotch) on wheat and *S.* (syn. *Stagonospora*) *nodorum* (Stagonospora blotch) on cereals; *Uncinula* (syn. *Erysiphe*) *necator* (powdery mildew, anamorph: *Oidium tuckeni*) on vines; *Setosphaeria* spp. (leaf blight) on corn (e.g. *S. turcicum*, syn. *Helminthosporium turcicum*) and turf; *Sphacelotheca* spp. (smut) on corn, (e.g. *S. reiliana*: head smut), sorghum and sugar cane; *Sphaerotheca fuliginea* (powdery mildew) on cucurbits; *Spongospora subterranea* (powdery scab) on potatoes and thereby transmitted viral diseases; *Stagonospora* spp. on cereals, e. g. *S. nodorum* (Stagonospora blotch, teleomorph: *Lepto sphaeria* [syn. *Phaeosphaeria*] *nodorum*) on wheat; *Synchytrium endobioticum* on potatoes (potato wart disease); *Taphrina* spp., e.g. *T. deformans* (leaf curl disease) on peaches and *T. pruni* (plum pocket) on plums; *Thielaviopsis* spp. (black root rot) on tobacco, pome fruits, vegetables, soybeans and cotton, e.g. *T. basicola* (syn. *Chalara elegans*); *Tilletia* spp. (common bunt or stinking smut) on cereals, such as e. g. *T. tritici* (syn. *T. caries*, wheat bunt) and *T. controversa* (dwarf bunt) on wheat; *Typhula incarnata* (grey snow mold) on barley or wheat; *Urocystis* spp., e.g. *U. occulta* (stem smut) on rye; *Uromyces* spp. (rust) on vegetables, such as beans (e.g. *U. appendiculatus*, syn. *U. phaseoft*) and sugar beets (e.g. *U. betae*); *Ustilago* spp. (loose smut) on cereals (e. g. *U. nuda* and *U. avenae*), corn (e. g. *U. maydis*: corn smut) and sugar cane; *Venturia* spp. (scab) on apples (e.g. *V. inaequalis*) and pears; and *Verticillium* spp. (wilt) on various plants, such as fruits and ornamentals, vines, soft fruits, vegetables and field crops, e.g. *V. dahliae* on strawberries, rape, potatoes and tomatoes.

20 **Formulations**

The pesticidal active mixture of the present invention can be converted into the customary formulations, for example solutions, emulsions, suspensions, dusts, powders, pastes and granules. The use form depends on the particular intended purpose; in each case, it should ensure a fine and even distribution of the compounds of the mixture.

25 Therefore, the present invention also relates to pesticidal active mixtures comprising an auxiliary and the pesticidal active mixture of the present invention.

An agrochemical composition comprises a pesticidally effective amount of the pesticidally active mixture of the present invention. The term “effective amount” denotes an amount of the composition or of the mixture, which is sufficient for controlling harmful pests on cultivated plants or in the protection of materials and which does not result in a substantial damage to the treated plants. Such an amount can vary in a broad range and is dependent on various factors, such as the animal pest species to be controlled, the treated cultivated plant or material, the climatic conditions and the specific mixture used.

35 The pesticidal active mixture of the present invention can be converted into customary types of agrochemical compositions, e. g. solutions, emulsions, suspensions, dusts, powders, pastes, granules,

pressings, capsules, and mixtures thereof. Examples for composition types are suspension concentrates (SC), Oil Dispersions (OD), emulsifiable concentrates (e.g. EC & EW), Microemulsions (ME), capsules (e.g. CS), pastes, pastilles, wettable powders or dusts (e.g. WP, SP, WS, DP, DS), pressings (e.g. BR, TB, DT), granules (e.g. WG, SG, GR, FG, GG, MG), gels. Other formulations
5 delivering mixed actives are ZC, ZE and ZW. Delivery of ingredients solo or mixes for seed treatment may be formulated through FS formats. These and further compositions types are defined in the “Catalogue of pesticide formulation types and international coding system”, Technical Monograph No. 2, 6th Ed. May 2008, CropLife International.

The compositions are prepared in a known manner, such as described by Mollet and Grubemann,
10 formulation technology, Wiley VCH, Weinheim, 2001; or Knowles, New developments in crop protection product formulation, Agrow Reports DS243, T&F Informa, London, 2005.

Examples for suitable auxiliaries or agriculturally acceptable auxiliaries are solvents, liquid carriers, solid carriers or fillers, surfactants, dispersants, emulsifiers, wetters, spreaders, adjuvants, solubilizers, penetration enhancers, protective colloids, adhesion agents, thickeners, humectants, repellents,
15 attractants, feeding stimulants, compatibilizers, bactericides, anti-freezing agents, anti-foaming agents, colorants, tackifiers and binders.

Suitable solvents and liquid carriers are water and organic solvents, such as low molecular weight mineral oil fractions of medium to high boiling point, e.g.; paraffins, oils of vegetable or animal origin; aliphatic, cyclic and aromatic hydrocarbons, e. g. toluene, paraffin, tetrahydronaphthalene,
20 alkylated naphthalenes; alcohols, e.g. ethanol, propanol, butanol, benzylalcohol, cyclohexanol; glycols; DMSO; ketones, e.g. cyclohexanone; esters, e.g. lactates, carbonates, fatty acid esters, gamma-butyrolactone; fatty acids; phosphonates; amines; amides, e.g. N-methylpyrrolidone, fatty acid dimethylamides, dimethyl formamide (DMF), and mixtures thereof.

Suitable solid carriers or fillers are mineral earths, e.g. silicates, silica gels, talc, kaolins, limestone,
25 lime, chalk, clays, dolomite, diatomaceous earth, bentonite, calcium sulfate, magnesium sulfate, magnesium oxide; polysaccharides, e.g. cellulose, starch; fertilizers, e.g. ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas; products of vegetable origin, e.g. cereal meal, tree bark meal, wood meal, nutshell meal, and mixtures thereof.

Suitable surfactants are surface-active compounds, such as anionic, cationic, nonionic and amphoteric
30 surfactants, ethoxylated fatty alcohols or their esters, ethoxylated-propoxylated fatty alcohols and their esters, fatty alcohol methyl esters, fatty alcohol methylester ethoxylates, EO-PO block co-polymers, alkylpolyglucosides, polyelectrolytes, and their mixtures thereof. Such surfactants can be used as emulsifiers, adjuvants, dispersant, solubilizer, wetter, penetration enhancer, protective colloid
Examples of surfactants are listed in McCutcheon's, Vol. 1: Emulsifiers & Detergents, McCutcheon's
35 Directories, Glen Rock, USA, 2008 (International Ed. or North American Ed.).

Suitable anionic surfactants are alkali, alkaline earth or ammonium salts of sulfonates, sulfates, phosphates, carboxylates, and mixtures thereof. Examples of sulfonates are alkylarylsulfonates, diphenylsulfonates, alpha-olefin sulfonates, ligno-sulfonates, sulfonates of fatty acids and oils, sulfonates of ethoxylated alkylphenols, sulfonates of alkoxyated arylphenols, sulfonates of condensed naphthalenes, sulfonates of dodecyl- and tridecylbenzenes, sulfonates of naphthalenes and alkyl naphthalenes, sulfosuccinates or sulfosuccinamates.

Suitable nonionic surfactants are alkoxyates, N-substituted fatty acid amides, amine oxides, esters, sugar-based surfactants, polymeric surfactants, and mixtures thereof. Examples of alkoxyates are compounds such as alcohols, alkylphenols, amines, amides, arylphenols, fatty acids or fatty acid esters which have been alkoxyated with 1 to 50 equivalents. Ethylene oxide and/or propylene oxide may be employed for the alkoxylation, preferably ethylene oxide. Examples of N-substituted fatty acid amides are fatty acid glucamides or fatty acid alkanolamides.

Examples of esters are fatty acid esters, glycerol esters or monoglycerides. Examples of sugar-based surfactants are sorbitans, ethoxylated sorbitans, sucrose and glucose esters or alkyl-polyglucosides. Examples of polymeric surfactants are homo- or copolymers of vinylpyrrolidone, vinylalcohols, or vinylacetate.

Suitable cationic surfactants are quaternary surfactants, for example quaternary ammonium compounds with one or two hydrophobic groups, or salts of long-chain primary amines. Suitable amphoteric surfactants are alkylbetains and imidazolines. Suitable block polymers are block polymers of the A-B or A-B-A type comprising blocks of polyethylene oxide and polypropylene oxide, or of the A-B—C type comprising alkanol, polyethylene oxide and polypropylene oxide.

Suitable polyelectrolytes are polyacids or polybases. Examples of polyacids are alkali salts of polyacrylic acid or polyacid comb polymers. Examples of polybases are polyvinylamines or polyethyleneamines. Suitable adjuvants are compounds, which have a neglectable or even no pesticidal activity themselves, and which improve the biological performance of the compound I or the mixture according to the invention on the target. Examples are surfactants, mineral or vegetable oils, and other auxiliaries. Further examples are listed by Knowles, Adjuvants and additives, Agrow Reports DS256, T&F Informa UK, 2006, chapter 5.

Suitable thickeners are polysaccharides (e.g. xanthan gum, carboxymethylcellulose), as clays, kaolines, (organically modified or unmodified), polycarboxylates, and silicates.

Suitable bactericides isothiazolinone derivatives such as alkylisothiazolinones and benzisothiazolinones are included to prevent the growth of bacteria and fungi.

Suitable anti-freezing agents are ethylene glycol, propylene glycol, and glycerin.

Suitable anti-foaming agents are silicones, long chain alcohols, and salts of fatty acids.

Suitable colorants, namely dyes and pigments of low water solubility and water-soluble dyes, are used for identification and consumer cues. Examples are inorganic colorants (e.g. iron oxide, titan oxide, iron hexacyanoferrate) and organic colorants (e.g. alizarin-, azo- and phthalocyanine colorants).

Thickeners and rheology modifiers often used for acceptable consumer preferred properties are polyvinylpyrrolidons, polyvinylacetates, polyvinyl alcohols, polyacrylates, biological or synthetic waxes, carboxymethyl celluloses and cellulose ethers or guar gum or its derivatives are used as thickeners and rheology modifiers.

Examples for composition types and their preparation are:

i) Water-Soluble Concentrates (SL, LS)

10 10-60 wt % of the pesticidal active mixture of the present invention and 5-15 wt % wetting agent (e.g. alcohol alkoxyates) are dissolved in water and/or in a water-soluble solvent up to 100 wt %. The active substance dissolves upon dilution with water.

ii) Emulsifiable Concentrates (EC)

15 15-70 wt % of the pesticidal active mixture of the present invention and 5-10 wt % emulsifiers (e.g. calcium dodecylbenzenesulfonate and castor oil ethoxylate) are dissolved in up to 100 wt % water-insoluble organic solvent (e.g. aromatic hydrocarbon). Dilution with water gives an emulsion.

iii) Emulsions (EW)

20 5-40 wt % of the pesticidal active mixture of the present invention and 1-10 wt % emulsifiers EO-PO copolymers of MW 5000-1000 are mixed with an organic solvent (5-75%) (e.g. light paraffin) and water (10-80%) to yield a translucent or opaque mixture which may be added to water to yield an emulsion of the active in water. are dissolved in 20-40 wt % water-insoluble organic solvent (e.g. aromatic hydrocarbon). This mixture is introduced into up to 100 wt % water by means of an emulsifying machine and made into a homogeneous emulsion. Dilution with water gives an emulsion.

iv) Suspensions (SC)

25 In an agitated ball mill, 20-60 wt % of the pesticidal active mixture of the present invention is comminuted with addition of 2-10 wt % dispersants and wetting agents (e.g. sodium lignosulfonate and alcohol ethoxylate), 0.1-2 wt % thickener (e.g. xanthan gum) and up to 100 wt % water to give a fine active substance suspension. Dilution with water gives a stable suspension of the active substance. For FS type composition up to 40 wt % binder (e.g. polyvinylalcohol) is added.

30 v) Water-Dispersible Granules and Water-Soluble Granules (WG, SG)

50-80 wt % of the pesticidal active mixture of the present invention is ground finely with addition of up to 100 wt % dispersants and wetting agents (e.g. sodium lignosulfonate and alcohol ethoxylate) and prepared as water-dispersible or water-soluble granules by means of technical appliances (e. g.

extrusion, spray tower, fluidized bed). Dilution with water gives a stable dispersion or solution of the active substance.

vi) Water-Dispersible Powders and Water-Soluble Powders (WP, SP, WS)

5 50-80 wt % of the pesticidal active mixture of the present invention is ground in a rotor-stator mill with addition of 1-5 wt % dispersants (e.g. sodium lignosulfonate), 1-3 wt % wetting agents (e.g. alcohol ethoxylate) and up to 100 wt % solid carrier, e.g. silica gel. Dilution with water gives a stable dispersion or solution of the active substance.

vii) Gel (GW, GF)

10 In an agitated ball mill, 5-25 wt % of the pesticidal active mixture of the present invention is comminuted with addition of 3-10 wt % dispersants (e.g. sodium lignosulfonate), 1-5 wt % thickener (e.g. carboxymethylcellulose) and up to 100 wt % water to give a fine suspension of the active substance. Dilution with water gives a stable suspension of the active substance.

viii) Microemulsion (ME)

15 5-20 wt % of the pesticidal active mixture of the present invention is added to 5-30 wt % organic solvent blend (e.g. fatty acid dimethylamide and cyclohexanone), 10-25 wt % surfactant blend (e.g. alcohol ethoxylate and arylphenol ethoxylate), and a cosurfactant (1-10%) (e.g. fatty alcohol or a long chain alkyl ester) and water up to 100%. This mixture is stirred for 1 h to produce spontaneously a thermodynamically stable microemulsion.

ix) Microcapsules (CS)

20 An oil phase comprising 5-50 wt % of the pesticidal active mixture of the present invention, 0-40 wt % water insoluble organic solvent (e.g. aromatic hydrocarbon), 2-15 wt % acrylic monomers (e.g. methylmethacrylate, methacrylic acid and a di- or triacrylate) are dispersed into an aqueous solution of a protective colloid (e.g. polyvinyl alcohol). Radical polymerization initiated by a radical initiator results in the formation of poly(meth)acrylate microcapsules. Alternatively, an oil phase comprising
25 5-50 wt % of a compound I according to the invention, 0-40 wt % water insoluble organic solvent (e.g. aromatic hydrocarbon), and an isocyanate monomer (e.g. diphenylmethene-4,4'-diisocyanate) are dispersed into an aqueous solution of a protective colloid (e.g. polyvinyl alcohol). The addition of a polyamine (e.g. hexamethylenediamine) results in the formation of a polyurea microcapsules. The monomers amount to 1-10 wt %. The wt % relate to the total CS composition.

30 x) Dustable Powders (DP, DS)

1-10 wt % of the pesticidal active mixture of the present invention is ground finely and mixed intimately with up to 100 wt % solid carrier, e.g. finely divided kaolin.

xi) Granules (GR, FG)

0.5-30 wt % of the pesticidal active mixture of the present invention is ground finely and associated with up to 100 wt % solid carrier (e.g. silicate). Granulation is achieved by extrusion, spray-drying or the fluidized bed.

xii) Ultra-Low Volume Liquids (UL)

- 5 1-50 wt % of the pesticidal active mixture of the present invention is dissolved in up to 100 wt % organic solvent, e.g. aromatic hydrocarbon.

The pesticidal active compositions generally comprise between 0.01 and 95%, preferably between 0.1 and 90%, and in particular between 0.5 and 75%, by weight of active substance. The active substances are employed in a purity of from 90% to 100%, preferably from 95% to 100% (according to NMR
10 spectrum).

In one embodiment, a suspoconcentration (SC) is preferred for the application in crop protection. In one sub-embodiment thereof, the SC agrochemical composition comprises between 50 to 500 g/L (grams per Litre), or between 100 and 250 g/L, or 100 g/L or 150 g/L or 200 g/L or 250 g/L.

Water-soluble concentrates (LS), Suspoemulsions (SE), flowable concentrates (FS), powders for dry
15 treatment (DS), water-dispersible powders for slurry treatment (WS), water-soluble powders (SS), emulsions (ES), emulsifiable concentrates (EC) and gels (GF) are usually employed for the purposes of treatment of plant propagation materials, particularly seeds. The compositions in question give, after two-to-tenfold dilution, active substance concentrations of from 0.01 to 60% by weight, preferably from 0.1 to 40% by weight, in the ready-to-use preparations.

20 Application can be carried out before or during sowing. Methods for applying the pesticidal active mixture of the present invention and compositions thereof, respectively, on to plant propagation material, especially seeds include dressing, coating, pelleting, dusting, soaking and in-furrow application methods of the propagation material. Preferably, the pesticidal active mixture of the present invention or the compositions thereof, respectively, are applied on to the plant propagation
25 material by a method such that germination is not induced, e. g. by seed dressing, pelleting, coating and dusting.

When employed in plant protection, the amounts of active substances applied are, depending on the kind of effect desired, from 0.001 to 5 kg per ha, preferably from 0.001 to 2 kg per ha, more preferably from 0.005 to 1 kg per ha, in particular from 0.005 to 0.5 kg per ha.

30 In treatment of plant propagation materials such as seeds, e. g. by dusting, coating or drenching seed, amounts of active substance of 0.1 to 1000 g, preferably from 0.1 to 300 g, more preferably from 0.1 to 100 g and most preferably from 0.25 to 100 g, per 100 kilogram of plant propagation material (preferably seed) are generally required.

When used in the protection of materials or stored products, the amount of active substance applied depends on the kind of application area and on the desired effect. Amounts customarily applied in the protection of materials are 0.001 g to 2 kg, preferably 0.005 g to 1 kg, of active substance per cubic meter of treated material.

- 5 Various types of oils, wetters, adjuvants, fertilizer, or micronutrients, and other pesticides (e.g. herbicides, insecticides, fungicides, growth regulators, safeners, biopesticides) may be added to the active substances or the compositions comprising them as premix or, if appropriate not until immediately prior to use (tank mix). These agents can be admixed with the compositions according to the invention in a weight ratio of 1:100 to 100:1, preferably 1:10 to 10:1.
- 10 Biopesticides are typically created by growing and concentrating naturally occurring organisms and/or their metabolites including bacteria and other microbes, fungi, viruses, nematodes, proteins, etc. They are often considered to be important components of integrated pest management (IPM) programmes and have received much practical attention as substitutes to synthetic chemical plant protection products (PPPs).
- 15 Another aspect of the present invention is when preparing the mixtures, it is preferred to employ the mixture according to the invention to which further active compounds, e.g. against harmful fungi or having herbicidal activity, or growth-regulating agents or fertilizers can be added.

Compositions of this invention may further contain other active ingredients than those listed above. For example, fungicides, herbicides, fertilizers such as ammonium nitrate, urea, potash, and
20 superphosphate, phytotoxicants and plant growth regulators and safeners. These additional ingredients may be used sequentially or in combination with the above-described compositions, if appropriate also added only immediately prior to use (tank mix). For example, the plant(s) may be sprayed with a composition of this invention either before or after being treated with other active ingredients.

Applications

- 25 Due to their excellent activity, the pesticidal active mixture according to the present invention or the composition comprising the mixture may be used for controlling invertebrate pests and or phytopathogenic fungi.

The pesticidal mixture according to the present invention comprising the compound of formula (I) and insecticidally active compound (II) or fungicidally active compound (III) can be applied
30 simultaneously, that is jointly or separately, or in succession, that is immediately one after another and thereby creating the mixture “in-situ” on the desired location, as e.g. the plant, the sequence, in the case of separate application, generally not having any effect on the result of the control measures.

In a binary mixtures the pesticidal active mixture and composition according to the present invention comprising the compound of formula (I) and insecticidally active compound (II) or fungicidally active

compound (III) are usually applied in a weight ratio of from 5000:1 to 1:5000, preferably from 1000:1 to 1:1000, more preferably from 500:1 to 1:500 and 125:1 to 1:125, particularly preferably from 25:1 to 1:25 and specifically preferable from 10:1 to 1:10, 5:1 to 1:5, 3:1 to 1:3 or 2:1 to 1:2. In such binary mixtures, compound (I) and (II) or (III) maybe used in equal amounts, or an excess of compound (I), or an excess of compound (II) or (III) may be used.

Depending on the desired effect, the application rates of the mixture according to the invention are from 5 g/ha to 5000 g/ha, preferably from 0.5 g/ha to 1000 g/ha, more preferably from 1g/ha to 750 g/ha, in particular from 5 g/ha to 500 g/ha and 5 g/ha to 200 g/ha.

The pesticidal active mixture according to the present invention or the composition comprising the mixture is effective through both contact and ingestion.

The pesticidal active mixture according to the present invention or the composition comprising the mixture can be applied to any and all developmental stages, such as egg, larva, pupa, and adult. The pests may be controlled by contacting the target pest, its food supply, habitat, breeding ground or its locus with a pesticidally effective amount of the inventive pesticidally active mixture or of compositions comprising the mixture.

According to a preferred embodiment, the pesticidal active mixture according to the present invention or the composition comprising the mixture is used in crop protection, especially for the protection of living plants.

According to another specific embodiment of the invention, the pesticidal active mixture according to the present invention is employed via soil application. Soil application is especially favorable for use against ants, termites, crickets, or cockroaches.

According to another embodiment of the invention, for use against non crop pests such as ants, termites, wasps, flies, mosquitoes, crickets, locusts, or cockroaches, the pesticidal active mixture according to the present invention is prepared into a bait preparation.

The bait can be a liquid, a solid or a semisolid preparation (e.g. a gel).

The animal pest (also referred to as “invertebrate pest”), i.e. the insects, arachnids and nematodes, the plant, soil or water in which the plant is growing can be contacted with the pesticidal active mixture according to the invention or composition(s) comprising the mixture by any application method known in the art. As such, “contacting” includes both direct contact (applying the compounds/compositions directly on the animal pest or plant—typically to the foliage, stem or roots of the plant) and indirect contact (applying the compounds/mixtures/compositions to the locus of the animal pest or plant).

The pesticidal active mixture according to the present invention or the pesticidal composition comprising the mixture may be used to protect growing plants and crops from attack or infestation by

animal pests, especially insects, acaridae or arachnids by contacting the plant/crop with a pesticidal effective amount of the mixture according to the invention. The term “crop” refers both to growing and harvested crops.

5 The pesticidal active mixture according to the present invention and the compositions comprising the mixture are particularly important in the control of a multitude of insects on various cultivated plants, such as cereal, root crops, oil crops, vegetables, spices, ornamentals, for example seed of durum and other wheat, barley, oats, rye, maize (fodder maize and sugar maize/sweet and field corn), soybeans, oil crops, crucifers, cotton, sunflowers, bananas, rice, oilseed rape, turnip rape, sugarbeet, fodder beet, eggplants, potatoes, grass, lawn, turf, fodder grass, tomatoes, leeks, pumpkin/squash, cabbage, iceberg
10 lettuce, pepper, cucumbers, melons, *Brassica* species, melons, beans, peas, garlic, onions, carrots, tuberous plants such as potatoes, sugar cane, tobacco, grapes, petunias, geranium/pelargoniums, pansies and impatiens.

The pesticidal active mixture according to the present invention is employed as such or in form of compositions by treating the insects or the plants, plant propagation materials, such as seeds, soil,
15 surfaces, materials or rooms to be protected from insecticidal attack with an insecticidally effective amount of the active compounds. The application can be carried out both before and after the infection of the plants, plant propagation materials, such as seeds, soil, surfaces, materials or rooms by the insects.

The present invention also includes a method of combating animal pests which comprises contacting
20 the animal pests, their habitat, breeding ground, food supply, cultivated plants, seed, soil, area, material or environment in which the animal pests are growing or may grow, or the materials, plants, seeds, soils, surfaces or spaces to be protected from animal attack or infestation with a pesticidally effective amount of a mixture of at least one active compound I and at least one active compound II.

Moreover, animal pests may be controlled by contacting the target pest, its food supply, habitat,
25 breeding ground or its locus with a pesticidal effective amount of a mixture according to the invention. As such, the application may be carried out before or after the infection of the locus, growing crops, or harvested crops by the pest.

The pesticidal active mixture according to the present invention or the composition comprising the mixture can also be applied preventively to places at which occurrence of the pests is expected.

30 The pesticidal active mixture according to the present invention or the composition comprising the mixture may be also used to protect growing plants from attack or infestation by pests by contacting the plant with a pesticidally effective amount of a mixture according to the invention. As such, “contacting” includes both direct contact (applying the compounds/compositions directly on the pest and/or plant—typically to the foliage, stem or roots of the plant) and indirect contact (applying the
35 mixtures according to the invention/compositions to the locus of the pest and/or plant).

“Locus” means a habitat, breeding ground, plant, seed, soil, area, material or environment in which a pest or parasite is growing or may grow.

The term “plant propagation material” is to be understood to denote all the generative parts of the plant such as seeds and vegetative plant material such as cuttings and tubers (e. g. potatoes), which
5 can be used for the multiplication of the plant. This includes seeds, roots, fruits, tubers, bulbs, rhizomes, shoots, sprouts and other parts of plants. Seedlings and young plants, which are to be transplanted after germination or after emergence from soil, may also be included. These plant propagation materials may be treated prophylactically with a plant protection compound either at or before planting or transplanting.

10 The term “cultivated plants” is to be understood as including plants which have been modified by breeding, mutagenesis or genetic engineering. Genetically modified plants are plants, the genetic material of which has been so modified by the use of recombinant DNA techniques that under natural circumstances cannot readily be obtained by cross breeding, mutations or natural recombination. Typically, one or more genes have been integrated into the genetic material of a genetically modified
15 plant in order to improve certain properties of the plant. Such genetic modifications also include but are not limited to targeted post-translational modification of protein(s) (oligo- or polypeptides) for example by glycosylation or polymer additions such as prenylated, acetylated or farnesylated moieties or PEG moieties (e.g. as disclosed in *Biotechnol Prog.* 2001 July-August; 17(4):720-8., *Protein Eng Des Sel.* 2004 January; 17(1):57-66, *Nat Protoc.* 2007; 2(5): 1225-35., *Curr Opin Chem Biol.* 2006
20 October; 10(5):487-91. *Epub* 2006 August 28., *Biomaterials.* 2001 March; 22(5):405-17, *Bioconjug Chem.* 2005 January-February; 16(1):113-21).

The term “cultivated plants” is to be understood also including plants that have been rendered tolerant to applications of specific classes of herbicides, such as hydroxy-phenylpyruvate dioxygenase (HPPD) inhibitors; acetolactate synthase (ALS) inhibitors, such as sulfonyl ureas (see e. g. U.S. Pat.
25 No. 6,222,100, WO 01/82685, WO 00/26390, WO 97/41218, WO 98/02526, WO 98/02527, WO 04/106529, WO 05/20673, WO 03/14357, WO 03/13225, WO 03/14356, WO 04/16073) or imidazolinones (see e. g. U.S. Pat. No. 6,222,100, WO 01/82685, WO 00/26390, WO 97/41218, WO 98/02526, WO 98/02527, WO 04/106529, WO 05/20673, WO 03/14357, WO 03/13225, WO 03/14356, WO 04/16073); enolpyruvylshikimate-3-phosphate synthase (EPSPS) inhibitors, such as
30 glyphosate (see e. g. WO 92/00377); glutamine synthetase (GS) inhibitors, such as glufosinate (see e. g. EP-A-0242236, EP-A-242246) or oxynil herbicides (see e. g. U.S. Pat. No. 5,559,024) as a result of conventional methods of breeding or genetic engineering. Several cultivated plants have been rendered tolerant to herbicides by conventional methods of breeding (mutagenesis), for example Clearfield® summer rape (Canola) being tolerant to imidazolinones, e. g. imazamox. Genetic
35 engineering methods have been used to render cultivated plants, such as soybean, cotton, corn, beets

and rape, tolerant to herbicides, such as glyphosate and glufosinate, some of which are commercially available under the trade names RoundupReady® (glyphosate) and LibertyLink® (glufosinate).

The term “cultivated plants” is to be understood also including plants that are by the use of recombinant DNA techniques capable to synthesize one or more insecticidal proteins, especially those known from the bacterial genus *Bacillus*, particularly from *Bacillus thuringiensis*, such as ä-endotoxins, e. g. CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) or Cry9c; vegetative insecticidal proteins (VIP), e. g. VIP1, VIP2, VIP3 or VIP3A; insecticidal proteins of bacteria colonizing nematodes, for example *Photorhabdus* spp. or *Xenorhabdus* spp.; toxins produced by animals, such as scorpion toxins, arachnid toxins, wasp toxins, or other insect-specific neurotoxins; toxins produced by fungi, such Streptomycetes toxins, plant lectins, such as pea or barley lectins; agglutinins; proteinase inhibitors, such as trypsin inhibitors, serine protease inhibitors, patatin, cystatin or papain inhibitors; ribosome-inactivating proteins (RIP), such as ricin, maize-RIP, abrin, luffin, saporin or bryodin; steroid metabolism enzymes, such as 3-hydroxysteroid oxidase, ecdysteroid-IDP-glycosyl-transferase, cholesterol oxidases, ecdysone inhibitors or HMG-CoA-reductase; ion channel blockers, such as blockers of sodium or calcium channels; juvenile hormone esterase; diuretic hormone receptors (helicokinin receptors); stilben synthase, bibenzyl synthase, chitinases or glucanases. In the context of the present invention these insecticidal proteins or toxins are to be understood expressly also as pre-toxins, hybrid proteins, truncated or otherwise modified proteins. Hybrid proteins are characterized by a new combination of protein domains, (see, for example WO 02/015701). Further examples of such toxins or genetically modified plants capable of synthesizing such toxins are disclosed, for example, in EP-A 374 753, WO 93/007278, WO 95/34656, EP-A 427 529, EP-A 451 878, WO 03/018810 und WO 03/052073.

The methods for producing such genetically modified plants are generally known to the person skilled in the art and are described, for example, in the publications mentioned above. These insecticidal proteins, contained in the genetically modified plants, impart to the plants producing these proteins protection from harmful pests from certain taxonomic groups of arthropods, particularly to beetles (Coleoptera), flies (Diptera), and butterflies and moths (Lepidoptera) and to plant parasitic nematodes (Nematoda).

The term “cultivated plants” is to be understood also including plants that are by the use of recombinant DNA techniques capable to synthesize one or more proteins to increase the resistance or tolerance of those plants to bacterial, viral or fungal pathogens. Examples of such proteins are the so-called “pathogenesis-related proteins” (PR proteins, see, for example EP-A 0 392 225), plant disease resistance genes (for example potato cultivars, which express resistance genes acting against *Phytophthora infestans* derived from the mexican wild potato *Solanum bulbocastanum*) or T4-lyso-zym (e. g. potato cultivars capable of synthesizing these proteins with increased resistance against bacteria such as *Erwinia amylovora*). The methods for producing such genetically modified

plants are generally known to the person skilled in the art and are described, for example, in the publications mentioned above.

The term “cultivated plants” is to be understood also including plants that are by the use of recombinant DNA techniques capable to synthesize one or more proteins to increase the productivity (e. g. bio mass production, grain yield, starch content, oil content or protein content), tolerance to drought, salinity or other growth-limiting environmental factors or tolerance to pests and fungal, bacterial or viral pathogens of those plants.

The term “cultivated plants” is to be understood also including plants that contain by the use of recombinant DNA techniques a modified amount of substances of content or new substances of content, specifically to improve human or animal nutrition, for example oil crops that produce health-promoting long-chain omega-3 fatty acids or unsaturated omega-9 fatty acids (e. g. Nexera® rape).

The term “cultivated plants” is to be understood also including plants that contain by the use of recombinant DNA techniques a modified amount of substances of content or new substances of content, specifically to improve raw material production, for example potatoes that produce increased amounts of amylopectin (e. g. Amflora® potato).

In general, “pesticidally effective amount” means the amount of active ingredients or mixture according to the invention needed to achieve an observable effect on growth, including the effects of necrosis, death, retardation, prevention, and removal, destruction, or otherwise diminishing the occurrence and activity of the target organism. The pesticidally effective amount can vary for the various mixtures/compositions used in the invention. A pesticidally effective amount of the compositions will also vary according to the prevailing conditions such as desired pesticidal effect and duration, weather, target species, locus, mode of application, and the like.

In the case of foliar treatment, the quantity of active ingredient ranges from 0.01 to 5000 g per hectare, e.g. from 0,1 g to 2000 g per hectare or from 1 g to 500 g per ha, desirably from 10 g to 200 g per hectare, preferably from 15 to 100 g per hectare, or from 20 to 80 g per hectare, or from 10 to 60 g per hectare, or from 20 to 50 g per hectare, or from 30 to 50 g per hectare, or from 40 to 50 g per hectare.

In the case of soil treatment or of application to the pests dwelling place or nest, the quantity of active ingredient ranges from 0.0001 to 500 g per 100 m², preferably from 0.001 to 20 g per 100 m².

Customary application rates in the protection of materials are, for example, from 0.01 g to 1000 g of active compounds per m² treated material, desirably from 0.1 g to 50 g per m².

Insecticidal compositions for use in the impregnation of materials typically contain from 0.001 to 95 weight %, preferably from 0.1 to 45 weight %, and more preferably from 1 to 25 weight % of at least one repellent and/or insecticide.

The pesticidal active mixture according to the invention or the composition comprising the mixture is effective through both contact (via soil, glass, wall, bed net, carpet, plant parts or animal parts), and ingestion (bait, or plant part).

5 The pesticidal active mixture according to the invention or the composition comprising the mixture may also be applied against non-crop insect pests, such as ants, termites, wasps, flies, mosquitos, crickets, or cockroaches. For use against said non-crop pests, the pesticidal active mixture according to the invention or the composition comprising the mixture is preferably used in a bait composition.

The bait employed in the composition is a product, which is sufficiently attractive to incite insects such as ants, termites, wasps, flies, mosquitos, crickets etc. or cockroaches to eat it.

10 The attractiveness can be manipulated by using feeding stimulants or sex pheromones. Food stimulants are chosen, for example, but not exclusively, from animal and/or plant proteins (meat-, fish- or blood meal, insect parts, egg yolk), from fats and oils of animal and/or plant origin, or mono-, oligo- or polyorganosaccharides, especially from sucrose, lactose, fructose, dextrose, glucose, starch, pectin or even molasses or honey. Fresh or decaying parts of fruits, crops, plants, animals, insects or
15 specific parts thereof can also serve as a feeding stimulant.

Sex pheromones are known to be more insect specific. Specific pheromones are described in the literature and are known to those skilled in the art.

For use in bait compositions, the typical content of active ingredients is from 0.001 weight % to 15 weight %, desirably from 0.001 weight % to 5% weight % of active compounds.

20 Formulations of the pesticidal active mixture according to the invention as aerosols (e.g in spray cans), oil sprays or pump sprays are highly suitable for the non-professional user for controlling pests such as flies, fleas, ticks, mosquitos or cockroaches. Aerosol recipes are preferably composed of the active compound(s), solvents such as lower alcohols (e.g. methanol, ethanol, propanol, butanol), ketones (e.g. acetone, methyl ethyl ketone), paraffin hydrocarbons (e.g. kerosenes) having boiling
25 ranges of approximately 50 to 250°C., dimethylformamide, N-methylpyrrolidone, dimethyl sulfoxide, aromatic hydrocarbons such as toluene, xylene, water, furthermore auxiliaries such as emulsifiers such as sorbitol monooleate, oleyl ethoxylate having 3-7 mol of ethylene oxide, fatty alcohol ethoxylate, perfume oils such as ethereal oils, esters of medium fatty acids with lower alcohols, aromatic carbonyl compounds, if appropriate stabilizers such as sodium benzoate, amphoteric
30 surfactants, lower epoxides, triethyl orthoformate and, if required, propellants such as propane, butane, nitrogen, compressed air, dimethyl ether, carbon dioxide, nitrous oxide, or mixtures of these gases.

The oil spray formulations differ from the aerosol recipes in that no propellants are used.

For use in spray compositions, the content of active ingredient is from 0.001 to 80 weights %, preferably from 0.01 to 50 weight % and most preferably from 0.01 to 15 weight %.

The pesticidally active mixture according to the invention and composition comprising the mixture can also be used in mosquito and fumigating coils, smoke cartridges, vaporizer plates or long-term vaporizers and also in moth papers, moth pads or other heat-independent vaporizer systems.

Methods to control insects causing infectious diseases (e.g. malaria, dengue and yellow fever, lymphatic filariasis, and leishmaniasis) with pesticidally active mixture according to the invention and their respective compositions also comprise treating surfaces of huts and houses, air spraying and impregnation of curtains, tents, clothing items, bed nets, tsetse-fly trap or the like. Insecticidal compositions for application to fibers, fabric, knitgoods, nonwovens, netting material or foils and tarpaulins preferably comprise a mixture including the insecticide, optionally a repellent and at least one binder. Suitable repellents for example are N,N-Diethyl-meta-toluamide (DEET), N,N-diethylphenylacetamide (DEPA), 1-(3-cyclohexan-1-yl-carbonyl)-2-methylpiperine, (2-hydroxymethylcyclohexyl) acetic acid lactone, 2-ethyl-1,3-hexandiol, indalone, Methylneodecanamide (MNDA), a pyrethroid not used for insect control such as {(+/-)-3-allyl-2-methyl-4-oxocyclopent-2-(+)-enyl-(+)-trans-chrysantemate (Esbiothrin), a repellent derived from or identical with plant extracts like limonene, eugenol, (+)-Eucamalol (1), (-)-1-epi-eucamalol or crude plant extracts from plants like *Eucalyptus maculata*, *Vitex rotundifolia*, *Cymbopogon martinii*, *Cymbopogon citratus* (lemon grass), *Cymopogon nardus* (citronella).

Suitable binders are selected for example from polymers and copolymers of vinyl esters of aliphatic acids (such as such as vinyl acetate and vinyl versatate), acrylic and methacrylic esters of alcohols, such as butyl acrylate, 2-ethylhexylacrylate, and methyl acrylate, mono- and di-ethylenically unsaturated hydrocarbons, such as styrene, and aliphatic diens, such as butadiene.

The pesticidal active mixture according to the present invention and the composition comprising the same can be used for protecting wooden materials such as trees, board fences, sleepers, etc. and buildings such as houses, outhouses, factories, but also construction materials, furniture, leathers, fibers, vinyl articles, electric wires and cables etc. from ants and/or termites, and for controlling ants and termites from doing harm to crops or human being (e.g. when the pests invade into houses and public facilities). The pesticidal active mixture according to the invention or the composition comprising the mixture is applied not only to the surrounding soil surface or into the under-floor soil in order to protect wooden materials but it can also be applied to lumbered articles such as surfaces of the under-floor concrete, alcove posts, beams, plywoods, furniture, etc., wooden articles such as particle boards, half boards, etc. and vinyl articles such as coated electric wires, vinyl sheets, heat insulating material such as styrene foams, etc. In case of application against ants doing harm to crops

or human beings, the ant controller of the present invention is applied to the crops or the surrounding soil or is directly applied to the nest of ants or the like.

Seed Treatment

5 The pesticidal active mixture according to the present invention or the composition comprising the mixture is also suitable for the treatment of seeds in order to protect the seed from insect pests, in particular from soil-living insect pests and the resulting plant's roots and shoots against soil pests and foliar insects.

10 The pesticidal active mixture according to the present invention or the composition comprising the mixture is particularly useful for the protection of the seed from soil pests and the resulting plant's roots and shoots against soil pests and foliar insects.

The protection of the resulting plant's roots and shoots is preferred. More preferred is the protection of resulting plant's shoots from piercing and sucking insects.

15 The present invention therefore comprises a method for the protection of seeds from insects, in particular from soil insects and of the seedlings' roots and shoots from insects, in particular from soil and foliar insects, said method comprising contacting the seeds before sowing and/or after pregermination with a mixture according to the invention. Particularly preferred is a method, wherein the plant's roots and shoots are protected, more preferably a method, wherein the plants shoots are protected from piercing and sucking insects, most preferably a method, wherein the plants shoots are protected from aphids. Also preferred is a method, wherein the plant's roots and shoots are protected
20 from chewing and biting insects, most preferably a method, wherein the plants shoots and roots are protected from Lepidoptera and/or Coleoptera, most preferably wherein the plant shoots and roots are protected from rice leaf beetles.

25 The term seed embraces seeds and plant propagules of all kinds including but not limited to true seeds, seed pieces, suckers, corms, bulbs, fruit, tubers, grains, cuttings, cut shoots and the like and means in a preferred embodiment true seeds.

The term seed treatment comprises all suitable seed treatment techniques known in the art, such as seed dressing, seed coating, seed dusting, seed soaking and seed pelleting.

The present invention also comprises seeds coated with or containing the pesticidal active mixture according to the invention.

30 The term "coated with and/or containing" generally signifies that the active ingredient is for the most part on the surface of the propagation product at the time of application, although a greater or lesser part of the ingredient may penetrate into the propagation product, depending on the method of application. When the said propagation product is (re)planted, it may absorb the active ingredient.

Suitable seed is seed of cereals, root crops, oil crops, vegetables, spices, ornamentals, for example seed of durum and other wheat, barley, oats, rye, maize (fodder maize and sugar maize/sweet and field corn), soybeans, oil crops, crucifers, cotton, sunflowers, bananas, rice, oilseed rape, turnip rape, sugarbeet, fodder beet, eggplants, potatoes, grass, lawn, turf, fodder grass, tomatoes, leeks, pumpkin/squash, cabbage, iceberg lettuce, pepper, cucumbers, melons, *Brassica* species, melons, beans, peas, garlic, onions, carrots, tuberous plants such as potatoes, sugar cane, tobacco, grapes, petunias, geranium/pelargoniums, pansies and impatiens.

In addition, the pesticidal active mixture according to the present invention or the composition comprising the mixture may also be used for the treatment of seeds from plants, which tolerate the action of herbicides or fungicides or insecticides owing to breeding, including genetic engineering methods.

For example, the pesticidal active mixture according to the invention or the composition comprising the mixture can be employed in treatment of seeds from plants, which are resistant to herbicides from the group consisting of the sulfonylureas, imidazolinones, glufosinate-ammonium or glyphosate-isopropylammonium and analogous active substances (see for example, EP-A 242 236, EP-A 242 246) (WO 92/00377) (EP-A 257 993, U.S. Pat. No. 5,013,659) or in transgenic crop plants, for example cotton, with the capability of producing *Bacillus thuringiensis* toxins (Bt toxins) which make the plants resistant to certain pests (EP-A 142 924, EP-A 193 259),

Furthermore, the pesticidal active mixture according to the present invention or the composition comprising the mixture can also be used for the treatment of seeds from plants, which have modified characteristics in comparison with existing plants, which can be generated for example by traditional breeding methods and/or the generation of mutants, or by recombinant procedures. For example, a number of cases have been described of recombinant modifications of crop plants for the purpose of modifying the starch synthesized in the plants (e.g. WO 92/11376, WO 92/14827, WO 91/19806) or of transgenic crop plants having a modified fatty acid composition (WO 91/13972).

The seed treatment application of the active compounds is carried out by spraying or by dusting the seeds before sowing of the plants and before emergence of the plants.

Compositions which are especially useful for seed treatment are e.g.:

Soluble concentrates (SL, LS)

Emulsions (EW, EO, ES)

E Suspensions (SC, OD, FS)

Water-dispersible granules and water-soluble granules (WG, SG)

Water-dispersible powders and water-soluble powders (WP, SP, WS)

Gel-formulations (GF)

Dustable powders (DP, DS)

Conventional seed treatment formulations include for example flowable concentrates FS, solutions LS, powders for dry treatment DS, water dispersible powders for slurry treatment WS, water-soluble powders SS and emulsion ES and EC and gel formulation GF. These formulations can be applied to the seed diluted or undiluted. Application to the seeds is carried out before sowing, either directly on the seeds or after having pregerminated the latter

In a preferred embodiment a FS formulation is used for seed treatment. Typically, a FS formulation may comprise 1-800 g/l of active ingredient, 1-200 g/l Surfactant, 0 to 200 g/l antifreezing agent, 0 to 400 g/l of binder, 0 to 200 g/l of a pigment and up to 1 liter of a solvent, preferably water.

Especially preferred FS formulations comprising compounds of formula (I), compounds (II) or the pesticidal active mixture according to the invention, for seed treatment usually comprise from 0.1 to 80% by weight (1 to 800 g/l) of the active ingredient, from 0.1 to 20% by weight (1 to 200 g/l) of at least one surfactant, e.g. 0.05 to 5% by weight of a wetter and from 0.5 to 15% by weight of a dispersing agent, up to 20% by weight, e.g. from 5 to 20% of an anti-freeze agent, from 0 to 15% by weight, e.g. 1 to 15% by weight of a pigment and/or a dye, from 0 to 40% by weight, e.g. 1 to 40% by weight of a binder (sticker/adhesion agent), optionally up to 5% by weight, e.g. from 0.1 to 5% by weight of a thickener, optionally from 0.1 to 2% of an anti-foam agent, and optionally a preservative such as a biocide, antioxidant or the like, e.g. in an amount from 0.01 to 1% by weight and a filler/vehicle up to 100% by weight.

Seed Treatment formulations may additionally also comprise binders and optionally colorants. Binders can be added to improve the adhesion of the active materials on the seeds after treatment. Suitable binders are homo- and copolymers from alkylene oxides like ethylene oxide or propylene oxide, polyvinylacetate, polyvinylalcohols, polyvinylpyrrolidones, and copolymers thereof, ethylene-vinyl acetate copolymers, acrylic homo- and copolymers, polyethyleneamines, polyethyleneamides and polyethyleneimines, polysaccharides like celluloses, tylose and starch, polyolefin homo- and copolymers like olefin/maleic anhydride copolymers, polyurethanes, polyesters, polystyrene homo and copolymers

Optionally, also colorants can be included in the formulation. Suitable colorants or dyes for seed treatment formulations are Rhodamin B, C.I. Pigment Red 112, C.I. Solvent Red 1, pigment blue 15:4, pigment blue 15:3, pigment blue 15:2, pigment blue 15:1, pigment blue 80, pigment yellow 1, pigment yellow 13, pigment red 112, pigment red 48:2, pigment red 48:1, pigment red 57:1, pigment red 53:1, pigment orange 43, pigment orange 34, pigment orange 5, pigment green 36, pigment green 7, pigment white 6, pigment brown 25, basic violet 10, basic violet 49, acid red 51, acid red 52, acid red 14, acid blue 9, acid yellow 23, basic red 10, basic red 108.

Examples of a gelling agent is carrageen (Satiagel®)

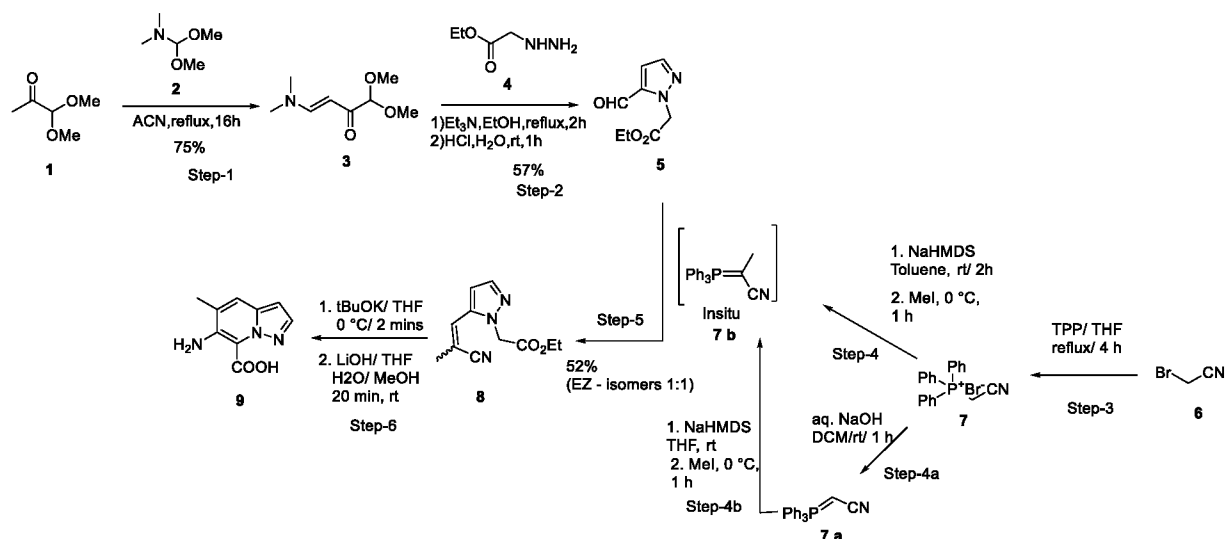
In the treatment of seed, the application rates of the compounds I are generally from 0.1 g to 10 kg per 100 kg of seed, preferably from 1 g to 5 kg per 100 kg of seed, more preferably from 1 g to 1000 g per 100 kg of seed and in particular from 1 g to 200 g per 100 kg of seed.

- 5 The present invention therefore also relates to seed comprising a compound of the formula (I), or an agriculturally useful salt of compound of formula (I), as defined herein.

The amount of the compound of formula (I) or the agriculturally useful salt thereof will in general vary from 0.1 g to 10 kg per 100 kg of seed, preferably from 1 g to 5 kg per 100 kg of seed, in particular from 1 g to 1000 g per 100 kg of seed. For specific crops such as lettuce the rate can be higher.

Without further elaboration, it is reasonable to believe that any person skilled in the art who is using the preceding description can utilize the present invention to its fullest extent. The following examples are therefore to be interpreted as merely illustrative and not limiting of the disclosure in any way whatever.

15 CHEMISTRY EXAMPLES:



Preparation of 6-amino-5-methylpyrazolo[1,5-a]pyridine-7-carboxylic acid:

Step-1: Preparation of (E)-4-(dimethylamino)-1,1-dimethoxybut-3-en-2-one:

- 20 A mixture of 1,1-dimethoxypropan-2-one (10 g, 85 mmol) and 1,1-dimethoxy-*N,N*-dimethylmethanamine (10.1 g, 85 mmol) was heated at 90 °C for 16 h. After completion of the reaction, the reaction mass was concentrated, and the crude product (E)-4-(dimethylamino)-1,1-dimethoxybut-3-en-2-one (11 g, 63.5 mmol, 75 % yield) was obtained after concentration, which was

used in next step without any purification. ¹H-NMR (400 MHz, CHLOROFORM-D) δ 7.72 (d, J = 12.8 Hz, 1H), 5.33 (d, J = 12.2 Hz, 1H), 4.57 (s, 1H), 3.36-3.43 (m, 6H), 3.05-3.10 (m, 3H), 2.86 (d, J = 6.1 Hz, 3H).

Step-2: Preparation of ethyl 2-(5-formyl-1H-pyrazol-1-yl)acetate:

5 To a stirred solution of (E)-4-(dimethylamino)-1,1-dimethoxybut-3-en-2-one (5 g, 28.9 mmol) in ethanol (50 mL), ethyl aminoglycinate hydrochloride (4.46 g, 28.9 mmol) and triethyl amine (5.2 mL, 37.5 mmol) were added at 80 °C. The resulting reaction mixture was stirred for 16 h at reflux temperature. After completion of the reaction, the reaction mixture was concentrated, acidified with 2N hydrochloric acid and extracted twice with ethyl acetate (100 mL). The combined ethyl acetate
10 layers were dried over anhydrous sodium sulfate and purified with flash column chromatography (Alumina) with elution of 20% ethyl acetate in hexane to obtain ethyl 2-(5-formyl-1H-pyrazol-1-yl)acetate (3 g, 16.5 mmol, 57% yield). ¹H-NMR (400 MHz, CHLOROFORM-D) δ 9.84 (s, 1H), 7.63 (d, J = 2.2 Hz, 1H), 6.97 (d, J = 2.0 Hz, 1H), 5.32 (d, J = 19.6 Hz, 2H), 4.22 (q, J = 7.2 Hz, 2H), 1.27 (t, J = 7.1 Hz, 3H).

15 **Step-3: (Cyanomethyl)triphenylphosphonium bromide:**

To a stirred solution of triphenylphosphane (219 g, 834 mmol) in tetrahydrofuran, 2-bromoacetonitrile (58.1 ml, 834 mmol) was added at room temperature. The reaction mixture was heated at reflux for 4 h. The reaction mixture was cooled to room temperature and the precipitated solid was isolated by filtration. The solid was washed with cold tetrahydrofuran and dried under vacuum to
20 obtain (cyanomethyl)triphenylphosphonium bromide (305 g, 798 mmol, 96 % yield).

Step-4 and Step-5: Ethyl 2-(5-(2-cyanoprop-1-en-1-yl)-1H-pyrazol-1-yl)acetate

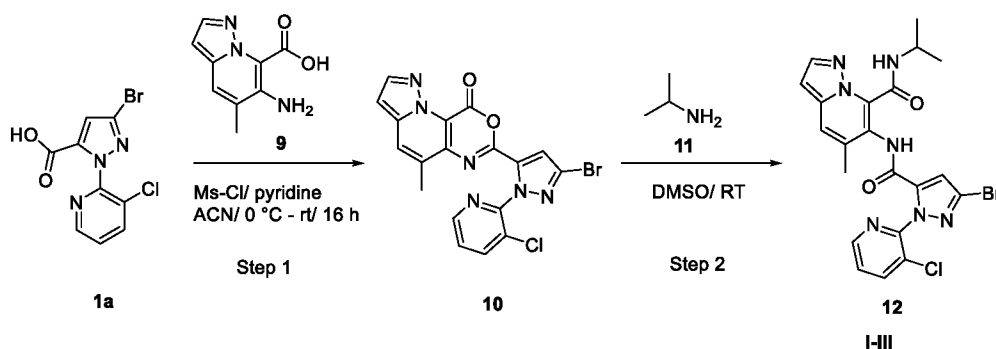
To a stirred solution of (cyanomethyl)triphenylphosphonium bromide (151 g, 395 mmol) in toluene (1000 ml), sodium hexamethyl disilazane (35% in THF) (414 g, 790 mmol) was added at 15 °C. The reaction mixture was stirred at 25 °C for 2 h. Iodomethane (61.8 ml, 988 mmol) was added drop-wise
25 at 0 °C to the reaction mixture, and stirring was continued at 25 °C for 1 h. Ethyl 2-(5-formyl-1H-pyrazol-1-yl)acetate (45 g, 247 mmol) was added to the above reaction mixture and stirring was continued for 1 h at 25 °C. After completion of the reaction, the reaction mixture was dissolved in water and extracted with ethyl acetate. Combined ethyl acetate layers were washed with water and brine and dried over anhydrous sodium sulphate. Solvent was removed under reduced pressure to
30 obtain the crude compound. The crude product was purified by column chromatography using 20% ethyl acetate in hexane to obtain ethyl 2-(5-(2-cyanoprop-1-en-1-yl)-1H-pyrazol-1-yl)acetate (36.2 g, 165 mmol, 66.8 % yield). ¹H-NMR (400 MHz, CHLOROFORM-D) δ 7.62-7.59 (1H), 6.95-6.90 (1H), 6.53-6.46 (1H), 4.97 (s, 2H), 4.25 (d, J = 7.2 Hz, 2H), 2.16 (d, J = 1.5 Hz, 3H), 1.30 (t, J = 7.1 Hz, 3H) and ethyl (Z)-2-(5-(2-cyanoprop-1-en-1-yl)-1H-pyrazol-1-yl)acetate (30 mg, 0.137 mmol, 25

% yield) ¹H-NMR (400 MHz, CHLOROFORM-D) δ 7.58 (dd, J = 2.1, 0.6 Hz, 1H), 7.16 (d, J = 2.1 Hz, 1H), 6.70-6.71 (m, 1H), 4.97 (s, 2H), 4.21-4.26 (m, 2H), 2.16 (d, J = 1.7 Hz, 3H), 1.26-1.29 (m, 3H).

Step-6: Preparation of ethyl 6-amino-5-methylpyrazolo[1,5-a]pyridine-7-carboxylate:

- 5 To a stirred solution of ethyl 2-(5-(2-cyanoprop-1-en-1-yl)-1H-pyrazol-1-yl)acetate (18 g, 82 mmol) in tetrahydrofuran (200 ml), potassium tert-butoxide (18.43 g, 164 mmol) was added at 0 °C. The reaction mixture was stirred at 25 °C. After 20 min, methanol (50 ml) followed by water (100 ml) was added to the reaction mixture. Then the reaction mixture was stirred at 25 °C for 2 h. After completion of the reaction, the solvent from the reaction mixture was evaporated under reduced pressure. Then
- 10 reaction mixture was acidified with hydrochloric acid (30.1 ml, 181 mmol). The precipitated solid was filtered and dried to obtain a crude reaction product. The crude product was purified by column chromatography to obtain 6-amino-5-methylpyrazolo[1,5-a]pyridine-7-carboxylic acid (3 g, 15.69 mmol, 19.11 % yield). ¹H-NMR (400 MHz, DMSO-*d*₆) δ 15.67 (s, 1H), 7.92 (d, J = 2.7 Hz, 1H), 7.70 (d, J = 1.0 Hz, 1H), 7.39 (s, 2H), 6.63 (d, J = 2.4 Hz, 1H), 2.25 (d, J = 1.0 Hz, 3H).

- 15 **Preparation of 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide:**



- 20 **Step-1: 7-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl)-5-methyl-9H-pyrazolo[1',5':1,6]pyrido[3,2-d][1,3]oxazin-9-one:**

- Methane sulfonyl chloride (1.391 ml, 17.85 mmol) was dissolved in acetonitrile (20 mL) and the mixture was cooled to 0 °C. A solution of 3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxylic acid (3 g, 9.92 mmol) and pyridine (1.444 ml, 17.85 mmol) in acetonitrile (20 ml) was added under stirring at 0 °C. Stirring at 0 °C was continued for 15 min, and a mixture of 6-amino-5-
- 25 methylpyrazolo[1,5-a]pyridine-7-carboxylic acid (1.706 g, 8.93 mmol) and pyridine (1.444 ml, 17.85 mmol) in acetonitrile (40 mL) was added. The reaction mixture was further stirred at 0 °C for 15 min, Methane sulfonyl chloride (1.391 ml, 17.85 mmol) in acetonitrile (10 ml) was added drop wise over a period of five minutes at 0 °C. Then the reaction mixture was stirred at 0 °C for 5 min and at 25 °C for 16 h. The reaction mixture was diluted with water (300 ml). The precipitated solid was filtered,

washed with water, dried under vacuume and finally afforded 7-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl)-5-methyl-9H-pyrazolo[1',5':1,6]pyrido[3,2-d][1,3]oxazin-9-one (3.8 g, 8.30 mmol, 84 % yield). H-NMR (400 MHz, DMSO-*d*6) 8.53-8.65 (m, 1H), 8.37 (dd, J = 8.2, 1.6 Hz, 1H), 8.19 (d, J = 2.2 Hz, 1H), 7.98 (d, J = 1.2 Hz, 1H), 7.75-7.79 (m, 1H), 7.58 (s, 1H), 6.80 (d, J = 2.2 Hz, 1H), 1.68-1.83 (m, 3H), LCMS: 458.9

Step-2: 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide:

To a stirred solution of 7-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl)-5-methyl-9H-pyrazolo[1',5':1,6]pyrido[3,2-d][1,3]oxazin-9-one (3.3 g, 7.21 mmol) in dimethylsulfoxide (20 ml), isopropyl amine (4.33 ml, 8.65 mmol) was added at 25 °C. The reaction mixture was stirred at at 25 °C for 10 min. After completion of the reaction, it was diluted with water (100 mL). The precipitated solid was filtered, and dried under vacuum to get crude product. The residue crude product was triturated with 20% acetonitrile in water to obtain 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide (3.1 g, mmol, 83 % yield). ¹H-NMR (400 MHz, DMSO-*d*6) δ 10.38 (s, 1H), 8.48 (dd, J = 4.6 Hz, 1.5 Hz, 1H), 8.41 (d, J = 7.6 Hz, 1H), 8.17 (dd, J = 8.3, 1.5 Hz, 1H), 7.97 (d, J = 2.2 Hz, 1H), 7.56-7.62 (m, 2H), 7.40 (s, 1H), 6.55 (d, J = 2.0 Hz, 1H), 3.97-4.05 (m, 1H), 2.15 (s, 3H), 1.08 (d, 6.6 Hz, 6H); LCMS: 517.9.

BIOLOGY

As described herein, the compounds of formula (I) and the compositions thereof show synergistic insecticidal/fungicidal activities which are exerted with respect to numerous pest/phytopathogenic fungi which attacks on important agricultural crops.

Synergism can be described as an interaction where the combined effect of two or more compounds is greater than the sum of the individual effects of each of the compounds. The presence of a synergistic effect in terms of percent control, between two mixing partners (X and Y) can be calculated using the Colby equation (Colby, S. R., 1967, Calculating Synergistic and Antagonistic Responses in Herbicide Combinations, Weeds, 15, 20-22):

Colby's formulas:

The expected activity for a given combination of two active compounds (binary composition) can be calculated as follows:

$$E = X + Y - (XY/100)$$

In which E represents the expected percentage of inhibition of the pests for the combination of two insecticides or one insecticide and one fungicide at defined doses (for example equal to x and y

respectively), x is the percentage of inhibition observed for the pest/disease by the compound (1) at a given dose (equal to x), y is the percentage of inhibition observed for the pest/disease by the compound (2) or (3) at a defined dose (equal to y). When the percentage of inhibition observed for the combination is greater than E, there is a synergistic effect.

- 5 The expected activity for a given combination of three active compounds (ternary composition) can be calculated as follows:

$$E=X+Y+Z-(XY+XZ+YZ)/100+(XYZ)/10000$$

X: efficacy, expressed in % of the untreated control, when using the active compound (1) at the concentration a,

- 10 Y: efficacy, expressed in % of the untreated control, when using the active compound (2) at the concentration b

Z: efficacy, expressed in % of the untreated control, when using the active compound (3) at the concentration c.

- 15 E is the efficacy when the active compounds (1), (2) and (3) are applied at application rates of a, b and c.

- The following biological tests demonstrate the pesticidal efficacy of compounds, mixtures or compositions of this invention on important pests. However, the pest control protection afforded by the compounds, mixtures or compositions is not limited to these species. In certain instances, combinations of a compound of this invention with other invertebrate pest control compounds or agents are found to exhibit similar synergistic effects against further invertebrate pests.
- 20

BIOLOGY EXAMPLES:

The compounds of formula (I-III) in a binary mixture with different other insecticides or fungicides of the present invention were assessed for their insecticidal activity as described in the following tests:

Example A: Compound of (I-III) and mixtures thereof against *Helicoverpa armigera*

- 25 The diet incorporation method was used, in which semi-synthetic diet was incorporated into the test solutions consisting either of the single compounds or respective compound combinations, when the temperature was approximately 50 °C in the bio-assay containers, then stirred thoroughly for proper mixing and allowed to cool for 30 min. The solidified diet was cut into equal pieces, and then each piece was transferred into one cell of a bio-assay tray. A single starved third instar larva was released
- 30 into each of these cells of the bio-assay trays and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded 96 h after the release of the larvae.

Percent mortality was calculated by combining dead and moribund larvae and comparing the result to the one of the untreated control. The results are shown for the compound of formula (I-III) in Table A.

Surprisingly, the following combinations, indicated in the table below, have revealed unexpected synergistic effects:

- 5 **Table-A: Evaluation of Compound (I-III), insecticides selected from [(II-1A) to (II-33)] or [(Z001) to (Z377)] or fungicides selected from groups A) to P) and mixtures thereof against *Helicoverpa armigera***

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
Broflanilide	0.05		0		
Compound (I-III)+ Broflanilide	0.1+0.05	2:1	25	13	13
Compound (I-III)	0.1		0		
Broflanilide	0.1		12.5		
Compound (I-III)+ Broflanilide	0.1+0.1	1:1	50	13	38
Compound (I-III)	0.1		0		
Bifenthrin	1		0		
Compound (I-III)+ Bifenthrin	0.1+1	1:10	12.5	0	13
Compound (I-III)	0.1		0		
Emamectin benzoate	0.1		12.5		
Compound (I-III)+ Emamectin benzoate	0.1+0.1	1:1	25	13	13
Compound (I-III)	0.2		12.5		
Spinosad	0.2		12.5		
Compound (I-III)+ Spinosad	0.2+0.2	1:1	75	23	52
Compound (I-III)	0.1		12.5		
Indoxacarb	0.1		0		
Compound (I-III)+ Indoxacarb	0.1+0.1	1:1	50	13	38

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		0		
Spinetoram	0.5		25		
Compound (I-III)+ Spinetoram	0.1+0.5	1:5	87.5	25	63
Compound (I-III)	1		12.5		
Imidacloprid	50		0		
Compound (I-III)+ Imidacloprid	1+50	1:50	87.5	13	75
Compound (I-III)	1		25		
Thiamethoxam	100		25		
Compound (I-III)+ Thiamethoxam	1+100	1:100	100	44	56
Compound (I-III)	1		12.5		
Clothianidin	10		12.5		
Compound (I-III)+ Clothianidin	1+10	1:10	75	23	52
Compound (I-III)	1		25		
Clothianidin	20		25		
Compound (I-III)+ Clothianidin	1+20	1:20	75	44	31
Compound (I-III)	1		12.5		
Fluopyram	50		0		
Compound (I-III)+ Fluopyram	1+50	1:50	87.5	13	75
Compound (I-III)	1		12.5		
Triflumezopyrim	50		12.5		
Compound (I-III)+ Triflumezopyrim	1+50	1:50	75	23	52
Compound (I-III)	1		25		
Triflumezopyrim	100		0		
Compound (I-III)+ Triflumezopyrim	1+100	1:100	75	25	50

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	1		25		
Oxazosulfyl	100		12.5		
Compound (I-III)+ Oxazosulfyl	1+100	1:100	87.5	34	53
Compound (I-III)	1		25		
Azoxystrobin	100		0		
Compound (I-III)+ Azoxystrobin	1+100	1:100	62.5	25	38
Compound (I-III)	1		25		
Azoxystrobin	500		0		
Compound (I-III)+ Azoxystrobin	1+500	1:500	62.5	25	38
Compound (I-III)	1		37.5		
Pyraclostrobin	100		0		
Compound (I-III)+ Pyraclostrobin	1+100	1:100	62.5	38	25
Compound (I-III)	1		37.5		
Thiophanate-methyl	100		0		
Compound (I-III)+ Thiophanate-methyl	1+100	1:100	75	38	38
Compound (I-III)	1		37.5		
Thiophanate-methyl	200		0		
Compound (I-III)+ Thiophanate-methyl	1+200	1:200	62.5	38	25
Compound (I-III)	1		37.5		
Thiophanate-methyl	500		0		
Compound (I-III)+ Thiophanate-methyl	1+500	1:500	62.5	38	25
Compound (I-III)	1		25		
Probenazole	100		0		
Compound (I-III)+ Probenazole	1+100	1:100	100	25	75

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	1		25		
Isotianil	100		0		
Compound (I-III)+ Isotianil	1+100	1:100	75	25	50
Compound (I-III)	1		25		
Isotianil	200		25		
Compound (I-III)+ Isotianil	1+200	1:200	100	44	56

Example B: Evaluation of Compound (I-III), insecticides selected from [(II-1A) to (II-33)] or [(Z001) to (Z377)] or fungicides selected from groups A) to P) and mixtures thereof against *Spodoptera litura*

The diet incorporation method was used, in which semi-synthetic diet was incorporated into the test solution consisting either of the single compound or respective compound combinations, when the temperature was approximately 50 °C in the bioassay containers, then stirred thoroughly for proper mixing and allowed to cool for 30 min. The solidified diet was cut into equal pieces, and then each piece was transferred into one cell of the bio-assay trays. A single starved third instar larva was released into each of these cells of the bio-assay trays and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded 96 h after the release. Percent mortality was calculated by combining dead and moribund larvae and comparing the result with the one of the untreated control. The results are shown for the compound of formula (I-III) in Table B.

Surprisingly, the following combinations indicated in the table below, have revealed unexpected synergistic effects:

Table-B: Evaluation of Compound (I-III) and (insecticides [(II-1A) to (II-33)] or [(Z001) to (Z37)] or fungicides selected from groups A) to P)) mixtures thereof against *Spodoptera litura*

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Broflanilide	0.05		0		
Compound (I-III)+ Broflanilide	0.1+0.05	2:1	25	13	13
Compound (I-III)	0.1		12.5		
Emamectin benzoate	0.05		12.5		
Compound (I-III)+ Emamectin benzoate	0.1+0.05	2:1	50	23	27
Compound (I-III)	0.1		0		
Emamectin benzoate	0.1		25		
Compound (I-III)+ Emamectin benzoate	0.1+0.1	1:1	37.5	25	13
Compound (I-III)	0.1		12.5		
Spinosad	0.2		0		
Compound (I-III)+ Spinosad	0.1+0.2	1:2	25	13	13
Compound (I-III)	0.1		12.5		
Indoxacarb	0.1		0		
Compound (I-III)+ Indoxacarb	0.1+0.1	1:1	50	13	38
Compound (I-III)	1		25		
Imidacloprid	100		0		
Compound (I-III)+ Imidacloprid	1+100	1:100	75	25	50
Compound (I-III)	1		12.5		
Thiamethoxam	50		0		
Compound (I-III)+ Thiamethoxam	1+50	1:50	75	13	63
Compound (I-III)	1		25		
Thiamethoxam	100		0		
Compound (I-III)+ Thiamethoxam	1+100	1:100	75	25	50
Compound (I-III)	1		25		

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Clothianidin	20		0		
Compound (I-III)+ Clothianidin	1+20	1:20	62.5	25	38
Compound (I-III)	1		12.5		
Afidopyropen	50		0		
Compound (I-III)+ Afidopyropen	1+50	1:50	62.5	13	50
Compound (I-III)	1		25		
Afidopyropen	100		0		
Compound (I-III)+ Afidopyropen	1+100	1:100	100	25	75
Compound (I-III)	1		25		
Fluopyram	100		0		
Compound (I-III)+ Fluopyram	1+100	1:100	62.5	25	38
Compound (I-III)	1		12.5		
Triflumezopyrim	50		25		
Compound (I-III)+ Triflumezopyrim	1+50	1:50	75	34	41
Compound (I-III)	1		25		
Dimpropridaz	100		0		
Compound (I-III)+ Dimpropridaz	1+100	1:100	100	25	75
Compound (I-III)	1		25		
Tyclopyrazoflor	100		0		
Compound (I-III)+ Tyclopyrazoflor	1+100	1:100	75	25	50
Compound (I-III)	0.1		12.5		
Isocycloseram	10		12.5		
Compound (I-III)+ Isocycloseram	0.1+10	1:100	50	23	27
Compound (I-III)	1		25		

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Azoxystrobin	100		0		
Compound (I-III)+ Azoxystrobin	1+100	1:100	37.5	25	13
Compound (I-III)	1		25		
Azoxystrobin	500		0		
Compound (I-III)+ Azoxystrobin	1+500	1:500	37.5	25	13
Compound (I-III)	1		25		
Metalaxyl	200		0		
Compound (I-III)+ Metalaxyl	1+200	1:200	100	25	75
Compound (I-III)	1		25		
Metalaxyl	500		0		
Compound (I-III)+ Metalaxyl	1+500	1:500	100	25	75
Compound (I-III)	1		12.5		
Pyraclostrobin	100		12.5		
Compound (I-III)+ Pyraclostrobin	1+100	1:100	50	23	27
Compound (I-III)	1		12.5		
Pyraclostrobin	200		12.5		
Compound (I-III)+ Pyraclostrobin	1+200	1:200	50	23	27
Compound (I-III)	1		12.5		
Pyraclostrobin	500		12.5		
Compound (I-III)+ Pyraclostrobin	1+500	1:500	50	23	27
Compound (I-III)	1		12.5		
Thiophanate-methyl	100		0		
Compound (I-III)+ Thiophanate-methyl	1+100	1:100	50	13	38
Compound (I-III)	1		12.5		

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Thiophanate-methyl	200		0		
Compound (I-III)+ Thiophanate-methyl	1+200	1:200	37.5	13	25
Compound (I-III)	1		12.5		
Thiophanate-methyl	500		0		
Compound (I-III)+ Thiophanate-methyl	1+500	1:500	37.5	13	25
Compound (I-III)	1		12.5		
Fluxapyroxad	100		0		
Compound (I-III)+ Fluxapyroxad	1+100	1:100	50	13	38
Compound (I-III)	1		12.5		
Fluxapyroxad	200		0		
Compound (I-III)+ Fluxapyroxad	1+200	1:200	37.5	13	25
Compound (I-III)	1		12.5		
Fluxapyroxad	500		0		
Compound (I-III)+ Fluxapyroxad	1+500	1:500	37.5	13	25
Compound (I-III)	1		25		
Fludioxonil	100		37.5		
Compound (I-III)+ Fludioxonil	1+100	1:100	100	53	47
Compound (I-III)	1		25		
Fludioxonil	200		25		
Compound (I-III)+ Fludioxonil	1+200	1:200	100	44	56
Compound (I-III)	1		25		
Probenazole	100		12.5		
Compound (I-III)+ Probenazole	1+100	1:100	100	34	66
Compound (I-III)	1		25		

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Probenazole	200		0		
Compound (I-III)+ Probenazole	1+200	1:200	100	25	75
Compound (I-III)	1		25		
Isotianil	100		0		
Compound (I-III)+Isotianil	1+100	1:100	100	25	75
Compound (I-III)	1		25		
Isotianil	200		0		
Compound (I-III)+Isotianil	1+200	1:200	100	25	75

Example C: Compound of Formula (I-III) and (insecticides [(II-1A) to (II-33)] or [(Z001) to (Z377)] or fungicides selected from groups A) to P)) mixtures thereof *Plutella xylostella*

The leaf dip method was used, wherein the required quantity of the compound or respective compound combinations were weighed and dissolved in a test solution prepared in tubes. The tubes were put on a vortex at 2000 rpm for 90 min for proper mixing and then the test solutions were diluted with 0.01% Triton-X to the desired test concentration. Cabbage leaves were dipped into the solution for 10 seconds, shade dried for 20 min and then transferred to single cells of bioassay trays. A single second instar larva was released into each cell and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded 72 h after the release. Percent mortality was calculated by combining dead and moribund larvae and comparing the result with the one of the untreated control. The results are shown for compound of formula (I-III) in Table C.

Surprisingly, the following combinations indicated in the table below, have revealed unexpected synergistic effects:

Table-C: Evaluation of Compound (I-III), insecticides selected from [(II-1A) to (II-33)] or [(Z001) to (Z377)] or fungicides selected from groups A) to P) and mixtures thereof against *Plutella xylostella*

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
Bifenthrin	1		25		
Compound (I-III)+ Bifenthrin	0.1+1	1:10	50	34	16
Compound (I-III)	0.1		12.5		
Bifenthrin	0.5		12.5		
Compound (I-III)+ Bifenthrin	0.1+0.5	1:5	37.5	23	14
Compound (I-III)	0.1		12.5		
Fluxametamid	0.1		0		
Compound (I-III)+ Fluxametamid	0.1+0.1	1:1	37.5	13	25
Compound (I-III)	0.1		12.5		
Fluxametamid	0.05		0		
Compound (I-III)+ Fluxametamid	0.1+0.05	2:1	50	13	38
Compound (I-III)	0.05		12.5		
Spinotoram	0.05		62.5		
Compound (I-III)+ Spinotoram	0.05+0.05	1:1	87.5	67	20
Compound (I-III)	0.1		12.5		
Spinotoram	0.05		62.5		
Compound (I-III)+ Spinotoram	0.1+0.05	2:1	87.5	67	20
Compound (I-III)	0.1		12.5		
Imidacloprid	0.1		0		
Compound (I-III)+ Imidacloprid	0.1+0.1	1:1	100	13	88
Compound (I-III)	0.1		12.5		
Thiamethoxam	1		12.5		
Compound (I-III)+ Thiamethoxam	0.1+1	1:10	100	23	77

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
Afidopyropen	0.1		0		
Compound (I-III)+ Afidopyropen	0.1+0.1	1:1	100	13	88
Compound (I-III)	0.1		12.5		
Dimpropyridaz	0.1		12.5		
Compound (I-III)+ Dimpropyridaz	0.1+0.1	1:1	62.5	23	39
Compound (I-III)	0.1		12.5		
Oxazosulfyl	0.1		0		
Compound (I-III)+ Oxazosulfyl	0.1+0.1	1:1	25	13	13
Compound (I-III)	0.1		12.5		
Tyclopyrazoflor	0.1		0		
Compound (I-III)+ Tyclopyrazoflor	0.1+0.1	1:1	25	13	13
Compound (I-III)	0.1		12.5		
Isocycloseram	0.1		87.5		
Compound (I-III)+ Isocycloseram	0.1+0.1	1:1	100	89	11
Compound (I-III)	0.1		12.5		
Flometoquin	0.005		12.5		
Compound (I-III)+ Flometoquin	0.1+0.005	20:1	75	23	52
Compound (I-III)	0.1		12.5		
Fipronil	0.001		0		
Compound (I-III)+ Fipronil	0.1+0.001	100:1	37.5	13	25
Compound (I-III)	0.1		12.5		
Metaflumizone	0.001		0		
Compound (I-III)+ Metaflumizone	0.1+0.001	100:1	37.5	13	25

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
Metaflumizone	0.1		0		
Compound (I-III)+ Metaflumizone	0.1+0.1	1:1	25	13	13
Compound (I-III)	0.1		12.5		
Metaflumizone	0.001		12.5		
Compound (I-III)+ Metaflumizone	0.1+0.001	1:100	50	23	27
Compound (I-III)	0.1		12.5		
Metaflumizone	0.01		25		
Compound (I-III)+ Metaflumizone	0.1+0.01	1:10	50	34	16
Compound (I-III)	0.1		12.5		
Pyriproxyfen	1		12.5		
Compound (I-III)+ Pyriproxyfen	0.1+1	1:10	100	23	77
Compound (I-III)	0.1		12.5		
Pyriproxyfen	0.05		12.5		
Compound (I-III)+ Pyriproxyfen	0.1+0.05	2:1	37.5	23	14
Compound (I-III)	0.1		12.5		
Pyriproxyfen	0.1		25		
Compound (I-III)+ Pyriproxyfen	0.1+0.1	1:1	50	34	16
Compound (I-III)	0.1		12.5		
Pymetrozine	1		12.5		
Compound (I-III)+ Pymetrozine	0.1+1	1:10	50	23	27
Compound (I-III)	0.5		25		
Pymetrozine	0.05		0		
Compound (I-III)+ Pymetrozine	0.5+0.05	10:1	50	25	25

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.5		25		
Pymetrozine	0.01		0		
Compound (I-III)+ Pymetrozine	0.1+0.01	5:1	62.5	25	38
Compound (I-III)	0.1		12.5		
Abamectin	0.001		12.5		
Compound (I-III)+ Abamectin	0.1+0.001	100:1	75	23	52
Compound (I-III)	0.1		12.5		
Abamectin	0.005		25		
Compound (I-III)+ Abamectin	0.1+0.005	500:1	62.5	34	28

The compound of formula (I-III), mixed with a biological active compound (*Bacillus thuringiensis*, as an example for biologicals) were also assessed for their activity as described in the following tests:

Example D: Biological testing method for the evaluation of *Bacillus thuringiensis* against *Helicoverpa armigera*

- 5 The leaf dip method was used, wherein the required quantity of the compounds were weighed and dissolved in a test solution prepared in tubes. The tubes were put on a vortex at 2000 rpm for 90 min for proper mixing and then, for the single compounds, diluted with a 0.01% Triton-X solution, for the combinations, diluted with a 0.01% Triton-X solution containing formulated Bt, to get the desired test concentrations. Tomato leaves were dipped in the solution for 10 seconds, shade dried for 20 min and
- 10 then transferred to single cells of the bioassay trays. A single third instar larva was released into each cell and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded at 72 h after the release. Percent mortality was calculated by combining dead and moribund larvae and comparing the result to the one of the untreated control. The results have been
- 15 described for compound of formula (I-III) in Table D.

Table-D: Evaluation of Compound (I-III) and (*Bacillus thuringiensis*) mixture thereof against *Helicoverpa armigera*

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
<i>Bt</i>	0.2		0		
Compound (I-III)+ <i>Bt</i>	0.1+0.2	1:2	25	13	13

Example E: Biological testing method for the evaluation of *Bacillus thuringiensis* against *Spodoptera litura*

The leaf dip method was used, wherein the required quantity of the compounds were weighed and dissolved in a test solution prepared in tubes. The tubes were put on a vortex at 2000 rpm for 90 min for proper mixing and then, for the single compounds, diluted with a 0.01% Triton-X solution, for the combinations, diluted with a 0.01% Triton-X solution containing formulated *Bt*, to get the desired test concentration. Tomato leaves were dipped in the solution for 10 seconds, shade dried for 20 min and then transferred to single cells of the bioassay trays. A single third instar larva was released into each cell and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded at 72 h after the release. Percent mortality was calculated by combining dead and moribund larvae and comparing the results to the one of the untreated control. The results have been described for compound of formula (I-III) in Table E.

Table-E: Evaluation of Compound (I-III) and (*Bacillus thuringiensis*) mixture thereof against *Spodoptera litura*

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		0		
<i>Bt</i>	1		12.5		
Compound (I-III)+ <i>Bt</i>	0.1+1	1:10	25	13	13

Example F: Biological testing method for the evaluation of *Bacillus thuringiensis* against *Plutella xylostella*

The leaf dip method was used, wherein the required quantity of the compounds were weighed and dissolved in a test solution prepared in tubes. The tubes were put on a vortex at 2000 rpm for 90 min for proper mixing and then, for the single compounds, diluted with a 0.01% Triton-X solution, for the combinations, diluted with a 0.01% Triton-X solution containing formulated *Bt*, to get the desired test concentration. Cabbage leaves were dipped in the solution for 10 seconds, shade dried for 20 min and

then transferred to single cells of bioassay trays. A single second instar larva was released into each cell and the tray was covered with a lid. The bio-assay trays were kept under laboratory conditions at a temperature of 25 °C and relative humidity of 70%. Observations on dead, moribund and live larvae were recorded 72 h after the release. Percent mortality was calculated by combining dead and moribund larvae and comparing the results to the one of the untreated control. The results have been described for compound of formula (I-III) in Table F.

Table-F: Evaluation of Compound (I-III) and (*Bacillus thuringiensis*) mixture thereof against *Plutella xylostella*

Compounds	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
Compound (I-III)	0.1		12.5		
<i>Bt</i>	0.3		0		
Compound (I-III)+ <i>Bt</i>	0.1+0.3	1:3	25	13	13

As demonstrated in the tables above, the mixture with a compound of formula (I-I) with *Bacillus thuringiensis*, as an example for biologicals, indicated a stable and unexpected synergistic insecticidal effect against the most important Lepidopteran pests.

The compound of formula (I-III) in mixture with fungicides was assessed for their fungicidal activity as described in the following tests:

Biological Test Examples *in vivo* on plants (Preventive)

The compounds were selected for glasshouse testing to assess the fungicidal activity of the combinations under preventive conditions against the following pathogens:

Example G: Compound of Formula (I-III) and mixtures thereof against *Alternaria solani* in Tomato

The single compounds or respective compound combinations were dissolved in 2% dimethyl sulfoxide/acetone and then mixed with water containing emulsifier to a calibrated spray volume of 50 mL. The test solutions were poured into spray bottles for further applications.

To test the preventive activity, healthy young tomato plants, raised in the greenhouse, were sprayed with the active compound preparation at the stated application rates inside the spray cabinets using hollow cone nozzles. One day after treatment, the plants were inoculated with a spore suspension containing 0.24×10^6 *Alternaria solani* inoculum and 2% Malt. The inoculated plants were then kept in a greenhouse chamber at a temperature of 22-24 °C and 90-95 % relative humidity for disease expression.

A visual assessment of the performance of the single compounds or compound combinations was carried out by rating the disease severity (0-100% scale) on treated plants 3, 7, 10 and 15 days after application. Efficacy (% control) of the single compounds and mixtures was calculated by comparing the disease rating in the treatment with the one of the untreated control. The compounds were also assessed for their plant compatibility by recording symptoms like necrosis, chlorosis and stunting. The results have been described for the compound of formula (I-III) in Table G.

Table-G: Evaluation of Compound (I-III), fungicides selected from groups A) to P) and mixtures thereof against *Alternaria solani*

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
1	Compound (I-III)	100		30		
2	Azoxystrobin	0.1		40		
3	Compound (I-III) + Azoxystrobin	100+0.1	1000:1	97	58	39
4	Compound (I-III)	500		32		
5	Azoxystrobin	0.05		26		
6	Compound (I-III) + Azoxystrobin	500+0.05	10000:1	97	49	47
7	Compound (I-III)	100		30		
8	Azoxystrobin	0.05		26		
9	Compound (I-III) + Azoxystrobin	100+0.05	2000:1	97	48	49
10	Compound (I-III)	500		32		
11	Azoxystrobin	0.1		40		
12	Compound (I-III) + Azoxystrobin	500+0.1	5000:1	93	59	34
13	Compound (I-III)	100		30		
14	Fluopyram	10		67		
15	Compound (I-III) + Fluopyram	100+10	10:1	100	77	23
16	Compound (I-III)	500		32		
17	Fluopyram	10		67		
18	Compound (I-III) + Fluopyram	500+10	50:1	100	78	22

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
	Fluopyram					
19	Compound (I-III)	100		30		
20	Fluxapyroxad	0.1		26		
21	Compound (I-III) + Fluxapyroxad	100+0.1	1000:1	77	48	29
22	Compound (I-III)	500		32		
23	Fluxapyroxad	0.05		14		
24	Compound (I-III) + Fluxapyroxad	500+0.05	10000:1	73	42	32
25	Compound (I-III)	100		30		
26	Fluxapyroxad	0.05		14		
27	Compound (I-III) + Fluxapyroxad	100+0.05	2000:1	80	40	40
28	Compound (I-III)	500		32		
29	Metalaxyl	50		22		
30	Compound (I-III) + Metalaxyl	500+50	10:1	65	47	18
31	Compound (I-III)	500		32		
32	Metalaxyl	100		22		
33	Compound (I-III) + Metalaxyl	500+100	5:1	81	47	34
34	Compound (I-III)	100		30		
35	Pyraclostrobin	0.1		26		
36	Compound (I-III) + Pyraclostrobin	100+0.1	1000:1	77	48	29
37	Compound (I-III)	100		30		
38	Pyraclostrobin	0.05		26		
39	Compound (I-III) + Pyraclostrobin	100+0.05	2000:1	73	48	25
40	Compound (I-III)	500		32		
41	Pyraclostrobin	0.1		26		
42	Compound (I-III) + Pyraclostrobin	500+0.1	5000:1	70	49	21

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
	Pyraclostrobin					
43	Compound (I-III)	500		32		
44	Thiophenylate	50		36		
45	Compound (I-III) + Thiophanate methyl	500+50	10:1	73	56	16
46	Compound (I-III)	500		32		
47	Thiophenylate	10		36		
48	Compound (I-III) + Thiophanate methyl	500+10	50:1	70	56	14

Example H: Compound of Formula (I-III), fungicides selected from groups A) to P) and mixtures thereof against *Phakopsora pachyrhizi* in Soybean

The single compounds or the respective compound combinations were dissolved in 2% dimethyl sulfoxide/acetone and then mixed with water containing an emulsifier to a calibrated spray volume of 50 ml. The test solutions were poured into spray bottles for further applications.

To test the preventive activity of compounds, healthy young Soybean plants, raised in the greenhouse, were sprayed with the active compound preparation at the stated application rates inside the spray cabinets using hollow cone nozzles. One day after treatment, the plants were inoculated with a suspension containing 2×10^5 *Phakopsora pachyrhizi* conidia. The inoculated plants were then kept in a greenhouse chamber at a temperature of 22-24 °C and 80-90 % relative humidity for disease expression.

A visual assessment of the performance of the single compounds and respective compound combinations was carried out by rating the disease severity (0-100% scale) on treated plants 3, 7, 10 and 15 days after application. Efficacy (% control) of the compounds was calculated by comparing the disease rating in the treatment with the one of the untreated control. The compounds were also assessed for their plant compatibility by recording symptoms like necrosis, chlorosis and stunting. The results have been described for the compound of formula (I-III) in Table H.

Table-H: Evaluation of Compound (I-III), fungicides selected from groups A) to P) mixtures against *Phakopsora pachyrhizi*

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
1	Compound (I-III)	100		25		
2	Fludioxonil	10.0		28		
3	Compound (I-III) + Fludioxonil	100+10	10:1	100	46	54
4	Compound (I-III)	500		56		
5	Fludioxonil	2.0		19		
6	Compound (I-III) + Fludioxonil	500+2	250:1	100	64	36
7	Compound (I-III)	100		25		
8	Fludioxonil	2.0		19		
9	Compound (I-III) + Fludioxonil	100+2	50:1	100	39	61
10	Compound (I-III)	500		56		
11	Fludioxonil	10.0		28		
12	Compound (I-III) + Fludioxonil	500+10	50:1	100	68	32
13	Compound (I-III)	500		56		
14	Isotianil	50.0		41		
15	Compound (I-III) +Isotianil	500+50	10:1	100	74	26
16	Compound (I-III)	100		25		
17	Isotianil	50.0		41		
18	Compound (I-III) +Isotianil	100+50	2:1	90	55	35
19	Compound (I-III)	500		56		
20	Isotianil	10.0		31		
21	Compound (I-III) +Isotianil	500+10	50:1	100	70	30
22	Compound (I-III)	100		25		
23	Probenazole	10.0		28		
24	Compound (I-III) + Probenazole	100+10	10:1	100	46	54
25	Compound (I-III)	500		56		
26	Probenazole	2.0		22		
27	Compound (I-III) +	500+2	250:1	100	66	34

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
	Probenazole					
28	Compound (I-III)	100		25		
29	Probenazole	2.0		22		
30	Compound (I-III) + Probenazole	100+2	50:1	100	41	59
31	Compound (I-III)	500		56		
32	Probenazole	10.0		28		
33	Compound (I-III) + Probenazole	500+10	50:1	100	68	32
34	Compound (I-III)	500		56		
35	Pyraclostrobin	0.05		39		
36	Compound (I-III) + Pyraclostrobin	500+0.05	10000:1	88	73	15

Example I: Compound of Formula (I-III) and mixtures thereof against *Pyricularia oryzae* in Rice

The single compounds or respective compound combinations were dissolved in 2% dimethyl sulfoxide/acetone and then mixed with water containing emulsifier to a calibrated spray volume of 50 mL. The test solutions were poured into spray bottles for further applications.

To test the preventive activity of compounds, healthy young rice plants, raised in the greenhouse, were sprayed with the active compound preparation at the stated application rates inside the spray cabinets using hollow cone nozzles. One day after treatment, the plants were inoculated with a spore suspension containing 1.4×10^6 *Pyricularia oryzae* inoculum (in sterile water). The inoculated plants were then kept in a greenhouse chamber at a temperature of 22-24 °C and 90-95 % relative humidity for disease expression.

A visual assessment of the performance of the compounds or compound combinations was carried out by rating the disease severity (0-100% scale) on treated plants 3, 7, 10 and 15 days after application. Efficacy (% control) of the single compounds and mixtures was calculated by comparing the disease rating in the treatment with the one of the untreated control. The compounds were also assessed for their plant compatibility by recording symptoms like necrosis, chlorosis and stunting. The results have been described for the compound of formula (I-III) in Table I.

Table-I: Evaluation of Compound (I-III), fungicides selected from groups A) to P) and mixtures thereof against *Pyricularia oryzae*

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
1	Compound (I-III)	100		15		
2	Azoxystrobin	0.05		30		
3	Compound (I-III) + Azoxystrobin	100+0.05	2000:1	91	41	51

Example J: Compound of Formula (I-III) and mixtures thereof against *Parastagonospora nodorum*/ *Septoria nodorum*/ *Stagnospora nodorum* in Wheat

5 The single compounds or respective compound combinations were dissolved in 2% dimethyl sulfoxide/acetone and then mixed with water containing emulsifier to a calibrated spray volume of 50 mL. The test solutions were poured into spray bottles for further applications.

To test the preventive activity of compounds, healthy young wheat plants, raised in the greenhouse, were sprayed with the active compound preparation at the stated application rates inside the spray cabinets using hollow cone nozzles. One day after treatment, the plants were inoculated with a spore suspension containing 2.8×10^6 *Stagnospora nodorum* inoculum.

The inoculated plants were then kept in a greenhouse chamber at 22-25 °C temperature and 90-100 % relative humidity for disease expression.

A visual assessment of the performance of the single compounds or compound combinations was carried out by rating the disease severity (0-100% scale) on treated plants 3, 7, 10 and 15 days after application. Efficacy (% control) of the single compounds and mixtures was calculated by comparing the disease rating in the treatment with the one of the untreated control. The compounds were also assessed for their plant compatibility by recording symptoms like necrosis, chlorosis and stunting. The results have been described for the compound of formula (I-III) in Table J.

Table-J: Evaluation of Compound (I-III), fungicides selected from groups A) to P) and mixtures thereof against *Septoria nodorum*

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
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Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
1	Compound (I-III)	100		24		
2	Fluxapyroxad	0.1		29		
3	Compound (I-III) + Fluxapyroxad	100+0.1	1000:1	78	46	32
4	Compound (I-III)	500		32		
5	Fluxapyroxad	0.05		12		
6	Compound (I-III) + Fluxapyroxad	500+0.05	10000:1	81	40	40
7	Compound (I-III)	500		32		
8	Fluopyram	10		25		
9	Compound (I-III) + Fluopyram	500+10	50:1	63	49	14
10	Compound (I-III)	500		32		
11	Fluxapyroxad	0.1		29		
12	Compound (I-III) + Fluxapyroxad	500+0.1	5000:1	89	52	37

Example K: Compound of Formula (I-III) and mixtures thereof against *Erysiphe cichoracearum* in Cucumber

The single compounds or the respective compound combinations were dissolved in 2% dimethyl sulfoxide/acetone and then mixed with water containing emulsifier to a calibrated spray volume of 50 mL. The test solutions were poured into spray bottles for further applications.

To test the preventive activity of compounds, healthy young cucumber plants, raised in the greenhouse, were sprayed with the active compound preparation at the stated application rates inside the spray cabinets using hollow cone nozzles. One day after treatment, the plants were inoculated with a conidial suspension containing 2×10^5 *Erysiphe cichoracearum* inoculum. The inoculated plants were then kept in a greenhouse chamber at a temperature of 22-24 °C and 50-60 % relative humidity for disease expression.

A visual assessment of the performance of the compounds and the respective compound combinations was carried out by rating the disease severity (0-100% scale) on treated plants 3, 7, 10 and 15 days after application. Efficacy (% control) of the single compounds or compound combinations was

calculated by comparing the disease rating in the treatment with the one of the untreated control. The compounds were also assessed for their plant compatibility by recording symptoms like necrosis, chlorosis and stunting. The results have been described for the compound of formula (I-III) in Table K.

5 **Table-K: Evaluation of Compound (I-III), fungicides selected from groups A) to P) and mixtures thereof against *Erysiphe cichoracearum***

Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
1	Compound (I-III)	100		17		
2	Pyraclostrobin	0.05		29		
3	Compound (I-III)+ Pyraclostrobin	100+0.05	2000:1	59	41	18
4	Compound (I-III)	500		17		
5	Fluxapyroxad	0.05		29		
6	Compound (I-III)+ Fluxapyroxad	500+0.05	2000:1	59	41	18
7	Compound (I-III)	500		19		
8	Azoxystrobin	0.05		26		
9	Compound (I-III)+ Azoxystrobin	500+0.05	10000:1	71	40	31
10	Compound (I-III)	500		19		
11	Azoxystrobin	0.1		43		
12	Compound (I-III)+ Azoxystrobin	500+0.1	5000:1	71	54	17
13	Compound (I-III)	500		28		
14	Metalaxyl	100		31		
15	Compound (I-III)+ Azoxystrobin	500+100	5:1	64	50	14
16	Compound (I-III)	500		19		
17	Isotianil	10		51		
18	Compound (I-III)+Isotianil	500+10	50:1	81	60	21
19	Compound (I-III)	500		19		
20	Isotianil	50		57		
21	Compound (I-III)+Isotianil	500+50	10:1	88	65	23

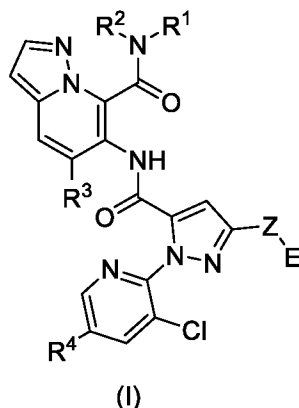
Sr. No.	Compound	Conc. (ppm)	Ratio	Observed Efficacy (%)	Expected Efficacy (%) (Colby's)	Synergy (%)
22	Compound (I-III)	100		17		
23	Probenazole	2		15		
24	Compound (I-III)+ Probenazole	100+2	50:1	55	30	25
25	Compound (I-III)	100		17		
26	Probenazole	10		22		
27	Compound (I-III)+ Probenazole	100+10	10:1	67	35	32
28	Compound (I-III)	500		19		
29	Probenazole	2		16		
30	Compound (I-III)+ Probenazole	500+2	250:1	74	32	42
31	Compound (I-III)	500		19		
32	Probenazole	10		22		
33	Compound (I-III)+ Probenazole	500+10	50:1	83	37	46

As demonstrated in the tables above, the mixture with a compound of formula (I-III) with different insecticides and fungicides did not only indicate a surprising and unexpected synergistic insecticidal effect but also a fungicidal one against a range of different important diseases.

Having described the invention with reference to certain preferred embodiments, other embodiments will become apparent to one skilled in the art from the consideration of the specification. It will be apparent to those skilled in the art that many modifications, both to materials and methods, may be practiced without departing from the scope of the invention.

CLAIM:

1. A pesticidal mixture comprising a mixture of at least one pesticidally active compound of formula (I), oxides or salts thereof as a component (1);



5 wherein,

R¹ is selected from the group consisting of C₁-C₆ alkyl, C₃-C₅ cycloalkyl, C₃-C₅ cycloalkyl-C₁-C₆ alkyl and C₁-C₆ alkyl-C₃-C₅ cycloalkyl;

R² is selected from the group consisting of hydrogen and methyl;

R³ is selected from the group consisting of methyl, fluorine, chlorine, bromine and trifluoromethyl;

10 R⁴ is selected from the group consisting of hydrogen, fluorine and chlorine;

Z represent direct bond or O;

E is selected from the group consisting of halogen, cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₃-C₆ cycloalkyl and C₄-C₈ cycloalkylalkyl; or salts thereof;

15 and at least one insecticidally active compound (II) and/or at least one fungicidally active compound (III) as a component (2);

wherein at least one insecticidally active compound (II) selected from the group consisting of:

- (II-1) Acetylcholinesterase (AChE) inhibitors,
- (II-2) GABA-gated chloride channel blockers,
- (II-3) Sodium channel modulators,
- 20 (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators,
- (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I,
- (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators,
- (II-7) Juvenile hormone mimics,

- (II-8) Miscellaneous non-specific (multi-site) inhibitors,
 (II-9) Chordotonal organ TRPV channel modulators,
 (II-10) Mite growth inhibitors affecting CHS1,
 (II-11) Microbial disruptors of insect midgut membranes,
 5 (II-12) Inhibitors of mitochondrial ATP synthase,
 (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient,
 (II-14) Nicotinic acetylcholine receptor (nAChR) channel blockers,
 (II-15) Inhibitors of the chitin biosynthesis affecting CHS1,
 (II-16) Inhibitors of the chitin biosynthesis type 1,
 10 (II-17) Moulting disruptors,
 (II-18) Ecdyson receptor agonists,
 (II-19) Octopamin receptor agonists,
 (II-20) Mitochondrial complex III electron transport inhibitors,
 (II-21) Mitochondrial complex I electron transport inhibitors,
 15 (II-22) Voltage-dependent sodium channel blockers,
 (II-23) Inhibitors of the acetyl CoA carboxylase,
 (II-24) Mitochondrial complex IV electron transport inhibitors,
 (II-25) Mitochondrial complex II electron transport inhibitors,
 (II-26) Ryanodine receptor-modulators,
 20 (II-27) Chordotonal organ Modulators – undefined target site,
 (II-28) GABA-gated chloride channel allosteric modulators,
 (II-29) Baculoviruses,
 (II-30) Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II,
 (II-31) Insecticidal active compounds of unknown or uncertain mode of action,
 25 (II-32) Biopesticides, and
 (II-33) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or
 nematocidal activity;

and at least one fungicidally active compound (III) selected from the group consisting of:

- (A) inhibitors of the ergosterol synthesis,
 30 (B) inhibitors of the respiratory chain at complex I or II,
 (C) inhibitors of the respiratory chain at complex III,
 (D) inhibitors of the mitosis and cell division,
 (E) compounds capable of having a multisite action,
 (F) compounds capable of inducing a host defense,
 35 (G) inhibitors of the amino acid and/or protein biosynthesis,
 (H) inhibitors of the ATP production,

- (I) inhibitors of the cell wall synthesis,
(J) inhibitors of the lipid and membrane synthesis,
(K) inhibitors of the melanine biosynthesis,
(L) inhibitors of the nucleic acid synthesis,
5 (M) inhibitors of the signal transduction,
(N) compounds capable of acting as uncoupler,
(O) other fungicides,
(P) HDAC inhibitors, and
(Q) compounds capable to act as a safener.
- 10 2. The pesticidal mixture according to claim 1, wherein the compound of formula (I) or oxides or salts thereof as a component (1) is selected from (I-I) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-II) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-III) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-
15 5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-IV) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-V) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-VI) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-
20 carboxamide; (I-VII) 6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-VIII) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-(2,2,2-trifluoroethoxy)-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-IX) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-X) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-
25 a]pyridine-7-carboxamide; (I-XI) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-(cyclopropylmethyl)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XII) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XIII) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XIV) 6-(1-(3-chloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-
30 a]pyridine-7-carboxamide; (I-XV) N-(tert-butyl)-6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XVI) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-ethyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XVII) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XVIII) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-

methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XIX) 6-(1-(3-chloropyridin-2-yl)-3-(trifluoromethyl)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XX) 6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-5-methyl-N-(1-methylcyclopropyl)pyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXI) N-(tert-butyl)-6-(1-(3,5-dichloropyridin-2-yl)-3-methoxy-1H-pyrazole-5-carboxamido)-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXII) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N,5-dimethylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXIII) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-isopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXIV) 6-(3-bromo-1-(3-chloro-5-fluoropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropyl-5-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXV) 5-bromo-6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-methylpyrazolo[1,5-a]pyridine-7-carboxamide; (I-XXVI) 5-bromo-6-(3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamido)-N-cyclopropylpyrazolo[1,5-a]pyridine-7-carboxamide.

3. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one insecticidally active compound (II) selected from:

(II-1) Acetylcholinesterase (AChE) inhibitors selected from the class of

(II-1A) carbamates including alanycarb (Z001), aldicarb (Z002), bendiocarb (Z003), benfuracarb (Z004), butocarboxim (Z005), butoxycarboxim (Z006), carbaryl (Z007), carbofuran (Z008), carbosulfan (Z009), ethiofencarb (Z010), fenobucarb (Z011), formetanate (Z012), furathiocarb (Z013), isoprocarb (Z014), methiocarb (Z015), methomyl (Z016), metolcarb (Z017), oxamyl (Z018), pirimicarb (Z019), propoxur (Z020), thiodicarb (Z021), thiofanox (Z022), triazamate (Z023), trimethacarb (Z024), XMC (Z025), and xylylcarb (Z026); or

(II-1B) organophosphates including acephate (Z027), azamethiphos (Z028), azinphos-ethyl (Z029), azinphosmethyl (Z030), cadusafos (Z031), chlorethoxyfos (Z032), chlorfenvinphos (Z033), chlormephos (Z034), chlorpyrifos (Z035), chlorpyrifos-methyl (Z036), coumaphos (Z037), cyanophos (Z038), demeton-s-methyl (Z039), diazinon (Z040), dichlorvos/ddvp (Z041), dicrotophos (Z042), dimethoate (Z043), dimethylvinphos (Z044), disulfoton (Z045), epn (Z046), ethion (Z047), ethoprophos (Z048), famphur (Z049), fenamiphos (Z050), fenitrothion (Z051), fenthion (Z052), fosthiazate (Z053), heptenophos (Z054), imicyafos (Z055), isofenphos (Z056), isopropyl o-(methoxyaminothio-phosphoryl) salicylate (Z057), isoxathion (Z058), malathion (Z059), mecarbam (Z060), methamidophos (Z061), methidathion (Z062), mevinphos (Z063), monocrotophos (Z064), naled (Z065), omethoate (Z066), oxydemeton-methyl (Z067), parathion (Z068), parathion-methyl (Z069), phenthoate (Z070), phorate (Z071), phosalone (Z072), phosmet (Z073), phosphamidon (Z074), phoxim (Z075), pirimiphos-methyl

- (Z076), profenofos (Z077), propetamphos (Z078), prothiofos (Z079), pyraclofos (Z080), pyridaphenthion (Z081), quinalphos (Z082), sulfotep (Z083), tebufos (Z084), temephos (Z085), terbufos (Z086), tetrachlorvinphos (Z087), thiometon (Z088), triazophos (Z089), trichlorfon (Z090), and vamidothion (Z091);
- 5 (II-2) GABA-gated chloride channel blockers selected from the class of
(II-2A) Cycloidiene Organochlorines including chlordane (Z092) and endosulfan (Z093); or
(II-2B) Phenylpyrazoles (Fiproles) including ethiprole (Z094), fipronil (Z095), flufiprole (Z096),
pyrafluprole (Z097) and pyriprole (Z0918);
(II-3) Sodium channel modulators selected from the class of
- 10 (II-3A) Pyrethroids/Pyrethrins including acrinathrin (Z099), allethrin (Z100), d-cis-trans allethrin
(Z101), d-trans-allethrin (Z102), bifenthrin (Z103), bioallethrin (Z104), bioallethrin s-
cyclopentenyl isomer (Z105), bioresmethrin (Z106), cycloprothrin (Z107), cyfluthrin
(Z108), beta-cyfluthrin (Z109), cyhalothrin (Z110), lambda-cyhalothrin (Z111), gamma-
cyhalothrin (Z112), cypermethrin (Z113), alpha-cypermethrin (Z114), beta-cypermethrin
15 (Z115), theta-cypermethrin (Z116), zeta-cypermethrin (Z117), cyphenothrin [(1r)-trans-
isomers (Z118), deltamethrin (Z119), empenethrin [(ez)-(1r)-isomers] (Z120), esfenvalerate
(Z121), etofenprox (Z122), fenpropathrin (Z123), fenvalerate (Z124), flucythrinate (Z125),
flumethrin (Z126), tau-fluvalinate (Z127), halfenprox (Z128), imiprothrin (Z129),
meperfluthrin (Z130), metofluthrin (Z131), momfluorothrin (Z132), kadethrin (Z133),
20 permethrin (Z134), phenothrin [(1r)-trans-isomer] (Z134), prallethrin (Z135), profluthrin
(Z136), pyrethrins (pyrethrum) (Z137), resmethrin (Z138), silafluofen (Z139), tefluthrin
(Z140), tetramethylfluthrin (Z141), tetramethrin (Z142), tetramethrin [(1r)-isomers]
(Z143), tralomethrin (Z144) and transfluthrin (Z145); or
(II-3B) DDT (Z146) or methoxychlor (Z147)
- 25 (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators selected from the class
of
(II-4A) Neonicotinoids including acetamiprid (Z148), clothianidin (Z149), dinotefuran (Z150),
imidacloprid (Z151), nitenpyram (Z152), thiacloprid (Z153), thiamethoxam (Z154), 1-
[(6-chloro-3-pyridinyl)methyl]-2,3,5,6,7,8-hexahydro-9-nitro-(5S,8R)-5,8-epoxy-H-
30 imidazo[1,2-a]azepine (Z155); 1-[(6-chloro-3-pyridyl)methyl]-2-nitro-1-[(E)-
pentylideneamino]guanidine (Z156); and 1-[(6-chloro-3-pyridyl)methyl]-7-methyl-8-
nitro-5-propoxy-3,5,6,7-tetrahydro-2H-imidazo[1,2-a]pyridine (Z157); or
(II-4B) Nicotine (Z158); or
(II-4C) Sulfoximines including sulfoxaflor (Z159); or
- 35 (II-4D) Butenolides including flupyradifurone (Z160); or
(II-4E) Mesoionics including triflumezopyrim (Z161), and dichloromezotiaze (Z162),
(II-4F) Flupyrimin (Z163),

- (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I selected from the class of spinosyns including spinetoram (Z164) and spinosad (Z165),
- (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators selected from the class avermectins/Milbemycins including abamectin (Z166), emamectin benzoate (Z167),
5 lepimectin (Z168) and milbemectin (Z169),
- (II-7) Juvenile hormone mimics selected from the class of
- (II-7A) Juvenile hormone analogues including hydroprene (Z170), kinoprene (Z171) and methoprene (Z172); or
- (II-7B) Fenoxycarb (Z173); or
- 10 (II-7C) Pyriproxyfen (Z174),
- (II-8) Miscellaneous non-specific (multi-site) inhibitors selected from the class of
- (II-8A) Alkyl halides including methyl bromide (Z175) and other alkyl halides (Z176); or
- (II-8B) Chloropicrin (Z177); or
- (II-8C) Fluorides including cryolite (sodium aluminium fluoride) (Z178) and sulfuryl fluoride
15 (Z179); or
- (II-8D) Borates including borax (Z180), boric acid (Z181), disodium octaborate (Z182), sodium borate (Z183), and sodium metaborate (Z184); or
- (II-8E) Tartar emetic (Z185); or
- (II-8F) Methyl isothiocyanate generators including dazomet (Z186) and metam (Z187),
- 20 (II-9) Chordotonal organ TRPV channel modulators selected from the class of
- (II-9A) Pyridine azomethine derivatives including pymetrozine (Z188), and pyrifluquinazon (Z189); or
- (II-9B) Pyropenes including afidopyropen (Z190),
- (II-10) Mite growth inhibitors affecting CHS1 selected from the class of
- 25 (II-10A) Clofentezine (Z191), Hexythiazox (Z192) and Diflovidazin (Z193); or
- (II-10B) Etoxazole (Z194),
- (II-11) Microbial disruptors of insect midgut membranes selected from the class of
- (II-11A) *Bacillus thuringiensis* (Z195) and the insecticidal proteins they produce, including bacillus thuringiensis or bacillus sphaericus (Z196) and the insecticidal proteins they produce
30 such as bacillus thuringiensis subsp. israelensis, bacillus thuringiensis subsp. aizawai, bacillus thuringiensis subsp. kurstaki and bacillus thuringiensis subsp. tenebrionis, or the B.t crop proteins: Cry1Ab, Cry1Ac, Cry1Fa, Cry1A.105, Cry2Ab, Vip3A, mCry3A, Cry3Ab, Cry3Bb and Cry34/35Ab1,
- (II-12) Inhibitors of mitochondrial ATP synthase selected from the class of
- 35 (II-12A) Diafenthiuron (Z197); or
- (II-12B) Organotin miticides including azocyclotin (Z198), cyhexatin (Z199) and fenbutatin oxide (Z200), or

- (II-12C) Propargite (Z201), or
(II-12D) Tetradifon (Z202),
(II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient selected from the class of
5 (II-13A) Pyrroles including chlorfenapyr (Z203); or
(II-13B) Dinitrophenols including DNOC (Z204); or
(II-13C) Sulfluramid (Z205),
(II-14) Nicotinic acetylcholine receptor (nAChR) channel blockers selected from the class of nereistoxin analogues including bensultap (Z206), cartap hydrochloride (Z207), thiocyclam
10 (Z208) and thiosultap-sodium (Z209),
(II-15) Inhibitors of the chitin biosynthesis affecting CHS1 selected from the class of bzoylureas including bistrifluron (Z210), chlorfluazuron (Z211), diflubenzuron (Z212), flucycloxuron (Z213), flufenoxuron (Z214), hexaflumuron (Z215), lufenuron (Z216), novaluron (Z217), noviflumuron (Z218), teflubenzuron (Z219) and triflumuron (Z220),
15 (II-16) Inhibitors of the chitin biosynthesis type 1 including buprofezin (Z221),
(II-17) Moulting disruptors, Dipteran, including cyromazine (Z222),
(II-18) Ecdyson receptor agonists selected from the class of diacylhydrazines including methoxyfenozide (Z223), tebufenozide (Z224), halofenozide (Z225), fufenozide (Z226) and chromafenozide (Z227);
20 (II-19) Octopamin receptor agonists, including amitraz (Z228),
(II-20) Mitochondrial complex III electron transport inhibitors selected from the class of
(II-20A) Hydramethylnon (Z229); or
(II-20B) Acequinocyl (Z230); or
(II-20C) Fluacrypyrim (Z231); or
25 (II-20D) Bifenazate (Z232),
(II-21) Mitochondrial complex I electron transport inhibitors selected from the class of
(II-21A) METI acaricides and insecticides including fenazaquin (Z233), fenpyroximate (Z234), pyrimidifen (Z235), pyridaben (Z236), tebufenpyrad (Z237) and tolfenpyrad (Z238); or
(II-21B) Rotenone (Z239),
30 (II-22) Voltage-dependent sodium channel blockers selected from the class of
(II-22A) Oxadiazines including indoxacarb (Z240); or
(II-22B) Semicarbazones including metaflumizone (Z241); or
(II-22C) 1-[(E)-[2-(4-cyanophenyl)-1-[3-(trifluoromethyl)phenyl]ethylidene]amino]-3-[4-(difluoromethoxy)phenyl]urea (Z242),
35 (II-22D) 2-[3-(ethanesulfonyl)pyridin-2-yl]-5-[trifluoro(methanesulfonyl)]-1,3-benzoxazole (oxazosulfonyl) (Z243),

- (II-23) Inhibitors of the acetyl CoA carboxylase selected from the class of tetrone and Tetramic acid derivatives including spirodiclofen (Z244), spiromesifen (Z245), spiropidion (Z246), and spirotetramat (Z247),
- (II-24) Mitochondrial complex IV electron transport inhibitors selected from the class of
- 5 (II-24A) Phosphides including aluminium phosphide (Z248), calcium phosphide (Z249), phosphine (Z250) and zinc phosphide (Z251); or
- (II-24B) Cyanides including calcium cyanide (Z252), potassium cyanide (Z253) and sodium cyanide (Z254),
- (II-25) Mitochondrial complex II electron transport inhibitors selected from the class of
- 10 (II-25A) Beta-ketonitrile derivatives including cyenopyrafen (Z255) and cyflumetofen (Z256), or
- (II-25B) Caboxanilides including pyflubumide (Z257),
- (II-26) Ryanodine receptor-modulators from the class of diamides including flubendiamide (Z258), chlorantraniliprole (Rynaxypyr®) (Z259), cyantraniliprole (Cyazypyr®) (Z260), cyclaniliprole (Z260), tetraniliprole (Z261), tetra-chlorantraniliprole (Z262), (R)-3-Chlor-N1-{2-
- 15 methyl-4-[1,2,2,2-tetrafluor-1-(trifluormethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonylethyl)phthalamid (Z263); (S)-3-Chlor-N1-{2-methyl-4-[1,2,2,2-tetrafluor-1-(trifluormethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonylethyl)phthalamid (Z264); methyl-2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-
- 20 yl]carbonyl}amino)benzoyl]-1,2-dimethylhydrazinecarboxylate (Z265); N-[2-(5-amino-1,3,4-thiadiazol-2-yl)-4-chloro-6-methyl-phenyl]-5-bromo-2-(3-chloro-2-pyridyl)pyrazole-3-carboxamide (Z266); 5-chloro-2-(3-chloro-2-pyridyl)-N-[2,4-dichloro-6-[(1-cyano-1-methyl-ethyl)carbamoyl]phenyl]pyrazole-3-carboxamide (Z267); 5-bromo-N-[2,4-dichloro-6-(methylcarbamoyl)phenyl]-2-(3,5-dichloro-2-pyridyl)pyrazole-3-carboxamide (Z268); N-[2-(tert-butylcarbamoyl)-4-chloro-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(fluoromethoxy)pyrazole-
- 25 3-carboxamide (Z269); N2-(1-cyano-1-methyl-ethyl)-N1-(2,4-dimethylphenyl)-3-iodophthalamide (Z270); and 3-chloro-N2-(1-cyano-1-methyl-ethyl)-N1-(2,4-dimethylphenyl)phthalamide (Z271),
- (II-27) Chordotonal organ Modulators – undefined target site including flonicamid (Z272),
- (II-28) GABA-gated chloride channel allosteric modulators selected from the class of
- 30 (II-28A) Meta-diamides including broflanilide (Z273); or
- (II-28B) Isoxazolines including fluxametamide (Z274); Isocycloseram (Z275),
- (II-29) Baculoviruses selected from the class of
- (II-29A) Granuloviruses (GVs) including cydia pomonella GV (Z276) and Thaumatotibia leucotreta GV (Z277); or
- 35 (II-29B) Nucleopolyhedroviruses (NPVs) including anticarsia gemmatalis MNPV (Z278), and helicoverpa armigera NPV (Z279),

- (II-30) Nicotinic Acetylcholine Receptor (nAChR) Allosteric Modulators - Site II including GS omega/kappa HXTX-Hv1a peptide (Z280),
- (II-31) Insecticidal active compounds of unknown or uncertain mode of action including
- 5 Afidopyropen (Z281), azadirachtin (Z282), amidoflumet (Z283), benzoximate (Z284), benzpyrimoxan (Z285), bifenazate (Z286), bromopropylate (Z287), chinomethionat (Z288), cryolite (Z289), dicofol (Z290), flufenimer (Z291), flometoquin (Z292), fluhexafon (Z293), fluensulfone (Z294), flupyradifurone (Z295), lime sulphur (Z296), mancozeb (Z297), piperonyl butoxide (Z298), pyridalyl (Z299), pyrifluquinazon (Z300), sulfoxaflor (Z301), sulphur (Z302),
- 10 4-[5-(3,5-Dichloro-phenyl)-5-trifluoromethyl-4,5-dihydro-isoxazol-3-yl]-2-methyl-N-[(2,2,2-trifluoro-ethylcarbamoyl)-methyl]-benzamide (Z303); cyclopropaneacetic acid (Z304); 1,1'-[(3S,4R,4aR,6S,6aS,12R, 12aS,12bS)-4-[(2-cyclopropylacetyl)oxy]methyl]-1,3,4,4a,5,6,6a,12,12a,12b-decahydro-12-hydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridinyl)-2H,11H-naphtho[2,1-b]pyrano[3,4-e]pyran-3,6-diyl]ester (Z305); 11-(4-chloro-2,6-dimethylphenyl)-12-hydroxy-1,4-dioxo-9-azadispiro[4.2.4.2]-tetradec-11-en-10-one (Z306); 3-
- 15 (4'-fluoro-2,4-dimethylbiphenyl-3-yl)-4-hydroxy-8-oxa-1-azaspiro[4.5]dec-3-en-2-one (Z307); 1-[2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl]-3-(trifluoromethyl)-1H-1,2,4-triazole-5-amine (Z308); or actives on basis of bacillus firmus (Votivo, II-1582) (Z309); (E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z310); (E/Z)—N-[1-[(6-chloro-5-fluoro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z311);
- 20 (E/Z)-2,2,2-trifluoro-N-[1-[(6-fluoro-3-pyridyl)methyl]-2-pyridylidene]acetamide (Z312); (E/Z)—N-[1-[(6-bromo-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z313); (E/Z)—N-[1-[(6-chloro-3-pyridyl)ethyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z314); (E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (Z315); (E/Z)-2-chloro-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (Z316);
- 25 (E/Z)—N-[1-[(2-chloropyrimidin-5-yl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (Z317); (E/Z)—N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,3,3,3-pentafluoro-propanamide (Z318); triflumezopyrim (Z319); 4-[5-[3-chloro-5-(trifluoromethyl)phenyl]-5-(trifluoromethyl)-4H-isoxazol-3-yl]-N-[2-oxo-2-(2,2,2-trifluoroethylamino)ethyl]naphthalene-1-carboxamide (Z312); 3-[3-chloro-5-(trifluoromethyl)phenyl]-4-oxo-1-(pyrimidin-5-ylmethyl)pyrido[1,2-
- 30 a]pyrimidin-1-ium-2-olate (Z313); 8-chloro-N-[2-chloro-5-methoxyphenyl)sulfonyl]-6-trifluoromethyl-imidazo[1,2-a]pyridine-2-carboxamide (Z314); 4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4H-isoxazol-3-yl]-2-methyl-N-(1-oxothietan-3-yl)benzamide (Z315); 5-[3-[2,6-dichloro-4-(3,3-dichloroallyloxy)phenoxy]propoxy]-1H-pyrazole (Z316); Dimpropyridaz (Z317); Tyclopyrazoflor (Z318) and Nicofluprole (Z319),
- 35 (II-32) Biopesticides selected from the class of Microbial pesticides with insecticidal, acaricidal, molluscicidal and/or nematocidal activity including Bacillus firmus (Z320), B.t. ssp. galleriae, B.t. ssp. kurstaki, Beauveria bassiana (Z321), Burkholderia sp. (Z322), Chromobacterium subtsugae

(Z323), *Isaria fumosorosea* (Z324), *Lecanicillium longisporum* (Z325), *L. muscarium* (formerly *Verticillium lecanii*) (Z326), *Metarhizium anisopliae* (Z327), *M. anisopliae* var. *acidum* (Z328), *Paecilomyces fumosoroseus* Apopka strain 97 (Z329), *P. lilacinus* (Z330), *Paenibacillus popilliae* (Z331), *Pasteuria* spp. (Z332), *P. nishizawae* (Z333), *P. reneformis* (Z334), *P. usagae* (Z335), *Pseudomonas fluorescens* (Z336), *Steinernema feltiae* (Z337), *Streptomyces galbus* (Z338), *Wolbachia pipientis* (Zap) (Z339) *Bacillus amyloliquefaciens* (Z373), *Bacillus subtilis* (Z374), *Lecanicillium lecanii* (Z375), *Purpureocillium lilacinum* (Z376) and *Burkholderia rinojenses* (Z377), and

(II-33) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or nematocidal activity including L-carvone (Z340); citral (Z341); (E,Z)-7,9-dodecadien-1-yl acetate (Z342); ethyl formate (Z343); (E,Z)-2,4-ethyl decadienoate (pear ester) (Z344); (Z,Z,E)-7,11,13-hexadecatrienal (Z345); heptyl butyrate (Z346); isopropyl myristate (Z347); lavanulyl senecioate (Z348); 2-methyl 1-butanol (Z349); methyl eugenol (Z350); methyl jasmonate (Z351); (E,Z)-2,13-octadecadien-1-ol (Z352); (E,Z)-2,13-octadecadien-1-ol acetate (Z353); (E,Z)-3,13-octadecadien-1-ol (Z354), R-1-octen-3-ol (Z355); pentatermanone (Z356); potassium silicate (Z357); sorbitol actanoate (Z358); (E,Z,Z)-3,8,11-tetradecatrienyl acetate (Z359); (Z,E)-9,12-tetradecadien-1-yl acetate (Z360); Z-7-tetradecen-2-one (Z361), Z-9-tetradecen-1-yl acetate (Z362); Z-11-tetradecenal (Z363); Z-11-tetradecen-1-ol (Z364); *Acacia negra* extract (Z365); extract of grapefruit seeds and pulp (Z366); extract of *Chenopodium ambrosioides* (Z367); fatty acid monoester with glycerol or propanediol (Z368), Catnip oil (Z369); Neem oil (Z370); Quillay extract (Z371) and Tagetes oil (Z372).

4. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one fungicidally active compound (III) selected from the groups A) to P):

(A) Inhibitors of the ergosterol biosynthesis including (A001) cyproconazole; (A002) difenoconazole; (A003) epoxiconazole; (A004) fenhexamid; (A005) fenpropidin; (A006) fenpropimorph; (A007) fenpyrazamine; (A008) fluquinconazole; (A009) flutriafol; (A010) imazalil; (A011) imazalil sulfate; (A012) ipconazole; (A013) metconazole; (A014) myclobutanil; (A015) paclobutrazol; (A016) prochloraz; (A017) propiconazole; (A018) prothioconazole; (A019) pyrisoxazole; (A020) spiroxamine; (A021) tebuconazole; (A022) tetraconazole; (A023) triadimenol; (A024) tridemorph; (A025) triticonazole; (A026) (1R,2S,5S)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol; (A027) (1S,2R,5R)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol, (A028) (2R)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A029) (2R)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A030) (2R)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A031) (2S)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-

(1H-1,2,4-triazol-1-yl)butan-2-ol; (A032) (2S)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A033) (2S)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A034) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol; (A035) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol; (A036) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol; (A037) 1-({(2R,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl)methyl}-1H-1,2,4-triazole; (A038) 1-({(2S,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl)methyl}-1H-1,2,4-triazole; (A039) 1-
10 { [3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl }-1H-1,2,4-triazol-5-yl thiocyanate; (A040) 1-{{rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-triazol-5-yl thiocyanate; (A041) 1-{{rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-triazol-5-yl thiocyanate; (A042) 2-
15 [(2R,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A043) 2-[(2R,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A044) 2-[(2R,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A045) 2-[(2R,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A046) 2-[(2S,4R,5R)-1-(2,4-dichlorophenyl)-5-
20 hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A047) 2-[(2S,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A048) 2-[(2S,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A049) 2-[(2S,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-
25 thione; (A050) 2-[1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A051) 2-[2-chloro-4-(2,4-dichlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A052) 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A053) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol; (A054) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-
30 1-(1H-1,2,4-triazol-1-yl)pentan-2-ol; (A055) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol; (A056) 2-{{3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A057) 2-{{rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A058) 2-{{rel(2R,3S)-3-(2-
35 chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione; (A059) 5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-yl)methyl)cyclopentanol; (A060) 5-(allylsulfanyl)-1-{{3-(2-chlorophenyl)-2-(2,4-

syn-epimeric racemate 1RS,4SR,9RS and anti-epimeric racemate 1RS,4SR,9SR); (B014) isopyrazam (syn-epimeric enantiomer 1R,4S,9R); (B015) isopyrazam (syn-epimeric enantiomer 1S,4R,9S); (B016) isopyrazam (syn-epimeric racemate 1RS,4SR,9RS); (B017) penflufen; (B018) penthiopyrad; (B019) pydiflumetofen; (B020) pyraziflumid; (B021) sedaxane; (B022) 1,3-dimethyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide; (B023) 1,3-dimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B024) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B025) 1-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-carboxamide; (B026) 2-fluoro-6-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)benzamide; (B027) 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide; (B028) 3-(difluoromethyl)-1-methyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B029) 3-(difluoromethyl)-1-methyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide; (B030) 3-(difluoromethyl)-N-(7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1-methyl-1H-pyrazole-4-carboxamide (Fluindapyr); (B031) 3-(difluoromethyl)-N-[(3R)-7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-carboxamide; (B032) 3-(difluoromethyl)-N-[(3S)-7-fluoro-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-carboxamide; (B033) 5,8-difluoro-N-[2-(2-fluoro-4-[[4-(trifluoromethyl)pyridin-2-yl]oxy}phenyl)ethyl]quinazolin-4-amine; (B034) N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B035) N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B036) N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B037) N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B038) N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B039) N-[(1R,4S)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B040) N-[(1S,4R)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B041) N-[1-(2,4-dichlorophenyl)-1-methoxypropan-2-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide; (B042) N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B043) N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B044) N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B045) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-

methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-1H-pyrazole-4-carboxamide; (B046) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B047) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B048) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carbothioamide; (B049) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B050) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide; (B051) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B052) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B053) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B054) N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B055) N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B056) N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide; (B057) 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-2,3-dihydro-1H-inden-4-yl)nicotinamide; (B058) pyrapropoyne; (B059) inpyrfluxam; and (B060) isoflucypram,

(C) Inhibitors of the respiratory chain at complex III including (C001) ametoctradin; (C002) amisulbrom; (C003) azoxystrobin; (C004) coumethoxystrobin; (C005) coumoxystrobin; (C006) cyazofamid; (C007) dimoxystrobin; (C008) enoxastrobin; (C009) famoxadone; (C010) fenamidone; (C011) flufenoxystrobin; (C012) fluoxastrobin; (C013) kresoxim-methyl; (C014) metominostrobin; (C015) orysastrobin; (C016) picoxystrobin; (C017) pyraclostrobin; (C018) pyrametostrobin; (C019) pyraoxystrobin; (C020) trifloxystrobin; (C021) (2E)-2-{2-[[[(1E)-1-(3-{[(E)-1-fluoro-2-phenylvinyl]oxy}phenyl)ethylidene]amino]oxy)methyl]phenyl}-2-(methoxyimino)-N-methylacetamide; (C022) (2E,3Z)-5-[[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy]-2-(methoxyimino)-N,3-dimethylpent-3-enamide; (C023) (2R)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide; (C024) (2S)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide; (C025) (3S,6S,7R,8R)-8-benzyl-3-[[3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-yl]carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl-2-methylpropanoate (Fenpicoxamid); (C026) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide (Mandestrobin); (C027) N-(3-ethyl-3,5,5-trimethylcyclohexyl)-3-formamido-2-hydroxybenzamide; (C028) (2E,3Z)-5-[[1-(4-chloro-2-fluorophenyl)-1H-pyrazol-3-yl]oxy]-2-(methoxyimino)-N,3-dimethylpent-3-enamide; (C029) methyl {5-[3-(2,4-dimethylphenyl)-1H-pyrazol-1-yl]-2-methylbenzyl}carbamate; (C030) 1-(2-{[1-(4-

chlorophenyl)pyrazol-3-yl]oxymethyl}-3-methylphenyl)-1,4-dihydro-4-methyl-5H-tetrazol-5-one (Metyltetraprole); and (C031) florylpicoxamid,

- (D) Inhibitors of the mitosis and cell division including (D001) carbendazim; (D002) diethofencarb; (D003) ethaboxam; (D004) fluopicolide; (D005) pencycuron; (D006) thiabendazole; (D007) thiophanate-methyl; (D008) zoxamide; (D009) 3-chloro-4-(2,6-difluorophenyl)-6-methyl-5-phenylpyridazine; (D010) 3-chloro-5-(4-chlorophenyl)-4-(2,6-difluorophenyl)-6-methylpyridazine; (D011) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-trifluorophenyl)pyridazine; (D012) 4-(2-bromo-4-fluorophenyl)-N-(2,6-difluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D013) 4-(2-bromo-4-fluorophenyl)-N-(2-bromo-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D014) 4-(2-bromo-4-fluorophenyl)-N-(2-bromophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D015) 4-(2-bromo-4-fluorophenyl)-N-(2-chloro-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D016) 4-(2-bromo-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D017) 4-(2-bromo-4-fluorophenyl)-N-(2-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D018) 4-(2-chloro-4-fluorophenyl)-N-(2,6-difluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D019) 4-(2-chloro-4-fluorophenyl)-N-(2-chloro-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D020) 4-(2-chloro-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D021) 4-(2-chloro-4-fluorophenyl)-N-(2-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D022) 4-(4-chlorophenyl)-5-(2,6-difluorophenyl)-3,6-dimethylpyridazine; (D023) N-(2-bromo-6-fluorophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; (D024) N-(2-bromophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine; and (D025) N-(4-chloro-2,6-difluorophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine,
- (E) Compounds capable to have a multisite action including (E001) bordeaux mixture; (E002) captafol; (E003) captan; (E004) chlorothalonil; (E005) copper hydroxide; (E006) copper naphthenate; (E007) copper oxide; (E008) copper oxychloride; (E009) copper(II) sulfate; (E010) dithianon; (E011) dodine; (E012) folpet; (E013) mancozeb; (E014) maneb; (E015) metiram; (E016) metiram zinc; (E017) oxine-copper; (E018) propineb; (E019) sulfur and sulfur preparations including calcium polysulfide; (E020) thiram; (E021) zineb; (E022) ziram; and (E023) 6-ethyl-5,7-dioxo-6,7-dihydro-5H-pynolo[3',4':5,6][1,4]dithiino[2,3-c][1,2]thiazole-3-carbonitrile,
- (F) Compounds capable to induce a host defence including (F001) acibenzolar-S-methyl; (F002) isotianil; (F003) probenazole; and (F004) tiadinil,
- (G) Inhibitors of the amino acid and/or protein biosynthesis including (G001) cyprodinil; (G002) kasugamycin; (G003) kasugamycin hydrochloride hydrate; (G004) oxytetracycline; (G005) pyrimethanil; (G006) 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline;

- (H) Inhibitors of the ATP production including (H001) silthiofam;
- (I) Inhibitors of the cell wall synthesis including (I001) benthiavalicarb; (I002) dimethomorph; (I003) flumorph; (I004) iprovalicarb; (I005) mandipropamid; (I006) pyrimorph; (I007) valifenalate; (I008) (2E)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one; and (I009) (2Z)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one,
- (J) Inhibitors of the lipid and membrane synthesis including (J001) propamocarb; (J002) propamocarb hydrochloride; and (J003) tolclufos-methyl,
- (K) Inhibitors of the melanin biosynthesis including (K001) tricyclazole; (K002) 2,2,2-trifluoroethyl {3-methyl-1-[(4-methylbenzoyl)amino]butan-2-yl} carbamate;
- (L) Inhibitors of the nucleic acid synthesis including (L001) benalaxyl; (L002) benalaxyl-M (kiralaxyl); (L003) metalaxyl; and (L004) metalaxyl-M (mefenoxam),
- (M) Inhibitors of the signal transduction including (M001) fludioxonil; (M002) iprodione; (M003) procymidone; (M004) proquinazid; (M005) quinoxifen; and (M006) vinclozolin,
- (N) Compounds capable to act as an uncoupler including (N001) fluazinam; and (N002) meptyldinocap,
- (O) Further compounds including (O001) abscisic acid; (O002) benthiazole; (O003) bethoxazin; (O004) capsimycin; (O005) carvone; (O006) chinomethionat; (O007) cufraneb; (O008) cyflufenamid; (O009) cymoxanil; (O010) cyprosulfamide; (O011) flutianil; (O012) fosetyl-aluminium; (O013) fosetyl-calcium; (O014) fosetyl-sodium; (O015) methyl isothiocyanate; (O016) metrafenone; (O017) mildiomyacin; (O018) natamycin; (O019) nickel dimethyldithiocarbamate; (O020) nitrothal-isopropyl; (O021) oxamocarb; (O022) oxathiapiprolin; (O023) oxyfenthiin; (O024) pentachlorophenol and salts; (O025) phosphorous acid and its salts; (O026) propamocarb-fosetilate; (O027) pyriofenone (chlazafenone); (O028) tebufloquin; (O029) tecloftalam; (O030) tolnifanide; (O031) 1-(4-{4-[(5R)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone; (O032) 1-(4-{4-[(5S)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone; (O033) 2-(6-benzylpyridin-2-yl)quinazoline;
- (O034) 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone;
- (O035) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone; (O036) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-chloro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone; (O037) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-fluoro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone; (O038) 2-[6-(3-fluoro-4-methoxyphenyl)-5-methylpyridin-2-yl]quinazoline; (O039) 2-[(5R)-3-[2-(1-

{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl]-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-chlorophenyl methanesulfonate; (O040) 2-{(5S)-3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-chlorophenylmethanesulfonate; (O041) 2-{2-[(7,8-difluoro-2-methylquinolin-3-yl)oxy]-6-fluorophenyl}propan-2-ol; (O042) 2-{2-fluoro-6-[(8-fluoro-2-methylquinolin-3-yl)oxy]phenyl}propan-2-ol; (O043) 2-{3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]-3-chlorophenylmethanesulfonate; (O044) 2-{3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl]phenylmethanesulfonate; (O045) 2-phenylphenol and salts; (O046) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline; (O047) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (Quinofumelin); (O048) 4-amino-5-fluoropyrimidin-2-ol (tautomeric form: 4-amino-5-fluoropyrimidin-2(1H)-one); (O049) 4-oxo-4-[(2-phenylethyl)amino]butanoic acid; (O050) 5-amino-1,3,4-thiadiazole-2-thiol; (O051) 5-chloro-N'-phenyl-N'-(prop-2-yn-1-yl)thiophene-2-sulfonohydrazide; (O052) 5-fluoro-2-[(4-fluorobenzyl)oxy]pyrimidin-4-amine; (O053) 5-fluoro-2-[(4-methylbenzyl)oxy]pyrimidin-4-amine; (O054) 9-fluoro-2,2-dimethyl-5-(quinolin-3-yl)-2,3-dihydro-1,4-benzoxazepine; (O055) but-3-yn-1-yl{6-[[[(Z)-(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino]oxy)methyl]pyridin-2-yl}carbamate; (O056) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate; (O057) phenazine-1-carboxylic acid; (O058) propyl 3,4,5-trihydroxybenzoate; (O059) quinolin-8-ol; (O060) quinolin-8-ol sulfate (2:1); (O061) tert-butyl {6-[[[(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino]oxy)methyl]pyridin-2-yl}carbamate; (O062) 5-fluoro-4-imino-3-methyl-1-[(4-methylphenyl)sulfonyl]-3,4-dihydropyrimidin-2(1H)-one; (O063) fluoxapiprolin; (O064) pyridachlometyl; (O065) ipflufenquin; and (O066) aminopyrifin, and

(P) Inhibitors of histone deacetylase including (P001) N-(1-ethylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P002) N-(2-isopropylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P003) N-(2-methylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P004) N-(1-methylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P005) N-(2-ethylcyclopropyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P006) N-(2,4-difluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P007) 5-(trifluoromethyl)-3-[4-[[3-(trifluoromethyl)-1,2,4-triazol-1-yl]methyl]phenyl]-1,2,4-oxadiazole; (P008) 2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1,2,4-triazole-3-carbonitrile; (P009) ethyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxylate; (P010) N-cyclopropyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrazole-4-carboxamide; (P011) N,N-dimethyl-1-[[4-[5-(trifluoromethyl)-

1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P012) N-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P013) N,N-dimethyl-H[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-1,2,4-triazol-3-amine; (P014) 3-[4-[(5-ethylsulfanyl)-1,2,4-triazol-1-yl)methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P015) 3-[4-(triazolo[4,5-b]pyridin-1-yl)methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P016) 3-[4-(triazolo[4,5-b]pyridin-2-yl)methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P017) 3-[4-(triazolo[4,5-b]pyridin-3-yl)methyl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole; (P018) methyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxylate; (P019) ethyl 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxylate; (P020) N,N-diethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P021) N-methoxy-N-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P022) propyl 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxylate; (P023) N-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P024) N-ethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P025) 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazole-4-carboxamide; (P026) N-methoxy-1-[1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrazol-4-yl]methanimine; (P027) ethyl 1-[1-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]ethyl]pyrazole-4-carboxylate; (P028) 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P029) 1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P030) 4-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]morpholin-3-one; (P031) 4,4-dimethyl-2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P032) 2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P033) 5,5-dimethyl-2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]isoxazolidin-3-one; (P034) 3,3-dimethyl-1 [4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P035) 1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P036) 1-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P037) 2-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]oxazinan-3-one; (P038) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]piperidin-2-one; (P039) 3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]oxazolidin-2-one; (P040) 1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]imidazolidin-2-one; (P041) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-3,3-dimethyl-piperidin-2-one; (P042) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]pyrrolidin-2-one; (P043) 2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl)methyl]-4,4-dimethyl-

isoxazolidin-3-one; (P044) 2-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one; (P045) 2-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]isoxazolidin-3-one; (P046) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]azepan-2-one; (P047) N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P048) 2,2-dimethyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]but-3-ynamide; (P049) N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide; (P050) 3-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide; (P051) 2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]prop-2-enamide; (P052) 2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide; (P053) 2-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]; (P054) 3,3,3-trifluoro-N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P055) 3,3,3-trifluoro-N-[[2-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P056) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]butanamide; (P057) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-3,3,3-trifluoro-propanamide; (P058) 2-(difluoromethoxy)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide; (P059) 2-methoxy-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P060) 1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P061) 1-ethyl-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P062) 1-ethoxy-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P063) 1-methoxy-1-methyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]; (P064) 1,1-diethyl-3-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P065) N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]cyclopropanecarboxamide; (P066) N-methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pent-4-ynamide; (P067) N-methoxy-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]prop-2-enamide; (P068) N,2-dimethoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P069) N-cyclopropyl-3,3,3-trifluoro-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P070) 2,2-difluoro-N-(2-methoxyethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]cyclopropanecarboxamide; (P071) N-ethyl-2-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P072) N-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-N-methoxy-propanamide; (P073) 2-methoxy-N-(2,2,2-trifluoroethyl)-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl] acetamide; (P074) N-[[2,3-difluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-N-methoxy-cyclopropane carboxamide; (P075) 2-(difluoromethoxy)-N-methyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide; (P076) N-ethoxy-2-

methoxy-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide;
(P077) N-isopropyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]tetrahydrofuran-2-carboxamide; (P078) 1-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P079) 3-cyclopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P080) 3-ethoxy-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P081) 3-allyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P082) 1-cyclopropyl-3-methoxy-3-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P083) 3-isopropyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P084) 1-methoxy-3-prop-2-ynyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P085) 1-[[3-fluoro-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]-1-methoxy-3-methyl-urea; (P086) 3-(cyclopropylmethyl)-1-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P087) 1-ethyl-3-(2,2,2-trifluoroethyl)-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P088) 1,3-dimethoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P089) 3-ethyl-1-methoxy-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]urea; (P090) N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P091) N-[(E)-methoxyiminomethyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P092) N-[(Z)-methoxyiminomethyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P093) N-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]cyclopropanecarboxamide; (P094) N-(2-fluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P095) 2,2-difluoro-N-methyl-2-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]acetamide; (P096) N-allyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]acetamide; (P097) N-[(E)-N-methoxy-C-methyl-carbonimidoyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P098) N-[(Z)-N-methoxy-C-methyl-carbonimidoyl]-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide; (P100) N-allyl-N-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]propanamide; (P101) 4,4-dimethyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one; (P102) N-methyl-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzenecarbothioamide and (P103) 5-methyl-1-[[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]methyl]pyrrolidin-2-one.

5. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one insecticidally active compound (II) selected from

- (II-2) GABA-gated chloride channel blockers;
- (II-3) Sodium channel modulators (Pyrethroids/Pyrethrins);
- (II-4) Nicotinic acetylcholine receptor (nAChR) competitive modulators;

- (II-5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators – Site I;
 (II-6) Glutamate-gated chloride channel (GluCl) allosteric modulators;
 (II-7) Juvenile hormone mimics;
 (II-9) Chordotonal organ TRPV channel modulators;
 5 (II-11) Microbial disruptors of insect midgut membranes;
 (II-13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient;
 (II-22) Voltage-dependent sodium channel blockers;
 (II-28) GABA-gated chloride channel allosteric modulators; and
 (II-31) Insecticidal active compounds of unknown or uncertain mode of action.
- 10 6. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one fungicidally active compound (III) selected from
- (A) Inhibitors of the ergosterol synthesis;
 (B) Inhibitors of the respiratory chain at complex I or II;
 (C) Inhibitors of the respiratory chain at complex III;
 15 (D) Inhibitors of the mitosis and cell division;
 (E) Compounds capable to have a multisite action;
 (L) Inhibitors of the nucleic acid synthesis;
 (M) Inhibitors of the signal transduction;
 (N) Compounds capable to act as an uncoupler; and
 20 (P) Inhibitors of histone deacetylase.
7. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one fungicidally active compound (III) selected from (A001) cyproconazole, (A002) difenoconazole, (A003) epoxiconazole, (A006) fenpropimorph, (A009) flutriafol, (A013) metconazole, (A017) propiconazole, (A018) prothioconazole, (A021) tebuconazole, (A022) tetraconazol, (A081)
 25 mefentrifluconazole, (B001) benzovindiflupyr, (B002) bixafen, (B005) fluopyram, (B007) fluxapyroxad, (B019) pydiflumetofen, (B30) fluindapyr, (B059) inpyrfluxam, (C003) azoxystrobin, (C012) fluoxastrobin (C014) metominostrobin, (C017) pyraclostrobin, (C016) picoxystrobin, (C020) trifloxystrobin, (C025) (3S,6S,7R,8R)-8-benzyl-3-[(3-
 30 [(isobutyryloxy)methoxy]-4-methoxy-pyridin-2-yl)carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl-2-methylpropanoate (Fenpicoxamid), (C030) 1-(2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-methylphenyl)-1,4-dihydro-4-methyl-5H-tetrazol-5-one (Metyltetraprole), (D001) carbendazim, (D007) thiophanate-methyl, (E004) chlorothalonil, (E010) dithianon, (E013) mancozeb, (E020) thiram, (F002) Isotianil, (F003) Probenazole, (L003) metalaxyl, (M001) fludioxonil, (N001) fluazinam, (O022) Oxathiapiprolin, (O043) 2-{3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl]piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-
 35 oxazol-5-yl]-3-chlorophenyl methanesulfonate (fluoxapiprolin), (O046) 3-(4,4,5-trifluoro-3,3-

dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (O047) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (Quinofumelin), (O065) ipflufenquin and (P094) N-(2-fluorophenyl)-4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]benzamide.

8. The pesticidal mixture according to claim 7, wherein said component (2) is at least one fungicidally active compound (III) selected from (C003) Azoxystrobin, (C017) Pyraclostrobin, (L003) Metalaxyl, (D007) Thiophanate-methyl, (B007) Fluxapyroxad, (M001) Fludioxonil, (F003) Probenazole, (F002) Isotianil and (B005) Fluopyram.
9. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one insecticidally active compound (II) selected from Abamectin (Z166), Acephate (Z027), acetamiprid (Z148), Afidopyropen (Z190), alpha-cypermethrin (Z114), Bifenthrin (Z103), Broflanilide (Z273), Benzpyrimoxan (Z285), buprofezin (Z221), Chlorfenapyr (Z203), Clothianidin (Z149), cyhalothrin (Z110), Cypermethrin (Z113), Diafenthiuron (Z197), Dimpropridaz (Z3170), dinotefuran (Z150), Emamectin benzoate (Z167), flonicamid (Z272), Fluxametamide (Z274), Flupyrimin (Z163), Fipronil (Z095), Fluhexafon (Z293), Flometoquin (Z292), Imidacloprid (Z151), Indoxacarb (Z240), Isocycloseram (Z275), Metaflumizone (Z241), Oxazosulfyl (Z243), Pyridalyl (Z299), Pymetrozine (Z188), Pyriproxyfen (Z174), Spirodiclofen (Z244), Spiropidion (Z246), Spinetoram (Z164), Spinosad (Z165), spirotetramat (Z247), Thiamethoxam (Z154), Teflubenzuron (Z219), thiacloprid (Z153), Triflumezopyrim (Z161) and Tyclopyrazoflor (Z318).
10. The pesticidal mixture according to claim 1 or 2, wherein said component (2) is at least one insecticidally active biological compound (II) selected from from the class of (II-11A) *Bacillus thuringiensis* (Z195) and the insecticidal proteins they produce including *bacillus thuringiensis* or *bacillus sphaericus* and the insecticidal proteins they produce such as *bacillus thuringiensis* subsp. *israelensis*, *bacillus sphaericus*, *bacillus thuringiensis* subsp. *aizawai*, *bacillus thuringiensis* subsp. *kurstaki* and *bacillus thuringiensis* subsp. *tenebrionis*, or the B.t crop proteins: Cry1Ab, Cry1Ac, Cry1Fa, Cry1A.105, Cry2Ab, Vip3A, mCry3A, Cry3Ab, Cry3Bb and Cry34/35Ab1,
11. The pesticidal mixture according to claim 1 to 10, wherein said mixture further comprises an agriculturally acceptable auxiliaries, solvents, carriers, surfactants or extenders.
12. The pesticidal mixture according to claim 1 to 10, wherein component (1) and said component (2) is in a weight ratio of from 1000:1 to 1:1000.
13. The pesticidal mixture according to claim 1 to 10, wherein component (1) and said component (2) is in a weight ratio of from 100:1 to 1:100.

14. A method for controlling insects, acarids, nematodes, phytopathogenic fungi comprising contacting an insect, acarid, nematode, phytopathogenic fungi or their food supply, habitat, breeding grounds or their locus with a pesticidally effective amount of a mixture according to any of the claims 1 to 10.
- 5 15. A method of protecting plants from attack or infestation by insects, acarids, nematodes or phytopathogenic fungi comprising contacting the plant, or the soil or water in which the plant is growing, with a pesticidally effective amount of a mixture according to any of the claims 1 to 10.
16. A seed, comprising the pesticidal mixture according to any of claims 1 to 10 in an amount from 0.1 g to 10 kg per 100 kg of seeds.
- 10 17. A method for the protection of plant propagation material comprising contacting the plant propagation material with a mixture according to any of the claims 1 to 10 in pesticidally effective amounts.
18. Use of pesticidal mixture according to any of the claims 1 to 10 for controlling or preventing agricultural crops and/or horticultural crops against pests like insects from the order of the
15 lepidopterans (*Lepidoptera*), beetles (*Coleoptera*), flies and mosquitoes (*Diptera*), thrips (*Thysanoptera*), termites (*Isoptera*), bugs, aphids, leafhoppers, whiteflies, scale insects, cicadas (*Hemiptera*), ants, wasps, sawflies (*Hymenoptera*), crickets, grasshoppers, locusts (*Orthoptera*), and also Arachnoidea, such as arachnids (*Acarina*).
19. Use of pesticidal mixture according to any of the claims 1 to 10 for controlling or preventing
20 crops and/or horticultural crops against diseases caused by insects, acarids, nematodes or phytopathogenic fungi.
20. Use of pesticidal mixture according of the claims 1 to 10 for treating seed, seed of transgenic plants and transgenic plants.

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2021/056717

A. CLASSIFICATION OF SUBJECT MATTER					
INV.	A01N43/90	A01N37/46	A01N53/00	A01N47/38	A01N43/80
	A01N43/22	A01N51/00	A01N43/40	A01N43/58	A01N47/24
	A01N47/34	A01N43/54	A01N43/84	A01N43/76	A01N47/06
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2019/123195 A1 (PI IND LTD [IN]) 27 June 2019 (2019-06-27) cited in the application page 44, line 19 pages 55-57 pages 84-127 -----	1-20

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 26 October 2021	Date of mailing of the international search report 08/11/2021
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Sawicki, Marcin
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2021/056717

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