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(71) Applicant: **BAYER CROPSCIENCE AK-
TIENGESSELLSCHAFT** [DE/DE]; Alfred-Nobel-Straße
50, 40789 Monheim (DE).

(72) Inventors: **THIELERT, Wolfgang**; Buschweg 69, 51519
Odenthal (DE). **JOHN, Marita**; An der Kommende 2b,
46238 Bottrop (DE). **JESCHKE, Peter**; Kalmüntener Str.
44a, 51467 Bergisch Gladbach (DE). **PLUSCHKELL,
Uwe**; Winterberg 15, 51381 Leverkusen (DE). **KEMPER,
Konrad**; Am Rahe 4, 34439 Willebadessen (DE).

(74) Agent: **BIP PATENTS**; c/o Bayer Intellectual Property
GmbH, Alfred-Nobel-Str. 10, 40789 Monheim am Rhein
(DE).

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(54) Title: ACTIVE COMPOUND COMBINATIONS AND METHODS TO PROTECT THE PROPAGATION MATERIAL OF
PLANTS

(57) Abstract: The present invention relates to novel mixtures, to processes for preparing these mixtures, to compositions compris-
ing these mixtures, and to the use thereof as biologically active compounds, especially for control of harmful microorganisms or
pests in crop protection and in the protection of materials and as plant growth regulators.

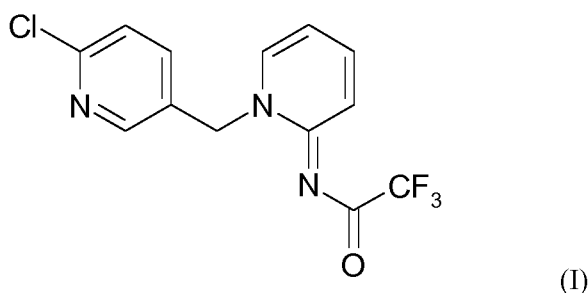


Active compound combinations and methods to protect the propagation material of plants

[0001] The present invention relates to novel mixtures, to a process for preparing these mixtures, to compositions comprising these mixtures, and to the use thereof as biologically active mixtures, especially for control of harmful microorganisms or pests in crop protection and in the protection of materials and as plant growth regulators.

Summary

[0002] One aspect refers to a composition, comprising (1) the compound of general formula (I), and



(2) at least one biological control agent.

[0003] In one embodiment, the composition according to the invention is characterized in that the biological control agent comprises bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts, as well as resting or dormant stages of these organisms like e.g. endospores, and products produced by microorganisms including proteins or secondary metabolites.

[0004] In another embodiment, the composition according to the present invention is characterized in that the biological control agent is selected from 1) bacteria as described herein, 2) fungi or yeasts as described herein, 3) protozoas as described herein, 4) viruses as described herein, 5) entomopathogenic nematodes as described herein, 6) proteins or secondary metabolites as described herein, 7) botanical extracts as described herein.

[0005] In another embodiment, the composition according to the present invention is characterized in that the biological control agent is selected from 1) bacteria consisting of (1.24) *Bacillus firmus*, in particular strain I-1582 (branded and contained under products known as Bionem, VOTIVO,), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980), (1.136) *Bacillus subtilis*, in particular strain QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980), 2) fungi or yeasts consisting of (2.20) *Lagenidium giganteum* (products known as Laginex[®] by AgraQuest, Inc.), (2.52) *Trichoderma asperellum* (products

known as BIO-TAM™), (2.55) *Trichoderma gamsii* (products known as BIO-TAM™) and 7) botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (products known as Requiem).

[0006] In another embodiment, the composition according to the present invention is characterized in that the biological control agent comprises *Metarhizium anisopliae*, preferably strain MET52, *Paecilomyces fumosoroseus* or *Beauveria bassiana*, preferably Naturalis L, *Paecilomyces fumosoroseus*, preferably *Paecilomyces fumosoroseus* strain Apopka 97 (PreFeRal), *Bacillus thuringiensis*, preferably *Bacillus thuringiensis* subsp. *aizawai* ABTS-1857 (XenTari), *Paecilomyces lilacinus*, preferably *Paecilomyces lilacinus* strain 251 (BioAct), or botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides*, preferably Requiem.

[0007] Another aspect refers to a method for controlling harmful microorganisms or pests, comprising contacting said microorganisms or pests or their habitat with a composition according to the invention.

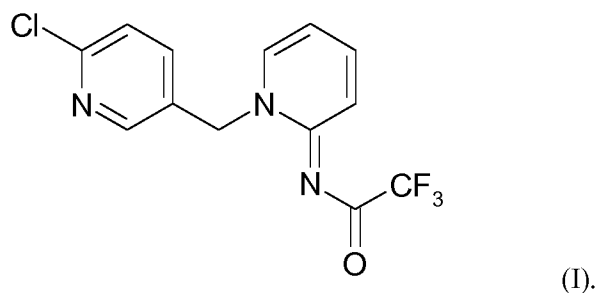
[0008] Another aspect refers to a method for treating seeds or other propagating material, comprising contacting said seeds or propagation material with the compound of formula (I) or a composition according to the invention.

[0009] Another aspect refers to a process for preparing a composition, comprising mixing a synergistically effective mixture according to the invention with an extender, a surfactant or a combination thereof.

[0010] Another aspect refers to a seed treated with the compound of formula (I) or a composition according to the invention.

Detailed description

[0011] The compound of the formula (I)



wherein (I)

is known as an active compound having an insecticidal effect (cf. EP 0 268 915 A2, JP1993078323 A, and WO 2012/029672 A1).

[0012] Since the ecological and economic demands made on modern active ingredients, for example insecticides, are increasing constantly, for example with respect to activity spectrum, toxicity, selectivity, application rate, formation of residues and favourable manufacture, and there can also be problems, for example, with resistances, there is a constant need to develop novel insecticidal compositions which have advantages over the known compositions at least in some areas.

[0013] WO 2013/129688 A1 discloses combinations of the compound of formula (I) and some other chemical active ingredients.

[0014] It has now surprisingly been found that mixtures comprising at least one compound of the above-shown formula (I) and at least one biological control agent have a superior efficiency when compared to those mixtures known from the prior art.

[0015] The mixtures according to the present invention display a superior efficacy against harmful microorganisms or pests, in particular insects, mites, nematodes or phytopathogenic fungi in comparison with the compositions known from prior art.

[0016] In particular, the mixtures according to the present invention preferably possess a synergistic effect in their application against harmful microorganisms or pests, in particular insects, mites, nematodes or phytopathogenic fungi.

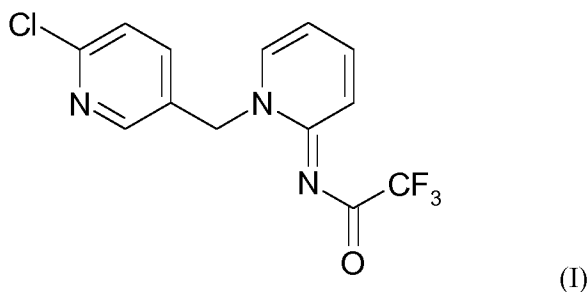
[0017] Furthermore, the mixtures according to the present invention possess a superior synergistic effect as compared with the known mixtures of the prior art against harmful microorganisms or pests, in particular insects, mites, nematodes or phytopathogenic fungi.

[0018] Further in particular, the mixtures according to the present invention preferably possess a surprisingly high activity when used as a seed treatment or the treatment of other plant propagation material.

[0019] The mixtures according to the present invention are now described in detail:

[0020] The composition according to the present invention comprises

(1) the compound of formula (I), and



at least one biological control agent (II).

[0021] The present invention is directed to a mixture of the compound of formula (I) and at least one (preferably one) biological control agent (II), in particular bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes or a mutant of these strains having all the identifying characteristics of the respective strain, botanical extracts and products produced by microorganisms including proteins or secondary metabolites that exhibit activity against phytopathogenic fungi and pests.

[0022] The compound of formula (I) is mixed with at least one biological control agent, in particular bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabolites that exhibit activity against phytopathogenic fungi and pests.

[0023] Preferably, the compound of formula (I) is mixed with one biological control agent, in particular bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabolites that exhibit activity against phytopathogenic fungi and pests.

[0024] Accordingly, in the present invention the biological control agents comprise bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabolites.

[0025] Mutants of the bacterial, fungal or protozoan strains having all the identifying characteristics of the respective strain shall be included within the definition of the biological control agent,

[0026] The products produced by microorganisms including proteins or secondary metabolites are characterized by exhibiting activity against phytopathogenic fungi and pests.

[0027] Accordingly, in the present invention biological control agents consist of bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabolites.

[0028] Accordingly, in the present invention biological control agents are in particular bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabolites.

[0029] Accordingly, in the present invention biological control agents include:

(1) bacteria,

(2) fungi or yeasts,

(3) protozoa,

(4) viruses,

(5) entomopathogenic nematodes,

(6) products produced by microorganisms including proteins or secondary metabolites and

(7) botanical extracts

- 5 [0030] Biological control agents which are summarized under the term "bacteria" include but are not limited to spore-forming, root-colonizing bacteria, or bacteria useful as bioinsecticide, biofungicide or bionematocide. Examples of such bacteria to be used or employed according to the invention include but are not limited to: (1.1) *Agrobacterium radiobacter*, (1.2) *Bacillus acidocaldarius*, (1.3) *Bacillus acidoterrestris*, (1.4) *Bacillus agri*, (1.5) *Bacillus aizawai*, (1.6) *Bacillus albolactis*, (1.7) *Bacillus alcalophilus*, (1.8) *Bacillus al-*
 10 *vei*, (1.9) *Bacillus aminoglucosidicus*, (1.10) *Bacillus aminovorans*, (1.11) *Bacillus amylolyticus* (also known as *Paenibacillus amylolyticus*), (1.12) *Bacillus amyloliquefaciens*, in particular strain IN937a, (1.13) *Bacillus amyloliquefaciens*, in particular strain FZB42 (product known as RhizoVital[®]), (1.14) *Bacillus amyloliquefaciens* strain B3, (1.15) *Bacillus aneurinolyticus*, (1.16) *Bacillus atrophaeus*, (1.17) *Bacillus azotoformans*, (1.18) *Bacillus badius*, (1.19) *Bacillus cereus*, in particular spores of *Bacillus cereus* strain CNCM I-1562 (cf.
 15 US 6 406 690), (1.20) *Bacillus chitinosporus*, in particular strain AQ746 (Accession No. NRRL B-21618), (1.21) *Bacillus circulans* (1.22) *Bacillus coagulans*, (1.23) *Bacillus fastidiosus*, (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.25) *Bacillus kurstaki*, (1.26) *Bacillus lacticola*, (1.27) *Bacillus lactimorbus*, (1.28) *Bacillus lactis*, (1.29) *Bacillus laterosporus* (also known as *Brevibacillus laterosporus*), (1.30) *Bacillus lautus*, (1.31) *Bacillus lentimorbus*, (1.32) *Bacillus lentus*, (1.33) *Bacillus*
 20 *licheniformis*, (1.34) *Bacillus maroccanus*, (1.35) *Bacillus megaterium* (products known as BioArc), (1.36) *Bacillus metiens*, (1.37) *Bacillus mycoides*, in particular strain AQ726 (Accession No. NRRL B21664), (1.38) *Bacillus mycoides* isolate J (BmJ), (1.39) *Bacillus natto*, (1.40) *Bacillus nematocida*, (1.41) *Bacillus nigrificans*, (1.42) *Bacillus nigrum*, (1.43) *Bacillus pantothenicus*, (1.44) *Bacillus popillae* (products known as Cronox), (1.45) *Bacillus psychrosaccharolyticus*, (1.46) *Bacillus pumilus*, in particular strain GB34
 25 (products known as Yield Shield[®]), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.48) *Bacillus pumilus*, in particular strain AQ717 (Accession No. NRRL B21662), (1.49) *Bacillus siamensis*, (1.50) *Bacillus smithii*, (1.51) *Bacillus sphaericus* (products known as VectoLexs[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-
 30 21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.54) *Bacillus subtilis*, in particular strain AQ743 (Accession No. NRRL B-21665), (1.55) *Bacillus subtilis*, in particular strain AQ 153 (ATCC accession No. 55614), (1.56) *Bacillus subtilis* var. *amyloliquefaciens* strain FZB24 (products known as Taegro[®]), (1.57) *Bacillus thuringiensis* var. *israelensis* (products known as VectoBac[®]), (1.58) *Bacillus thuringiensis* subsp. *aizawai* strain ABTS-1857 (products known as XenTari[®]), (1.59) *Bacillus thuringiensis*
 35 subsp. *kurstaki* strain HD-1 (products known as Dipel[®] ES), (1.60) *Bacillus thuringiensis* subsp. *kurstaki*

strain BMP 123, (1.61) *Bacillus thuringiensis* subsp. *tenebrionis* strain NB 176 (products known as Novodor[®] FC), (1.62) *Bacillus thuringiensis* var. *aegyptii* (products known as Agerin), (1.63) *Bacillus thuringiensis* var. *colmeri* (products known as TianBaoBTc), (1.64) *Bacillus thuringiensis* var. *darmstadiensis* (products known as Baciturin, Kolepterin), (1.65) *Bacillus thuringiensis* var. *dendrolimus* (products known as Dendrobacillin), (1.66) *Bacillus thuringiensis* var. *galleriae* (products known as Enterobactin), (1.67) *Bacillus thuringiensis* var. *japonensis* (products known as Buihunter), (1.68) *Bacillus thuringiensis* subsp. *Morrisoni*, (1.69) *Bacillus thuringiensis* var. *san diego*, (1.70) *Bacillus thuringiensis* subsp. *thuringiensis* strain MPPL002, (1.71) *Bacillus thuringiensis* subsp. *thuringiensis* (products known as Bikol), (1.72) *Bacillus thuringiensis* var. 7216 (products known as Amactic, Pethian), (1.73) *Bacillus thuringiensis* var. T36 (products known as Cahat), (1.74) *Bacillus thuringiensis* strain BD#32 (Accession No. NRRL B-21530), (1.75) *Bacillus thuringiensis* strain AQ52 (Accession No. NRRL B-21619), (1.76) *Bacillus uniflagellatus*, (1.77) *Bradyrhizobium japonicum* (products known as SoySelect), (1.78) *Bacillus* sp. strain AQ175 (ATCC Accession No. 55608), (1.79) *Bacillus* sp. strain AQ177 (ATCC Accession No. 55609), (1.80) *Bacillus* sp. strain AQ178 (ATCC Accession No. 53522), (1.81) *Brevibacillus brevis*, in particular strain SS86-3, (1.82) *Brevibacillus brevis*, in particular strain SS86-4, (1.83) *Brevibacillus brevis*, in particular strain SS86-5, (1.84) *Brevibacillus brevis*, in particular strain 2904, (1.85) *Brevibacillus laterosporus*, in particular strain 64, (1.86) *Brevibacillus laterosporus*, in particular strain 1111, (1.87) *Brevibacillus laterosporus*, in particular strain 1645, (1.88) *Brevibacillus laterosporus*, in particular strain 1647 (1.89) *Chromobacterium subtsugae*, in particular strain PRAA4-1T (products known as Gandevo), (1.90) *Delftia acidovorans*, in particular strain RAY209 (products known as BioBoost[®]), (1.91) *Lactobacillus acidophilus* (products known as Fruitsan), (1.92) *Lysobacter antibioticus*, in particular strain 13-1 (cf. Biological Control 2008, 45, 288-296), (1.93) *Lysobacter enzymogenes*, in particular strain C3 (cf. J Nematol. 2006 June; 38(2): 233-239), (1.94) *Paenibacillus alvei*, in particular strains III3DT-1A (*Bacillus* genetic stock center, Nov 2001), (1.95) *Paenibacillus alvei*, in particular strain III2E (*Bacillus* genetic stock center, Nov 2001), (1.96) *Paenibacillus alvei*, in particular strain 46C3 (*Bacillus* genetic stock center, Nov 2001), (1.97) *Paenibacillus alvei*, in particular strain 2771 (*Bacillus* genetic stock center, Nov 2001), (1.98) *Paenibacillus polymyxa*, (1.99) *Paenibacillus popilliae*, (1.100) *Pantoea agglomerans*, (1.101) *Pasteuria penetrans* (products known as Pasteuria wettable powder), (1.102) *Pasteuria usgae* (products known as Econem[™]), (1.103) *Pectobacterium carotovorum* (products known as BioKeeper), (1.104) *Pseudomonas aeruginosa* (products known as Guiticid), (1.105) *Pseudomonas aureofaciens* (products known as Agate-25K), (1.106) *Pseudomonas cepacia*, in particular strain M54, (1.107) *Pseudomonas cepacia*, in particular strain J82, (1.108) *Pseudomonas chlororaphis*, in particular strain MA 342 (products known as Cedomon), (1.109) *Pseudomonas fluorescens* (products known as Sudozone), (1.110) *Pseudomonas proradix* (products known as Proradix[®]), (1.111) *Pseudomonas putida* (products known as Nematsid), (1.112) *Pseudomonas resinovorans* (products known as Solanacure), (1.113) *Pseudomonas syringae* (products known as Biosave), (1.114) *Rhodococcus globerulus* strain AQ719 (Accession No. NRRL B21663) (1.115) *Serratia entomophila* (products known as Invade[™]), (1.116) *Serratia marcescens*, in particular strain SRM (MTCC8708), (1.117) *Serratia marcescens*, in particular strain R35, (1.118) *Streptomyces candidus* (products known as BioAid[™]), (1.119) *Streptomyces colombiensis* (products

known as Mycoside), (1.120) *Streptomyces galbus*, in particular strain K61 (products known as Mycostop[®], cf. Crop Protection 2006, 25, 468-475), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL 30232, (1.122) *Streptomyces goshikiensis* (products known as Safegro), (1.123) *Streptomyces griseoviridis* (products known as Mycostop[®], cf. Microbial db of Canada), (1.124) *Streptomyces lavendulae* (products known as Phytolavin-300), (1.125) *Streptomyces lydicus*, in particular strain WYCD108 (products known as ActinovateSP), (1.126) *Streptomyces lydicus*, in particular strain WYEC108 (products known as Actino-iron), (1.127) *Streptomyces prasinus* (cf. "Prasinons A and B: potent insecticides from *Streptomyces prasinus*" Applied Microbiology 1973 Nov), (1.128) *Streptomyces rimosus* (products known as Rhitovit), (1.129) *Streptomyces saraceticus* (products known as Clanda), (1.130) *Streptomyces venezuelae*, (1.131) *Streptomyces* sp. NRRL B-30145 (1.132) *Xanthomonas campestris*, (1.133) *Xenorhabdus luminescens*, (1.134) *Xenorhabdus nematophila*, (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980) and (1.136) *Bacillus subtilis*, in particular strain QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980).

[0031] Mutants of the bacterial, strains having all the identifying characteristics of the respective strain shall be included within the definition of the biological control agent being bacteria.

[0032] Further, the reference to a microbiological strain shall also, if not specifically excluded, comprise resting or dormant stages of these organisms as e.g. bacterial endospores.

[0033] Biological control agents which are summarized under the term "fungi" or "yeasts" include but are not limited to: (2.1) *Ampelomyces quisqualis*, in particular strain AQ 10 (product known as AQ 10[®]), (2.2) *Aureobasidium pullulans*, in particular blastospores of strain DSM14940, (2.3) *Aureobasidium pullulans*, in particular blastospores of strain DSM 14941 or mixtures thereof (product known as Blossom Protect[®]), (2.4) *Aschersonia aleyrodes*, (2.5) *Aspergillus flavus*, in particular strain NRRL 21882 (products known as Afla-Guard[®]), (2.6) *Arthrobotrys superba* (Corda 1839), (2.7) *Beauveria bassiana*, in particular strain ATCC 74040 (products known as Naturalis[®]), (2.8) *Beauveria bassiana*, in particular strain GHA (products known as Mycotrol, BotaniGard), (2.9) *Beauveria brongniartii* (products known as Beaupro), (2.10) *Candida oleophila*, in particular strain O (products known as Nexy[®], Aspire), (2.11) *Chaetomium cupreum* (products known as Ketocin), (2.12) *Cladosporium cladosporioides*, in particular strain H39, (2.13) *Conidiobolus obscurus*, (2.14) *Coniothyrium minitans*, in particular strain CON/M/91-8 (products known as Contans[®]), (2.15) *Dilophosphora alopecuri* (products known as Twist Fungus[®]), (2.16) *Entomophthora virulenta* (products known as Vektor), (2.17) *Fusarium oxysporum*, in particular strain Fo47 (products known as Fusaclean), (2.18) *Gliocladium catenulatum*, in particular strain J1446 (products known as Prestop[®] or Primastop), (2.19) *Hirsutella thompsonii* (products known as Mycohit or ABTEC), (2.20) *Lagenidium giganteum* (products known as Laginex[®] by AgraQuest, Inc.), (2.21) *Lecanicillium lecanii*, in particular conidia of strain KV01 (products known as Mycotal[®], Vertalec[®]), (2.22) *Metarhizium anisopliae*, in particular strain F52 (products known as BIO 1020 or Met52), (2.23) *Metarhizium anisopliae* var. *acridum* (products known as Green Muscle), (2.24) *Metarhizium flavoviride*, (2.25) *Metschnikovia fructicola*, in particular the strain NRRL Y-30752

(product known as Shemer[®]), (2.26) *Microsphaeropsis ochracea* (products known as Microx[®]), (2.27) *Mucor haemelis* (product known as BioAvar), (2.28) *Muscodor albus*, in particular strain QST 20799 (products known as Arabesque[™] or Andante[™]), (2.29) *Muscodor albus*, in particular strain 620 (Accession No. NRRL 30547), (2.30) *Muscodor roseus* strain A3-5 (Accession No. NRRL 30548), (2.31) *Myrothecium verrucaria*,
 5 in particular strain AARC-0255 (products known as DiTera[™]), (2.32) *Nomuraea rileyi*, in particular strain SA86101, (2.33) *Nomuraea rileyi*, in particular strain GU87401, (2.34) *Nomuraea rileyi*, in particular strain SR86151, (2.35) *Nomuraea rileyi*, in particular strain CG128, (2.36) *Nomuraea rileyi*, in particular strain VA9101 (products known as Kongo[®]), (2.37) *Ophiostoma piliferum*, in particular strain D97 (products known as Sylvanex), (2.38) *Paecilomyces fumosoreus*, in particular strain apopka 97 (products known as
 10 PreFeRal), (2.39) *Paecilomyces lilacinus*, in particular spores of *Paecilomyces lilacinus* strain 251 (products known as BioAct[®], cf. *Crop Protection* 2008, 27, 352-361), (2.40) *Paecilomyces variotii*, in particular strain Q-09 (products known as Nemaquim), (2.41) *Pandora delphacis*, (2.42) *Penicillium bilaii*, in particular strain ATCC22348 (products known as JumpStart[®], PB-50, Provide), (2.43) *Penicillium vermiculatum* (products known as Vermiculen), (2.44) *Phlebiopsis gigantea* (products known as Rotstop), (2.45) *Pichia anomala*, in particular strain WRL-076, (2.46) *Pochonia chlamydosporia*, (2.47) *Pseudozyma flocculosa*, in particular strain PF-A22 UL (products known as Sporodex[®] L), (2.48) *Pythium oligandrum*, in particular strain DV74 (products known as Polyversum), (2.49) *Sporothrix insectorum* (products known as Sporothrix),
 15 (2.50) *Talaromyces flavus*, (2.51) *Trichoderma album* (products known as Bio-Zeid), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]), (2.53) *Trichoderma asperellum* in particular strain ICC 012 (products known as Bioten[®]), (2.54) *Trichoderma atroviride*, in particular strain CNCM I-1237, (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]), (2.56) *Trichoderma gamsii*, in particular mycelial fragments, conidia & chlamydospores of strain ICC080 (products known as Bioderma), (2.57) *Trichoderma harmatum*, (2.58) *Trichoderma harzianum*, in particular *Trichoderma harzianum* T39 (products known as Trichodex[®]), (2.59) *Trichoderma koningii* (products known as Trikot-S Plus), (2.60) *Trichoderma lignorum*
 25 (products known as Mycobac), (2.61) *Trichoderma polysporum*, in particular strain IMI 206039, (2.62) *Trichoderma virens* (products known as SoilGard), (2.63) *Tsukamurella paurometabola* (products known as HeberNem[®]), (2.64) *Ulocladium oudemansii* (products known as Botry-Zen), (2.65) *Verticillium albo-atrum*, in particular strain WCS850, (2.66) *Verticillium chlamydosporium* (products known as Varsha), (2.67) *Verticillium dahliae* (products known as Dutch Trig), and (2.68) *Zoophtora radican*.

30 [0034] Mutants of the fungal strains having all the identifying characteristics of the respective strain shall be included within the definition of the biological control agent being a fungus or yeast,

[0035] Biological control agents which are summarized under the term "protozoa" include but are not limited to: (3.1) *Nosema locustae* (products known as NoloBait), (3.2) *Thelohania solenopsis* and (3.3) *Vairimorpha spp.* Mutants of the protozoan strains having all the identifying characteristics of the respective
 35 strain shall be included within the definition of the biological control agent being protozoan,

[0036] Biological control agents which are summarized under the term "viruses" include but are not limited to: (4.1) *Adoxophyes orana* (summer fruit tortrix) granulosus virus (GV), (product known as BIOFA - Capex®), (4.2) *Agrotis segetum* (turnip moth) nuclear polyhedrosis virus (NPV), (4.3) *Anticarsia gemmatilis* (Woolly pyrol moth) mNPV (products known as Polygen), (4.4) *Autographa californica* (Alfalfa Looper) mNPV (products known as VPN80 from Agricola El Sol), (4.5) *Biston suppressaria* (tea looper) NPV, (4.6) *Bombyx mori* (silkworm) NPV, (4.7) *Cryptophlebia leucotreta* (false codling moth) GV (products known as Cryptex), (4.8) *Cydia pomonella* (Codling moth) granulosus virus (GV) (product known as Madex Plus), (4.9) *Dendrolimus punctatus* (Masson pine moth) CPV, (4.10) *Helicoverpa armigera* NPV (product known as AgBiTech - ViVUS Max), (4.11) *Helicoverpa* (previously *Heliothis*) *zea* (corn earworm) NPV (products known as Elcar), (4.12) *Leucoma salicis* (satin moth) NPV, (4.13) *Lymantria dispar* (gypsy moth) NPV (products known as Gypcheck), (4.14) *Neodiprion abietis* (balsam-fir sawfly) NPV (products known as Abietiv), (4.15) *Neodiprion lecontei* (red-headed pinesawfly) NPV (products known as Lecontvirus), (4.16) *Neodiprion sertifer* (Pine sawfly) NPV (products known as Neocheck-S), (4.17) *Orgyia pseudotsugata* (Douglas-fir tussock moth) NPV (products known as Virtuss), (4.18) *Phthorimaea operculella* (tobacco leaf miner) GV (products known as Matapol), (4.19) *Pieris rapae* (small white) GV, (4.20) *Plutella xylostella* (diamond-back moth) GV (products known as Plutec), (4.21) *Spodoptera albula* (gray-streaked armyworm moth) mNPV (products known as VPN 82), (4.22) *Spodoptera exempta* (true armyworm) mNPV (products known as Spodec), (4.23) *Spodoptera exigua* (sugarbeet armyworm) mNPV (products known as Spexit from Andermatt Biocontrol), (4.24) *Spodoptera frugiperda* (fall armyworm) mNPV (products known as Baculovirus VPN), (4.25) *Spodoptera littoralis* (tobacco cutworm) NPV (products known as Spodoptrin from NPP Calliope France), and (4.26) *Spodoptera litura* (oriental leafworm moth) NPV (products known as Littovir).

[0037] Biological control agents which are summarized under the term "entomopathogenic nematodes" include but are not limited to: (5.1) *Abbreviata caucasica*, (5.2) *Acuaria* spp., (5.3) *Agamermis decaudata*, (5.4) *Allantonema* spp., (5.5) *Amphimermis* spp., (5.6) *Beddingia* (= *Deladenus*) *siridicola*, (5.7) *Bovienema* spp., (5.8) *Cameronia* spp., (5.9) *Chitwoodiella ovofilamenta*, (5.10) *Contortylenchus* spp., (5.11) *Culicimermis* spp., (5.12) *Diplotrinaena* spp., (5.13) *Empidomermis* spp., (5.14) *Filipjevimermis leipsandra*, (5.15) *Gastromermis* spp., (5.16) *Gongylonema* spp., (5.17) *Gynopocilia pseudovipara*, (5.18) *Heterorhabditis bacteriophora* (products known as B-Green), (5.19) *Heterorhabditis baujardi*, (5.20) *Heterorhabditis heliothidis* (products known as Nematon), (5.21) *Heterorhabditis indica*, (5.22) *Heterorhabditis marelatus*, (5.23) *Heterorhabditis megidis*, (5.24) *Heterorhabditis zealandica*, (5.25) *Hexameris* spp., (5.26) *Hydromermis* spp., (5.27) *Isomermis* spp., (5.28) *Limnomermis* spp., (5.29) *Maupasina weissii*, (5.30) *Mermis nigrescens*, (5.31) *Mesomermis* spp., (5.32) *Neomesomermis* spp., (5.33) *Neoparasitylenchus rugulosi*, (5.34) *Octomyomermis* spp., (5.35) *Parasitaphelenchus* spp., (5.36) *Parasitorhabditis* spp., (5.37) *Parasitylenchus* spp., (5.38) *Perutilimermis culicis*, (5.39) *Phasmarhabditis hermaphrodita*, (5.40) *Physaloptera* spp., (5.41) *Protrellatus* spp., (5.42) *Pterygodermatites* spp., (5.43) *Romanomermis* spp., (5.44) *Seuratum cadarachense*, (5.45) *Sphaerulariopsis* spp., (5.46) *Spirura guianensis*, (5.47) *Steinernema carpocapsae* (products known as Biocontrol), (5.48) *Steinernema feltiae* (products known as Nemasys®), (5.49) *Steinernema glaseri* (products

known as Biotopia), (5.50) *Steinernema kraussei* (products known as Larvesure), (5.51) *Steinernema riobrave* (products known as Biovector), (5.52) *Steinernema scapterisci* (products known as Nematac S), (5.53) *Steinernema scarabaei*, (5.54) *Steinernema siamkayai*, (5.55) *Strelkovimermis peterseni*, (5.56) *Subulura spp.*, (5.57) *Sulphuretylenchus elongatus*, and (5.58) *Tetrameres spp.*

- 5 [0038] Biological control agents which are summarized under the term "proteins or secondary metabolites" include but are not limited to: (6.1) *Bacillus thuringiensis* toxins (isolated from different subspecies of *B. thuringiensis*), (6.2) Gougerotin (isolated from *Streptomyces microflavus* strain AQ 6121, (6.3) Harpin (isolated from *Erwinia amylovora*, products known as Harp-N-Tek™, Messenger®, Employ™, ProAct™), (6.4) the spider toxin GS-omega/kappa-Hctx-Hv1a (product known as Versitude).
- 10 [0039] Biological control agents which are summarized under the term "botanical extracts" include but are not limited to: (7.1) Thymol, extracted e. g. from thyme (*Thymus vulgaris*), (7.2) Neem tree (*Azadirachta indica*) oil, and therein Azadirachtin, (7.3) Pyrethrum, an extract made from the dried flower heads of different species of the genus *Tanacetum*, and therein Pyrethrins (the active components of the extract), (7.4) extract of *Cassia nigricans*, (7.5) wood extract of *Quassia amara* (bitterwood), (7.6) Rotenon, an extract from the roots
- 15 and stems of several tropical and subtropical plant species, especially those belonging to the genera *Lonchocarpus* and *Derris*, (7.7) extract of *Allium sativum* (garlic), (7.8) Quillaja extract, made from the concentrated purified extract of the outer cambium layer of the *Quillaja Saponaria Molina* tree, (7.9) Sabadilla (*Sabadilla*= *Schoenocaulon officinale*) seeds, in particular Veratrin (extracted from the seeds), (7.10) Rynania, an extract made from the ground stems of *Rynania speciosa*, in particular Ryanodine (the active component of the
- 20 extract), (7.11) extract of *Viscum album* (mistletoe), (7.12) extract of *Tanacetum vulgare* (tansy), (7.13) extract of *Artemisia absinthium* (wormwood), (7.14) extract of *Urtica dioica* (stinging nettle), (7.15) extract of *Symphytum officinale* (common comfrey), (7.16) extract of *Tropaeolum majus* (monks cress), (7.17) leaves and bark of *Quercus* (oak tree) (7.18) Yellow mustard powder, (7.19) oil of the seeds of *Chenopodium anthelminticum* (wormseed goosefoot), (7.20) dried leaves of *Dryopteris filix-mas* (male fern), (7.21) bark of
- 25 *Celastrus angulatus* (Chinese bittersweet), (7.22) extract of *Equisetum arvense* (field horsetail), (7.23) Chitin (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (product known as Requiem®, which contains a mixture of three terpenes, i.e. α -terpinene (around 10%), p-cymene (around 3.75%) and limonene (around 3%), as pesticidally active ingredients. It is disclosed in US 2010/0316738 corresponding to WO 2010/144919), (7.25) Saponins of *Chenopodium quinoa* (products known as Heads Up).
- 30 [0040] Particularly preferred are biological control agents selected from the group of bacteria consisting of (1.12) *Bacillus amyloliquefaciens*, in particular strain IN937a, (1.13) *Bacillus amyloliquefaciens*, in particular strain FZB42 (product known as RhizoVital®), (1.16) *Bacillus atrophaeus*, (1.19) *Bacillus cereus*, in particular spores of *Bacillus cereus* strain CNCM I-1562 (cf. US 6 406 690), (1.20) *Bacillus chitinosporus*, in particular strain AQ746 (Accession No. NRRL B-21618, (1.21) *Bacillus circulans*, (1.22) *Bacillus coagulan*,
- 35 (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.37) *Bacillus mycoides*, in particular strain AQ726 (Accession No. NRRL B21664), (1.38) *Bacillus mycoides* isolate J

- (BmJ), (1.44) *Bacillus popillae* (products known as Cronox), (1.46) *Bacillus pumilus*, in particular strain GB34 (products known as Yield Shield[®]), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.48) *Bacillus pumilus*, in particular strain AQ717 (Accession No. NRRL B21662), (1.51) *Bacillus sphaericus* (products known as VectoLexs[®]), (1.52)
- 5 *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.54) *Bacillus subtilis*, in particular strain AQ743 (Accession No. NRRL B-21665), (1.55) *Bacillus subtilis*, in particular strain AQ 153 (ATCC accession No. 55614), (1.56) *Bacillus subtilis* var. *amyloliquefaciens* strain FZB24 (products known as Taegro[®]), (1.57) *Bacillus thuringiensis* var. *israelensis*
- 10 (products known as VectoBac[®]), (1.58) *Bacillus thuringiensis* subsp. *aizawai* strain ABTS-1857 (products known as XenTari[®]), (1.59) *Bacillus thuringiensis* subsp. *kurstaki* strain HD-1 (products known as Dipel[®] ES), (1.60) *Bacillus thuringiensis* subsp. *kurstaki* strain BMP 123, (1.61) *Bacillus thuringiensis* subsp. *te-nebrionis* strain NB 176 (products known as Novodor[®] FC), (1.62) *Bacillus thuringiensis* var. *aegyptii* (products known as Agerin), (1.63) *Bacillus thuringiensis* var. *colmeri* (products known as TianBaoBTc),
- 15 (1.64) *Bacillus thuringiensis* var. *darmstadiensis* (products known as Baciturin, Kolepterin), (1.65) *Bacillus thuringiensis* var. *dendrolimus* (products known as Dendrobacillin), (1.66) *Bacillus thuringiensis* var. *galler-iae* (products known as Enterobactin), (1.67) *Bacillus thuringiensis* var. *japonensis* (products known as Bui-hunter), (1.71) *Bacillus thuringiensis* subsp. *thuringiensis* (products known as Bikol), (1.72) *Bacillus thurin-giensis* var. 7216 (products known as Amactic, Pethian), (1.73) *Bacillus thuringiensis* var. T36 (products
- 20 known as Cahat), (1.76) *Bacillus uniflagellatus*, (1.77) *Bradyrhizobium japonicum* (products known as Soy-Select), (1.78) *Bacillus* sp. strain AQ175 (ATCC Accession No. 55608), (1.79) *Bacillus* sp. strain AQ177 (ATCC Accession No. 55609), (1.80) *Bacillus* sp. strain AQ178 (ATCC Accession No. 53522), (1.81) *Brevibacillus brevis*, in particular strain SS86-3, (1.82) *Brevibacillus brevis*, in particular strain SS86-4, (1.83) *Brevibacillus brevis*, in particular strain SS86-5, (1.84) *Brevibacillus brevis*, in particular strain 2904,
- 25 (1.85) *Brevibacillus laterosporus*, in particular strain 64, (1.86) *Brevibacillus laterosporus*, in particular strain 1111, (1.87) *Brevibacillus laterosporus*, in particular strain 1645, (1.88) *Brevibacillus laterosporus*, in partic-ular strain 1647 (1.89) *Chromobacterium subtsugae*, in particular strain PRAA4-1T (products known as Gandevo), (1.90) *Delftia acidovorans*, in particular strain RAY209 (products known as BioBoost[®]), (1.91) *Lactobacillus acidophilus* (products known as Fruitsan), (1.92) *Lysobacter antibioticus*, in particular strain
- 30 13-1 (cf. Biological Control 2008, 45, 288-296), (1.101) *Pasteuria penetrans* (products known as Pasteuria wettable powder), (1.102) *Pasteuria usgae* (products known as Econem[™]), (1.103) *Pectobacterium caroto-vorum* (products known as BioKeeper), (1.104) *Pseudomonas aeruginosa* (products known as Guiticid), (1.105) *Pseudomonas aureofaciens* (products known as Agate-25K), (1.108) *Pseudomonas chlororaphis*, in particular strain MA 342 (products known as Cedomon), (1.109) *Pseudomonas fluorescens* (products known
- 35 as Sudozone), (1.110) *Pseudomonas proradix* (products known as Proradix[®]), (1.111) *Pseudomonas putida* (products known as Nematsid), (1.112) *Pseudomonas resinovorans* (products known as Solanacure), (1.113) *Pseudomonas syringae* (products known as Biosave), (1.114) *Rhodococcus globerulus* strain AQ719 (Acces-sion No. NRRL B21663), (1.115) *Serratia entomophila* (products known as Invade[™]), (1.118) *Streptomy-*

ces candidus (products known as BioAid™), (1.119) *Streptomyces colombiensis* (products known as Myco-
 side), (1.120) *Streptomyces galbus*, in particular strain K61 (products known as Mycostop®, cf. Crop Protec-
 tion 2006, 25, 468-475), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL
 30232, (1.122) *Streptomyces goshikiensis* (products known as Safegro), (1.123) *Streptomyces griseoviridis*
 5 (products known as Mycostop®, cf. Microbial db of Canada), (1.124) *Streptomyces lavendulae* (products
 known as Phytolavin-300), (1.125) *Streptomyces lydicus*, in particular strain WYCD108 (products known as
 ActinovateSP), (1.126) *Streptomyces lydicus*, in particular strain WYEC108 (products known as Actino-
 iron), (1.128) *Streptomyces rimosus* (products known as Rhitovit), (1.129) *Streptomyces saraceticus* (prod-
 ucts known as Clanda), (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No.
 10 NRRL B-50421, cf. WO 2012/087980) and (1.136) *Bacillus subtilis*, in particular strain
 QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980).

[0041] Particularly preferred are biological control agents selected from the group of fungi or yeasts con-
 sisting of (2.1) *Ampelomyces quisqualis*, in particular strain AQ 10 (product known as AQ 10®), (2.3) *Aure-
 obasidium pullulans*, in particular blastospores of strain DSM 14941 or mixtures thereof (product known as
 15 Blossom Protect®), (2.5) *Aspergillus flavus*, in particular strain NRRL 21882 (products known as Afla-
 Guard®), (2.7) *Beauveria bassiana*, in particular strain ATCC 74040 (products known as Naturalis®), (2.8)
Beauveria bassiana, in particular strain GHA (products known as Mycotrol, BotaniGard), (2.9) *Beauveria
 brongniartii* (products known as Beaupro), (2.10) *Candida oleophila*, in particular strain O (products known
 as Nexy®, Aspire), (2.11) *Chaetomium cupreum* (products known as Ketocin), (2.14) *Coniothyrium mini-
 20 tans*, in particular strain CON/M/91-8 (products known as Contans®), (2.15) *Dilophosphora alopecuri*
 (products known as Twist Fungus®), (2.16) *Entomophthora virulenta* (products known as Vektor), (2.17)
Fusarium oxysporum, in particular strain Fo47 (products known as Fusaclean), (2.18) *Gliocladium catenula-
 tum*, in particular strain J1446 (products known as Prestop® or Primastop), (2.19) *Hirsutella thomp-
 sonii* (products known as Mycohit or ABTEC), (2.20) *Lagenidium giganteum* (products known as Lagenex®
 25 by AgraQuest, Inc.), (2.21) *Lecanicillium lecanii*, in particular conidia of strain KV01 (products known as
 Mycotal®, Vertalec®), (2.22) *Metarhizium anisopliae*, in particular strain F52 (products known as BIO 1020
 or Met52), (2.23) *Metarhizium anisopliae* var. *acridum* (products known as Green Muscle), (2.25) *Metschni-
 kovia fructicola*, in particular the strain NRRL Y-30752 (product known as Shemer®), (2.26) *Micro-
 sphaeropsis ochracea* (products known as Microx®), (2.27) *Mucor haemelis* (product known as BioAvard),
 30 (2.28) *Muscodor albus*, in particular strain QST 20799 (products known as Arabesque™ or Andante™),
 (2.29) *Muscodor albus*, in particular strain 620 (Accession No. NRRL 30547), (2.30) *Muscodor roseus* strain
 A3-5 (Accession No. NRRL 30548), (2.31) *Myrothecium verrucaria*, in particular strain AARC-0255 (prod-
 ucts known as DiTera™), (2.32) *Nomuraea rileyi*, in particular strain SA86101, (2.33) *Nomuraea rileyi*, in
 particular strain GU87401, (2.34) *Nomuraea rileyi*, in particular strain SR86151, (2.35) *Nomuraea rileyi*, in
 35 particular strain CG128, (2.36) *Nomuraea rileyi*, in particular strain VA9101 (products known as Kongo®),
 (2.37) *Ophiostoma piliferum*, in particular strain D97 (products known as Sylvanex), (2.38) *Paecilomyces
 fumosoreus*, in particular strain apopka 97 (products known as PreFeRal), (2.39) *Paecilomyces lilacinus*, in

particular spores of *Paecilomyces lilacinus* strain 251 (products known as BioAct[®], cf. *Crop Protection* 2008, 27, 352-361), (2.40) *Paecilomyces variotii*, in particular strain Q-09 (products known as Nemaquim), (2.42) *Penicillium bilaii*, in particular strain ATCC22348 (products known as JumpStart[®], PB-50, Provide), (2.43) *Penicillium vermiculatum* (products known as Vermiculen), (2.44) *Phlebiopsis gigantea* (products known as Rotstop), (2.47) *Pseudozyma flocculosa*, in particular strain PF-A22 UL (products known as Sporodex[®] L), (2.48) *Pythium oligandrum*, in particular strain DV74 (products known as Polyversum), (2.49) *Sporothrix insectorum* (products known as Sporothrix), (2.51) *Trichoderma album* (products known as Bio-Zeid), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]), (2.53) *Trichoderma asperellum* in particular strain ICC 012 (products known as Bioten[®]), (2.54) *Trichoderma atroviride*, in particular strain CNCM I-1237, (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]), (2.56) *Trichoderma gamsii*, in particular mycelial fragments, conidia & chlamydospores of strain ICC080 (products known as Bioderma), (2.58) *Trichoderma harzianum*, in particular *Trichoderma harzianum* T39 (products known as Trichodex[®]), (2.59) *Trichoderma koningii* (products known as Trikot-S Plus), (2.60) *Trichoderma lignorum* (products known as Mycobac), (2.62) *Trichoderma virens* (products known as SoilGard), (2.63) *Tsukamurella paurometabola* (products known as HeberNem[®]), (2.64) *Ulocladium oudemansii* (products known as Botry-Zen), (2.66) *Verticillium chlamydosporium* (products known as Varsha) and (2.67) *Verticillium dahliae* (products known as Dutch Trig).

[0042] Particularly preferred are biological control agents selected from the group of protozoas consisting of (3.1) *Nosema locustae* (products known as NoloBait).

[0043] Particularly preferred are biological control agents selected from the group of viruses consisting of (4.1) *Adoxophyes orana* (summer fruit tortrix) granulosis virus (GV), (product known as BIOFA - Capex[®]), (4.3) *Anticarsia gemmatalis* (Woolly pyrol moth) mNPV (products known as Polygen), (4.4) *Autographa californica* (Alfalfa Looper) mNPV (products known as VPN80 from Agricola El Sol), (4.7) *Cryptophlebia leucotreta* (false codling moth) GV (products known as Cryptex), (4.8) *Cydia pomonella* (Codling moth) granulosis virus (GV) (product known as Madex Plus), (4.10) *Helicoverpa armigera* NPV (product known as AgBiTech - ViVUS Max), (4.11) *Helicoverpa* (previously *Heliothis*) *zea* (corn earworm) NPV (products known as Elcar), (4.13) *Lymantria dispar* (gypsy moth) NPV (products known as Gypcheck), (4.14) *Neodiprion abietis* (balsam-fir sawfly) NPV (products known as Abietiv), (4.15) *Neodiprion lecontei* (red-headed pinesawfly) NPV (products known as Lecontvirus), (4.16) *Neodiprion sertifer* (Pine sawfly) NPV (products known as Neocheck-S), (4.17) *Orgyia pseudotsugata* (Douglas-fir tussock moth) NPV (products known as Virtuss), (4.18) *Phthorimaea operculella* (tobacco leaf miner) GV (products known as Matapol), (4.20) *Plutella xylostella* (diamondback moth) GV (products known as Plutec), (4.21) *Spodoptera albula* (gray-streaked armyworm moth) mNPV (products known as VPN 82), (4.22) *Spodoptera exempta* (true armyworm) mNPV (products known as Spodec), (4.23) *Spodoptera exigua* (sugarbeet armyworm) mNPV (products known as Spexit from Andermatt Biocontrol), (4.24) *Spodoptera frugiperda* (fall armyworm) mNPV (products known as Baculovirus VPN), (4.25) *Spodoptera littoralis* (tobacco cutworm) NPV (products known as

Spodoptrin from NPP Calliope France), and (4.26) *Spodoptera litura* (oriental leafworm moth) NPV (products known as Littovir).

[0044] Particularly preferred are biological control agents selected from the group of entomopathogenic nematodes consisting of (5.18) *Heterorhabditis bacteriophora* (products known as B-Green), (5.20) *Heterorhabditis heliothidis* (products known as Nematon), (5.47) *Steinernema carpocapsae* (products known as Biocontrol), (5.48) *Steinernema feltiae* (products known as Nemasys®), (5.49) *Steinernema glaseri* (products known as Biotopia), (4.50) *Steinernema kraussei* (products known as Larvesure), (5.51) *Steinernema riobrave* (products known as Biovector), and (5.52) *Steinernema scapterisci* (products known as Nematac S).

[0045] Particularly preferred are biological control agents selected from the group of proteins and secondary metabolites consisting of (6.1) Harpin (isolated by *Erwinia amylovora*, products known as Harp-N-Tek™, Messenger®, Employ™, ProAct™).

[0046] Particularly preferred are biological control agents selected from the group of botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (products known as Requiem), (7.25) Saponins of *Chenopodium quinoa* (products known as Heads Up).

[0047] A further particularly preferred combination according to the invention comprises

a) the compound of formula (I),

b) a biological control agent selected from the group of bacteria consisting of (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808®), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak®), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713®, Serenade Soil, Serenade Max), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL 30232, (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980) and (1.136) *Bacillus subtilis*, in particular strain QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980), and

c) fluopyram.

[0048] More particularly preferred are biological control agents selected from the group of bacteria consisting of (1.12) *Bacillus amyloliquefaciens*, in particular strain IN937a, (1.13) *Bacillus amyloliquefaciens*, in particular strain FZB42 (product known as RhizoVital®), (1.16) *Bacillus atrophaeus*, (1.19) *Bacillus cereus*, in particular spores of *Bacillus cereus* strain CNCM I-1562 (cf. US 6 406 690), (1.20) *Bacillus chitosporus*, in particular strain AQ746 (Accession No. NRRL B-21618), (1.21) *Bacillus circulans*, (1.22) *Bacillus coagulans*, (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.37) *Bacil-*

lus mycoides, in particular strain AQ726 (Accession No. NRRL B21664), (1.38) *Bacillus mycoides* isolate J (BmJ), (1.44) *Bacillus popillae* (products known as Cronox), (1.46) *Bacillus pumilus*, in particular strain GB34 (products known as Yield Shield[®]), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.48) *Bacillus pumilus*, in particular strain
 5 AQ717 (Accession No. NRRL B21662), (1.51) *Bacillus sphaericus* (products known as VectoLexs[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.54) *Bacillus subtilis*, in particular strain AQ743 (Accession No. NRRL B-21665), (1.55) *Bacillus subtilis*, in particular strain AQ 153 (ATCC accession No. 55614), (1.56) *Bacillus subtilis* var.
 10 *amyloliquefaciens* strain FZB24 (products known as Taegro[®]), (1.57) *Bacillus thuringiensis* var. *israelensis* (products known as VectoBac[®]), (1.58) *Bacillus thuringiensis* subsp. *aizawai* strain ABTS-1857 (products known as XenTari[®]), (1.59) *Bacillus thuringiensis* subsp. *kurstaki* strain HD-1 (products known as Dipel[®] ES), (1.60) *Bacillus thuringiensis* subsp. *kurstaki* strain BMP 123, (1.61) *Bacillus thuringiensis* subsp. *te-
 nebrionis* strain NB 176 (products known as Novodor[®] FC), (1.62) *Bacillus thuringiensis* var. *aegyptii*
 15 (products known as Agerin), (1.63) *Bacillus thuringiensis* var. *colmeri* (products known as TianBaoBTc), (1.64) *Bacillus thuringiensis* var. *darmstadiensis* (products known as Baciturin, Kolepterin), (1.65) *Bacillus thuringiensis* var. *dendrolimus* (products known as Dendrobacillin), (1.66) *Bacillus thuringiensis* var. *galler-
 iae* (products known as Enterobactin), (1.67) *Bacillus thuringiensis* var. *japonensis* (products known as Bui-
 hunter), (1.71) *Bacillus thuringiensis* subsp. *thuringiensis* (products known as Bikol), (1.72) *Bacillus thurin-
 giensis* var. 7216 (products known as Amactic, Pethian), (1.73) *Bacillus thuringiensis* var. T36 (products
 20 known as Cahat), (1.78) *Bacillus* sp. strain AQ175 (ATCC Accession No. 55608), (1.79) *Bacillus* sp. strain AQ177 (ATCC Accession No. 55609), (1.80) *Bacillus* sp. strain AQ178 (ATCC Accession No. 53522), (1.81) *Brevibacillus brevis*, in particular strain SS86-3, (1.82) *Brevibacillus brevis*, in particular strain SS86-
 4, (1.83) *Brevibacillus brevis*, in particular strain SS86-5, (1.84) *Brevibacillus brevis*, in particular strain
 25 2904, (1.85) *Brevibacillus laterosporus*, in particular strain 64, (1.86) *Brevibacillus laterosporus*, in particular strain 1111, (1.87) *Brevibacillus laterosporus*, in particular strain 1645, (1.88) *Brevibacillus laterosporus*, in particular strain 1647, (1.89) *Chromobacterium subtsugae*, in particular strain PRAA4-1T (products known as Gandevo), (1.90) *Delftia acidovorans*, in particular strain RAY209 (products known as BioBoost[®]), (1.91) *Lactobacillus acidophilus* (products known as Fruitsan), (1.92) *Lysobacter antibioticus*, in particular strain
 30 13-1 (cf. Biological Control 2008, 45, 288-296), (1.103) *Pectobacterium carotovorum* (products known as BioKeeper), (1.114) *Rhodococcus globerulus* strain AQ719 (Accession No. NRRL B21663), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL 30232 and (1.123) *Streptomyces griseoviridis* (products known as Mycostop[®], cf. Microbial db of Canada).

[0049] More particularly preferred are biological control agents selected from the group of fungi or yeasts
 35 consisting of (2.7) *Beauveria bassiana*, in particular strain ATCC 74040 (products known as Naturalis[®]), (2.8) *Beauveria bassiana*, in particular strain GHA (products known as Mycotrol, BotaniGard), (2.9) *Beauveria brongniartii* (products known as Beaupro), (2.19) *Hirsutella thompsonii* (products known as Mycohit

or ABTEC), (2.20) *Lagenidium giganteum* (products known as Lagenex[®] by AgraQuest, Inc.), (2.29) *Muscodor albus*, in particular strain 620 (Accession No. NRRL 30547), (2.30) *Muscodor roseus* strain A3-5 (Accession No. NRRL 30548), (2.31) *Myrothecium verrucaria*, in particular strain AARC-0255 (products known as DiTera[™]), (2.42) *Penicillium bilaii*, in particular strain ATCC22348 (products known as JumpStart[®], PB-50, Provide), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]), (2.53) *Trichoderma asperellum* in particular strain ICC 012 (products known as Bioten[®]), (2.54) *Trichoderma atroviride*, in particular strain CNCM I-1237, (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]) and (2.63) *Tsukamurella paurometabola* (products known as HeberNem[®]).

[0050] More particularly preferred are biological control agents selected from the group of viruses consisting of (4.3) *Anticarsia gemmatilis* (Woolly pyrol moth) mNPV (products known as Polygen), (4.8) *Cydia pomonella* (Codling moth) granulosis virus (GV) (product known as Madex Plus), (4.10) *Helicoverpa armigera* NPV (product known as AgBiTech - ViVUS Max), (4.11) *Helicoverpa* (previously *Heliothis*) *zea* (corn earworm) NPV (products known as Elcar), (4.13) *Lymantria dispar* (gypsy moth) NPV (products known as Gypcheck), (4.18) *Phthorimaea operculella* (tobacco leaf miner) GV (products known as Matapol), (4.23) *Spodoptera exigua* (sugarbeet armyworm) mNPV (products known as Spexit from Andermatt Biocontrol) and (4.26) *Spodoptera litura* (oriental leafworm moth) NPV (products known as Littovir).

[0051] Most particularly preferred are biological control agents selected from the group of bacteria consisting of (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL 30232, (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980) and (1.136) *Bacillus subtilis*, in particular strain QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980).

[0052] Most particularly preferred are biological control agents selected from the group of fungi or yeasts consisting of (2.20) *Lagenidium giganteum* (products known as Lagenex[®] by AgraQuest, Inc.), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]) and, (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]).

[0053] Most particularly preferred are biological control agents selected from the group of botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (products known as Requiem).

[0054] The compound of formula (I) and the biological control agent (II) as defined above of the mixture or composition according to the present invention can be combined in any specific ratio between these two

mandatory components. A biological control agent is generally provided in form of a carrier such as a solution or powder or suspension comprising the biological control agent (e.g. in form of viable spores or conidia or an extract). In one preferred embodiment, the amount of viable spores or conidia per g compound of formula (I) in a mixture or composition according to the invention normally provided in/on a carrier is at least 5 10^7 viable spores or conidia / g compound of formula (I), such as between 10^7 and 10^{14} viable spores or conidia / g compound of formula (I), more preferably at least 10^8 viable spores or conidia / g compound of formula (I), such as between 10^8 and 5×10^{13} viable spores or conidia / g compound of formula (I), or even more preferably at least 10^9 viable spores or conidia / g compound of formula (I), such as between 10^9 and 10^{13} viable spores or conidia / g compound of formula (I).

10 [0055] The term “viability” of spores or conidia refers to the ability of spores or conidia to germinate at standard conditions and under sufficient supply of nutrients, water, light and/or further support such as growth media. Viability of spores and conidia can be easily determined by a person skilled in the art, e.g. by counting colonies formed by spores/conidia on a growth medium suitable for species to be tested. In addition, many assays are available in the art to determine viability of spores and/or conidia, e.g., Chen et al (Can. J. 15 Plant Pathol., 24; 230-232 (2002); Paul et al (Biotech. And Bioengineering, 42; 11-23 (1993); Panahian et al (International Research Journal of Applied and Basic Science, 3(2); 292-298 (2012) or Laflamme et al (J. of applied Microbiol. 96; 684-692 (2004)).

[0056] In one preferred embodiment, wherein the biological control agent is a natural extract or simulated blend, the ratio is measured in view of the amount of biological active agent(s) in the extract or simulated 20 blend. Thus, the ratio of an extract or simulated blend is based on the amount of active ingredient and not on the amount of the whole extract or blend. For example, a weight ratio of 1:1 of a compound according to formula (I) and a biological control agent (II) in form of a natural extract or simulated blend with 16.75% (w/w) active ingredient(s), such as terpenes, refers to a mixture or composition comprising, e.g., 1 g of a compound according to formula (I) and 5.97 g of the natural extract or simulated blend comprising 16.75% 25 active ingredient(s) (biological control agent (II)), i.e. 1 g active ingredient(s) (biological control agent (II)) resulting in a 1:1 mixture in view of a compound of formula (I) and the active ingredient(s) (biological control agent (II)).

[0057] Thus, in one preferred embodiment, the mixing ratio in mixtures of a compound of formula (I) and natural extracts or simulated blend of, e.g., *Chenopodium ambrosioides* is 1500:1 to 1:2000. Such as 1:1 to 30 1:2000 or 1:1 to 1:2000 or 1:1 to 1:1500 or 1:30 to 1:1500 (e.g. 1: 40 to 1:1300). One natural extract or simulated blend of *Chenopodium ambrosioides* is known as Requiem. The active ingredient(s) concentration in Requiem is 16,75% (w/w) terpenes, i.e. a mixture of α -terpinene, p-cymene and limonene. As outlined above, the weight ratio of a compound of formula (I) and active ingredient(s) of Requiem can be calculated by using the concentration of said active ingredients in the natural extract or simulated blend. The skilled person is 35 aware how to calculate the concentration of, e.g., terpenes. Analytical methods are known from, e.g., Goren et al (0939D5075/2003/0900D0687 Verlag der Zeitschrift fur Naturforschung, Tübingen, (2003),

<http://www.znaturforsch.com>); Kimball et al (J. of Chrom. Science, 42; 245-249 (2004), Davidowski, Perkin Elmer for the Better,
http://www.perkinelmer.com/Content/applicationnotes/app_limoneneincitrusrindsbygcms.pdf

[0058] In another preferred embodiment, the mixing ratio in mixtures or compositions of a compound of formula (I) and fungi (which are, e.g. provided in form of a solution or solid form (e.g. a powder) with viable conidia and/or spores) is between 10^7 and 10^{14} viable spores or conidia / g compound of formula (I), preferably between 10^8 and 10^{13} viable spores or conidia / g compound of formula (I), more preferably between 10^9 and 10^{13} viable spores or conidia / g compound of formula (I), even more preferably between 10^{10} and 10^{12} viable spores or conidia / g compound of formula (I).

[0059] For example, the ratio of viable conidia of *Metarhizium anisopliae* (e.g. Met 52, e.g., with a concentration of 5×10^9 viable conidia/g solid form carrier as used in the examples) per g compound of formula (I) (such as compound (I-5) is preferably between 10^8 and 10^{13} viable conidia / g compound of formula (I), more preferably between 10^9 and 10^{13} viable conidia / g compound of formula (I), even more preferably between 10^{10} and 10^{12} viable conidia / g compound of formula (I) such as between 3×10^{10} and 7×10^{11} viable conidia / g compound of formula (I).

[0060] For example, the ratio of viable spores of *Paecilomyces fumosoroseus* (e.g. PreFeRal, for example with a concentration of 2×10^9 viable spores/g solution as used in the examples) per gr compound of formula (I) (such as compound (I-5) is preferably between 10^8 and 10^{13} viable spores / g compound of formula (I), more preferably between 10^9 and 10^{13} viable spores / g compound of formula (I), even more preferably between 10^{10} and 10^{13} viable spores / g compound of formula (I) such as between 10^{11} and 3×10^{12} viable spores / g compound of formula (I).

[0061] For example, the ratio of viable spores of *Beauveria bassiana* (e.g., Naturalis-L, for example with a concentration of 2.3×10^7 viable spores/ml solution as used in the examples) per gr compound of formula (I) (such as compound (I-5) is preferably between 10^8 and 10^{13} viable spores / g compound of formula (I), more preferably between 10^9 and 10^{13} viable spores / g compound of formula (I), even more preferably between 5×10^9 and 10^{12} viable spores / g compound of formula (I) such as between 5×10^9 and 5×10^{11} viable spores / g compound of formula (I).

[0062] For example, the ratio of viable spores of *Paecilomyces lilacinus* (e.g., *Paecilomyces lilacinus* strain 251 (BioAct), for example with a concentration of 10^{10} viable spores/g carrier as used in the examples) per gr compound of formula (I) (such as compound (I-5) is preferably between 10^8 and 10^{14} viable spores / g compound of formula (I), more preferably between 10^{10} and 10^{14} viable spores / g compound of formula (I), even more preferably between 5×10^{11} and 5×10^{13} viable spores / g compound of formula (I) such as between 10^{12} and 5×10^{13} viable spores / g compound of formula (I).

[0063] In another preferred embodiment, the mixing ratio in mixtures or compositions of a compound of formula (I) and bacteria (which are, e.g. provided in form of a solution or solid form (e.g. a powder) with viable spores) is between 10^7 and 10^{14} viable spores / g compound of formula (I), preferably between 10^8 and 10^{13} viable spores / g compound of formula (I), more preferably between 10^9 and 10^{13} viable spores / g compound of formula (I), even more preferably between 10^{10} and 10^{12} viable spores / g compound of formula (I).

For example, the ratio of viable spores of *Bacillus thuringiensis* (e.g., *B. thuringiensis subsp. aizawai* ABTS-1857 (XenTari), for example with a concentration of 1.5×10^7 viable spores/g carrier as used in the examples) per g compound of formula (I) (such as compound (I-5) is preferably between 10^8 and 10^{13} viable spores / g compound of formula (I), more preferably between 10^8 and 10^{11} viable spores / g compound of formula (I), even more preferably between 10^9 and 10^{11} viable spores / g compound of formula (I) such as between 10^9 and 5×10^{10} viable spores / g compound of formula (I).

[0064] The above mentioned mixtures or compositions may be used alone or in combination with other active ingredients such as A) fungicides and/or B) insecticides including but are not limited to:

A) Fungicides

[0065] The active ingredients specified herein by their "common name" are known and described, for example, in the Pesticide Manual or can be searched in the internet (e.g. <http://www.alanwood.net/pesticides>).

1) Inhibitors of the ergosterol biosynthesis, for example (1.1) aldimorph, (1.2) azaconazole, (1.3) bitertanol, (1.4) bromuconazole, (1.5) cyproconazole, (1.6) diclobutrazole, (1.7) difenoconazole, (1.8) diniconazole, (1.9) diniconazole-M, (1.10) dodemorph, (1.11) dodemorph acetate, (1.12) epoxiconazole, (1.13) etaconazole, (1.14) fenarimol, (1.15) fenbuconazole, (1.16) fenhexamid, (1.17) fenpropidin, (1.18) fenpropimorph, (1.19) fluquinconazole, (1.20) flurprimidol, (1.21) flusilazole, (1.22) flutriafol, (1.23) furconazole, (1.24) furconazole-cis, (1.25) hexaconazole, (1.26) imazalil, (1.27) imazalil sulfate, (1.28) imibencconazole, (1.29) ipconazole, (1.30) metconazole, (1.31) myclobutanil, (1.32) naftifine, (1.33) nuarimol, (1.34) oxpoconazole, (1.35) paclobutrazol, (1.36) pefurazoate, (1.37) penconazole, (1.38) piperalin, (1.39) prochloraz, (1.40) propiconazole, (1.41) prothioconazole, (1.42) pyributicarb, (1.43) pyrifenoxy, (1.44) quinconazole, (1.45) simeconazole, (1.46) spiroxamine, (1.47) tebuconazole, (1.48) terbinafine, (1.49) tetraconazole, (1.50) triadimefon, (1.51) triadimenol, (1.52) tridemorph, (1.53) triflumizole, (1.54) triforine, (1.55) triticonazole, (1.56) uniconazole, (1.57) uniconazole-p, (1.58) viniconazole, (1.59) voriconazole, (1.60) 1-(4-chlorophenyl)-2-(1H-1,2,4-triazol-1-yl)cycloheptanol, (1.61) methyl 1-(2,2-dimethyl-2,3-dihydro-1H-inden-1-yl)-1H-imidazole-5-carboxylate, (1.62) N'-{5-(difluoromethyl)-2-methyl-4-[3-(trimethylsilyl)propoxy]phenyl}-N-ethyl-N-methylimidoformamide, (1.63) N-ethyl-N-methyl-N'-{2-methyl-5-(trifluoromethyl)-4-[3-(trimethylsilyl)propoxy]phenyl}imidoformamide, (1.64) O-[1-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl] 1H-imidazole-1-carbothioate, (1.65) Pyrisoxazole.

2) Inhibitors of the respiratory chain at complex I or II, for example (2.1) bixafen, (2.2) boscalid, (2.3) carboxin, (2.4) diflumetorim, (2.5) fenfuram, (2.6) fluopyram, (2.7) flutolanil, (2.8) fluxapyroxad, (2.9) furametpyr, (2.10) furmecycloz, (2.11) isopyrazam (mixture of syn-epimeric racemate 1RS,4SR,9RS and anti-epimeric racemate 1RS,4SR,9SR), (2.12) isopyrazam (anti-epimeric racemate 1RS,4SR,9SR), (2.13) isopyrazam (anti-epimeric enantiomer 1R,4S,9S), (2.14) isopyrazam (anti-epimeric enantiomer 1S,4R,9R), (2.15) isopyrazam (syn epimeric racemate 1RS,4SR,9RS), (2.16) isopyrazam (syn-epimeric enantiomer 1R,4S,9R), (2.17) isopyrazam (syn-epimeric enantiomer 1S,4R,9S), (2.18) mepronil, (2.19) oxycarboxin, (2.20) penflufen, (2.21) penthiopyrad, (2.22) sedaxane, (2.23) thifluzamide, (2.24) 1-methyl-N-[2-(1,1,2,2-tetrafluoroethoxy)phenyl]-3-(trifluoromethyl)-1H-pyrazole-4-phthalic acid diamide, (2.25) 3-(difluoromethyl)-1-methyl-N-[2-(1,1,2,2-tetrafluoroethoxy)phenyl]-1H-pyrazole-4-phthalic acid diamide, (2.26) 3-(difluoromethyl)-N-[4-fluoro-2-(1,1,2,3,3,3-hexafluoropropoxy)phenyl]-1-methyl-1H-pyrazole-4-phthalic acid diamide, (2.27) N-[1-(2,4-dichlorophenyl)-1-methoxypropan-2-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (2.28) 5,8-difluoro-N-[2-(2-fluoro-4-{[4-(trifluoromethyl)pyridin-2-yl]oxy}phenyl)ethyl]quinazolin-4-amine, (2.29) benzovindiflupyr, (2.30) N-[(1S,4R)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (2.31) N-[(1R,4S)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (2.32) 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-phthalic acid diamide, (2.33) 1,3,5-trimethyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-phthalic acid diamide, (2.34) 1-methyl-3-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-phthalic acid diamide, (2.35) 1-methyl-3-(trifluoromethyl)-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.36) 1-methyl-3-(trifluoromethyl)-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.37) 3-(difluoromethyl)-1-methyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.38) 3-(difluoromethyl)-1-methyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.39) 1,3,5-trimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.40) 1,3,5-trimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (2.41) benodanil, (2.42) 2-chloro-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)pyridine-3-phthalic acid diamide, (2.43) N-[1-(4-isopropoxy-2-methylphenyl)-2-methyl-1-oxopropan-2-yl]-3-methylthiophene-2-phthalic acid diamide.

3) Inhibitors of the respiratory chain at complex III, for example (3.1) ametocetradin, (3.2) amisulbrom, (3.3) azoxystrobin, (3.4) cyazofamid, (3.5) coumethoxystrobin, (3.6) coumoxystrobin, (3.7) dimoxystrobin, (3.8) enoxastrobin, (3.9) famoxadone, (3.10) fenamidone, (3.11) flufenoxystrobin, (3.12) fluoxastrobin, (3.13) kresoxim-methyl, (3.14) metominostrobin, (3.15) orysastrobin, (3.16) picoxystrobin, (3.17) pyraclostrobin, (3.18) pyrametostrobin, (3.19) pyraoxystrobin, (3.20) pyribencarb, (3.21) triclopyricarb, (3.22) trifloxystrobin, (3.23) (2E)-2-(2-{[6-(3-chloro-2-methylphenoxy)-5-fluoropyrimidin-4-yl]oxy}phenyl)-2-(methoxyimino)-N-methylacetamide, (3.24) (2E)-2-(methoxyimino)-N-methyl-2-(2-

{[(1E)-1-[3-(trifluoromethyl)phenyl]ethylidene}amino]oxy)methyl}phenyl]acetamide, (3.25) (2E)-2-(methoxyimino)-N-methyl-2-{2-[(E)-{(1-[3-(trifluoromethyl)phenyl]ethoxy)imino)methyl}phenyl]acetamide, (3.26) (2E)-2-{2-[(1E)-1-(3-{[(E)-1-fluoro-2-phenylvinyl]oxy}phenyl)ethylidene]amino}oxy)methyl}phenyl}-2-(methoxyimino)-N-methylacetamide, (3.27) Fenaminostrobin, (3.28) 5-methoxy-2-methyl-4-{2-[(1E)-1-[3-(trifluoromethyl)phenyl]ethylidene}amino]oxy)methyl}phenyl}-2,4-dihydro-3H-1,2,4-triazol-3-one, (3.29) methyl (2E)-2-{2-[(cyclopropyl[(4-methoxyphenyl)imino]methyl)sulfanyl)methyl}phenyl}-3-methoxyacrylate, (3.30) N-(3-ethyl-3,5,5-trimethylcyclohexyl)-3-formamido-2-hydroxybenzamide, (3.31) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide, (3.32) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide.

4) Inhibitors of the mitosis and cell division, for example (4.1) benomyl, (4.2) carbendazim, (4.3) chlorfenazole, (4.4) diethofencarb, (4.5) ethaboxam, (4.6) fluopicolide, (4.7) fuberidazole, (4.8) pencycuron, (4.9) thiabendazole, (4.10) thiophanate-methyl, (4.11) thiophanate, (4.12) zoxamide, (4.13) 5-chloro-7-(4-methylpiperidin-1-yl)-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine, (4.14) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-trifluorophenyl)pyridazine.

5) Compounds capable to have a multisite action, for example (5.1) bordeaux mixture, (5.2) captafol, (5.3) captan, (5.4) chlorothalonil, (5.5) copper hydroxide, (5.6) copper naphthenate, (5.7) copper oxide, (5.8) copper oxychloride, (5.9) copper(2+) sulfate, (5.10) dichlofluanid, (5.11) dithianon, (5.12) dodine, (5.13) dodine free base, (5.14) ferbam, (5.15) fluorofolpet, (5.16) folpet, (5.17) guazatine, (5.18) guazatine acetate, (5.19) iminoctadine, (5.20) iminoctadine albesilate, (5.21) iminoctadine triacetate, (5.22) mancopter, (5.23) mancozeb, (5.24) maneb, (5.25) metiram, (5.26) metiram zinc, (5.27) oxine-copper, (5.28) propamidine, (5.29) propineb, (5.30) sulfur and sulfur preparations including calcium polysulfide, (5.31) thiram, (5.32) tolylfluanid, (5.33) zineb, (5.34) ziram, (5.35) anilazine.

6) Compounds capable to induce a host defence, for example (6.1) acibenzolar-S-methyl, (6.2) isotianil, (6.3) probenazole, (6.4) tiadinil, (6.5) laminarin.

7) Inhibitors of the amino acid and/or protein biosynthesis, for example (7.1) andoprim, (7.2) blasticidin-S, (7.3) cyprodinil, (7.4) kasugamycin, (7.5) kasugamycin hydrochloride hydrate, (7.6) mepanipyrim, (7.7) pyrimethanil, (7.8) 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (7.9) oxytetracycline, (7.10) streptomycin.

8) Inhibitors of the ATP production, for example (8.1) fentin acetate, (8.2) fentin chloride, (8.3) fentin hydroxide, (8.4) silthiofam.

9) Inhibitors of the cell wall synthesis, for example (9.1) benthiavalicarb, (9.2) dimethomorph, (9.3) flumorph, (9.4) iprovalicarb, (9.5) mandipropamid, (9.6) polyoxins, (9.7) polyoxorim, (9.8) validamycin A, (9.9) valifenalate, (9.10) polyoxin B.

10) Inhibitors of the lipid and membrane synthesis, for example (10.1) biphenyl, (10.2) chloroneb, (10.3) dicloran, (10.4) edifenphos, (10.5) etridiazole, (10.6) iodocarb, (10.7) iprobenfos, (10.8) isoprothiolane, (10.9) propamocarb, (10.10) propamocarb hydrochloride, (10.11) prothiocarb, (10.12) pyrazophos, (10.13) quintozone, (10.14) tecnazene, (10.15) tolclafos-methyl.

5 11) Inhibitors of the melanin biosynthesis, for example (11.1) carpropamid, (11.2) diclocymet, (11.3) fenoxanil, (11.4) phthalide, (11.5) pyroquilon, (11.6) tricyclazole, (11.7) 2,2,2-trifluoroethyl {3-methyl-1-[(4-methylbenzoyl)amino]butan-2-yl}carbamate.

12) Inhibitors of the nucleic acid synthesis, for example (12.1) benalaxyl, (12.2) benalaxyl-M (kiralaxyl), (12.3) bupirimate, (12.4) clozylacon, (12.5) dimethirimol, (12.6) ethirimol, (12.7) furalaxyl, (12.8) hymexazol, (12.9) metalaxyl, (12.10) metalaxyl-M (mefenoxam), (12.11) ofurace, (12.12) oxadixyl, (12.13) oxolinic acid, (12.14) othilinone.

13) Inhibitors of the signal transduction, for example (13.1) chlozolate, (13.2) fenpiclonil, (13.3) fludioxonil, (13.4) iprodione, (13.5) procymidone, (13.6) quinoxifen, (13.7) vinclozolin, (13.8) proquinazid.

14) Compounds capable to act as an uncoupler, for example (14.1) binapacryl, (14.2) dinocap, (14.3) ferimzone, (14.4) fluazinam, (14.5) meptyldinocap.

15) Further compounds, for example (15.1) benthiazole, (15.2) bethoxazin, (15.3) capsimycin, (15.4) carvone, (15.5) chinomethionat, (15.6) pyriofenone (chlazafenone), (15.7) cufraneb, (15.8) cyflufenamid, (15.9) cymoxanil, (15.10) cyprosulfamide, (15.11) dazomet, (15.12) debacarb, (15.13) dichlorophen, (15.14) diclomezine, (15.15) difenzoquat, (15.16) difenzoquat metilsulfate, (15.17) diphenylamine, (15.18) ecomate, (15.19) fenpyrazamine, (15.20) flumetover, (15.21) fluoroimide, (15.22) flusulfamide, (15.23) flutianil, (15.24) fosetyl-aluminium, (15.25) fosetyl-calcium, (15.26) fosetyl-sodium, (15.27) hexachlorobenzene, (15.28) irumamycin, (15.29) methasulfocarb, (15.30) methyl isothiocyanate, (15.31) metrafenone, (15.32) mildiomyacin, (15.33) natamycin, (15.34) nickel dimethyldithiocarbamate, (15.35) nitrothalisopropyl, (15.37) oxamocarb, (15.38) oxyfenthiiin, (15.39) pentachlorophenol and salts, (15.40) phenothrin, (15.41) phosphorous acid and its salts, (15.42) propamocarb-fosetilate, (15.43) propanosine-sodium, (15.44) pyrimorph, (15.45) (2E)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one, (15.46) (2Z)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one, (15.47) pyrrolnitrine, (15.48) tebufloquin, (15.49) tecloftalam, (15.50) tolnifanide, (15.51) triazoxide, (15.52) trichlamide, (15.53) zarilamid, (15.54) (3S,6S,7R,8R)-8-benzyl-3-[(3-[(isobutyroxy)methoxy]-4-methoxypyridin-2-yl)carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl 2-methylpropanoate, (15.55) 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, (15.56) 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, (15.57) 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, (15.58) 1-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl 1H-imidazole-1-carboxylate, (15.59) 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine, (15.60) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one, (15.61) 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone, (15.62) 2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]-1-(4-{4-[(5R)-5-phenyl-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone, (15.63) 2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]-1-(4-{4-[(5S)-5-phenyl-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone, (15.64) 2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]-1-{4-[4-(5-phenyl-4,5-dihydro-1,2-oxazol-3-yl)-1,3-thiazol-2-yl]piperidin-1-yl}ethanone, (15.65) 2-butoxy-6-iodo-3-propyl-4H-chromen-4-one, (15.66) 2-chloro-5-[2-chloro-1-(2,6-difluoro-4-methoxyphenyl)-4-methyl-1H-imidazol-5-yl]pyridine, (15.67) 2-phenylphenol and salts, (15.68) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (15.69) 3,4,5-trichloropyridine-2,6-dicarbonitrile, (15.70) 3-chloro-5-(4-chlorophenyl)-4-(2,6-difluorophenyl)-6-methylpyridazine, (15.71) 4-(4-chlorophenyl)-5-(2,6-difluorophenyl)-3,6-dimethylpyridazine, (15.72) 5-amino-1,3,4-thiadiazole-2-thiol, (15.73) 5-chloro-N'-phenyl-N'-(prop-2-yn-1-yl)thiophene-2-sulfonohydrazide, (15.74) 5-fluoro-2-[(4-fluorobenzyl)oxy]pyrimidin-4-amine, (15.75) 5-fluoro-2-[(4-methylbenzyl)oxy]pyrimidin-4-amine, (15.76) 5-methyl-6-octyl[1,2,4]triazolo[1,5-a]pyrimidin-7-amine, (15.77) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate, (15.78) N'-(4-{[3-(4-chlorobenzyl)-1,2,4-thiadiazol-5-yl]oxy}-2,5-dimethylphenyl)-N-ethyl-N-methylimidoformamide, (15.79) N-(4-chlorobenzyl)-3-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]propanamide, (15.80) N-[(4-chlorophenyl)(cyano)methyl]-3-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]propanamide, (15.81) N-[(5-bromo-3-chloropyridin-2-yl)methyl]-2,4-dichloronicotinamide, (15.82) N-[1-(5-bromo-3-chloropyridin-2-yl)ethyl]-2,4-dichloronicotinamide, (15.83) N-[1-(5-bromo-3-chloropyridin-2-yl)ethyl]-2-fluoro-4-iodonicotinamide, (15.84) N-{(E)-[(cyclopropylmethoxy)imino][6-(difluoromethoxy)-2,3-difluorophenyl]methyl}-2-phenylacetamide, (15.85) N-{(Z)-[(cyclopropylmethoxy)imino][6-(difluoromethoxy)-2,3-difluorophenyl]methyl}-2-phenylacetamide, (15.86) N'-{4-[(3-tert-butyl-4-cyano-1,2-thiazol-5-yl)oxy]-2-chloro-5-methylphenyl}-N-ethyl-N-methylimidoformamide, (15.87) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-(1,2,3,4-tetrahydronaphthalen-1-yl)-1,3-thiazole-4-phthalic acid diamide, (15.88) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-[(1R)-1,2,3,4-tetrahydronaphthalen-1-yl]-1,3-thiazole-4-phthalic acid diamide, (15.89) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-[(1S)-1,2,3,4-tetrahydronaphthalen-1-yl]-1,3-thiazole-4-phthalic acid diamide, (15.90) pentyl {6-[(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxymethylpyridin-2-yl}carbamate, (15.91) phenazine-1-carboxylic acid, (15.92) quinolin-8-ol, (15.93) quinolin-8-ol sulfate (2:1), (15.94) tert-butyl {6-[(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxymethylpyridin-2-yl}carbamate, (15.95) 1-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-phthalic acid diamide, (15.96) N-(4'-chlorobiphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (15.97) N-(2',4'-dichlorobiphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (15.98) 3-(difluoromethyl)-1-methyl-N-[4'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-phthalic acid diamide,

- (15.99) N-(2',5'-difluorobiphenyl-2-yl)-1-methyl-3-(trifluoromethyl)-1H-pyrazole-4-phthalic acid diamide, (15.100) 3-(difluoromethyl)-1-methyl-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]-1H-pyrazole-4-phthalic acid diamide, (15.101) 5-fluoro-1,3-dimethyl-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]-1H-pyrazole-4-phthalic acid diamide, (15.102) 2-chloro-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.103) 3-(difluoromethyl)-N-[4'-(3,3-dimethylbut-1-yn-1-yl)biphenyl-2-yl]-1-methyl-1H-pyrazole-4-phthalic acid diamide, (15.104) N-[4'-(3,3-dimethylbut-1-yn-1-yl)biphenyl-2-yl]-5-fluoro-1,3-dimethyl-1H-pyrazole-4-phthalic acid diamide, (15.105) 3-(difluoromethyl)-N-(4'-ethynylbiphenyl-2-yl)-1-methyl-1H-pyrazole-4-phthalic acid diamide, (15.106) N-(4'-ethynylbiphenyl-2-yl)-5-fluoro-1,3-dimethyl-1H-pyrazole-4-phthalic acid diamide, (15.107) 2-chloro-N-(4'-ethynylbiphenyl-2-yl)nicotinamide, (15.108) 2-chloro-N-[4'-(3,3-dimethylbut-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.109) 4-(difluoromethyl)-2-methyl-N-[4'-(trifluoromethyl)biphenyl-2-yl]-1,3-thiazole-5-phthalic acid diamide, (15.110) 5-fluoro-N-[4'-(3-hydroxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1,3-dimethyl-1H-pyrazole-4-phthalic acid diamide, (15.111) 2-chloro-N-[4'-(3-hydroxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.112) 3-(difluoromethyl)-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1-methyl-1H-pyrazole-4-phthalic acid diamide, (15.113) 5-fluoro-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1,3-dimethyl-1H-pyrazole-4-phthalic acid diamide, (15.114) 2-chloro-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.115) (5-bromo-2-methoxy-4-methylpyridin-3-yl)(2,3,4-trimethoxy-6-methylphenyl)methanone, (15.116) N-[2-(4-{[3-(4-chlorophenyl)prop-2-yn-1-yl]oxy}-3-methoxyphenyl)ethyl]-N2-(methylsulfonyl)valinamide, (15.117) 4-oxo-4-[(2-phenylethyl)amino]butanoic acid, (15.118) but-3-yn-1-yl {6-[(Z)-(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methylpyridin-2-yl} carbamate, (15.119) 4-amino-5-fluoropyrimidin-2-ol (mesomeric form: 4-amino-5-fluoropyrimidin-2(1H)-one), (15.120) propyl 3,4,5-trihydroxybenzoate, (15.121) 1,3-dimethyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-phthalic acid diamide, (15.122) 1,3-dimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (15.123) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-phthalic acid diamide, (15.124) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.125) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.126) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.127) 2-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.128) 1-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl thiocyanate, (15.129) 5-(allylsulfanyl)-1-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (15.130) 2-[1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.131) 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, (15.132) 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, (15.133) 1-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl thiocyanate, (15.134) 1-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl thiocyanate, (15.135) 5-(allylsulfanyl)-1-

- {[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (15.136) 5-(allylsulfanyl)-1-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (15.137) 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, (15.138) 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, (15.139) 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, (15.140) 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, (15.141) 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, (15.142) 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, (15.143) 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, (15.144) 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, (15.145) 2-fluoro-6-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)benzamide, (15.146) 2-(6-benzylpyridin-2-yl)quinazoline, (15.147) 2-[6-(3-fluoro-4-methoxyphenyl)-5-methylpyridin-2-yl]quinazoline, (15.148) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (15.149) Absciscic acid.

[0066] All named mixing partners of the classes (1) to (15) can, if their functional groups enable this, optionally form salts with suitable bases or acids.

B) Insecticides

- [0067] The active ingredients specified herein by their “common name” are known and described, for example, in the Pesticide Manual (“The Pesticide Manual”, 14th Ed., British Crop Protection Council 2006) or can be searched in the internet (e.g. <http://www.alanwood.net/pesticides>).

- 1) Acetylcholinesterase (AChE) inhibitors, for example carbamates, e.g. Alanycarb (II-1-1), Aldicarb (II-1-2), Bendiocarb (II-1-3), Benfuracarb (II-1-4), Butocarboxim (II-1-5), Butoxycarboxim (II-1-6), Carbaryl (II-1-7), Carbofuran (II-1-8), Carbosulfan (II-1-9), Ethiofencarb (II-1-10), Fenobucarb (II-1-11), Formetanate (II-1-12), Furathiocarb (II-1-13), Isoprocarb (II-1-14), Methiocarb (II-1-15), Methomyl (II-1-16), Metolcarb (II-1-17), Oxamyl (II-1-18), Pirimicarb (II-1-19), Propoxur (II-1-20), Thiodicarb (II-1-21), Thiofanox (II-1-22), Triazamate (II-1-23), Trimethacarb (II-1-24), XMC (II-1-25), and Xylylcab (II-1-26); or organophosphates, e.g. Acephate (II-1-27), Azamethiphos (II-1-28), Azinphos-ethyl (II-1-29), Azinphos-methyl (II-1-30), Cadusafos (II-1-31), Chlorethoxyfos (II-1-32), Chlorfenvinphos (II-1-33), Chlormephos (II-1-34), Chlorpyrifos (II-1-35), Chlorpyrifos-methyl (II-1-36), Coumaphos (II-1-37), Cyanophos (II-1-38), Demeton-S-methyl (II-1-39), Diazinon (II-1-40), Dichlorvos/DDVP (II-1-41), Dicrotophos (II-1-42), Dimethoate (II-1-43), Dimethylvinphos (II-1-44), Disulfoton (II-1-45), EPN (II-1-46), Ethion (II-1-47), Ethoprophos (II-1-48), Famphur (II-1-49), Fenamiphos (II-1-50), Fenitrothion (II-1-51), Fenthion (II-1-52), Fosthiazate (II-1-53), Heptenophos (II-1-54), Imicyafos (II-1-55), Isofenphos (II-1-56), Isopropyl O-

(methoxyaminothio-phosphoryl) salicylate (II-1-57), Isoxathion (II-1-58), Malathion (II-1-59), Mecarbam (II-1-60), Methamidophos (II-1-61), Methidathion (II-1-62), Mevinphos (II-1-63), Monocrotophos (II-1-64), Naled (II-1-65), Omethoate (II-1-66), Oxydemeton-methyl (II-1-67), Parathion (II-1-68), Parathion-methyl (II-1-69), Phenthoate (II-1-70), Phorate (II-1-71), Phosalone (II-1-72), Phosmet (II-1-73), Phosphamidon (II-1-74), Phoxim (II-1-75), Pirimiphos-methyl (II-1-76), Profenofos (II-1-77), Propetamphos (II-1-78), Prothiofos (II-1-79), Pyraclofos (II-1-80), Pyridaphenthion (II-1-81), Quinalphos (II-1-82), Sulfotep (II-1-83), Tebupirimfos (II-1-84), Temephos (II-1-85), Terbufos (II-1-86), Tetrachlorvinphos (II-1-87), Thiometon (II-1-88), Triazophos (II-1-89), Trichlorfon (II-1-90), and Vamidothion (II-1-91).

2) GABA-gated chloride channel antagonists, for example cyclodiene organochlorines, e.g. Chlordane (II-2-1) and Endosulfan (II-2-2); or phenylpyrazoles (fiproles), e.g. Ethiprole (II-2-3) and Fipronil (II-2-4).

3) Sodium channel modulators / voltage-dependent sodium channel blockers, for example pyrethroids, e.g. Acrinathrin (II-3-1), Allethrin (II-3-2), d-cis-trans Allethrin (II-3-3), d-trans Allethrin (II-3-4), Bifenthrin (II-3-5), Bioallethrin (II-3-6), Bioallethrin S-cyclopentenyl isomer (II-3-7), Bioresmethrin (II-3-8), Cycloprothrin (II-3-9), Cyfluthrin (II-3-10), beta-Cyfluthrin (II-3-11), Cyhalothrin (II-3-12), lambda-Cyhalothrin (II-3-13), gamma-Cyhalothrin (II-3-14), Cypermethrin (II-3-15), alpha-Cypermethrin (II-3-16), beta-Cypermethrin (II-3-17), theta-Cypermethrin (II-3-18), zeta-Cypermethrin (II-3-19), Cyphenothrin [(1R)-trans isomers] (II-3-20), Deltamethrin (II-3-21), Empenthrin [(EZ)-(1R) isomers] (II-3-22), Esfenvalerate (II-3-23), Etofenprox (II-3-24), Fenpropathrin (II-3-25), Fenvalerate (II-3-26), Flucythrinate (II-3-27), Flumethrin (II-3-28), tau-Fluvalinate (II-3-29), Halfenprox (II-3-30), Imiprothrin (II-3-31), Kadethrin (II-3-32), Permethrin (II-3-33), Phenothrin [(1R)-trans isomer] (II-3-34), Prallethrin (II-3-35), Pyrethrine (pyrethrum) (II-3-36), Resmethrin (II-3-37), Silafluofen (II-3-38), Tefluthrin (II-3-39), Tetramethrin (II-3-40), Tetramethrin [(1R) isomers] (II-3-41), Tralomethrin (II-3-42), and Transfluthrin (II-3-43); or DDT (II-3-44); or Methoxychlor (II-3-45).

4) Nicotinic acetylcholine receptor (nAChR) agonists, for example neonicotinoids, e.g. Acetamiprid (II-4-1), Clothianidin (II-4-2), Dinotefuran (II-4-3), Imidacloprid (II-4-4), Nitenpyram (II-4-5), Thiacloprid (II-4-6), and Thiamethoxam (II-4-7); or Nicotine (II-4-8); or Sulfoxaflor (II-4-9).

5) Nicotinic acetylcholine receptor (nAChR) allosteric activators, for example spinosyns, e.g. Spinetoram (II-5-1) and Spinosad (II-5-2).

6) Chloride channel activators, for example avermectins/milbemycins, e.g. Abamectin (II-6-1), Emamectin benzoate (II-6-2), Lepimectin (II-6-3), and Milbemectin (II-6-4).

7) Juvenile hormone mimics, for example juvenile hormone analogues, e.g. Hydroprene (II-7-1), Kinoprene (II-7-2), and Methoprene (II-7-3); or Fenoxycarb (II-7-4); or Pyriproxyfen (II-7-5).

- 8) Miscellaneous non-specific (multi-site) inhibitors, for example alkyl halides, e.g. Methyl bromide (II-8-1) and other alkyl halides; or Chloropicrin (II-8-2); or Sulfuryl fluoride (II-8-3); or Borax (II-8-4); or Tartar emetic (II-8-5).
- 9) Selective homopteran feeding blockers, e.g. Pymetrozine (II-9-1); or Flonicamid (II-9-2).
- 5 10) Mite growth inhibitors, e.g. Clofentezine (II-10-1), Hexythiazox (II-10-2), and Diflovidazin (II-10-3); or Etoxazole (II-10-4).
- 12) Inhibitors of mitochondrial ATP synthase, for example Diafenthiuron (II-12-1); or organotin miticides, e.g. Azocyclotin (II-12-2), Cyhexatin (II-12-3), and Fenbutatin oxide (II-12-4); or Propargite (II-12-5); or Tetradifon (II-12-6).
- 10 13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient, for example Chlorfenapyr (II-13-1), DNOC (II-13-2), and Sulfluramid (II-13-3).
- 14) Nicotinic acetylcholine receptor (nAChR) channel blockers, for example Bensultap (II-14-1), Cartap hydrochloride (II-14-2), Thiocyclam (II-14-3), and Thiosultap-sodium (II-14-4).
- 15 15) Inhibitors of chitin biosynthesis, type 0, for example Bistrifluron (II-15-1), Chlorfluazuron (II-15-2), Diflubenzuron (II-15-3), Flucyclohexuron (II-15-4), Flufenoxuron (II-15-5), Hexaflumuron (II-15-6), Lufenuron (II-15-7), Novaluron (II-15-8), Noviflumuron (II-15-9), Teflubenzuron (II-15-10), and Tri-flumuron (II-15-11).
- 16) Inhibitors of chitin biosynthesis, type 1, for example Buprofezin (II-16-1).
- 17) Moulting disruptors, for example Cyromazine (II-17-1).
- 20 18) Ecdysone receptor agonists, for example Chromafenozide (II-18-1), Halofenozide (II-18-2), Methoxyfenozide (II-18-3), and Tebufenozide (II-18-4).
- 19) Octopamine receptor agonists, for example Amitraz (II-19-1).
- 20) Mitochondrial complex III electron transport inhibitors, for example Hydramethylnon (II-20-1); or Acequinocyl (II-20-2); or Fluacrypyrim (II-20-3).
- 25 21) Mitochondrial complex I electron transport inhibitors, for example METI acaricides, e.g. Fenazaquin (II-21-1), Fenpyroximate (II-21-2), Pyrimidifen (II-21-3), Pyridaben (II-21-4), Tebufenpyrad (II-21-5), and Tolfenpyrad (II-21-6); or Rotenone (Derris) (II-21-7).
- 22) Voltage-dependent sodium channel blockers, e.g. Indoxacarb (II-22-1); or Metaflumizone (II-22-2).

23) Inhibitors of acetyl CoA carboxylase, for example tetronic and tetramic acid derivatives, e.g. Spirodiclofen (II-23-1), Spiromesifen (II-23-2), and Spirotetramat (II-23-3).

24) Mitochondrial complex IV electron transport inhibitors, for example phosphines, e.g. Aluminium phosphide (II-24-1), Calcium phosphide (II-24-2), Phosphine (II-24-3), and Zinc phosphide (II-24-4); or

5 Cyanide (II-24-5).

25) Mitochondrial complex II electron transport inhibitors, for example beta-ketonitrile derivatives, e.g. Cyenopyrafen (II-25-1) and Cyflumetofen (II-25-2).

28) Ryanodine receptor modulators, for example diamides, e.g. Chlorantraniliprole (II-28-1), Cyantraniliprole (II-28-2), and Flubendiamide (II-28-3).

10 29) Further active ingredients with unknown or uncertain mode of action, for example Amidoflumet (II-29-1), Azadirachtin (II-29-2), Benclothiaz (II-29-3), Benzoximate (II-29-4), Bifenazate (II-29-5), Bromopropylate (II-29-6), Chinomethionat (II-29-7), Cryolite (II-29-8), Dicofol (II-29-9), Diflovidazin (II-29-10), Fluensulfone (II-29-11), Flufenerim (II-29-12), Flufiprole (II-29-13), Fluopyram (II-29-14), Fufenozide (II-29-15), Imidaclothiz (II-29-16), Iprodione (II-29-17), Meperfluthrin (II-29-18), Pyridalyl (II-29-19), Pyrifluquinazon (II-29-20), Tetramethylfluthrin (II-29-21), and iodomethane (II-29-22); furthermore
15 one of the following known active compounds: 3-bromo-N-{2-bromo-4-chloro-6-[(1-cyclopropylethyl)carbamoyl]phenyl}-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-phthalic acid diamide (II-29-24) (known from WO2005/077934), 4-{{[(6-bromopyridin-3-yl)methyl](2-fluoroethyl)amino}furan-2(5H)-one (II-29-25) (known from WO2007/115644), 4-{{[(6-fluoropyridin-3-yl)methyl](2,2-difluoroethyl)amino}furan-2(5H)-one (II-29-26) (known from WO2007/115644), 4-{{[(2-chloro-1,3-thiazol-5-yl)methyl](2-fluoroethyl)amino}furan-2(5H)-one (II-27-29) (known from WO2007/115644), 4-{{[(6-chloropyridin-3-yl)methyl](2-fluoroethyl)amino}furan-2(5H)-one (II-29-28) (known from WO2007/115644), Flupyradifurone (II-29-29), 4-{{[(6-chloro-5-fluoropyridin-3-yl)methyl](methyl)amino}furan-2(5H)-one (II-29-30) (known from WO2007/115643), 4-{{[(5,6-dichloropyridin-3-yl)methyl](2-fluoroethyl)amino}furan-2(5H)-one (II-29-31) (known from WO2007/115646), 4-{{[(6-chloro-5-fluoropyridin-3-yl)methyl](cyclopropyl)amino}furan-2(5H)-one (II-29-32) (known from WO2007/115643), 4-{{[(6-chloropyridin-3-yl)methyl](cyclopropyl)amino}furan-2(5H)-one (II-29-33) (known from EP-A-0 539 588), 4-{{[(6-chloropyridin-3-yl)methyl](methyl)amino}furan-2(5H)-one (II-29-34) (known from EP-A-0 539 588), {[1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ^4 -sulfanylidene}cyanamide (II-29-35) (known from WO2007/149134) and its diastereomers {[1(R)-1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ^4 -sulfanylidene}cyanamide (A) (II-29-36), and {[1(S)-1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ^4 -sulfanylidene}cyanamide (B) (II-29-37) (also known from WO2007/149134) as well as diastereomers [(R)-methyl(oxido){1(R)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ^4 -sulfanylidene}cyanamide (A1) (II-29-38), and [(S)-methyl(oxido){1(S)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ^4 -sulfanylidene]cyanamide
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(A2) (II-29-39), referred to as group of diastereomers A (known from WO2010/074747, WO2010/074751), [(R)-methyl(oxido){(1S)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ^4 -sulfanylidene]cyanamide (B1) (II-29-40), and [(S)-methyl(oxido){(1R)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ^4 -sulfanylidene]cyanamide (B2) (II-29-41), referred to as group of diastereomers B (also known from WO2010/074747, WO2010/074751), and 11-(4-chloro-2,6-dimethylphenyl)-12-hydroxy-1,4-dioxo-9-azadispiro[4.2.4.2]tetradec-11-en-10-one (II-29-42) (known from WO2006/089633), 3-(4'-fluoro-2,4-dimethylbiphenyl-3-yl)-4-hydroxy-8-oxa-1-azaspiro[4.5]dec-3-en-2-one (II-29-43) (known from WO2008/067911), 1-{2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl}-3-(trifluoromethyl)-1H-1,2,4-triazol-5-amine (II-29-44) (known from WO2006/043635), Afidopyropen (II-29-45) (known from WO2008/066153), 2-cyano-3-(difluoromethoxy)-N,N-dimethylbenzenesulfonamide (II-29-46) (known from WO2006/056433), 2-cyano-3-(difluoromethoxy)-N-methylbenzenesulfonamide (II-29-47) (known from WO2006/100288), 2-cyano-3-(difluoromethoxy)-N-ethylbenzenesulfonamide (II-29-48) (known from WO2005/035486), 4-(difluoromethoxy)-N-ethyl-N-methyl-1,2-benzothiazol-3-amine 1,1-dioxide (II-29-49) (known from WO2007/057407), N-[1-(2,3-dimethylphenyl)-2-(3,5-dimethylphenyl)ethyl]-4,5-dihydro-1,3-thiazol-2-amine (II-29-50) (known from WO2008/104503), {1'-[(2E)-3-(4-chlorophenyl)prop-2-en-1-yl]-5-fluorospiro[indole-3,4'-piperidin]-1(2H)-yl}(2-chloropyridin-4-yl)methanone (II-29-51) (known from WO2003/106457), 3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1,8-diazaspiro[4.5]dec-3-en-2-one (II-29-52) (known from WO2009/049851), 3-(2,5-dimethylphenyl)-8-methoxy-2-oxo-1,8-diazaspiro[4.5]dec-3-en-4-yl ethyl carbonate (II-29-53) (known from WO2009/049851), 4-(but-2-yn-1-yloxy)-6-(3,5-dimethylpiperidin-1-yl)-5-fluoropyrimidine (II-29-54) (known from WO2004/099160), (2,2,3,3,4,4,5,5-octafluoropentyl)(3,3,3-trifluoropropyl)malononitrile (II-29-55) (known from WO2005/063094), (2,2,3,3,4,4,5,5-octafluoropentyl)(3,3,4,4,4-pentafluorobutyl)malononitrile (II-29-56) (known from WO2005/063094), 8-[2-(cyclopropylmethoxy)-4-(trifluoromethyl)phenoxy]-3-[6-(trifluoromethyl)pyridazin-3-yl]-3-azabicyclo[3.2.1]octane (II-29-57) (known from WO2007/040280), Flometoquin (II-29-58), PF1364 (CAS-Reg.No. 1204776-60-2) (II-29-59) (known from JP2010/018586), 5-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-(1H-1,2,4-triazol-1-yl)benzonitrile (II-29-60) (known from WO2007/075459), 5-[5-(2-chloropyridin-4-yl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-(1H-1,2,4-triazol-1-yl)benzonitrile (II-29-61) (known from WO2007/075459), 4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-methyl-N-{2-oxo-2-[(2,2,2-trifluoroethyl)amino]ethyl}benzamide (II-29-62) (known from WO2005/085216), 4-{[(6-chloropyridin-3-yl)methyl](cyclopropyl)amino}-1,3-oxazol-2(5H)-one (II-29-63), 4-{[(6-chloropyridin-3-yl)methyl](2,2-difluoroethyl)amino}-1,3-oxazol-2(5H)-one (II-29-64), 4-{[(6-chloropyridin-3-yl)methyl](ethyl)amino}-1,3-oxazol-2(5H)-one (II-29-65), 4-{[(6-chloropyridin-3-yl)methyl](methyl)amino}-1,3-oxazol-2(5H)-one (II-29-66) (all known from WO2010/005692), Pyflubumide (II-29-67) (known from WO2002/096882), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)-5-chloro-3-methylbenzoyl]-2-methylhydrazinecarboxylate (II-29-68) (known from WO2005/085216), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)-5-cyano-3-methylbenzoyl]-2-ethylhydrazinecarboxylate (II-29-69) (known from

WO2005/085216), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl} amino)-5-cyano-3-methylbenzoyl]-2-methylhydrazinecarboxylate (II-29-70) (known from WO2005/085216), methyl 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl} amino)benzoyl]-1,2-diethylhydrazinecarboxylate (II-29-71) (known from WO2005/085216), methyl 2-[3,5-dibromo-2-
 5 ({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl} amino)benzoyl]-2-ethylhydrazinecarboxylate (II-29-72) (known from WO2005/085216), (5RS,7RS;5RS,7SR)-1-(6-chloro-3-pyridylmethyl)-1,2,3,5,6,7-hexahydro-7-methyl-8-nitro-5-propoxyimidazo[1,2-a]pyridine (II-29-73) (known from WO2007/101369), 2-{6-[2-(5-fluoropyridin-3-yl)-1,3-thiazol-5-yl]pyridin-2-yl}pyrimidine (II-29-74) (known from WO2010/006713), 2-{6-[2-(pyridin-3-yl)-1,3-thiazol-5-yl]pyridin-2-
 10 yl}pyrimidine (II-29-75) (known from WO2010/006713), 1-(3-chloropyridin-2-yl)-N-[4-cyano-2-methyl-6-(methylcarbamoyl)phenyl]-3-{[5-(trifluoromethyl)-1H-tetrazol-1-yl]methyl}-1H-pyrazole-5-phthalic acid diamide (II-29-76) (known from WO2010/069502), 1-(3-chloropyridin-2-yl)-N-[4-cyano-2-methyl-6-(methylcarbamoyl)phenyl]-3-{[5-(trifluoromethyl)-2H-tetrazol-2-yl]methyl}-1H-pyrazole-5-phthalic acid diamide (II-29-77) (known from WO2010/069502), N-[2-(tert-butylcarbamoyl)-4-cyano-6-methylphenyl]-
 15 1-(3-chloropyridin-2-yl)-3-{[5-(trifluoromethyl)-1H-tetrazol-1-yl]methyl}-1H-pyrazole-5-phthalic acid diamide (II-29-78) (known from WO2010/069502), N-[2-(tert-butylcarbamoyl)-4-cyano-6-methylphenyl]-1-(3-chloropyridin-2-yl)-3-{[5-(trifluoromethyl)-2H-tetrazol-2-yl]methyl}-1H-pyrazole-5-phthalic acid diamide (II-29-79) (known from WO2010/069502), (1E)-N-[(6-chloropyridin-3-yl)methyl]-N'-cyano-N-(2,2-difluoroethyl)ethanimidamide (II-29-80) (known from WO2008/009360), N-[2-(5-amino-1,3,4-thiadiazol-
 20 2-yl)-4-chloro-6-methylphenyl]-3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-phthalic acid diamide (II-29-81) (known from CN102057925), methyl 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl} amino)benzoyl]-2-ethyl-1-methylhydrazinecarboxylate (II-29-82) (known from WO2011/049233), Heptafluthrin (II-29-83), Pyriminostrobin (II-29-84), Flufenoxystrobin (II-29-85), and 3-chloro-N²-(2-cyanopropan-2-yl)-N¹-[4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)-2-
 25 methylphenyl]phthalamide (II-29-86) (known from WO2012/034472).

[0068] Although a mixture according to the present invention may be a composition itself, the final used composition is usually prepared by mixing the compound of formula (I) with the biological control agent as defined above and an inert carrier, and if necessary, by adding a surfactant and/or another auxiliary for formulation, such as an extender, and by formulating the mixture into oil formulation, emulsifiable concentrate,
 30 flowable formulation, wettable powder, water dispersible granules, powder, granules, or the like. The formulation, which is used alone or by adding another inert component, can be used as a pesticide.

[0069] Specific further components of this final composition are described later.

[0070] The "composition" can be prepared by formulating the compound of formula (I) and at least one biological control agent, in particular bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes, botanical extracts and products produced by microorganisms including proteins or secondary metabo-
 35 lites as described in the above, and then making the formulations or their diluents.

[0071] For the sake of clearness, a mixture means a physical combination of the compounds of the formula (I) and at least one biological control agent as defined above, whereas a composition means a combination of the mixture together with further additives, such as surfactants, solvents, carriers, pigments, antifoams, thickeners and extenders, in a form as suitable for agrochemical application.

- 5 [0072] Accordingly, the present invention also relates compositions for controlling harmful microorganisms, especially harmful fungi and bacteria, comprising an effective and non-phytotoxic amount of the inventive mixtures. These are preferably fungicidal compositions which comprise agriculturally suitable auxiliaries, solvents, carriers, surfactants or extenders.

10 [0073] In the context of the present invention, “control of harmful microorganisms” means a reduction in infestation by harmful microorganisms, compared with the untreated plant measured as fungicidal efficacy, preferably a reduction by 25-50 %, compared with the untreated plant (100 %), more preferably a reduction by 40-79 %, compared with the untreated plant (100 %); even more preferably, the infection by harmful microorganisms is entirely suppressed (by 70-100 %). The control may be curative, i.e. for treatment of already infected plants, or protective, for protection of plants which have not yet been infected.

- 15 [0074] Accordingly, the present invention also relates compositions for controlling pests, especially harmful insects, mites, arachnids and nematodes, comprising an effective and non-phytotoxic amount of the inventive mixtures or compositions. These are preferably pesticidal compositions which comprise agriculturally suitable auxiliaries, solvents, carriers, surfactants or extenders.

20 [0075] In the context of the present invention, “control of pests” means a reduction in infestation by harmful pests, compared with the untreated plant measured as pesticidal efficacy, preferably a reduction by 25-50 %, compared with the untreated plant (100 %), more preferably a reduction by 40-79 %, compared with the untreated plant (100 %); even more preferably, the infection by pests is entirely suppressed (by 70-100 %). The control may be curative, i.e. for treatment of already infected plants, or protective, for protection of plants which have not yet been infected.

- 25 [0076] The present invention also relates to a method for controlling pests, comprising contacting said pests or their habitat with the above-described composition.

30 [0077] An “effective but non-phytotoxic amount” means an amount of the inventive composition which is sufficient to control the fungal disease of the plant in a satisfactory manner or to eradicate the fungal disease completely, and which, at the same time, does not cause any significant symptoms of phytotoxicity. In general, this application rate may vary within a relatively wide range. It depends on several factors, for example on the fungus to be controlled, the plant, the climatic conditions and the ingredients of the inventive compositions.

[0078] The present invention also relates to a method for controlling pests, comprising contacting said pests or their habitat with the above-described composition.

[0079] The present invention relates further to a method for treating seeds, comprising contacting said seeds with the above-described composition.

5 [0080] In one embodiment, the invention refers to a seed coating comprising a compound of formula (I) and at least one biological control agent.

[0081] Finally, the present invention also relates to seed treated with the above-mentioned composition

Formulations

[0082] Suitable organic solvents include all polar and non-polar organic solvents usually employed for
10 formulation purposes. Preferable the solvents are selected from ketones, e.g. methyl-isobutyl-ketone and cyclohexanone, amides, e.g. dimethyl formamide and alkanecarboxylic acid amides, e.g. N,N-dimethyl decanamide and N,N-dimethyl octanamide, furthermore cyclic solvents, e.g. N-methyl-pyrrolidone, N-octyl-pyrrolidone, N-dodecyl-pyrrolidone, N-octyl-caprolactame, N-dodecyl-caprolactame and butyrolactone, furthermore strong polar solvents, e.g. dimethylsulfoxide, and aromatic hydrocarbons, e.g. xylol, Solvesso™,
15 mineral oils, e.g. white spirit, petroleum, alkyl benzenes and spindle oil, also esters, e.g. propyleneglycol-monomethylether acetate, adipic acid dibutylester, acetic acid hexylester, acetic acid heptylester, citric acid tri-*n*-butylester and phthalic acid di-*n*-butylester, and also alcohols, e.g. benzyl alcohol and 1-methoxy-2-propanol.

[0083] According to the invention, a carrier is a natural or synthetic, organic or inorganic substance with
20 which the active ingredients are mixed or combined for better applicability, in particular for application to plants or plant parts or seed. The carrier, which may be solid or liquid, is generally inert and should be suitable for use in agriculture.

[0084] Useful solid or liquid carriers include: for example ammonium salts and natural rock dusts, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and synthetic rock
25 dusts, such as finely divided silica, alumina and natural or synthetic silicates, resins, waxes, solid fertilizers, water, alcohols, especially butanol, organic solvents, mineral and vegetable oils, and derivatives thereof. Mixtures of such carriers can likewise be used.

[0085] Suitable solid filler and carrier include inorganic particles, e.g. carbonates, silicates, sulphates and oxides with an average particle size of between 0.005 and 20 µm, preferably of between 0.02 to 10 µm, for
30 example ammonium sulphate, ammonium phosphate, urea, calcium carbonate, calcium sulphate, magnesium sulphate, magnesium oxide, aluminium oxide, silicium dioxide, so-called fine-particle silica, silica gels, natu-

ral or synthetic silicates, and aluminosilicates and plant products like cereal flour, wood powder/sawdust and cellulose powder.

[0086] Useful solid carriers for granules include: for example crushed and fractionated natural rocks such as calcite, marble, pumice, sepiolite, dolomite, and synthetic granules of inorganic and organic meals, and also granules of organic material such as sawdust, coconut shells, maize cobs and tobacco stalks.

[0087] Useful liquefied gaseous extenders or carriers are those liquids which are gaseous at standard temperature and under standard pressure, for example aerosol propellants such as halohydrocarbons, and also butane, propane, nitrogen and carbon dioxide.

[0088] In the formulations, it is possible to use tackifiers such as carboxymethylcellulose, and natural and synthetic polymers in the form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, or else natural phospholipids, such as cephalins and lecithins, and synthetic phospholipids. Further additives may be mineral and vegetable oils.

[0089] If the extender used is water, it is also possible to employ, for example, organic solvents as auxiliary solvents. Useful liquid solvents are essentially: aromatics such as xylene, toluene or alkyl-naphthalenes, chlorinated aromatics and chlorinated aliphatic hydrocarbons such as chlorobenzenes, chloroethylenes or dichloromethane, aliphatic hydrocarbons such as cyclohexane or paraffins, for example mineral oil fractions, mineral and vegetable oils, alcohols such as butanol or glycol and their ethers and esters, ketones such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents such as dimethylformamide and dimethyl sulphoxide, and also water.

[0090] The inventive compositions may additionally comprise further components, for example surfactants. Useful surfactants are emulsifiers and/or foam formers, dispersants or wetting agents having ionic or nonionic properties, or mixtures of these surfactants. Examples of these are salts of polyacrylic acid, salts of lignosulphonic acid, salts of phenolsulphonic acid or naphthalenesulphonic acid, polycondensates of ethylene oxide with fatty alcohols or with fatty acids or with fatty amines, substituted phenols (preferably alkylphenols or arylphenols), salts of sulphosuccinic esters, taurine derivatives (preferably alkyl taurates), phosphoric esters of polyethoxylated alcohols or phenols, fatty esters of polyols, and derivatives of the compounds containing sulphates, sulphonates and phosphates, for example alkylaryl polyglycol ethers, alkylsulphonates, alkylsulphates, arylsulphonates, protein hydrolysates, lignosulphite waste liquors and methylcellulose. The presence of a surfactant is necessary if one of the active ingredients and/or one of the inert carriers is insoluble in water and when application is effected in water. The proportion of surfactants is between 5 and 40 per cent by weight of the inventive composition.

[0091] Suitable surfactants (adjuvants, emulsifiers, dispersants, protective colloids, wetting agent and adhesive) include all common ionic and non-ionic substances, for example ethoxylated nonylphenols, polyalkyl glycolether of linear or branched alcohols, reaction products of alkyl phenols with ethylene oxide and/or pro-

pylene oxide, reaction products of fatty acid amines with ethylene oxide and/or propylene oxide, furthermore fatty acid esters, alkyl sulfonates, alkyl sulphates, alkyl ethersulphates, alkyl etherphosphates, arylsulphate, ethoxylated arylalkylphenols, e.g. tristyryl-phenol-ethoxylates, furthermore ethoxylated and propoxylated arylalkylphenols like sulphated or phosphated arylalkylphenol-ethoxylates and -ethoxy- and -propoxylates.

- 5 Further examples are natural and synthetic, water soluble polymers, e.g. lignosulphonates, gelatine, gum arabic, phospholipides, starch, hydrophobic modified starch and cellulose derivatives, in particular cellulose ester and cellulose ether, further polyvinyl alcohol, polyvinyl acetate, polyvinyl pyrrolidone, polyacrylic acid, polymethacrylic acid and co-polymerisates of (meth)acrylic acid and (meth)acrylic acid esters, and further co-polymerisates of methacrylic acid and methacrylic acid esters which are neutralized with alkalimetal hydroxide and also condensation products of optionally substituted naphthalene sulfonic acid salts with formaldehyde.
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[0092] It is possible to use dyes such as inorganic pigments, for example iron oxide, titanium oxide and Prussian Blue, and organic dyes such as alizarin dyes, azo dyes and metal phthalocyanine dyes, and trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

- 15 [0093] Antifoams which may be present in the formulations include e.g. silicone emulsions, longchain alcohols, fatty acids and their salts as well as fluoroorganic substances and mixtures thereof.

[0094] Examples of thickeners are polysaccharides, e.g. xanthan gum or veegum, silicates, e.g. attapulgit, bentonite as well as fine-particle silica.

- [0095] If appropriate, it is also possible for other additional components to be present, for example protective colloids, binders, adhesives, thickeners, thixotropic substances, penetrants, stabilizers, sequestrants, complexing agents. In general, the active ingredients can be combined with any solid or liquid additive commonly used for formulation purposes.
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- [0096] The inventive mixtures or compositions can be used as such or, depending on their particular physical and/or chemical properties, in the form of their formulations or the use forms prepared therefrom, such as aerosols, capsule suspensions, cold-fogging concentrates, warm-fogging concentrates, encapsulated granules, fine granules, flowable concentrates for the treatment of seed, ready-to-use solutions, dustable powders, emulsifiable concentrates, oil-in-water emulsions, water-in-oil emulsions, macrogranules, microgranules, oil-dispersible powders, oil-miscible flowable concentrates, oil-miscible liquids, gas (under pressure), gas generating product, foams, pastes, pesticide coated seed, suspension concentrates, suspoemulsion concentrates, soluble concentrates, suspensions, wettable powders, soluble powders, dusts and granules, water-soluble and water-dispersible granules or tablets, water-soluble and water-dispersible powders for the treatment of seed, wettable powders, natural products and synthetic substances impregnated with active ingredient, and also microencapsulations in polymeric substances and in coating materials for seed, and also ULV cold-fogging and warm-fogging formulations.
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[0097] The inventive compositions include not only formulations which are already ready for use and can be applied with a suitable apparatus to the plant or the seed, but also commercial concentrates which have to be diluted with water prior to use. Customary applications are for example dilution in water and subsequent spraying of the resulting spray liquor, application after dilution in oil, direct application without dilution, seed treatment or soil application of granules.

[0098] The inventive mixtures, compositions and formulations generally contain between 0.05 and 99 % by weight, 0.01 and 98 % by weight, preferably between 0.1 and 95 % by weight, more preferably between 0.5 and 90 % of active ingredient, most preferably between 10 and 70 % by weight. For special applications, e.g. for protection of wood and derived timber products the inventive mixtures, compositions and formulations generally contain between 0.0001 and 95 % by weight, preferably 0.001 to 60 % by weight of active ingredient.

[0099] The contents of active ingredient in the application forms prepared from the formulations may vary in a broad range. The concentration of the active ingredients in the application forms is generally between 0.000001 to 95 % by weight, preferably between 0.0001 and 2 % by weight.

[0100] The formulations mentioned can be prepared in a manner known per se, for example by mixing the active ingredients with at least one customary extender, solvent or diluent, adjuvant, emulsifier, dispersant, and/or binder or fixative, wetting agent, water repellent, if appropriate desiccants and UV stabilizers and, if appropriate, dyes and pigments, antifoams, preservatives, inorganic and organic thickeners, adhesives, gibberellins and also further processing auxiliaries and also water. Depending on the formulation type to be prepared further processing steps are necessary, e.g. wet grinding, dry grinding and granulation.

[0101] The inventive mixtures or compositions may be present as such or in their (commercial) formulations and in the use forms prepared from these formulations as a mixture with other (known) active ingredients, such as insecticides, attractants, sterilants, bactericides, acaricides, nematocides, fungicides, growth regulators, herbicides, fertilizers, safeners and/or semiochemicals.

[0102] The inventive treatment of the plants and plant parts with the mixtures or compositions is effected directly or by action on their surroundings, habitat or storage space by the customary treatment methods, for example by dipping, spraying, atomizing, irrigating, evaporating, dusting, fogging, broadcasting, foaming, painting, spreading-on, watering (drenching), drip irrigating and, in the case of propagation material, especially in the case of seeds, also by dry seed treatment, wet seed treatment, slurry treatment, incrustation, coating with one or more coats, etc. It is also possible to deploy the mixtures or compositions by the ultra-low volume method or to inject the mixtures or compositions preparation or the mixtures or compositions itself into the soil.

Plant/Crop Protection

[0103] The inventive mixtures or compositions have potent microbicidal activity and can be used for control of harmful microorganisms, such as phytopathogenic fungi and bacteria, in crop protection and in the protection of materials.

[0104] The invention also relates to a method for controlling harmful microorganisms, characterized in that the inventive mixtures or compositions are applied to the phytopathogenic fungi, phytopathogenic bacteria and/or their habitat.

[0105] Fungicides can be used in crop protection for control of phytopathogenic fungi. They are characterized by an outstanding efficacy against a broad spectrum of phytopathogenic fungi, including soilborne pathogens, which are in particular members of the classes *Plasmodiophoromycetes*, *Peronosporomycetes* (Syn. *Oomycetes*), *Chytridiomycetes*, *Zygomycetes*, *Ascomycetes*, *Basidiomycetes* and *Deuteromycetes* (Syn. *Fungi imperfecti*). Some fungicides are systemically active and can be used in plant protection as foliar, seed dressing or soil fungicide. Furthermore, they are suitable for combating fungi, which inter alia infest wood or roots of plant.

[0106] Bactericides can be used in crop protection for control of *Pseudomonadaceae*, *Rhizobiaceae*, *Enterobacteriaceae*, *Corynebacteriaceae* and *Streptomycetaceae*.

[0107] Non-limiting examples of pathogens of fungal diseases which can be treated in accordance with the invention include:

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*;

diseases caused by rust disease pathogens, for example *Gymnosporangium* species, for example *Gymnosporangium sabinae*; *Hemileia* species, for example *Hemileia vastatrix*; *Phakopsora* species, for example *Phakopsora pachyrhizi* and *Phakopsora meibomia*; *Puccinia* species, for example *Puccinia recondite*, *P. triticina*, *P. graminis* or *P. striiformis*; *Uromyces* species, for example *Uromyces appendiculatus*;

diseases caused by pathogens from the group of the *Oomycetes*, for example *Albugo* species, for 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 *Alternaria solani*; *Cercospora* species, for example *Cercospora beticola*; *Cladosporium* species, for example *Cladosporium cucumerinum*; *Cochliobolus* species, for example *Cochliobolus sativus* (conidia form: *Drechslera*,

Syn: Helminthosporium), *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*, *Leptosphaeria nodorum*; *Magnaporthe* species, for example *Magnaporthe grisea*; *Microdochium* species, for example *Microdochium nivale*; *Mycosphaerella* species, for example *Mycosphaerella graminicola*, *M. arachidicola* and *M. fijiensis*; *Phaeosphaeria* species, for example *Phaeosphaeria nodorum*; *Pyrenophora* species, for example *Pyrenophora teres*, *Pyrenophora tritici repentis*; *Ramularia* species, for example *Ramularia collo-cygni*, *Ramularia areola*; *Rhynchosporium* species, for example *Rhynchosporium secalis*; *Septoria* species, for example *Septoria apii*, *Septoria lycopersii*; *Typhula* species, for example *Typhula incarnata*; *Venturia* species, for example *Venturia inaequalis*;

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*; *Rhizoctonia* species, such as, for example *Rhizoctonia solani*; *Sarocladium* diseases caused for example by *Sarocladium oryzae*; *Sclerotium* diseases caused for example by *Sclerotium oryzae*; *Tapesia* species, for example *Tapesia acuformis*; *Thielaviopsis* species, for example *Thielaviopsis basicola*;

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*; *Septoria* species, for example *Septoria nodorum*;

diseases caused by smut fungi, for example *Sphacelotheca* species, for example *Sphacelotheca reiliana*; *Tilletia* species, for example *Tilletia caries*, *T. controversa*; *Urocystis* species, for example *Urocystis occulta*; *Ustilago* species, for example *Ustilago nuda*, *U. nuda tritici*;

fruit rot caused, for example, by *Aspergillus* species, for example *Aspergillus flavus*; *Botrytis* species, for example *Botrytis cinerea*; *Penicillium* species, for example *Penicillium expansum* and *P. purpurogenum*; *Sclerotinia* species, for example *Sclerotinia sclerotiorum*; *Verticillium* species, for example *Verticillium albo-atrum*;

seed and soilborne decay, mould, wilt, rot and damping-off diseases caused, for example, by *Alternaria* species, caused for example by *Alternaria brassicicola*; *Aphanomyces* species, caused for example by *Aphanomyces euteiches*; *Ascochyta* species, caused for example by *Ascochyta lentis*; *Aspergillus* species, caused for example by *Aspergillus flavus*; *Cladosporium* species, caused for example by *Cladosporium herbarum*; *Cochliobolus* species, caused for example by *Cochliobolus sativus*; (Conidiaform: Drechslera,

Bipolaris Syn: Helminthosporium); *Colletotrichum* species, caused for example by *Colletotrichum coccodes*; *Fusarium* species, caused for example by *Fusarium culmorum*; *Gibberella* species, caused for example by *Gibberella zeae*; *Macrophomina* species, caused for example by *Macrophomina phaseolina*; *Monographella* species, caused for example by *Monographella nivalis*; *Penicillium* species, caused for example by *Penicillium expansum*; *Phoma* species, caused for example by *Phoma lingam*; *Phomopsis* species, caused for example by *Phomopsis sojae*; *Phytophthora* species, caused for example by *Phytophthora cactorum*; *Pyrenophora* species, caused for example by *Pyrenophora graminea*; *Pyricularia* species, caused for example by *Pyricularia oryzae*; *Pythium* species, caused for example by *Pythium ultimum*; *Rhizoctonia* species, caused for example by *Rhizoctonia solani*; *Rhizopus* species, caused for example by *Rhizopus oryzae*; *Sclerotium* species, caused for example by *Sclerotium rolfsii*; *Septoria* species, caused for example by *Septoria nodorum*; *Typhula* species, caused for example by *Typhula incarnata*; *Verticillium* species, caused for example by *Verticillium dahliae*;

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

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

leaf blister or leaf curl diseases caused, for example, by *Exobasidium* species, for example *Exobasidium vexans*;

Taphrina species, for example *Taphrina deformans*;

decline diseases of wooden plants caused, for example, by Esca disease, caused for example by *Phaemoniella clamydospora*, *Phaeoacremonium aleophilum* and *Fomitiporia mediterranea*; Eutypa dyeback, caused for example by *Eutypa lata*; *Ganoderma* diseases caused for example by *Ganoderma boninense*; *Rigidoporus* diseases caused for example by *Rigidoporus lignosus*;

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*;

Club root caused, for example, by *Plasmodiophora* species, for example *Plasmodiophora brassicae*;

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*.

[0108] The following diseases of soya beans can be controlled with preference:

Fungal diseases on leaves, stems, pods and seeds caused, for example, by *Alternaria* leaf spot (*Alternaria spec. atrans tenuissima*), Anthracnose (*Colletotrichum gloeosporoides dematium* var. *truncatum*), brown

spot (*Septoria glycines*), cercospora leaf spot and blight (*Cercospora kikuchii*), choanephora leaf blight (*Choanephora infundibulifera trispora* (Syn.)), dactuliophora leaf spot (*Dactuliophora glycines*), downy mildew (*Peronospora manshurica*), drechslera blight (*Drechslera glycini*), frog-eye leaf spot (*Cercospora sojae*), leptosphaerulina leaf spot (*Leptosphaerulina trifolii*), phyllosticta leaf spot (*Phyllosticta sojaecola*),
 5 pod and stem blight (*Phomopsis sojae*), powdery mildew (*Microsphaera diffusa*), pyrenochaeta leaf spot (*Pyrenochaeta glycines*), rhizoctonia aerial, foliage, and web blight (*Rhizoctonia solani*), rust (*Phakopsora pachyrhizi*, *Phakopsora meibomia*), scab (*Sphaceloma glycines*), stemphylium leaf blight (*Stemphylium botryosum*), target spot (*Corynespora cassiicola*).

Fungal diseases on roots and the stem base caused, for example, by black root rot (*Calonectria crotalariae*),
 10 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 (*Mycoleptodiscus 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,
 15 and damping-off (*Rhizoctonia solani*), sclerotinia stem decay (*Sclerotinia sclerotiorum*), sclerotinia southern blight (*Sclerotinia rolfsii*), thielaviopsis root rot (*Thielaviopsis basicola*).

[0109] The inventive fungicidal mixtures or compositions can be used for curative or protective/preventive control of phytopathogenic fungi. The invention therefore also relates to curative and protective methods for
 20 controlling phytopathogenic fungi by the use of the inventive mixtures or compositions, which are applied to the seed, the plant or plant parts, the fruit or the soil in which the plants grow.

[0110] The fact that the mixtures or compositions 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.

[0111] The mixtures or compositions according to the invention, in combination with good plant tolerance and favourable toxicity to warm-blooded animals and being tolerated well by the environment, are suitable for protecting plants and plant organs, for increasing harvest yields, for improving the quality of the harvested material and for controlling pests, in particular insects, arachnids, helminths, nematodes and molluscs, which
 25 are encountered in agriculture, in horticulture, in animal husbandry, in forests, in gardens and leisure facilities, in protection of stored products and of materials, and in the hygiene sector. They can be preferably employed as plant protection agents. They are active against normally sensitive and resistant species and against
 30 all or some stages of development. The abovementioned pests include:

pests from the phylum Arthropoda, especially from the class Arachnida, for example, *Acarus* spp., *Aceria kuko*, *Aceria sheldoni*, *Aculops* spp., *Aculus* spp., *Amblyomma* spp., *Amphitetranychus viennensis*, *Argas*

- spp., *Boophilus* spp., *Brevipalpus* spp., *Bryobia graminum*, *Bryobia praetiosa*, *Centruroides* spp., *Choriot* spp., *Dermanyssus gallinae*, *Dermatophagoides pteronyssinus*, *Dermatophagoides farinae*, *Dermacentor* spp., *Eotetranychus* spp., *Epitrimerus pyri*, *Eutetranychus* spp., *Eriophyes* spp., *Glycyphagus domesticus*, *Halotydeus destructor*, *Hemitarsonemus* spp., *Hyalomma* spp., *Ixodes* spp., *Latrodectus* spp., *Loxosceles* spp., *Metatetranychus* spp., *Neutrombicula autumnalis*, *Nuphessa* spp., *Oligonychus* spp., *Ornithodoros* spp., *Ornithonyssus* spp., *Panonychus* spp., *Phyllocoptruta oleivora*, *Platytetranychus multidigituli*, *Polyphagotarsonemus latus*, *Psoroptes* spp., *Rhipicephalus* spp., *Rhizoglyphus* spp., *Sarcoptes* spp., *Scorpio maurus*, *Steneotarsonemus* spp., *Steneotarsonemus spinki*, *Tarsonemus* spp., *Tetranychus* spp., *Trombicula alfreddugesi*, *Vaejovis* spp., *Vasates lycopersici*;
- 10 from the class Chilopoda, for example, *Geophilus* spp., *Scutigera* spp.;
- from the order or the class Collembola, for example, *Onychiurus armatus*, *Sminthurus viridis*;
- from the class Diplopoda, for example, *Blaniulus guttulatus*;
- from the class Insecta, e.g. from the order Blattodea, for example, *Blattella asahinai*, *Blattella germanica*, *Blatta orientalis*, *Leucophaea maderae*, *Panchlora* spp., *Parcoblatta* spp., *Periplaneta* spp., *Pycnoscelus surinamensis*, *Supella longipalpa*;
- 15 from the order Coleoptera, for example, *Acalymma vittatum*, *Acanthoscelides obtectus*, *Adoretus* spp., *Aethina tumida*, *Agelastica alni*, *Agriotes* spp., *Alphitobius diaperinus*, *Amphimallon solstitialis*, *Anobium punctatum*, *Anoplophora* spp., *Anthonomus* spp., *Anthrenus* spp., *Apion* spp., *Apogonia* spp., *Atomaria* spp., *Attagenus* spp., *Baris caerulescens*, *Bruchidius obtectus*, *Bruchus* spp., *Cassida* spp., *Cerotoma trifurcata*, *Ceutorhynchus* spp., *Chaetocnema* spp., *Cleonus mendicus*, *Conoderus* spp., *Cosmopolites* spp., *Costelytra zealandica*, *Ctenicera* spp., *Curculio* spp., *Cryptolestes ferrugineus*, *Cryptorhynchus lapathi*, *Cylindrocopturus* spp., *Dermestes* spp., *Diabrotica* spp., *Dichocrocis* spp., *Dicladispa armigera*, *Diloboderus* spp., *Epicaerus* spp., *Epilachna* spp., *Epitrix* spp., *Faustinus* spp., *Gibbium psylloides*, *Gnathocerus cornutus*, *Hellula undalis*, *Heteronychus arator*, *Heteronyx* spp., *Hylamorpha elegans*, *Hylotrupes bajulus*,
- 20 *Hypera postica*, *Hypomeces squamosus*, *Hypothenemus* spp., *Lachnosterna consanguinea*, *Lasioderma serricorne*, *Latheticus oryzae*, *Lathridius* spp., *Lema* spp., *Leptinotarsa decemlineata*, *Leucoptera* spp., *Lissorhoptrus oryzophilus*, *Listronotus* (= *Hyperodes*) spp., *Lixus* spp., *Luperodes* spp., *Luperomorpha xanthodera*, *Lyctus* spp., *Megascelis* spp., *Melanotus* spp., *Meligethes aeneus*, *Melolontha* spp., *Migdolus* spp., *Monochamus* spp., *Naupactus xanthographus*, *Necrobia* spp., *Neogalerucella* spp., *Niptus hololeucus*,
- 25 *Oryctes rhinoceros*, *Oryzaephilus surinamensis*, *Oryzaphagus oryzae*, *Otiorrhynchus* spp., *Oulema* spp., *Oulema melanopus*, *Oulema oryzae*, *Oxycetonia jucunda*, *Phaedon cochleariae*, *Phyllophaga* spp., *Phyllophaga helleri*, *Phyllotreta* spp., *Popillia japonica*, *Premnotypes* spp., *Prostephanus truncatus*, *Psylliodes* spp., *Ptinus* spp., *Rhizobius ventralis*, *Rhizopertha dominica*, *Rhynchophorus* spp., *Rhynchophorus ferrugineus*, *Rhynchophorus palmarum*, *Sinoxylon perforans*, *Sitophilus* spp., *Sitophilus oryzae*, *Sphenophorus*

spp., *Stegobium paniceum*, *Sternechus* spp., *Symphyletes* spp., *Tanymecus* spp., *Tenebrio molitor*, *Tenebrioides mauretanicus*, *Tribolium* spp., *Trogoderma* spp., *Tychius* spp., *Xylotrechus* spp., *Zabrus* spp.;

from the order Dermaptera, for example *Anisolabis maritime*, *Forficula auricularia*, *Labidura riparia*;

from the order Diptera, for example, *Aedes* spp., *Agromyza* spp., *Anastrepha* spp., *Anopheles* spp., *Asphondylia* spp., *Bactrocera* spp., *Bibio hortulanus*, *Calliphora erythrocephala*, *Calliphora vicina*, *Ceratitis capitata*, *Chironomus* spp., *Chrysomya* spp., *Chrysops* spp., *Chrysozona pluvialis*, *Cochliomyia* spp., *Contarinia* spp., *Cordylobia anthropophaga*, *Cricotopus sylvestris*, *Culex* spp., *Culicoides* spp., *Culiseta* spp., *Cuterebra* spp., *Dacus oleae*, *Dasineura* spp., *Delia* spp., *Dermatobia hominis*, *Drosophila* spp., *Echinocnemus* spp., *Euleia heraclei*, *Fannia* spp., *Gasterophilus* spp., *Glossina* spp., *Haematopota* spp., *Hydrellia* spp., *Hydrellia griseola*, *Hylemya* spp., *Hippobosca* spp., *Hypoderma* spp., *Liriomyza* spp., *Lucilia* spp., *Lutzomyia* spp., *Mansonia* spp., *Musca* spp., *Oestrus* spp., *Oscinella frit*, *Paratanytarsus* spp., *Paralauterborniella subcincta*, *Pegomyia* spp., *Phlebotomus* spp., *Phorbia* spp., *Phormia* spp., *Piophilina casei*, *Platyparea poeciloptera*, *Prodiptosis* spp., *Psila rosae*, *Rhagoletis* spp., *Sarcophaga* spp., *Simulium* spp., *Stomoxys* spp., *Tabanus* spp., *Tetanops* spp., *Tipula* spp., *Toxotrypana curvicauda*;

from the suborder Heteroptera, for example, *Aelia* spp., *Anasa tristis*, *Antestiopsis* spp., *Boisea* spp., *Blissus* spp., *Calocoris* spp., *Campylomma livida*, *Cavelerius* spp., *Cimex* spp., *Collaria* spp., *Creontiades dilutus*, *Dasynus piperis*, *Dichelops furcatus*, *Diconocoris hewetti*, *Dysdercus* spp., *Euschistus* spp., *Eurydema* spp., *Eurygaster* spp., *Halyomorpha halys*, *Heliopeltis* spp., *Horcias nobilellus*, *Leptocoris* spp., *Leptocoris varicornis*, *Leptoglossus occidentalis*, *Leptoglossus phyllopus*, *Lygocoris* spp., *Lygus* spp., *Macropes excavatus*, *Megacopta cribraria*, *Miridae*, *Monalonion atratum*, *Nezara* spp., *Nysius* spp., *Oebalus* spp., *Pentomidae*, *Piesma quadrata*, *Piezodorus* spp., *Psallus* spp., *Pseudacysta perseae*, *Rhodnius* spp., *Sahlbergella singularis*, *Scaptocoris castanea*, *Scotinophora* spp., *Stephanitis nashi*, *Tibraca* spp., *Triatoma* spp.;

from the order Hemiptera, for example, *Acizzia acaciaebaileyanae*, *Acizzia dodonaeae*, *Acizzia uncatooides*, *Acrida turrita*, *Acyrtosiphon* spp., *Acrogonia* spp., *Aeneolamia* spp., *Agonoscena* spp., *Aleurocanthus* spp., *Aleyrodes proletella*, *Aleurolobus barodensis*, *Aleurothrixus floccosus*, *Allocaridara malayensis*, *Amrasca* spp., *Anuraphis cardui*, *Aonidiella* spp., *Aphanostigma piri*, *Aphis* spp., *Arboridia apicalis*, *Arytainilla* spp., *Aspidiella* spp., *Aspidiotus* spp., *Atanus* spp., *Aulacorthum solani*, *Bemisia tabaci*, *Blastopsylla occidentalis*, *Boreioglycaspis melaleucae*, *Brachycaudus helichrysi*, *Brachycolus* spp., *Brevicoryne brassicae*, *Cacopsylla* spp., *Calligypona marginata*, *Capulinia* spp., *Carneocephala fulgida*, *Ceratovacuna lanigera*, *Cercopidae*, *Ceroplastes* spp., *Chaetosiphon fragaefolii*, *Chionaspis tegalensis*, *Chlorita onukii*, *Chondracris rosea*, *Chromaphis juglandicola*, *Chrysomphalus aonidum*, *Chrysomphalus ficus*, *Cicadulina mbila*, *Coccoxystus halli*, *Coccus* spp., *Cryptomyzus ribis*, *Cryptoneossa* spp., *Ctenarytaina* spp., *Dalbulus* spp., *Dialeurodes chittendeni*, *Dialeurodes citri*, *Diaphorina citri*, *Diaspis* spp., *Diuraphis* spp., *Drosicha* spp., *Dysaphis* spp., *Dysmicoccus* spp., *Empoasca* spp., *Eriosoma* spp., *Erythroneura* spp., *Eucalyptolyma* spp.,

Euphyllura spp., Euscelis bilobatus, Ferrisia spp., Fiorinia spp., Furcaspis oceanica, Geococcus coffeae, Glycaspis spp., Heteropsylla cubana, Heteropsylla spinulosa, Homalodisca coagulata, Hyalopterus arundinis, Hyalopterus pruni, Icerya spp., Idiocerus spp., Idioscopus spp., Laodelphax striatellus, Lecanium spp., Lepidosaphes spp., Lipaphis erysimi, Lopholeucaspis japonica, Lycorma delicatula, Macrosiphum spp.,
 5 Macrosteles facifrons, Mahanarva spp., Melanaphis sacchari, Metcalfiella spp., Metcalfa pruinosa, Metopolophium dirhodum, Monellia costalis, Monelliopsis pecanis, Myzus spp., Nasonovia ribisnigri, Neomaskellia spp., Nephrotettix spp., Nettigoniclla spectra, Nilaparvata lugens, Oncometopia spp., Orthezia praelonga, Oxya chinensis, Pachypsylla spp., Parabemisia myricae, Paratrioza spp., Parlatoria spp., Pemphigus spp., Peregrinus maidis, Perkinsiella spp., Phenacoccus spp., Phloeomyzus passerinii, Phorodon
 10 humuli, Phylloxera spp., Pinnaspis aspidistrae, Planococcus spp., Prosopidopsylla flava, Protopulvinaria pyriformis, Pseudaulacaspis pentagona, Pseudococcus spp., Psyllopsis spp., Psylla spp., Pteromalus spp., Pulvinaria spp., Pyrilla spp., Quadraspidiotus spp., Quesada gigas, Rastrococcus spp., Rhopalosiphum spp., Saissetia spp., Scaphoideus titanus, Schizaphis graminum, Selenaspidus articulatus, Sitobion avenae, Sogata spp., Sogatella furcifera, Sogatodes spp., Stictocephala festina, Siphoninus phillyreae, Tenalaphara
 15 malayensis, Tetragonocephala spp., Tinocallis caryaefoliae, Tomaspis spp., Toxoptera spp., Trialeurodes vaporariorum, Trioza spp., Typhlocyba spp., Unaspis spp., Viteus vitifolii, Zygina spp.;

from the order Hymenoptera, for example, Acromyrmex spp., Athalia spp., Atta spp., Camponotus spp., Dolichovespula spp., Diprion spp., Hoplocampa spp., Lasius spp., Linepithema (Iridomyrmex) humile, Monomorium pharaonis, Paratrechina spp., Paravespula spp., Plagiolepis spp., Sirex spp., Solenopsis
 20 invicta, Tapinoma spp., Technomyrmex albipes, Urocerus spp., Vespa spp., Wasmannia auropunctata, Xeris spp.;

from the order Isopoda, for example, Armadillidium vulgare, Oniscus asellus, Porcellio scaber;

from the order Isoptera, for example, Coptotermes spp., Cornitermes cumulans, Cryptotermes spp., Incisitermes spp., Kaloterms spp., Microtermes obesi, Nasutitermes spp., Odontotermes spp., Porotermes
 25 spp., Reticulitermes spp.;

from the order Lepidoptera, for example, Achroia grisella, Acronicta major, Adoxophyes spp., Aedia leucomelas, Agrotis spp., Alabama spp., Amyelois transitella, Anarsia spp., Anticarsia spp., Argyroplote spp., Autographa spp., Barathra brassicae, Blastodacna atra, Borbo cinnara, Bucculatrix thurberiella, Bupalus piniarius, Busseola spp., Cacoecia spp., Caloptilia theivora, Capua reticulana, Carpocapsa pomonella, Carposina niponensis, Cheimatomyia brumata, Chilo spp., Choreutis pariana, Choristoneura spp., Chrysodeixis chalcites, Clysia ambiguella, Cnaphalocerus spp., Cnaphalocrocis medinalis, Cnephasia spp., Conopomorpha spp., Conotrachelus spp., Copitarsia spp., Cydia spp., Dalaca noctuides, Diaphania spp., Diparopsis spp., Diatraea saccharalis, Earias spp., Ecdytolopha aurantium, Elasmopalpus lignosellus, Eldana saccharina, Ephestia spp., Epinotia spp., Epiphyas postvittana, Erannis spp., Erschoviella musculana, Etiella spp.,
 30 Eudocima spp., Eulia spp., Eupoecilia ambiguella, Euproctis spp., Euxoa spp., Feltia spp., Galleria

- mellonella, Gracillaria spp., Grapholitha spp., Hedylepta spp., Helicoverpa spp., Heliothis spp., Hofmannophila pseudospretella, Homoeosoma spp., Homona spp., Hyponomeuta padella, Kakivoria flavofasciata, Lampides spp., Laphygma spp., Laspeyresia molesta, Leucinodes orbonalis, Leucoptera spp., Lithocolletis spp., Lithophane antennata, Lobesia spp., Loxagrotis albicosta, Lymantria spp., Lyonetia spp., Malacosoma neustria, Maruca testulalis, Mamstra brassicae, Melanitis leda, Mocis spp., Monopis obviella, Mythimna separata, Nemapogon cloacellus, Nymphula spp., Oiketicus spp., Omphisa spp., Operophtera spp., Oria spp., Orthaga spp., Ostrinia spp., Panolis flammea, Parnara spp., Pectinophora spp., Perileucoptera spp., Phthorimaea spp., Phyllocnistis citrella, Phyllonorycter spp., Pieris spp., Platynota stultana, Plodia interpunctella, Plusia spp., Plutella xylostella, Prays spp., Prodenia spp., Protoparce spp., Pseudaletia spp., Pseudaletia unipuncta, Pseudoplusia includens, Pyrausta nubilalis, Rachiplusia nu, Schoenobius spp., Scirpophaga spp., Scirpophaga innotata, Scotia segetum, Sesamia spp., Sesamia inferens, Sparganothis spp., Spodoptera spp., Spodoptera praefica, Stathmopoda spp., Stenoma spp., Stomopteryx subsecivella, Synanthedon spp., Tecia solanivora, Thaumetopoea spp., Thermesia gemmatilis, Tinea cloacella, Tinea pellionella, Tineola bisselliella, Tortrix spp., Trichophaga tapetzella, Trichoplusia spp., Tryporyza incertulas, Tuta absoluta, Virachola spp.;

from the order Orthoptera or Saltatoria, for example, Acheta domesticus, Dichroplus spp., Gryllotalpa spp., Hieroglyphus spp., Locusta spp., Melanoplus spp., Paratlanticus ussuriensis, Schistocerca gregaria;

from the order Phthiraptera, for example, Damalinia spp., Haematopinus spp., Linognathus spp., Pediculus spp., Phylloxera vastatrix, Phthirus pubis, Trichodectes spp.;

- 20 from the order Psocoptera for example Lepinotus spp., Liposcelis spp.;

from the order Siphonaptera, for example, Ceratophyllus spp., Ctenocephalides spp., Pulex irritans, Tunga penetrans, Xenopsylla cheopis;

- 25 from the order Thysanoptera, for example, Anaphothrips obscurus, Baliothrips biformis, Chaetanaphothrips leeuweni, Drepanothrips reuteri, Enneothrips flavens, Frankliniella spp., Haplothrips spp., Heliothrips spp., Hercinothrips femoralis, Rhipiphorothrips cruentatus, Scirtothrips spp., Taeniothrips cardamomi, Thrips spp.;

from the order Zygentoma (=Thysanura), for example, Ctenolepisma spp., Lepisma saccharina, Lepismodes inquilinus, Thermobia domestica;

from the class Symphyla, for example, Scutigera spp.;

- 30 pests from the phylum Mollusca, especially from the class Bivalvia, for example, Dreissena spp., and from the class Gastropoda, for example, Arion spp., Biomphalaria spp., Bulinus spp., Deroceras spp., Galba spp., Lymnaea spp., Oncomelania spp., Pomacea spp., Succinea spp.;

animal pests from the phyla Plathelminthes and Nematoda, for example, *Aelurostrongylus* spp., *Amidosomum* spp., *Ancylostoma duodenale*, *Ancylostoma ceylanicum*, *Ancylostoma braziliensis*, *Ancylostoma* spp., *Angiostrongylus* spp., *Anisakis* spp., *Anoplocephala* spp., *Ascaris* spp., *Ascaridia* spp., *Baylisascaris* spp., *Brugia malayi*, *Brugia timori*, *Bunostomum* spp., *Capillaria* spp., *Chabertia* spp., *Clonorchis* spp.,
 5 *Cooperia* spp., *Crenosoma* spp., *Cyathostoma* spp., *Dicrocoelium* spp., *Dictyocaulus filaria*, *Diphyllbothrium latum*, *Dipylidium* spp., *Dirofilaria* spp., *Dracunculus medinensis*, *Echinococcus granulosus*, *Echinococcus multilocularis*, *Enterobius vermicularis*, *Eucoleus* spp., *Faciola* spp., *Fascioloides* spp., *Fasciolopsis* spp., *Filaroides* spp., *Gongylonema* spp., *Gyrodactylus* spp., *Habronema* spp., *Haemonchus* spp., *Heligmosomoides* spp., *Heterakis* spp., *Hymenolepis nana*, *Hyostrongylus* spp., *Litomosoides* spp., *Loa Loa*,
 10 *Metastrongylus* spp., *Metorchis* spp., *Mesocestoides* spp., *Moniezia* spp., *Muellerius* spp., *Necator* spp., *Nematodirus* spp., *Nippostrongylus* spp., *Oesophagostomum* spp., *Ollulanus* spp., *Opisthorchis* spp., *Onchocerca volvulus*, *Oslerus* spp., *Ostertagia* spp., *Oxyuris* spp., *Paracapillaria* spp., *Parafilaria* spp., *Paragonimus* spp., *Paramphistomum* spp., *Paranoplocephala* spp., *Parascaris* spp., *Passalurus* spp., *Protostrongylus* spp., *Schistosoma* spp., *Setaria* spp., *Spirocerca* spp., *Stephanofilaria* spp., *Stephanurus* spp., *Strongyloides fuelleborni*, *Strongyloides stercoralis*, *Strongylus* spp., *Syngamus* spp., *Taenia saginata*, *Taenia solium*, *Teladorsagia* spp., *Thelazia* spp., *Toxascaris* spp., *Toxocara* spp., *Trichinella spiralis*, *Trichinella nativa*, *Trichinella britovi*, *Trichinella nelsoni*, *Trichinella pseudospiralis*, *Trichobilharzia* spp., *Trichostrongylus* spp., *Trichuris trichuria*, *Uncinaria* spp., *Wuchereria bancrofti*;

phytoparasitic pests from the phylum Nematoda, for example, *Aglenchus* spp., *Anguina* spp., *Aphelenchoides* spp., *Belonolaimus* spp., *Bursaphelenchus* spp., *Cacopaurus* spp., *Criconemella* spp., *Criconeoides* spp., *Ditylenchus* spp., *Dolichodorus* spp., *Globodera* spp., *Helicotylenchus* spp., *Hemicriconeoides* spp., *Hemicycliophora* spp., *Heterodera* spp., *Hoplolaimus* spp., *Longidorus* spp., *Meloidogyne* spp., *Meloinema* spp., *Nacobbus* spp., *Neotylenchus* spp., *Paralongidorus* spp., *Paraphelenchus* spp., *Paratrichodorus* spp., *Pratylenchus* spp., *Pseudohalenchus* spp., *Psilenchus* spp., *Punctodera* spp., *Quinisulcius* spp.,
 20 *Radopholus* spp., *Rotylenchulus* spp., *Rotylenchus* spp., *Scutellonema* spp., *Subanguina* spp., *Trichodorus* spp., *Tylenchulus* spp., *Tylenchorhynchus* spp., *Xiphinema* spp., *Quinisulcius* spp.,

[0112] It is furthermore possible to control organisms from the subphylum Protozoa, especially from the order Coccidia, such as *Eimeria* spp.

[0113] The mixtures or compositions according to the invention, are particular suitable for controlling
 30 pests infecting soybean like *Acrosternum hilare*, *Agrotis ipsilon*, *Calomycterus setarius*, *Ceratoma trifurcata*, *Colaspis brunnea*, *Colaspis crinnicornis*, *Cyclocephala lurida*, *Dectes texanus*, *Delia platura*, *Epicauta funebris*, *Epicauta pennsylvanica*, *Epicauta* spp., *Epicauta vittata*, *Euschistus* spp., *Feltia ducens*, *Halticus bractatus*, *Hypena scabra*, *Melanoplus bivittatus*, *Melanoplus differentialis*, *Melanoplus femurrubrum*, *Odontota horni*, *Papaipema nebris*, *Peridroma saucia*, *Phyllophaga congrua*, *Phyllophaga implicita*, *Phyllophaga rugosa*,
 35 *Popillia japonica*, *Pseudoplusia includens*, *Spodoptera ornithogalli*, *Strigoderma arboricola*, *Tetranychus urticae*, *Vanessa cardui*.

[0114] The mixtures or compositions according to the invention can also be used in the control of vectors. In the sense of the present invention, a vector is an arthropod, in particular an insect or arachnid, capable of transferring pathogens such as, for example, viruses, worms, single-cell organisms and bacteria from a reservoir (plant, animal, human, etc.) to a host. The pathogens may either be transferred mechanically onto a host (for example trachoma by non-biting flies) or transferred by injection into a host (for example malaria parasites by mosquitoes).

[0115] Examples of vectors and the diseases or pathogens transferred by them are:

1) mosquitoes

- Anopheles: malaria, filariasis;

10 - Culex: Japanese encephalitis, filariasis, other viral diseases, transfer of worms;

- Aedes: yellow fever, Dengue fever, filariasis, other viral diseases;

- Simuliidae: transfer of worms, in particular *Onchocerca volvulus*;

2) Lice: skin infections, epidemic typhus;

3) Fleas: plague, murine typhus;

15 4) Flies: sleeping sickness (trypanosomiasis); cholera, other bacterial diseases;

5) Mites: Acarirose, epidemic typhus, Rickettsialpox, Tularamia, Saint-Louis encephalitis, tick-borne encephalitis (TBE), Krim-Kongo haematologic fever, epidemic typhus, borreliosis;

6) Ticks: Borelliosis such as *Borrelia duttoni*, tick-borne encephalitis, Q fever (*Coxiella burnetii*), babesiosis (*Babesia canis canis*).

20 [0116] Examples of vectors in the sense of the present invention are insects such as aphids, flies, leaf hoppers or thrips, capable of transferring plant viruses to plants. Further vectors capable of transferring plant viruses are spider mites, lice, beetles and nematodes.

[0117] Further examples of vectors in the sense of the present invention are insects and arachnids such as mosquitoes, in particular of the genera *Aedes*, *Anopheles*, for example *A. gambiae*, *A. arabiensis*,
25 *A. funestus*, *A. dirus* (Malaria), and *Culex*, lice, fleas, flies, mites and ticks capable of transferring pathogens to animals and/or humans.

[0118] A control of vectors is also possible with resistance-breaking compounds/compositions.

[0119] Mixtures or compositions of the present invention are suitable for use in the prevention of diseases or of pathogens transferred by vectors. Thus, a further aspect of the present invention is the use of compounds according to the invention for controlling vectors, e.g., in agriculture, in horticulture, in forests, in gardens and leisure facilities as well as in the protection of stored products and materials.

5 *Plants*

[0120] 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 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
10 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 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, corms and rhizomes are listed. Crops and vegetative and generative propagating material, for example
15 cuttings, corms, rhizomes, runners and seeds also belong to plant parts.

[0121] The inventive mixtures or compositions, when they are well tolerated by plants, have favourable homeiotherm 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
20 against all or some stages of development.

[0122] Plants which can be treated in accordance with the 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
25 and vine and various fruit and vegetables from various botanic taxa, e.g. *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.*, *Moraceae sp.*, *Oleaceae sp.* (e.g. olive tree), *Actinidaceae sp.*, *Lauraceae sp.* (e.g. avocado, cinnamon, camphor), *Musaceae sp.* (e.g. banana trees and plantations), *Rubiaceae sp.* (e.g. coffee), *Theaceae sp.* (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
30 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 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 ornamental plants in the garden
 5 and woods including turf, lawn, grass and *Stevia rebaudiana*; and in each case genetically modified types of these plants.

[0123] Soybeans are particularly preferred plants.

[0124] In particular, the mixtures and compositions according to the invention are suitable for controlling the following plant diseases:

- 10 *Albugo* spp. (white rust) on ornamental plants, vegetable crops (e.g. *A. candida*) and sunflowers (e.g. *A. tragopogonis*); *Alternaria* spp. (black spot disease, black blotch) on vegetables, oilseed rape (e.g. *A. brassicola* or *A. brassicae*), sugar beet (e.g. *A. tenuis*), fruit, rice, soybeans and also on potatoes (e.g. *A. solani* or *A. alternata*) and tomatoes (e.g. *A. solani* or *A. alternata*) and *Alternaria* spp. (black head) on wheat; *Aphanomyces* spp. on sugar beet and vegetables; *Ascochyta* spp. on cereals and vegetables, e.g. *A. tritici*
- 15 (*Ascochyta* leaf blight) on wheat and *A. hordei* on barley; *Bipolaris* and *Drechslera* spp. (teleomorph: *Cochliobolus* spp.), e.g. leaf spot diseases (*D. maydis* and *B. zeicola*) on corn, e.g. glume blotch (*B. sorokiniana*) on cereals and e.g. *B. oryzae* on rice and on lawn; *Blumeria* (old name: *Erysiphe*) *graminis* (powdery mildew) on cereals (e.g. wheat or barley); *Botryosphaeria* spp. ('Slack Dead Arm Disease') on grapevines (e.g. *B. obtusa*); *Botrytis cinerea* (teleomorph: *Botryotinia fuckeliana*: gray mold, gray rot) on soft
- 20 fruit and pomaceous fruit (inter alia strawberries), vegetables (inter alia lettuce, carrots, celeriac and cabbage), oilseed rape, flowers, grapevines, forest crops and wheat (ear mold); *Bremia lactucae* (downy mildew) on lettuce; *Ceratocystis* (syn. *Ophiostoma*) spp. (blue stain fungus) on deciduous trees and coniferous trees, e.g. *C. ulmi* (Dutch elm disease) on elms; *Cercospora* spp. (*Cercospora* leaf spot) on corn (e.g. *C. zeae-maydis*), rice, sugar beet (e.g. *C. beticola*), sugar cane, vegetables, coffee, soybeans (e.g. *C. sojae* or *C. kikuchii*) and rice; *Cladosporium* spp. on tomato (e.g. *C. fulvum*: tomato leaf mold) and cereals, e.g. *C. herbarum* (ear rot) on wheat; *Claviceps purpurea* (ergot) on cereals; *Cochliobolus* (anamorph: *Helminthosporium* or *Bipolaris*) spp. (leaf spot) on corn (e.g. *C. carbonum*), cereals (e.g. *C. sativus*, anamorph: *B. sorokiniana*: glume blotch) and rice (for example *C. miyabeanus*, anamorph: *H. oryzae*); *Colletotrichum* (teleomorph: *Glomerella*) spp. (anthracnosis) on cotton (e.g. *C. gossypii*), corn (e.g. *C. graminicola*: stem rot and anthracnosis), soft fruit, potatoes (e.g. *C. coccodes*: wilt disease), beans (e.g. *C. lindemuthianum*) and soybeans (e.g. *C. truncatum*); *Corticium* spp., e.g. *C. sasakii* (sheath blight) on rice; *Corynespora cassiicola* (leaf spot) on soybeans and ornamental plants; *Cyloconium* spp., e.g. *C. oleaginum* on olives; *Cylindrocarpon* spp. (e.g. fruit tree cancer or black foot disease of grapevine, teleomorph: *Nectria* or *Neonectria* spp.) on fruit trees, grapevines (e.g. *C. liriodendri*; teleomorph: *Neonectria liriodendri*, black foot disease) and many ornamental trees; *Dematophora* (teleomorph: *Rosellinia*) *necatrix* (root/stem rot) on soybeans; *Diaporthe* spp. e.g. *D. phaseolorum* (stem disease) on soybeans; *Drechslera*
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(syn. *Helminthosporium*, teleomorph: *Pyrenophora*) spp. on corn, cereals, such as barley (e.g. *D. teres*, net blotch) and on wheat (e.g. *D. tritici-repentis*: DTR leaf spot), rice and lawn; Esca disease (dieback of grapevine, apoplexia) on grapevines, caused by *Formitiporia* (syn. *Phellinus*) *punctata*, *F. mediterranea*. *Phaeomoniella chlamydospora* (old name *Phaeoacremonium chlamydosporum*), *Phaeoacremonium aleophilum* and/or *Botryosphaeria obtusa*; *Elsinoe* spp. on pome fruit (*E. pyri*) and soft fruit (*E. veneta*: anthracnosis) and also grapevines (*E. ampelina*: anthracnosis); *Entyloma oryzae* (leaf smut) on rice; *Epicoccum* spp. (black head) on wheat; *Erysiphe* spp. (powdery mildew) on sugar beet (*E. betae*), vegetables (e.g. *E. pisi*), such as cucumber species (e.g. *E. cichoracearum*) and cabbage species, such as oilseed rape (e.g. *E. cruciferarum*); *Eutypa fata* (*Eutypa* cancer or dieback, anamorph: *Cytosporina lata*, syn. *Libertella blepharis*) on fruit trees, grapevines and many ornamental trees; *Exserohilum* (syn. *Helminthosporium*) spp. on corn (e.g. *E. turcicum*); *Fusarium* (teleomorph: *Gibberella*) spp. (wilt disease, root and stem rot) on various plants, such as e.g. *F. graminearum* or *F. culmorum* (root rot and silver-top) on cereals (e.g. wheat or barley), *F. oxysporum* on tomatoes, *F. solani* on soybeans and *F. verticillioides* on corn; *Gaeumannomyces graminis* (takeall) on cereals (e.g. wheat or barley) and corn; *Gibberella* spp. on cereals (e.g. *G. zeae*) and rice (e.g. *G. fujikuroi*: bakanae disease); *Glomerella cingulata* on grapevines, pomaceous fruit and other plants and *G. gossypii* on cotton; *grainstaining complex* on rice; *Guignardia bidwellii* (black rot) on grapevines; *Gymnosporangium* spp. on Rosaceae and juniper, e.g. *G. sabinae* (pear 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 grapevines; *Macrophomina phaseolina* (syn. *phaseoli*) (root/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* (blossom and twig blight) on stone fruit and other Rosaceae; *Mycosphaerella* spp. on cereals, bananas, soft fruit and peanuts, such as e.g. *M. graminicola* (anamorph: *Septoria tritici*, *Septoria* leaf blotch) on wheat or *M. fijiensis* (Sigatoka disease) on bananas; *Peronospora* spp. (downy mildew) on cabbage (e.g. *P. brassicae*), oilseed rape (e.g. *P. parasitica*), bulbous plants (e.g. *P. destructor*), tobacco (*P. tabacina*) and soybeans (e.g. *P. manshurica*); *Phakopsora pachyrhizi* and *P. meibomiae* (soybean rust) on soybeans; *Phialophora* spp. e.g. on grapevines (e.g. *P. tracheiphila* and *P. tetraspora*) and soybeans (e.g. *P. gregata*: stem disease); *Phoma lingam* (root and stem rot) on oilseed rape and cabbage and *P. betae* (leaf spot) on sugar beet; *Phomopsis* spp. on sunflowers, grapevines (e.g. *P. viticola*: dead-arm disease) and soybeans (e.g. stem canker/stem blight: *P. phaseoli*, teleomorph: *Diaporthe phaseolorum*); *Physoderma maydis* (brown spot) on corn; *Phytophthora* spp. (wilt disease, root, leaf, stem and fruit rot) on various plants, such as on bell peppers and cucumber species (e.g. *P. capsici*), soybeans (e.g. *P. megasperma*, syn. *P. sojae*), potatoes and tomatoes (e.g. *P. infestans*. late blight and brown rot) and deciduous trees (e.g. *P. ramorum* sudden oak death); *Plasmodiophora brassicae* (club-root) on cabbage, oilseed rape, radish and other plants; *Plasmopara* spp., e.g. *P. viticola* (peronospora of grapevines, downy mildew) on grapevines and *P. halstedii* on sunflowers; *Podosphaera* spp. (powdery mildew) on Rosaceae, hops, pomaceous fruit and soft fruit, e.g. *P. leucotricha* on apple; *Polymyxa* spp., e.g. on cereals, such as barley and wheat (*P. graminis*) and sugar beet (*P. betae*)

and the viral diseases transmitted thereby; *Pseudocercospora herpotrichoides* (eyespot/stem break, teleomorph: *Tapesia yallundae*) on cereals. e.g. wheat or barley; *Pseudoperonospora* (downy mildew) on various plants, e.g. *P. cubensis* on cucumber species or *P. humili* on hops; *Pseudopezizula tracheiphila* (angular leaf scorch, anamorph *Phialophora*) on grapevines; *Puccinia* spp. (rust disease) on various plants, e.g. *P. tritici* (brown rust of wheat), *P. striiformis* (yellow rust), *P. hordei* (dwarf leaf rust), *P. graminis* (black rust) or *P. recondita* (brown rust of rye) on cereals, such as e.g. wheat, barley or rye. *P. kuehnii* on sugar cane and, e.g., on asparagus (e.g. *P. asparagi*); *Pyrenophora* (anamorph: *Drechslera*) *tritici-repentis* (speckled leaf blotch) 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 lawn and cereals; *Pythium* spp. (damping-off disease) on lawn, rice, corn, wheat, cotton, oilseed rape, sunflowers, sugar beet, vegetables and other plants (e.g. *P. ultimum* or *P. aphanidermatum*); *Ramularia* spp., e.g. *R. collo-cygni* (*Ramularia* leaf and lawn spot/physiological leaf spot) on barley and *R. beticola* on sugar beet; *Rhizoctonia* spp. on cotton, rice, potatoes, lawn, corn, oilseed rape, potatoes, sugar beet, vegetables and on various other plants, for example *R. solani* (root and stem rot) on soybeans, *R. solani* (sheath blight) on rice or *R. cerealis* (sharp eyespot) on wheat or barley; *Rhizopus stolonifer* (soft rot) on strawberries, carrots, cabbage, grapevines and tomato; *Rhynchosporium secalis* (leaf spot) on barley, rye and triticale; *Sarocladium oryzae* and *S. attenuatum* (sheath rot) on rice; *Sclerotinia* spp. (stem or white rot) on vegetable and field crops, such as oilseed rape, sunflowers (e.g. *Sclerotinia sclerotiorum*) and soybeans (e.g. *S. rolfsii*), *Septoria* spp. on various plants, e.g. *S. glycines* (leaf spot) on soybeans, *S. tritici* (*Septoria* leaf blotch) on wheat and *S.* (syn. *Stagonospora*) *nodorum* (leaf blotch and glume blotch) on cereals; *Uncinula* (syn. *Erysiphe*) *necator* (powdery mildew, anamorph: *Oidium tuckeri*) on grapevines; *Setosphaeria* spp. (leaf spot) on corn (e.g. *S. turcicum*, syn. *Helminthosporium turcicum*) and lawn; *Sphacelotheca* spp. (head smut) on corn, (e.g. *S. reiliana*: kernel smut), millet and sugar cane; *Sphaerotheca fuliginea* (powdery mildew) on cucumber species; *Spongospora subterranea* (powdery scab) on potatoes and the viral diseases transmitted thereby; *Stagonospora* spp. on cereals, e.g. *S. nodorum* (leaf blotch and glume blotch, teleomorph: *Leptosphaeria* [syn. *Phaeosphaeria*] *nodorum*) on wheat; *Synchytrium endobioticum* on potatoes (potato wart disease); *Taphrina* spp., e.g. *T. deformans* (curly-leaf disease) on peach and *T. pruni* (plum-pocket disease) on plums; *Thielaviopsis* spp. (black root rot) on tobacco, pome fruit, vegetable crops, soybeans and cotton, e.g. *T. basicola* (syn. *Chalara elegans*); *Tilletia* spp. (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* (gray snow mold) on barley or wheat; *Urocystis* spp., e.g. *U. occulta* (flag smut) on rye; *Uromyces* spp. (rust) on vegetable plants, such as beans (e.g. *U. appendiculatus*, syn. *U. phaseoli*) and sugar beet (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. (leaf and shoot wilt) on various plants, such as fruit trees and ornamental trees, grapevines, soft fruit, vegetable and field crops, such as e.g. *V. dahliae* on strawberries, oilseed rape, potatoes and tomatoes.

[0125] The mixtures and compositions according to the present inventions are in particular preferred for controlling the following plant diseases: Soybean diseases: *Cercospora kikuchii*, *Elsinoe glycines*, *Diaporthe phaseolorum* var. *sojae*, *Septaria glycines*, *Cercospora sojina*, *Phakopsora pachyrhizi*, *Phytophthora sojae*, *Rhizoctonia solani*, *Corynespora casicola*, and *Sclerotinia sclerotiorum*.

5 *Plant Growth Regulation*

[0126] In some cases, the inventive mixtures or compositions can, at particular concentrations or application rates, also be used as herbicides, safeners, growth regulators or agents to improve plant properties, or as microbicides, for example as fungicides, antimycotics, bactericides, viricides (including compositions against viroids) or as compositions against MLO (Mycoplasma-like organisms) and RLO (Rickettsia-like organisms). The active ingredients of the inventive mixture or composition intervene in the metabolism of the plants and can therefore also be used as growth regulators.

[0127] Plant growth regulators may exert various effects on plants. The effect of the substances depends essentially on the time of application in relation to the developmental stage of the plant, and also on the amounts of active ingredient applied to the plants or their environment and on the type of application. In each case, growth regulators should have a particular desired effect on the crop plants.

[0128] Plant growth-regulating compounds can be used, for example, to inhibit the vegetative growth of the plants. Such inhibition of growth is of economic interest, for example, in the case of grasses, since it is thus possible to reduce the frequency of grass cutting in ornamental gardens, parks and sport facilities, on roadsides, at airports or in fruit crops. Also of significance is the inhibition of the growth of herbaceous and woody plants on roadsides and in the vicinity of pipelines or overhead cables, or quite generally in areas where vigorous plant growth is unwanted.

[0129] Also important is the use of growth regulators for inhibition of the longitudinal growth of cereal. This reduces or completely eliminates the risk of lodging of the plants prior to harvest. In addition, growth regulators in the case of cereals can strengthen the culm, which also counteracts lodging. The employment of growth regulators for shortening and strengthening culms allows the deployment of higher fertilizer volumes to increase the yield, without any risk of lodging of the cereal crop.

[0130] In many crop plants, inhibition of vegetative growth allows denser planting, and it is thus possible to achieve higher yields based on the soil surface. Another advantage of the smaller plants obtained in this way is that the crop is easier to cultivate and harvest.

[0131] Inhibition of the vegetative plant growth may also lead to enhanced yields because the nutrients and assimilates are of more benefit to flower and fruit formation than to the vegetative parts of the plants.

[0132] Frequently, growth regulators can also be used to promote vegetative growth. This is of great benefit when harvesting the vegetative plant parts. However, promoting vegetative growth may also promote generative growth in that more assimilates are formed, resulting in more or larger fruits.

5 [0133] In some cases, yield increases may be achieved by manipulating the metabolism of the plant, without any detectable changes in vegetative growth. In addition, growth regulators can be used to alter the composition of the plants, which in turn may result in an improvement in quality of the harvested products. For example, it is possible to increase the sugar content in sugar beet, sugar cane, pineapples and in citrus fruit, or to increase the protein content in soya or cereals. It is also possible, for example, to use growth regulators to inhibit the degradation of desirable ingredients, for example sugar in sugar beet or sugar cane, before or after
10 harvest. It is also possible to positively influence the production or the elimination of secondary plant ingredients. One example is the stimulation of the flow of latex in rubber trees.

[0134] Under the influence of growth regulators, parthenocarpic fruits may be formed. In addition, it is possible to influence the sex of the flowers. It is also possible to produce sterile pollen, which is of great importance in the breeding and production of hybrid seed.

15 [0135] Use of growth regulators can control the branching of the plants. On the one hand, by breaking apical dominance, it is possible to promote the development of side shoots, which may be highly desirable particularly in the cultivation of ornamental plants, also in combination with an inhibition of growth. On the other hand, however, it is also possible to inhibit the growth of the side shoots. This effect is of particular interest, for example, in the cultivation of tobacco or in the cultivation of tomatoes.

20 [0136] Under the influence of growth regulators, the amount of leaves on the plants can be controlled such that defoliation of the plants is achieved at a desired time. Such defoliation plays a major role in the mechanical harvesting of cotton, but is also of interest for facilitating harvesting in other crops, for example in viticulture. Defoliation of the plants can also be undertaken to lower the transpiration of the plants before they are transplanted.

25 [0137] Growth regulators can likewise be used to regulate fruit dehiscence. On the one hand, it is possible to prevent premature fruit dehiscence. On the other hand, it is also possible to promote fruit dehiscence or even flower abortion to achieve a desired mass (“thinning”), in order to eliminate alternation. Alternation is understood to mean the characteristic of some fruit species, for endogenous reasons, to deliver very different yields from year to year. Finally, it is possible to use growth regulators at the time of harvest to reduce the
30 forces required to detach the fruits, in order to allow mechanical harvesting or to facilitate manual harvesting.

[0138] Growth regulators can also be used to achieve faster or else delayed ripening of the harvested material before or after harvest. This is particularly advantageous as it allows optimal adjustment to the requirements of the market. Moreover, growth regulators in some cases can improve the fruit colour. In addition, growth regulators can also be used to concentrate maturation within a certain period of time. This establishes

the prerequisites for complete mechanical or manual harvesting in a single operation, for example in the case of tobacco, tomatoes or coffee.

[0139] By using growth regulators, it is additionally possible to influence the resting of seed or buds of the plants, such that plants such as pineapple or ornamental plants in nurseries, for example, germinate, sprout or
5 flower at a time when they are normally not inclined to do so. In areas where there is a risk of frost, it may be desirable to delay budding or germination of seeds with the aid of growth regulators, in order to avoid damage resulting from late frosts.

[0140] Finally, growth regulators can induce resistance of the plants to frost, drought or high salinity of the soil. This allows the cultivation of plants in regions which are normally unsuitable for this purpose.

10 Resistance Induction / Plant Health and other effects

[0141] The mixtures or compositions according to the invention also exhibit a potent strengthening effect in plants. Accordingly, they can be used for mobilizing the defences of the plant against attack by undesirable microorganisms.

[0142] Plant-strengthening (resistance-inducing) substances are to be understood as meaning, in the pre-
15 sent context, those substances which are capable of stimulating the defence system of plants in such a way that the treated plants, when subsequently inoculated with undesirable microorganisms, develop a high degree of resistance to these microorganisms.

[0143] The Compound of formula (I) and the compositions according to the invention are also suitable for increasing the yield of crops. In addition, they show reduced toxicity and are well tolerated by plants.

20 [0144] Further, in context with the present invention plant physiology effects comprise the following:

[0145] Abiotic stress tolerance, comprising temperature tolerance, drought tolerance and recovery after drought stress, water use efficiency (correlating to reduced water consumption), flood tolerance, ozone stress and UV tolerance, tolerance towards chemicals like heavy metals, salts, pesticides (safener) etc..

[0146] Biotic stress tolerance, comprising increased fungal resistance and increased resistance against
25 nematodes, viruses and bacteria. In context with the present invention, biotic stress tolerance preferably comprises increased fungal resistance and increased resistance against nematodes

[0147] Increased plant vigor, comprising plant health / plant quality and seed vigor, reduced stand failure, improved appearance, increased recovery, improved greening effect and improved photosynthetic efficiency.

[0148] Effects on plant hormones and/or functional enzymes.

[0149] Effects on growth regulators (promoters), comprising earlier germination, better emergence, more developed root system and/or improved root growth, increased ability of tillering, more productive tillers, earlier flowering, increased plant height and/or biomass, shorting of stems, improvements in shoot growth, number of kernels/ear, number of ears/m², number of stolons and/or number of flowers, enhanced harvest index, bigger leaves, less dead basal leaves, improved phyllotaxy, earlier maturation / earlier fruit finish, homogenous riping, increased duration of grain filling, better fruit finish, bigger fruit/vegetable size, sprouting resistance and reduced lodging.

[0150] Increased yield, referring to total biomass per hectare, yield per hectare, kernel/fruit weight, seed size and/or hectolitre weight as well as to increased product quality, comprising:

10 improved processability relating to size distribution (kernel, fruit, etc.), homogenous riping, grain moisture, better milling, better vinification, better brewing, increased juice yield, harvestability, digestibility, sedimentation value, falling number, pod stability, storage stability, improved fiber length/strength/uniformity, increase of milk and/or meat quality of silage fed animals, adaption to cooking and frying;

15 further comprising improved marketability relating to improved fruit/grain quality, size distribution (kernel, fruit, etc.), increased storage / shelf-life, firmness / softness, taste (aroma, texture, etc.), grade (size, shape, number of berries, etc.), number of berries/fruits per bunch, crispness, freshness, coverage with wax, frequency of physiological disorders, colour, etc.;

20 further comprising increased desired ingredients such as e.g. protein content, fatty acids, oil content, oil quality, aminoacid composition, sugar content, acid content (pH), sugar/acid ratio (Brix), polyphenols, starch content, nutritional quality, gluten content/index, energy content, taste, etc.;

and further comprising decreased undesired ingredients such as e.g. less mycotoxines, less aflatoxines, geosmin level, phenolic aromas, laccase, polyphenol oxidases and peroxidases, nitrate content etc.

[0151] Sustainable agriculture, comprising nutrient use efficiency, especially nitrogen (N)-use efficiency, phosphorus (P)-use efficiency, water use efficiency, improved transpiration, respiration and/or CO₂ assimilation rate, better nodulation, improved Ca-metabolism etc..

[0152] Delayed senescence, comprising improvement of plant physiology which is manifested, for example, in a longer grain filling phase, leading to higher yield, a longer duration of green leaf colouration of the plant and thus comprising colour (greening), water content, dryness etc.. Accordingly, in the context of the present invention, it has been found that the specific inventive application of the active compound combination makes it possible to prolong the green leaf area duration, which delays the maturation (senescence) of the plant. The main advantage to the farmer is a longer grain filling phase leading to higher yield. There is also an advantage to the farmer on the basis of greater flexibility in the harvesting time.

[0153] Therein “sedimentation value” is a measure for protein quality and describes according to Zeleny (Zeleny value) the degree of sedimentation of flour suspended in a lactic acid solution during a standard time interval. This is taken as a measure of the baking quality. Swelling of the gluten fraction of flour in lactic acid solution affects the rate of sedimentation of a flour suspension. Both a higher gluten content and a better gluten quality give rise to slower sedimentation and higher Zeleny test values. The sedimentation value of flour depends on the wheat protein composition and is mostly correlated to the protein content, the wheat hardness, and the volume of pan and hearth loaves. A stronger correlation between loaf volume and Zeleny sedimentation volume compared to SDS sedimentation volume could be due to the protein content influencing both the volume and Zeleny value (*Czech J. Food Sci. Vol. 21, No. 3: 91–96, 2000*).

[0154] Further the “falling number” as mentioned herein is a measure for the baking quality of cereals, especially of wheat. The falling number test indicates that sprout damage may have occurred. It means that changes to the physical properties of the starch portion of the wheat kernel has already happened. Therein, the falling number instrument analyzes viscosity by measuring the resistance of a flour and water paste to a falling plunger. The time (in seconds) for this to happen is known as the falling number. The falling number results are recorded as an index of enzyme activity in a wheat or flour sample and results are expressed in time as seconds. A high falling number (for example, above 300 seconds) indicates minimal enzyme activity and sound quality wheat or flour. A low falling number (for example, below 250 seconds) indicates substantial enzyme activity and sprout-damaged wheat or flour.

[0155] The term “more developed root system” / “improved root growth” refers to longer root system, deeper root growth, faster root growth, higher root dry/fresh weight, higher root volume, larger root surface area, bigger root diameter, higher root stability, more root branching, higher number of root hairs, and/or more root tips and can be measured by analyzing the root architecture with suitable methodologies and Image analysis programmes (e.g. WinRhizo).

[0156] The term “crop water use efficiency” refers technically to the mass of agriculture produce per unit water consumed and economically to the value of product(s) produced per unit water volume consumed and can e.g. be measured in terms of yield per ha, biomass of the plants, thousand-kernel mass, and the number of ears per m².

[0157] The term “nitrogen-use efficiency” refers technically to the mass of agriculture produce per unit nitrogen consumed and economically to the value of product(s) produced per unit nitrogen consumed, reflecting uptake and utilization efficiency.

[0158] Improvement in greening / improved colour and improved photosynthetic efficiency as well as the delay of senescence can be measured with well-known techniques such as a HandyPea system (Hansatech). Fv/Fm is a parameter widely used to indicate the maximum quantum efficiency of photosystem II (PSII). This parameter is widely considered to be a selective indication of plant photosynthetic performance with

healthy samples typically achieving a maximum Fv/Fm value of approx. 0.85. Values lower than this will be observed if a sample has been exposed to some type of biotic or abiotic stress factor which has reduced the capacity for photochemical quenching of energy within PSII. Fv/Fm is presented as a ratio of variable fluorescence (Fv) over the maximum fluorescence value (Fm). The Performance Index is essentially an indicator of sample vitality. (See e.g. *Advanced Techniques in Soil Microbiology*, 2007, 11, 319-341; *Applied Soil Ecology*, 2000, 15, 169-182.)

[0159] The improvement in greening / improved colour and improved photosynthetic efficiency as well as the delay of senescence can also be assessed by measurement of the net photosynthetic rate (Pn), measurement of the chlorophyll content, e.g. by the pigment extraction method of Ziegler and Ehle, measurement of the photochemical efficiency (Fv/Fm ratio), determination of shoot growth and final root and/or canopy biomass, determination of tiller density as well as of root mortality.

[0160] Within the context of the present invention preference is given to improving plant physiology effects which are selected from the group comprising: enhanced root growth / more developed root system, improved greening, improved water use efficiency (correlating to reduced water consumption), improved nutrient use efficiency, comprising especially improved nitrogen (N)-use efficiency, delayed senescence and enhanced yield.

[0161] Within the enhancement of yield preference is given as to an improvement in the sedimentation value and the falling number as well as to the improvement of the protein and sugar content – especially with plants selected from the group of cereals (preferably wheat).

[0162] Preferably the novel use of the fungicidal mixtures or compositions of the present invention relates to a combined use of a) preventively and/or curatively controlling pathogenic fungi, with or without resistance management, and b) at least one of enhanced root growth, improved greening, improved water use efficiency, delayed senescence and enhanced yield. From group b) enhancement of root system, water use efficiency and N-use efficiency is particularly preferred.

Seed Treatment

[0001] A great deal of the damage on cultigens caused by pests occurs by the infestation of seed during storage and after application of the seed to the earth as well as during and immediately after germination of the plants. This phase is particularly critical since the roots and the shoots are especially sensitive, and even slight damage can lead to death of the plant. There is therefore considerable interest in protecting the seed and the germinating plants by the use of suitable agents.

[0002] The control of animal pests by treating the seed of plants has been known for a long time and is the subject of continuous improvements. However, the treatment of seed entails a series of problems which cannot always be solved in a satisfactory manner. Thus, it is desirable to develop methods

for protecting the seed and the germinating plant which dispense with, or at least reduce considerably, the additional application of pesticides during storage, after sowing or after emergence of the plants. It is furthermore desirable to optimize the amount of active compound employed in such a way as to provide optimum protection for the seed and the germinating plant from attack by animal pests, but without
5 damaging the plant itself by the active compound employed. In particular, methods for the treatment of seed should also take into consideration the intrinsic insecticidal or nematicidal properties of pest-resistant or -tolerant transgenic plants in order to achieve optimum protection of the seed and also the germinating plant with a minimum of pesticides being employed.

[0003] The present invention therefore in particular also relates to a method for the protection of
10 seed and germinating plants, from attack by pests, by treating the seed with the compound of formula (I) or combinations of the compound of formula (I) with the biological control agents of formula (II) or other combinations described in this invention. The method according to the invention for protecting seed and germinating plants against attack by pests furthermore comprises a method where the seed is treated simultaneously in one operation or sequentially with a compound of the formula (I) and a mixing
15 component. It also comprises a method where the seed is treated at different times with a compound of the formula (I) and a mixing component.

[0004] The invention likewise relates to the use of the compound of formula (I) or the disclosed combinations for the treatment of seed for protecting the seed and the resulting plant from animal pests.

[0005] Furthermore, the invention relates to seed which has been treated with the compound of
20 formula (I) alone or the disclosed combinations according to the invention so as to afford protection from animal pests. The invention also relates to seed which has been treated simultaneously with the compound of formula (I) and a mixing component. The invention furthermore relates to seed which has been treated at different times with the compound of the formula (I) and a mixing component. In the case of seed which has been treated at different points in time with the compound of formula (I) and a
25 mixing component, the individual substances may be present on the seed in different layers. Here, the layers comprising the compound of formula (I) and mixing components may optionally be separated by an intermediate layer. The invention also relates to seed where the compound of formula (I) and a mixing component have been applied as component of a coating or as a further layer or further layers in addition to a coating.

[0006] Furthermore, the invention relates to seed which, after the treatment with the compound of
30 formula (I), or the disclosed combinations, is subjected to a film-coating process to prevent dust abrasion on the seed.

[0007] Thus, the present invention is also related to a method for coating seeds, especially soybean seeds (*Glycine max* (L.)), comprising the step of a) mixing seeds with a coating material consisting of or

comprising a compound the compound of formula (I), or the disclosed combinations; b) accumulate of coated seeds; c) drying of said coated seeds; d) deagglomerate said dried coated seeds.

[0008] Suitable methods and additives for coatings like binders are described in, e.g., US 5,876,739.

5 [0009] Also encompassed are seeds produced according to this method for coating seeds.

[0010] One of the advantages encountered with the systemically acting compound formula (I) is the fact that, by treating the seed, not only the seed itself but also the plants resulting therefrom are, after emergence, protected against animal pests. In this manner, the immediate treatment of the crop at the time of sowing or shortly thereafter can be dispensed with.

10 [0011] It has to be considered a further advantage that by treatment of the seed with the compound of formula (I), or the disclosed combinations, germination and emergence of the treated seed may be enhanced.

[0012] It is likewise to be considered advantageous that the compound of formula (I), or the disclosed combinations can be used in particular also for transgenic seed.

15 [0013] Furthermore, the compound of formula (I), or the disclosed combinations can be employed in combination with compositions or compounds of signalling technology, leading to better colonization by symbionts such as, for example, *rhizobia*, *mycorrhizae* and/or endophytic bacteria or fungi, and/or to optimized nitrogen fixation.

[0014] The compound of formula (I), or the disclosed combinations are suitable for protection of
20 seed of any plant variety which is used in agriculture, in the greenhouse, in forests or in horticulture. In particular, this takes the form of seed of cereals (for example wheat, barley, rye, millet and oats), corn, cotton, soybeans, rice, potatoes, sunflowers, coffee, tobacco, canola, oilseed rape, beets (for example sugarbeets and fodder beets), peanuts, vegetables (for example tomatoes, cucumbers, bean, cruciferous vegetables, onions and lettuce), fruit plants, lawns and ornamental plants. The treatment of the seed of
25 cereals (such as wheat, barley, rye and oats), maize, soybeans, cotton, canola, oilseed rape and rice is of particular importance.

[0015] As already mentioned above, the treatment of transgenic seed with the compound of formula (I), or the disclosed combinations is also of particular importance. This takes the form of seed of
30 plants which, as a rule, comprise at least one heterologous gene which governs the expression of a polypeptide with in particular insecticidal and/or nematicidal properties. The heterologous genes in transgenic seed can originate from microorganisms such as *Bacillus*, *Rhizobium*, *Pseudomonas*, *Serratia*, *Trichoderma*, *Clavibacter*, *Glomus* or *Gliocladium*. The present invention is particularly suitable for the

treatment of transgenic seed which comprises at least one heterologous gene originating from *Bacillus* sp. It is particularly preferably a heterologous gene derived from *Bacillus thuringiensis*.

[0016] In the context of the present invention, the compound of formula (I) or the disclosed combinations is applied to the seed. Preferably, the seed is treated in a state in which it is stable enough to avoid damage during treatment. In general, the seed may be treated at any point in time between harvest and sowing. The seed usually used has been separated from the plant and freed from cobs, shells, stalks, coats, hairs or the flesh of the fruits. For example, it is possible to use seed which has been harvested, cleaned and dried down to a moisture content which allows storage. Alternatively, it is also possible to use seed which, after drying, has been treated with, for example, water and then dried again, for example priming.

[0017] When treating the seed, care must generally be taken that the amount of the compound of formula (I), or the disclosed combinations applied to the seed and/or the amount of further additives is chosen in such a way that the germination of the seed is not adversely affected, or that the resulting plant is not damaged. This must be ensured particularly in the case of active compounds which can exhibit phytotoxic effects at certain application rates.

[0018] In general, the compound of formula (I), or the disclosed combinations are applied to the seed in a suitable formulation. Suitable formulations and processes for seed treatment are known to the person skilled in the art.

[0019] the compound of formula (I), or the disclosed combinations can be converted to the customary seed dressing formulations, such as solutions, emulsions, suspensions, powders, foams, slurries or other coating compositions for seed, and also ULV formulations.

[0020] These formulations are prepared in a known manner, by mixing the compound of formula (I) with customary additives such as, for example, customary extenders and also solvents or diluents, colorants, wetting agents, dispersants, emulsifiers, antifoams, preservatives, secondary thickeners, adhesives, gibberellins and also water.

[0021] Colorants which may be present in the seed-dressing formulations which can be used in accordance with the invention are all colorants which are customary for such purposes. It is possible to use either pigments, which are sparingly soluble in water, or dyes, which are soluble in water. Examples include the dyes known by the names Rhodamine B, C.I. Pigment Red 112 and C.I. Solvent Red 1.

[0022] Useful wetting agents which may be present in the seed dressing formulations usable in accordance with the invention are all substances which promote wetting and which are conventionally used for the formulation of agrochemically active compounds. Preference is given to using alkylnaphthalenesulphonates, such as diisopropyl- or diisobutylnaphthalenesulphonates.

[0023] Useful dispersants and/or emulsifiers which may be present in the seed dressing formulations usable in accordance with the invention are all nonionic, anionic and cationic dispersants conventionally used for the formulation of active agrochemical ingredients. Preference is given to using nonionic or anionic dispersants or mixtures of nonionic or anionic dispersants. Suitable nonionic dispersants include in particular ethylene oxide/propylene oxide block polymers, alkylphenol polyglycol ethers and tristyrylphenol polyglycol ethers, and the phosphated or sulphated derivatives thereof. Suitable anionic dispersants are in particular lignosulphonates, polyacrylic acid salts and arylsulphonate/formaldehyde condensates.

[0024] Antifoams which may be present in the seed dressing formulations usable in accordance with the invention are all foam-inhibiting substances conventionally used for the formulation of active agrochemical ingredients. Preference is given to using silicone antifoams and magnesium stearate.

[0025] Preservatives which may be present in the seed dressing formulations usable in accordance with the invention are all substances usable for such purposes in agrochemical compositions. Examples include dichlorophene and benzyl alcohol hemiformal.

[0026] Secondary thickeners which may be present in the seed dressing formulations usable in accordance with the invention are all substances which can be used for such purposes in agrochemical compositions. Cellulose derivatives, acrylic acid derivatives, xanthan, modified clays and finely divided silica are preferred.

[0027] Adhesives which may be present in the seed dressing formulations usable in accordance with the invention are all customary binders usable in seed dressing products. Polyvinylpyrrolidone, polyvinyl acetate, polyvinyl alcohol and tylose may be mentioned as being preferred.

[0028] Gibberellins which can be present in the seed-dressing formulations which can be used in accordance with the invention are preferably the gibberellins A1, A3 (= gibberellic acid), A4 and A7; gibberellic acid is especially preferably used. The gibberellins are known (cf. R. Wegler "Chemie der Pflanzenschutz- und Schädlingsbekämpfungsmittel", vol. 2, Springer Verlag, 1970, pp. 401-412).

[0029] The seed dressing formulations usable in accordance with the invention can be used to treat a wide variety of different kinds of seed either directly or after prior dilution with water. For instance, the concentrates or the preparations obtainable therefrom by dilution with water can be used to dress the seed of cereals, such as wheat, barley, rye, oats, and triticale, and also the seed of maize, rice, oilseed rape, peas, beans, cotton, sunflowers, soybeans and beets, or else a wide variety of different vegetable seed. The seed dressing formulations usable in accordance with the invention, or the dilute use forms thereof, can also be used to dress seed of transgenic plants.

[0030] For treatment of seed with the seed dressing formulations usable in accordance with the invention, or the use forms prepared therefrom by adding water, all mixing units usable customarily for the seed dressing are useful. Specifically, the procedure in the seed dressing is to place the seed into a mixer, operated batch-wise or continuously, to add the particular desired amount of seed dressing formulations, either as such or after prior dilution with water, and to mix everything until the formulation is distributed homogeneously on the seed. If appropriate, this is followed by a drying operation.

[0031] The application rate of the seed dressing formulations usable in accordance with the invention can be varied within a relatively wide range. It is guided by the particular content of the compound of formula (I) in the formulations and by the seed. The application rates of the compound of the formula (I) are generally between 0.001 and 50 g per kilogram of seed, preferably between 0.01 and 15 g per kilogram of seed.

[0032] Within the context of the present invention the compound of formula (I) is applied to the seed alone or in a suitable formulation. The seed is treated preferably at a time point at which it is so stable that no damage occurs during treatment. In general treatment of the seed can take place at any time between harvest and sowing. Normally seed is used that is separated from the plant and freed from spadix, husk, stem, pod, wool or fruit flesh.

[0033] In general care must be taken during treatment of seed that the amount of compound of formula (I) and/or further additives applied is so selected that the germination of the seed is not impaired and the emerging plant is not damaged. This is primarily to be noted with active compounds that can show phytotoxic effects when applied in certain amounts.

[0034] The compound of formula (I), or the disclosed combinations can be applied directly, that is without containing further components and without being diluted. It is usually preferred to apply the agent to the seed in the form of a suitable formulation. Suitable formulations and methods for seed treatment are known to the person skilled in the art and are described, for example, in the following documents: US 4,272,417 A, US 4,245,432 A, US 4,808,430 A, US 5,876,739 A, US 2003/0176428 A1, WO 2002/080675 A1, WO 2002/028186A2.

The seed dressings of the invention are suitable for the control of animal pests, particularly arthropods and nematodes, especially insects and arachnids, that occur in agriculture and forestry. They are active against normally sensitive and resistant species as well as against all or individual development stages.

Mycotoxins

[0163] In addition, the inventive treatment can reduce the mycotoxin content in the harvested material and the foods and feeds prepared therefrom. Mycotoxins include particularly, but not exclusively, the following: deoxynivalenol (DON), nivalenol, 15-Ac-DON, 3-Ac-DON, T2- and HT2-toxin, fumonisins, zearalenon,

moniliformin, fusarin, diacetoxyscirpenol (DAS), beauvericin, enniatin, fusaroproliferin, fusarenol, ochratoxins, patulin, ergot alkaloids and aflatoxins which can be produced, for example, by the following fungi: *Fusarium* spec., such as *F. acuminatum*, *F. asiaticum*, *F. avenaceum*, *F. crookwellense*, *F. culmorum*, *F. graminearum* (*Gibberella zeae*), *F. equiseti*, *F. fujikoro*i, *F. musarum*, *F. oxysporum*, *F. proliferatum*,
5 *F. poae*, *F. pseudograminearum*, *F. sambucinum*, *F. scirpi*, *F. semitectum*, *F. solani*, *F. sporotrichoides*, *F. langsethiae*, *F. subglutinans*, *F. tricinctum*, *F. verticillioides* etc., and also by *Aspergillus* spec., such as *A. flavus*, *A. parasiticus*, *A. nomius*, *A. ochraceus*, *A. clavatus*, *A. terreus*, *A. versicolor*, *Penicillium* spec., such as *P. verrucosum*, *P. viridicatum*, *P. citrinum*, *P. expansum*, *P. claviforme*, *P. roqueforti*, *Claviceps* spec., such as *C. purpurea*, *C. fusiformis*, *C. paspali*, *C. africana*, *Stachybotrys* spec. and others.

10 *Material Protection*

[0164] The inventive mixtures or compositions can also be used in the protection of materials, for protection of industrial materials against attack and destruction by harmful microorganisms or pests, for example fungi and insects.

[0165] In addition, the inventive mixtures or compositions can be used as antifouling compositions, alone
15 or in combinations with other active ingredients.

[0166] Industrial materials in the present context are understood to mean inanimate materials which have been prepared for use in industry. For example, industrial materials which are to be protected by inventive mixtures or compositions from microbial alteration or destruction may be adhesives, glues, paper, wallpaper and board/cardboard, textiles, carpets, leather, wood, fibers and tissues, paints and plastic articles, cooling
20 lubricants and other materials which can be infected with or destroyed by microorganisms. Parts of production plants and buildings, for example cooling-water circuits, cooling and heating systems and ventilation and air-conditioning units, which may be impaired by the proliferation of microorganisms may also be mentioned within the scope of the materials to be protected. Industrial materials within the scope of the present invention preferably include adhesives, sizes, paper and card, leather, wood, paints, cooling lubricants and heat transfer
25 fluids, more preferably wood.

[0167] The inventive mixtures or compositions may prevent adverse effects, such as rotting, decay, discoloration, decoloration or formation of mould.

[0168] In the case of treatment of wood the mixtures or compositions according to the invention may also be used against fungal diseases liable to grow on or inside timber. The term “timber” means all types of species of wood, and all types of working of this wood intended for construction, for example solid wood,
30 high-density wood, laminated wood, and plywood. The method for treating timber according to the invention mainly consists in contacting a mixture or composition according to the invention; this includes for example direct application, spraying, dipping, injection or any other suitable means.

[0169] In addition, the inventive mixtures or compositions can be used to protect objects which come into contact with saltwater or brackish water, especially hulls, screens, nets, buildings, moorings and signalling systems, from fouling.

[0170] The inventive method for controlling harmful fungi can also be employed for protecting storage goods. Storage goods are understood to mean natural substances of vegetable or animal origin or processed products thereof which are of natural origin, and for which long-term protection is desired. Storage goods of vegetable origin, for example plants or plant parts, such as stems, leaves, tubers, seeds, fruits, grains, can be protected freshly harvested or after processing by (pre)drying, moistening, comminuting, grinding, pressing or roasting. Storage goods also include timber, both unprocessed, such as construction timber, electricity poles and barriers, or in the form of finished products, such as furniture. Storage goods of animal origin are, for example, hides, leather, furs and hairs. The inventive mixtures or compositions may prevent adverse effects, such as rotting, decay, discoloration, decoloration or formation of mould.

[0171] Microorganisms capable of degrading or altering the industrial materials include, for example, bacteria, fungi, yeasts, algae and slime organisms. The inventive mixtures or compositions preferably act against fungi, especially moulds, wood-discoloring and wood-destroying fungi (*Ascomycetes*, *Basidiomycetes*, *Deuteromycetes* and *Zygomycetes*), and against slime organisms and algae. Examples include microorganisms of the following genera: *Alternaria*, such as *Alternaria tenuis*; *Aspergillus*, such as *Aspergillus niger*; *Chaetomium*, such as *Chaetomium globosum*; *Coniophora*, such as *Coniophora puetana*; *Lentinus*, such as *Lentinus tigrinus*; *Penicillium*, such as *Penicillium glaucum*; *Polyporus*, such as *Polyporus versicolor*; *Aureobasidium*, such as *Aureobasidium pullulans*; *Sclerophoma*, such as *Sclerophoma pityophila*; *Trichoderma*, such as *Trichoderma viride*; *Ophiostoma* spp., *Ceratocystis* spp., *Humicola* spp., *Petriella* spp., *Trichurus* spp., *Coriolus* spp., *Gloeophyllum* spp., *Pleurotus* spp., *Poria* spp., *Serpula* spp. and *Tyromyces* spp., *Cladosporium* spp., *Paecilomyces* spp. *Mucor* spp., *Escherichia*, such as *Escherichia coli*; *Pseudomonas*, such as *Pseudomonas aeruginosa*; *Staphylococcus*, such as *Staphylococcus aureus*, *Candida* spp. and *Saccharomyces* spp., such as *Saccharomyces cerevisiae*.

Antimycotic Activity

[0172] In addition, the inventive mixtures or compositions also have very good antimycotic activity. They have a very broad antimycotic activity spectrum, especially against dermatophytes and yeasts, moulds and diphasic fungi (for example against *Candida* species, such as *C. albicans*, *C. glabrata*), and *Epidermophyton floccosum*, *Aspergillus* species, such as *A. niger* and *A. fumigatus*, *Trichophyton* species, such as *T. mentagrophytes*, *Microsporon* species such as *M. canis* and *M. audouinii*. The list of these fungi by no means constitutes a restriction of the mycotic spectrum covered, and is merely of illustrative character.

[0173] The inventive mixtures or compositions can therefore be used both in medical and in non-medical applications.

Genetically modified organisms

[0174] As already mentioned above, it is possible to treat all plants and their parts in accordance with the invention. In a preferred embodiment, wild plant species and plant cultivars, or those obtained by conventional biological breeding methods, such as crossing or protoplast fusion, and also parts thereof, are treated.

5 In a further preferred embodiment, transgenic plants and plant cultivars obtained by genetic engineering methods, if appropriate in combination with conventional methods (Genetically Modified Organisms), and parts thereof are treated. The terms “parts” or “parts of plants” or “plant parts” have been explained above. More preferably, plants of the plant cultivars which are commercially available or are in use are treated in accordance with the invention. Plant cultivars are understood to mean plants which have new properties
10 (“traits”) and have been obtained by conventional breeding, by mutagenesis or by recombinant DNA techniques. They can be cultivars, varieties, bio- or genotypes.

[0175] The method of treatment according to the invention can be used in the treatment of genetically modified organisms (GMOs), e.g. plants or seeds. Genetically modified plants (or transgenic plants) are plants of which a heterologous gene has been stably integrated into genome. The expression “heterologous
15 gene” essentially means a gene which is provided or assembled outside the plant and when introduced in the nuclear, chloroplastic or mitochondrial genome gives the transformed plant new or improved agronomic or other properties by expressing a protein or polypeptide of interest or by downregulating or silencing other gene(s) which are present in the plant (using for example, antisense technology, cosuppression technology, RNA interference – RNAi – technology or microRNA – miRNA - technology). A heterologous gene that is
20 located in the genome is also called a transgene. A transgene that is defined by its particular location in the plant genome is called a transformation or transgenic event.

[0176] Depending on the plant species or plant cultivars, their location and growth conditions (soils, climate, vegetation period, diet), the treatment according to the invention may also result in superadditive (“synergistic”) effects. Thus, for example, reduced application rates and/or a widening of the activity spectrum and/or an increase in the activity of the active compound and compositions which can be used according
25 to the invention, better plant growth, increased tolerance to high or low temperatures, increased tolerance to drought or to water or soil salt content, increased flowering performance, easier harvesting, accelerated maturation, higher harvest yields, bigger fruits, larger plant height, greener leaf color, earlier flowering, higher quality and/or a higher nutritional value of the harvested products, higher sugar concentration within the
30 fruits, better storage stability and/or processability of the harvested products are possible, which exceed the effects which were actually to be expected.

[0177] At certain application rates, the mixtures or compositions according to the invention may also have a strengthening effect in plants. Accordingly, they are also suitable for mobilizing the defense system of the plant against attack by harmful microorganisms. This may, if appropriate, be one of the reasons of the enhanced activity of the mixtures or compositions according to the invention, for example against fungi. Plant-
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strengthening (resistance-inducing) substances are to be understood as meaning, in the present context, those substances or combinations of substances which are capable of stimulating the defense system of plants in such a way that, when subsequently inoculated with harmful microorganisms, the treated plants display a substantial degree of resistance to these microorganisms. In the present case, harmful microorganisms are to be understood as meaning phytopathogenic fungi, bacteria and viruses. Thus, the mixtures or compositions according to the invention can be employed for protecting plants against attack by the abovementioned pathogens within a certain period of time after the treatment. The period of time within which protection is effected generally extends from 1 to 10 days, preferably 1 to 7 days, after the treatment of the plants with the active compound or the compositions according to the invention.

[0178] Plants and plant cultivars which are preferably to be treated according to the invention include all plants which have genetic material which impart particularly advantageous, useful traits to these plants (whether obtained by breeding and/or biotechnological means).

[0179] Plants and plant cultivars which are also preferably to be treated according to the invention are resistant against one or more biotic stresses, i.e. said plants show a better defense against animal and microbial pests, such as against nematodes, insects, mites, phytopathogenic fungi, bacteria, viruses and/or viroids.

[0180] Examples of nematode or insect resistant plants are described in e.g. U.S. Patent Applications 11/765,491, 11/765,494, 10/926,819, 10/782,020, 12/032,479, 10/783,417, 10/782,096, 11/657,964, 12/192,904, 11/396,808, 12/166,253, 12/166,239, 12/166,124, 12/166,209, 11/762,886, 12/364,335, 11/763,947, 12/252,453, 12/209,354, 12/491,396, 12/497,221, 12/644,632, 12/646,004, 12/701,058, 12/718,059, 12/721,595, 12/638,591.

[0181] Plants and plant cultivars which may also be treated according to the invention are those plants which are resistant to one or more abiotic stresses. Abiotic stress conditions may include, for example, drought, cold temperature exposure, heat exposure, osmotic stress, flooding, increased soil salinity, increased mineral exposure, ozone exposure, high light exposure, limited availability of nitrogen nutrients, limited availability of phosphorus nutrients, shade avoidance.

[0182] Plants and plant cultivars which may also be treated according to the invention, are those plants characterized by enhanced yield characteristics. Increased yield in said plants can be the result of, for example, improved plant physiology, growth and development, such as water use efficiency, water retention efficiency, improved nitrogen use, enhanced carbon assimilation, improved photosynthesis, increased germination efficiency and accelerated maturation. Yield can furthermore be affected by improved plant architecture (under stress and non-stress conditions), including but not limited to, early flowering, flowering control for hybrid seed production, seedling vigor, plant size, internode number and distance, root growth, seed size, fruit size, pod size, pod or ear number, seed number per pod or ear, seed mass, enhanced seed filling, reduced seed dispersal, reduced pod dehiscence and lodging resistance. Further yield traits include seed composition, such

as carbohydrate content, protein content, oil content and composition, nutritional value, reduction in anti-nutritional compounds, improved processability and better storage stability.

[0183] Plants that may be treated according to the invention are hybrid plants that already express the characteristic of heterosis or hybrid vigor which results in generally higher yield, vigor, health and resistance towards biotic and abiotic stresses). Such plants are typically made by crossing an inbred male-sterile parent line (the female parent) with another inbred male-fertile parent line (the male parent). Hybrid seed is typically harvested from the male sterile plants and sold to growers. Male sterile plants can sometimes (e.g. in corn) be produced by detasseling, i.e. the mechanical removal of the male reproductive organs (or males flowers) but, more typically, male sterility is the result of genetic determinants in the plant genome. In that case, and especially when seed is the desired product to be harvested from the hybrid plants it is typically useful to ensure that male fertility in the hybrid plants is fully restored. This can be accomplished by ensuring that the male parents have appropriate fertility restorer genes which are capable of restoring the male fertility in hybrid plants that contain the genetic determinants responsible for male-sterility. Genetic determinants for male sterility may be located in the cytoplasm. Examples of cytoplasmic male sterility (CMS) were for instance described in *Brassica* species (WO 92/05251, WO 95/09910, WO 98/27806, WO 05/002324, WO 06/021972 and US 6,229,072). However, genetic determinants for male sterility can also be located in the nuclear genome. Male sterile plants can also be obtained by plant biotechnology methods such as genetic engineering. A particularly useful means of obtaining male-sterile plants is described in WO 89/10396 in which, for example, a ribonuclease such as barnase is selectively expressed in the tapetum cells in the stamens. Fertility can then be restored by expression in the tapetum cells of a ribonuclease inhibitor such as barstar (e.g. WO 91/02069).

[0184] Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may be treated according to the invention are herbicide-tolerant plants, i.e. plants made tolerant to one or more given herbicides. Such plants can be obtained either by genetic transformation, or by selection of plants containing a mutation imparting such herbicide tolerance.

[0185] Herbicide-resistant plants are for example glyphosate-tolerant plants, i.e. plants made tolerant to the herbicide glyphosate or salts thereof. Plants can be made tolerant to glyphosate through different means. For example, glyphosate-tolerant plants can be obtained by transforming the plant with a gene encoding the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS). Examples of such EPSPS genes are the AroA gene (mutant CT7) of the bacterium *Salmonella typhimurium* (*Science* 1983, 221, 370-371), the CP4 gene of the bacterium *Agrobacterium sp.* (*Curr. Topics Plant Physiol.* 1992, 7, 139-145), the genes encoding a Petunia EPSPS (*Science* 1986, 233, 478-481), a Tomato EPSPS (*J. Biol. Chem.* 1988, 263, 4280-4289), or an Eleusine EPSPS (WO 01/66704). It can also be a mutated EPSPS as described in for example EP 0837944, WO 00/66746, WO 00/66747 or WO 02/26995. Glyphosate-tolerant plants can also be obtained by expressing a gene that encodes a glyphosate oxido-reductase enzyme as described in US 5,776,760 and US 5,463,175. Glyphosate-tolerant plants can also be obtained by expressing a gene that encodes a glyphosate

acetyl transferase enzyme as described in for example WO 02/036782, WO 03/092360, WO 2005/012515 and WO 2007/024782. Glyphosate-tolerant plants can also be obtained by selecting plants containing naturally-occurring mutations of the above-mentioned genes, as described in for example WO 01/024615 or WO 03/013226. Plants expressing EPSPS genes that confer glyphosate tolerance are described in e.g. U.S. Patent Applications 11/517,991, 10/739,610, 12/139,408, 12/352,532, 11/312,866, 11/315,678, 12/421,292, 11/400,598, 11/651,752, 11/681,285, 11/605,824, 12/468,205, 11/760,570, 11/762,526, 11/769,327, 11/769,255, 11/943801 or 12/362,774. Plants comprising other genes that confer glyphosate tolerance, such as decarboxylase genes, are described in e.g. U.S. Patent Applications 11/588,811, 11/185,342, 12/364,724, 11/185,560 or 12/423,926.

[0186] Other herbicide resistant plants are for example plants that are made tolerant to herbicides inhibiting the enzyme glutamine synthase, such as bialaphos, phosphinothricin or glufosinate. Such plants can be obtained by expressing an enzyme detoxifying the herbicide or a mutant glutamine synthase enzyme that is resistant to inhibition, e.g. described in U.S. Patent Application 11/760,602. One such efficient detoxifying enzyme is an enzyme encoding a phosphinothricin acetyltransferase (such as the bar or pat protein from *Streptomyces* species). Plants expressing an exogenous phosphinothricin acetyltransferase are for example described in U.S. Patents 5,561,236; 5,648,477; 5,646,024; 5,273,894; 5,637,489; 5,276,268; 5,739,082; 5,908,810 and 7,112,665.

[0187] Further herbicide-tolerant plants are also plants that are made tolerant to the herbicides inhibiting the enzyme hydroxyphenylpyruvatedioxygenase (HPPD). HPPD is an enzyme that catalyze the reaction in which para-hydroxyphenylpyruvate (HPP) is transformed into homogentisate. Plants tolerant to HPPD-inhibitors can be transformed with a gene encoding a naturally-occurring resistant HPPD enzyme, or a gene encoding a mutated or chimeric HPPD enzyme as described in WO 96/38567, WO 99/24585, WO 99/24586, WO 09/144079, WO 02/046387, or US 6,768,044. Tolerance to HPPD-inhibitors can also be obtained by transforming plants with genes encoding certain enzymes enabling the formation of homogentisate despite the inhibition of the native HPPD enzyme by the HPPD-inhibitor. Such plants and genes are described in WO 99/34008 and WO 02/36787. Tolerance of plants to HPPD inhibitors can also be improved by transforming plants with a gene encoding an enzyme having prephenate deshydrogenase (PDH) activity in addition to a gene encoding an HPPD-tolerant enzyme, as described in WO 04/024928. Further, plants can be made more tolerant to HPPD-inhibitor herbicides by adding into their genome a gene encoding an enzyme capable of metabolizing or degrading HPPD inhibitors, such as the CYP450 enzymes shown in WO 2007/103567 and WO 2008/150473.

[0188] Still further herbicide resistant plants are plants that are made tolerant to acetolactate synthase (ALS) inhibitors. Known ALS-inhibitors include, for example, sulfonylurea, imidazolinone, triazolo-pyrimidines, pyrimidinyoxy(thio)benzoates, and/or sulfonylaminocarbonyltriazolinone herbicides. Different mutations in the ALS enzyme (also known as acetohydroxyacid synthase, AHAS) are known to confer tolerance to different herbicides and groups of herbicides, as described for example in Tranel and Wright (*Weed*

Science 2002, 50, 700-712), but also, in U.S. Patents 5,605,011, 5,378,824, 5,141,870, and 5,013,659. The production of sulfonylurea-tolerant plants and imidazolinone-tolerant plants is described in U.S. Patents 5,605,011; 5,013,659; 5,141,870; 5,767,361; 5,731,180; 5,304,732; 4,761,373; 5,331,107; 5,928,937; and 5,378,824; and WO 96/33270. Other imidazolinone-tolerant plants are also described in for example

5 WO 2004/040012, WO 2004/106529, WO 2005/020673, WO 2005/093093, WO 2006/007373, WO 2006/015376, WO 2006/024351, and WO 2006/060634. Further sulfonylurea- and imidazolinone-tolerant plants are also described in for example WO 2007/024782 and U.S. Patent Application 61/288958.

[0189] Other plants tolerant to imidazolinone and/or sulfonylurea can be obtained by induced mutagenesis, selection in cell cultures in the presence of the herbicide or mutation breeding as described for example for

10 soybeans in US 5,084,082, for rice in WO 97/41218, for sugar beet in US 5,773,702 and WO 99/057965, for lettuce in US 5,198,599, or for sunflower in WO 01/065922.

[0190] Other plants tolerant to imidazolinone and/or sulfonylurea can be obtained by induced mutagenesis, selection in cell cultures in the presence of the herbicide or mutation breeding as described for example for soybeans in US 5,084,082, for rice in WO 97/41218, for sugar beet in US 5,773,702 and WO 99/057965, for

15 lettuce in US 5,198,599, or for sunflower in WO 01/065922.

[0191] Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are insect-resistant transgenic plants, i.e. plants made resistant to attack by certain target insects. Such plants can be obtained by genetic transformation, or by selection of plants containing a mutation imparting such insect resistance.

[0192] An "insect-resistant transgenic plant", as used herein, includes any plant containing at least one transgene comprising a coding sequence encoding:

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1) an insecticidal crystal protein from *Bacillus thuringiensis* or an insecticidal portion thereof, such as the insecticidal crystal proteins listed by Crickmore et al. (1998, Microbiology and Molecular Biology Reviews, 62: 807-813), updated by Crickmore et al. (2005) at the *Bacillus thuringiensis* toxin nomenclature, online at: http://www.lifesci.sussex.ac.uk/Home/Neil_Crickmore/Bt/), or insecticidal portions thereof, e.g., proteins of the Cry protein classes Cry1Ab, Cry1Ac, Cry1B, Cry1C, Cry1D, Cry1F, Cry2Ab, Cry3Aa, or Cry3Bb or insecticidal portions thereof (e.g. EP-A 1 999 141 and WO 2007/107302), or such proteins encoded by synthetic genes as e.g. described in and U.S. Patent Application 12/249,016 ; or

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2) a crystal protein from *Bacillus thuringiensis* or a portion thereof which is insecticidal in the presence of a second other crystal protein from *Bacillus thuringiensis* or a portion thereof, such as the binary toxin made up of the Cry34 and Cry35 crystal proteins (*Nat. Biotechnol.* 2001, 19, 668-72; *Applied Environm. Microbiol.* 2006, 71, 1765-1774) or the binary toxin made up of the Cry1A or Cry1F pro-

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teins and the Cry2Aa or Cry2Ab or Cry2Ae proteins (U.S. Patent Application 12/214,022 and EP-A 2 300 618); or

3) a hybrid insecticidal protein comprising parts of different insecticidal crystal proteins from *Bacillus thuringiensis*, such as a hybrid of the proteins of 1) above or a hybrid of the proteins of 2) above, e.g., the Cry1A.105 protein produced by corn event MON89034 (WO 2007/027777); or

4) a protein of any one of 1) to 3) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation, such as the Cry3Bb1 protein in corn events MON863 or MON88017, or the Cry3A protein in corn event MIR604; or

5) an insecticidal secreted protein from *Bacillus thuringiensis* or *Bacillus cereus*, or an insecticidal portion thereof, such as the vegetative insecticidal (VIP) proteins listed at:

http://www.lifesci.sussex.ac.uk/home/Neil_Crickmore/Bt/vip.html, e.g., proteins from the VIP3Aa protein class; or

6) a secreted protein from *Bacillus thuringiensis* or *Bacillus cereus* which is insecticidal in the presence of a second secreted protein from *Bacillus thuringiensis* or *B. cereus*, such as the binary toxin made up of the VIP1A and VIP2A proteins (WO 94/21795); or

7) a hybrid insecticidal protein comprising parts from different secreted proteins from *Bacillus thuringiensis* or *Bacillus cereus*, such as a hybrid of the proteins in 1) above or a hybrid of the proteins in 2) above; or

8) a protein of any one of 5) to 7) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation (while still encoding an insecticidal protein), such as the VIP3Aa protein in cotton event COT102; or

9) a secreted protein from *Bacillus thuringiensis* or *Bacillus cereus* which is insecticidal in the presence of a crystal protein from *Bacillus thuringiensis*, such as the binary toxin made up of VIP3 and Cry1A or Cry1F (U.S. Patent Applications 61/126083 and 61/195019), or the binary toxin made up of the VIP3 protein and the Cry2Aa or Cry2Ab or Cry2Ae proteins (U.S. Patent Application 12/214,022 and EP-A 2 300 618).

10) a protein of 9) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the

range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation (while still encoding an insecticidal protein)

[0193] Of course, an insect-resistant transgenic plant, as used herein, also includes any plant comprising a combination of genes encoding the proteins of any one of the above classes 1 to 10. In one embodiment, an insect-resistant plant contains more than one transgene encoding a protein of any one of the above classes 1 to 10, to expand the range of target insect species affected when using different proteins directed at different target insect species, or to delay insect resistance development to the plants by using different proteins insecticidal to the same target insect species but having a different mode of action, such as binding to different receptor binding sites in the insect.

[0194] An “insect-resistant transgenic plant”, as used herein, further includes any plant containing at least one transgene comprising a sequence producing upon expression a double-stranded RNA which upon ingestion by a plant insect pest inhibits the growth of this insect pest, as described e.g. in WO 2007/080126, WO 2006/129204, WO 2007/074405, WO 2007/080127 and WO 2007/035650.

[0195] Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are tolerant to abiotic stresses. Such plants can be obtained by genetic transformation, or by selection of plants containing a mutation imparting such stress resistance. Particularly useful stress tolerance plants include:

- 1) plants which contain a transgene capable of reducing the expression and/or the activity of poly(ADP-ribose) polymerase (PARP) gene in the plant cells or plants as described in WO 00/04173, WO 2006/045633, EP-A 1 807 519, or EP-A 2 018 431.
- 2) plants which contain a stress tolerance enhancing transgene capable of reducing the expression and/or the activity of the PARP encoding genes of the plants or plants cells, as described e.g. in WO 2004/090140.
- 3) plants which contain a stress tolerance enhancing transgene coding for a plant-functional enzyme of the nicotineamide adenine dinucleotide salvage synthesis pathway including nicotinamidase, nicotinate phosphoribosyltransferase, nicotinic acid mononucleotide adenylyl transferase, nicotinamide adenine dinucleotide synthetase or nicotine amide phosphoribosyltransferase as described e.g. in EP-A 1 794 306, WO 2006/133827, WO 2007/107326, EP-A 1 999 263, or WO 2007/107326.

[0196] Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention show altered quantity, quality and/or storage-stability of the harvested product and/or altered properties of specific ingredients of the harvested product such as:

- 1) transgenic plants which synthesize a modified starch, which in its physical-chemical characteristics, in particular the amylose content or the amylose/amylopectin ratio, the degree of branching, the average chain length, the side chain distribution, the viscosity behaviour, the gelling strength, the starch grain size and/or the starch grain morphology, is changed in comparison with the synthesised starch in wild type plant cells or plants, so that this is better suited for special applications. Said transgenic plants synthesizing a modified starch are disclosed, for example, in EP-A 0 571 427, WO 95/04826, EP-A 0 719 338, WO 96/15248, WO 96/19581, WO 96/27674, WO 97/11188, WO 97/26362, WO 97/32985, WO 97/42328, WO 97/44472, WO 97/45545, WO 98/27212, WO 98/40503, WO 99/58688, WO 99/58690, WO 99/58654, WO 00/08184, WO 00/08185, WO 00/08175, WO 00/28052, WO 00/77229, WO 01/12782, WO 01/12826, WO 02/101059, WO 03/071860, WO 04/056999, WO 05/030942, WO 2005/030941, WO 2005/095632, WO 2005/095617, WO 2005/095619, WO 2005/095618, WO 2005/123927, WO 2006/018319, WO 2006/103107, WO 2006/108702, WO 2007/009823, WO 00/22140, WO 2006/063862, WO 2006/072603, WO 02/034923, WO 2008/017518, WO 2008/080630, WO 2008/080631, EP 07090007.1, WO 2008/090008, WO 01/14569, WO 02/79410, WO 03/33540, WO 2004/078983, WO 01/19975, WO 95/26407, WO 96/34968, WO 98/20145, WO 99/12950, WO 99/66050, WO 99/53072, US 6,734,341, WO 00/11192, WO 98/22604, WO 98/32326, WO 01/98509, WO 01/98509, WO 2005/002359, US 5,824,790, US 6,013,861, WO 94/04693, WO 94/09144, WO 94/11520, WO 95/35026, WO 97/20936, WO 2010/012796, WO 2010/003701,
- 2) transgenic plants which synthesize non starch carbohydrate polymers or which synthesize non starch carbohydrate polymers with altered properties in comparison to wild type plants without genetic modification. Examples are plants producing polyfructose, especially of the inulin and levan-type, as disclosed in EP-A 0 663 956, WO 96/01904, WO 96/21023, WO 98/39460, and WO 99/24593, plants producing alpha-1,4-glucans as disclosed in WO 95/31553, US 2002031826, US 6,284,479, US 5,712,107, WO 97/47806, WO 97/47807, WO 97/47808 and WO 00/14249, plants producing alpha-1,6 branched alpha-1,4-glucans, as disclosed in WO 00/73422, plants producing alternan, as disclosed in e.g. WO 00/47727, WO 00/73422, EP 06077301.7, US 5,908,975 and EP-A 0 728 213,
- 3) transgenic plants which produce hyaluronan, as for example disclosed in WO 2006/032538, WO 2007/039314, WO 2007/039315, WO 2007/039316, JP-A 2006-304779, and WO 2005/012529.
- 4) transgenic plants or hybrid plants, such as onions with characteristics such as 'high soluble solids content', 'low pungency' (LP) and/or 'long storage' (LS), as described in U.S. Patent Applications 12/020,360 and 61/054,026.

[0197] Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as cotton plants, with altered

fiber characteristics. Such plants can be obtained by genetic transformation, or by selection of plants contain a mutation imparting such altered fiber characteristics and include:

- a) Plants, such as cotton plants, containing an altered form of cellulose synthase genes as described in WO 98/00549.
- 5 b) Plants, such as cotton plants, containing an altered form of rsw2 or rsw3 homologous nucleic acids as described in WO 2004/053219.
- c) Plants, such as cotton plants, with increased expression of sucrose phosphate synthase as described in WO 01/17333.
- d) Plants, such as cotton plants, with increased expression of sucrose synthase as described in WO
10 02/45485.
- e) Plants, such as cotton plants, wherein the timing of the plasmodesmatal gating at the basis of the fiber cell is altered, e.g. through downregulation of fiber-selective β -1,3-glucanase as described in WO 2005/017157, or as described in WO 2009/143995.
- f) Plants, such as cotton plants, having fibers with altered reactivity, e.g. through the expression of N-acetylglucosaminetransferase gene including nodC and chitin synthase genes as described in WO
15 2006/136351.

[0198] Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as oilseed rape or related Brassica plants, with altered oil profile characteristics. Such plants can be obtained by genetic transformation,
20 or by selection of plants contain a mutation imparting such altered oil profile characteristics and include:

- a) Plants, such as oilseed rape plants, producing oil having a high oleic acid content as described e.g. in US 5,969,169, US 5,840,946 or US 6,323,392 or US 6,063,947
- b) Plants such as oilseed rape plants, producing oil having a low linolenic acid content as described in US 6,270,828, US 6,169,190, or US 5,965,755
- 25 c) Plant such as oilseed rape plants, producing oil having a low level of saturated fatty acids as described e.g. in US 5,434,283 or U.S. Patent Application 12/668303

[0199] Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as oilseed rape or related Brassica plants, with altered seed shattering characteristics. Such plants can be obtained by genetic transformation,
30 or by selection of plants contain a mutation imparting such altered seed shattering characteristics and

include plants such as oilseed rape plants with delayed or reduced seed shattering as described in U.S. Patent Application 61/135,230, WO 2009/068313 and WO 2010/006732.

[0200] Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as tobacco plants, with altered post-translational protein modification patterns, for example as described in WO 2010/121818 and WO 2010/145846.

[0201] Particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or combination of transformation events, that are the subject of petitions for non-regulated status, in the United States of America, to the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) whether such petitions are granted or are still pending. At any time this information is readily available from APHIS (4700 River Road, Riverdale, MD 20737, USA), for instance on its internet site (URL http://www.aphis.usda.gov/brs/not_reg.html). On the filing date of this application the petitions for nonregulated status that were pending with APHIS or granted by APHIS were those which contains the following information:

- Petition: the identification number of the petition. Technical descriptions of the transformation events can be found in the individual petition documents which are obtainable from APHIS, for example on the APHIS website, by reference to this petition number. These descriptions are herein incorporated by reference.
- Extension of Petition: reference to a previous petition for which an extension is requested.
- Institution: the name of the entity submitting the petition.
- Regulated article: the plant species concerned.
- Transgenic phenotype: the trait conferred to the plants by the transformation event.
- Transformation event or line: the name of the event or events (sometimes also designated as lines or lines) for which nonregulated status is requested.
- APHIS documents: various documents published by APHIS in relation to the Petition and which can be requested with APHIS.

[0202] Additional particularly useful plants containing single transformation events or combinations of transformation events are listed for example in the databases from various national or regional regulatory agencies (see for example http://gmoinfo.jrc.it/gmp_browse.aspx and <http://www.agbios.com/dbase.php>).

[0203] Particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or a combination of transformation events, and that are listed for example in the databases for various national or regional regulatory agencies including Event 1143-14A (cotton, insect control, not deposited, described in WO 2006/128569); Event 1143-51B (cotton, insect control, not deposited, described in WO 2006/128570); Event 1445 (cotton, herbicide tolerance, not deposited, described in US-A 2002-120964 or WO 02/034946); Event 17053 (rice, herbicide tolerance, deposited as PTA-9843, described in WO 2010/117737); Event 17314 (rice, herbicide tolerance, deposited as PTA-9844, described in WO 2010/117735); Event 281-24-236 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in WO 2005/103266 or US-A 2005-216969); Event 3006-210-23 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in US-A 2007-143876 or WO 2005/103266); Event 3272 (corn, quality trait, deposited as PTA-9972, described in WO 2006/098952 or US-A 2006-230473); Event 40416 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-11508, described in WO 2011/075593); Event 43A47 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-11509, described in WO 2011/075595); Event 5307 (corn, insect control, deposited as ATCC PTA-9561, described in WO 2010/077816); Event ASR-368 (bent grass, herbicide tolerance, deposited as ATCC PTA-4816, described in US-A 2006-162007 or WO 2004/053062); Event B16 (corn, herbicide tolerance, not deposited, described in US-A 2003-126634); Event BPS-CV127-9 (soybean, herbicide tolerance, deposited as NCIMB No. 41603, described in WO 2010/080829); Event CE43-67B (cotton, insect control, deposited as DSM ACC2724, described in US-A 2009-217423 or WO2006/128573); Event CE44-69D (cotton, insect control, not deposited, described in US-A 2010-0024077); Event CE44-69D (cotton, insect control, not deposited, described in WO 2006/128571); Event CE46-02A (cotton, insect control, not deposited, described in WO 2006/128572); Event COT102 (cotton, insect control, not deposited, described in US-A 2006-130175 or WO 2004/039986); Event COT202 (cotton, insect control, not deposited, described in US-A 2007-067868 or WO 2005/054479); Event COT203 (cotton, insect control, not deposited, described in WO 2005/054480); Event DAS40278 (corn, herbicide tolerance, deposited as ATCC PTA-10244, described in WO 2011/022469); Event DAS-59122-7 (corn, insect control - herbicide tolerance, deposited as ATCC PTA 11384, described in US-A 2006-070139); Event DAS-59132 (corn, insect control - herbicide tolerance, not deposited, described in WO 2009/100188); Event DAS68416 (soybean, herbicide tolerance, deposited as ATCC PTA-10442, described in WO 2011/066384 or WO 2011/066360); Event DP-098140-6 (corn, herbicide tolerance, deposited as ATCC PTA-8296, described in US-A 2009-137395 or WO 2008/112019); Event DP-305423-1 (soybean, quality trait, not deposited, described in US-A 2008-312082 or WO 2008/054747); Event DP-32138-1 (corn, hybridization system, deposited as ATCC PTA-9158, described in US-A 2009-0210970 or WO 2009/103049); Event DP-356043-5 (soybean, herbicide tolerance, deposited as ATCC PTA-8287, described in US-A 2010-0184079 or WO 2008/002872); Event EE-1 (brinjal, insect control, not deposited, described in WO 2007/091277); Event FI117 (corn, herbicide tolerance, deposited as ATCC 209031, described in US-A 2006-059581 or WO 98/044140); Event GA21 (corn, herbicide tolerance, deposited as ATCC 209033, described in US-A 2005-086719 or WO 98/044140); Event GG25 (corn, herbicide tolerance, deposited as ATCC 209032, described in US-A 2005-188434 or WO 98/044140); Event GHB119 (cotton, insect control -

herbicide tolerance, deposited as ATCC PTA-8398, described in WO 2008/151780); Event GHB614 (cotton, herbicide tolerance, deposited as ATCC PTA-6878, described in US-A 2010-050282 or WO 2007/017186); Event GJ11 (corn, herbicide tolerance, deposited as ATCC 209030, described in US-A 2005-188434 or WO 98/044140); Event GM RZ13 (sugar beet, virus resistance, deposited as NCIMB-41601, described in WO 2010/076212); Event H7-1 (sugar beet, herbicide tolerance, deposited as NCIMB 41158 or NCIMB 41159, described in US-A 2004-172669 or WO 2004/074492); Event JOPLIN1 (wheat, disease tolerance, not deposited, described in US-A 2008-064032); Event LL27 (soybean, herbicide tolerance, deposited as NCIMB41658, described in WO 2006/108674 or US-A 2008-320616); Event LL55 (soybean, herbicide tolerance, deposited as NCIMB 41660, described in WO 2006/108675 or US-A 2008-196127); Event LLcotton25 (cotton, herbicide tolerance, deposited as ATCC PTA-3343, described in WO 03/013224 or US-A 2003-097687); Event LLRICE06 (rice, herbicide tolerance, deposited as ATCC-23352, described in US 6,468,747 or WO 00/026345); Event LLRICE601 (rice, herbicide tolerance, deposited as ATCC PTA-2600, described in US-A 2008-2289060 or WO 00/026356); Event LY038 (corn, quality trait, deposited as ATCC PTA-5623, described in US-A 2007-028322 or WO 2005/061720); Event MIR162 (corn, insect control, deposited as PTA-8166, described in US-A 2009-300784 or WO 2007/142840); Event MIR604 (corn, insect control, not deposited, described in US-A 2008-167456 or WO 2005/103301); Event MON15985 (cotton, insect control, deposited as ATCC PTA-2516, described in US-A 2004-250317 or WO 02/100163); Event MON810 (corn, insect control, not deposited, described in US-A 2002-102582); Event MON863 (corn, insect control, deposited as ATCC PTA-2605, described in WO 2004/011601 or US-A 2006-095986); Event MON87427 (corn, pollination control, deposited as ATCC PTA-7899, described in WO 2011/062904); Event MON87460 (corn, stress tolerance, deposited as ATCC PTA-8910, described in WO 2009/111263 or US-A 2011-0138504); Event MON87701 (soybean, insect control, deposited as ATCC PTA-8194, described in US-A 2009-130071 or WO 2009/064652); Event MON87705 (soybean, quality trait - herbicide tolerance, deposited as ATCC PTA-9241, described in US-A 2010-0080887 or WO 2010/037016); Event MON87708 (soybean, herbicide tolerance, deposited as ATCC PTA9670, described in WO 2011/034704); Event MON87754 (soybean, quality trait, deposited as ATCC PTA-9385, described in WO 2010/024976); Event MON87769 (soybean, quality trait, deposited as ATCC PTA-8911, described in US-A 2011-0067141 or WO 2009/102873); Event MON88017 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-5582, described in US-A 2008-028482 or WO 2005/059103); Event MON88913 (cotton, herbicide tolerance, deposited as ATCC PTA-4854, described in WO 2004/072235 or US-A 2006-059590); Event MON89034 (corn, insect control, deposited as ATCC PTA-7455, described in WO 2007/140256 or US-A 2008-260932); Event MON89788 (soybean, herbicide tolerance, deposited as ATCC PTA-6708, described in US-A 2006-282915 or WO 2006/130436); Event MS11 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-850 or PTA-2485, described in WO 01/031042); Event MS8 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO 01/041558 or US-A 2003-188347); Event NK603 (corn, herbicide tolerance, deposited as ATCC PTA-2478, described in US-A 2007-292854); Event PE-7 (rice, insect control, not deposited, described in WO 2008/114282); Event RF3 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO 01/041558 or US-A

2003-188347); Event RT73 (oilseed rape, herbicide tolerance, not deposited, described in WO 02/036831 or US-A 2008-070260); Event T227-1 (sugar beet, herbicide tolerance, not deposited, described in WO 02/44407 or US-A 2009-265817); Event T25 (corn, herbicide tolerance, not deposited, described in US-A 2001-029014 or WO 01/051654); Event T304-40 (cotton, insect control - herbicide tolerance, deposited as
5 ATCC PTA-8171, described in US-A 2010-077501 or WO 2008/122406); Event T342-142 (cotton, insect control, not deposited, described in WO 2006/128568); Event TC1507 (corn, insect control - herbicide tolerance, not deposited, described in US-A 2005-039226 or WO 2004/099447); Event VIP1034 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-3925., described in WO 03/052073), Event 32316 (corn,insect control-herbicide tolerance,deposited as PTA-11507, described in WO 2011/084632), Event
10 4114 (corn,insect control-herbicide tolerance,deposited as PTA-11506, described in WO 2011/084621).

[0204] Very particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or a combination of transformation events, and that are listed for example in the databases for various national or regional regulatory agencies including Event BPS-CV127-9 (soybean, herbicide tolerance, deposited as NCIMB No. 41603, described in WO 2010/080829); Event
15 DAS68416 (soybean, herbicide tolerance, deposited as ATCC PTA-10442, described in WO 2011/066384 or WO 2011/066360); Event DP-356043-5 (soybean, herbicide tolerance, deposited as ATCC PTA-8287, described in US-A 2010-0184079 or WO 2008/002872); Event EE-1 (brinjal, insect control, not deposited, described in WO 2007/091277); Event FI117 (corn, herbicide tolerance, deposited as ATCC 209031, described in US-A 2006-059581 or WO 98/044140); Event GA21 (corn, herbicide tolerance, deposited as ATCC
20 209033, described in US-A 2005-086719 or WO 98/044140), Event LL27 (soybean, herbicide tolerance, deposited as NCIMB41658, described in WO 2006/108674 or US-A 2008-320616); Event LL55 (soybean, herbicide tolerance, deposited as NCIMB 41660, described in WO 2006/108675 or US-A 2008-196127); Event MON87701 (soybean, insect control, deposited as ATCC PTA-8194, described in US-A 2009-130071 or WO 2009/064652); Event MON87705 (soybean, quality trait - herbicide tolerance, deposited as ATCC
25 PTA-9241, described in US-A 2010-0080887 or WO 2010/037016); Event MON87708 (soybean, herbicide tolerance, deposited as ATCC PTA9670, described in WO 2011/034704); Event MON87754 (soybean, quality trait, deposited as ATCC PTA-9385, described in WO 2010/024976); Event MON87769 (soybean, quality trait, deposited as ATCC PTA-8911, described in US-A 2011-0067141 or WO 2009/102873); Event MON89788 (soybean, herbicide tolerance, deposited as ATCC PTA-6708, described in US-A 2006-282915
30 or WO 2006/130436).

Application Rates and Timing

[0205] When using the inventive mixtures or compositions as fungicides, the application rates can be varied within a relatively wide range, depending on the kind of application. The application rate of the mixtures or compositions is

- in the case of treatment of plant parts, for example leaves: from 0.1 to 10 000 g/ha, preferably from 10 to 1000 g/ha, more preferably from 10 to 800 g/ha, even more preferably from 50 to 300 g/ha (in the case of application by watering or dripping, it is even possible to reduce the application rate, especially when inert substrates such as rockwool or perlite are used);
- 5 • in the case of seed treatment: from 2 to 200 g per 100 kg of seed, preferably from 3 to 150 g per 100 kg of seed, more preferably from 2.5 to 25 g per 100 kg of seed, even more preferably from 2.5 to 12.5 g per 100 kg of seed;
- in the case of soil treatment: from 0.1 to 10 000 g/ha, preferably from 1 to 5000 g/ha.

10 [0206] These application rates are merely by way of example and are not limited for the purposes of the invention.

[0207] The inventive mixtures or compositions can thus be used to protect plants from attack by the pathogens mentioned for a certain period of time after treatment. The period for which protection is provided extends generally for 1 to 28 days, preferably for 1 to 14 days, more preferably for 1 to 10 days, most preferably for 1 to 7 days, after the treatment of the plants with the mixtures or compositions, or for up to 200 days after
15 a seed treatment.

[0208] The method of treatment according to the invention also provides the use or application of the compound according to formula (I) and the compositions comprising the compound of formula (I) and at least one biological control agent as defined above in a simultaneous, separate or sequential manner. If the single active ingredients are applied in a sequential manner, i.e. at different times, they are applied one after
20 the other within a reasonably short period, such as a few hours or days. Preferably the order of applying the compound according to formula (I) and the biological control agent as defined above is not essential for working the present invention.

[0209] The plants listed can particularly advantageously be treated in accordance with the invention with the inventive mixtures or compositions. The preferred ranges stated above for the mixtures or compositions
25 also apply to the treatment of these plants. Particular emphasis is given to the treatment of plants with the mixtures or compositions specifically mentioned in the present text.

[0210] According to another aspect of the present invention, in the combination or composition according to the invention, the compound ratio A/B may be advantageously chosen so as to produce a synergistic effect. The term synergistic effect is understood to mean in particular that defined by Colby in an article entitled
30 "Calculation of the synergistic and antagonistic responses of herbicide combinations" Weeds, (1967), 15, pages 20-22.

[0211] The latter article mentions the formula:

$$E = X + Y - \frac{XY}{100}$$

wherein E represents the expected percentage of inhibition of the pest for the combination of the two compounds at defined doses (for example equal to x and y respectively), X is the percentage of inhibition observed for the pest by compound (A) at a defined dose (equal to x), Y is the percentage of inhibition observed for the pest by compound (B) 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.

[0212] The term “synergistic effect” also means the effect defined by application of the Tamme method, “Isoboles, a graphic representation of synergism in pesticides”, Netherlands Journal of Plant Pathology, 70(1964), pages 73-80.

10 [0213] A synergistic effect in fungicides is always present when the fungicidal action of the active compound combinations exceeds the expected action of the active compounds.

[0214] The expected insecticidal action for a given combination of two or three active compounds can be calculated as follows, according to S.R. Colby (“Calculating Synergistic and Antagonistic Responses of Herbicide Combinations”, Weeds 1967, 15, 20-22):

15 If

X is the *efficacy* when employing active compound A at an application rate of m g/ha,

Y is the *efficacy* when employing active compound B at an application rate of n g/ha and

E is the *efficacy* when employing active compounds A and B at application rates of m and n g/ha,

then $E = X + Y - (X*Y)/100$.

20 [0215] Here, the efficacy is determined in %. 0% means an efficacy which corresponds to that of the control, whereas an efficacy of 100% means that no infection is observed.

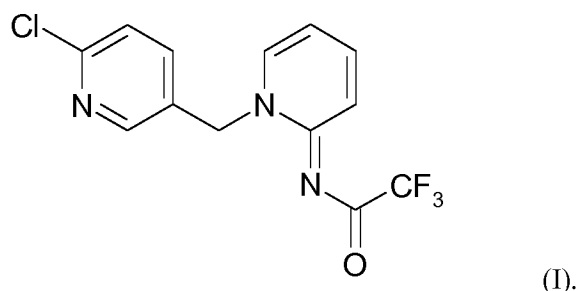
[0216] If the actual insecticidal action exceeds the calculated value, the action of the combination is super-additive, i.e. a synergistic effect is present. In this case, the actually observed efficacy must exceed the value calculated using the above formula for the expected efficacy (E).

25 [0217] The invention is illustrated by the examples below. However, the invention is not limited to the examples.

Claims:

1. A composition, comprising

(1) the compound of formula (I)



5

(2) and at least one biological control agent.

2. The composition according to claim 1, whereby the biological control agent comprises bacteria, fungi or yeasts, protozoa, viruses, entomopathogenic nematodes botanical extracts and products produced by microorganisms including proteins or secondary metabolites.

3. The composition according to any of claims 1 or 2, whereby the biological control agent is selected from
- 1) bacteria consisting of (1.1) *Agrobacterium radiobacter*, (1.2) *Bacillus acidocaldarius*, (1.3) *Bacillus acidoterrestris*, (1.4) *Bacillus agri*, (1.5) *Bacillus aizawai*, (1.6) *Bacillus albolactis*, (1.7) *Bacillus alcalophilus*, (1.8) *Bacillus alvei*, (1.9) *Bacillus aminoglucosidicus*, (1.10) *Bacillus aminovorans*, (1.11) *Bacillus amylolyticus* (also known as *Paenibacillus amylolyticus*), (1.12) *Bacillus amyloliquefaciens*, in particular strain IN937a, (1.13) *Bacillus amyloliquefaciens*, in particular strain FZB42 (product known as RhizoVital®), (1.14) *Bacillus amyloliquefaciens* strain B3, (1.15) *Bacillus aneurinolyticus*, (1.16) *Bacillus atrophaeus*, (1.17) *Bacillus azotoformans*, (1.18) *Bacillus badius*, (1.19) *Bacillus cereus*, in particular spores of *Bacillus cereus* strain CNCM I-1562 (cf. US 6 406 690), (1.20) *Bacillus chitinosporus*, in particular strain AQ746 (Accession No. NRRL B-21618), (1.21) *Bacillus circulans* (1.22) *Bacillus coagulans*, (1.23) *Bacillus fastidiosus*, (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.25) *Bacillus kurstaki*, (1.26) *Bacillus lacticola*, (1.27) *Bacillus lactimorbus*, (1.28) *Bacillus lactis*, (1.29) *Bacillus laterosporus* (also known as *Brevibacillus laterosporus*), (1.30) *Bacillus lautus*, (1.31) *Bacillus lentimorbus*, (1.32) *Ba-*

cillus lentus, (1.33) *Bacillus licheniformis*, (1.34) *Bacillus maroccanus*, (1.35) *Bacillus megaterium* (products known as BioArc), (1.36) *Bacillus metiens*, (1.37) *Bacillus mycoides*, in particular strain AQ726 (Accession No. NRRL B21664), (1.38) *Bacillus mycoides* isolate J (BmJ), (1.39) *Bacillus natto*, (1.40) *Bacillus nematocida*, (1.41) *Bacillus nigrificans*, (1.42) *Bacillus nigrum*, (1.43) *Bacillus pantothenicus*, (1.44) *Bacillus popillae* (products known as Cronox), (1.45) *Bacillus psychrosaccharolyticus*, (1.46) *Bacillus pumilus*, in particular strain GB34 (products known as Yield Shield[®]), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.48) *Bacillus pumilus*, in particular strain AQ717 (Accession No. NRRL B21662), (1.49) *Bacillus siamensis*, (1.50) *Bacillus smithii*, (1.51) *Bacillus sphaericus* (products known as VectoLexs[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.54) *Bacillus subtilis*, in particular strain AQ743 (Accession No. NRRL B-21665), (1.55) *Bacillus subtilis*, in particular strain AQ 153 (ATCC accession No. 55614), (1.56) *Bacillus subtilis* var. *amyloliquefaciens* strain FZB24 (products known as Taegro[®]), (1.57) *Bacillus thuringiensis* var. *israelensis* (products known as VectoBac[®]), (1.58) *Bacillus thuringiensis* subsp. *aizawai* strain ABTS-1857 (products known as XenTari[®]), (1.59) *Bacillus thuringiensis* subsp. *kurstaki* strain HD-1 (products known as Dipel[®] ES), (1.60) *Bacillus thuringiensis* subsp. *kurstaki* strain BMP 123, (1.61) *Bacillus thuringiensis* subsp. *tenebrionis* strain NB 176 (products known as Novodor[®] FC), (1.62) *Bacillus thuringiensis* var. *aegyptii* (products known as Agerin), (1.63) *Bacillus thuringiensis* var. *colmeri* (products known as TianBaoBTc), (1.64) *Bacillus thuringiensis* var. *darmstadiensis* (products known as Baciturin, Kolepterin), (1.65) *Bacillus thuringiensis* var. *dendrolimus* (products known as Dendrobacillin), (1.66) *Bacillus thuringiensis* var. *galleriae* (products known as Enterobactin), (1.67) *Bacillus thuringiensis* var. *japonensis* (products known as Buihunter), (1.68) *Bacillus thuringiensis* subsp. *Morrisoni*, (1.69) *Bacillus thuringiensis* var. *san diego*, (1.70) *Bacillus thuringiensis* subsp. *thuringiensis* strain MPPL002, (1.71) *Bacillus thuringiensis* subsp. *thuringiensis* (products known as BikoI), (1.72) *Bacillus thuringiensis* var. 7216 (products known as Amactic, Pethian), (1.73) *Bacillus thuringiensis* var. T36 (products known as Cahat), (1.74) *Bacillus thuringiensis* strain BD#32 (Accession No. NRRL B-21530), (1.75) *Bacillus thuringiensis* strain AQ52 (Accession No. NRRL B-21619), (1.76) *Bacillus uniflagellatus*, (1.77) *Bradyrhizobium japonicum* (products known as SoySelect), (1.78) *Bacillus* sp. strain AQ175 (ATCC Accession No. 55608), (1.79) *Bacillus* sp. strain AQ177 (ATCC Accession No. 55609), (1.80) *Bacillus* sp. strain AQ178 (ATCC Accession No. 53522), (1.81) *Brevibacillus brevis*, in particular strain SS86-3, (1.82) *Brevibacillus brevis*, in particular strain SS86-4, (1.83) *Brevibacillus brevis*, in particular strain SS86-5, (1.84) *Brevibacillus brevis*, in particular strain 2904, (1.85) *Brevibacillus laterosporus*, in particular strain 64, (1.86) *Brevibacillus laterosporus*, in particular strain 1111, (1.87) *Brevibacillus laterosporus*, in particular strain 1645, (1.88) *Brevibacillus laterosporus*, in particular strain 1647 (1.89) *Chromobacterium subtsugae*, in particular strain PRAA4-1T (products known as Gandevo), (1.90) *Delftia*

acidovorans, in particular strain RAY209 (products known as BioBoost®), (1.91) *Lactobacillus acidophilus* (products known as Fruitsan), (1.92) *Lysobacter antibioticus*, in particular strain 13-1 (cf. Biological Control 2008, 45, 288-296), (1.93) *Lysobacter enzymogenes*, in particular strain C3 (cf. J Nematol. 2006 June; 38(2): 233-239), (1.94) *Paenibacillus alvei*, in particular strains III3DT-1A
5 (Bacillus genetic stock center, Nov 2001), (1.95) *Paenibacillus alvei*, in particular strain III2E (Bacillus genetic stock center, Nov 2001), (1.96) *Paenibacillus alvei*, in particular strain 46C3 (Bacillus genetic stock center, Nov 2001), (1.97) *Paenibacillus alvei*, in particular strain 2771 (Bacillus genetic stock center, Nov 2001), (1.98) *Paenibacillus polymyxa*, (1.99) *Paenibacillus popilliae*, (1.100) *Pantoea agglomerans*, (1.101) *Pasteuria penetrans* (products known as Pasteuria wettable powder),
10 (1.102) *Pasteuria usgae* (products known as Econem™), (1.103) *Pectobacterium carotovorum* (products known as BioKeeper), (1.104) *Pseudomonas aeruginosa* (products known as Guiticid), (1.105) *Pseudomonas aureofaciens* (products known as Agate-25K), (1.106) *Pseudomonas cepacia*, in particular strain M54, (1.107) *Pseudomonas cepacia*, in particular strain J82, (1.108) *Pseudomonas chlororaphis*, in particular strain MA 342 (products known as Cedomon), (1.109) *Pseudomonas fluorescens* (products known as Sudozone), (1.110) *Pseudomonas proradix* (products known as Pro-
15 radix®), (1.111) *Pseudomonas putida* (products known as Nematsid), (1.112) *Pseudomonas resinovorans* (products known as Solanacure), (1.113) *Pseudomonas syringae* (products known as Biosave), (1.114) *Rhodococcus globerulus* strain AQ719 (Accession No. NRRL B21663) (1.115) *Serratia entomophila* (products known as Invade™), (1.116) *Serratia marcescens*, in particular strain SRM (MTCC8708), (1.117) *Serratia marcescens*, in particular strain R35, (1.118) *Streptomyces candidus* (products known as BioAid™), (1.119) *Streptomyces colombiensis* (products known as Mycoside), (1.120) *Streptomyces galbus*, in particular strain K61 (products known as Mycostop®,
20 cf. Crop Protection 2006, 25, 468-475), (1.121) *Streptomyces galbus*, in particular strain QST 6047, Accession No. NRRL 30232, (1.122) *Streptomyces goshikiensis* (products known as Safegro), (1.123) *Streptomyces griseoviridis* (products known as Mycostop®, cf. Microbial db of Canada), (1.124) *Streptomyces lavendulae* (products known as Phytolavin-300), (1.125) *Streptomyces lydicus*, in particular strain WYCD108 (products known as ActinovateSP), (1.126) *Streptomyces lydicus*, in particular strain WYEC108 (products known as Actino-iron), (1.127) *Streptomyces prasinus* (cf. "Prasinons A and B: potent insecticides from *Streptomyces prasinus*" Applied Microbiology 1973
25 Nov), (1.128) *Streptomyces rimosus* (products known as Rhitovit), (1.129) *Streptomyces saraceticus* (products known as Clanda), (1.130) *Streptomyces venezuelae*, (1.131) *Streptomyces* sp. NRRL B-30145 (1.132) *Xanthomonas campestris*, (1.133) *Xenorhabdus luminescens*, (1.134) *Xenorhabdus nematophila*, (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980), (1.136) *Bacillus subtilis*, in particular strain
30 QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980),
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2) fungi or yeasts consisting of (2.1) *Ampelomyces quisqualis*, in particular strain AQ 10 (product known as AQ 10®), (2.2) *Aureobasidium pullulans*, in particular blastospores of strain DSM14940,

(2.3) *Aureobasidium pullulans*, in particular blastospores of strain DSM 14941 or mixtures thereof (product known as Blossom Protect[®]), (2.4) *Aschersonia aleyrodes*, (2.5) *Aspergillus flavus*, in particular strain NRRL 21882 (products known as Afla-Guard[®]), (2.6) *Arthrotrixy superba* (Corda 1839), (2.7) *Beauveria bassiana*, in particular strain ATCC 74040 (products known as Naturalis[®]),

5 (2.8) *Beauveria bassiana*, in particular strain GHA (products known as Mycotrol, BotaniGard), (2.9) *Beauveria brongniartii* (products known as Beaupro), (2.10) *Candida oleophila*, in particular strain O (products known as Nexy[®], Aspire), (2.11) *Chaetomium cupreum* (products known as Ketocin), (2.12) *Cladosporium cladosporioides*, in particular strain H39, (2.13) *Conidiobolus obscurus*, (2.14) *Coniothyrium minitans*, in particular strain CON/M/91-8 (products known as Contans[®]), (2.15) *Dilophospora alopecuri* (products known as Twist Fungus[®]), (2.16) *Entomophthora virulenta* (products known as Vektor), (2.17) *Fusarium oxysporum*, in particular strain Fo47 (products known as Fusaclean), (2.18) *Gliocladium catenulatum*, in particular strain J1446 (products known as Prestop[®] or Primastop), (2.19) *Hirsutella thompsonii* (products known as Mycohit or ABTEC), (2.20) *Lagenidium giganteum* (products known as Laginex[®] by AgraQuest, Inc.), (2.21) *Lecanicillium lecanii*, in particular conidia of strain KV01 (products known as Mycotol[®], Vertalec[®]), (2.22) *Metarhizium anisopliae*,

10 in particular strain F52 (products known as BIO 1020 or Met52), (2.23) *Metarhizium anisopliae* var. *acridum* (products known as Green Muscle), (2.24) *Metarhizium flavoviride*, (2.25) *Metschnikovia fructicola*, in particular the strain NRRL Y-30752 (product known as Shemer[®]), (2.26) *Microsphaeropsis ochracea* (products known as Microx[®]), (2.27) *Mucor haemelis* (product known as BioA-vard), (2.28) *Muscodor albus*, in particular strain QST 20799 (products known as Arabesque[™] or Andante[™]), (2.29) *Muscodor albus*, in particular strain 620 (Accession No. NRRL 30547), (2.30) *Muscodor roseus* strain A3-5 (Accession No. NRRL 30548), (2.31) *Myrothecium verrucaria*, in particular strain AARC-0255 (products known as DiTera[™]), (2.32) *Nomuraea rileyi*, in particular strain SA86101, (2.33) *Nomuraea rileyi*, in particular strain GU87401, (2.34) *Nomuraea rileyi*, in particular strain SR86151, (2.35) *Nomuraea rileyi*, in particular strain CG128, (2.36) *Nomuraea rileyi*, in particular strain VA9101 (products known as Kongo[®]), (2.37) *Ophiostoma piliferum*, in particular strain D97 (products known as Sylvanex), (2.38) *Paecilomyces fumosoreus*, in particular strain apopka 97 (products known as PreFeRal), (2.39) *Paecilomyces lilacinus*, in particular spores of *Paecilomyces lilacinus* strain 251 (products known as BioAct[®], cf. *Crop Protection* 2008, 27, 352-361), (2.40) *Paecilomyces variotii*, in particular strain Q-09 (products known as Nemaquim), (2.41) *Pandora delphacis*, (2.42) *Penicillium bilaii*, in particular strain ATCC22348 (products known as JumpStart[®], PB-50, Provide), (2.43) *Penicillium vermiculatum* (products known as Vermiculen), (2.44) *Phlebiopsis gigantea* (products known as Rotstop), (2.45) *Pichia anomala*, in particular strain WRL-076, (2.46) *Pochonia chlamydosporia*, (2.47) *Pseudozyma flocculosa*, in particular strain PF-A22 UL (products known as Sporodex[®] L), (2.48) *Pythium oligandrum*, in particular strain DV74 (products known as Polyversum), (2.49) *Sporothrix insectorum* (products known as Sporothrix), (2.50) *Talaromyces flavus*, (2.51) *Trichoderma album* (products known as Bio-Zeid), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]), (2.53) *Trichoderma asperellum* in particular strain ICC 012 (products

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known as Bioten[®]), (2.54) *Trichoderma atroviride*, in particular strain CNCM I-1237, (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]), (2.56) *Trichoderma gamsii*, in particular mycelial fragments, conidia & chlamydospores of strain ICC080 (products known as Bioderma), (2.57) *Trichoderma harmatum*, (2.58) *Trichoderma harzianum*, in particular *Trichoderma harzianum* T39 (products known as Trichodex[®]), (2.59) *Trichoderma koningii* (products known as Trikot-S Plus), (2.60) *Trichoderma lignorum* (products known as Mycobac), (2.61) *Trichoderma polysporum*, in particular strain IMI 206039, (2.62) *Trichoderma virens* (products known as SoilGard), (2.63) *Tsukamurella paurometabola* (products known as HeberNem[®]), (2.64) *Ulocladium oudemansii* (products known as Botry-Zen), (2.65) *Verticillium albo-atrum*, in particular strain WCS850, (2.66) *Verticillium chlamydosporium* (products known as Varsha), (2.67) *Verticillium dahliae* (products known as Dutch Trig), (2.68) *Zoophthora radican*,

3) protozoas consisting of (3.1) *Nosema locustae* (products known as NoloBait), (3.2) *Thelohania solenopsis*, (3.3) *Vairimorpha spp*,

4) viruses consisting of (4.1) *Adoxophyes orana* (summer fruit tortrix) granulosis virus (GV), (product known as BIOFA - Capex[®]), (4.2) *Agrotis segetum* (turnip moth) nuclear polyhedrosis virus (NPV), (4.3) *Anticarsia gemmatilis* (Woolly pyrol moth) mNPV (products known as Polygen), (4.4) *Autographa californica* (Alfalfa Looper) mNPV (products known as VPN80 from Agricola El Sol), (4.5) *Biston suppressaria* (tea looper) NPV, (4.6) *Bombyx mori* (silkworm) NPV, (4.7) *Cryptophlebia leucotreta* (false codling moth) GV (products known as Cryptex), (4.8) *Cydia pomonella* (Codling moth) granulosis virus (GV) (product known as Madex Plus), (4.9) *Dendrolimus punctatus* (Masson pine moth) CPV, (4.10) *Helicoverpa armigera* NPV (product known as AgBiTech - ViVUS Max), (4.11) *Helicoverpa* (previously *Heliothis*) *zea* (corn earworm) NPV (products known as Elcar), (4.12) *Leucoma salicis* (satin moth) NPV, (4.13) *Lymantria dispar* (gypsy moth) NPV (products known as Gypcheck), (4.14) *Neodiprion abietis* (balsam-fir sawfly) NPV (products known as Abietiv), (4.15) *Neodiprion lecontei* (red-headed pinesawfly) NPV (products known as Lecontvirus), (4.16) *Neodiprion sertifer* (Pine sawfly) NPV (products known as Neocheck-S), (4.17) *Orgyia pseudotsugata* (Douglas-fir tussock moth) NPV (products known as Virtuss), (4.18) *Phthorimaea operculella* (tobacco leaf miner) GV (products known as Matapol), (4.19) *Pieris rapae* (small white) GV, (4.20) *Plutella xylostella* (diamondback moth) GV (products known as Plutec), (4.21) *Spodoptera albula* (gray-streaked armyworm moth) mNPV (products known as VPN 82), (4.22) *Spodoptera exempta* (true armyworm) mNPV (products known as Spodec), (4.23) *Spodoptera exigua* (sugarbeet armyworm) mNPV (products known as Spexit from Andermatt Biocontrol), (4.24) *Spodoptera frugiperda* (fall armyworm) mNPV (products known as Baculovirus VPN), (4.25) *Spodoptera littoralis* (tobacco cutworm) NPV (products known as Spodoptrin from NPP Caliope France), (4.26) *Spodoptera litura* (oriental leafworm moth) NPV (products known as Littovir),

5) entomopathogenic nematodes consisting of (5.1) *Abbreviata caucasica*, (5.2) *Acuaria spp.*, (5.3) *Agamermis decaudata*, (5.4) *Allantonema spp.*, (5.5) *Amphimermis spp.*, (5.6) *Beddingia* (= *Deladenus*) *siridicola*, (5.7) *Bovienema spp.*, (5.8) *Cameronia spp.*, (5.9) *Chitwoodiella ovofilamenta*, (5.10) *Contortylenchus spp.*, (5.11) *Culicimermis spp.*, (5.12) *Diplotriaeana spp.*, (5.13) *Empidomermis spp.*, (5.14) *Filipjevimermis leipsandra*, (5.15) *Gastromermis spp.*, (5.16) *Gongylonema spp.*, (5.17) *Gynopoecilia pseudovipara*, (5.18) *Heterorhabditis bacteriophora* (products known as B-Green), (5.19) *Heterorhabditis baujardi*, (5.20) *Heterorhabditis heliothidis* (products known as Nematon), (5.21) *Heterorhabditis indica*, (5.22) *Heterorhabditis marelatus*, (5.23) *Heterorhabditis megidis*, (5.24) *Heterorhabditis zealandica*, (5.25) *Hexamermis spp.*, (5.26) *Hydromermis spp.*, (5.27) *Isomermis spp.*, (5.28) *Limnomermis spp.*, (5.29) *Maupasina weissii*, (5.30) *Mermis nigrescens*, (5.31) *Mesomermis spp.*, (5.32) *Neomesomermis spp.*, (5.33) *Neoparasitylenchus rugulosi*, (5.34) *Octomyomermis spp.*, (5.35) *Parasitaphelenchus spp.*, (5.36) *Parasitorhabditis spp.*, (5.37) *Parasitylenchus spp.*, (5.38) *Perutilimermis culicis*, (5.39) *Phasmarhabditis hermaphrodita*, (5.40) *Physaloptera spp.*, (5.41) *Protrellatus spp.*, (5.42) *Pterygodermatites spp.*, (5.43) *Romanomermis spp.*, (5.44) *Seuratum cadarachense*, (5.45) *Sphaerulariopsis spp.*, (5.46) *Spirura guianensis*, (5.47) *Steinernema carpocapsae* (products known as Biocontrol), (5.48) *Steinernema feltiae* (products known as Nemasys®), (5.49) *Steinernema glaseri* (products known as Biotopia), (5.50) *Steinernema kraussei* (products known as Larvesure), (5.51) *Steinernema riobrave* (products known as Biovector), (5.52) *Steinernema scapterisci* (products known as Nematac S), (5.53) *Steinernema scarabaei*, (5.54) *Steinernema siamkayai*, (5.55) *Strelkovimermis peterseni*, (5.56) *Subulura spp.*, (5.57) *Sulphuretylenchus elongatus*, (5.58) *Tetrameres spp.*,

6) proteins or secondary metabolites consisting of (6.1) Harpin (isolated by *Erwinia amylovora*, products known as Harp-N-Tek™, Messenger®, Employ™, ProAct™),

7) botanical extracts consisting of (7.1) Thymol, extracted e. g. from thyme (*thymus vulgaris*), (7.2) Neem tree (*Azadirachta indica*) oil, and therein Azadirachtin, (7.3) Pyrethrum, an extract made from the dried flower heads of different species of the genus *Tanacetum*, and therein Pyrethrins (the active components of the extract), (7.4) extract of *Cassia nigricans*, (7.5) wood extract of *Quassia amara* (bitterwood), (7.6) Rotenon, an extract from the roots and stems of several tropical and subtropical plant species, especially those belonging to the genera *Lonchocarpus* and *Derris*, (7.7) extract of *Allium sativum* (garlic), (7.8) Quillaja extract, made from the concentrated purified extract of the outer cambium layer of the *Quillaja Saponaria Molina* tree, (7.9) Sabadilla (*Sabadilla*= *Schoenocaulon officinale*) seeds, in particular Veratrin (extracted from the seeds), (7.10) Rynania, an extract made from the ground stems of *Rynania speciosa*, in particular Ryanodine (the active component of the extract), (7.11) extract of *Viscum album* (mistletoe), (7.12) extract of *Tanacetum vulgare* (tansy), (7.13) extract of *Artemisia absinthium* (wormwood), (7.14) extract of *Urtica dioica* (stinging nettle), (7.15) extract of *Symphytum officinale* (common comfrey), (7.16) extract of *Tropaeolum majus* (monks cress), (7.17) leaves and bark of *Quercus* (oak tree) (7.18) Yellow mustard powder,

(7.19) oil of the seeds of *Chenopodium anthelminticum* (wormseed goosefoot), (7.20) dried leaves of *Dryopteris filix-mas* (male fern), (7.21) bark of *Celastrus angulatus* (Chinese bittersweet), (7.22) extract of *Equisetum arvense* (field horsetail), (7.23) Chitin (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (products known as Requiem), (7.25) Saponins of *Chenopodium quinoa* (products known as Heads Up).

4. The composition according to any of claims 1 to 3, whereby the biological control agent is selected from

1) bacteria consisting of (1.24) *Bacillus firmus*, in particular strain I-1582 (products known as Bionem, VOTIVO), (1.47) *Bacillus pumilus*, in particular strain QST2808 (Accession No. NRRL B-30087, products known as Sonata QST 2808[®]), (1.52) *Bacillus subtilis*, in particular strain GB03 (products known as Kodiak[®]), (1.53) *Bacillus subtilis*, in particular strain QST713/AQ713 (Accession No. NRRL B-21661, products known as Serenade QST 713[®], Serenade Soil, Serenade Max), (1.135) *Bacillus subtilis*, in particular strain QST30002/AQ30002 (Accession No. NRRL B-50421, cf. WO 2012/087980), (1.136) *Bacillus subtilis*, in particular strain QST30004/AQ30004 (Accession No. NRRL B-50455, cf. WO 2012/087980),

2) fungi or yeasts consisting of (2.20) *Lagenidium giganteum* (products known as Laginex[®] by AgraQuest, Inc.), (2.52) *Trichoderma asperellum* (products known as BIO-TAM[™]), (2.55) *Trichoderma gamsii* (products known as BIO-TAM[™]) and

7) botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides* (products known as Requiem)

5. The composition according to any of claims 1 to 3, whereby the biological control agent comprises *Metarhizium anisopliae*, preferably strain MET52, *Paecilomyces fumosoroseus* or *Beauveria bassiana*, preferably *Naturalis L*, *Paecilomyces fumosoroseus*, preferably *Paecilomyces fumosoroseus* PreFeRal, *Bacillus thuringiensis*, preferably *Bacillus thuringiensis subsp. aizawai* ABTS-1857 (XenTari), *Paecilomyces lilacinus* preferably *Paecilomyces lilacinus* strain 251 (BioAct), or botanical extracts consisting of (7.24) natural extracts or simulated blend of *Chenopodium ambrosioides*, preferably Requiem..

6. A method for controlling harmful microorganisms or pests, comprising contacting said microorganisms or pests or their habitat with a composition according to any of claims 1 to 5.

7. A method for treating seeds, comprising contacting said seeds with a composition according any of claims 1 to 5.
8. A process for preparing a composition, comprising mixing a synergistically effective mixture according to any of claims 1 to 5 with an extender, a surfactant or a combination thereof.
9. A seed with an effective amount of Compound (I).
10. Use compound (I) for the protection of the propagation material of a plant and the plant grown from such propagation material against harmful microorganisms or animal pests.
13. A seed with an effective amount of a composition according to any of claims 1 to 5.
14. Use of a composition according to any of claims 1 to 5 for the protection of the propagation material of a plant and the plant grown from such propagation material against harmful microorganisms or animal pests.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/064674

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A01N43/40	A01N63/00
		A01P3/00
		A01P7/00
		A01N25/00
ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
A01N		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
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Y	paragraphs [0074], [0091], [0113]; claims 3, 14; table 5; compound 212	1-12
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
28 July 2015		04/08/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Breimaier, Waltraud

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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Y	page 36, line 24; claims 3, 7-10, 14, 15, 17; table 1B -----	1-12
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Y	WO 2013/110591 A1 (BAYER INTELLECTUAL PROPERTY GMBH) 1 August 2013 (2013-08-01) the whole document -----	1-12

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