

(43) International Publication Date
11 May 2017 (11.05.2017)(10) International Publication Number
WO 2017/076740 A1

(51) International Patent Classification:

A01N 43/90 (2006.01) *C07D 417/10* (2006.01)
C07D 413/10 (2006.01) *A01P 3/00* (2006.01)

(21) International Application Number:

PCT/EP2016/075941

(22) International Filing Date:

27 October 2016 (27.10.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

15192923.9 4 November 2015 (04.11.2015) EP

(71) Applicant: BASF SE [DE/DE]; Carl-Bosch-Strasse 38, 67056 Ludwigshafen am Rhein (DE).

(72) Inventors: WIEBE, Christine; Dammstrasse 31, 68169 Mannheim (DE). CRAIG, Ian Robert; Carl-Bosch-Strasse 70, 67063 Ludwigshafen (DE). GRAMMENOS, Wassilios; Alexander-Fleming-Str. 13, 67071 Ludwigshafen (DE). KRETSCHMER, Manuel; 1801 16th St. NW, Apt. 611, 20009 Washington D.C. (US). ESCRIBANO CUESTA, Ana; L8, 5, 68161 Mannheim (DE). TERTERYAN-SEISER, Violeta; Feldbergstrasse 18, 68163 Mannheim (DE). QUINTERO PALOMAR, Maria Angelica; Tullastrasse 19, 68161 Mannheim (DE). FEHR, Marcus; Hermann-Langlotz-Str. 22, 67346 Speyer (DE). MENTZEL, Tobias; Gartenstrasse 4, 67354 Roemerberg (DE). LOHMANN, Jan Klaas; Muehltorstr 2a, 67245 Lambsheim (DE). GROTE, Thomas; Im Hoehnhausen 18, 67157 Wachenheim (DE). WINTER,

Christian; Eschenbachstr. 42, 67063 Ludwigshafen (DE). MUELLER, Bernd; Stockinger Str. 7, 67227 Frankenthal (DE). CAMBEIS, Erica; Breslauer Strasse 19, 67258 Hessheim (DE).

(74) Agent: BASF IP ASSOCIATION; BASF SE, ZRX - C6, 67056 Ludwigshafen (DE).

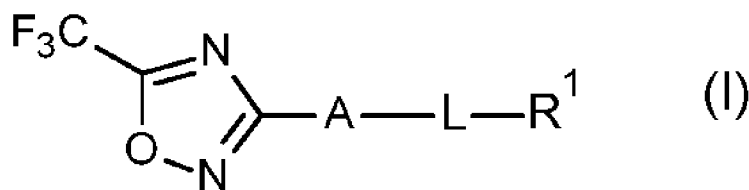
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: SUBSTITUTED OXADIAZOLES FOR COMBATING PHYTOPATHOGENIC FUNGI



(57) Abstract: The present invention relates the use of compounds of the formula (I) or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein the variables are defined as given in the description and claims. Further the present invention relates to novel compounds, mixtures comprising at least one such compound of the formula (I) and at least one further pesticidally active substance selected from the group consisting of herbicides, safeners, fungicides, insecticides, and plant growth regulators; and to agrochemical compositions comprising at least one such compound of the formula I and to agrochemical compositions further comprising seeds.



WO 2017/076740 A1

Substituted oxadiazoles for combating phytopathogenic fungi

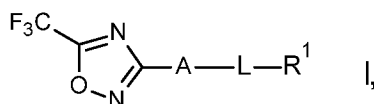
The present invention relates to novel oxadiazoles of the formula I, or an N-oxide, and/or their agriculturally useful salts, and to their use for controlling phytopathogenic fungi, or to a method for combating phytopathogenic harmful fungi, which process comprises treating the fungi or the materials, plants, the soil or seeds to be protected against fungal attack, with an effective amount of at least one compound of the formula I, or an N-oxide, or an agriculturally acceptable salt thereof; the present invention also relates to mixtures comprising at least one such compound of the formula I and at least one further pesticidally active substance selected from the group consisting of herbicides, safeners, fungicides, insecticides, and plant growth regulators; and to agrochemical compositions comprising at least one such compound of the formula I and to agrochemical compositions further comprising seeds.

EP 276432 A2 relates to 3-phenyl-5-trifluoromethyloxadiazole derivatives and to their use to combat phytopathogenic microorganisms. WO 2013/008162 describes trifluoromethyl-oxadiazole derivatives with HDAC4 inhibitory activity and their medical use, particularly in the treatment of Huntington's disease, muscle atrophy and diabetes/metabolic syndrome. WO 05082898 describes difluoromethyl-oxadiazole derivatives which can be used as an inhibitor for replication of HCV virus. Compounds 3-[3-(1H-tetrazol-5-yl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole, methyl 2-[5-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]tetrazol-1-yl]acetate and 2-[5-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]tetrazol-1-yl]acetic acid and their preparation are described in Chemical Abstracts database (accession no. 2009:804990) and in CN 101468985 A. Compounds 5-(trifluoromethyl)-3-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole and 5-(trifluoromethyl)-3-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole are described as potential antimalarial agents in Journal of Medicinal Chemistry 1972, 15, 11, 1198-1200.

In many cases, in particular at low application rates, the fungicidal activity of known fungicidal compounds is unsatisfactory. Based on this, it was an objective of the present invention to provide compounds having improved activity and/or a broader activity spectrum against phytopathogenic fungi. This objective is achieved by the oxadiazoles of the formula I and/or their agriculturally useful salts for controlling phytopathogenic fungi.

The compounds according to the invention differ from those described in EP 276432 A2 in that the group A is substituted by L-R¹ moiety. The compounds according to the invention differ from those described in WO 2013/008162 in that ring A is thiophene and L is aryl and heteroaryl.

Accordingly, the present invention relates to the use of compounds of the formula I, or the N-oxides, or the agriculturally acceptable salts thereof, for combating phytopathogenic harmful fungi



wherein:

A is phenyl or thiophene; and wherein the cyclic groups A are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

5 R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy;

L is a 5-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein the cyclic groups L are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^L; wherein

R^L is halogen, di-C₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^L; wherein

15 R^L is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, or C₃-C₈-cycloalkyl;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)-(phenyl), C₁-C₄-alkyl-NH-C(=O)-N(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₃-C₆-cycloalkoxy-C₁-C₄-alkyl, phenoxy-C₁-C₄-alkyl, heteroaryloxy-C₁-C₄-alkyl, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N,

O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, (C=O)-(C₁-C₄-alkyl), C(=O)-(C₁-C₄-alkoxy), C₁-C₆-alkylsulfonyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

Agriculturally acceptable salts of the compounds of the formula I encompass especially the salts of those cations or the acid addition salts of those acids whose cations and anions, respectively, have no adverse effect on the fungicidal action of the compounds I. Suitable cations are thus in particular the ions of the alkali metals, preferably sodium and potassium, of the alkaline earth metals, preferably calcium, magnesium and barium, of the transition metals, preferably manganese, copper, zinc and iron, and also the ammonium ion which, if desired, may carry one to four C₁-C₄-alkyl substituents and/or one phenyl or benzyl substituent, preferably diisopropylammonium, tetramethylammonium, tetrabutylammonium, trimethylbenzylammonium, furthermore phosphonium ions, sulfonium ions, preferably tri(C₁-C₄-alkyl)sulfonium, and sulfoxonium ions, preferably tri(C₁-C₄-alkyl)sulfoxonium.

Anions of acceptable acid addition salts are primarily chloride, bromide, fluoride, hydrogensulfate, sulfate, dihydrogenphosphate, hydrogenphosphate, phosphate, nitrate, bicarbonate, carbonate, hexafluorosilicate, hexafluorophosphate, benzoate, and the anions of C₁-C₄-alkanoic acids, preferably formate, acetate, propionate and butyrate. They can be formed by reacting a compound I with an acid of the corresponding anion, preferably of hydrochloric acid, hydrobromic acid, sulfuric acid, phosphoric acid or nitric acid.

Compounds of the formula I can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers arising from restricted rotation about a single bond of asymmetric groups and geometric isomers. They also form part of the subject matter of the present invention. One skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. The compounds of the invention may be present as a mixture of stereoisomers, e.g. a racemate, individual stereoisomers, or as an optically active form.

Compounds of the formula I can be present in different crystal modifications whose biological activity may differ. They also form part of the subject matter of the present invention.

In respect of the variables, the embodiments of the intermediates obtained during preparation of compounds I correspond to the embodiments of the compounds of formula I. The term "compounds I" refers to compounds of formula I.

In the definitions of the variables given above, collective terms are used which are generally representative for the substituents in question. The term "C_n-C_m" indicates the number of carbon atoms possible in each case in the substituent or substituent moiety in question.

The moieties having two or more possibilities to be attached apply following:

The moieties having no brackets in the name are bonded via the last moiety e.g. C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl is bonded via C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl is bonded via C₁-C₄-alkyl etc.

- 5 The moieties having brackets in the name are bonded via the first moiety e.g. C(=O)-(C₁-C₆-alkyl) is bonded via C=O, etc.

The term "halogen" refers to fluorine, chlorine, bromine and iodine.

- 10 The term "C₁-C₆-alkyl" refers to a straight-chained or branched saturated hydrocarbon group having 1 to 6 carbon atoms, for example methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, and 1,1-dimethylethyl.

- The term "C₁-C₆-haloalkyl" refers to a straight-chained or branched alkyl group having 1 to 6 carbon atoms (as defined above), wherein some or all of the hydrogen atoms in these groups may be replaced by halogen atoms as mentioned above, for example chloromethyl, bromomethyl, dichloromethyl, trichloromethyl, fluoromethyl, difluoromethyl, trifluoromethyl, chlorofluoromethyl, dichlorofluoromethyl, chlorodifluoromethyl, 1-chloroethyl, 1-bromoethyl, 1-fluoroethyl, 2-fluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, 2-chloro-2-fluoroethyl, 2-chloro-2,2-difluoroethyl, 2,2-dichloro-2-fluoroethyl, 2,2,2-trichloroethyl and pentafluoroethyl, 2-fluoropropyl, 3-fluoropropyl, 2,2-difluoropropyl, 2,3-difluoropropyl, 2-chloropropyl, 3-chloropropyl, 2,3-dichloropropyl, 2-bromopropyl, 3-bromopropyl, 3,3,3-trifluoropropyl, 3,3,3-trichloropropyl, CH₂-C₂F₅, CF₂-C₂F₅, CF(CF₃)₂, 1-(fluoromethyl)-2-fluoroethyl, 1-(chloromethyl)-2-chloroethyl, 1-(bromomethyl)-2-bromoethyl, 4-fluorobutyl, 4-chlorobutyl, 4-bromobutyl or nonafluorobutyl.

- 25 The term "C₁-C₆-alkoxy" refers to a straight-chain or branched alkyl group having 1 to 6 carbon atoms (as defined above) which is bonded via an oxygen, at any position in the alkyl group, for example methoxy, ethoxy, n-propoxy, 1-methylethoxy, butoxy, 1-methylpropoxy, 2-methylpropoxy or 1,1-dimethylethoxy.

- The term "C₁-C₆-haloalkoxy" refers to a C₁-C₆-alkoxy group as defined above, wherein some or all of the hydrogen atoms may be replaced by halogen atoms as mentioned above, for example, OCH₂F, OCHF₂, OCF₃, OCH₂Cl, OCHCl₂, OCCl₃, chlorofluoromethoxy, dichlorofluoromethoxy, chlorodifluoromethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2-bromoethoxy, 2-iodoethoxy, 2,2-difluoroethoxy, 2,2,2-trifluoroethoxy, 2-chloro-2-fluoroethoxy, 2-chloro-2,2-difluoroethoxy, 2,2-dichloro-2-fluoroethoxy, 2,2,2-trichloroethoxy, OC₂F₅, 2-fluoropropoxy, 3-fluoropropoxy, 2,2-difluoropropoxy, 2,3-difluoropropoxy, 2-chloropropoxy, 3-chloropropoxy, 2,3-dichloropropoxy, 2-bromopropoxy, 3-bromopropoxy, 3,3,3-trifluoropropoxy, 3,3,3-trichloropropoxy, OCH₂-C₂F₅, OCF₂-C₂F₅, 1-(CH₂F)-2-fluoroethoxy, 1-(CH₂Cl)-2-chloroethoxy, 1-(CH₂Br)-2-bromoethoxy, 4-fluorobutoxy, 4-chlorobutoxy, 4-bromobutoxy or nonafluorobutoxy.

The terms "phenyl-C₁-C₄-alkyl or heteroaryl-C₁-C₄-alkyl" refer to alkyl having 1 to 4 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a phenyl or heteroaryl radical respectively.

- 40 The term "C₁-C₄-alkoxy-C₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a C₁-C₄-alkoxy group (as

defined above). Likewise, the term "C₁-C₄-alkylthio-C₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a C₁-C₄-alkylthio group.

The term "C₁-C₆-alkylthio" as used herein refers to straight-chain or branched alkyl groups having 1 to 6 carbon atoms (as defined above) bonded via a sulfur atom. Accordingly, the term "C₁-C₆-haloalkylthio" as used herein refers to straight-chain or branched haloalkyl group having 1 to 6 carbon atoms (as defined above) bonded through a sulfur atom, at any position in the haloalkyl group.

The term "C₁-C₆-alkylsulfinyl" refers to straight-chain or branched alkyl groups having 1 to 6 carbon atoms (as defined above) bonded through a -S(=O)- moiety, at any position in the alkyl group, for example methylsulfinyl and ethylsulfinyl, and the like. Accordingly, the term "C₁-C₆-haloalkylsulfinyl" refers to straight-chain or branched haloalkyl group having 1 to 6 carbon atoms (as defined above), bonded through a -S(=O)- moiety, at any position in the haloalkyl group.

The term "C₁-C₆-alkylsulfonyl" refers to straight-chain or branched alkyl groups having 1 to 6 carbon atoms (as defined above), bonded through a -S(=O)₂- moiety, at any position in the alkyl group, for example methylsulfonyl. Accordingly, the term "C₁-C₆-haloalkylsulfonyl" refers to straight-chain or branched haloalkyl group having 1 to 6 carbon atoms (as defined above), bonded through a -S(=O)₂- moiety, at any position in the haloalkyl group.

The term "hydroxyC₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms, wherein one hydrogen atom of the alkyl radical is replaced by a OH group.

The term "aminoC₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms, wherein one hydrogen atom of the alkyl radical is replaced by a NH₂ group.

The term "C₁-C₄-alkylamino-C₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a C₁-C₄-alkyl-NH-group which is bound through the nitrogen. Likewise the term "diC₁-C₄-alkylamino-C₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a (C₁-C₄-alkyl)₂N- group which is bound through the nitrogen.

The term "aminocarbonyl-C₁-C₄-alkyl" refers to alkyl having 1 to 4 carbon atoms, wherein one hydrogen atom of the alkyl radical is replaced by a -(C=O)-NH₂ group.

The term "C₂-C₆-alkenyl" refers to a straight-chain or branched unsaturated hydrocarbon radical having 2 to 6 carbon atoms and a double bond in any position, such as ethenyl, 1-propenyl, 2-propenyl (allyl), 1-methylethenyl, 1-butenyl, 2-butenyl, 3-butenyl, 1-methyl-1-propenyl, 2-methyl-1-propenyl, 1-methyl-2-propenyl, 2-methyl-2-propenyl.

The term "C₂-C₆-alkynyl" refers to a straight-chain or branched unsaturated hydrocarbon radical having 2 to 6 carbon atoms and containing at least one triple bond, such as ethynyl, 1-propynyl, 2-propynyl (propargyl), 1-butyne, 2-butyne, 3-butyne, 1-methyl-2-propynyl.

The term "C₃-C₈-cycloalkyl" refers to monocyclic saturated hydrocarbon radicals having 3 to 8 carbon ring members such as cyclopropyl (C₃H₅), cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl.

The term "C₃-C₈-cycloalkyloxy" refers to a cycloalkyl radical having 3 to 8 carbon atoms (as defined above), which is bonded via an oxygen.

The term "C(=O)-C₁-C₄-alkyl" refers to a radical which is attached through the carbon atom of the C(=O) group as indicated by the number valence of the carbon atom.

- 5 The term "aliphatic" refers to compounds or radicals composed of carbon and hydrogen and which are non-aromatic compounds. An alicyclic compound or radical is an organic compound that is both aliphatic and cyclic. They contain one or more all-carbon rings which may be either saturated or unsaturated, but do not have aromatic character.

10 The terms "cyclic moiety" or "cyclic group" refer to a radical which is an alicyclic ring or an aromatic ring, such as, for example, phenyl or heteroaryl.

The term "and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3, 4 or up to the maximum possible number of identical or different groups R^{1a}" refers to aliphatic groups, cyclic groups and groups, which contain an aliphatic and a cyclic moiety in one group, such as in, for example, phenyl-C₁-C₄-alkyl; therefore a group which contains an aliphatic and a cyclic moiety both of these moieties may be substituted or unsubstituted independently of each other.

The term "heteroaryl" refers to aromatic monocyclic or polycyclic ring systems including besides carbon atoms, 1, 2, 3 or 4 heteroatoms independently selected from the group consisting of N, O and S.

- 20 The term "phenyl" refers to an aromatic ring systems including six carbon atoms (commonly referred to as benzene ring). In association with the group A the term "phenyl" is to be interpreted as a benzene ring or phenylene ring, which is attached to both, the oxadiazole moiety and the group L.

25 The term "saturated or partially unsaturated 3-, 4-, 5-, 6- or 7-membered carbocycle" is to be understood as meaning both saturated or partially unsaturated carbocycles having 3, 4, 5, 6 or 7 ring members. Examples include cyclopropyl, cyclopentyl, cyclopentenyl, cyclopentadienyl, cyclohexyl, cyclohexenyl, cyclohexadienyl, cycloheptyl, cycloheptenyl, cycloheptadienyl, and the like.

30 The term "3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms", is to be understood as meaning both, aromatic mono- and bicyclic heteroaromatic ring systems, and also saturated and partially unsaturated heterocycles, for example:

- 35 a 3- or 4-membered saturated heterocycle which contains 1 or 2 heteroatoms from the group consisting of N, O and S as ring members such as oxirane, aziridine, thiirane, oxetane, azetidine, thiethane, [1,2]dioxetane, [1,2]dithietane, [1,2]diazetidene;
and a 5- or 6-membered saturated or partially unsaturated heterocycle which contains 1, 2 or 3 heteroatoms from the group consisting of N, O and S as ring members such as 2-tetrahydro-
40 furanyl, 3-tetrahydrofuranyl, 2-tetrahydrothienyl, 3-tetrahydrothienyl, 2-pyrrolidinyl, 3-pyrrolidinyl, 3-isoxazolidinyl, 4-isoxazolidinyl, 5-isoxazolidinyl, 3-isothiazolidinyl, 4-isothiazolidinyl,

5-isothiazolidinyl, 3-pyrazolidinyl, 4-pyrazolidinyl, 5-pyrazolidinyl, 2-oxazolidinyl, 4-oxazolidinyl, 5-oxazolidinyl, 2-thiazolidinyl, 4-thiazolidinyl, 5-thiazolidinyl, 2-imidazolidinyl, 4-imidazolidinyl, 1,2,4-oxadiazolidin-3-yl, 1,2,4-oxadiazolidin-5-yl, 1,2,4-thiadiazolidin-3-yl, 1,2,4-thiadiazolidin-5-yl, 1,2,4-triazolidin-3-yl, 1,3,4-oxadiazolidin-2-yl, 1,3,4-thiadiazolidin-2-yl, 1,3,4-triazolidin-2-yl, 2,3-dihydrofur-2-yl, 2,3-dihydrofur-3-yl, 2,4-dihydrofur-2-yl, 2,4-dihydrofur-3-yl, 2,3-dihydrothien-2-yl, 2,3-dihydrothien-3-yl, 2,4-dihydrothien-2-yl, 2,4-dihydrothien-3-yl, 2-pyrrolin-2-yl, 2-pyrrolin-3-yl, 3-pyrrolin-2-yl, 3-pyrrolin-3-yl, 2-isoxazolin-3-yl, 3-isoxazolin-3-yl, 4-isoxazolin-3-yl, 2-isoxazolin-4-yl, 3-isoxazolin-4-yl, 4-isoxazolin-4-yl, 2-isoxazolin-5-yl, 3-isoxazolin-5-yl, 4-isoxazolin-5-yl, 2-isothiazolin-3-yl, 3-isothiazolin-3-yl, 4-isothiazolin-3-yl, 2-isothiazolin-4-yl, 3-isothiazolin-4-yl, 4-isothiazolin-4-yl, 2-isothiazolin-5-yl, 3-isothiazolin-5-yl, 4-isothiazolin-5-yl, 2,3-dihydropyrazol-1-yl, 2,3-dihydropyrazol-2-yl, 2,3-dihydropyrazol-3-yl, 2,3-dihydropyrazol-4-yl, 2,3-dihydropyrazol-5-yl, 3,4-dihydropyrazol-1-yl, 3,4-dihydropyrazol-3-yl, 3,4-dihydropyrazol-4-yl, 3,4-dihydropyrazol-5-yl, 4,5-dihydropyrazol-1-yl, 4,5-dihydropyrazol-3-yl, 4,5-dihydropyrazol-4-yl, 4,5-dihydropyrazol-5-yl, 2,3-dihydrooxazol-2-yl, 2,3-dihydrooxazol-3-yl, 2,3-dihydrooxazol-4-yl, 2,3-dihydrooxazol-5-yl, 3,4-dihydrooxazol-2-yl, 3,4-dihydrooxazol-3-yl, 3,4-dihydrooxazol-4-yl, 3,4-dihydrooxazol-5-yl, 3,4-dihydrooxazol-2-yl, 3,4-dihydrooxazol-3-yl, 3,4-dihydrooxazol-4-yl, 2-piperidinyl, 3-piperidinyl, 4-piperidinyl, 1,3-dioxan-5-yl, 2-tetrahydropyranyl, 4-tetrahydropyranyl, 2-tetrahydrothienyl, 3-hexahydropyridazinyl, 4-hexahydropyridazinyl, 2-hexahydropyrimidinyl, 4-hexahydropyrimidinyl, 5-hexahydropyrimidinyl, 2-piperazinyl, 1,3,5-hexahydrotriazin-2-yl and 1,2,4-hexahydrotriazin-3-yl and also the corresponding -ylidene radicals; and

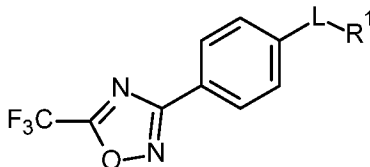
a 7-membered saturated or partially unsaturated heterocycle such as tetra- and hexahydroazepinyl, such as 2,3,4,5-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, 3,4,5,6-tetrahydro[2H]azepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,4,7-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,6,7-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, hexahydroazepin-1-, -2-, -3- or -4-yl, tetra- and hexahydrooxepinyl such as 2,3,4,5-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,4,7-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,6,7-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, hexahydroazepin-1-, -2-, -3- or -4-yl, tetra- and hexahydro-1,3-diazepinyl, tetra- and hexahydro-1,4-diazepinyl, tetra- and hexahydro-1,3-oxazepinyl, tetra- and hexahydro-1,4-oxazepinyl, tetra- and hexahydro-1,3-dioxepinyl, tetra- and hexahydro-1,4-dioxepinyl and the corresponding -ylidene radicals; and

the term "5- or 6-membered heteroaryl" or the term "5- or 6-membered aromatic heterocycle" refer to aromatic ring systems including besides carbon atoms, 1, 2, 3 or 4 heteroatoms independently selected from the group consisting of N, O and S, for example, a 5-membered heteroaryl such as pyrrol-1-yl, pyrrol-2-yl, pyrrol-3-yl, thien-2-yl, thien-3-yl, furan-2-yl, furan-3-yl, pyrazol-1-yl, pyrazol-3-yl, pyrazol-4-yl, pyrazol-5-yl, imidazol-1-yl, imidazol-2-yl, imidazol-4-yl, imidazol-5-yl, oxazol-2-yl, oxazol-4-yl, oxazol-5-yl, isoxazol-3-yl, isoxazol-4-yl, isoxazol-5-yl, thiazol-2-yl, thiazol-4-yl, thiazol-5-yl, isothiazol-3-yl, isothiazol-4-yl, isothiazol-5-yl, 1,2,4-triazolyl-1-yl, 1,2,4-triazol-3-yl, 1,2,4-triazol-5-yl, 1,2,4-oxadiazol-3-yl, 1,2,4-oxadiazol-5-yl and 1,2,4-thiadiazol-3-yl, 1,2,4-thiadiazol-5-yl; or

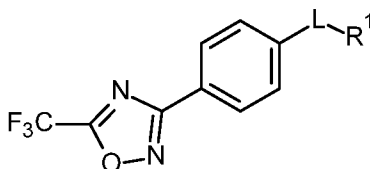
a 6-membered heteroaryl, such as pyridin-2-yl, pyridin-3-yl, pyridin-4-yl, pyridazin-3-yl, pyridazin-4-yl, pyrimidin-2-yl, pyrimidin-4-yl, pyrimidin-5-yl, pyrazin-2-yl and 1,3,5-triazin-2-yl and 1,2,4-triazin-3-yl.

In respect of the variables, the embodiments of the intermediates correspond to the embodiments of the compounds I. Preference is given to those compounds I and, where applicable, also to compounds of all sub-formulae provided herein, wherein all variables have independently of each other or more preferably in combination (any possible combination of 2 or more substituents as defined herein) the following meanings:

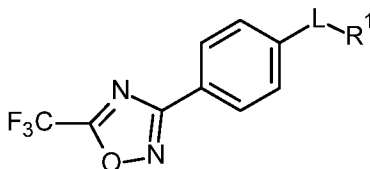
In one aspect of the invention A is phenyl which is unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^A as defined or preferably defined herein and wherein phenyl is attached to the group L and the ring moiety as follows:



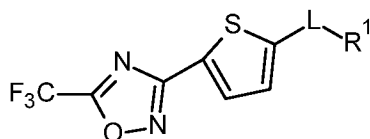
In a further aspect of the invention A is phenyl which is unsubstituted or substituted by 1 or 2 identical or different groups R^A as defined or preferably defined herein and wherein phenyl is attached to the group L and the ring moiety as follows:



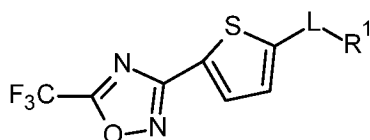
In one aspect of the invention A is phenyl which is unsubstituted and wherein phenyl is attached to the group L and the ring moiety as follows:



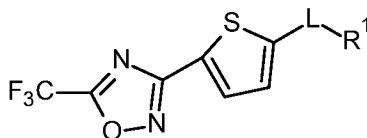
In one aspect of the invention A is thiophene which is unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^A as defined or preferably defined herein and wherein phenyl is attached to the group L and the ring moiety as follows:



In a further aspect of the invention A is thiophene which is unsubstituted or substituted by 1 or 2 identical or different groups R^A as defined or preferably defined herein and wherein thiophene is attached to the group L and the ring moiety as follows:



In one aspect of the invention A is thiophene which is unsubstituted and wherein thiophene is attached to the group L and the ring moiety as follows:



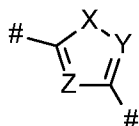
- 5 In a preferred embodiment of the invention R^A is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₃-C₈-cycloalkyl; and wherein any of the aliphatic and cyclic moieties are unsubstituted or substituted by 1, 2, 3, 4 or up to the maximum possible number of identical or different groups R^a as defined or preferably defined herein.

- 10 In another preferred embodiment of the invention R^A is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₃-C₈-cycloalkyl; and wherein any of the the aliphatic and cyclic moieties are unsubstituted or substituted by 1, 2, 3, 4 or up to the maximum possible number of identical or different groups selected from halogen, cyano, C₁-C₆-alkyl, C₁-C₆-alkoxy and C₃-C₈-cycloalkyl; in particular fluorine.

- 15 More preferably R^A is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy; in particular halogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy; more particularly chlorine, fluorine, methyl, methoxy, trifluoromethyl, trifluoromethoxy, difluoromethy or difluoromethoxy. In a more preferable embodiment R^A is chlorine, fluorine or methyl.

- 20 R^a according to the invention is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy. In a preferred embodiment of the invention R^a is halogen, cyano, C₁-C₆-alkyl. More preferably R^a is halogen, in particular fluorine.

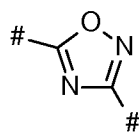
In a further preferred embodiment L is a 5-membered aromatic heterocycle,



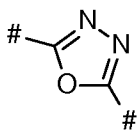
- 25 wherein # shall denote the position to which either group A or group R¹ is attached; and wherein the ring member atoms of the heterocycle include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein the cyclic groups L are unsubstituted or substituted by 1 or 2 identical or different groups R^L as defined or preferably defined herein.

- 30 In a further preferred embodiment L is a 5-membered aromatic heterocycle, wherein the ring member atoms of the heterocycle include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein the cyclic group L is unsubstituted.

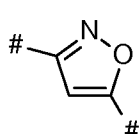
In one embodiment the invention relates to the use of compounds of the formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein the cyclic moiety L is defined as in subformulae (L.1) to (L.5):



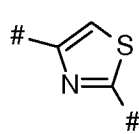
L.1



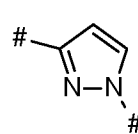
L.2



L.3



L.4



L.5

wherein # shall denote the position to which either group A or group R¹ is attached; and wherein the cyclic moiety L is unsubstituted or substituted by 1 or 2 identical or different groups R^L and wherein R^L is as defined or preferably defined herein.

- 5 In one embodiment the invention relates to the use of compounds of the formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein the cyclic moiety L is defined as in subformulae (L.1) to (L.3).

In a further preferred embodiment L is L.1 which is unsubstituted.

In a further preferred embodiment L is L.2 which is unsubstituted.

- 10 In a further preferred embodiment L is L.3 which is unsubstituted.

In a further preferred embodiment L is L.4 which is unsubstituted.

In a further preferred embodiment L is L.5 which is unsubstituted.

- 15 In a preferred embodiment of the invention R^L is halogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₃-C₈-cycloalkyl; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3, 4 or up to the maximum possible number of identical or different groups R^L as defined or preferably defined herein.

- 20 In another preferred embodiment of the invention R^L is halogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl or C₃-C₈-cycloalkyl; and wherein any of the the aliphatic and cyclic moieties are unsubstituted or substituted by 1, 2, 3, 4 or up to the maximum possible number of identical or different groups selected from halogen, cyano, C₁-C₆-alkyl, C₁-C₆-alkoxy and C₃-C₈-cycloalkyl; in particular fluorine.

- 25 More preferably R^L is halogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy; in particular halogen, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy or C₁-C₆-haloalkoxy; more particularly chlorine, fluorine, methyl, methoxy, trifluoromethyl, trifluoromethoxy, difluoromethyl or difluoromethoxy. In a more preferable embodiment R^L is chlorine, fluorine or methyl.

R^L according to the invention is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, or C₃-C₈-cycloalkyl. In a preferred embodiment of the invention R^L is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-alkoxy or C₃-C₈-cycloalkyl. More preferably R^L is halogen, in particular fluorine.

- 30 According to one embodiment R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-
- 35

C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, C₃-C₆-cycloalkoxy-C₁-C₄-alkyl or a 3- to 5-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic

5 heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a} as defined or preferably defined herein.

10 According to another embodiment R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂ or C₃-C₆-cycloalkyl-C₁-C₄-alkyl; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a} as defined or preferably defined herein.

According to a further embodiment R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₆-cycloalkyl-C₁-C₄-alkyl; and wherein
20 any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a} as defined or preferably defined herein.

According to one embodiment R¹ is H. According to one embodiment R¹ is C₁-C₆-alkyl, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

25 According to a further embodiment R¹ is C₁-C₆-alkoxy-C₁-C₆-alkyl; preferably with methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy substituted methyl, ethyl, n-propyl, in particular substituted methyl. According to a further embodiment R¹ is C₁-C₆-alkoxy; preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy. According to a further embodiment R¹ is C₂-C₆-alkenyl, preferably ethylene, allyl. According to a further embodiment R¹ is C₂-C₆-alkynyl, preferred ethynyl, 1-propynyl, propargyl. According to a further embodiment R¹ is C₃-C₈-cycloalkyl, preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl, cyclopentyl or cyclohexyl.

According to one embodiment R¹ is C₁-C₆-alkyl substituted by halogen, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. In a special embodiment
35 of the invention, R¹ CF₃.

According to one embodiment R¹ is C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl). According to one embodiment R¹ is C(=O)-(C₁-C₆-alkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹ is C(=O)-(C₃-C₆-cycloalkyl), wherein cycloalkyl is
40 preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to a further embodiment R¹ is C(=O)-(phenyl). According to a further embodiment R¹ is C(=O)-(heteroaryl), wherein heteroaryl is wherein heteroaryl is furan, thiophen, pyrazol, isoxazol,

imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy.

According to one embodiment R¹ is C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹ is C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹ is C₁-C₄-alkyl-NH-C(=O)(phenyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-NH-C(=O)-N(heteroaryl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to one embodiment R¹ is C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl.

According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(phenyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(heteroaryl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-

C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to one embodiment R¹ is C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹ is C₃-C₆-cycloalkyl-C₁-C₄-alkyl, wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl.

According to one embodiment R¹ is phenyl-C₁-C₄-alkyl, wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹ is heteroaryl-C₁-C₄-alkyl, wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹ is C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl and wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy. According to one embodiment R¹ is phenyl-C₁-C₄-alkoxy, wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy. According to one embodiment R¹ is heteroaryl-C₁-C₄-alkoxy, wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin and wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy. According to one embodiment R¹ is C₁-C₆-alkoxy-C₁-C₄-alkyl, wherein C₁-C₆-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy and wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is C₃-C₆-cycloalkoxy-C₁-C₄-alkyl, and wherein alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹ is phenoxy-C₁-C₄-alkyl, alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹ is heteroaryloxy-C₁-C₄-alkyl, alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹ is phenyl. According to a further embodiment R¹ is benzyl. According to a further embodiment R¹ is naphthyl. According to one embodiment R¹ 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms especially, furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of methyl, ethyl, propyl, butyl, preferably methyl. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of partially or fully halogenated methyl, ethyl, propyl, butyl, preferably partially or fully halogenated methyl, in particular CF₃. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of methoxy, ethoxy, propoxy, butoxy, preferably methoxy. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of partially or fully halogenated methoxy, in particular OCF₃. In a special embodiment of the invention, R¹ is phenyl. In a further special embodiment of the invention, R¹ is phenyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is benzyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment R¹ is naphthyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is thiophene substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is pyrol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is pyrazol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is pyrimidin substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is oxydiazol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃.

According to one embodiment R¹ is -CH₂-R¹¹, -CH(CH₃)-R¹¹ or -C(CH₃)₂-R¹¹ wherein

R¹¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C(=O)-(C₁-C₆-alkyl), C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, NH-C(=O)(C₁-C₆-alkyl), NH-C(=O)(C₃-C₆-cycloalkyl), NH-C(=O)(phenyl), NH-C(=O)-N(heteroaryl), C(=O)-NH(C₁-C₆-alkyl), C(=O)-N(C₁-C₆-alkyl)₂, C(=O)-NH(C₃-C₆-cycloalkyl), C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C(=O)-NH(phenyl), C(=O)-N(C₁-C₆-alkyl)(phenyl), C(=O)-NH(heteroaryl), C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C(=O)-NH(C₁-C₄-

alkyl-C₃-C₆-cycloalkyl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C(=O)-NH(C₁-C₄-alkyl-phenyl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, C₃-C₆-cycloalkoxy, phenoxy, heteroaryloxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{11a};

R^{11a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

According to one embodiment R¹¹ is H. According to one embodiment R¹¹ is C₁-C₆-alkyl, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹¹ is C₁-C₆-alkoxy-C₁-C₆-alkyl; preferably with methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy substituted methyl, ethyl, n-propyl, in particular substituted methyl. According to a further embodiment R¹¹ is C₃-C₈-cycloalkyl, preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl, cyclopentyl or cyclohexyl.

According to one embodiment R¹¹ is NH-C(=O)(C₁-C₆-alkyl), wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹¹ is NH-C(=O)(C₃-C₆-cycloalkyl), wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to a further embodiment R¹¹ is NH-C(=O)(phenyl). According to a further embodiment R¹¹ is NH-C(=O)-N(heteroaryl), wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹¹ is C(=O)-NH(C₁-C₆-alkyl), wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)₂, wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹¹ is C(=O)-NH(C₃-C₆-cycloalkyl), wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to a further embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to a further embodiment R¹¹ is C(=O)-NH(phenyl). According to a further embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(phenyl), wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl,

n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to a further embodiment R¹¹ is C(=O)-NH(heteroaryl), wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to a further embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(heteroaryl), wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin and wherein C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl.

According to one embodiment R¹¹ is C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), wherein C₁-C₄-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), wherein C₁-C₄-alkyl and C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹¹ is C(=O)-NH(C₁-C₄-alkyl-phenyl), wherein C₁-C₄-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), wherein C₁-C₄-alkyl and C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹¹ is C(=O)-NH(C₁-C₄-alkyl-heteroaryl), wherein C₁-C₄-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin. According to one embodiment R¹¹ is C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), wherein C₁-C₄-alkyl and C₁-C₆-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹¹ is phenyl-C₁-C₄-alkyl, wherein C₁-C₄-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl. According to one embodiment R¹¹ is heteroaryl-C₁-C₄-alkyl, wherein C₁-C₄-alkyl is preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl, in particular methyl, ethyl and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹¹ is C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy, in particular methoxy, ethoxy and wherein C₃-C₆-cycloalkyl is preferably cyclopropyl, cyclobutyl, cyclopentyl, in particular cyclopropyl or cyclobutyl. According to one embodiment R¹¹ is phenyl-C₁-C₄-alkoxy wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy, in particular methoxy, ethoxy. According to one embodiment R¹¹ is heteroaryl-C₁-C₄-alkoxy, wherein C₁-C₄-alkoxy is preferably methoxy, ethoxy, n-propoxy, i-propoxy, n-butoxy, i-butoxy, t-butoxy, in particular methoxy, ethoxy and wherein heteroaryl is furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to one embodiment R¹¹ is phenyl. According to a further embodiment R¹¹ is benzyl.

According to a further embodiment R¹¹ is naphthyl. According to one embodiment R¹¹ 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2

carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms especially, furan, thiophen, pyrazol, isoxazol, imidazole, oxazol, thiazol, triazol, oxydiazol, pyrol, pyriminin.

According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of methyl, ethyl, propyl, butyl, preferably methyl. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of partially or fully halogenated methyl, ethyl, propyl, butyl, preferably partially or fully halogenated methyl, in particular CF₃. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of methoxy, ethoxy, propoxy, butoxy, preferably methoxy. According to a further embodiment the above mentioned groups may carry one, two, three or four identical or different substituents selected from the group consisting of partially or fully halogenated methoxy, ethoxy, propoxy, butoxy, preferably partially or fully halogenated methoxy, in particular OCF₃. In a special embodiment of the invention, R¹¹ is phenyl. In a further special embodiment of the invention, R¹¹ is phenyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹¹ is benzyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment R¹¹ is naphthyl substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹¹ is thiophene substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹ is pyrol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹¹ is pyrazol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹¹ is pyrimidin substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃. In a further special embodiment of the invention, R¹¹ is oxydiazol substituted by Cl, F, Br, I, CH₃, OCH₃, CF₃ or OCF₃.

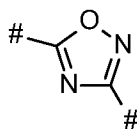
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy,;

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

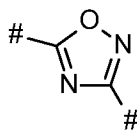
R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

5 R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)-(phenyl), C₁-C₄-alkyl-NH-C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

15 R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

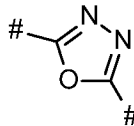
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are

unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

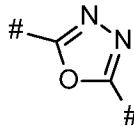
R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-

C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-

C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

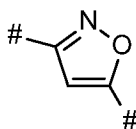
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy,

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O)

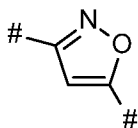
and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is phenyl, which is unsubstituted

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected

ted from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

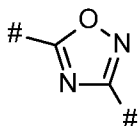
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy,

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)-(phenyl), C₁-C₄-alkyl-NH-C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-

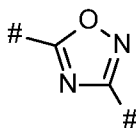
N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-

N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

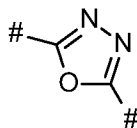
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy,

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-

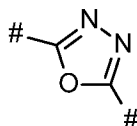
alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-

alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

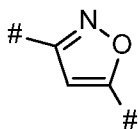
In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted or substituted by 1 or 2 identical or different groups R^A; wherein

R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy;

L is



wherein # shall denote the position to which either group A or group R¹ is attached;

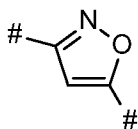
R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)-(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)-(phenyl), C₁-C₄-alkyl-NH-C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

In a further embodiment the invention relates to the use of compounds of formula I, or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi, wherein:

A is thiophene, which is unsubstituted

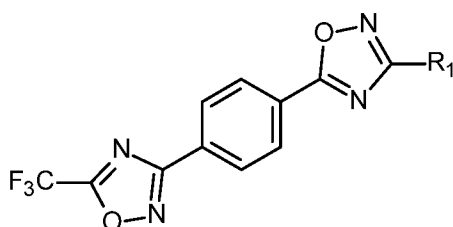
L is



wherein # shall denote the position to which either group A or group R¹ is attached;

- R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkynyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};
- R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂.

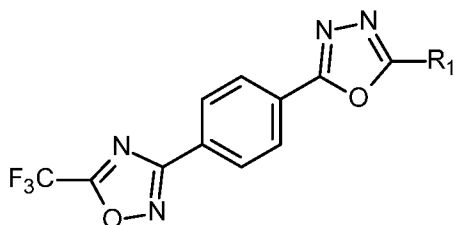
According to one embodiment, the present invention relates to compounds of the formula I.A



I.A

or to the use of the compounds of the formula I.A for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

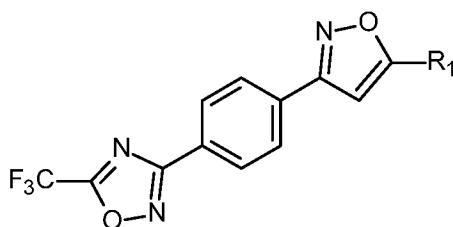
- 5 According to one embodiment, the present invention relates to compounds of the formula I.B



I.B

or to the use of the compounds of the formula I.B for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

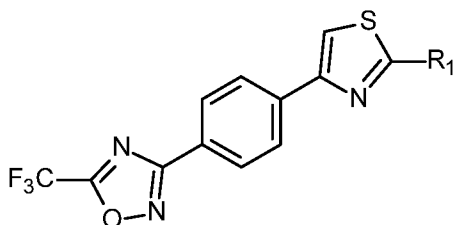
- 10 According to one embodiment, the present invention relates to compounds of the formula I.C



I.C

or to the use of the compounds of the formula I.C for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

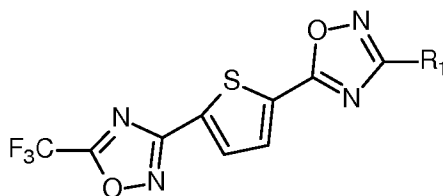
- 15 According to one embodiment, the present invention relates to compounds of the formula I.D



I.D

or to the use of the compounds of the formula I.D for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

According to one embodiment, the present invention relates to compounds of the formula I.E

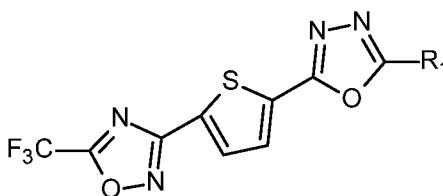


5

I.E

or to the use of the compounds of the formula I.E for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

According to one embodiment, the present invention relates to compounds of the formula I.F

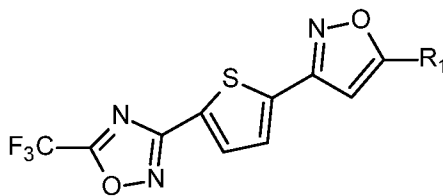


10

I.F

or to the use of the compounds of the formula I.F for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

According to one embodiment, the present invention relates to compounds of the formula I.G

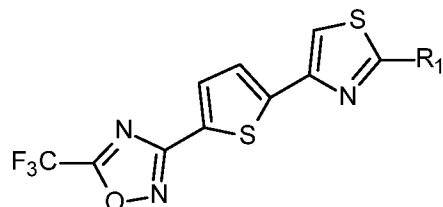


15

I.G

or to the use of the compounds of the formula I.G for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

According to one embodiment, the present invention relates to compounds of the formula I.H



20

I.H

or to the use of the compounds of the formula I.H for controlling phytopathogenic fungi. Here, the variables are as defined elsewhere herein for formula I, or as defined as being preferred for formula I.

Preference is given to the compounds I used according to the invention and to the compounds according to the invention compiled in Tables 1a to 784 below. With regard to the compounds according to the invention the exception as defined above will be considered. The groups mentioned for a substituent in the tables are furthermore per se, independently of the combination in which they are mentioned, a particularly preferred aspect of the substituent in question.

Table 1

- 10 Compounds of the formula I.A, in which R¹ for a compound corresponds in each case to one row of Table A (I.A.I-1 to I.A.I-125)

Table 2

Compounds of the formula I.B, in which R¹ for a compound corresponds in each case to one row of Table A (I.B.I-1 to I.B.I-125)

- 15 Table 3

Compounds of the formula I.C, in which R¹ for a compound corresponds in each case to one row of Table A (I.C.I-1 to I.C.I-125)

Table 4

- 20 Compounds of the formula I.D, in which R¹ for a compound corresponds in each case to one row of Table A (I.D.I-1 to I.D.I-125)

Table 5

Compounds of the formula I.E, in which R¹ for a compound corresponds in each case to one row of Table A (I.E.I-1 to I.E.I-125)

Table 6

- 25 Compounds of the formula I.F, in which R¹ for a compound corresponds in each case to one row of Table A (I.F.I-1 to I.F.I-125)

Table 7

Compounds of the formula I.G, in which R¹ for a compound corresponds in each case to one row of Table A (I.G.I-1 to I.G.I-125)

- 30 Table 8

Compounds of the formula I.H, in which R¹ for a compound corresponds in each case to one row of Table A (I.I.H-1 to I.H-125)

Table A:

No	R ¹
I-1	H
I-2	CH ₃
I-3	CH ₂ CH ₃
I-4	CH ₂ CH ₂ CH ₃
I-5	CH(CH ₃) ₂
I-6	CH ₂ CH ₂ CH ₂ CH ₃
I-7	CH(CH ₃)CH ₂ CH ₃
I-8	CH ₂ CH(CH ₃)CH ₃
I-9	C(CH ₃) ₃
I-10	cyclopropyl
I-11	CH ₂ C(=O)NH ₂
I-12	CH ₂ C(=O)NH(CH ₃)
I-13	CH ₂ C(=O)NH(CH ₂ CH ₃)
I-14	CH ₂ C(=O)NH(CH ₂ CH ₂ CH ₃)
I-15	CH ₂ C(=O)NH(CH(CH ₃) ₂)
I-16	CH ₂ C(=O)NH(CH ₂ CH ₂ CH ₂ CH ₃)
I-17	CH ₂ C(=O)NH(CH(CH ₃)CH ₂ CH ₃)
I-18	CH ₂ C(=O)NH(CH ₂ CH(CH ₃)CH ₃)
I-19	CH ₂ C(=O)NH(C(CH ₃) ₃)
I-20	CH ₂ C(=O)NH(cyclopropyl)
I-21	CH ₂ C(=O)N(CH ₃) ₂
I-22	CH ₂ C(=O)N(CH ₃)(CH ₂ CH ₃)
I-23	CH ₂ C(=O)N(CH ₃)(CH ₂ CH ₂ CH ₃)
I-24	CH ₂ C(=O)N(CH ₃)(CH(CH ₃) ₂)
I-25	CH ₂ C(=O)N(CH ₃)(CH ₂ CH ₂ CH ₂ CH ₃)
I-26	CH ₂ C(=O)N(CH ₃)(CH(CH ₃)CH ₂ CH ₃)
I-27	CH ₂ C(=O)N(CH ₃)(CH ₂ CH(CH ₃)CH ₃)
I-28	CH ₂ C(=O)N(CH ₃)(C(CH ₃) ₃)

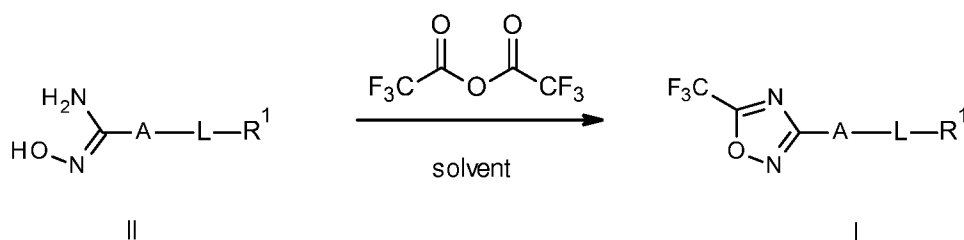
No	R ¹
I-29	CH ₂ C(=O)N(CH ₃)(cyclopropyl)
I-30	CH(CH ₃)C(=O)NH ₂
I-31	CH(CH ₃)C(=O)NH(CH ₃)
I-32	CH(CH ₃)C(=O)NH(CH ₂ CH ₃)
I-33	CH(CH ₃)C(=O)NH(CH ₂ CH ₂ CH ₃)
I-34	CH(CH ₃)C(=O)NH(CH(CH ₃) ₂)
I-35	CH(CH ₃)C(=O)NH(CH ₂ CH ₂ CH ₂ CH ₃)
I-36	CH(CH ₃)C(=O)NH(CH(CH ₃)CH ₂ CH ₃)
I-37	CH(CH ₃)C(=O)NH(CH ₂ CH(CH ₃)CH ₃)
I-38	CH(CH ₃)C(=O)NH(C(CH ₃) ₃)
I-39	CH(CH ₃)C(=O)NH(cyclopropyl)
I-40	CH(CH ₃)C(=O)N(CH ₃) ₂
I-41	CH(CH ₃)C(=O)N(CH ₃)(CH ₂ CH ₃)
I-42	CH(CH ₃)C(=O)N(CH ₃)(CH ₂ CH ₂ CH ₃)
I-43	CH(CH ₃)C(=O)N(CH ₃)(CH(CH ₃) ₂)
I-44	CH(CH ₃)C(=O)N(CH ₃)(CH ₂ CH ₂ CH ₂ CH ₃)
I-45	CH(CH ₃)C(=O)N(CH ₃)(CH(CH ₃)CH ₂ CH ₃)
I-46	CH(CH ₃)C(=O)N(CH ₃)(CH ₂ CH(CH ₃)CH ₃)
I-47	CH(CH ₃)C(=O)N(CH ₃)(C(CH ₃) ₃)
I-48	CH(CH ₃)C(=O)N(CH ₃)(cyclopropyl)
I-49	C(CH ₃) ₂ C(=O)NH ₂
I-50	C(CH ₃) ₂ C(=O)NH(CH ₃)
I-51	C(CH ₃) ₂ C(=O)NH(CH ₂ CH ₃)
I-52	C(CH ₃) ₂ C(=O)NH(CH ₂ CH ₂ CH ₃)
I-53	C(CH ₃) ₂ C(=O)NH(CH(CH ₃) ₂)
I-54	C(CH ₃) ₂ C(=O)NH(CH ₂ CH ₂ CH ₂ CH ₃)
I-55	C(CH ₃) ₂ C(=O)NH(CH(CH ₃)CH ₂ CH ₃)
I-56	C(CH ₃) ₂ C(=O)NH(CH ₂ CH(CH ₃)CH ₃)
I-57	C(CH ₃) ₂ C(=O)NH(C(CH ₃) ₃)
I-58	C(CH ₃) ₂ C(=O)NH(cyclopropyl)

No	R ¹
I-59	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}_3)$
I-60	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}_2\text{CH}_3)$
I-61	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-62	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}(\text{CH}_3)_2)$
I-63	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-64	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-65	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-66	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{C}(\text{CH}_3)_3)$
I-67	$\text{C}(\text{CH}_3)_2\text{C}(=\text{O})\text{N}(\text{CH}_3)(\text{cyclopropyl})$
I-68	$\text{CH}_2\text{NHC}(=\text{O})\text{H}$
I-69	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}_3)$
I-70	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_3)$
I-71	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-72	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)_2)$
I-73	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-74	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-75	$\text{CH}_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-76	$\text{CH}_2\text{NHC}(=\text{O})(\text{C}(\text{CH}_3)_3)$
I-77	$\text{CH}_2\text{NHC}(=\text{O})(\text{cyclopropyl})$
I-78	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}_3)$
I-79	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_3)$
I-80	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-81	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)_2)$
I-82	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-83	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-84	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-85	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{C}(\text{CH}_3)_3)$
I-86	$\text{CH}(\text{CH}_3)\text{NHC}(=\text{O})(\text{cyclopropyl})$
I-87	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})\text{H}$
I-88	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}_3)$

No	R ¹
I-89	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_3)$
I-90	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-91	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)_2)$
I-92	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-93	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-94	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-95	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{C}(\text{CH}_3)_3)$
I-96	$\text{C}(\text{CH}_3)_2\text{NHC}(=\text{O})(\text{cyclopropyl})$
I-97	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})\text{H}$
I-98	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_3)$
I-99	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_3)$
I-100	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-101	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}(\text{CH}_3)_2)$
I-102	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-103	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-104	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-105	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{C}(\text{CH}_3)_3)$
I-106	$\text{CH}_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{cyclopropyl})$
I-107	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_3)$
I-108	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_3)$
I-109	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_3)$
I-110	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}(\text{CH}_3)_2)$
I-111	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3)$
I-112	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3)$
I-113	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3)$
I-114	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{C}(\text{CH}_3)_3)$
I-115	$\text{CH}(\text{CH}_3)\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{cyclopropyl})$
I-116	$\text{C}(\text{CH}_3)_2\text{N}(\text{CH}_3)\text{C}(=\text{O})\text{H}$
I-117	$\text{C}(\text{CH}_3)_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_3)$
I-118	$\text{C}(\text{CH}_3)_2\text{N}(\text{CH}_3)\text{C}(=\text{O})(\text{CH}_2\text{CH}_3)$

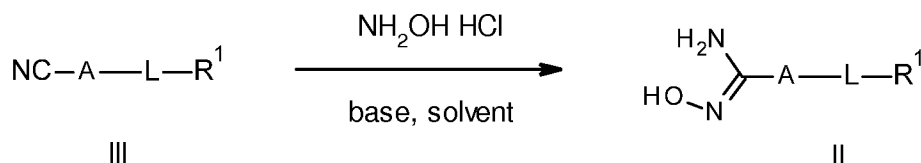
No	R ¹
I-119	C(CH ₃) ₂ N(CH ₃)C(=O)(CH ₂ CH ₂ CH ₃)
I-120	C(CH ₃) ₂ N(CH ₃)C(=O)(CH(CH ₃) ₂)
I-121	C(CH ₃) ₂ N(CH ₃)C(=O)(CH ₂ CH ₂ CH ₂ CH ₃)
I-122	C(CH ₃) ₂ N(CH ₃)C(=O)(CH(CH ₃)CH ₂ CH ₃)
I-123	C(CH ₃) ₂ N(CH ₃)C(=O)(CH ₂ CH(CH ₃)CH ₃)
I-124	C(CH ₃) ₂ N(CH ₃)C(=O)(C(CH ₃) ₃)
I-125	C(CH ₃) ₂ N(CH ₃)C(=O)(cyclopropyl)

The compounds of the formula I can be prepared according to methods or in analogy to methods that are described in the prior art. The synthesis takes advantage of starting materials that are commercially available or may be prepared according to conventional procedures starting from readily available compounds. For example, compounds of the formula I can be prepared by reacting amidines of type II with trifluoroacetic anhydride in an organic solvent, preferably an ethereal solvent at temperatures between 0 °C and 100 °C, preferably at room temperature, as previously described in WO 2013008162.



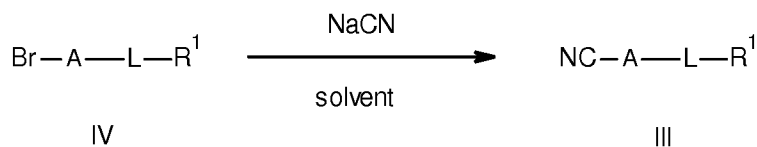
Compounds of type II can be accessed from the respective nitrile by reacting said compounds of type III with hydroxylamine (or its HCl salt) in an organic solvent and in the presence of a base (for precedents see for example WO 2009074950, WO 2006013104, EP 1932843). Preferably, an alcoholic solvent and an inorganic base are used, most preferably ethanol and potassium carbonate. If appropriate water may be added to enhance solubility of the reactants.

The reaction is best performed at elevated temperatures, most preferably in the range between 60 °C and 80 °C.



Compounds of type III

can be accessed from the respective halogen by palladium catalyzed cyanation as described in Organic Letters, 2007, 9, 1711-1714. It is preferred to conduct the reaction at elevated temperature, preferably between 60 and 160 °C.



The compounds of the formula I or compositions comprising said compounds according to the invention and the mixtures comprising said compounds and compositions, respectively, are suitable as fungicides. They are distinguished by an outstanding effectiveness against a broad spectrum of phytopathogenic fungi, including soil-borne fungi, which derive especially from the following classes or are closely related to any of them: *Ascomycota* (*Ascomycetes*), for example, but not limited to the genus *Cochliobolus*, *Colletotrichum*, *Fusarium*, *Microdochium*, *Penicillium*, *Phoma*, *Magnaporthe*, *Zymoseptoria*, and *Pseudocercospora*; *Basidiomycota* (*Basidiomycetes*), for example, but not limited to the genus *Phakospora*, *Puccinia*, *Rhizoctonia*, *Sphacelotheca*, *Tilletia*, *Typhula*, and *Ustilago*; *Chytridiomycota* (*Chytridiomycetes*), for example, but not limited to the genus *Chytridiales*, and *Synchytrium*; *Deuteromycetes* (syn. Fungi imperfecti), for example, but not limited to the genus *Ascochyta*, *Diplodia*, *Erysiphe*, *Fusarium*, *Phomopsis*, and *Pyrenophora*; *Peronosporomycetes* (syn. Oomycetes), for example but not limited to the genus *Peronospora*, *Pythium*, *Phytophthora*; *Plasmodiophoromycetes*, for example but not limited to the genus *Plasmodiophora*; *Zygomycetes*, for example, but not limited to the genus *Rhizopus*.

Some of the compounds of the formula I and the compositions according to the invention are systemically effective and they can be used in crop protection as foliar fungicides, fungicides for seed dressing and soil fungicides. Moreover, they are suitable for controlling harmful fungi, which inter alia occur in wood or roots of plants.

The compounds I and the compositions according to the invention are particularly important in the control of a multitude of phytopathogenic fungi on various cultivated plants, such as cereals, e. g. wheat, rye, barley, triticale, oats or rice; beet, e. g. sugar beet or fodder beet; fruits, such as pomes, stone fruits or soft fruits, e. g. apples, pears, plums, peaches, almonds, cherries, strawberries, raspberries, blackberries or gooseberries; leguminous plants, such as lentils, peas, alfalfa or soybeans; oil plants, such as rape, mustard, olives, sunflowers, coconut, cocoa beans, castor oil plants, oil palms, ground nuts or soybeans; cucurbits, such as squashes, cucumber or melons; fiber plants, such as cotton, flax, hemp or jute; citrus fruit, such as oranges, lemons, grapefruits or mandarins; vegetables, such as spinach, lettuce, asparagus, cabbages, carrots, onions, tomatoes, potatoes, cucurbits or paprika; lauraceous plants, such as avocados, cinnamon or camphor; energy and raw material plants, such as corn, soybean, rape, sugar cane or oil palm; corn; tobacco; nuts; coffee; tea; bananas; vines (table grapes and grape juice grape vines); hop; turf; sweet leaf (also called *Stevia*); natural rubber plants or ornamental and forestry plants, such as flowers, shrubs, broad-leaved trees or evergreens, e. g. conifers; and on the plant propagation material, such as seeds, and the crop material of these plants. Preferably, compounds I and compositions thereof, respectively are used for controlling a multitude of fungi on field crops, such as potatoes sugar beets, tobacco, wheat, rye, barley, oats, rice, corn, cotton, soybeans, rape, legumes, sunflowers, coffee or sugar cane; fruits; vines; ornamentals; or vegetables, such as cucumbers, tomatoes, beans or squashes.

The term "plant propagation material" is to be understood to denote all the generative parts of the plant such as seeds and vegetative plant material such as cuttings and tubers (e. g.

potatoes), which can be used for the multiplication of the plant. This includes seeds, roots, fruits, tubers, bulbs, rhizomes, shoots, sprouts and other parts of plants, including seedlings and young plants, which are to be transplanted after germination or after emergence from soil.

These young plants may also be protected before transplantation by a total or partial treatment by immersion or pouring.

Preferably, treatment of plant propagation materials with compounds I and compositions thereof, respectively, is used for controlling a multitude of fungi on cereals, such as wheat, rye, barley and oats; rice, corn, cotton and soybeans.

The term "cultivated plants" is to be understood as including plants which have been modified by breeding, mutagenesis or genetic engineering including but not limiting to agricultural biotech products on the market or in development (cf. <http://cera-gmc.org/>, see GM crop database therein). Genetically modified plants are plants, which genetic material has been so modified by the use of recombinant DNA techniques that under natural circumstances cannot readily be obtained by cross breeding, mutations or natural recombination. Typically, one or more genes have been integrated into the genetic material of a genetically modified plant in order to improve certain properties of the plant. Such genetic modifications also include but are not limited to targeted post-translational modification of protein(s), oligo- or polypeptides e. g. by glycosylation or polymer additions such as prenylated, acetylated or farnesylated moieties or PEG moieties.

Plants that have been modified by breeding, mutagenesis or genetic engineering, e. g. have been rendered tolerant to applications of specific classes of herbicides, such as auxin herbicides such as dicamba or 2,4-D; bleacher herbicides such as hydroxyphenylpyruvate dioxygenase (HPPD) inhibitors or phytoene desaturase (PDS) inhibitors; acetolactate synthase (ALS) inhibitors such as sulfonyl ureas or imidazolinones; enolpyruvylshikimate-3-phosphate synthase (EPSPS) inhibitors, such as glyphosate; glutamine synthetase (GS) inhibitors such as glufosinate; protoporphyrinogen-IX oxidase inhibitors; lipid biosynthesis inhibitors such as acetyl CoA carboxylase (ACCase) inhibitors; or oxynil (i. e. bromoxynil or ioxynil) herbicides as a result of conventional methods of breeding or genetic engineering. Furthermore, plants have been made resistant to multiple classes of herbicides through multiple genetic modifications, such as resistance to both glyphosate and glufosinate or to both glyphosate and a herbicide from another class such as ALS inhibitors, HPPD inhibitors, auxin herbicides, or ACCase inhibitors.

These herbicide resistance technologies are e. g. described in Pest Managem. Sci. 61, 2005, 246; 61, 2005, 258; 61, 2005, 277; 61, 2005, 269; 61, 2005, 286; 64, 2008, 326; 64, 2008, 332; Weed Sci. 57, 2009, 108; Austral. J. Agricult. Res. 58, 2007, 708; Science 316, 2007, 1185; and references quoted therein. Several cultivated plants have been rendered tolerant to herbicides by conventional methods of breeding (mutagenesis), e. g. Clearfield® summer rape (Canola, BASF SE, Germany) being tolerant to imidazolinones, e. g. imazamox, or ExpressSun® sunflowers (DuPont, USA) being tolerant to sulfonyl ureas, e. g. tribenuron. Genetic engineering methods have been used to render cultivated plants such as soybean, cotton, corn, beets and rape, tolerant to herbicides such as glyphosate and glufosinate, some of which are commercially available under the trade names RoundupReady® (glyphosate-tolerant, Monsanto, U.S.A.), Cultivance® (imidazolinone tolerant, BASF SE, Germany) and LibertyLink® (glufosinate-tolerant, Bayer CropScience, Germany).

Furthermore, plants are also covered that are by the use of recombinant DNA techniques capable to synthesize one or more insecticidal proteins, especially those known from the

bacterial genus *Bacillus*, particularly from *Bacillus thuringiensis*, such as δ -endotoxins, e. g. CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) or Cry9c; vegetative insecticidal proteins (VIP), e. g. VIP1, VIP2, VIP3 or VIP3A; insecticidal proteins of bacteria colonizing nematodes, e. g. *Photorhabdus* spp. or *Xenorhabdus* spp.; toxins produced by animals, such as scorpion toxins, arachnid toxins, wasp toxins, or other insect-specific neurotoxins; toxins produced by fungi, such as Streptomyces toxins, plant lectins, such as pea or barley lectins; agglutinins; proteinase inhibitors, such as trypsin inhibitors, serine protease inhibitors, patatin, cystatin or papain inhibitors; ribosome-inactivating proteins (RIP), such as ricin, maize-RIP, abrin, luffin, saporin or bryodin; steroid metabolism enzymes, such as 3-hydroxysteroid oxidase, ecdysteroid-IDP-glycosyl-transferase, cholesterol oxidases, ecdysone inhibitors or HMG-CoA-reductase; ion channel blockers, such as blockers of sodium or calcium channels; juvenile hormone esterase; diuretic hormone receptors (helicokinin receptors); stilbene synthase, bibenzyl synthase, chitinases or glucanases. In the context of the present invention these insecticidal proteins or toxins are to be understood expressly also as pre-toxins, hybrid proteins, truncated or otherwise modified proteins. Hybrid proteins are characterized by a new combination of protein domains, (see, e. g. WO 02/015701). Further examples of such toxins or genetically modified plants capable of synthesizing such toxins are disclosed, e. g., in EP-A 374 753, WO 93/007278, WO 95/34656, EP-A 427 529, EP-A 451 878, WO 03/18810 and WO 03/52073. The methods for producing such genetically modified plants are generally known to the person skilled in the art and are described, e. g. in the publications mentioned above. These insecticidal proteins contained in the genetically modified plants impart to the plants producing these proteins tolerance to harmful pests from all taxonomic groups of arthropods, especially to beetles (Coleoptera), two-winged insects (Diptera), and moths (Lepidoptera) and to nematodes (Nematoda). Genetically modified plants capable to synthesize one or more insecticidal proteins are, e. g., described in the publications mentioned above, and some of which are commercially available such as YieldGard® (corn cultivars producing the Cry1Ab toxin), YieldGard® Plus (corn cultivars producing Cry1Ab and Cry3Bb1 toxins), Starlink® (corn cultivars producing the Cry9c toxin), Herculex® RW (corn cultivars producing Cry34Ab1, Cry35Ab1 and the enzyme phosphinothricin-N-acetyltransferase [PAT]); NuCOTN® 33B (cotton cultivars producing the Cry1Ac toxin), Bollgard® I (cotton cultivars producing the Cry1Ac toxin), Bollgard® II (cotton cultivars producing Cry1Ac and Cry2Ab2 toxins); VIPCOT® (cotton cultivars producing a VIP-toxin); NewLeaf® (potato cultivars producing the Cry3A toxin); Bt-Xtra®, NatureGard®, KnockOut®, BiteGard®, Protecta®, Bt11 (e. g. Agrisure® CB) and Bt176 from Syngenta Seeds SAS, France, (corn cultivars producing the Cry1Ab toxin and PAT enzyme), MIR604 from Syngenta Seeds SAS, France (corn cultivars producing a modified version of the Cry3A toxin, c.f. WO 03/018810), MON 863 from Monsanto Europe S.A., Belgium (corn cultivars producing the Cry3Bb1 toxin), IPC 531 from Monsanto Europe S.A., Belgium (cotton cultivars producing a modified version of the Cry1Ac toxin) and 1507 from Pioneer Overseas Corporation, Belgium (corn cultivars producing the Cry1F toxin and PAT enzyme). Furthermore, plants are also covered that are by the use of recombinant DNA techniques capable to synthesize one or more proteins to increase the resistance or tolerance of those plants to bacterial, viral or fungal pathogens. Examples of such proteins are the so-called "pathogenesis-related proteins" (PR proteins, see, e. g. EP-A 392 225), plant disease resistance genes (e. g. potato cultivars, which express resistance genes acting against *Phytophthora*

infestans derived from the Mexican wild potato *Solanum bulbocastanum*) or T4-lysozym (e. g. potato cultivars capable of synthesizing these proteins with increased resistance against bacteria such as *Erwinia amylovora*). The methods for producing such genetically modified plants are generally known to the person skilled in the art and are described, e. g. in the publications mentioned above.

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

Furthermore, plants are also covered that contain by the use of recombinant DNA techniques a modified amount of substances of content or new substances of content, specifically to improve human or animal nutrition, e. g. oil crops that produce health-promoting long-chain omega-3 fatty acids or unsaturated omega-9 fatty acids (e. g. Nexera® rape, DOW Agro Sciences, Canada).

Furthermore, plants are also covered that contain by the use of recombinant DNA techniques a modified amount of substances of content or new substances of content, specifically to improve raw material production, e. g. potatoes that produce increased amounts of amylopectin (e. g. Amflora® potato, BASF SE, Germany).

The compounds I and compositions thereof, respectively, are particularly suitable for controlling the following plant diseases:

Albugo spp. (white rust) on ornamentals, vegetables (e. g. *A. candida*) and sunflowers (e. g. *A. tragopogonis*); *Alternaria* spp. (*Alternaria* leaf spot) on vegetables, rape (*A. brassicola* or *brassicae*), sugar beets (*A. tenuis*), fruits, rice, soybeans, potatoes (e. g. *A. solani* or *A. alternata*), tomatoes (e. g. *A. solani* or *A. alternata*) and wheat; *Aphanomyces* spp. on sugar beets and vegetables; *Ascochyta* spp. on cereals and vegetables, e. g. *A. tritici* (anthracnose) on wheat and *A. hordei* on barley; *Bipolaris* and *Drechslera* spp. (teleomorph: *Cochliobolus* spp.), e. g. Southern leaf blight (*D. maydis*) or Northern leaf blight (*B. zeicola*) on corn, e. g. spot blotch (*B. sorokiniana*) on cereals and e. g. *B. oryzae* on rice and turfs; *Blumeria* (formerly *Erysiphe*) *graminis* (powdery mildew) on cereals (e. g. on wheat or barley); *Botrytis cinerea* (teleomorph: *Botryotinia fuckeliana*: grey mold) on fruits and berries (e. g. strawberries), vegetables (e. g. lettuce, carrots, celery and cabbages), rape, flowers, vines, forestry plants and wheat; *Bremia lactucae* (downy mildew) on lettuce; *Ceratocystis* (syn. *Ophiostoma*) spp. (rot or wilt) on broad-leaved trees and evergreens, e. g. *C. ulmi* (Dutch elm disease) on elms; *Cercospora* spp. (*Cercospora* leaf spots) on corn (e. g. Gray leaf spot: *C. zeae-maydis*), rice, sugar beets (e. g. *C. beticola*), sugar cane, vegetables, coffee, soybeans (e. g. *C. sojae* or *C. kikuchii*) and rice; *Cladosporium* spp. on tomatoes (e. g. *C. fulvum*: leaf mold) and cereals, e. g. *C. herbarum* (black ear) on wheat; *Claviceps purpurea* (ergot) on cereals; *Cochliobolus* (anamorph: *Helminthosporium* of *Bipolaris*) spp. (leaf spots) on corn (*C. carbonum*), cereals (e. g. *C. sativus*, anamorph: *B. sorokiniana*) and rice (e. g. *C. miyabeanus*, anamorph: *H. oryzae*); *Colletotrichum* (teleomorph: *Glomerella*) spp. (anthracnose) on cotton (e. g. *C. gossypii*), corn (e. g. *C. graminicola*: Anthracnose stalk rot), soft fruits, potatoes (e. g. *C. coccodes*: black dot), beans (e. g. *C. lindemuthianum*) and soybeans (e. g. *C. truncatum* or *C. gloeosporioides*); *Corticium* spp., e. g. *C. sasakii* (sheath blight) on rice; *Corynespora cassiicola*

(leaf spots) on soybeans and ornamentals; *Cycoconium* spp., e. g. *C. oleaginum* on olive trees; *Cylindrocarpon* spp. (e. g. fruit tree canker or young vine decline, teleomorph: *Nectria* or *Neonectria* spp.) on fruit trees, vines (e. g. *C. liriodendri*, teleomorph: *Neonectria liriodendri*. Black Foot Disease) and ornamentals; *Dematophora* (teleomorph: *Rosellinia*) *necatrix* (root and stem rot) on soybeans; *Diaporthe* spp., e. g. *D. phaseolorum* (damping off) on soybeans; *Drechslera* (syn. *Helminthosporium*, teleomorph: *Pyrenophora*) spp. on corn, cereals, such as barley (e. g. *D. teres*, net blotch) and wheat (e. g. *D. tritici-repentis*: tan spot), rice and turf; Esca (dieback, apoplexy) on vines, caused by *Formitiporia* (syn. *Phellinus*) *punctata*, *F. mediterranea*, *Phaeomoniella chlamydospora* (earlier *Phaeoacremonium chlamydosporum*),

10 *Phaeoacremonium aleophilum* and/or *Botryosphaeria obtusa*; *Elsinoe* spp. on pome fruits (*E. pyri*), soft fruits (*E. veneta*: anthracnose) and vines (*E. ampelina*: anthracnose); *Entyloma oryzae* (leaf smut) on rice; *Epicoccum* spp. (black mold) on wheat; *Erysiphe* spp. (powdery mildew) on sugar beets (*E. betae*), vegetables (e. g. *E. pisi*), such as cucurbits (e. g. *E. cichoracearum*), cabbages, rape (e. g. *E. cruciferarum*); *Eutypa lata* (*Eutypa* canker or dieback, anamorph: *Cytosporina lata*, syn. *Libertella blepharis*) on fruit trees, vines and ornamental

15 woods; *Exserohilum* (syn. *Helminthosporium*) spp. on corn (e. g. *E. turcicum*); *Fusarium* (teleomorph: *Gibberella*) spp. (wilt, root or stem rot) on various plants, such as *F. graminearum* or *F. culmorum* (root rot, scab or head blight) on cereals (e. g. wheat or barley), *F. oxysporum* on tomatoes, *F. solani* (f. sp. *glycines* now syn. *F. virguliforme*) and *F. tucumaniae* and *F. brasiliense* each causing sudden death syndrome on soybeans, and *F. verticillioides* on corn; *Gaeumannomyces graminis* (take-all) on cereals (e. g. wheat or barley) and corn; *Gibberella* spp. on cereals (e. g. *G. zeae*) and rice (e. g. *G. fujikuroi*. Bakanae disease); *Glomerella cingulata* on vines, pome fruits and other plants and *G. gossypii* on cotton; Grainstaining complex on rice; *Guignardia bidwellii* (black rot) on vines; *Gymnosporangium* spp. on rosaceous

25 plants and junipers, e. g. *G. sabinae* (rust) on pears; *Helminthosporium* spp. (syn. *Drechslera*, teleomorph: *Cochliobolus*) on corn, cereals and rice; *Hemileia* spp., e. g. *H. vastatrix* (coffee leaf rust) on coffee; *Isariopsis clavispora* (syn. *Cladosporium vitis*) on vines; *Macrophomina phaseolina* (syn. *phaseoli*) (root and stem rot) on soybeans and cotton; *Microdochium* (syn. *Fusarium*) *nivale* (pink snow mold) on cereals (e. g. wheat or barley); *Microsphaera diffusa*

30 (powdery mildew) on soybeans; *Monilinia* spp., e. g. *M. laxa*, *M. fructicola* and *M. fructigena* (bloom and twig blight, brown rot) on stone fruits and other rosaceous plants; *Mycosphaerella* spp. on cereals, bananas, soft fruits and ground nuts, such as e. g. *M. graminicola* (anamorph: *Septoria tritici*, *Septoria* blotch) on wheat or *M. fijiensis* (black Sigatoka disease) on bananas; *Peronospora* spp. (downy mildew) on cabbage (e. g. *P. brassicae*), rape (e. g. *P. parasitica*), onions (e. g. *P. destructor*), tobacco (*P. tabacina*) and soybeans (e. g. *P. manshurica*);

35 *Phakopsora pachyrhizi* and *P. meibomia* (soybean rust) on soybeans; *Phialophora* spp. e. g. on vines (e. g. *P. tracheiphila* and *P. tetraspora*) and soybeans (e. g. *P. gregata*: stem rot); *Phoma lingam* (root and stem rot) on rape and cabbage and *P. betae* (root rot, leaf spot and damping-off) on sugar beets; *Phomopsis* spp. on sunflowers, vines (e. g. *P. viticola*: can and leaf spot) and soybeans (e. g. stem rot: *P. phaseoli*, teleomorph: *Diaporthe phaseolorum*);

40 *Physoderma maydis* (brown spots) on corn; *Phytophthora* spp. (wilt, root, leaf, fruit and stem rot) on various plants, such as paprika and cucurbits (e. g. *P. capsici*), soybeans (e. g. *P. megasperma*, syn. *P. sojae*), potatoes and tomatoes (e. g. *P. infestans*: late blight) and broad-leaved trees (e. g. *P. ramorum*: sudden oak death); *Plasmodiophora brassicae* (club root) on

cabbage, rape, radish and other plants; *Plasmopara* spp., e. g. *P. viticola* (grapevine downy mildew) on vines and *P. halstedii* on sunflowers; *Podosphaera* spp. (powdery mildew) on rosaceous plants, hop, pome and soft fruits, e. g. *P. leucotricha* on apples; *Polymyxa* spp., e. g. on cereals, such as barley and wheat (*P. graminis*) and sugar beets (*P. betae*) and thereby

5 transmitted viral diseases; *Pseudocercospora herpotrichoides* (eyespot, teleomorph: *Tapesia yallundae*) on cereals, e. g. wheat or barley; *Pseudoperonospora* (downy mildew) on various plants, e. g. *P. cubensis* on cucurbits or *P. humili* on hop; *Pseudopezizicola tracheiphila* (red fire disease or 'rotbrenner', anamorph: *Phialophora*) on vines; *Puccinia* spp. (rusts) on various plants, e. g. *P. tritici* (brown or leaf rust), *P. striiformis* (stripe or yellow rust), *P. hordei* (dwarf

10 rust), *P. graminis* (stem or black rust) or *P. recondita* (brown or leaf rust) on cereals, such as e. g. wheat, barley or rye, *P. kuehnii* (orange rust) on sugar cane and *P. asparagi* on asparagus; *Pyrenophora* (anamorph: *Drechslera*) *tritici-repentis* (tan spot) on wheat or *P. teres* (net blotch) on barley; *Pyricularia* spp., e. g. *P. oryzae* (teleomorph: *Magnaporthe grisea*, rice blast) on rice and *P. grisea* on turf and cereals; *Pythium* spp. (damping-off) on turf, rice, corn, wheat, cotton,

15 rape, sunflowers, soybeans, sugar beets, vegetables and various other plants (e. g. *P. ultimum* or *P. aphanidermatum*); *Ramularia* spp., e. g. *R. collo-cygni* (Ramularia leaf spots, Physiological leaf spots) on barley and *R. beticola* on sugar beets; *Rhizoctonia* spp. on cotton, rice, potatoes, turf, corn, rape, potatoes, sugar beets, vegetables and various other plants, e. g. *R. solani* (root and stem rot) on soybeans, *R. solani* (sheath blight) on rice or *R. cerealis* (Rhizoctonia spring

20 blight) on wheat or barley; *Rhizopus stolonifer* (black mold, soft rot) on strawberries, carrots, cabbage, vines and tomatoes; *Rhynchosporium secalis* (scald) on barley, rye and triticale; *Sarocladium oryzae* and *S. attenuatum* (sheath rot) on rice; *Sclerotinia* spp. (stem rot or white mold) on vegetables and field crops, such as rape, sunflowers (e. g. *S. sclerotiorum*) and soybeans (e. g. *S. rolfsii* or *S. sclerotiorum*); *Septoria* spp. on various plants, e. g. *S. glycines*

25 (brown spot) on soybeans, *S. tritici* (Septoria blotch) on wheat and *S.* (syn. *Stagonospora*) *nodorum* (Stagonospora blotch) on cereals; *Uncinula* (syn. *Erysiphe*) *necator* (powdery mildew, anamorph: *Oidium tuckeri*) on vines; *Setosphaeria* spp. (leaf blight) on corn (e. g. *S. turcicum*, syn. *Helminthosporium turcicum*) and turf; *Sphacelotheca* spp. (smut) on corn, (e. g. *S. reiliana*: head smut), sorghum und sugar cane; *Sphaerotheca fuliginea* (powdery mildew) on cucurbits;

30 *Spongospora subterranea* (powdery scab) on potatoes and thereby transmitted viral diseases; *Stagonospora* spp. on cereals, e. g. *S. nodorum* (Stagonospora blotch, teleomorph: *Leptosphaeria* [syn. *Phaeosphaeria*] *nodorum*) on wheat; *Synchytrium endobioticum* on potatoes (potato wart disease); *Taphrina* spp., e. g. *T. deformans* (leaf curl disease) on peaches and *T. pruni* (plum pocket) on plums; *Thielaviopsis* spp. (black root rot) on tobacco, pome fruits,

35 vegetables, soybeans and cotton, e. g. *T. basicola* (syn. *Chalara elegans*); *Tilletia* spp. (common bunt or stinking smut) on cereals, such as e. g. *T. tritici* (syn. *T. caries*, wheat bunt) and *T. controversa* (dwarf bunt) on wheat; *Typhula incarnata* (grey snow mold) on barley or wheat; *Urocystis* spp., e. g. *U. occulta* (stem smut) on rye; *Uromyces* spp. (rust) on vegetables, such as beans (e. g. *U. appendiculatus*, syn. *U. phaseoli*) and sugar beets (e. g. *U. betae*);

40 *Ustilago* spp. (loose smut) on cereals (e. g. *U. nuda* and *U. avenae*), corn (e. g. *U. maydis*: corn smut) and sugar cane; *Venturia* spp. (scab) on apples (e. g. *V. inaequalis*) and pears; and *Verticillium* spp. (wilt) on various plants, such as fruits and ornamentals, vines, soft fruits, vegetables and field crops, e. g. *V. dahliae* on strawberries, rape, potatoes and tomatoes.

In a preferred embodiment the compounds I and compositions thereof, respectively, are particularly suitable for controlling the following plant diseases: *Puccinia* spp. (rusts) on various plants, for example, but not limited to *P. triticina* (brown or leaf rust), *P. striiformis* (stripe or yellow rust), *P. hordei* (dwarf rust), *P. graminis* (stem or black rust) or *P. recondita* (brown or leaf rust) on cereals, such as e. g. wheat, barley or rye and *Phakopsoraceae* spp. on various plants, in particular *Phakopsora pachyrhizi* and *P. meibomiae* (soybean rust) on soybeans.

The compounds I and compositions thereof, respectively, are also suitable for controlling harmful fungi in the protection of stored products or harvest and in the protection of materials.

The term "protection of materials" is to be understood to denote the protection of technical and non-living materials, such as adhesives, glues, wood, paper and paperboard, textiles, leather, paint dispersions, plastics, cooling lubricants, fiber or fabrics, against the infestation and destruction by harmful microorganisms, such as fungi and bacteria. As to the protection of wood and other materials, the particular attention is paid to the following harmful fungi: Ascomycetes such as *Ophiostoma* spp., *Ceratocystis* spp., *Aureobasidium pullulans*, *Sclerophoma* spp., *Chaetomium* spp., *Humicola* spp., *Petriella* spp., *Trichurus* spp.; Basidiomycetes such as *Coniophora* spp., *Coriolus* spp., *Gloeophyllum* spp., *Lentinus* spp., *Pleurotus* spp., *Poria* spp., *Serpula* spp. and *Tyromyces* spp.; Deuteromycetes such as *Aspergillus* spp., *Cladosporium* spp., *Penicillium* spp., *Trichoderma* spp., *Alternaria* spp., *Paecilomyces* spp. and Zygomycetes such as *Mucor* spp., and in addition in the protection of stored products and harvest the following yeast fungi are worthy of note: *Candida* spp. and *Saccharomyces cerevisiae*.

The method of treatment according to the invention can also be used in the field of protecting stored products or harvest against attack of fungi and microorganisms. According to the present invention, the term "stored products" is understood to denote natural substances of plant or animal origin and their processed forms, which have been taken from the natural life cycle and for which long-term protection is desired. Stored products of crop plant origin, such as plants or parts thereof, for example stalks, leaves, tubers, seeds, fruits or grains, can be protected in the freshly harvested state or in processed form, such as pre-dried, moistened, comminuted, ground, pressed or roasted, which process is also known as post-harvest treatment. Also falling under the definition of stored products is timber, whether in the form of crude timber, such as construction timber, electricity pylons and barriers, or in the form of finished articles, such as furniture or objects made from wood. Stored products of animal origin are hides, leather, furs, hairs and the like. The combinations according to the present invention can prevent disadvantageous effects such as decay, discoloration or mold. Preferably "stored products" is understood to denote natural substances of plant origin and their processed forms, more preferably fruits and their processed forms, such as pomes, stone fruits, soft fruits and citrus fruits and their processed forms.

The compounds I and compositions thereof, respectively, may be used for improving the health of a plant. The invention also relates to a method for improving plant health by treating a plant, its propagation material and/or the locus where the plant is growing or is to grow with an effective amount of compounds I and compositions thereof, respectively.

The term "plant health" is to be understood to denote a condition of the plant and/or its products which is determined by several indicators alone or in combination with each other such as yield (e. g. increased biomass and/or increased content of valuable ingredients), plant vigor (e. g. improved plant growth and/or greener leaves ("greening effect")), quality (e. g. improved content

or composition of certain ingredients) and tolerance to abiotic and/or biotic stress. The above identified indicators for the health condition of a plant may be interdependent or may result from each other.

The compounds of formula I can be present in different crystal modifications whose biological activity may differ. They are likewise subject matter of the present invention.

The compounds I are employed as such or in form of compositions by treating the fungi or the plants, plant propagation materials, such as seeds, soil, surfaces, materials or rooms to be protected from fungal attack with a fungicidally effective amount of the active substances. The application can be carried out both before and after the infection of the plants, plant propagation materials, such as seeds, soil, surfaces, materials or rooms by the fungi.

Plant propagation materials may be treated with compounds I as such or a composition comprising at least one compound I prophylactically either at or before planting or transplanting. The invention also relates to agrochemical compositions comprising an auxiliary and at least one compound I according to the invention.

An agrochemical composition comprises a fungicidally effective amount of a compound I. The term "effective amount" denotes an amount of the composition or of the compounds I, which is sufficient for controlling harmful fungi on cultivated plants or in the protection of materials and which does not result in a substantial damage to the treated plants. Such an amount can vary in a broad range and is dependent on various factors, such as the fungal species to be controlled, the treated cultivated plant or material, the climatic conditions and the specific compound I used.

The compounds I, their N-oxides and salts can be converted into customary types of agrochemical compositions, e. g. solutions, emulsions, suspensions, dusts, powders, pastes, granules, pressings, capsules, and mixtures thereof. Examples for composition types are suspensions (e. g. SC, OD, FS), emulsifiable concentrates (e. g. EC), emulsions (e. g. EW, EO, ES, ME), capsules (e. g. CS, ZC), pastes, pastilles, wettable powders or dusts (e. g. WP, SP, WS, DP, DS), pressings (e. g. BR, TB, DT), granules (e. g. WG, SG, GR, FG, GG, MG), insecticidal articles (e. g. LN), as well as gel formulations for the treatment of plant propagation materials such as seeds (e. g. GF). These and further compositions types are defined in the "Catalogue of pesticide formulation types and international coding system", Technical Monograph No. 2, 6th Ed. May 2008, CropLife International.

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

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

Suitable solvents and liquid carriers are water and organic solvents, such as mineral oil fractions of medium to high boiling point, e. g. kerosene, diesel oil; oils of vegetable or animal origin; aliphatic, cyclic and aromatic hydrocarbons, e. g. toluene, paraffin, tetrahydronaphthalene, alkylated naphthalenes; alcohols, e. g. ethanol, propanol, butanol,

benzyl alcohol, cyclohexanol; glycols; DMSO; ketones, e. g. cyclohexanone; esters, e. g. lactates, carbonates, fatty acid esters, gamma-butyrolactone; fatty acids; phosphonates; amines; amides, e. g. N-methyl pyrrolidone, fatty acid dimethyl amides; and mixtures thereof.

Suitable solid carriers or fillers are mineral earths, e. g. silicates, silica gels, talc, kaolins,

5 limestone, lime, chalk, clays, dolomite, diatomaceous earth, bentonite, calcium sulfate, magnesium sulfate, magnesium oxide; polysaccharides, e. g. cellulose, starch; fertilizers, e. g. ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas; products of vegetable origin, e. g. cereal meal, tree bark meal, wood meal, nutshell meal, and mixtures thereof.

Suitable surfactants are surface-active compounds, such as anionic, cationic, nonionic and

10 amphoteric surfactants, block polymers, polyelectrolytes, and mixtures thereof. Such surfactants can be used as emulsifier, dispersant, solubilizer, wetter, penetration enhancer, protective colloid, or adjuvant. Examples of surfactants are listed in McCutcheon's, Vol.1: Emulsifiers & Detergents, McCutcheon's Directories, Glen Rock, USA, 2008 (International Ed. or North American Ed.).

15 Suitable anionic surfactants are alkali, alkaline earth or ammonium salts of sulfonates, sulfates, phosphates, carboxylates, and mixtures thereof. Examples of sulfonates are alkylaryl sulfonates, diphenyl sulfonates, alpha-olefin sulfonates, lignin sulfonates, sulfonates of fatty acids and oils, sulfonates of ethoxylated alkylphenols, sulfonates of alkoxyated arylphenols, sulfonates of condensed naphthalenes, sulfonates of dodecyl- and tridecylbenzenes, sulfonates
20 of naphthalenes and alkyl naphthalenes, sulfosuccinates or sulfosuccinamates. Examples of sulfates are sulfates of fatty acids and oils, of ethoxylated alkylphenols, of alcohols, of ethoxylated alcohols, or of fatty acid esters. Examples of phosphates are phosphate esters. Examples of carboxylates are alkyl carboxylates, and carboxylated alcohol or alkylphenol ethoxylates.

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

30 Examples of N-substituted fatty acid amides are fatty acid glucamides or fatty acid alkanolamides. Examples of esters are fatty acid esters, glycerol esters or monoglycerides. Examples of sugar-based surfactants are sorbitans, ethoxylated sorbitans, sucrose and glucose esters or alkylpolyglucosides. Examples of polymeric surfactants are home- or copolymers of vinyl pyrrolidone, vinyl alcohols, or vinyl acetate.

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

40 Suitable polyelectrolytes are polyacids or polybases. Examples of polyacids are alkali salts of polyacrylic acid or polyacid comb polymers. Examples of polybases are polyvinyl amines or polyethylene amines.

Suitable adjuvants are compounds, which have a negligible or even no pesticidal activity themselves, and which improve the biological performance of the compound I on the target.

Examples are surfactants, mineral or vegetable oils, and other auxiliaries. Further examples are listed by Knowles, Adjuvants and additives, Agrow Reports DS256, T&F Informa UK, 2006, chapter 5.

Suitable thickeners are polysaccharides (e. g. xanthan gum, carboxymethyl cellulose), inorganic clays (organically modified or unmodified), polycarboxylates, and silicates.

Suitable bactericides are bronopol and isothiazolinone derivatives such as alkylisothiazolinones and benzisothiazolinones.

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

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

Suitable colorants (e. g. in red, blue, or green) are pigments of low water solubility and water-soluble dyes. Examples are inorganic colorants (e. g. iron oxide, titan oxide, iron hexacyanoferrate) and organic colorants (e. g. alizarin-, azo- and phthalocyanine colorants).

Suitable tackifiers or binders are polyvinyl pyrrolidones, polyvinyl acetates, polyvinyl alcohols, polyacrylates, biological or synthetic waxes, and cellulose ethers.

Examples for composition types and their preparation are:

i) Water-soluble concentrates (SL, LS)

10-60 wt% of a compound I and 5-15 wt% wetting agent (e. g. alcohol alkoxylates) are dissolved in water and/or in a water-soluble solvent (e. g. alcohols) ad 100 wt%. The active substance dissolves upon dilution with water.

ii) Dispersible concentrates (DC)

5-25 wt% of a compound I and 1-10 wt% dispersant (e. g. polyvinyl pyrrolidone) are dissolved in organic solvent (e. g. cyclohexanone) ad 100 wt%. Dilution with water gives a dispersion.

iii) Emulsifiable concentrates (EC)

15-70 wt% of a compound I and 5-10 wt% emulsifiers (e. g. calcium dodecylbenzenesulfonate and castor oil ethoxylate) are dissolved in water-insoluble organic solvent (e. g. aromatic hydrocarbon) ad 100 wt%. Dilution with water gives an emulsion.

iv) Emulsions (EW, EO, ES)

5-40 wt% of a compound I and 1-10 wt% emulsifiers (e. g. calcium dodecylbenzenesulfonate and castor oil ethoxylate) are dissolved in 20-40 wt% water-insoluble organic solvent (e. g. aromatic hydrocarbon). This mixture is introduced into water ad 100 wt% by means of an emulsifying machine and made into a homogeneous emulsion. Dilution with water gives an emulsion.

v) Suspensions (SC, OD, FS)

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

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

50-80 wt% of a compound I are ground finely with addition of dispersants and wetting agents (e. g. sodium lignosulfonate and alcohol ethoxylate) ad 100 wt% and prepared as water-dispersible or water-soluble granules by means of technical appliances (e. g. extrusion, spray tower, fluidized bed). Dilution with water gives a stable dispersion or solution of the active substance.

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

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

viii) Gel (GW, GF)

In an agitated ball mill, 5-25 wt% of a compound I are comminuted with addition of 3-10 wt% dispersants (e. g. sodium lignosulfonate), 1-5 wt% thickener (e. g. carboxymethyl cellulose) and water ad 100 wt% to give a fine suspension of the active substance. Dilution with water gives a stable suspension of the active substance.

ix) Microemulsion (ME)

5-20 wt% of a compound I are added to 5-30 wt% organic solvent blend (e. g. fatty acid dimethyl amide and cyclohexanone), 10-25 wt% surfactant blend (e. g. alcohol ethoxylate and arylphenol ethoxylate), and water ad 100 %. This mixture is stirred for 1 h to produce spontaneously a thermodynamically stable microemulsion.

x) Microcapsules (CS)

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

xi) Dustable powders (DP, DS)

1-10 wt% of a compound I are ground finely and mixed intimately with solid carrier (e. g. finely divided kaolin) ad 100 wt%.

xii) Granules (GR, FG)

0.5-30 wt% of a compound I is ground finely and associated with solid carrier (e. g. silicate) ad 100 wt%. Granulation is achieved by extrusion, spray-drying or fluidized bed.

xiii) Ultra-low volume liquids (UL)

1-50 wt% of a compound I are dissolved in organic solvent (e. g. aromatic hydrocarbon) ad 100 wt%.

The compositions types i) to xiii) may optionally comprise further auxiliaries, such as 0.1-1 wt% bactericides, 5-15 wt% anti-freezing agents, 0.1-1 wt% anti-foaming agents, and 0.1-1 wt% colorants.

The agrochemical compositions generally comprise between 0.01 and 95%, preferably between 0.1 and 90%, more preferably between 1 and 70%, and in particular between 10 and 60%, by weight of active substance. The active substances are employed in a purity of from 90% to 100%, preferably from 95% to 100% (according to NMR spectrum).

For the purposes of treatment of plant propagation materials, particularly seeds, solutions for

seed treatment (LS), Suspoemulsions (SE), flowable concentrates (FS), powders for dry treatment (DS), water-dispersible powders for slurry treatment (WS), water-soluble powders (SS), emulsions (ES), emulsifiable concentrates (EC), and gels (GF) are usually employed. The compositions in question give, after two-to-tenfold dilution, active substance concentrations of
5 from 0.01 to 60% by weight, preferably from 0.1 to 40%, in the ready-to-use preparations. Application can be carried out before or during sowing. Methods for applying compound I and compositions thereof, respectively, onto plant propagation material, especially seeds, include dressing, coating, pelleting, dusting, and soaking as well as in-furrow application methods. Preferably, compound I or the compositions thereof, respectively, are applied on to the plant
10 propagation material by a method such that germination is not induced, e. g. by seed dressing, pelleting, coating and dusting.

When employed in plant protection, the amounts of active substances applied are, depending on the kind of effect desired, from 0.001 to 2 kg per ha, preferably from 0.005 to 2 kg per ha,
15 more preferably from 0.05 to 0.9 kg per ha, and in particular from 0.1 to 0.75 kg per ha.

In treatment of plant propagation materials such as seeds, e. g. by dusting, coating or drenching seed, amounts of active substance of from 0.1 to 1000 g, preferably from 1 to 1000 g, more preferably from 1 to 100 g and most preferably from 5 to 100 g, per 100 kilogram of plant propagation material (preferably seeds) are generally required.

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

Various types of oils, wetters, adjuvants, fertilizer, or micronutrients, and further pesticides (e. g.
25 herbicides, insecticides, fungicides, growth regulators, safeners, biopesticides) may be added to the active substances or the compositions comprising them as premix or, if appropriate not until immediately prior to use (tank mix). These agents can be admixed with the compositions according to the invention in a weight ratio of 1:100 to 100:1, preferably 1:10 to 10:1.

A pesticide is generally a chemical or biological agent (such as pestidal active ingredient, compound, composition, virus, bacterium, antimicrobial or disinfectant) that through its effect
30 deters, incapacitates, kills or otherwise discourages pests. Target pests can include insects, plant pathogens, weeds, mollusks, birds, mammals, fish, nematodes (roundworms), and microbes that destroy property, cause nuisance, spread disease or are vectors for disease. The term "pesticide" includes also plant growth regulators that alter the expected growth, flowering,
35 or reproduction rate of plants; defoliant that cause leaves or other foliage to drop from a plant, usually to facilitate harvest; desiccants that promote drying of living tissues, such as unwanted plant tops; plant activators that activate plant physiology for defense of against certain pests; safeners that reduce unwanted herbicidal action of pesticides on crop plants; and plant growth promoters that affect plant physiology e.g. to increase plant growth, biomass, yield or any other
40 quality parameter of the harvestable goods of a crop plant.

The user applies the composition according to the invention usually from a predosage device, a knapsack sprayer, a spray tank, a spray plane, or an irrigation system. Usually, the agrochemical composition is made up with water, buffer, and/or further auxiliaries to the desired application concentration and the ready-to-use spray liquor or the agrochemical composition

according to the invention is thus obtained. Usually, 20 to 2000 liters, preferably 50 to 400 liters, of the ready-to-use spray liquor are applied per hectare of agricultural useful area.

According to one embodiment, individual components of the composition according to the invention such as parts of a kit or parts of a binary or ternary mixture may be mixed by the user himself in a spray tank or any other kind of vessel used for applications (e. g. seed treater drums, seed pelleting machinery, knapsack sprayer) and further auxiliaries may be added, if appropriate.

Consequently, one embodiment of the invention is a kit for preparing a usable pesticidal composition, the kit comprising a) a composition comprising component 1) as defined herein and at least one auxiliary; and b) a composition comprising component 2) as defined herein and at least one auxiliary; and optionally c) a composition comprising at least one auxiliary and optionally a further active component 3) as defined herein.

Mixing the compounds I or the compositions comprising them in the use form as fungicides with other fungicides results in many cases in an expansion of the fungicidal spectrum of activity being obtained or in a prevention of fungicide resistance development. Furthermore, in many cases, synergistic effects are obtained.

The following list of pesticides II (e. g. pesticidally-active substances and biopesticides), in conjunction with which the compounds I can be used, is intended to illustrate the possible combinations but does not limit them:

A) Respiration inhibitors: Inhibitors of complex III at Q_o site: azoxystrobin (A.1.1), coumethoxystrobin (A.1.2), coumoxystrobin (A.1.3), dimoxystrobin (A.1.4), enestroburin (A.1.5), fenaminstrobin (A.1.6), fenoxystrobin/flufenoxystrobin (A.1.7), fluoxastrobin (A.1.8), kresoxim-methyl (A.1.9), mandestrobin (A.1.10), metominostrobin (A.1.11), orysastrobin (A.1.12), picoxystrobin (A.1.13), pyraclostrobin (A.1.14), pyrametostrobin (A.1.15), pyraoxystrobin (A.1.16), trifloxystrobin (A.1.17), 2-(2-(3-(2,6-dichlorophenyl)-1-methyl-allylideneaminooxymethyl)-phenyl)-2-methoxyimino-N-methyl-acetamide (A.1.18), pyribencarb (A.1.19), triclopyricarb/chlorodincarb (A.1.20), famoxadone (A.1.21), fenamidone (A.1.21), methyl-*N*-[2-[(1,4-dimethyl-5-phenyl-pyrazol-3-yl)oxymethyl]phenyl]-*N*-methoxy-carbamate (A.1.22), 1-[3-chloro-2-[[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxymethyl]phenyl]-4-methyl-tetrazol-5-one (A.1.23), 1-[3-bromo-2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]phenyl]-4-methyl-tetrazol-5-one (A.1.24), 1-[2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-methyl-phenyl]-4-methyl-tetrazol-5-one (A.1.25), 1-[2-[[1-(4-chlorophenyl)pyrazol-3-yl]oxymethyl]-3-fluoro-phenyl]-4-methyl-tetrazol-5-one (A.1.26), 1-[2-[[1-(2,4-dichlorophenyl)pyrazol-3-yl]oxymethyl]-3-fluoro-phenyl]-4-methyl-tetrazol-5-one (A.1.27), 1-[2-[[4-(4-chlorophenyl)thiazol-2-yl]oxymethyl]-3-methyl-phenyl]-4-methyl-tetrazol-5-one (A.1.28), 1-[3-chloro-2-[[4-(*p*-tolyl)thiazol-2-yl]oxymethyl]phenyl]-4-methyl-tetrazol-5-one (A.1.29), 1-[3-cyclopropyl-2-[[2-methyl-4-(1-methylpyrazol-3-yl)phenoxy]-methyl]phenyl]-4-methyl-tetrazol-5-one (A.1.30), 1-[3-(difluoromethoxy)-2-[[2-methyl-4-(1-methylpyrazol-3-yl)phenoxy]methyl]phenyl]-4-methyl-tetrazol-5-one (A.1.31), 1-methyl-4-[3-methyl-2-[[2-methyl-4-(1-methylpyrazol-3-yl)phenoxy]methyl]phenyl]tetrazol-5-one (A.1.32), 1-methyl-4-[3-methyl-2-[[1-[3-(trifluoromethyl)phenyl]-ethylideneamino]oxymethyl]phenyl]tetrazol-5-one (A.1.33), (*Z*,*2E*)-5-[1-(2,4-dichlorophenyl)pyrazol-3-yl]-oxy-2-methoxyimino-*N*,3-dimethyl-pent-3-enamide (A.1.34), (*Z*,*2E*)-5-[1-(4-chlorophenyl)pyrazol-3-yl]oxy-2-methoxyimino-*N*,3-dimethyl-pent-3-enamide (A.1.35), pyriminostrobin (A.1.36), bifujunzhi (A.1.37), 2-(ortho-((2,5-dimethylphenyl-oxymethylen)phenyl)-3-methoxy-acrylic acid methylester (A.1.38).

Inhibitors of complex III at Q_i site: cyazofamid (A.2.1), amisulbrom (A.2.2),

[(6S,7R,8R)-8-benzyl-3-[(3-hydroxy-4-methoxy-pyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate (A.2.3), [2-[(7R,8R,9S)-7-benzyl-9-methyl-8-(2-methylpropanoyloxy)-2,6-dioxo-1,5-dioxonan-3-yl]carbamoyle]-4-methoxy-3-pyridyl]oxymethyl 2-methylpropanoate (A.2.4), [(6S,7R,8R)-8-benzyl-3-[[4-methoxy-3-(propanoyloxy-methoxy)pyridine-2-carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate (A.2.5).

Inhibitors of complex II: benodanil (A.3.1), benzovindiflupyr (A.3.2), bixafen (A.3.3), boscalid (A.3.4), carboxin (A.3.5), fenfuram (A.3.6), fluopyram (A.3.7), flutolanil (A.3.8), fluxapyroxad

(A.3.9), furametpyr (A.3.10), isofetamid (A.3.11), isopyrazam (A.3.12), mepronil (A.3.13), oxycarboxin (A.3.14), penflufen (A.3.15), penthiopyrad (A.3.16), 3-(difluoromethyl)-N-methoxy-1-methyl-N-[1-methyl-2-(2,4,6-trichlorophenyl)ethyl]pyrazole-4-carboxamide (A.3.17), N-[2-(3,4-difluorophenyl)phenyl]-3-(trifluoromethyl)pyrazine-2-carboxamide (A.3.18), sedaxane (A.3.19), tecloftalam (A.3.20), thifluzamide (A.3.21), 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.22), 3-(trifluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.23), 1,3-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.24), 3-(trifluoromethyl)-1,5-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.25), 1,3,5-trimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.26), 3-(difluoromethyl)-1,5-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide (A.3.27), 3-(difluoromethyl)-N-(7-fluoro-1,1,3-trimethyl-indan-4-yl)-1-methyl-pyrazole-4-carboxamide (A.3.28), methyl (E)-2-[2-[(5-cyano-2-methyl-phenoxy)methyl]phenyl]-3-methoxy-prop-2-enoate (A.3.30), N-[(5-chloro-2-isopropyl-phenyl)methyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-pyrazole-4-carboxamide (A.3.31), 2-(difluoromethyl)-N-(1,1,3-trimethyl-indan-4-yl)pyridine-3-carboxamide (A.3.32), 2-(difluoromethyl)-N-[(3R)-1,1,3-trimethylindan-4-yl]pyridine-3-carboxamide (A.3.33), 2-(difluoromethyl)-N-(3-ethyl-1,1-dimethyl-indan-4-yl)pyridine-3-carboxamide (A.3.34), 2-(difluoromethyl)-N-[(3R)-3-ethyl-1,1-dimethyl-indan-4-yl]pyridine-3-carboxamide (A.3.35), 2-(difluoromethyl)-N-(1,1-dimethyl-3-propyl-indan-4-yl)pyridine-3-carboxamide (A.3.36), 2-(difluoromethyl)-N-[(3R)-1,1-dimethyl-3-propyl-indan-4-yl]pyridine-3-carboxamide (A.3.37), 2-(difluoromethyl)-N-(3-isobutyl-1,1-dimethyl-indan-4-yl)pyridine-3-carboxamide (A.3.38), 2-(difluoromethyl)-N-[(3R)-3-isobutyl-1,1-dimethyl-indan-4-yl]pyridine-3-carboxamide (A.3.39).

Other respiration inhibitors: diflumetorim (A.4.1); nitrophenyl derivatives: binapacryl (A.4.2), dinobuton (A.4.3), dinocap (A.4.4), fluazinam (A.4.5), meptyldinocap (A.4.6), ferimzone (A.4.7); organometal compounds: fentin salts, e. g. fentin-acetate (A.4.8), fentin chloride (A.4.9) or fentin hydroxide (A.4.10); ametocetradin (A.4.11); silthiofam (A.4.12).

B) Sterol biosynthesis inhibitors (SBI fungicides)

C14 demethylase inhibitors: triazoles: azaconazole (B.1.1), bitertanol (B.1.2), bromuconazole (B.1.3), cyproconazole (B.1.4), difenoconazole (B.1.5), diniconazole (B.1.6), diniconazole-M (B.1.7), epoxiconazole (B.1.8), fenbuconazole (B.1.9), fluquinconazole (B.1.10), flusilazole (B.1.11), flutriafol (B.1.12), hexaconazole (B.1.13), imibenconazole (B.1.14), ipconazole (B.1.15), metconazole (B.1.17), myclobutanil (B.1.18), oxpoconazole (B.1.19), paclobutrazole (B.1.20), penconazole (B.1.21), propiconazole (B.1.22), prothioconazole (B.1.23), simeconazole (B.1.24), tebuconazole (B.1.25), tetraconazole (B.1.26), triadimefon (B.1.27), triadimenol (B.1.28), triticonazole (B.1.29), uniconazole (B.1.30), 1-[*rel*-(2S,3R)-3-(2-chlorophenyl)-2-(2,4-

difluorophenyl)-oxiranylmethyl]-5-thiocyanato-1H-[1,2,4]triazole (B.1.31), 2-[*reA*(2*S*,3*R*)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)-oxiranylmethyl]-2H-[1,2,4]triazole-3-thiol (B.1.32), 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol (B.1.33), 1-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-cyclopropyl-2-(1,2,4-triazol-1-yl)ethanol (B.1.34), 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol (B.1.35), 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol (B.1.36), 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol (B.1.37), 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol (B.1.38), 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol (B.1.39), 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol (B.1.40), 2-[4-(4-fluorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol (B.1.41), 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)pent-3-yn-2-ol (B.1.42), 2-(chloromethyl)-2-methyl-5-(p-tolylmethyl)-1-(1,2,4-triazol-1-ylmethyl)cyclopentanol (B.1.43); imidazoles: imazalil (B.1.44), pefurazoate (B.1.45), prochloraz (B.1.46), triflumizol (B.1.47); pyrimidines, pyridines and piperazines: fenarimol (B.1.49), pyrifenoxy (B.1.50), triforine (B.1.51), [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)isoxazol-4-yl]-(3-pyridyl)methanol (B.1.52).

Delta14-reductase inhibitors: aldimorph (B.2.1), dodemorph (B.2.2), dodemorph-acetate (B.2.3), fenpropimorph (B.2.4), tridemorph (B.2.5), fenpropidin (B.2.6), piperalin (B.2.7), spiroxamine (B.2.8).

Inhibitors of 3-keto reductase: fenhexamid (B.3.1).

Other Sterol biosynthesis inhibitors: chlorphenomizole (B.4.1).

C) Nucleic acid synthesis inhibitors

Phenylamides or acyl amino acid fungicides: benalaxyl (C.1.1), benalaxyl-M (C.1.2), kiralaxyl (C.1.3), metalaxyl (C.1.4), metalaxyl-M (C.1.5), ofurace (C.1.6), oxadixyl (C.1.7).

Other nucleic acid synthesis inhibitors: hymexazole (C.2.1), octhilinone (C.2.2), oxolinic acid (C.2.3), bupirimate (C.2.4), 5-fluorocytosine (C.2.5), 5-fluoro-2-(p-tolylmethoxy)pyrimidin-4-amine (C.2.6), 5-fluoro-2-(4-fluorophenylmethoxy)pyrimidin-4-amine (C.2.7), 5-fluoro-2-(4-chlorophenylmethoxy)pyrimidin-4-amine (C.2.8).

D) Inhibitors of cell division and cytoskeleton

Tubulin inhibitors: benomyl (D.1.1), carbendazim (D.1.2), fuberidazole (D.1.3), thiabendazole (D.1.4), thiophanate-methyl (D.1.5), 3-chloro-4-(2,6-difluorophenyl)-6-methyl-5-phenyl-pyridazine (D.1.6), 3-chloro-6-methyl-5-phenyl-4-(2,4,6-trifluorophenyl)pyridazine (D.1.7), N-ethyl-2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]butanamide (D.1.8), N-ethyl-2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-2-methylsulfanyl-acetamide (D.1.9), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-N-(2-fluoroethyl)butanamide (D.1.10), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-N-(2-fluoroethyl)-2-methoxy-acetamide (D.1.11), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-N-propyl-butylamide (D.1.12), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-2-methoxy-N-propyl-acetamide (D.1.13), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-2-methylsulfanyl-N-propyl-acetamide (D.1.14), 2-[(3-ethynyl-8-methyl-6-quinolyl)oxy]-N-(2-fluoroethyl)-2-methylsulfanyl-acetamide (D.1.15), 4-(2-bromo-4-fluoro-phenyl)-N-(2-chloro-6-fluoro-phenyl)-2,5-dimethyl-pyrazol-3-amine (D.1.16).

Other cell division inhibitors: diethofencarb (D.2.1), ethaboxam (D.2.2), pencycuron (D.2.3), fluopicolide (D.2.4), zoxamide (D.2.5), metrafenone (D.2.6), pyriofenone (D.2.7).

E) Inhibitors of amino acid and protein synthesis

Methionine synthesis inhibitors: cyprodinil (E.1.1), mepanipyrim (E.1.2), pyrimethanil (E.1.3).

Protein synthesis inhibitors: blasticidin-S (E.2.1), kasugamycin (E.2.2), kasugamycin hydrochloride-hydrate (E.2.3), mildiomycin (E.2.4), streptomycin (E.2.5), oxytetracyclin (E.2.6).

F) Signal transduction inhibitors

MAP / histidine kinase inhibitors: fluoroimid (F.1.1), iprodione (F.1.2), procymidone (F.1.3), vinclozolin (F.1.4), fludioxonil (F.1.5).

G protein inhibitors: quinoxifen (F.2.1).

G) Lipid and membrane synthesis inhibitors

Phospholipid biosynthesis inhibitors: edifenphos (G.1.1), iprobenfos (G.1.2), pyrazophos (G.1.3), isoprothiolane (G.1.4).

Lipid peroxidation: dicloran (G.2.1), quintozone (G.2.2), tecnazene (G.2.3), tolclofos-methyl (G.2.4), biphenyl (G.2.5), chloroneb (G.2.6), etridiazole (G.2.7).

Phospholipid biosynthesis and cell wall deposition: dimethomorph (G.3.1), flumorph (G.3.2), mandipropamid (G.3.3), pyrimorph (G.3.4), benthiavalicarb (G.3.5), iprovalicarb (G.3.6), valifenalate (G.3.7).

Compounds affecting cell membrane permeability and fatty acids: propamocarb (G.4.1).

Inhibitors of oxysterol binding protein: oxathiapiprolin (G.5.1), 2-{3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl]piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}phenyl methanesulfonate (G.5.2), 2-{3-[2-(1-[[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl]piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}-3-chlorophenyl methanesulfonate (G.5.3), 4-[1-[2-[3-(difluoromethyl)-5-methyl-pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.4), 4-[1-[2-[3,5-bis(difluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.5), 4-[1-[2-[3-(difluoromethyl)-5-(trifluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.6), 4-[1-[2-[5-cyclopropyl-3-(difluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.7), 4-[1-[2-[5-methyl-3-(trifluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.8), 4-[1-[2-[5-(difluoromethyl)-3-(trifluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.9), 4-[1-[2-[3,5-bis(trifluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.10), (4-[1-[2-[5-cyclopropyl-3-(trifluoromethyl)pyrazol-1-yl]acetyl]-4-piperidyl]-N-tetralin-1-yl-pyridine-2-carboxamide (G.5.11).

H) Inhibitors with Multi Site Action

Inorganic active substances: Bordeaux mixture (H.1.1), copper (H.1.2), copper acetate (H.1.3), copper hydroxide (H.1.4), copper oxychloride (H.1.5), basic copper sulfate (H.1.6), sulfur (H.1.7).

Thio- and dithiocarbamates: ferbam (H.2.1), mancozeb (H.2.2), maneb (H.2.3), metam (H.2.4), metiram (H.2.5), propineb (H.2.6), thiram (H.2.7), zineb (H.2.8), ziram (H.2.9).

Organochlorine compounds: anilazine (H.3.1), chlorothalonil (H.3.2), captafol (H.3.3), captan (H.3.4), folpet (H.3.5), dichlofluanid (H.3.6), dichlorophen (H.3.7), hexachlorobenzene (H.3.8), pentachlorophenole (H.3.9) and its salts, phthalide (H.3.10), tolylfluanid (H.3.11).

Guanidines and others: guanidine (H.4.1), dodine (H.4.2), dodine free base (H.4.3), guazatine (H.4.4), guazatine-acetate (H.4.5), iminoctadine (H.4.6), iminoctadine-triacetate (H.4.7), iminoctadine-tris(albesilate) (H.4.8), dithianon (H.4.9), 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetraone (H.4.10).

I) Cell wall synthesis inhibitors

Inhibitors of glucan synthesis: validamycin (I.1.1), polyoxin B (I.1.2).

Melanin synthesis inhibitors: pyroquilon (I.2.1), tricyclazole (I.2.2), carpropamid (I.2.3), dicyclomet (I.2.4), fenoxanil (I.2.5).

J) Plant defence inducers

- 5 Acibenzolar-S-methyl (J.1.1), probenazole (J.1.2), isotianil (J.1.3), tiadinil (J.1.4), prohexadione-calcium (J.1.5); phosphonates: fosetyl (J.1.6), fosetyl-aluminum (J.1.7), phosphorous acid and its salts (J.1.8), potassium or sodium bicarbonate (J.1.9), 4-cyclopropyl-N-(2,4-dimethoxyphenyl)thiadiazole-5-carboxamide (J.1.10).

K) Unknown mode of action

- 10 Bronopol (K.1.1), chinomethionat (K.1.2), cyflufenamid (K.1.3), cymoxanil (K.1.4), dazomet (K.1.5), debacarb (K.1.6), diclocymet (K.1.7), diclomezine (K.1.8), difenzoquat (K.1.9), difenzoquat-methylsulfate (K.1.10), diphenylamin (K.1.11), fenitropan (K.1.12), fenpyrazamine (K.1.13), flumetover (K.1.14), flusulfamide (K.1.15), flutianil (K.1.16), harpin (K.1.17), metha-sulfocarb (K.1.18), nitrapyrin (K.1.19), nitrothal-isopropyl (K.1.20), tolprocarb (K.1.21), oxin-copper (K.1.22), proquinazid (K.1.23), tebufloquin (K.1.24), tecloftalam (K.1.25), triazoxide (K.1.26), N'-(4-(4-chloro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine (K.1.27), N'-(4-(4-fluoro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine (K.1.28), N'-[4-[[3-[(4-chlorophenyl)methyl]-1,2,4-thiadiazol-5-yl]oxy]-2,5-dimethyl-phenyl]-N-ethyl-N-methyl-formamidine (K.1.29), N'-(5-bromo-6-indan-2-yloxy-2-methyl-3-pyridyl)-N-ethyl-N-methyl-formamidine (K.1.30), N'-[5-bromo-6-[1-(3,5-difluorophenyl)ethoxy]-2-methyl-3-pyridyl]-N-ethyl-N-methyl-formamidine (K.1.31), N'-[5-bromo-6-(4-isopropylcyclohexoxy)-2-methyl-3-pyridyl]-N-ethyl-N-methyl-formamidine (K.1.32), N'-[5-bromo-2-methyl-6-(1-phenylethoxy)-3-pyridyl]-N-ethyl-N-methyl-formamidine (K.1.33), N'-(2-methyl-5-trifluoromethyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine (K.1.34), N'-(5-difluoromethyl-2-methyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine (K.1.35), 2-(4-chloro-phenyl)-N-[4-(3,4-dimethoxy-phenyl)-isoxazol-5-yl]-2-prop-2-ynyloxy-acetamide (K.1.36), 3-[5-(4-chloro-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine (pyrisoxazole) (K.1.37), 3-[5-(4-methylphenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine (K.1.38), 5-chloro-1-(4,6-dimethoxy-pyrimidin-2-yl)-2-methyl-1H-benzimidazole (K.1.39), ethyl (Z)-3-amino-2-cyano-3-phenyl-prop-2-enoate (K.1.40), picarbutrazox (K.1.41), pentyl N-[6-[[[(Z)-[(1-methyltetrazol-5-yl)-phenyl-methylene]amino]oxymethyl]-2-pyridyl]carbamate (K.1.42), but-3-ynyl N-[6-[[[(Z)-[(1-methyltetrazol-5-yl)-phenyl-methylene]amino]oxymethyl]-2-pyridyl]carbamate (K.1.43), 2-[2-[[[(7,8-difluoro-2-methyl-3-quinolyl)oxy]-6-fluoro-phenyl]propan-2-ol (K.1.44), 2-[2-fluoro-6-[(8-fluoro-2-methyl-3-quinolyl)oxy]phen-yl]propan-2-ol (K.1.45), 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline (K.1.46), quinofumelin (K.1.47), 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline (K.1.48), 9-fluoro-2,2-dimethyl-5-(3-quinolyl)-3H-1,4-benzoxazepine (K.1.49), 2-(6-benzyl-2-pyridyl)quinazoline (K.1.50), 2-[6-(3-fluoro-4-methoxy-phenyl)-5-methyl-2-pyridyl]quinazoline (K.1.51), 3-[(3,4-dichloroisothiazol-5-yl)methoxy]-1,2-benzothiazole 1,1-dioxide (K.1.52), N'-(2,5-dimethyl-4-phenoxy-phenyl)-N-ethyl-N-methyl-formamidine (K.1.53).
- 40

M) Growth regulators

abscisic acid (M.1.1), amidochlor, ancymidol, 6-benzylaminopurine, brassinolide, butralin, chlormequat, chlormequat chloride, choline chloride, cyclanilide, daminozide, dikegulac, dimethipin, 2,6-dimethylpuridine, ethephon, flumetralin, flurprimidol, fluthiacet, forchlorfenuron,

gibberellic acid, inabenfide, indole-3-acetic acid, maleic hydrazide, mefluidide, mepiquat, mepiquat chloride, naphthaleneacetic acid, N-6-benzyladenine, paclobutrazol, prohexadione, prohexadione-calcium, prohydrojasmon, thidiazuron, triapenthenol, tributyl phosphorotrithioate, 2,3,5-tri-iodobenzoic acid, trinexapac-ethyl and uniconazole;

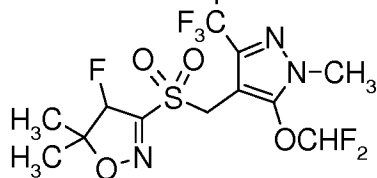
5 N) Herbicides from classes N.1 to N.15

- N.1 Lipid biosynthesis inhibitors: alloxydim (N.1.1), alloxydim-sodium (N.1.2), butoxydim (N.1.3), clethodim (N.1.4), clodinafop (N.1.5), clodinafop-propargyl (N.1.6), cycloxydim (N.1.7), cyhalofop (N.1.8), cyhalofop-butyl (N.1.9), diclofop (N.1.10), diclofop-methyl (N.1.11), fenoxaprop (N.1.12), fenoxaprop-ethyl (N.1.13), fenoxaprop-P (N.1.14), fenoxaprop-P-ethyl (N.1.15), fluazifop (N.1.16), fluazifop-butyl (N.1.17), fluazifop-P (N.1.18), fluazifop-P-butyl (N.1.19), haloxyfop (N.1.20), haloxyfop-methyl (N.1.21), haloxyfop-P (N.1.22), haloxyfop-P-methyl (N.1.23), metamifop (N.1.24), pinoxaden (N.1.25), profoxydim (N.1.26), propaquizafop (N.1.27), quizalofop (N.1.28), quizalofop-ethyl (N.1.29), quizalofop-tefuryl (N.1.30), quizalofop-P (N.1.31), quizalofop-P-ethyl (N.1.32), quizalofop-P-tefuryl (N.1.33), sethoxydim (N.1.34), 15 tepraloxydim (N.1.35), tralkoxydim (N.1.36), 4-(4'-chloro-4-cyclopropyl-2'-fluoro[1,1'-biphenyl]-3-yl)-5-hydroxy-2,2,6,6-tetramethyl-2H-pyran-3(6H)-one ((N.1.37) CAS 1312337-72-6); 4-(2',4'-dichloro-4-cyclopropyl[1,1'-biphenyl]-3-yl)-5-hydroxy-2,2,6,6-tetramethyl-2H-pyran-3(6H)-one ((N.1.38) CAS 1312337-45-3); 4-(4'-chloro-4-ethyl-2'-fluoro[1,1'-biphenyl]-3-yl)-5-hydroxy-2,2,6,6-tetramethyl-2H-pyran-3(6H)-one ((N.1.39) CAS 1033757-93-5); 4-(2',4'-Dichloro-4-ethyl[1,1'-biphenyl]-3-yl)-2,2,6,6-tetramethyl-2H-pyran-3,5(4H,6H)-dione ((N.1.40) CAS 20 1312340-84-3); 5-(acetyloxy)-4-(4'-chloro-4-cyclopropyl-2'-fluoro[1,1'-biphenyl]-3-yl)-3,6-dihydro-2,2,6,6-tetramethyl-2H-pyran-3-one ((N.1.41) CAS 1312337-48-6); 5-(acetyloxy)-4-(2',4'-dichloro-4-cyclopropyl-[1,1'-biphenyl]-3-yl)-3,6-dihydro-2,2,6,6-tetramethyl-2H-pyran-3-one (N.1.42); 5-(acetyloxy)-4-(4'-chloro-4-ethyl-2'-fluoro[1,1'-biphenyl]-3-yl)-3,6-dihydro-2,2,6,6-tetramethyl-2H-pyran-3-one ((N.1.43) CAS 1312340-82-1); 5-(acetyloxy)-4-(2',4'-dichloro-4-ethyl[1,1'-biphenyl]-3-yl)-3,6-dihydro-2,2,6,6-tetramethyl-2H-pyran-3-one ((N.1.44) CAS 1033760-55-2); 4-(4'-chloro-4-cyclopropyl-2'-fluoro[1,1'-biphenyl]-3-yl)-5,6-dihydro-2,2,6,6-tetramethyl-5-oxo-2H-pyran-3-yl carbonic acid methyl ester ((N.1.45) CAS 1312337-51-1); 4-(2',4'-dichloro-4-cyclopropyl-[1,1'-biphenyl]-3-yl)-5,6-dihydro-2,2,6,6-tetramethyl-5-oxo-2H-pyran-3-yl carbonic acid methyl ester (N.1.46); 4-(4'-chloro-4-ethyl-2'-fluoro[1,1'-biphenyl]-3-yl)-5,6-dihydro-2,2,6,6-tetramethyl-5-oxo-2H-pyran-3-yl carbonic acid methyl ester ((N.1.47) CAS 1312340-83-2); 4-(2',4'-dichloro-4-ethyl-[1,1'-biphenyl]-3-yl)-5,6-dihydro-2,2,6,6-tetramethyl-5-oxo-2H-pyran-3-yl carbonic acid methyl ester ((N.1.48) CAS 1033760-58-5); benfuresate (N.1.49), butylate (N.1.50), cycloate (N.1.51), dalapon (N.1.52), dimepiperate (N.1.53), EPTC (N.1.54), esprocarb (N.1.55), ethofumesate (N.1.56), flupropanate (N.1.57), molinate (N.1.58), orbencarb (N.1.59), pebulate (N.1.60), prosulfocarb (N.1.61), TCA (N.1.62), thiobencarb (N.1.63), tiocarbazil (N.1.64), triallate (N.1.65) and vernolate (N.1.66);
- N.2 ALS inhibitors: amidosulfuron (N.2.1), azimsulfuron (N.2.2), bensulfuron (N.2.3), bensulfuron-methyl (N.2.4), chlorimuron (N.2.5), chlorimuron-ethyl (N.2.6), chlorsulfuron (N.2.7), 40 cinosulfuron (N.2.8), cyclosulfamuron (N.2.9), ethametsulfuron (N.2.10), ethametsulfuron-methyl (N.2.11), ethoxysulfuron (N.2.12), flazasulfuron (N.2.13), flucetosulfuron (N.2.14), flupyrsulfuron (N.2.15), flupyrsulfuron-methyl-sodium (N.2.16), foramsulfuron (N.2.17), halosulfuron (N.2.18), halosulfuron-methyl (N.2.19), imazosulfuron (N.2.20), iodosulfuron (N.2.21), iodosulfuron-methyl-sodium (N.2.22), iofensulfuron (N.2.23), iofensulfuron-sodium

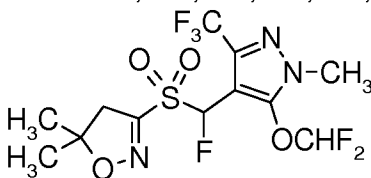
- (N.2.24), mesosulfuron (N.2.25), metazosulfuron (N.2.26), metsulfuron (N.2.27), metsulfuron-methyl (N.2.28), nicosulfuron (N.2.29), orthosulfamuron (N.2.30), oxasulfuron (N.2.31), primisulfuron (N.2.32), primisulfuron-methyl (N.2.33), propyrisulfuron (N.2.34), prosulfuron (N.2.35), pyrazosulfuron (N.2.36), pyrazosulfuron-ethyl (N.2.37), rimsulfuron (N.2.38),
- 5 sulfometuron (N.2.39), sulfometuron-methyl (N.2.40), sulfosulfuron (N.2.41), thifensulfuron (N.2.42), thifensulfuron-methyl (N.2.43), triasulfuron (N.2.44), tribenuron (N.2.45), tribenuron-methyl (N.2.46), trifloxysulfuron (N.2.47), triflusulfuron (N.2.48), triflusulfuron-methyl (N.2.49), tritosulfuron (N.2.50), imazamethabenz (N.2.51), imazamethabenz-methyl (N.2.52), imazamox (N.2.53), imazapic (N.2.54), imazapyr (N.2.55), imazaquin (N.2.56), imazethapyr (N.2.57);
- 10 cloransulam (N.2.58), cloransulam-methyl (N.2.59), diclosulam (N.2.60), flumetsulam (N.2.61), florasulam (N.2.62), metosulam (N.2.63), penoxsulam (N.2.64), pyrimisulfan (N.2.65) and pyroxsulam (N.2.66); bispyribac (N.2.67), bispyribac-sodium (N.2.68), pyribenzoxim (N.2.69), pyriftalid (N.2.70), pyriminobac (N.2.71), pyriminobac-methyl (N.2.72), pyriithiobac (N.2.73), pyriithiobac-sodium (N.2.74), 4-[[[2-[(4,6-dimethoxy-2-pyrimidinyl)oxy]phenyl]methyl]amino]-
- 15 benzoic acid-1-methyl-ethyl ester ((N.2.75) CAS 420138-41-6), 4-[[[2-[(4,6-dimethoxy-2-pyrimidinyl)oxy]phenyl]-methyl]amino]-benzoic acid propyl ester ((N.2.76) CAS 420138-40-5), N-(4-bromophenyl)-2-[(4,6-dimethoxy-2-pyrimidinyl)oxy]benzenemethanamine ((N.2.77) CAS 420138-01-8); flucarbazone (N.2.78), flucarbazone-sodium (N.2.79), propoxycarbazone (N.2.80), propoxycarbazone-sodium (N.2.81), thienicarbazone (N.2.82), thienicarbazone-methyl
- 20 (N.2.83), triafamone (N.2.84);
- N.3 Photosynthesis inhibitors: amicarbazone (N.3.1); chlorotriazine (N.3.2); ametryn (N.3.3), atrazine (N.3.4), chloridazone (N.3.5), cyanazine (N.3.6), desmetryn (N.3.7), dimethametryn (N.3.8), hexazinone (N.3.9), metribuzin (N.3.10), prometon (N.3.11), prometryn (N.3.12), propazine (N.3.13), simazine (N.3.14), simetryn (N.3.15), terbumeton (N.3.16), terbuthylazin
- 25 (N.3.17), terbutryn (N.3.18), trietazin (N.3.19); chlorobromuron (N.3.20), chlorotoluron (N.3.21), chloroxuron (N.3.22), dimefuron (N.3.23), diuron (N.3.24), fluometuron (N.3.25), isoproturon (N.3.26), isouron (N.3.27), linuron (N.3.28), metamitron (N.3.29), methabenzthiazuron (N.3.30), metobenzuron (N.3.31), metoxuron (N.3.32), monolinuron (N.3.33), neburon (N.3.34), siduron (N.3.35), tebuthiuron (N.3.36), thiadiazuron (N.3.37), desmedipham (N.3.38), karbutilat (N.3.39),
- 30 phenmedipham (N.3.40), phenmedipham-ethyl (N.3.41), bromofenoxim (N.3.42), bromoxynil (N.3.43) and its salts and esters, ioxynil (N.3.44) and its salts and esters, bromacil (N.3.45), lenacil (N.3.46), terbacil (N.3.47), bentazon (N.3.48), bentazon-sodium (N.3.49), pyridate (N.3.50), pyridafol (N.3.51), pentanochlor (N.3.52), propanil (N.3.53); diquat (N.3.54), diquat-dibromide (N.3.55), paraquat (N.3.56), paraquat-dichloride (N.3.57), paraquat-dimetilsulfate
- 35 (N.3.58);
- N.4 protoporphyrinogen-IX oxidase inhibitors: acifluorfen (N.4.1), acifluorfen-sodium (N.4.2), azafenidin (N.4.3), bencarbazone (N.4.4), benzfendizone (N.4.5), bifenox (N.4.6), butafenacil (N.4.7), carfentrazone (N.4.8), carfentrazone-ethyl (N.4.9), chlormethoxyfen (N.4.10), cinidon-ethyl (N.4.11), fluazolate (N.4.12), flufenpyr (N.4.13), flufenpyr-ethyl (N.4.14), flumiclorac
- 40 (N.4.15), flumiclorac-pentyl (N.4.16), flumioxazin (N.4.17), fluoroglycofen (N.4.18), fluoroglycofen-ethyl (N.4.19), fluthiacet (N.4.20), fluthiacet-methyl (N.4.21), fomesafen (N.4.22), halosafen (N.4.23), lactofen (N.4.24), oxadiargyl (N.4.25), oxadiazon (N.4.26), oxyfluorfen

- (N.4.27), pentoxazone (N.4.28), profluzol (N.4.29), pyraclostrobin (N.4.30), pyraflufen (N.4.31), pyraflufen-ethyl (N.4.32), saflufenacil (N.4.33), sulfentrazone (N.4.34), thidiazimin (N.4.35), tiafenacil (N.4.36), trifludimoxazin (N.4.37), ethyl [3-[2-chloro-4-fluoro-5-(1-methyl-6-trifluoromethyl-2,4-dioxo-1,2,3,4-tetrahydropyrimidin-3-yl)phenoxy]-2-pyridyloxy]acetate ((N.4.38) CAS 353292-31-6), N-ethyl-3-(2,6-dichloro-4-trifluoro-methylphenoxy)-5-methyl-1H-pyrazole-1-carboxamide ((N.4.39) CAS 452098-92-9), N tetrahydrofurfuryl-3-(2,6-dichloro-4-trifluoromethylphenoxy)-5-methyl-1H-pyrazole-1-carboxamide ((N.4.40) CAS 915396-43-9), N-ethyl-3-(2-chloro-6-fluoro-4-trifluoromethyl-phenoxy)-5-methyl-1H-pyrazole-1-carboxamide ((N.4.41) CAS 452099-05-7), N tetrahydro-furfuryl-3-(2-chloro-6-fluoro-4-trifluoro-methylphenoxy)-5-methyl-1H-pyrazole-1-carboxamide ((N.4.42) CAS 452100-03-7), 3-[7-fluoro-3-oxo-4-(prop-2-ynyl)-3,4-dihydro-2H-benzo[1,4]oxazin-6-yl]-1,5-dimethyl-6-thioxo-[1,3,5]triazinan-2,4-dione ((N.4.43) CAS 451484-50-7), 2-(2,2,7-trifluoro-3-oxo-4-prop-2-ynyl-3,4-dihydro-2H-benzo[1,4]oxazin-6-yl)-4,5,6,7-tetrahydro-isoindole-1,3-dione ((N.4.44) CAS 1300118-96-0), 1-methyl-6-trifluoro-methyl-3-(2,2,7-tri-fluoro-3-oxo-4-prop-2-ynyl-3,4-dihydro-2H-benzo[1,4]oxazin-6-yl)-1H-pyrimidine-2,4-dione ((N.4.45) CAS 1304113-05-0), methyl (E)-4-[2-chloro-5-[4-chloro-5-(difluoromethoxy)-1H-methyl-pyrazol-3-yl]-4-fluoro-phenoxy]-3-methoxy-but-2-enoate ((N.4.46) CAS 948893-00-3), 3-[7-chloro-5-fluoro-2-(trifluoromethyl)-1H-benzimidazol-4-yl]-1-methyl-6-(trifluoromethyl)-1H-pyrimidine-2,4-dione ((N.4.47) CAS 212754-02-4);
- 20 N.5 Bleacher herbicides: beflubutamid (N.5.1), diflufenican (N.5.2), fluridone (N.5.3), flurochloridone (N.5.4), flurtamone (N.5.5), norflurazon (N.5.6), picolinafen (N.5.7), 4-(3-trifluoromethyl-phenoxy)-2-(4-trifluoromethylphenyl)-pyrimidine ((N.5.8) CAS 180608-33-7); benzobicyclon (N.5.9), benzofenap (N.5.10), bicyclopyrone (N.5.11), clomazone (N.5.12), fenquintrione (N.5.13), isoxaflutole (N.5.14), mesotrione (N.5.15), pyrasulfotole (N.5.16),
- 25 pyrazolynate (N.5.17), pyrazoxyfen (N.5.18), sulcotrione (N.5.19), tefuryltrione (N.5.20), tembotrione (N.5.21), tolpachlor (N.5.22), topramezone (N.5.23); acifluorfen (N.5.24), amitrole (N.5.25), flumeturon (N.5.26);
- N.6 EPSP synthase inhibitors: glyphosate (N.6.1), glyphosate-isopropylammonium (N.6.2), glyposate-potassium (N.6.3), glyphosate-trimesium (sulfosate) (N.6.4);
- 30 N.7 Glutamine synthase inhibitors: bilanaphos (bialaphos) (N.7.1), bilanaphos-sodium (N.7.2), glufosinate (N.7.3), glufosinate-P (N.7.4), glufosinate-ammonium (N.7.5);
- N.8 DHP synthase inhibitors: asulam (N.8.1);
- N.9 Mitosis inhibitors: benfluralin (N.9.1), butralin (N.9.2), dinitramine (N.9.3), ethalfluralin (N.9.4), fluchloralin (N.9.5), oryzalin (N.9.6), pendimethalin (N.9.7), prodiamine (N.9.8), trifluralin (N.9.9); amiprofos (N.9.10), amiprofos-methyl (N.9.11), butamipfos (N.9.12); chlorthal (N.9.13), chlorthal-dimethyl (N.9.14), dithiopyr (N.9.15), thiazopyr (N.9.16), propyzamide (N.9.17), tebutam (N.9.18); carbetamide (N.9.19), chlorpropham (N.9.20), flamprop (N.9.21), flamprop-isopropyl (N.9.22), flamprop-methyl (N.9.23), flamprop-M-isopropyl (N.9.24), flamprop-M-methyl (N.9.25), propham (N.9.26);
- 40 N.10 VLCFA inhibitors: acetochlor (N.10.1), alachlor (N.10.2), butachlor (N.10.3), dimethachlor (N.10.4), dimethenamid (N.10.5), dimethenamid-P (N.10.6), metazachlor (N.10.7), metolachlor (N.10.8), metolachlor-S (N.10.9), pethoxamid (N.10.10), pretilachlor (N.10.11), propachlor (N.10.12), propisochlor (N.10.13), thenylchlor (N.10.14), flufenacet (N.10.15), mefenacet (N.10.16), diphenamid (N.10.17), naproanilide (N.10.18), napropamide (N.10.19), napropamide-

M (N.10.20), fentrazamide (N.10.21), anilofos (N.10.22), cafenstrole (N.10.23), fenoxasulfone (N.10.24), ipfencarbazone (N.10.25), piperophos (N.10.26), pyroxasulfone (N.10.27), isoxazoline compounds of the formulae II.1, II.2, II.3, II.4, II.5, II.6, II.7, II.8 and II.9

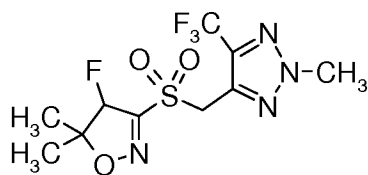


II.1

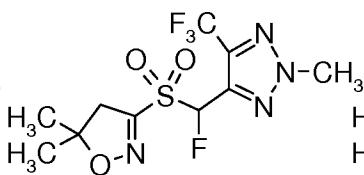


II.2

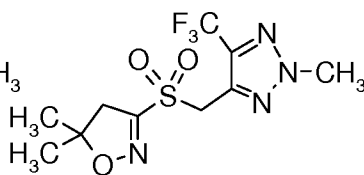
5



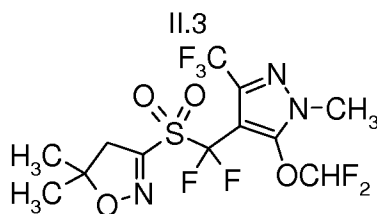
II.3



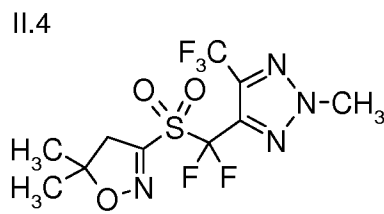
II.4



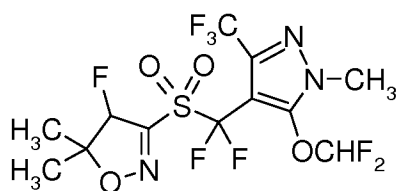
II.5



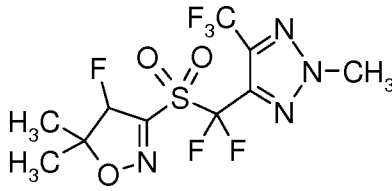
II.6



II.7



II.8



II.9

;

- 10 N.11 Cellulose biosynthesis inhibitors: chlorthiamid (N.11.1), dichlobenil (N.11.2), flupoxam (N.11.3), indaziflam (N.11.4), isoxaben (N.11.5), triaziflam (N.11.6), 1-cyclohexyl-5-pentafluorophenoxy-14-[1,2,4,6]thiatriazin-3-ylamine ((N.11.7) CAS 175899-01-1);
- N.12 Decoupler herbicides: dinoseb (N.12.1), dinoterb (N.12.2), DNOC (N.12.3) and its salts;
- N.13 Auxinic herbicides: 2,4-D (N.13.1) and its salts and esters, clacyfos (N.13.2), 2,4-DB (N.13.3) and its salts and esters, aminocyclopyrachlor (N.13.4) and its salts and esters,
- 15 aminopyralid (N.13.5) and its salts such as aminopyralid-dimethylammonium (N.13.6), aminopyralid-tris(2-hydroxypropyl)ammonium (N.13.7) and its esters, benazolin (N.13.8), benazolin-ethyl (N.13.9), chloramben (N.13.10) and its salts and esters, clomeprop (N.13.11), clopyralid (N.13.12) and its salts and esters, dicamba (N.13.13) and its salts and esters,
- 20 dichlorprop (N.13.14) and its salts and esters, dichlorprop-P (N.13.15) and its salts and esters, fluroxypyr (N.13.16), fluroxypyr-butometyl (N.13.17), fluroxypyr-meptyl (N.13.18), halauxifen (N.13.) and its salts and esters (CAS 943832-60-8); MCPA (N.13.) and its salts and esters, MCPA-thioethyl (N.13.19), MCPB (N.13.20) and its salts and esters, mecoprop (N.13.21) and its salts and esters, mecoprop-P (N.13.22) and its salts and esters, picloram (N.13.23) and its salts
- 25 and esters, quinclorac (N.13.24), quinmerac (N.13.25), TBA (2,3,6) (N.13.26) and its salts and

esters, triclopyr (N.13.27) and its salts and esters, 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxyphenyl)-5-fluoropyridine-2-carboxylic acid (N.13.28), benzyl 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxyphenyl)-5-fluoropyridine-2-carboxylate ((N.13.29) CAS 1390661-72-9);

N.14 Auxin transport inhibitors: diflufenzopyr (N.14.1), diflufenzopyr-sodium (N.14.2), naptalam (N.14.3) and naptalam-sodium (N.14.4);

N.15 Other herbicides: bromobutide (N.15.1), chlorflurenol (N.15.2), chlorflurenol-methyl (N.15.3), cinmethylin (N.15.4), cumyluron (N.15.5), cyclopyrimorate ((N.15.6) CAS 499223-49-3) and its salts and esters, dalapon (N.15.7), dazomet (N.15.8), difenzoquat (N.15.9), difenzoquat-metilsulfate (N.15.10), dimethipin (N.15.11), DSMA (N.15.12), dymron (N.15.13), endothal (N.15.14) and its salts, etobenzanid (N.15.15), flurenol (N.15.16), flurenol-butyl (N.15.17), flurprimidol (N.15.18), fosamine (N.15.19), fosamine-ammonium (N.15.20), indanofan (N.15.21), maleic hydrazide (N.15.22), mefluidide (N.15.23), metam (N.15.24), methiozolin ((N.15.25) CAS 403640-27-7), methyl azide (N.15.26), methyl bromide (N.15.27), methyl-dymron (N.15.28), methyl iodide (N.15.29), MSMA (N.15.30), oleic acid (N.15.31), oxaziclomefone (N.15.32), pelargonic acid (N.15.33), pyributicarb (N.15.34), quinclamine (N.15.35), tridiphane (N.15.36);

O) Insecticides from classes O.1 to O.29

O.1 Acetylcholine esterase (AChE) inhibitors: aldicarb (O.1.1), alanycarb (O.1.2), bendiocarb (O.1.3), benfuracarb (O.1.4), butocarboxim (O.1.5), butoxycarboxim (O.1.6), carbaryl (O.1.7), carbofuran (O.1.8), carbosulfan (O.1.9), ethiofencarb (O.1.10), fenobucarb (O.1.11), formetanate (O.1.12), furathiocarb (O.1.13), isoprocarb (O.1.14), methiocarb (O.1.15), methomyl (O.1.16), metolcarb (O.1.17), oxamyl (O.1.18), pirimicarb (O.1.19), propoxur (O.1.20), thiodicarb (O.1.21), thiofanox (O.1.22), trimethacarb (O.1.23), XMC (O.1.24), xylylcarb (O.1.25) and triazamate (O.1.26); acephate (O.1.27), azamethiphos (O.1.28), azinphos-ethyl (O.1.29), azinphosmethyl (O.1.30), cadusafos (O.1.31), chlorethoxyfos (O.1.32), chlorfenvinphos (O.1.33), chlormephos (O.1.34), chlorpyrifos (O.1.35), chlorpyrifos-methyl (O.1.36), coumaphos (O.1.37), cyanophos (O.1.38), demeton-S-methyl (O.1.39), diazinon (O.1.40), dichlorvos/ DDVP (O.1.41), dicrotophos (O.1.42), dimethoate (O.1.43), dimethylvinphos (O.1.44), disulfoton (O.1.45), EPN (O.1.46), ethion (O.1.47), ethoprophos (O.1.48), famphur (O.1.49), fenamiphos (O.1.50), fenitrothion (O.1.51), fenthion (O.1.52), fosthiazate (O.1.53), heptenophos (O.1.54), imicyafos (O.1.55), isofenphos (O.1.56), isopropyl O-(methoxyaminothio-phosphoryl) salicylate (O.1.57), isoxathion (O.1.58), malathion (O.1.59), mecarbam (O.1.60), methamidophos (O.1.61), methidathion (O.1.62), mevinphos (O.1.63), monocrotophos (O.1.64), naled (O.1.65), omethoate (O.1.66), oxydemeton-methyl (O.1.67), parathion (O.1.68), parathion-methyl (O.1.69), phenthoate (O.1.70), phorate (O.1.71), phosalone (O.1.72), phosmet (O.1.73), phosphamidon (O.1.74), phoxim (O.1.75), pirimiphos- methyl (O.1.76), profenofos (O.1.77), propetamphos (O.1.78), prothiofos (O.1.79), pyraclofos (O.1.80), pyridaphenthion (O.1.81), quinalphos (O.1.82), sulfotep (O.1.83), tebupirimfos (O.1.84), temephos (O.1.85), terbufos (O.1.86), tetrachlorvinphos (O.1.87), thiometon (O.1.88), triazophos (O.1.89), trichlorfon (O.1.90), vamidothion (O.1.91);

O.2 GABA-gated chloride channel antagonists: endosulfan (O.2.1), chlordane (O.2.2); ethiprole (O.2.3), fipronil (O.2.4), flufiprole (O.2.5), pyrafluprole (O.2.6), pyriprole (O.2.7);

O.3 Sodium channel modulators: acrinathrin (O.3.1), allethrin (O.3.2), d-cis-trans allethrin (O.3.3), d-trans allethrin (O.3.4), bifenthrin (O.3.5), bioallethrin (O.3.6), bioallethrin S-cyclopentenyl (O.3.7), bioresmethrin (O.3.8), cycloprothrin (O.3.9), cyfluthrin (O.3.10), beta-

- cyfluthrin (O.3.11), cyhalothrin (O.3.12), lambda-cyhalothrin (O.3.13), gamma-cyhalothrin (O.3.14), cypermethrin (O.3.15), alpha-cypermethrin (O.3.16), beta-cypermethrin (O.3.17), theta-cypermethrin (O.3.18), zeta-cypermethrin (O.3.19), cyphenothrin (O.3.20), deltamethrin (O.3.21), empenothrin (O.3.22), esfenvalerate (O.3.23), etofenprox (O.3.24), fenpropathrin (O.3.25), fenvalerate (O.3.26), flucythrinate (O.3.27), flumethrin (O.3.28), tau-fluvalinate (O.3.29), halfenprox (O.3.30), heptafluthrin (O.3.31), imiprothrin (O.3.32), meperfluthrin (O.3.33), metofluthrin (O.3.34), momfluorothrin (O.3.35), permethrin (O.3.36), phenothrin (O.3.37), prallethrin (O.3.38), profluthrin (O.3.39), pyrethrin (pyrethrum) (O.3.40), resmethrin (O.3.41), silafluofen (O.3.42), tefluthrin (O.3.43), tetramethylfluthrin (O.3.44), tetramethrin (O.3.45), tralomethrin (O.3.46) and transfluthrin (O.3.47); DDT (O.3.48), methoxychlor (O.3.49);
- 10 O.4 Nicotinic acetylcholine receptor agonists (nAChR): acetamiprid (O.4.1), clothianidin (O.4.2), cycloxaprid (O.4.3), dinotefuran (O.4.4), imidacloprid (O.4.5), nitenpyram (O.4.6), thiacloprid (O.4.7), thiamethoxam (O.4.8); (2E)-1-[(6-chloropyridin-3-yl)methyl]-N'-nitro-2-pentylidene-hydrazinecarboximidamide (O.4.9); 1-[(6-chloropyridin-3-yl)methyl]-7-methyl-8-nitro-5-propoxy-
- 15 1,2,3,5,6,7-hexahydroimidazo[1,2-a]pyridine (O.4.10); nicotine (O.4.11);
- O.5 Nicotinic acetylcholine receptor allosteric activators: spinosad (O.5.1), spinetoram (O.5.2);
- O.6 Chloride channel activators: abamectin (O.6.1), emamectin benzoate (O.6.2), ivermectin (O.6.3), lepimectin (O.6.4), milbemectin (O.6.5);
- O.7 Juvenile hormone mimics: hydroprene (O.7.1), kinoprene (O.7.2), methoprene (O.7.3);
- 20 fenoxycarb (O.7.4), pyriproxyfen (O.7.5);
- O.8 miscellaneous non-specific (multi-site) inhibitors: methyl bromide (O.8.1) and other alkyl halides; chloropicrin (O.8.2), sulfuryl fluoride (O.8.3), borax (O.8.4), tartar emetic (O.8.5);
- O.9 Selective homopteran feeding blockers: pymetrozine (O.9.1), flonicamid (O.9.2);
- O.10 Mite growth inhibitors: clofentezine (O.10.1), hexythiazox (O.10.2), diflovidazin (O.10.3);
- 25 etoxazole (O.10.4);
- O.11 Microbial disruptors of insect midgut membranes: the Bt crop proteins: Cry1Ab, Cry1Ac, Cry1Fa, Cry2Ab, mCry3A, Cry3Ab, Cry3Bb, Cry34/35Ab1;
- O.12 Inhibitors of mitochondrial ATP synthase: diafenthiuron (O.12.1); azocyclotin (O.12.2), cyhexatin (O.12.3), fenbutatin oxide (O.12.4), propargite (O.12.5), tetradifon (O.12.6);
- 30 O.13 Uncouplers of oxidative phosphorylation via disruption of the proton gradient: chlorfenapyr (O.13.1), DNOC (O.13.2), sulfluramid (O.13.3);
- O.14 Nicotinic acetylcholine receptor (nAChR) channel blockers: bensultap (O.14.1), cartap hydrochloride (O.14.2), thiocyclam (O.14.3), thiosultap sodium (O.14.4);
- O.15 Inhibitors of the chitin biosynthesis type 0: bistrifluron (O.15.1), chlorfluazuron (O.15.2),
- 35 diflubenzuron (O.15.3), flucycloxuron (O.15.4), flufenoxuron (O.15.5), hexaflumuron (O.15.6), lufenuron (O.15.7), novaluron (O.15.8), noviflumuron (O.15.9), teflubenzuron (O.15.10), triflumuron (O.15.11);
- O.16 Inhibitors of the chitin biosynthesis type 1: buprofezin (O.16.1);
- O.17 Moulting disruptors: cyromazine (O.17.1);
- 40 O.18 Ecdyson receptor agonists: methoxyfenozide (O.18.1), tebufenozide (O.18.2), halofenozide (O.18.3), fufenozide (O.18.4), chromafenozide (O.18.5);
- O.19 Octopamin receptor agonists: amitraz (O.19.1);
- O.20 Mitochondrial complex III electron transport inhibitors: hydramethylnon (O.20.1), acequinocyl (O.20.2), fluacrypyrim (O.20.3);

O.21 Mitochondrial complex I electron transport inhibitors: fenazaquin (O.21.1), fenpyroximate (O.21.2), pyrimidifen (O.21.3), pyridaben (O.21.4), tebufenpyrad (O.21.5), tolfenpyrad (O.21.6); rotenone (O.21.7);

O.22 Voltage-dependent sodium channel blockers: indoxacarb (O.22.1), metaflumizone

- 5 (O.22.2), 2-[2-(4-cyanophenyl)-1-[3-(trifluoromethyl)phenyl]ethylidene]-N-[4-(difluoromethoxy)phenyl]-hydrazinecarboxamide (O.22.3), N-(3-chloro-2-methylphenyl)-2-[(4-chlorophenyl)-4-[methyl(methylsulfonyl)amino]phenyl]methylene]-hydrazinecarboxamide (O.22.4);

- 10 O.23 Inhibitors of the of acetyl CoA carboxylase: spirodiclofen (O.23.1), spiromesifen (O.23.2), spirotetramat (O.23.3);

O.24 Mitochondrial complex IV electron transport inhibitors: aluminium phosphide (O.24.1), calcium phosphide (O.24.2), phosphine (O.24.3), zinc phosphide (O.24.4), cyanide (O.24.5);

O.25 Mitochondrial complex II electron transport inhibitors: cyenopyrafen (O.25.1), cyflumetofen (O.25.2);

- 15 O.26 Ryanodine receptor-modulators: flubendiamide (O.26.1), chlorantraniliprole (O.26.2), cyantraniliprole (O.26.3), cyclaniliprole (O.26.4), tetraniliprole (O.26.5); (R)-3-chloro-N1-{2-methyl-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonylethyl)phthalamide (O.26.6), (S)-3-chloro-N1-{2-methyl-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl}-N2-(1-methyl-2-methylsulfonylethyl)phthalamide (O.26.7), methyl-
20 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)benzoyl]-1,2-dimethylhydrazinecarboxylate (O.26.8); N-[4,6-dichloro-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide (O.26.9); N-[4-chloro-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide (O.26.10); N-[4-chloro-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide (O.26.11); N-[4,6-dichloro-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide (O.26.12); N-[4,6-dibromo-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide (O.26.13); N-[2-(5-amino-1,3,4-thiadiazol-2-yl)-4-chloro-6-methylphenyl]-3-bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide (O.26.14); 3-chloro-1-(3-chloro-2-pyridinyl)-N-[2,4-dichloro-6-[(1-cyano-1-methylethyl)amino]carbonyl]phenyl]-1H-pyrazole-5-carboxamide (O.26.15); 3-bromo-N-[2,4-dichloro-6-(methylcarbamoyl)phenyl]-1-(3,5-dichloro-2-pyridyl)-1H-pyrazole-5-carboxamide (O.26.16); N-[4-chloro-2-[(1,1-dimethylethyl)amino]carbonyl]-6-methylphenyl]-1-(3-chloro-2-pyridinyl)-3-(fluoromethoxy)-1H-pyrazole-5-carboxamide (O.26.17); cyhalodiamide (O.26.18);

- 35 O.27. insecticidal active compounds of unknown or uncertain mode of action: afidopyropen (O.27.1), afoxolaner (O.27.2), azadirachtin (O.27.3), amidoflume (O.27.4), benzoximate (O.27.5), bifenazate (O.27.6), broflanilide (O.27.7), bromopropylate (O.27.8), chinomethionat (O.27.9), cryolite (O.27.10), dicloromezotiaz (O.27.11), dicofol (O.27.12), flufenerim (O.27.13), flometoquin (O.27.14), fluensulfone (O.27.15), fluhexafon (O.27.16), fluopyram (O.27.17), flupyradifurone (O.27.18), fluralaner (O.27.19), metoxadiazon (O.27.20), piperonyl butoxide (O.27.21), pyflubumide (O.27.22), pyridalyl (O.27.23), pyrifluquinazon (O.27.24), sulfoxaflo (O.27.25), tioxaafen (O.27.26), triflumezopyrim (O.27.27), 11-(4-chloro-2,6-dimethylphenyl)-12-hydroxy-1,4-dioxo-9-azadispiro[4.2.4.2]-tetradec-11-en-10-one (O.27.28), 3-(4'-fluoro-2,4-

dimethylbiphenyl-3-yl)-4-hydroxy-8-oxa-1-azaspiro[4.5]dec-3-en-2-one (O.27.28), 1-[2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl]-3-(trifluoromethyl)-1H-1,2,4-triazole-5-amine (O.27.29), (E/Z)-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (O.27.31); (E/Z)-N-[1-[(6-chloro-5-fluoro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (O.27.32); (E/Z)-2,2,2-trifluoro-N-[1-[(6-fluoro-3-pyridyl)methyl]-2-pyridylidene]acetamide (O.27.33); (E/Z)-N-[1-[(6-bromo-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (O.27.34); (E/Z)-N-[1-[1-(6-chloro-3-pyridyl)ethyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (O.27.35); (E/Z)-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (O.27.36); (E/Z)-2-chloro-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2-difluoro-acetamide (O.27.37); (E/Z)-N-[1-[(2-chloropyrimidin-5-yl)methyl]-2-pyridylidene]-2,2,2-trifluoro-acetamide (O.27.38); (E/Z)-N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,3,3,3-pentafluoro-propanamide (O.27.39); N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-thioacetamide (O.27.40); N-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-2,2,2-trifluoro-N'-isopropyl-acetamidine (O.27.41); fluazaindolizine (O.27.42); 4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4H-isoxazol-3-yl]-2-methyl-N-(1-oxothietan-3-yl)benzamide (O.27.43); fluxametamide (O.27.44); 5-[3-[2,6-dichloro-4-(3,3-dichloroallyloxy)phenoxy]propoxy]-1H-pyrazole (O.27.45); 3-(benzoylmethylamino)-N-[2-bromo-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]-6-(trifluoromethyl)phenyl]-2-fluoro-benzamide (O.27.46); 3-(benzoylmethylamino)-2-fluoro-N-[2-iodo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]-benzamide (O.27.47); N-[3-[[[2-iodo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]amino]carbonyl]phenyl]-N-methyl-benzamide (O.27.48); N-[3-[[[2-bromo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]amino]carbonyl]-2-fluorophenyl]-4-fluoro-N-methyl-benzamide (O.27.49); 4-fluoro-N-[2-fluoro-3-[[[2-iodo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]amino]carbonyl]phenyl]-N-methyl-benzamide (O.27.50); 3-fluoro-N-[2-fluoro-3-[[[2-iodo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]amino]carbonyl]phenyl]-N-methyl-benzamide (O.27.51); 2-chloro-N-[3-[[[2-iodo-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-6-(trifluoromethyl)phenyl]amino]carbonyl]phenyl]-3-pyridinecarboxamide (O.27.52); 4-cyano-N-[2-cyano-5-[[2,6-dibromo-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]phenyl]carbamoyl]phenyl]-2-methyl-benzamide (O.27.53); 4-cyano-3-[(4-cyano-2-methyl-benzoyl)amino]-N-[2,6-dichloro-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]phenyl]-2-fluoro-benzamide (O.27.54); N-[5-[[2-chloro-6-cyano-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]phenyl]carbamoyl]-2-cyano-phenyl]-4-cyano-2-methyl-benzamide (O.27.55); N-[5-[[2-bromo-6-chloro-4-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]phenyl]carbamoyl]-2-cyano-phenyl]-4-cyano-2-methyl-benzamide (O.27.56); N-[5-[[2-bromo-6-chloro-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]phenyl]carbamoyl]-2-cyano-phenyl]-4-cyano-2-methyl-benzamide (O.27.57); 4-cyano-N-[2-cyano-5-[[2,6-dichloro-4-[1,2,2,3,3,3-hexafluoro-1-(trifluoromethyl)propyl]phenyl]carbamoyl]phenyl]-2-methyl-benzamide (O.27.58); 4-cyano-N-[2-cyano-5-[[2,6-dichloro-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl]carbamoyl]phenyl]-2-methyl-benzamide (O.27.59); N-[5-[[2-bromo-6-chloro-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]phenyl]carbamoyl]-2-cyano-phenyl]-4-cyano-2-methyl-benzamide (O.27.60); 2-(1,3-dioxan-2-yl)-6-[2-(3-pyridinyl)-5-thiazolyl]-pyridine; 2-[6-[2-(5-fluoro-3-pyridinyl)-5-thiazolyl]-2-pyridinyl]-pyrimidine (O.27.61); 2-[6-[2-(3-pyridinyl)-5-thiazolyl]-2-

pyridinyl]-pyrimidine (O.27.62); N-methylsulfonyl-6-[2-(3-pyridyl)thiazol-5-yl]pyridine-2-carboxamide (O.27.63); N-methylsulfonyl-6-[2-(3-pyridyl)thiazol-5-yl]pyridine-2-carboxamide (O.27.64); N-ethyl-N-[4-methyl-2-(3-pyridyl)thiazol-5-yl]-3-methylthio-propanamide (O.27.65); N-methyl-N-[4-methyl-2-(3-pyridyl)thiazol-5-yl]-3-methylthio-propanamide (O.27.66); N,2-dimethyl-N-[4-methyl-2-(3-pyridyl)thiazol-5-yl]-3-methylthio-propanamide (O.27.67); N-ethyl-2-methyl-N-[4-methyl-2-(3-pyridyl)thiazol-5-yl]-3-methylthio-propanamide (O.27.68); N-[4-chloro-2-(3-pyridyl)thiazol-5-yl]-N-ethyl-2-methyl-3-methylthio-propanamide (O.27.69.); N-[4-chloro-2-(3-pyridyl)thiazol-5-yl]-N,2-dimethyl-3-methylthio-propanamide (O.27.70); N-[4-chloro-2-(3-pyridyl)thiazol-5-yl]-N-methyl-3-methylthio-propanamide (O.27.71); N-[4-chloro-2-(3-pyridyl)thiazol-5-yl]-N-ethyl-3-methylthio-propanamide (O.27.72); 1-[(6-chloro-3-pyridinyl)methyl]-1,2,3,5,6,7-hexahydro-5-methoxy-7-methyl-8-nitro-imidazo[1,2-a]pyridine (O.27.73); 1-[(6-chloropyridin-3-yl)methyl]-7-methyl-8-nitro-1,2,3,5,6,7-hexahydroimidazo[1,2-a]pyridin-5-ol (O.27.74); 1-isopropyl-N,5-dimethyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.75); 1-(1,2-dimethylpropyl)-N-ethyl-5-methyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.76); N,5-dimethyl-N-pyridazin-4-yl-1-(2,2,2-trifluoro-1-methyl-ethyl)pyrazole-4-carboxamide (O.27.77); 1-[1-(1-cyanocyclopropyl)ethyl]-N-ethyl-5-methyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.78); N-ethyl-1-(2-fluoro-1-methyl-propyl)-5-methyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.79); 1-(1,2-dimethylpropyl)-N,5-dimethyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.80); 1-[1-(1-cyanocyclopropyl)ethyl]-N,5-dimethyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.81); N-methyl-1-(2-fluoro-1-methyl-propyl)-5-methyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.82); 1-(4,4-difluorocyclohexyl)-N-ethyl-5-methyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.83); 1-(4,4-difluorocyclohexyl)-N,5-dimethyl-N-pyridazin-4-yl-pyrazole-4-carboxamide (O.27.84), N-(1-methylethyl)-2-(3-pyridinyl)-2H-indazole-4-carboxamide (O.27.85); N-cyclopropyl-2-(3-pyridinyl)-2H-indazole-4-carboxamide (O.27.86); N-cyclohexyl-2-(3-pyridinyl)-2H-indazole-4-carboxamide (O.27.87); 2-(3-pyridinyl)-N-(2,2,2-trifluoroethyl)-2H-indazole-4-carboxamide (O.27.88); 2-(3-pyridinyl)-N-[(tetrahydro-2-furanyl)methyl]-2H-indazole-5-carboxamide (O.27.89); methyl 2-[[2-(3-pyridinyl)-2H-indazol-5-yl]carbonyl]hydrazinecarboxylate (O.27.90); N-[(2,2-difluorocyclopropyl)methyl]-2-(3-pyridinyl)-2H-indazole-5-carboxamide (O.27.91); N-(2,2-difluoropropyl)-2-(3-pyridinyl)-2H-indazole-5-carboxamide (O.27.92); 2-(3-pyridinyl)-N-(2-pyrimidinylmethyl)-2H-indazole-5-carboxamide (O.27.93); N-[(5-methyl-2-pyrazinyl)methyl]-2-(3-pyridinyl)-2H-indazole-5-carboxamide (O.27.94), N-[3-chloro-1-(3-pyridyl)pyrazol-4-yl]-N-ethyl-3-(3,3,3-trifluoropropylsulfanyl)-propanamide (O.27.95); N-[3-chloro-1-(3-pyridyl)pyrazol-4-yl]-N-ethyl-3-(3,3,3-trifluoropropylsulfinyl)propanamide (O.27.96); N-[3-chloro-1-(3-pyridyl)pyrazol-4-yl]-3-[(2,2-difluorocyclopropyl)methylsulfonyl]-N-ethyl-propanamide (O.27.97); N-[3-chloro-1-(3-pyridyl)pyrazol-4-yl]-3-[(2,2-difluorocyclopropyl)methylsulfinyl]-N-ethyl-propanamide (O.27.98); sarolaner (O.27.99), lotilaner (O.27.100).

The active substances referred to as component 2, their preparation and their activity e. g. against harmful fungi is known (cf.: <http://www.alanwood.net/pesticides/>); these substances are commercially available. The compounds described by IUPAC nomenclature, their preparation and their pesticidal activity are also known (cf. Can. J. Plant Sci. 48(6), 587-94, 1968; EP-A 141 317; EP-A 152 031; EP-A 226 917; EP-A 243 970; EP-A 256 503; EP-A 428 941; EP-A 532 022; EP-A 1 028 125; EP-A 1 035 122; EP-A 1 201 648; EP-A 1 122 244,

JP 2002316902; DE 19650197; DE 10021412; DE 102005009458; US 3,296,272;
US 3,325,503; WO 98/46608; WO 99/14187; WO 99/24413; WO 99/27783; WO 00/29404;
WO 00/46148; WO 00/65913; WO 01/54501; WO 01/56358; WO 02/22583; WO 02/40431;
WO 03/10149; WO 03/11853; WO 03/14103; WO 03/16286; WO 03/53145; WO 03/61388;
5 WO 03/66609; WO 03/74491; WO 04/49804; WO 04/83193; WO 05/120234; WO 05/123689;
WO 05/123690; WO 05/63721; WO 05/87772; WO 05/87773; WO 06/15866; WO 06/87325;
WO 06/87343; WO 07/82098; WO 07/90624, WO 10/139271, WO 11/028657, WO 12/168188,
WO 07/006670, WO 11/77514; WO 13/047749, WO 10/069882, WO 13/047441, WO 03/16303,
WO 09/90181, WO 13/007767, WO 13/010862, WO 13/127704, WO 13/024009, WO 13/24010,
10 WO 13/047441, WO 13/162072, WO 13/092224, WO 11/135833, CN 1907024, CN 1456054,
CN 103387541, CN 1309897, WO 12/84812, CN 1907024, WO 09094442, WO 14/60177,
WO 13/116251, WO 08/013622, WO 15/65922, WO 94/01546, EP 2865265, WO 07/129454,
WO 12/165511, WO 11/081174, WO 13/47441).

15 The present invention furthermore relates to agrochemical compositions comprising a mixture of
at least one compound I (component 1) and at least one further active substance useful for
plant protection, e. g. selected from the groups A) to O) (component 2), in particular one further
fungicide, e. g. one or more fungicide from the groups A) to K), as described above, and if
desired one suitable solvent or solid carrier. Those mixtures are of particular interest, since
20 many of them at the same application rate show higher efficiencies against harmful fungi.
Furthermore, combating harmful fungi with a mixture of compounds I and at least one fungicide
from groups A) to K), as described above, is more efficient than combating those fungi with
individual compounds I or individual fungicides from groups A) to K).

By applying compounds I together with at least one active substance from groups A) to O) a
25 synergistic effect can be obtained, i.e. more than simple addition of the individual effects is
obtained (synergistic mixtures).

This can be obtained by applying the compounds I and at least one further active substance
simultaneously, either jointly (e. g. as tank-mix) or separately, or in succession, wherein the time
interval between the individual applications is selected to ensure that the active substance
30 applied first still occurs at the site of action in a sufficient amount at the time of application of the
further active substance(s). The order of application is not essential for working of the present
invention.

When applying compound I and a pesticide II sequentially the time between both applications
may vary e. g. between 2 hours to 7 days. Also a broader range is possible ranging from 0.25
35 hour to 30 days, preferably from 0.5 hour to 14 days, particularly from 1 hour to 7 days or from
1.5 hours to 5 days, even more preferred from 2 hours to 1 day.

In the binary mixtures and compositions according to the invention the weight ratio of the
component 1) and the component 2) generally depends from the properties of the active
components used, usually it is in the range of from 1:10,000 to 10,000:1, often it is in the range
40 of from 1:100 to 100:1, regularly in the range of from 1:50 to 50:1, preferably in the range of
from 1:20 to 20:1, more preferably in the range of from 1:10 to 10:1, even more preferably in the
range of from 1:4 to 4:1 and in particular in the range of from 1:2 to 2:1.

According to further embodiments of the binary mixtures and compositions, the weight ratio of
the component 1) and the component 2) usually is in the range of from 1000:1 to 1:1, often in

the range of from 100:1 to 1:1, regularly in the range of from 50:1 to 1:1, preferably in the range of from 20:1 to 1:1, more preferably in the range of from 10:1 to 1:1, even more preferably in the range of from 4:1 to 1:1 and in particular in the range of from 2:1 to 1:1.

According to a further embodiments of the binary mixtures and compositions, the weight ratio of the component 1) and the component 2) usually is in the range of from 1:1 to 1:1000, often in the range of from 1:1 to 1:100, regularly in the range of from 1:1 to 1:50, preferably in the range of from 1:1 to 1:20, more preferably in the range of from 1:1 to 1:10, even more preferably in the range of from 1:1 to 1:4 and in particular in the range of from 1:1 to 1:2.

In the ternary mixtures, i.e. compositions according to the invention comprising the component 1) and component 2) and a compound III (component 3), the weight ratio of component 1) and component 2) depends from the properties of the active substances used, usually it is in the range of from 1:100 to 100:1, regularly in the range of from 1:50 to 50:1, preferably in the range of from 1:20 to 20:1, more preferably in the range of from 1:10 to 10:1 and in particular in the range of from 1:4 to 4:1, and the weight ratio of component 1) and component 3) usually it is in the range of from 1:100 to 100:1, regularly in the range of from 1:50 to 50:1, preferably in the range of from 1:20 to 20:1, more preferably in the range of from 1:10 to 10:1 and in particular in the range of from 1:4 to 4:1.

Any further active components are, if desired, added in a ratio of from 20:1 to 1:20 to the component 1).

These ratios are also suitable for inventive mixtures applied by seed treatment.

Preference is also given to mixtures comprising as component 2) at least one active substance selected from inhibitors of complex III at Q_o site in group A), more preferably selected from compounds (A.1.1), (A.1.4), (A.1.8), (A.1.9), (A.1.10), (A.1.12), (A.1.13), (A.1.14), (A.1.17), (A.1.21), (A.1.24), (A.1.25), (A.1.26), (A.1.27), (A.1.30), (A.1.31), (A.1.32), (A.1.34) and (A.1.35); particularly selected from (A.1.1), (A.1.4), (A.1.8), (A.1.9), (A.1.13), (A.1.14), (A.1.17), (A.1.24), (A.1.25), (A.1.26), (A.1.27), (A.1.30), (A.1.31), (A.1.32), (A.1.34) and (A.1.35).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from inhibitors of complex III at Q_i site in group A), more preferably selected from compounds (A.2.1), (A.2.3) and (A.2.4); particularly selected from (A.2.3) and (A.2.4).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from inhibitors of complex II in group A), more preferably selected from compounds (A.3.2), (A.3.3), (A.3.4), (A.3.7), (A.3.9), (A.3.11), (A.3.12), (A.3.15), (A.3.16), (A.3.17), (A.3.18), (A.3.19), (A.3.20), (A.3.21), (A.3.22), (A.3.23), (A.3.24), (A.3.25), (A.3.27), (A.3.28), (A.3.29), (A.3.31), (A.3.32), (A.3.33), (A.3.34), (A.3.35), (A.3.36), (A.3.37), (A.3.38) and (A.3.39); particularly selected from (A.3.2), (A.3.3), (A.3.4), (A.3.7), (A.3.9), (A.3.12), (A.3.15), (A.3.17), (A.3.19), (A.3.22), (A.3.23), (A.3.24), (A.3.25), (A.3.27), (A.3.29), (A.3.31), (A.3.32), (A.3.33), (A.3.34), (A.3.35), (A.3.36), (A.3.37), (A.3.38) and (A.3.39).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from other respiration inhibitors in group A), more preferably selected from compounds (A.4.5) and (A.4.11); in particular (A.4.11).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from C14 demethylase inhibitors in group B), more preferably selected from compounds (B.1.4), (B.1.5), (B.1.8), (B.1.10), (B.1.11), (B.1.12), (B.1.13), (B.1.17), (B.1.18),

(B.1.21), (B.1.22), (B.1.23), (B.1.25), (B.1.26), (B.1.29), (B.1.34), (B.1.37), (B.1.38), (B.1.43) and (B.1.46); particularly selected from (B.1.5), (B.1.8), (B.1.10), (B.1.17), (B.1.22), (B.1.23), (B.1.25), (B.1.33), (B.1.34), (B.1.37), (B.1.38), (B.1.43) and (B.1.46).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from Delta14-reductase inhibitors in group B), more preferably selected from compounds (B.2.4), (B.2.5), (B.2.6) and (B.2.8); in particular (B.2.4).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from phenylamides and acyl amino acid fungicides in group C), more preferably selected from compounds (C.1.1), (C.1.2), (C.1.4) and (C.1.5); particularly selected from (C.1.1) and (C.1.4).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from other nucleic acid synthesis inhibitors in group C), more preferably selected from compounds (C.2.6), (C.2.7) and (C.2.8).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group D), more preferably selected from compounds (D.1.1), (D.1.2), (D.1.5), (D.2.4) and (D.2.6); particularly selected from (D.1.2), (D.1.5) and (D.2.6).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group E), more preferably selected from compounds (E.1.1), (E.1.3), (E.2.2) and (E.2.3); in particular (E.1.3).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group F), more preferably selected from compounds (F.1.2), (F.1.4) and (F.1.5).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group G), more preferably selected from compounds (G.3.1), (G.3.3), (G.3.6), (G.5.1), (G.5.2), (G.5.3), (G.5.4), (G.5.5), (G.5.6), (G.5.7), (G.5.8), (G.5.9), (G.5.10) and (G.5.11); particularly selected from (G.3.1), (G.5.1), (G.5.2) and (G.5.3).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group H), more preferably selected from compounds (H.2.2), (H.2.3), (H.2.5), (H.2.7), (H.2.8), (H.3.2), (H.3.4), (H.3.5), (H.4.9) and (H.4.10); particularly selected from (H.2.2), (H.2.5), (H.3.2), (H.4.9) and (H.4.10).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group I), more preferably selected from compounds (I.2.2) and (I.2.5).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group J), more preferably selected from compounds (J.1.2), (J.1.5) and (J.1.8); in particular (J.1.5).

Preference is also given to mixtures comprising as component 2) at least one active substance selected from group K), more preferably selected from compounds (K.1.41), (K.1.42), (K.1.44), (K.1.45), (K.1.47) and (K.1.49); particularly selected from (K.1.41), (K.1.44), (K.1.45), (K.1.47) and (K.1.49).

Accordingly, the present invention furthermore relates to mixtures comprising one compound of the formula I (component 1) and one pesticide II (component 2), wherein pesticide II is selected from the column "Co. 2" of the lines B-1 to B-727 of Table B.

A further embodiment relates to the mixtures B-1 to B-727 listed in Table B, where a row of Table B corresponds in each case to a fungicidal mixture comprising as active components one

of the in the present specification individualized compounds of formula I (component 1 in column "Co.1") and the respective pesticide II from groups A) to O) (component 2) stated in the row in question.

- Another embodiment relates to the mixtures B-1 to B-727 listed in Table B, where a row of Table B corresponds in each case to a fungicidal mixture comprising as active components one of the compounds I.A.I-1 to I.A.I-125, I.B.I-1 to I.B.I-125, I.C.I-1 to I.C.I-125, I.D.I-1 to I.D.I-125, I.E.I-1 to I.E.I-125, I.F.I-1 to I.F.I-125, I.G.I-1 to I.G.I-125 and I.H.I-1 to I.H.I-125 as defined in tables 1 to 8 above (component 1 in column "Co.1") and the respective pesticide II from groups A) to O) (component 2) stated in the row in question.
- Another embodiment relates to the mixtures B-1 to B-727 listed in Table B, where a row of Table B corresponds in each case to a fungicidal mixture comprising as active components one of the compounds I.A-1 to I.A-21, I.B-1 to I.B-6, I.C-1, I.C2, I.D-1 and I.D-2, as defined below in tables I to IV (component 1 in column "Co.1") and the respective pesticide II from groups A) to O) (component 2) stated in the row in question.
- Preferably, the compositions described in Table B comprise the active components in synergistically effective amounts.

Table B: Mixtures comprising as active components one individualized compound of the formula I (in column Co. 1) and as component 2) (in column Co. 2) one pesticide from groups A) to O) [which is coded e. g. as (A.1.1) for azoxystrobin as defined above].

20

Mixt.	Co.1	Co. 2
B-1	(I)	(A.1.1)
B-2	(I)	(A.1.2)
B-3	(I)	(A.1.3)
B-4	(I)	(A.1.4)
B-5	(I)	(A.1.5)
B-6	(I)	(A.1.6)
B-7	(I)	(A.1.7)
B-8	(I)	(A.1.8)
B-9	(I)	(A.1.9)
B-10	(I)	(A.1.10)
B-11	(I)	(A.1.11)
B-12	(I)	(A.1.12)
B-13	(I)	(A.1.13)
B-14	(I)	(A.1.14)
B-15	(I)	(A.1.15)
B-16	(I)	(A.1.16)
B-17	(I)	(A.1.17)
B-18	(I)	(A.1.18)
B-19	(I)	(A.1.19)
B-20	(I)	(A.1.20)
B-21	(I)	(A.1.21)

Mixt.	Co.1	Co. 2
B-22	(I)	(A.1.22)
B-23	(I)	(A.1.23)
B-24	(I)	(A.1.24)
B-25	(I)	(A.1.25)
B-26	(I)	(A.1.26)
B-27	(I)	(A.1.27)
B-28	(I)	(A.1.30)
B-29	(I)	(A.1.31)
B-30	(I)	(A.1.32)
B-31	(I)	(A.2.1)
B-32	(I)	(A.2.2)
B-33	(I)	(A.2.3)
B-34	(I)	(A.2.4)
B-35	(I)	(A.2.6)
B-36	(I)	(A.2.7)
B-37	(I)	(A.2.8)
B-38	(I)	(A.3.1)
B-39	(I)	(A.3.2)
B-40	(I)	(A.3.3)
B-41	(I)	(A.3.4)
B-42	(I)	(A.3.5)

Mixt.	Co.1	Co. 2
B-43	(I)	(A.3.6)
B-44	(I)	(A.3.7)
B-45	(I)	(A.3.8)
B-46	(I)	(A.3.9)
B-47	(I)	(A.3.10)
B-48	(I)	(A.3.11)
B-49	(I)	(A.3.12)
B-50	(I)	(A.3.13)
B-51	(I)	(A.3.14)
B-52	(I)	(A.3.15)
B-53	(I)	(A.3.16)
B-54	(I)	(A.3.17)
B-55	(I)	(A.3.18)
B-56	(I)	(A.3.19)
B-57	(I)	(A.3.20)
B-58	(I)	(A.3.21)
B-59	(I)	(A.3.22)
B-60	(I)	(A.3.23)
B-61	(I)	(A.3.24)
B-62	(I)	(A.3.25)
B-63	(I)	(A.3.26)

Mixt.	Co. 1	Co. 2
B-64	(I)	(A.3.27)
B-65	(I)	(A.3.28)
B-66	(I)	(A.3.29)
B-67	(I)	(A.3.30)
B-68	(I)	(A.3.31)
B-69	(I)	(A.3.32)
B-70	(I)	(A.3.33)
B-71	(I)	(A.3.34)
B-72	(I)	(A.3.35)
B-73	(I)	(A.3.36)
B-74	(I)	(A.3.37)
B-75	(I)	(A.3.38)
B-76	(I)	(A.3.39)
B-77	(I)	(A.4.1)
B-78	(I)	(A.4.2)
B-79	(I)	(A.4.3)
B-80	(I)	(A.4.4)
B-81	(I)	(A.4.5)
B-82	(I)	(A.4.6)
B-83	(I)	(A.4.7)
B-84	(I)	(A.4.8)
B-85	(I)	(A.4.9)
B-86	(I)	(A.4.10)
B-87	(I)	(A.4.11)
B-88	(I)	(A.4.12)
B-89	(I)	(B.1.1)
B-90	(I)	(B.1.2)
B-91	(I)	(B.1.3)
B-92	(I)	(B.1.4)
B-93	(I)	(B.1.5)
B-94	(I)	(B.1.6)
B-95	(I)	(B.1.7)
B-96	(I)	(B.1.8)
B-97	(I)	(B.1.9)
B-98	(I)	(B.1.10)
B-99	(I)	(B.1.11)
B-100	(I)	(B.1.12)
B-101	(I)	(B.1.13)
B-102	(I)	(B.1.14)
B-103	(I)	(B.1.15)
B-104	(I)	(B.1.16)
B-105	(I)	(B.1.17)

Mixt.	Co. 1	Co. 2
B-106	(I)	(B.1.18)
B-107	(I)	(B.1.19)
B-108	(I)	(B.1.20)
B-109	(I)	(B.1.21)
B-110	(I)	(B.1.22)
B-111	(I)	(B.1.23)
B-112	(I)	(B.1.24)
B-113	(I)	(B.1.25)
B-114	(I)	(B.1.26)
B-115	(I)	(B.1.27)
B-116	(I)	(B.1.28)
B-117	(I)	(B.1.29)
B-118	(I)	(B.1.30)
B-119	(I)	(B.1.34)
B-120	(I)	(B.1.37)
B-121	(I)	(B.1.38)
B-122	(I)	(B.1.43)
B-123	(I)	(B.1.44)
B-124	(I)	(B.1.45)
B-125	(I)	(B.1.46)
B-126	(I)	(B.1.47)
B-127	(I)	(B.1.48)
B-128	(I)	(B.1.49)
B-129	(I)	(B.1.50)
B-130	(I)	(B.1.51)
B-131	(I)	(B.2.1)
B-132	(I)	(B.2.2)
B-133	(I)	(B.2.3)
B-134	(I)	(B.2.4)
B-135	(I)	(B.2.5)
B-136	(I)	(B.2.6)
B-137	(I)	(B.2.7)
B-138	(I)	(B.2.8)
B-139	(I)	(B.3.1)
B-140	(I)	(C.1.1)
B-141	(I)	(C.1.2)
B-142	(I)	(C.1.3)
B-143	(I)	(C.1.4)
B-144	(I)	(C.1.5)
B-145	(I)	(C.1.6)
B-146	(I)	(C.1.7)
B-147	(I)	(C.2.1)

Mixt.	Co. 1	Co. 2
B-148	(I)	(C.2.2)
B-149	(I)	(C.2.3)
B-150	(I)	(C.2.4)
B-151	(I)	(C.2.5)
B-152	(I)	(C.2.6)
B-153	(I)	(C.2.7)
B-154	(I)	(D.1.1)
B-155	(I)	(D.1.2)
B-156	(I)	(D.1.3)
B-157	(I)	(D.1.4)
B-158	(I)	(D.1.5)
B-159	(I)	(D.1.6)
B-160	(I)	(D.2.1)
B-161	(I)	(D.2.2)
B-162	(I)	(D.2.3)
B-163	(I)	(D.2.4)
B-164	(I)	(D.2.5)
B-165	(I)	(D.2.6)
B-166	(I)	(D.2.7)
B-167	(I)	(E.1.1)
B-168	(I)	(E.1.2)
B-169	(I)	(E.1.3)
B-170	(I)	(E.2.1)
B-171	(I)	(E.2.2)
B-172	(I)	(E.2.3)
B-173	(I)	(E.2.4)
B-174	(I)	(E.2.5)
B-175	(I)	(E.2.6)
B-176	(I)	(E.2.7)
B-177	(I)	(E.2.8)
B-178	(I)	(F.1.1)
B-179	(I)	(F.1.2)
B-180	(I)	(F.1.3)
B-181	(I)	(F.1.4)
B-182	(I)	(F.1.5)
B-183	(I)	(F.1.6)
B-184	(I)	(F.2.1)
B-185	(I)	(G.1.1)
B-186	(I)	(G.1.2)
B-187	(I)	(G.1.3)
B-188	(I)	(G.1.4)
B-189	(I)	(G.2.1)

Mixt.	Co.1	Co. 2
B-190	(I)	(G.2.2)
B-191	(I)	(G.2.3)
B-192	(I)	(G.2.4)
B-193	(I)	(G.2.5)
B-194	(I)	(G.2.6)
B-195	(I)	(G.2.7)
B-196	(I)	(G.3.1)
B-197	(I)	(G.3.2)
B-198	(I)	(G.3.3)
B-199	(I)	(G.3.4)
B-200	(I)	(G.3.5)
B-201	(I)	(G.3.6)
B-202	(I)	(G.3.7)
B-203	(I)	(G.3.8)
B-204	(I)	(G.4.1)
B-205	(I)	(G.5.1)
B-206	(I)	(G.5.2)
B-207	(I)	(G.5.3)
B-208	(I)	(H.1.1)
B-209	(I)	(H.1.2)
B-210	(I)	(H.1.3)
B-211	(I)	(H.1.4)
B-212	(I)	(H.1.5)
B-213	(I)	(H.1.6)
B-214	(I)	(H.2.1)
B-215	(I)	(H.2.2)
B-216	(I)	(H.2.3)
B-217	(I)	(H.2.4)
B-218	(I)	(H.2.5)
B-219	(I)	(H.2.6)
B-220	(I)	(H.2.7)
B-221	(I)	(H.2.8)
B-222	(I)	(H.2.9)
B-223	(I)	(H.3.1)
B-224	(I)	(H.3.2)
B-225	(I)	(H.3.3)
B-226	(I)	(H.3.4)
B-227	(I)	(H.3.5)
B-228	(I)	(H.3.6)
B-229	(I)	(H.3.7)
B-230	(I)	(H.3.8)
B-231	(I)	(H.3.9)

Mixt.	Co.1	Co. 2
B-232	(I)	(H.3.10)
B-233	(I)	(H.3.11)
B-234	(I)	(H.4.1)
B-235	(I)	(H.4.2)
B-236	(I)	(H.4.3)
B-237	(I)	(H.4.4)
B-238	(I)	(H.4.5)
B-239	(I)	(H.4.6)
B-240	(I)	(H.4.7)
B-241	(I)	(H.4.8)
B-242	(I)	(H.4.9)
B-243	(I)	(H.4.10)
B-244	(I)	(I.1.1)
B-245	(I)	(I.1.2)
B-246	(I)	(I.2.1)
B-247	(I)	(I.2.2)
B-248	(I)	(I.2.3)
B-249	(I)	(I.2.4)
B-250	(I)	(I.2.5)
B-251	(I)	(J.1.1)
B-252	(I)	(J.1.2)
B-253	(I)	(J.1.3)
B-254	(I)	(J.1.4)
B-255	(I)	(J.1.5)
B-256	(I)	(J.1.6)
B-257	(I)	(J.1.7)
B-258	(I)	(J.1.8)
B-259	(I)	(J.1.9)
B-260	(I)	(J.1.10)
B-261	(I)	(K.1.1)
B-262	(I)	(K.1.2)
B-263	(I)	(K.1.3)
B-264	(I)	(K.1.4)
B-265	(I)	(K.1.5)
B-266	(I)	(K.1.6)
B-267	(I)	(K.1.7)
B-268	(I)	(K.1.8)
B-269	(I)	(K.1.9)
B-270	(I)	(K.1.10)
B-271	(I)	(K.1.11)
B-272	(I)	(K.1.12)
B-273	(I)	(K.1.13)

Mixt.	Co.1	Co. 2
B-274	(I)	(K.1.14)
B-275	(I)	(K.1.15)
B-276	(I)	(K.1.16)
B-277	(I)	(K.1.17)
B-278	(I)	(K.1.18)
B-279	(I)	(K.1.19)
B-280	(I)	(K.1.20)
B-281	(I)	(K.1.21)
B-282	(I)	(K.1.22)
B-283	(I)	(K.1.23)
B-284	(I)	(K.1.24)
B-285	(I)	(K.1.25)
B-286	(I)	(K.1.26)
B-287	(I)	(K.1.27)
B-288	(I)	(K.1.28)
B-289	(I)	(K.1.29)
B-290	(I)	(K.1.30)
B-291	(I)	(K.1.31)
B-292	(I)	(K.1.32)
B-293	(I)	(K.1.33)
B-294	(I)	(K.1.34)
B-295	(I)	(K.1.35)
B-296	(I)	(K.1.36)
B-297	(I)	(K.1.37)
B-298	(I)	(K.1.38)
B-299	(I)	(K.1.39)
B-300	(I)	(K.1.40)
B-301	(I)	(K.1.41)
B-302	(I)	(K.1.42)
B-303	(I)	(K.1.43)
B-304	(I)	(K.1.44)
B-305	(I)	(K.1.45)
B-306	(I)	(K.1.47)
B-307	(I)	(M.1.1)
B-308	(I)	(M.1.2)
B-309	(I)	(M.1.3)
B-310	(I)	(M.1.4)
B-311	(I)	(M.1.5)
B-312	(I)	(M.1.6)
B-313	(I)	(M.1.7)
B-314	(I)	(M.1.8)
B-315	(I)	(M.1.9)

Mixt.	Co.1	Co. 2
B-316	(I)	(M.1.10)
B-317	(I)	(M.1.11)
B-318	(I)	(M.1.12)
B-319	(I)	(M.1.13)
B-320	(I)	(M.1.14)
B-321	(I)	(M.1.15)
B-322	(I)	(M.1.16)
B-323	(I)	(M.1.17)
B-324	(I)	(M.1.18)
B-325	(I)	(M.1.19)
B-326	(I)	(M.1.20)
B-327	(I)	(M.1.21)
B-328	(I)	(M.1.22)
B-329	(I)	(M.1.23)
B-330	(I)	(M.1.24)
B-331	(I)	(M.1.25)
B-332	(I)	(M.1.26)
B-333	(I)	(M.1.27)
B-334	(I)	(M.1.28)
B-335	(I)	(M.1.29)
B-336	(I)	(M.1.30)
B-337	(I)	(M.1.31)
B-338	(I)	(M.1.32)
B-339	(I)	(M.1.33)
B-340	(I)	(M.1.34)
B-341	(I)	(M.1.35)
B-342	(I)	(M.1.36)
B-343	(I)	(M.1.37)
B-344	(I)	(M.1.38)
B-345	(I)	(M.1.39)
B-346	(I)	(M.1.40)
B-347	(I)	(M.1.41)
B-348	(I)	(M.1.42)
B-349	(I)	(M.1.43)
B-350	(I)	(M.1.44)
B-351	(I)	(M.1.45)
B-352	(I)	(M.1.46)
B-353	(I)	(M.1.47)
B-354	(I)	(M.1.48)
B-355	(I)	(M.1.49)
B-356	(I)	(M.1.50)
B-357	(I)	(N.1.1)

Mixt.	Co.1	Co. 2
B-358	(I)	(N.1.2)
B-359	(I)	(N.1.3)
B-360	(I)	(N.1.4)
B-361	(I)	(N.1.5)
B-362	(I)	(N.2.1)
B-363	(I)	(N.2.2)
B-364	(I)	(N.2.3)
B-365	(I)	(N.3.1)
B-366	(I)	(N.3.2)
B-367	(I)	(N.3.3)
B-368	(I)	(N.3.4)
B-369	(I)	(N.4.1)
B-370	(I)	(N.5.1)
B-371	(I)	(N.6.1)
B-372	(I)	(N.6.2)
B-373	(I)	(N.6.3)
B-374	(I)	(N.6.4)
B-375	(I)	(N.6.5)
B-376	(I)	(N.7.1)
B-377	(I)	(N.7.2)
B-378	(I)	(N.7.3)
B-379	(I)	(N.8.1)
B-380	(I)	(N.9.1)
B-381	(I)	(N.10.1)
B-382	(I)	(N.10.2)
B-383	(I)	(N.10.3)
B-384	(I)	(N.10.4)
B-385	(I)	(N.10.5)
B-386	(I)	(N.11.1)
B-387	(I)	(N.12.1)
B-388	(I)	(N.12.2)
B-389	(I)	(N.12.3)
B-390	(I)	(N.12.4)
B-391	(I)	(N.13.1)
B-392	(I)	(N.13.2)
B-393	(I)	(N.13.3)
B-394	(I)	(N.13.4)
B-395	(I)	(N.13.5)
B-396	(I)	(N.13.6)
B-397	(I)	(N.13.7)
B-398	(I)	(N.13.8)
B-399	(I)	(N.13.9)

Mixt.	Co.1	Co. 2
B-400	(I)	(N.14.1)
B-401	(I)	(N.14.2)
B-402	(I)	(N.14.3)
B-403	(I)	(N.15.1)
B-404	(I)	(N.16.1)
B-405	(I)	(N.16.2)
B-406	(I)	(N.17.1)
B-407	(I)	(N.17.2)
B-408	(I)	(N.17.3)
B-409	(I)	(N.17.4)
B-410	(I)	(N.17.5)
B-411	(I)	(N.17.6)
B-412	(I)	(N.17.7)
B-413	(I)	(N.17.8)
B-414	(I)	(N.17.9)
B-415	(I)	(N.17.10)
B-416	(I)	(N.17.11)
B-417	(I)	(N.17.12)
B-418	(I)	(O.1.1)
B-419	(I)	(O.1.2)
B-420	(I)	(O.1.3)
B-421	(I)	(O.1.4)
B-422	(I)	(O.1.5)
B-423	(I)	(O.1.6)
B-424	(I)	(O.1.7)
B-425	(I)	(O.1.8)
B-426	(I)	(O.1.9)
B-427	(I)	(O.1.10)
B-428	(I)	(O.1.11)
B-429	(I)	(O.1.12)
B-430	(I)	(O.1.13)
B-431	(I)	(O.1.14)
B-432	(I)	(O.1.15)
B-433	(I)	(O.1.16)
B-434	(I)	(O.1.17)
B-435	(I)	(O.1.18)
B-436	(I)	(O.1.19)
B-437	(I)	(O.1.20)
B-438	(I)	(O.1.21)
B-439	(I)	(O.1.22)
B-440	(I)	(O.1.23)
B-441	(I)	(O.1.24)

Mixt.	Co.1	Co. 2
B-442	(I)	(O.1.25)
B-443	(I)	(O.1.26)
B-444	(I)	(O.1.27)
B-445	(I)	(O.1.28)
B-446	(I)	(O.1.29)
B-447	(I)	(O.1.30)
B-448	(I)	(O.1.31)
B-449	(I)	(O.1.32)
B-450	(I)	(O.1.33)
B-451	(I)	(O.1.34)
B-452	(I)	(O.1.35)
B-453	(I)	(O.1.36)
B-454	(I)	(O.1.37)
B-455	(I)	(O.1.38)
B-456	(I)	(O.2.1)
B-457	(I)	(O.2.2)
B-458	(I)	(O.2.3)
B-459	(I)	(O.2.4)
B-460	(I)	(O.2.5)
B-461	(I)	(O.2.6)
B-462	(I)	(O.2.7)
B-463	(I)	(O.2.8)
B-464	(I)	(O.2.9)
B-465	(I)	(O.2.10)
B-466	(I)	(O.2.11)
B-467	(I)	(O.2.12)
B-468	(I)	(O.2.13)
B-469	(I)	(O.2.14)
B-470	(I)	(O.2.15)
B-471	(I)	(O.2.16)
B-472	(I)	(O.3.1)
B-473	(I)	(O.3.2)
B-474	(I)	(O.3.3)
B-475	(I)	(O.3.4)
B-476	(I)	(O.3.5)
B-477	(I)	(O.3.6)
B-478	(I)	(O.3.7)
B-479	(I)	(O.3.8)
B-480	(I)	(O.3.9)
B-481	(I)	(O.3.10)
B-482	(I)	(O.3.11)
B-483	(I)	(O.3.12)

Mixt.	Co.1	Co. 2
B-484	(I)	(O.3.13)
B-485	(I)	(O.3.14)
B-486	(I)	(O.3.15)
B-487	(I)	(O.3.16)
B-488	(I)	(O.3.17)
B-489	(I)	(O.3.18)
B-490	(I)	(O.3.19)
B-491	(I)	(O.3.20)
B-492	(I)	(O.3.21)
B-493	(I)	(O.3.22)
B-494	(I)	(O.3.23)
B-495	(I)	(O.3.24)
B-496	(I)	(O.3.25)
B-497	(I)	(O.3.26)
B-498	(I)	(O.3.27)
B-499	(I)	(O.4.1)
B-500	(I)	(O.4.2)
B-501	(I)	(O.4.3)
B-502	(I)	(O.4.4)
B-503	(I)	(O.4.5)
B-504	(I)	(O.4.6)
B-505	(I)	(O.4.7)
B-506	(I)	(O.4.8)
B-507	(I)	(O.4.9)
B-508	(I)	(O.4.10)
B-509	(I)	(O.4.11)
B-510	(I)	(O.4.12)
B-511	(I)	(O.4.13)
B-512	(I)	(O.4.14)
B-513	(I)	(O.4.15)
B-514	(I)	(O.4.16)
B-515	(I)	(O.4.17)
B-516	(I)	(O.4.18)
B-517	(I)	(O.4.19)
B-518	(I)	(O.4.20)
B-519	(I)	(O.4.21)
B-520	(I)	(O.4.22)
B-521	(I)	(O.4.23)
B-522	(I)	(O.4.24)
B-523	(I)	(O.5.1)
B-524	(I)	(O.5.2)
B-525	(I)	(O.5.3)

Mixt.	Co.1	Co. 2
B-526	(I)	(O.5.4)
B-527	(I)	(O.5.5)
B-528	(I)	(O.5.6)
B-529	(I)	(O.5.7)
B-530	(I)	(O.5.8)
B-531	(I)	(O.5.9)
B-532	(I)	(O.6.1)
B-533	(I)	(O.6.2)
B-534	(I)	(O.6.3)
B-535	(I)	(O.6.4)
B-536	(I)	(O.6.5)
B-537	(I)	(O.6.6)
B-538	(I)	(O.6.7)
B-539	(I)	(O.7.1)
B-540	(I)	(O.7.2)
B-541	(I)	(O.7.3)
B-542	(I)	(O.7.4)
B-543	(I)	(O.7.5)
B-544	(I)	(O.7.6)
B-545	(I)	(O.8.1)
B-546	(I)	(O.8.2)
B-547	(I)	(O.8.3)
B-548	(I)	(O.8.4)
B-549	(I)	(O.8.5)
B-550	(I)	(O.9.1)
B-551	(I)	(O.9.2)
B-552	(I)	(O.9.3)
B-553	(I)	(O.10.1)
B-554	(I)	(O.11.1)
B-555	(I)	(O.11.2)
B-556	(I)	(O.11.3)
B-557	(I)	(O.11.4)
B-558	(I)	(O.12.1)
B-559	(I)	(O.13.1)
B-560	(I)	(O.14.1)
B-561	(I)	(O.14.2)
B-562	(I)	(O.15.1)
B-563	(I)	(O.15.2)
B-564	(I)	(O.15.3)
B-565	(I)	(O.15.4)
B-566	(I)	(O.15.5)
B-567	(I)	(O.15.6)

Mixt.	Co.1	Co. 2
B-568	(I)	(O.15.7)
B-569	(I)	(O.15.8)
B-570	(I)	(O.15.9)
B-571	(I)	(O.15.10)
B-572	(I)	(O.15.11)
B-573	(I)	(O.16.1)
B-574	(I)	(O.16.2)
B-575	(I)	(O.16.3)
B-576	(I)	(O.16.4)
B-577	(I)	(O.16.5)
B-578	(I)	(O.16.6)
B-579	(I)	(O.17.1)
B-580	(I)	(O.18.1)
B-581	(I)	(O.18.2)
B-582	(I)	(O.18.3)
B-583	(I)	(O.18.4)
B-584	(I)	(O.18.5)
B-585	(I)	(O.19.1)
B-586	(I)	(O.20.1)
B-587	(I)	(O.20.2)
B-588	(I)	(O.20.3)
B-589	(I)	(O.21.1)
B-590	(I)	(O.21.2)
B-591	(I)	(O.21.3)
B-592	(I)	(O.21.4)
B-593	(I)	(O.21.5)
B-594	(I)	(O.21.6)
B-595	(I)	(O.21.7)
B-596	(I)	(O.22.1)
B-597	(I)	(O.22.2)
B-598	(I)	(O.22.3)
B-599	(I)	(O.22.4)
B-600	(I)	(O.23.1)
B-601	(I)	(O.23.2)
B-602	(I)	(O.23.3)
B-603	(I)	(O.24.1)
B-604	(I)	(O.24.2)
B-605	(I)	(O.24.3)
B-606	(I)	(O.24.4)
B-607	(I)	(O.24.5)
B-608	(I)	(O.25.1)
B-609	(I)	(O.25.2)

Mixt.	Co.1	Co. 2
B-610	(I)	(O.26.1)
B-611	(I)	(O.26.2)
B-612	(I)	(O.26.3)
B-613	(I)	(O.26.4)
B-614	(I)	(O.26.5)
B-615	(I)	(O.26.6)
B-616	(I)	(O.26.7)
B-617	(I)	(O.26.8)
B-618	(I)	(O.26.9)
B-619	(I)	(O.26.10)
B-620	(I)	(O.26.11)
B-621	(I)	(O.26.12)
B-622	(I)	(O.26.13)
B-623	(I)	(O.26.14)
B-624	(I)	(O.26.15)
B-625	(I)	(O.26.16)
B-626	(I)	(O.26.17)
B-627	(I)	(O.26.18)
B-628	(I)	(O.27.1)
B-629	(I)	(O.27.2)
B-630	(I)	(O.27.3)
B-631	(I)	(O.27.4)
B-632	(I)	(O.27.5)
B-633	(I)	(O.27.6)
B-634	(I)	(O.27.7)
B-635	(I)	(O.27.8)
B-636	(I)	(O.27.9)
B-637	(I)	(O.27.10)
B-638	(I)	(O.27.11)
B-639	(I)	(O.27.12)
B-640	(I)	(O.27.13)
B-641	(I)	(O.27.14)
B-642	(I)	(O.27.15)
B-643	(I)	(O.27.16)
B-644	(I)	(O.27.17)
B-645	(I)	(O.27.18)
B-646	(I)	(O.27.19)
B-647	(I)	(O.27.20)
B-648	(I)	(O.27.21)
B-649	(I)	(O.27.22)
B-650	(I)	(O.27.23)
B-651	(I)	(O.27.24)

Mixt.	Co.1	Co. 2
B-652	(I)	(O.27.25)
B-653	(I)	(O.27.26)
B-654	(I)	(O.27.27)
B-655	(I)	(O.27.28)
B-656	(I)	(O.27.29)
B-657	(I)	(O.27.30)
B-658	(I)	(O.27.31)
B-659	(I)	(O.27.32)
B-660	(I)	(O.27.33)
B-661	(I)	(O.27.34)
B-662	(I)	(O.27.35)
B-663	(I)	(O.27.36)
B-664	(I)	(O.27.37)
B-665	(I)	(O.27.38)
B-666	(I)	(O.27.39)
B-667	(I)	(O.27.40)
B-668	(I)	(O.27.41)
B-669	(I)	(O.27.42)
B-670	(I)	(O.27.43)
B-671	(I)	(O.27.44)
B-672	(I)	(O.27.45)
B-673	(I)	(O.27.46)
B-674	(I)	(O.27.47)
B-675	(I)	(O.27.48)
B-676	(I)	(O.27.49)
B-677	(I)	(O.27.50)
B-678	(I)	(O.27.51)
B-679	(I)	(O.27.52)
B-680	(I)	(O.27.53)
B-681	(I)	(O.27.54)
B-682	(I)	(O.27.55)
B-683	(I)	(O.27.56)
B-684	(I)	(O.27.57)
B-685	(I)	(O.27.58)
B-686	(I)	(O.27.59)
B-687	(I)	(O.27.60)
B-688	(I)	(O.27.61)
B-689	(I)	(O.27.62)
B-690	(I)	(O.27.63)
B-691	(I)	(O.27.64)
B-692	(I)	(O.27.65)
B-693	(I)	(O.27.66)

Mixt.	Co.1	Co. 2
B-694	(I)	(O.27.67)
B-695	(I)	(O.27.68)
B-696	(I)	(O.27.69)
B-697	(I)	(O.27.70)
B-698	(I)	(O.27.71)
B-699	(I)	(O.27.72)
B-700	(I)	(O.27.73)
B-701	(I)	(O.27.74)
B-702	(I)	(O.27.75)
B-703	(I)	(O.27.76)
B-704	(I)	(O.27.77)
B-705	(I)	(O.27.78)

Mixt.	Co.1	Co. 2
B-706	(I)	(O.27.79)
B-707	(I)	(O.27.80)
B-708	(I)	(O.27.81)
B-709	(I)	(O.27.82)
B-710	(I)	(O.27.83)
B-711	(I)	(O.27.84)
B-712	(I)	(O.27.85)
B-713	(I)	(O.27.86)
B-714	(I)	(O.27.87)
B-715	(I)	(O.27.88)
B-716	(I)	(O.27.89)
B-717	(I)	(O.27.90)

Mixt.	Co.1	Co. 2
B-718	(I)	(O.27.91)
B-719	(I)	(O.27.92)
B-720	(I)	(O.27.93)
B-721	(I)	(O.27.94)
B-722	(I)	(O.27.95)
B-723	(I)	(O.27.96)
B-724	(I)	(O.27.97)
B-725	(I)	(O.27.98)
B-726	(I)	(O.27.99)
B-727	(I)	(O.27.100)

The mixtures of active substances can be prepared as compositions comprising besides the active ingredients at least one inert ingredient (auxiliary) by usual means, e. g. by the means given for the compositions of compounds I.

- 5 Concerning usual ingredients of such compositions reference is made to the explanations given for the compositions containing compounds I.

The mixtures of active substances according to the present invention are suitable as fungicides, as are the compounds of formula I. They are distinguished by an outstanding effectiveness against a broad spectrum of phytopathogenic fungi, especially from the classes of the

- 10 Ascomycetes, Basidiomycetes, Deuteromycetes and Peronosporomycetes (syn. Oomycetes). In addition, it is referred to the explanations regarding the fungicidal activity of the compounds and the compositions containing compounds I, respectively.

I. Synthesis examples

- 15 The compounds of formula I.A can be prepared according to the methods outlined below.

I.1) Preparation of [1-amino-2-(2-thienyl)ethylidene]amino]-4-cyanobenzoate:

- To a solution of *N*'-hydroxy-2-(2-thienyl)acetamidine (540 mg, 1.15 eq) and diethylamine (0.78 g, 2 eq) in methylenchloride (15 ml) was added a solution of 2-(4-cyanophenyl)acetyl chloride (500 mg, 1 eq) in methylenchloride (5 ml). The mixture was stirred over night at room temperature. The reaction was quenched by the addition of water and the product was extracted into methylenchloride. The combined organic layers were successively washed with diluted aqueous solutions of hydrochloric acid and sodium bicarbonate, successively, dried over sodium sulfate and freed from solvent under reduced pressure to afford the title compound (550 mg) that was used directly without further purification.

- 25 I.2) Preparation of 4-[3-(2-thienylmethyl)-1,2,4-oxadiazol-5-yl]benzonitrile:

[1-amino-2-(2-thienyl)ethylidene]amino]-4-cyanobenzoate (550 mg, 1 eq) was dissolved in toluene (10 ml) and heated under reflux until HPLC indicated complete conversion of the

starting material. After cooling to ambient temperature, the mixture was quenched by the addition of water and the product was extracted into ethyl acetate. The combined organic layers were successively washed with diluted aqueous solutions of hydrochloric acid and sodium bicarbonate, successively, dried over sodium sulfate and freed from solvent under reduced pressure. The residue was purified by flash chromatography to afford the title compound as beige solid (250 mg, 50%)

¹H-NMR (CDCl₃, 400 MHz, 298 K): δ [ppm] = 4.38 (s, 2H), 6.95-6.99 (m, 1H), 7.00-7.08 (m, 1H), 7.21-7.25 (m, 1H), 7.81 (d, 2H), 8.25 (d, 2H).

I.3) Preparation of *N'*-hydroxy-4-[3-(2-thienylmethyl)-1,2,4-oxadiazol-5-yl]benzamidine:

To a solution of 4-[3-(2-thienylmethyl)-1,2,4-oxadiazol-5-yl]benzonitrile (250 mg, 1.0 eq) in ethanol (12 mL) was added hydroxylamine hydrochloride (1.2 ml, 1.2 eq) and *N,N*-diisopropylethylamine (1.8 ml, 1.8 eq). The resulting mixture was heated under reflux until HPLC indicated complete conversion of the starting material. After cooling to ambient temperature, water was added and the resulting precipitate was collected and dried to afford the title compound (250 mg) that was used directly without further purification.

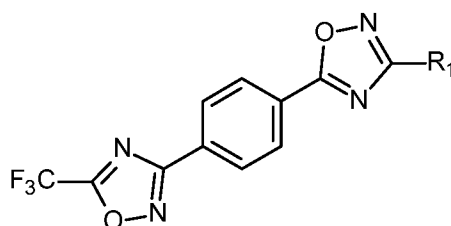
I.4) Preparation of 3-(2-thienylmethyl)-5-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole (compound I.A-5):

A solution of *N'*-hydroxy-4-[3-(2-thienylmethyl)-1,2,4-oxadiazol-5-yl]benzamidine obtained in step I.2) (0.25 g, 1.0 eq) in methylenchloride (20 mL) was treated with trifluoroacetic anhydride (0.31 g, 1.8 eq) at room temperature. The mixture was stirred overnight, before it was washed with saturated aqueous solutions of sodium bicarbonate and water. The organic layer was dried over sodium sulfate and concentrated under reduced pressure. The residue was purified by flash chromatography to afford the title compound as light brown solid (70 mg, 21%).

¹H-NMR (CDCl₃, 400 MHz, 298 K): δ [ppm] = 1.55 (s, 2H), 4.38 (s, 2H), 6.95-7.00 (m, 1H), 7.02-7.09 (m, 1H), 7.21-7.25 (m, 2H), 8.28 (s, 4H).

The compounds listed in Table I were prepared in an analogous manner.

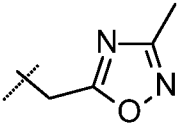
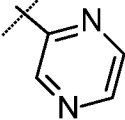
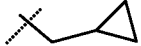
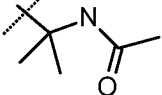
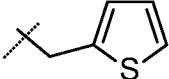
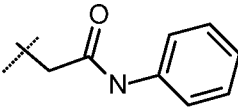
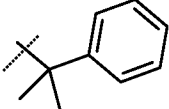
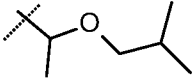
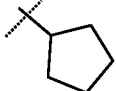
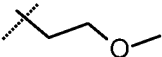
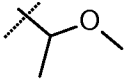
Table I: Compounds I.A-1 to I.A-21 of formula I.A,

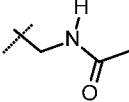


I.A

wherein R¹ is as defined below.

Ex. no	R ¹	HPLC R _t (min)*	Melting point
--------	----------------	-------------------------------	------------------

Ex. no	R ¹	HPLC R _t (min)*	Melting point
I.A-1		1.229	-
I.A-2		1.222	-
I.A-3		1.409	-
I.A-4		1.133	-
I.A-5		1.397	-
I.A-6	benzyl	1.431	-
I.A-7		1.256	-
I.A-8		1.524	-
I.A-9		1.498	-
I.A-10		1.380	-
I.A-11		1.501	-
I.A-12		1.268	-
I.A-13		1.302	-
I.A-14	ethyl	1.301	127°C
I.A-15	CH ₃	1.210	109°C
I.A-16	CH ₂ CH ₂ CH ₂ CH ₃	1.489	90°C

Ex. no	R ¹	HPLC R _t (min)*	Melting point
I.A-17	CH ₂ Cl	1.260	103°C
I.A-18	CH ₂ NHCH ₃	0.873	98°C
I.A-19	CH ₂ N(CH ₃) ₂	0.899	86°C
I.A-20		1.022	182°C
I.A-21	CH ₂ CN	-	145°C

* HPLC: High Performance Liquid Chromatography; HPLC-column Kinetex XB C18 1,7 μ (50 x 2,1 mm); eluent: acetonitrile / water + 0.1% trifluoroacetic acid (gradient from 5:95 to 100 : 0 in 1.5 min at 60°C, flow gradient from 0.8 to 1.0 ml/min in 1.5 min). MS: Quadrupol Electrospray
5 Ionisation, 80 V (positive mode). R_t: retention time in minutes.

The compounds of formula I.B can be prepared according to the methods outlined below.

II.1) Preparation of *N*-benzyl-2-[5-(4-cyanophenyl)-1,3,4-oxadiazol-2-yl]acetamide

To a solution of 2-[5-(4-cyanophenyl)-1,3,4-oxadiazol-2-yl]acetic acid (1 g, 1.0 eq) in
10 tetrahydrofuran (20 mL) was added triethylamine (0.66 g, 1.5 eq), benzyl amine (0.56 g, 1.2 eq) and bis(2-oxo-3-oxazolidinyl)phosphinic chloride (1.2 g, 1.1 eq). The mixture was stirred overnight, before it was quenched by the addition of water and the product was extracted into ethyl acetate. The combined organic layers were successively washed with diluted aqueous solutions of hydrochloric acid and sodium bicarbonate, successively, dried over sodium sulfate
15 and freed from solvent under reduced pressure. To afford the title compound (500 mg) that was used directly without further purification.

II.2) Preparation of *N*-benzyl-2-[5-[4-[(*Z*)-*N'*-hydroxycarbamimidoyl]phenyl]-1,3,4-oxadiazol-2-yl]acetamide

To a solution of *N*-benzyl-2-[5-(4-cyanophenyl)-1,3,4-oxadiazol-2-yl]acetamide (0.5 g, 1 eq) in
20 ethanol (15 mL) was added hydroxylamine hydrochloride (0.16 g, 1.5 eq) and *N,N*-Diisopropylethylamine (0.41 g, 2 eq). The resulting mixture was heated under reflux until HPLC indicated complete conversion of the starting material. After cooling to ambient temperature, water was added and the resulting precipitate was collected and dried to afford the title compound (1.2 g) that was used directly without further purification.

II.3) Preparation of *N*-benzyl-2-[5-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,3,4-oxadiazol-2-yl]acetamide (compound I.B-6)

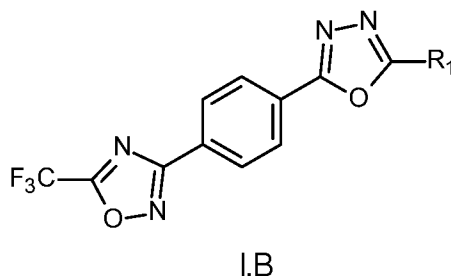
A solution of of *N*-benzyl-2-[5-[4-[(*Z*)-*N'*-hydroxycarbamimidoyl]phenyl]-1,3,4-oxadiazol-2-yl]acetamide obtained in step II.2) (1.2 g, 1.0 eq) in methylenchloride (20 mL) was treated with trifluoroacetic anhydride (1.43 g, 2.0 eq) at room temperature. The mixture was stirred

overnight, before it was washed with saturated aqueous solutions of sodium bicarbonate and water. The organic layer was dried over sodium sulfate and concentrated under reduced pressure. The residue was purified by flash chromatography to afford the title compound as light beige solid (370 mg).

- 5 $^1\text{H-NMR}$ (DMSO, 400 MHz, 298 K): δ [ppm] = 4.03 (s, 2H), 4.36 (d, 2H), 7.25-7.39 (m, 5H), 8.22 (d, 2H), 8.31 (d, 2H), 8.88 (t, 1H).

The compounds listed in Table II were prepared in an analogous manner.

Table II: Compounds I.B-1 to I.B-6 of formula I.B



- 10 wherein R¹ is as defined below.

Ex. no	R ¹	HPLC R _t (min)*
I.B-1		1.206
I.B-2		1.058
I.B-3		0.998.
I.B-4		1.035
I.B-5		1.197
I.B-6		1.183

The compounds of formula I.C can be prepared according to the methods outlined below.

III.1) Preparation of 4-[5-(cyanomethyl)isoxazol-3-yl]benzonitrile

A solution of 4-[5-(chloromethyl)isoxazol-3-yl]benzonitrile (1.0 g, 1 eq.) in DMSO (20 ml) was treated with sodium cyanide at room temperature until HPLC indicated complete conversion of the starting material. Water was added and the product was extracted into ethyl acetate and washed with saturated aqueous solutions of sodium bicarbonate and water. The organic layer was dried over sodium sulfate and concentrated under reduced pressure. The residue was purified by flash chromatography to afford the title compound as light beige solid (0.98 g, 94%).

III.2) Preparation of 4-[5-[-2-amino-2-hydroxyimino-ethyl]isoxazol-3-yl]-*N*-hydroxybenzamidine

To a solution of 4-[5-(cyanomethyl)isoxazol-3-yl]benzonitrile (0.40 g, 1.0 eq) in ethanol (15 mL) was added hydroxylamine hydrochloride (0.40 g, 3.0 eq) and *N,N*-diisopropylethylamine (0.40 g, 3.0 eq). The resulting mixture was heated under reflux until HPLC indicated complete conversion of the starting material. After cooling to ambient temperature, water was added and the resulting precipitate was collected and dried to afford the title compound (530 mg) that was used directly without further purification.

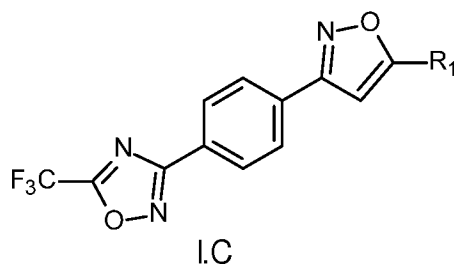
III.3) Preparation of 5-(trifluoromethyl)-3-[4-[5-[[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]methyl]-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole (compound I.C-2)

To a solution of 4-[5-[-2-amino-2-hydroxyimino-ethyl]isoxazol-3-yl]-*N*-hydroxybenzamidine (1.25 g, 1.0 eq) in methylenechloride (20 mL) was treated with trifluoroacetic anhydride (3.82 g, 4.0 eq) at room temperature. The mixture was stirred overnight, before it was washed with saturated aqueous solutions of sodium bicarbonate and water. The organic layer was dried over sodium sulfate and concentrated under reduced pressure. The residue was purified by flash chromatography to afford the title compound as light beige solid (0.44 g, 22%).

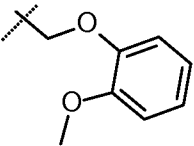
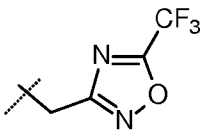
¹H-NMR (DMSO, 400 MHz, 298 K): δ [ppm] = 4.45 (s, 2H), 7.25-7.39 (m, 5H), 6.68 (s, 1H), 7.98 (d, 2H), 8.22 (d, 2H).

The compounds listed in Table III were prepared in an analogous manner.

Table III: Compounds I.C-1 to I.C-2 of formula I.C



wherein R¹ is as defined below.

Ex. no	R ¹	HPLC R _t (min)*
I.C-1		1.390
I.C-2		1.390

The compounds of formula I.D can be prepared according to the methods outlined below.

IV.1) Preparation of 2-[4-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]thiazol-2-yl]acetonitrile:

- 5 A solution 2-bromo-1-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]ethanone in *N*-Methyl-2-pyrrolidone (1.0 g, 1.0 eq) was treated with 2-cyanothioacetamide (0.3 g, 1.0 eq). The mixture was stirred at 120 °C for 7 hours. After cooling to ambient temperature, the mixture was quenched by the addition of water and the product was extracted into ethyl acetate. The combined organic layers were successively washed with diluted aqueous solutions of
- 10 hydrochloric acid and sodium bicarbonate, successively, dried over sodium sulfate and freed from solvent under reduced pressure. The residue was purified by flash chromatography to afford the title compound as beige solid (800 mg, 80%).

15 IV.2) Preparation of *N*-hydroxy-2-[4-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]thiazol-2-yl]acetamidine:

- To a solution of 2-[4-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]thiazol-2-yl]acetonitrile (800 mg, 1.0 eq) in ethanol (20 mL) was added hydroxylamine hydrochloride (0.20 g, 1.2 eq) and *N,N*-diisopropylethylamine (1,8 ml). The resulting mixture was heated under reflux until HPLC indicated complete conversion of the starting material. After cooling to ambient
- 20 temperature, water was added and the resulting precipitate was collected and dried to afford the title compound (500mg, 53%) that was used directly without further purification.

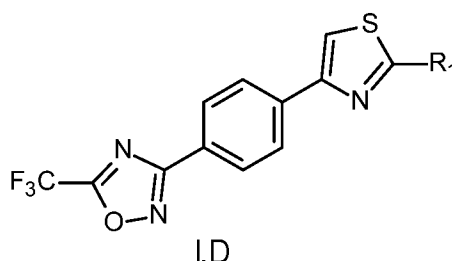
IV.3) Preparation of 3-[4-[2-[(5-methyl-1,2,4-oxadiazol-3-yl)methyl]thiazol-4-yl]phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole (compound I.D-2):

- 25 A solution of *N*-hydroxy-2-[4-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]thiazol-2-yl]acetamidine (0.5 g, 1.0 eq.) in methylenchloride (20 mL) was treated with trifluoroacetic anhydride (0.23 g, 1.8 eq.) at room temperature. The mixture was stirred overnight, before it was washed with saturated aqueous solutions of sodium bicarbonate and water. The organic

layer was dried over sodium sulfate and concentrated under reduced pressure. The residue was purified by flash chromatography to afford the title compound as light brown solid (90 mg, 18%). ¹H-NMR (CDCl₃, 400 MHz, 298 K): δ [ppm] = 2.61 (s, 3H), 4.55 (2H), 7.59 (s, 1H), 8.05 (d, 2H), 8.17 (d, 2H).

5 The compounds listed in Table IV were prepared in an analogous manner.

Table IV: Compounds I.D-1 to I.D-2 of formula I.D,



wherein R¹ is as defined below.

10

Ex. no	R ¹	HPLC R _t (min)*
I.D-1		1.358
I.D-2		1.291

* HPLC: High Performance Liquid Chromatography; HPLC-column Kinetex XB C18 1,7μ (50 x 2,1 mm); eluent: acetonitrile / water + 0.1% trifluoroacetic acid (gradient from 5:95 to 100 : 0 in 1.5 min at 60°C, flow gradient from 0.8 to 1.0 ml/min in 1.5 min). MS: Quadrupol Electrospray Ionisation, 80 V (positive mode). R_t: retention time in minutes.

15

II. Biological examples for fungicidal activity

The fungicidal action of the compounds of formula I was demonstrated by the following experiments:

A. Glass house trials

20

The spray solutions were prepared in several steps: the stock solutions were prepared: a mixture of acetone and/or dimethylsulfoxide and the wetting agent/emulsifier Wettol, which is based on ethoxylated alkylphenoles, in a relation (volume) solvent-emulsifier of 99 to 1 was added to 25 mg of the compound to give a total of 5 ml. Water was then added to total volume of 100 ml. This stock solution was diluted with the described solvent-emulsifier-water mixture to

25

the given concentration.

Use example II.1: **Curative control of soy bean rust on soy beans caused by *Phakopsora pachyrhizi***

Leaves of pot-grown soy bean seedlings were inoculated with spores of *Phakopsora pachyrhizi*. To ensure the success of the artificial inoculation, the plants were transferred to a humid chamber with a relative humidity of about 95 % and 20 to 24°C for 24 h. The next day the plants were sprayed to run-off with an aqueous suspension, containing the concentration of active ingredient or their mixture as described below. The plants were allowed to air-dry. Then the trial plants were cultivated for 14 days in a greenhouse chamber at 23-27°C and a relative humidity between 60 and 80 %. The extent of fungal attack on the leaves was visually assessed as % diseased leaf area.

In this test, the plants which had been treated with 300 ppm of the active compounds I.A-2, I.A-3, I.A-4, I.A-5, I.A-6, I.A-9, I.D-2 showed a diseased leaf area between 0 and 30 %, whereas the untreated plants showed 90 % diseased leaf area.

In this test, the plants which had been treated with 32 ppm of the active compounds I.A-14, I.A-15, I.A-17, I.A-19, I.A-20 and I.A-21 showed a diseased leaf area between 0 and 15 %, whereas the untreated plants showed 100 % diseased leaf area.

In this test, the plants which had been treated with 100 ppm of the active compounds I.A-1, I.C-1, I.C-2, I.D-1, I.A-10, I.A-11, I.A-12, I.A-13, I.B-1 showed a diseased leaf area between 0 and 25 %, whereas the untreated plants showed 90 % diseased leaf area.

Use example II.2: **Preventative control of brown rust on wheat caused by *Puccinia recondita***

The first two developed leaves of pot-grown wheat seedling were dusted with spores of *Puccinia recondita*. To ensure the success the artificial inoculation, the plants were transferred to a humid chamber without light and a relative humidity of 95 % to 99 % and 20 °C to 24 °C for 24 hours. The next day the plants were cultivated for 3 days in a greenhouse chamber at 20 °C to 24 °C and a relative humidity between 65 % and 70 %. Then the plants were sprayed to run-off with an aqueous suspension, containing the concentration of active ingredient or their mixture as described below. The plants were allowed to air-dry. Then the trial plants were cultivated for 8 days in a greenhouse chamber at 20 °C to 24 °C and a relative humidity between 65 % and 70 %. The extent of fungal attack on the leaves was visually assessed as % diseased leaf area.

In this test, the plants which had been treated with 600 ppm of the active compounds I.A-1, I.A-2, I.A-4, I.A-12, I.B-1 showed a diseased leaf area between 0 and 20 %, whereas the untreated plants showed 90 % diseased leaf area

Use example II.3: **Protective control of soy bean rust on soy beans caused by *Phakopsora pachyrhizi***

Leaves of pot-grown soy bean seedlings were sprayed to run-off with an aqueous suspension, containing the concentration of active ingredient as described below. The plants were allowed to air-dry. The trial plants were cultivated for two days in a greenhouse chamber at 23-27°C and a relative humidity between 60 and 80 %. Then the plants were inoculated with spores of *Phakopsora pachyrhizi*. To ensure the success the artificial inoculation, the plants were transferred to a humid chamber with a relative humidity of about 95 % and 23 to 27°C C for 24 h. The trial plants were cultivated for fourteen days in a greenhouse chamber at 23-27°C and a relative humidity between

60 and 80 %. The extent of fungal attack on the leaves was visually assessed as % diseased leaf area.

In this test, the plants which had been treated with 125 ppm of the active compounds I.B-2, I.B-3, I.B-4, I.B-5, I.B-6 showed a diseased leaf area between 0 and 3 %, whereas the untreated plants showed 100 % diseased leaf area.

In this test, the plants which had been treated with 32 ppm of the active compounds I.A-14, I.A-15, I.A-16, I.A-17, I.A-18, I.A-19, I.A-20 and I.A-21 showed a diseased leaf area between 0 and 15 %, whereas the untreated plants showed 90 % diseased leaf area.

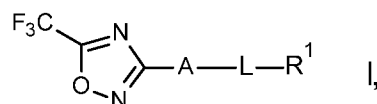
Use example II.4: **Preventative control of brown rust on wheat caused by *Puccinia recondita***

The first two developed leaves of pot-grown wheat seedling were sprayed to run-off with an aqueous suspension, containing the concentration of active ingredient or their mixture as described below. Seven days later the plants were inoculated with spores of *Puccinia recondita*. To ensure the success the artificial inoculation, the plants were transferred to a humid chamber without light and a relative humidity of 95 to 99 % and 20 to 24°C for 24 h. Then the trial plants were cultivated for 6 days in a greenhouse chamber at 20-24°C and a relative humidity between 65 and 70 %. The extent of fungal attack on the leaves was visually assessed as % diseased leaf area.

In this test, the plants which had been treated with 125 ppm of the active compounds I.B-2, I.B-3, I.B-4, showed a diseased leaf area between 1 and 7 %, whereas the untreated plants showed 90 % diseased leaf area.

Claims

1. The use of compounds of the formula I



5 wherein:

A is phenyl or thiophene; and wherein the cyclic groups A are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^A; wherein

10 R^A is halogen, cyano, diC₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkylthio, C₁-C₆-alkylsulfinyl, C₁-C₆-alkylsulfonyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^a; wherein

R^a is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy;

15 L is a 5-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein the cyclic groups L are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^L; wherein

20 R^L is halogen, di-C₁-C₆-alkylamino, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl or C₃-C₈-cycloalkoxy; and wherein any of the aliphatic or cyclic moieties are unsubstituted or substituted by 1, 2, 3 or 4 identical or different groups R^I; wherein

R^I is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, or C₃-C₈-cycloalkyl;

25 R^I is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)-N(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl),

30

35

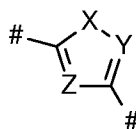
C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₃-C₆-cycloalkoxy-C₁-C₄-alkyl, phenoxy-C₁-C₄-alkyl, heteroaryloxy-C₁-C₄-alkyl, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, (C=O)-(C₁-C₄-alkyl), C(=O)-(C₁-C₄-alkoxy), C₁-C₆-alkylsulfonyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂;

or the N-oxides, or the agriculturally acceptable salts thereof for combating phytopathogenic harmful fungi.

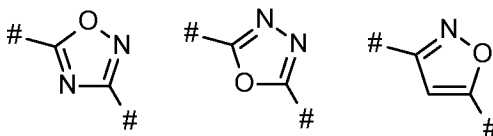
2. Use according to claim 1, wherein A is a phenyl ring.
3. Use according to claim 1, wherein A is a thiophene ring.
4. Use according to any one of claims 1 to 3, wherein

L is 5-aromatic heterocycle



wherein X, Y and Z are independently of each other O, N, S.

5. Use according to claim 4, wherein L is selected from



6. Use according to any one of claims 1 to 5, wherein

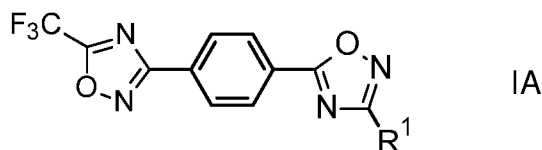
R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-

- (C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)-N(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-NH(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(phenyl), C₁-C₄-alkyl-C(=O)-NH(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, C₁-C₆-alkoxy-C₁-C₄-alkyl, C₃-C₆-cycloalkoxy-C₁-C₄-alkyl, phenoxy-C₁-C₄-alkyl, heteroaryloxy-C₁-C₄-alkyl, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};
- R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, C(=O)-(C₁-C₄-alkyl), C(=O)-(C₁-C₄-alkoxy), C₁-C₆-alkylsulfonyl, C₁-C₆-alkoxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂,
7. Use according to any one of claims 1 to 5, wherein
- R¹ is -CH₂-R¹¹, -CH(CH₃)-R¹¹ or -C(CH₃)₂-R¹¹, wherein
- R¹¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(heteroaryl), C(=O)-(C₁-C₆-alkyl), C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, NH-C(=O)(C₁-C₆-alkyl), NH-C(=O)(C₃-C₆-

cycloalkyl), NH-C(=O)(phenyl), NH-C(=O)-N(heteroaryl), C(=O)-NH(C₁-C₆-alkyl), C(=O)-N(C₁-C₆-alkyl)₂, C(=O)-NH(C₃-C₆-cycloalkyl), C(=O)-N(C₁-C₆-alkyl)(C₃-C₆-cycloalkyl), C(=O)-NH(phenyl), C(=O)-N(C₁-C₆-alkyl)(phenyl), C(=O)-NH(heteroaryl), C(=O)-N(C₁-C₆-alkyl)(heteroaryl), C(=O)-NH(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C(=O)-NH(C₁-C₄-alkyl-phenyl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-phenyl), C(=O)-NH(C₁-C₄-alkyl-heteroaryl), C(=O)-N(C₁-C₆-alkyl)(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, C₃-C₆-cycloalkoxy, phenoxy, heteroaryloxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxyC₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂,

8. Compounds of the formula I as defined in any one of claims 1 to 7, with the proviso that if the compound I is compound IA as defined below



R¹ is -CH₂-R¹¹, -CH(CH₃)-R¹¹, where R¹¹ is not C₁-C₆-alkoxy, CH₂-O-C₁-C₆-alkyl, substituted or unsubstituted C₃-C₈-cycloalkyl, phenyl, a 5- to 6-membered aromatic heterocycle.

or

R¹ is -C(CH₃)₂-R¹¹, where R¹¹ is not C₁-C₆-alkyl, N(C=O)CH₃;

and with the exception of 3-[3-(1H-tetrazol-5-yl)phenyl]-5-(trifluoromethyl)-1,2,4-oxadiazole, methyl 2-[5-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]tetrazol-1-yl]acetate, 2-[5-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]tetrazol-1-yl]acetic acid and 5-(trifluoromethyl)-3-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole.

5 9. Compounds according to claim 8 wherein A is thiophene.

10. Compounds according to claim 5 wherein

R¹ is hydrogen, C₁-C₆-alkyl, C₁-C₆-alkoxy, C₁-C₆-alkoxy-C₁-C₆-alkyl, C₂-C₆-alkenyl, C₂-C₆-alkynyl, C₃-C₈-cycloalkyl, C₃-C₈-cycloalkenyl, C(=O)-(C₁-C₆-alkyl), C(=O)-(C₃-C₆-cycloalkyl), C(=O)-(phenyl), C(=O)-(aryl), C(=O)O-(C₁-C₆-alkyl), C(=O)-O(C₃-C₆-cycloalkyl), C(=O)-O(phenyl), C(=O)-O(heteroaryl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-(C₁-C₆-alkoxy), C₁-C₄-alkoxyimino, C₁-C₆-alkoxyimino-C₁-C₄-alkyl, C₂-C₆-alkenyloxyimino-C₁-C₄-alkyl, C₂-C₆-alkynyloxyimino-C₁-C₄-alkyl, aminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkylaminocarbonyl, C₁-C₄-alkylaminocarbonyl-C₁-C₆-alkyl, C₁-C₄-alkyl-NH-C(=O)(C₁-C₆-alkyl), C₁-C₄-alkyl-NH-C(=O)(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-NH-C(=O)(phenyl), C₁-C₄-alkyl-NH-C(=O)-N(heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₆-alkyl)₂, C₁-C₄-alkyl-C(=O)-N(C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₃-C₆-cycloalkyl)₂, C₁-C₄-alkyl-C(=O)-N(phenyl), C₁-C₄-alkyl-C(=O)-N(phenyl)₂, C₁-C₄-alkyl-C(=O)-N(heteroaryl), C₁-C₄-alkyl-C(=O)-N(heteroaryl)₂, C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-C₃-C₆-cycloalkyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-C₃-C₆-cycloalkyl)₂, C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-phenyl), C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-phenyl)₂, C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-heteroaryl), C₁-C₄-alkyl-C(=O)-N(C₁-C₄-alkyl-heteroaryl)₂, C₁-C₄-alkylaminocarbonyl-C₃-C₆-cycloalkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkyl, heteroaryl-C₁-C₄-alkyl, C₃-C₆-cycloalkyl-C₁-C₄-alkoxy, phenyl-C₁-C₄-alkoxy, heteroaryl-C₁-C₄-alkoxy, phenyl, naphthyl or a 3- to 10-membered saturated, partially unsaturated or aromatic mono- or bicyclic heterocycle, wherein the ring member atoms of said mono- or bicyclic heterocycle include besides carbon atoms further 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms and wherein 1 or 2 carbon ring member atoms of the heterocycle may be replaced by 1 or 2 groups independently selected from C(=O) and C(=S); and wherein the heteroaryl group in heteroaryl-C₁-C₄-alkyl is a 5- or 6-membered aromatic heterocycle, wherein the ring member atoms of the heterocyclic ring include besides carbon atoms 1, 2, 3 or 4 heteroatoms selected from N, O and S as ring member atoms; and wherein any of the aliphatic or cyclic groups are unsubstituted or substituted by 1, 2, 3 or up to the maximum possible number of identical or different groups R^{1a};

R^{1a} is halogen, cyano, C₁-C₆-alkyl, C₁-C₆-haloalkyl, C₁-C₆-alkoxy, C₁-C₆-haloalkoxy, C₁-C₆-alkylthio, C₁-C₆-haloalkylthio, C₃-C₈-cycloalkyl, NHSO₂-C₁-C₄-alkyl, -(C=O)-C₁-C₄-alkyl, C(=O)-C₁-C₄-alkoxy, C₁-C₆-alkylsulfonyl, hydroxy-C₁-C₄-alkyl, C(=O)-NH₂, C(=O)-NH(C₁-C₄-alkyl), C(=O)-N(C₁-C₄-alkyl)₂, -NH(C₁-C₄-alkyl), -N(C₁-C₄-alkyl)₂;

with the exception of 5-(trifluoromethyl)-3-[4-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-

yl]phenyl]-1,2,4-oxadiazole and 5-(trifluoromethyl)-3-[3-[5-(trifluoromethyl)-1,2,4-oxadiazol-3-yl]phenyl]-1,2,4-oxadiazole.

11. A mixture comprising at least one compound of the formula I according to any one of claims 1 to 10 and at least one further pesticidally active substance selected from the group consisting of herbicides, safeners, fungicides, insecticides, and plant growth regulators.
12. An agrochemical composition, which comprises an auxiliary and at least one compound of the formula I or an N-oxide or an agriculturally acceptable salt thereof, according to any one of claims 1 to 10.
13. An agrochemical composition according to claim 12, wherein the auxiliary is selected from the group consisting of anionic, cationic and nonionic surfactants.
14. An agrochemical composition according to claim 12 or 13 further comprising seed, wherein the amount of the compound of the formula I, or an N-oxide, or an agriculturally acceptable salt thereof, is from 0.1 g to 10 kg per 100 kg of seed.
15. A method for combating phytopathogenic harmful fungi, which process comprises treating the fungi or the materials, plants, the soil or seeds to be protected against fungal attack, with an effective amount of at least one compound of formula I or an N-oxide or an agriculturally acceptable salt thereof as defined in any one of claims 1 to 10.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/075941

A. CLASSIFICATION OF SUBJECT MATTER

INV. A01N43/90 C07D413/10 C07D417/10 A01P3/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A01N C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; XIE, LAN ET AL: "Preparation of 5-[3-(heteroaryl)phenyl]tetrazole derivatives as for treating or preventing HIV infection", XP002753544, retrieved from STN Database accession no. 2009:804990 RN1174313-95-1, 117431398-4. Claim 3 & CN 101 468 985 A (INST. PHARMACOLOGY AND TOXICOLOGY ACADEMY OF MILITARY MEDICAL SCIENCES) 1 July 2009 (2009-07-01) ----- -/-	8,10,12



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

12 December 2016

Date of mailing of the international search report

19/12/2016

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

Bueno Torres, Pilar

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/075941

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/072602 A1 (BASF SE [DE]; KAISER FLORIAN [DE]; KOERBER KARSTEN [DE]; POHLMAN MATTH) 1 July 2010 (2010-07-01) page 218, Table C.9, compound 9-5; pages 187-202	1-15
X	----- HYNES J B ET AL: "Hydroxylamine derivatives as potential antimalaria agents. 3. 1,2,4-Oxadiazoles", JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY, US, vol. 15, no. 11, 1 November 1972 (1972-11-01), pages 1198-1200, XP002156043, ISSN: 0022-2623, DOI: 10.1021/JM00281A036 Table I, compounds 10-11	8,12
A	----- EP 0 276 432 A2 (CIBA GEIGY AG [CH]) 3 August 1988 (1988-08-03) cited in the application the whole document	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2016/075941

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010072602	A1	01-07-2010	AR 075321 A1 23-03-2011
		AU 2009331664 A1 14-07-2011	
		BR PI0918305 A2 11-08-2015	
		CA 2747986 A1 01-07-2010	
		CN 102325759 A 18-01-2012	
		CR 20110354 A 24-08-2011	
		EA 201100980 A1 30-01-2012	
		EP 2382195 A1 02-11-2011	
		JP 5715065 B2 07-05-2015	
		JP 2012513376 A 14-06-2012	
		KR 20110099139 A 06-09-2011	
		TW 201028405 A 01-08-2010	
		US 2011257011 A1 20-10-2011	
		UY 32366 A 30-06-2010	
		WO 2010072602 A1 01-07-2010	
		ZA 201105378 B 26-09-2012	
EP 0276432	A2	03-08-1988	AU 8246587 A 16-06-1988
		BR 8706756 A 19-07-1988	
		DK 650787 A 13-06-1988	
		EP 0276432 A2 03-08-1988	
		NZ 222868 A 26-09-1990	
		PT 86329 A 01-01-1988	
		US 4871753 A 03-10-1989	