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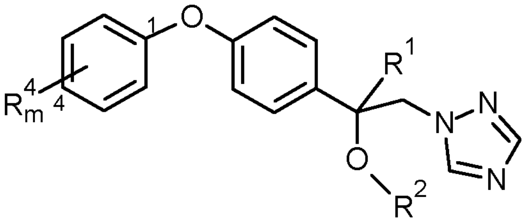
(54) Title: SUBSTITUTED 2-[PHENOXY-PHENYL]-1-[1,2,4]TRIAZOL-1-YL-ETHANOL COMPOUNDS AND THEIR USE AS FUNGICIDES

(57) Abstract: The present invention relates to substituted 2-[phenoxy-phenyl]-1-[1,2,4]triazol-1-yl-ethanol compounds of formula I as defined in the description,and the N-oxides, and salts thereof, their preparation and intermediates for preparing them. The invention also relates to the use of these compounds for combating harmful fungi and seed coated with at least one such compound and also to compositions comprising at least one such compound.

Substituted 2-[phenoxy-phenyl]-1-[1,2,4]triazol-1-yl-ethanol compounds and their use as fungicides

Description

The present invention relates to fungicidal substituted 2-[phenoxy-phenyl]-1-[1,2,4]triazol-1-yl-ethanol of the formula I



I

Furthermore the present invention relates to a process for preparing compounds of the formula I.

Furthermore the present invention relates to agrochemical compositions, comprising an auxiliary and at least one compound of formula I an N-oxide or an agriculturally acceptable salt thereof.

Furthermore the present invention relates to the use of a compound of the formula I and/or of an agriculturally acceptable salt thereof or of the compositions for combating phytopathogenic fungi.

Furthermore the present invention relates to a method for combating harmful fungi, comprising 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 with a composition.

Furthermore the present invention relates to seed, coated with at least one compound of the formula I and/or an agriculturally acceptable salt thereof or with a composition in an amount of from 0.1 to 10 kg per 100 kg of seed.

The preparations of para substituted 2-[phenoxy-phenyl]-1-[1,2,4]triazol-1-yl-ethanol and their use for controlling phytopathogenic fungi is known from e.g. EP 0 077 497, EP 0 440 950, CN 101225074, CN 1923819, US 4,940,720, EP 0 354 183, EP 0 126 430, EP 0 114 567, EP 0 113 640, DE 3 042 302, CS 247 200, DE 3 801 233, GB 2 130 589, CN 102715173, CN 102715168, CN 102696628, CN 102696627, CN 102696625, CN 102696626, CN 102657199, CN 102657184. J. Agric. Food. Chem. 2009, 57, 4854-4860 relates to the synthesis and fungicidal evaluation of certain 2-arylphenyl ether-3-(1H-1,2,4-triazol-1-yl)propan-2-ol derivatives. The compounds of this reference always contain one substituent, namely always 2-chloro, in the inner phenyl.

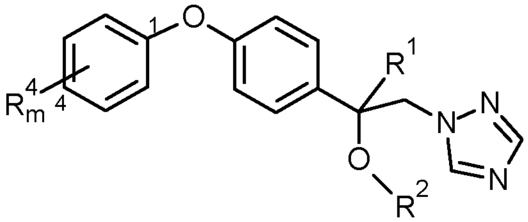
The compounds according to the present invention differ from those described in the abovementioned publications inter alia in the substitution of R^4 and in the fact that the phenyl ring is unsubstituted.

In many cases, in particular at low application rates, the fungicidal activity of the known fungicidal compounds is unsatisfactory. Based on this, it was an object of the present invention to provide compounds having improved activity and/or a broader activity spectrum against phytopathogenic harmful fungi.

Accordingly, it is an object of the present invention to provide compounds having better fungicidal activity and/or better crop plant compatibility.

Surprisingly, these objects are achieved by compounds of the general formula I, as defined below, and by the agriculturally acceptable salts of the compounds of the general formula I.

Accordingly, the present invention relates to compounds of formula I



I

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wherein:

R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl;

R^2 is hydrogen, C_1-C_6-alkyl, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl;

wherein the aliphatic groups R^1 and/or R^2 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from:

R^{12a} OH, halogen, CN, nitro, C_1-C_4-alkoxy, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl;

wherein the cycloalkyl and/or phenyl moieties of R^1 and/or R^2 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} which independently of one another are selected from:

R^{12b} OH, halogen, CN, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-halogenalkyl, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl;

R^4 is independently selected from halogen, CN, NO_2, OH, SH, C_1-C_6-alkyl, C_1-C_6-alkoxy, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyloxy, NH_2, NH(C_1-C_4-alkyl), N(C_1-C_4-alkyl)$_2$, NH(C_3-C_6-cycloalkyl), N(C_3-C_6-cycloalkyl)$_2$, S(O)$_p$(C_1-C_4-alkyl), C(=O)(-C_1-C_4-alkyl), C(=O)OH, C(=O)(-O-C_1-C_4-alkyl), C(=O)-NH(C_1-C_4-alkyl), C(=O)-N(C_1-C_4-alkyl)$_2$, C(=O)-NH(C_3-C_6-cycloalkyl) and C(=O)-N(C_3-C_6-cycloalkyl)$_2$; wherein each of R^4 is unsubstituted or further substituted by one, two, three or four R^{4a}; wherein

R^{4a} is independently selected from halogen, CN, NO_2, OH, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_3-C_8-cycloalkyl, C_3-C_8-halocycloalkyl, C_1-C_4-alkoxy and C_1-C_4-haloalkoxy;

m is an integer and is 1, 2, 3, 4 or 5;

and the N-oxides and the agriculturally acceptable salts thereof;

with the proviso that

if m is 1 R^4 is not 4-halogen; and

if m is 2 R^4 is not 2,4-Cl_2; and

if R^1 is CF_3, R^4 is not 3-CF_3.

Furthermore the present invention provides a process for preparing compounds of the formula I.

Furthermore the present invention provides an agrochemical composition, comprising an auxiliary and at least one compound of formula I an N-oxide or an agriculturally acceptable salt thereof.

Furthermore compounds of the formula I and/or of an agriculturally acceptable salt thereof or of the compositions can be used for combating phytopathogenic fungi.

Furthermore the present invention provides a method for combating harmful fungi, comprising 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 with a composition.

Furthermore the present invention provides seed, coated with at least one compound of the formula I and/or an agriculturally acceptable salt thereof or with a composition in an amount of from 0.1 to 10 kg per 100 kg of seed.

The terms used for organic groups in the definition of the variables are, for example the expression "halogen", collective terms which represent the individual members of these groups of organic units.

The prefix C_x-C_y denotes the number of possible carbon atoms in the particular case.

halogen: fluorine, bromine, chlorine or iodine, especially fluorine, chlorine or bromine;

alkyl and the alkyl moieties of composite groups such as, for example, alkoxy, alkylamino, alkoxycarbonyl: saturated straight-chain or branched hydrocarbon radicals having 1 to 10 carbon atoms, for example C_1-C_{10}-akyl, such as methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, 1,1-dimethylethyl, pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1,2,2-trimethylpropyl, 1-ethyl-1-methylpropyl and 1-ethyl-2-methylpropyl; heptyl, octyl, 2-ethylhexyl and positional isomers thereof; nonyl, decyl and positional isomers thereof. Likewise, the term "C_1-C_6-alkyl" refers to a straight-chained or branched saturated hydrocarbon group having 1 to 6 carbon atoms, e.g. methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, 1,1-dimethylethyl, pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl, hexyl, 1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1,2,2-trimethylpropyl, 1-ethyl-1-methylpropyl and 1-ethyl-2-methylpropylLikewise, the term "C_1-C_4-alkyl" refers to a straight-chained or branched alkyl group having 1 to 4 carbon atoms, such as methyl, ethyl, propyl (n-propyl), 1-methylethyl (iso-propoyl), butyl, 1-methylpropyl (sec.-butyl), 2-methylpropyl (iso-butyl), 1,1-dimethylethyl (tert.-butyl).

haloalkyl: straight-chain or branched alkyl groups having 1 to 10 carbon atoms (as mentioned above), where some or all of the hydrogen atoms in these groups are replaced by halogen atoms as mentioned above. In one embodiment, the alkyl groups are substituted at least once or completely by a particular halogen atom, preferably fluorine, chlorine or bromine. In a further embodiment, the alkyl groups are partially or fully halogenated by different halogen atoms; in the case of mixed halogen substitutions, the combination of chlorine and fluorine is preferred. Particular preference is given to (C_1-C_3)-haloalkyl, more preferably (C_1-C_2)-haloalkyl, such as 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, pentafluoroethyl or 1,1,1-trifluoroprop-2-yl;

The term "C_1-C_4-alkoxy-C_1-C_6-alkyl" refers to alkyl having 1 to 6 carbon atoms (as defined above), wherein one hydrogen atom of the alkyl radical is replaced by a C_1-C_4-alkoxy radical having 1 to 4 carbon atoms (as defined above).

The term “C_1-C_4-alkoxy-C_2-C_6-alkenyl” refers to alkenyl having 2 to 6 carbon atoms (as defined above), wherein one hydrogen atom of the alkenyl radical is replaced by a C_1-C_4-alkoxy radical having 1 to 4 carbon atoms (as defined above).

The term “C_1-C_4-alkoxy-C_2-C_6-alkynyl” refers to alkynyl having 2 to 6 carbon atoms (as defined above), wherein one hydrogen atom of the alkynyl radical is replaced by a C_1-C_4-alkoxy radical having 1 to 4 carbon atoms (as defined above).

alkenyl and also the alkenyl moieties in composite groups, such as alkenyloxy: unsaturated straight-chain or branched hydrocarbon radicals having 2 to 10 carbon atoms and one double bond in any position. According to the invention, it may be preferred to use small alkenyl groups, such as (C_2-C_4)-alkenyl; on the other hand, it may also be preferred to employ larger alkenyl groups, such as (C_5-C_8)-alkenyl. Examples of alkenyl groups are, for example, C_2-C_6-alkenyl, such as ethenyl, 1-propenyl, 2-propenyl, 1-methylethenyl, 1-butenyl, 2-butenyl, 3-butenyl, 1-methyl-1-propenyl, 2-methyl-1-propenyl, 1-methyl-2-propenyl, 2-methyl-2-propenyl, 1-pentenyl, 2-pentenyl, 3-pentenyl, 4-pentenyl, 1-methyl-1-butenyl, 2-methyl-1-butenyl, 3-methyl-1-butenyl, 1-methyl-2-butenyl, 2-methyl-2-butenyl, 3-methyl-2-butenyl, 1-methyl-3-butenyl, 2-methyl-3-butenyl, 3-methyl-3-butenyl, 1,1-dimethyl-2-propenyl, 1,2-dimethyl-1-propenyl, 1,2-dimethyl-2-propenyl, 1-ethyl-1-propenyl, 1-ethyl-2-propenyl, 1-hexenyl, 2-hexenyl, 3-hexenyl, 4-hexenyl, 5-hexenyl, 1-methyl-1-pentenyl, 2-methyl-1-pentenyl, 3-methyl-1-pentenyl, 4-methyl-1-pentenyl, 1-methyl-2-pentenyl, 2-methyl-2-pentenyl, 3-methyl-2-pentenyl, 4-methyl-2-pentenyl, 1-methyl-3-pentenyl, 2-methyl-3-pentenyl, 3-methyl-3-pentenyl, 4-methyl-3-pentenyl, 1-methyl-4-pentenyl, 2-methyl-4-pentenyl, 3-methyl-4-pentenyl, 4-methyl-4-pentenyl, 1,1-dimethyl-2-butenyl, 1,1-dimethyl-3-butenyl, 1,2-dimethyl-1-butenyl, 1,2-dimethyl-2-butenyl, 1,2-dimethyl-3-butenyl, 1,3-dimethyl-1-butenyl, 1,3-dimethyl-2-butenyl, 1,3-dimethyl-3-butenyl, 2,2-dimethyl-3-butenyl, 2,3-dimethyl-1-butenyl, 2,3-dimethyl-2-butenyl, 2,3-dimethyl-3-butenyl, 3,3-dimethyl-1-butenyl, 3,3-dimethyl-2-

butenyl, 1-ethyl-1-butenyl, 1-ethyl-2-butenyl, 1-ethyl-3-butenyl, 2-ethyl-1-butenyl, 2-ethyl-2-butenyl, 2-ethyl-3-butenyl, 1,1,2-trimethyl-2-propenyl, 1-ethyl-1-methyl-2-propenyl, 1-ethyl-2-methyl-1-propenyl and 1-ethyl-2-methyl-2-propenyl;

alkynyl and the alkynyl moieties in composite groups: straight-chain or branched hydrocarbon groups having 2 to 10 carbon atoms and one or two triple bonds in any position, for example C_2-C_6-alkynyl, such as ethynyl, 1-propynyl, 2-propynyl, 1-butynyl, 2-butynyl, 3-butynyl, 1-methyl-2-propynyl, 1-pentynyl, 2-pentynyl, 3-pentynyl, 4-pentynyl, 1-methyl-2-butynyl, 1-methyl-3-butynyl, 2-methyl-3-butynyl, 3-methyl-1-butynyl, 1,1-dimethyl-2-propynyl, 1-ethyl-2-propynyl, 1-hexynyl, 2-hexynyl, 3-hexynyl, 4-hexynyl, 5-hexynyl, 1-methyl-2-pentynyl, 1-methyl-3-pentynyl, 1-methyl-4-pentynyl, 2-methyl-3-pentynyl, 2-methyl-4-pentynyl, 3-methyl-1-pentynyl, 3-methyl-4-pentynyl, 4-methyl-1-pentynyl, 4-methyl-2-pentynyl, 1,1-dimethyl-2-butynyl, 1,1-dimethyl-3-butynyl, 1,2-dimethyl-3-butynyl, 2,2-dimethyl-3-butynyl, 3,3-dimethyl-1-butynyl, 1-ethyl-2-butynyl, 1-ethyl-3-butynyl, 2-ethyl-3-butynyl and 1-ethyl-1-methyl-2-propynyl;

cycloalkyl and also the cycloalkyl moieties in composite groups: mono- or bicyclic saturated hydrocarbon groups having 3 to 10, in particular 3 to 6, carbon ring members, for example C_3-C_6-cycloalkyl, such as cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl. Examples of bicyclic radicals comprise bicyclo[2.2.1]heptyl, bicyclo[3.1.1]heptyl, bicyclo[2.2.2]octyl and bicyclo[3.2.1]octyl. In this connection, optionally substituted C_3-C_8-cycloalkyl means a cycloalkyl radical having from 3 to 8 carbon atoms, in which at least one hydrogen atom, for example 1, 2, 3, 4 or 5 hydrogen atoms, is/are replaced by substituents which are inert under the conditions of the reaction. Examples of inert substituents are CN, C_1-C_6-alkyl, C_1-C_4-haloalkyl, C_1-C_6-alkoxy, C_3-C_6-cycloalkyl, and C_1-C_4-alkoxy-C_1-C_6-alkyl;

halocycloalkyl and the halocycloalkyl moieties in halocycloalkoxy, halocycloalkylcarbonyl and the like: monocyclic saturated hydrocarbon groups having 3 to 10 carbon ring members (as mentioned above) in which some or all of the hydrogen atoms may be replaced by halogen atoms as mentioned above, in particular fluorine, chlorine and bromine;

alkoxy: an alkyl group as defined above which is attached via an oxygen, preferably having 1 to 10, more preferably 2 or 1 to 6 or 1 to 4, carbon atoms. Examples are: methoxy, ethoxy, n-propoxy, 1-methylethoxy, butoxy, 1-methylpropoxy, 2-methylpropoxy or 1,1-dimethylethoxy, and also for example, pentoxy, 1-methylbutoxy, 2-methylbutoxy, 3-methylbutoxy, 1,1-dimethylpropoxy, 1,2-dimethylpropoxy, 2,2-dimethylpropoxy, 1-ethylpropoxy, hexoxy, 1-methylpentoxy, 2-methylpentoxy, 3-methylpentoxy, 4-methylpentoxy, 1,1-dimethylbutoxy, 1,2-dimethylbutoxy, 1,3-dimethylbutoxy, 2,2-dimethylbutoxy, 2,3-dimethylbutoxy, 3,3-dimethylbutoxy, 1-ethylbutoxy, 2-ethylbutoxy, 1,1,2-trimethylpropoxy, 1,2,2-trimethylpropoxy, 1-ethyl-1-methylpropoxy or 1-ethyl-2-methylpropoxy. Likewise, the term "C_1-C_6-alkoxy" refers to a straight-chain or branched alkyl group having 1 to 6 carbon atoms which is bonded via an oxygen, at any position in the alkyl group. Examples are "C_1-C_4-alkoxy" groups, such as methoxy, ethoxy, n-propoxy, 1-methylethoxy, butoxy, 1-methyl¬propoxy, 2-methylpropoxy or 1,1-dimethylethoxy. Likewise, the term "C_1-C_4-alkoxy" refers to a straight-chain or branched alkyl group having 1 to 4 carbon atoms which is bonded via an oxygen, at any position in the alkyl group, examples are methoxy, ethoxy, n-propoxy, 1-methylethoxy, butoxy, 1-methyl¬propoxy, 2-methylpropoxy or 1,1-dimethylethoxy.

halogenalkoxy: alkoxy as defined above, where some or all of the hydrogen atoms in these groups are replaced by halogen atoms as described above under haloalkyl, in particular by fluorine, chlorine or bromine. Examples are OCH_2F, $OCHF_2$, OCF_3, OCH_2Cl, $OCHCl_2$, $OCCl_3$, 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, OC_2F_5, 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, OCH_2-C_2F_5, OCF_2-C_2F_5, 1-(CH_2F)-2-fluoroethoxy, 1-(CH_2Cl)-2-chloroethoxy, 1-(CH_2Br)-2-bromoethoxy, 4-fluorobutoxy, 4-chlorobutoxy, 4-bromobutoxy or nonafluorobutoxy; and also 5-fluoropentoxy, 5-chloropentoxy, 5-bromopentoxy, 5-iodopentoxy, undecafluoropentoxy, 6-fluorohexoxy, 6-chlorohexoxy, 6-bromohexoxy, 6-iodohexoxy or dodecafluorohexoxy.

Depending on the substitution pattern, the compounds according to the invention may have one or more centers of chirality, and are generally obtained in the form of racemates or as diastereomer compositions of erythro and threo forms. The erythro and threo diastereomers of the compounds according to the invention can be separated and isolated in pure form, for example, on the basis of their different solubilities or by column chromatography. Using known methods, such uniform pairs of diastereomers can be used to obtain uniform enantiomers. Suitable for use as antimicrobial agents are both the uniform diastereomers or enantiomers and compositions thereof obtained in the synthesis. This applies correspondingly to the fungicidal compositions.

Accordingly, the invention provides both the pure enantiomers or diastereomers and compositions thereof. This applies to the compounds according to the invention and, if appropriate, correspondingly to their precursors. The scope of the present invention includes in particular the (R) and (S) isomers and the racemates of the compounds according to the invention, in particular of the formula I, which have centers of chirality. Suitable compounds of the formula I according to the invention also comprise all possible stereoisomers (cis/trans isomers) and compositions thereof.

The compounds according to the invention may be present in various crystal modifications which may differ in their biological activity. They are likewise provided by the present invention.

Owing to the basic character of their heteroatoms, the compounds according to the invention are capable of forming salts or adducts with inorganic or organic acids or with metal ions.

Suitable agriculturally useful salts are 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 of the formula I. Thus, suitable cations are in particular the ions of the alkali metals, preferably sodium and potassium, of the alkaline earth metals, preferably calcium, magnesium and barium, and of the transition metals, preferably manganese, copper, zinc and iron, and also the ammonium ion which, if desired, may carry one to four C_1-C_4-alkyl substituents and/or one phenyl or benzyl substituent, preferably diisopropylammonium, tetramethylammonium, tetrabutylammonium, trimethylbenzylammonium, furthermore phosphonium ions, sulfonium ions, preferably tri(C_1-C_4-alkyl)sulfonium and sulfoxonium ions, preferably tri(C_1-C_4-alkyl)sulfoxonium.

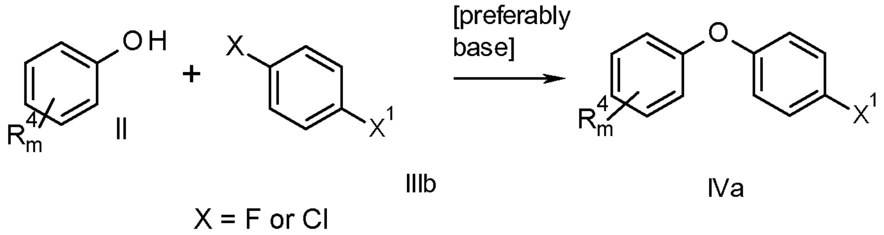
Anions of useful acid addition salts are primarily chloride, bromide, fluoride, hydrogensulfate, sulfate, dihydrogenphosphate, hydrogenphosphate, phosphate, nitrate, bicarbonate, carbonate, hexafluorosilicate, hexafluorophosphate, benzoate, and also the anions of C_1-C_4-alkanoic acids, preferably formate, acetate, propionate and butyrate. They can be formed by reacting with an acid of the corresponding anion, preferably hydrochloric acid, hydrobromic acid, sulfuric acid, phosphoric acid or nitric acid.

The inventive compounds can be present in atropisomers arising from restricted rotation about a single bond of asymmetric groups. They also form part of the subject matter of the present invention.

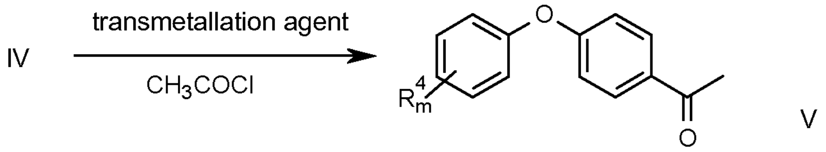
Depending on the substitution pattern, the compounds of formula I and their N-oxides may have one or more centers of chirality, in which case they are present as pure enantiomers or pure diastereomers or as enantiomer or diastereomer compositions. Both, the pure enantiomers or diastereomers and their compositions are subject matter of the present invention.

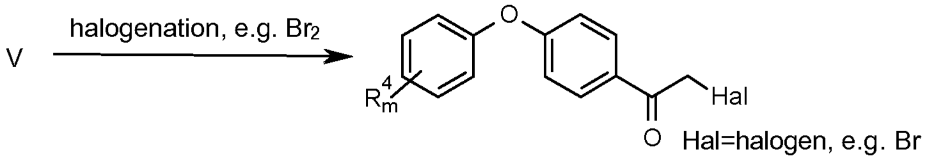
The compounds of the formula I according to the invention can be prepared by different routes analogously to processes known per se of the prior art (see, for example, the prior art cited at the outset).

In a first process, for example, phenoles II are reacted, in a first step, with derivatives IIIb, wherein X^1 stands for I or Br, in particular Br (=bromo derivatives III), preferably in the presence of a base to result in compounds IV.



Thereafter, the resulting compounds IVa , in particular IV (wherein X^1 is Br) are then transformed into Grignard reagents by the reaction with transmetallation reagents such as isopropylmagnesium halides and subsequently reacted with acetyl chloride preferably under anhydrous conditions and preferably in the presence of a catalyst such as CuCl, $CuCl_2$, $AlCl_3$, LiCl and compositions thereof, in particular CuCl, to obtain acetophenones V.

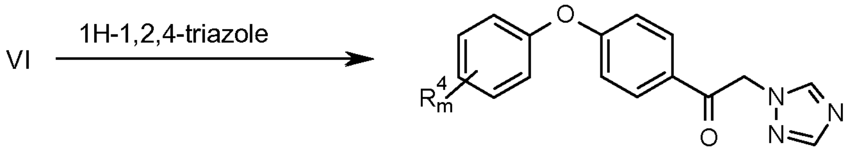




VI

These compounds V can be halogenated e.g. with bromine preferably in an organic solvent such as diethyl ether, methyl tert.-butyl ether (MTBE), methanol or acetic acid. In the resulting compounds VI, “Hal” stands for “halogen” such as e.g. Br or Cl.

Compounds VI can subsequently reacted with 1H-1,2,4-triazole preferably in the presence of a solvent such as tetrahydrofuran (THF), dimethylformamide (DMF), toluene, and in the presence of a base such as potassium carbonate, sodium hydroxide or sodium hydride to obtain compounds VII.

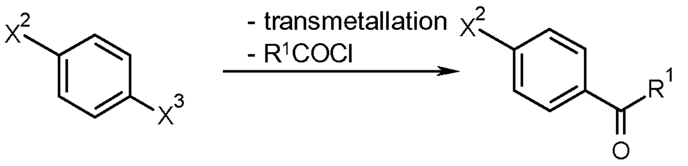


VII

These triazole keto compounds VII can be reacted with a Grignard reagent such as R^1MgBr or an organolithium reagent R^1Li preferably under anhydrous conditions to obtain compounds I wherein R^2 is hydrogen, which compounds are of formula I.1. Optionally, a Lewis acid such as $LaCl_3x2\ LiCl$ or $MgBr_2xOEt_2$ can be used. If appropriate, these compounds I.1 can subsequently be transformed e.g. with R^2-LG, wherein LG represents a nucleophilically replaceable leaving group such as halogen, alkylsulfonyl, alkylsulfonyloxy and arylsulfonyloxy, preferably chloro, bromo or iodo, particularly preferably bromo, preferably in the presence of a base, such as for example, NaH in a suitable solvent such as THF, to form other compounds I.

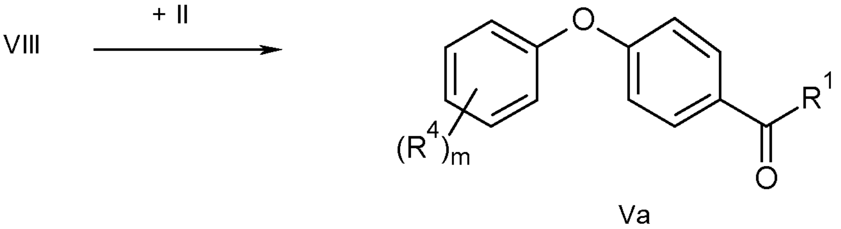
A second process to obtain the inventive compounds is as follows:

In a first step, a halo derivative IIIa, wherein X^2 is halogen, in particular F, and X^3 is halogen, in particular Br, is reacted with a transmetallation agent such as e.g. isopropylmagnesium bromide followed by an acyl chloride agent R^1COCl (e.g. acetyl chloride) preferably under anhydrous conditions and optionally in the presence of a catalyst such as CuCl, $CuCl_2$, $AlCl_3$, LiCl and compositions thereof, in particular CuCl, to obtain ketones VIII.

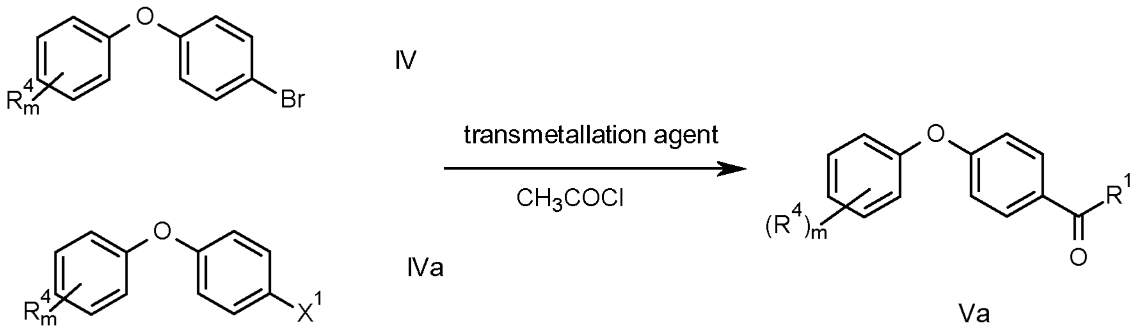


IIIa VIII

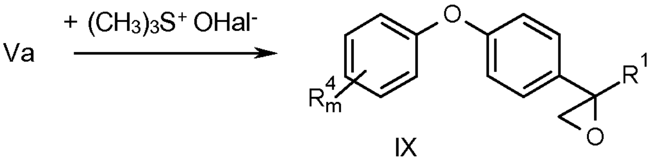
Thereafter, ketones VIII are reacted with phenoles II preferably in the presence of a base to obtain compounds Va wherein R^1 is as defined and preferably defined, respectively, herein.



Compounds Va may also be obtained in analogy to the first process described for compounds V (preferred conditions for the process step, see above). This is illustrated as follows:

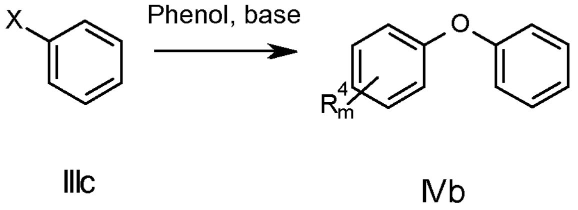


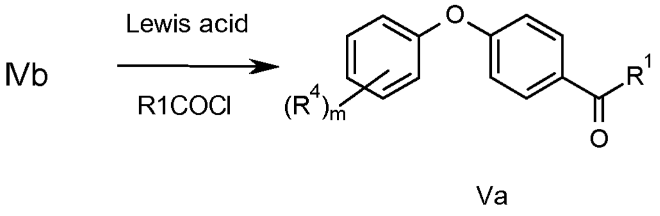
Thereafter, intermediates Va are reacted with trimethylsulf(ox)onium halides, preferably iodide, preferably in the presence of a base such as sodium hydroxide.



Alternativly, compounds Va can be synthesized via a Friedel Crafts acylation

of substituted Biphenyl ethers

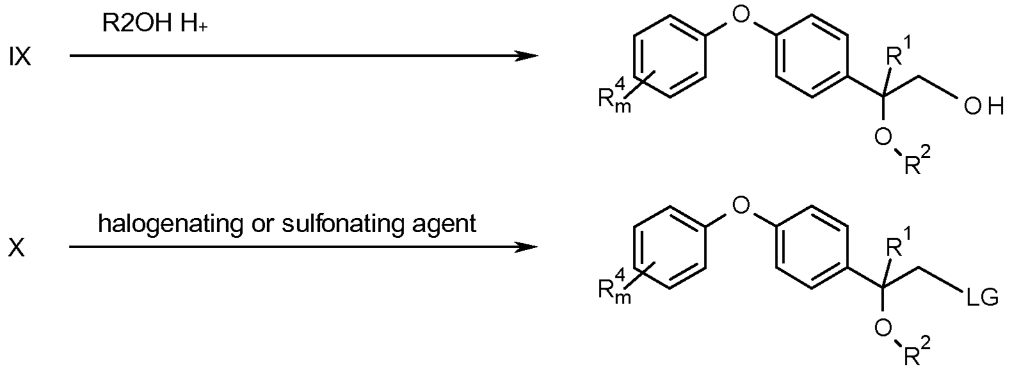




Ethers IVb can be synthesized by nucleophilic substitution of one X group in compound IIIc (Angewandte Chemie, International Edition, 45(35), 5803-5807; 2006, US 20070088015 A1, Journal of the American Chemical Society, 134(17), 7384-7391; 2012), afterwards a Lewis acid catalyzed addition of a acid halide, prefered will lead to compounds Va(Journal of Chemical Research, Synopses, (8), 245; 1992, WO2010096777 A1).

Thereafter, the epoxides IX are reacted with 1H-1,2,4-triazole preferably in the presence of a base such as potassium carbonate and preferably in the presence of an organic solvent such as DMF to obtain compounds I.1 (R^2=hydrogen) which may be further derivatized as described above.

In a third process, the epoxide ring of intermediates IX is cleaved by reaction with alcohols R^2OH preferably under acidic conditions.

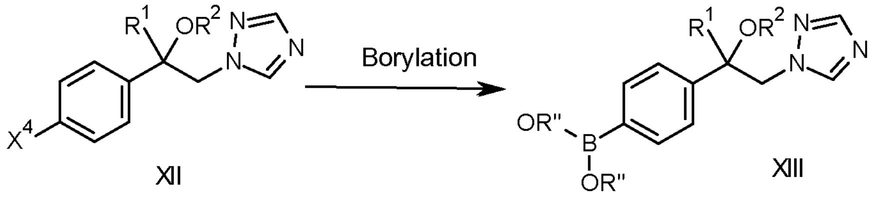


X

XI

Thereafter, the resulting compounds X are reacted with halogenating agents or sulfonating agents such as PBr_3, PCl_3 mesyl chloride, tosyl chloride or thionyl chloride, to obtain compounds XI wherein LG is a nucleophilically replaceable leaving group such as halogen, alkylsulfonyl, alkylsulfonyloxy and arylsulfonyloxy, preferably chloro, bromo or iodo, particularly preferably bromo or alkylsulfonyl. Then compounds XI are reacted with 1H-1,2,4-triazole to obtain compounds I.

Alternatively, compounds I can be prepared as follows:

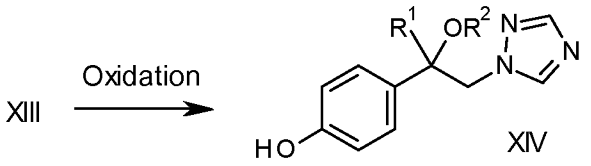


XII

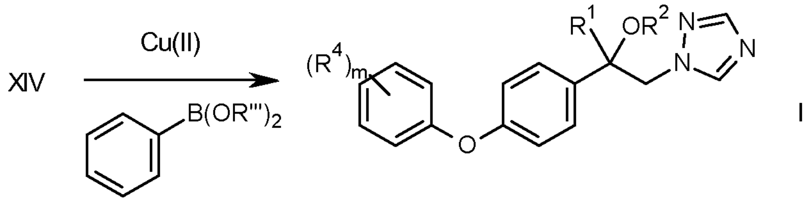
XIII

A halogenated compound XII, wherein X^4=Br or I, is transformed to the boronic acid or ester XIII (R"=H, C_1-C_4-alkyl or R" and R" together form an optionally (C_1-C_4)-alkyl-substituted #-CH_2-CH_2-# bridge, such as #-$C(CH_3)_2$-$C(CH_3)_2$-#). For example, KOAc, $Pd(dppf)Cl_2$ and dioxane can be used in this step. A reference for metallation, see Journal of the American Chemical Society (2011), 133(40), 15800-15802; Journal of Organic Chemistry, 77(15), 6624-6628; 2012; Bioorganic & Medicinal Chemistry, 19(7), 2428-2442; 2011; *Pd-catalyzed reaction*: WO 2013041497 A1, US 2011449853P; Angewandte Chemie, International Edition (2010), 49(52), 10202-10205.

Those boronic compounds XIII can be oxidized to the corresponding phenols XIV (see Journal of the American Chemical Society, 130(30), 9638-9639; 2008; US 20080286812 A1; Tetrahedron, 69(30), 6213-6218; 2013; Tetrahedron Letters, 52(23), 3005-3008; 2011; WO 2003072100 A1).



So obtained phenols XIV can be coupled with substituted phenyl boronic acids to obtain the biphenyl ethers I (WO 2013014185 A1; Journal of Medicinal Chemistry, 55(21), 9120-9135; 2012; Journal of Medicinal Chemistry, 54(6), 1613-1625; 2011; Bioorganic & Medicinal Chemistry Letters, 15(1), 115-119; 2005; Bioorganic & Medicinal Chemistry Letters, 17(6), 1799-1802; 2007). E.g. $Cu(OAc)_2$ in CH_2Cl_2/MeCN can be used.



If individual inventive compounds cannot be directly obtained by the routes described above, they can be prepared by derivatization of other inventive compounds.

The N-oxides may be prepared from the inventive compounds according to conventional oxidation methods, e. g. by treating compounds I with an organic peracid such as metachloroperbenzoic acid (cf. WO 03/64572 or J. Med. Chem. 38(11), 1892-903, 1995); or with inorganic oxidizing agents such as hydrogen peroxide (cf. J. Heterocyc. Chem. 18(7), 1305-8, 1981) or oxone (cf. J. Am. Chem. Soc. 123(25), 5962-5973, 2001). The oxidation may lead to pure mono-N-oxides or to a composition of different N-oxides, which can be separated by conventional methods such as chromatography.

If the synthesis yields compositions of isomers, a separation is generally not necessarily required since in some cases the individual isomers can be interconverted during work-up for use or during application (e. g. under the action of light, acids or bases). Such conversions may also take place after use, e. g. in the treatment of plants in the treated plant, or in the harmful fungus to be controlled.

In the following, the intermediate compounds are further described. A skilled person will readily understand that the preferences for the substituents given herein in connection with compounds I apply for the intermediates accordingly. Thereby, the substituents in each case have independently of each other or more preferably in combination the meanings as defined herein.

Compounds of formula IVa and IV are partially new. Consequently, a further embodiment of the present invention are compounds of formula IVa and IV (see above), wherein the variables R^4 and m are as defined and preferably defined for formula I herein.

Compounds of formula IVa and IV are partially new. Consequently, a further embodiment of the present invention are compounds of formula IVa and IV (see above), wherein the variables R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein.

In specific embodiments of compounds IV and IVa according to the present invention, the variables R^{32}, R^{33}, R^4 and m are as defined in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formulae Va and V (see above), wherein the variables R^1 R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein.

In specific embodiments of compounds Va and V according to the present invention, variablesR^1R^{32}, R^{33}, R^4 and m are as defined in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formula VI (see above), wherein variables R^{32}, R^{33}, R^4 and m are are as defined and preferably defined for formula I herein, and wherein Hal stands for halogen, in particular Cl or Br. According to one preferred embodiment, Hal in compounds VI stands for Br.

In specific embodiments of compounds VI according to the present invention, the variables R^{32}, R^{33}, R^4 and m are as defined in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formula VII (see above), wherein the variables variables R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein. In specific embodiments of compounds VII according to the present invention, the variables R^{32}, R^{33}, R^4 and m are as defined in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formula IX (see above), wherein the variables R^1, R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein. In specific embodiments of compounds IX according to the present invention, the variables R^1, R^{32}, R^{33}, R^4 and m are as defined in tables 1a to 70a a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formula X, wherein the variables R^1, R^2, R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein. In specific embodiments of compounds X according to the present invention, the variables R^1, R^2, R^{32}, R^{33}, R^4 and m are as defined in tables in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

A further embodiment of the present invention is compounds of formula XI, wherein the variables R^1, R^2, R^{32}, R^{33}, R^4 and m are as defined and preferably defined for formula I herein, and LG stands for a leaving group as defined above.

In specific embodiments of compounds XI according to the present invention, the variables R^1, R^2, R^{32}, R^{33}, R^4 and m are as defined in in tables 1a to 70a for compounds I, wherein the substituents are specific embodiments independently of each other or in any combination.

In the compounds according to the invention I, particular preference is given to the following meanings of the substituents, in each case on their own or in combination.

R^1 in the compounds according to the invention is, according to one embodiment, H.

R^1 in the compounds according to the invention is, according to a further embodiment, C_1-C_3-alkyl, C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4- alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl; wherein the aliphatic groups R^1 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from: OH, halogen, CN, nitro, C_1-C_4-alkoxy, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl; wherein the cycloalkyl and/or phenyl moieties of R^1 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} which independently of one another are selected from: OH, halogen, CN, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-halogenalkyl, C_1-C_4halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl.

According to a further embodiment, R^1 is C_1-C_3-alkyl, C_1-C_4-alkoxy-C_1-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkyl, in particular C_1-C_3-alkyl, C_1-C_4-alkoxy-C_1-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl and C_3-C_8-cycloalkyl-C_1-C_4-alkyl, wherein the aliphatic groups of R^1 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from OH, halogen, CN, nitro, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl and wherein the cycloalkyl and/or phenyl moieties of R^1 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} as defined herein.

According to still a further embodiment, R^1 is C_2-C_3-alkyl, C_1-C_4-alkoxy-C_2-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkyl, in particular C_2-C_3-alkyl, C_1-C_4-alkoxy-C_2-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl and C_3-C_8-cycloalkyl-C_1-C_4-alkyl, wherein the aliphatic groups of R^1 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from OH, halogen, CN, nitro, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl and wherein the cycloalkyl and/or phenyl moieties of R^1 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} as defined herein.

According to a further embodiment of the invention, R^1 is selected from C_1-C_3-alkyl, C_5-C_6-alkyl, wherein the R^1 are in each case unsubstituted or are substituted by R^{12a} and/or R^{12b} as defined and preferably herein.

According to one embodiment R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl, in particular C_1-C_3-alkyl. It may be preferred if R^1 is methyl, ethyl, n-propyl or i-propyl. In a special embodiment R^1 is methyl. In a further special embodiment R^1 is ethyl. In a further special embodiment R^1 is n-propyl. In a further special embodiment R^1 is i-propyl. In a further special embodiment R^1 is i-pentyl.

According to a one preferred embodiment R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl that is substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^1 is C_1-C_3-haloalkyl, C_5-C_6-haloalkyl, more preferably fully or partially halogenated methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl or t-butyl. In a special embodiment R^1 is CF_3. In a further special embodiment R^1 is CHF_2. In a further special embodiment R^1 is $CHF(CH_3)_2$. In a further special embodiment R^1 is CFH_2. In a further special embodiment R^1 is CCl_3. In a further special embodiment R^1 is $CHCl_2$. In a further special embodiment R^1 is $CClH_2$. According to a further specific embodiment R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl, preferably C_1-C_3-alkyl substituted by OH, more preferably CH_2OH, CH_2CH_2OH, $CH_2CH_2CH_2OH$, $CH(CH_3)CH_2OH$, $CH_2CH(CH_3)OH$, In a special embodiment R^1 is CH_2OH. In a further special embodiment R^1 is CH_2CH_2OH. According to a further specific embodiment R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl, preferably C_1-C_3-alkyl substituted by CN, more preferably CH_2CN, CH_2CH_2CN, $CH_2CH_2CH_2CN$, $CH(CH_3)CH_2CN$, $CH_2CH(CH_3)CN$. In a special embodiment R^1 is CH_2CH_2CN. In a further special embodiment R^1 is $CH(CH_3)CN$. According to a further specific embodiment R^1 is C_1-C_4-alkoxy-C_1-C_3-alkyl C_5-C_6-alkoxy-C_1-C_3-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_3-alkyl. In a special embodiment R^1 is CH_2OCH_3. In a further special embodiment R^1 is $CH_2CH_2OCH_3$. In a further special embodiment R^1 is $CH(CH_3)OCH_3$. In a further special embodiment R^1 is $CH(CH_3)OCH_2CH_3$. In a further special embodiment R^1 is $CH_2CH_2OCH_2CH_3$. According to a further specific embodiment R^1 is C_1-C_4-haloalkoxy-C_1-C_3-alkyl C_1-C_4-haloalkoxy-C_5-C_6-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_3-alkyl. In a special embodiment R^1 is CH_2OCF_3. In a further special embodiment R^1 is $CH_2CH_2OCF_3$. In a further special embodiment R^1 is CH_2OCCl_3. In a further special embodiment R^1 is $CH_2CH_2OCCl_3$.

According to one another embodiment R^1 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl, preferably C_3-C_6-cycloalkyl-C_1-C_4-alkyl. In a special embodiment R^1 is $CH(CH_3)$(cyclopropyl). In a special embodiment R^1 is CH_2-(cyclopropyl). In a special embodiment R^1 is $CH(CH_3)$(cyclobutyl). In a special embodiment R^1 is CH_2-(cyclobutyl). In a special embodiment R^1 is CH_2CH_2-(cyclopropyl) In a special embodiment R^1 is CH_2CH_2-(cyclobutyl)

According to a further preferred embodiment R^1 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl wherein the alkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein and the cycloalkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein.

According to a specific embodiment R^1 is C_3-C_8-cycloalkyl-C_1-C_4-haloalkyl, C_3-C_6-cycloalkyl-C_1-C_4-haloalkyl. According to a specific embodiment R^1 is C_3-C_8-halocycloalkyl-C_1-C_4-alkyl, C_3-C_6-halocycloalkyl-C_1-C_4-alkyl. In a special embodiment R^1 is fully or partially halogenated cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^1 is 1-Cl-cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^1 is 1-F-cyclopropyl-C_1-C_4-alkyl. . In a further very special embodiment R^1 is CH_2-1-Cl-cyclopropyl. In a further very special embodiment R^1 is CH_2-1-F-cyclopropyl. In a further very special embodiment R^1 is $CH(CH_3)$-1-Cl-cyclopropyl. In a further very special embodiment R^1 is $C(CH_3)_2$-1-F-cyclopropyl. In a further very special embodiment R^1 is CH_2-1-F-cyclobutyl. In a further very special embodiment R^1 is CH_2-1-Cl-cyclobutyl.

According to a further embodiment of the invention, R^1 is selected from phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl, wherein the R^1 are in each case unsubstituted or are substituted by R^{12a} and/or R^{12b} as defined and preferably herein.

According to one embodiment R^1 is phenyl.

According to a one preferred embodiment R^1 is phenyl substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein.

According to a specific embodiment R^1 is phenyl substituted by one, two or three halogen atoms, preferably by one, two or three Cl or F. In a special embodiment R^1 is 2-Cl-phenyl. In a further special embodiment R^1 is 2-F-phenyl. In a further special embodiment R^1 is 4-Cl-phenyl. In a further special embodiment R^1 is 4-Cl-phenyl. In a further special embodiment R^1 is 4-F-phenyl. In a further special embodiment R^1 is 4-F-phenyl. In a further special embodiment R^1 is 2,4-Cl_2-phenyl. In a further special embodiment R^1 is 2,4-F_2-phenyl. In a further special embodiment R^1 is 2-Cl-4-F-phenyl. In a further special embodiment R^1 is 2-F-4-Cl-phenyl. In a further special embodiment R^1 is 2,4,6-Cl_3-phenyl. In a further special embodiment R^1 is 2,4,6-F_3-phenyl.

According to a specific embodiment R^1 is phenyl substituted by one, two or three CN or OH groups. In a special embodiment R^1 is 2-OH-phenyl. In a further special embodiment R^1 is 4-OH-phenyl. In a further special embodiment R^1 is 2,4-OH_2-phenyl. In a further special embodiment R^1 is 2,4,6-OH_3-phenyl.

According to a specific embodiment R^1 is phenyl substituted by one, two or three C_1-C_4-alkyl or C_1-C_4-haloalkyl groups, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl or CF_3, CHF_2, CFH_2, CCl_3, $CHCl_2$, $CClH_2$. In a special embodiment R^1 is 2-CH_3-phenyl. In a further special embodiment R^1 is 2-CF_3-phenyl. In a further special embodiment R^1 is 4-CH_3-phenyl. In a further special embodiment R^1 is 4-CF_3-phenyl.

According to a specific embodiment R^1 is phenyl substituted by one, two or three C_1-C_4-alkoxy or C_1-C_4-haloalkoxy groups, preferably preferably C_1-C_4-alkoxy, more preferably CH_3O, CH_3CH_2O, $CH_3CH_2CH_2O$, $CH_2(CH_3)CH_2O$, $CH_3CH(CH_3)O$, $CH_3CH_2CH_2CH_2O$, CF_3O, CCl_3O. In a special embodiment R^1 is 2-CH_3O-phenyl. In a further special embodiment R^1 is 2-CF_3O-phenyl. In a further special embodiment R^1 is 4-CH_3O-phenyl. In a further special embodiment R^1 is 4-CF_3O-phenyl.

According to one embodiment R^1 is phenyl-C_1-C_4-alkyl, preferably phenyl-C_1-C_2-alkyl. In a special embodiment R^1 is benzyl.

According to a one preferred embodiment R^1 is phenyl-C_1-C_4-alkyl therein the alkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein, in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN, and phenyl can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN. In a special embodiment R^1 is CH_2-(4-Cl)-phenyl. In a further special embodiment R^1 is CH_2-(4-CH_3)-phenyl. In a further special embodiment R^1 is CH_2-(4-OCH_3)-phenyl. In a further special embodiment R^1 is CH_2-(4-F)-phenyl. In a further special embodiment R^1 is CH_2-(2,4-Cl_2)-phenyl. In a further special embodiment R^1 is CH_2-(2,4-F_2)-phenyl.

R^2 in the compounds according to the invention is, according to one embodiment, H.

R^2 in the compounds according to the invention is, according to a further embodiment,

C_1-C_6-alkyl, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl;

wherein the aliphatic groups R^2 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from: OH, halogen, CN, nitro, C_1-C_4-alkoxy, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl;

wherein the cycloalkyl and/or phenyl moieties of R^2 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} which independently of one another are selected from: OH, halogen, CN, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-halogenalkyl, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl.

According to a further embodiment of the invention, R^2 is selected from C_1-C_6-alkyl, C_2-C_6-alkenyl, C_2-C_6-alkynyl, wherein the R^2 are in each case unsubstituted or are substituted by R^{12a} and/or R^{12b} as defined and preferably herein.

According to one embodiment R^2 is C_1-C_6-alkyl, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl or t-butyl. In a special embodiment R^2 is methyl. In a further special embodiment R^2 is ethyl. In a further special embodiment R^2 is n-propyl. In a further special embodiment R^2 is i-propyl. In a further special embodiment R^2 is 1-methylpropyl. In a further special embodiment R^2 is n-butyl. In a further special embodiment R^2 is i-butyl. In a further special embodiment R^2 is t-butyl.

According to a one preferred embodiment R^2 is C_1-C_6-alkyl substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^2 is C_1-C_6-haloalkyl, more preferably fully or partially halogenated methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl or t-butyl. In a special embodiment R^2 is CF_3. In a further special embodiment R^2 is CHF_2. In a further special embodiment R^2 is CFH_2. In a further special embodiment R^2 is CCl_3. In a further special embodiment R^2 is $CHCl_2$. In a further special embodiment R^2 is -CH_2CF_3. In a further special embodiment R^2 is -CH2CHF_2. In a further special embodiment R^2 is -CH_2CCl_3. In a further special embodiment R^2 is -CH_2CHCl_2. In a further special embodiment R^2 is $CClH_2$. According to a further specific embodiment R^2 is C_1-C_6-alkyl, preferably C_1-C_4-alkyl substituted by OH, more preferably CH_2OH, CH_2CH_2OH, $CH_2CH_2CH_2OH$, $CH(CH_3)CH_2OH$, $CH_2CH(CH_3)OH$, $CH_2CH_2CH_2CH_2OH$. In a further special embodiment R^2 is CH_2CH_2OH. According to a further specific embodiment R^2 is C_1-C_6-alkyl, preferably C_1-C_4-alkyl substituted by CN, more preferably CH_2CN, CH_2CH_2CN, $CH_2CH_2CH_2CN$, $CH(CH_3)CH_2CN$, $CH_2CH(CH_3)CN$, $CH_2CH_2CH_2CH_2CN$. In a special embodiment R^2 is CH_2CH_2CN. In a further special embodiment R^2 is $CH(CH_3)CN$. According to a further specific embodiment R^2 is C_1-C_4-alkoxy-C_1-C_6-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_4-alkyl. In a special embodiment R^2 is CH_2OCH_3. In a further special embodiment R^2 is $CH_2CH_2OCH_3$. In a further special embodiment R^2 is $CH(CH_3)OCH_3$. In a further special embodiment R^2 is $CH(CH_3)OCH_2CH_3$. In a further special embodiment R^2 is $CH_2CH_2OCH_2CH_3$. According to a further specific embodiment R^2 is C_1-C_4-haloalkoxy-C_1-C_6-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_4-alkyl. In a special embodiment R^2 is CH_2OCF_3. In a further special embodiment R^2 is $CH_2CH_2OCF_3$. In a further special embodiment R^2 is CH_2OCCl_3. In a further special embodiment R^2 is $CH_2CH_2OCCl_3$.

According to one another embodiment R^2 is C_2-C_6-alkenyl, preferably $CH=CH_2$, $CH_2CH=CH_2$, $CH=CHCH_3$ or $C(CH_3)=CH_2$. In a special embodiment R^2 is $CH=CH_2$. In a further special embodiment R^2 is $CH_2CH=CH_2$. In a further special embodiment R^2 is $CH_2CH=CHCH_3$. In a further special embodiment R^2 is $CH=CHCH_3$ In a further special embodiment R^2 is $CH_2C(CH_3)=CH_2$. In a further special embodiment R^2 is $C(CH_3)=CH_2$. In a further special embodiment R^2 is $C(CH_3)=C(CH_3)H$. In a further special embodiment R^2 is $C(CH_3)=C(CH_3)_2$. In a further special embodiment R^2 is $CH=C(CH_3)_2$.

According to a further preferred embodiment R^2 is C_2-C_6-alkenyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^2 is C_2-C_6-haloalkenyl, more preferably fully or partially halogenated C_2-C_6-alkenyl. In a special embodiment R^2 is fully or partially halogenated C_2-alkenyl. In a further special embodiment R^2 is fully or partially halogenated C_3-alkenyl. . In a further special embodiment R^2 is $CH=CCl_2$. In a further special embodiment R^2 is $CH_2C(Cl)=CH_2$. In a further special embodiment R^2 is $CH_2CH=C(Cl)H$. According to a further specific embodiment R^2 is C_2-C_6-alkenyl, preferably C_2-C_4-alkenyl, substituted by OH, more preferably, $CH=CHCH_2OH$, $CH=C(CH_3)OH$. In a further special embodiment R^2 is $CH=CHCH_2OH$. According to a further specific embodiment R^2 is C_1-C_4-alkoxy-C_2-C_6-alkenyl, more preferably C_1-C_4-alkoxy-C_2-C_4-alkenyl. In a special embodiment R^2 is $CH=CHOCH_3$. In a further special embodiment R^2 is $CH=CHCH_2OCH_3$. In a further special embodiment R^2 is $CH2CH=CHCH_2OCH_3$According to a further specific embodiment R^2 is C_1-C_4-haloalkoxy-C_2-C_6-alkenyl, more preferably C_1-C_4-haloalkoxy-C_2-C_4-alkenyl. In a special embodiment R^2 is $CH=CHOCF_3$. In a further special embodiment R^2 is $CH=CHCH_2OCF_3$. In a further special embodiment R^2 is $CH=CHOCCl_3$. In a further special embodiment R^2 is $CH=CHCH_2OCCl_3$. According to a further specific embodiment R^2 is C_3-C_8-cycloalkyl-C_2-C_6-alkenyl, preferably C_3-C_6-cycloalkyl-C_2-C_4-alkenyl. In a further special embodiment R^2 is $CH_2CH=CH(C_3H_5)$. In a further special embodiment R^2 is $CH_2CH=CHC_4H_7$. According to a further specific embodiment R^2 is C_3-C_6-halocycloalkyl-C_2-C_4-alkenyl, preferably C_3-C_8-halocycloalkyl-C_2-C_6-alkenyl. In a further special embodiment R^2 is $CH_2CH=CH(C_3H_4Cl)$. In a further special embodiment R^2 is $CH_2CH=CH(C_3H_4F)$.

According to one another embodiment R^2 is C_2-C_6-alkynyl, preferably CCH, CH_2CCH, CH_2CCCH_3. In a special embodiment R^2 is CCH. in a further special embodiment R^2 is $CCCH_3$. In a further special embodiment R^2 is CH_2CCH. In a further special embodiment R^2 is CH_2CCCH_3. In a further special embodiment R^2 is $CH_2CCH_2CH_3$.

According to a further preferred embodiment R^2 is C_2-C_6-alkynyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^2 is C_2-C_6-haloalkynyl, more preferably fully or partially halogenated C_2-C_6-alkynyl. In a special embodiment R^2 is fully or partially halogenated C_2-alkynyl. In a further special embodiment R^2 is fully or partially halogenated C_3-alkynyl. In a further special embodiment R^2 is CH_2-CCCl. In a further special embodiment R^2 is CH_2-CCBr. In a further special embodiment R^2 is CH_2-CCI. According to a further specific embodiment R^2 is C_2-C_6-alkynyl, preferably C_2-C_4-alkynyl, substituted by OH, more preferably, . In a further special embodiment R^2 is CH_2CCCH_2OH According to a further specific embodiment R^2 is C_1-C_4-alkoxy-C_2-C_6-alkynyl, more preferably C_1-C_4-alkoxy-C_2-C_4-alkynyl. In a special embodiment R^2 is $CCOCH_3$. In a further special embodiment R^2 is CH_2CCOCH_3. In a further special embodiment R^2 is CH_2CCCH_2OMe According to a further specific embodiment R^2 is C_1-C_4-haloalkoxy-C_2-C_6-alkynyl, more preferably C_1-C_4-haloalkoxy-C_2-C_4-alkynyl. In a special embodiment R^2 is $CCOCF_3$. In a further special embodiment R^2 is CH_2CCOCF_3. In a further special embodiment R^2 is $CCOCCl_3$. In a further special embodiment R^2 is $CH_2CCOCCl_3$. According to a further specific embodiment R^2 is C_3-C_8-cycloalkyl-C_2-C_6-alkynyl, preferably C_3-C_6-cycloalkyl-C_2-C_4-alkynyl. According to a further specific embodiment R^2 is C_3-C_6-halocycloalkyl-C_2-C_4-alkynyl, preferably C_3-C_8-halocycloalkyl-C_2-C_6-alkynyl.

According to one another embodiment R^2 is C_3-C_8-cycloalkyl, preferably cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl, in particular cyclopropyl or cyclobutyl. In a special embodiment R^2 is cyclopropyl. In a further special embodiment R^2 is cyclobutyl. In a further special embodiment R^2 is cyclopentyl. In a further special embodiment R^2 is cyclohexyl.

According to a further preferred embodiment R^2 is C_3-C_8-cycloalkyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^2 is C_3-C_8-halocycloalkyl, more preferably fully or partially halogenated C_3-C_6-cycloalkyl. In a special embodiment R^2 is fully or partially halogenated cyclopropyl. In a further special embodiment R^2 is 1-Cl-cyclopropyl. In a further special embodiment R^2 is 2-Cl-cyclopropyl. In a further special embodiment R^2 is 1-F-cyclopropyl. In a further special embodiment R^2 is 2-F-cyclopropyl. In a further special embodiment R^2 is fully or partially halogenated cyclobutyl. In a further special embodiment R^2 is 1-Cl-cyclobutyl. In a further special embodiment R^2 is 1-F-cyclobutyl. According to a specific embodiment R^2 is C_3-C_8-cycloalkyl substituted by C_1-C_4-alkyl, more preferably is C_3-C_6-cycloalkyl substituted by C_1-C_4-alkyl. In a special embodiment R^2 is 1-CH_3-cyclopropyl. According to a specific embodiment R^2 is C_3-C_8-cycloalkyl substituted by CN, more preferably is C_3-C_6-cycloalkyl substituted by CN. In a special embodiment R^2 is 1-CN-cyclopropyl.According to a further specific embodiment R^2 is C_3-C_8-cycloalkyl-C_3-C_8-cycloalkyl, preferably C_3-C_6-cycloalkyl-C_3-C_6-cycloalkyl. In a special embodiment R^2 is cyclopropyl-cyclopropyl. According to a further specific embodiment R^2 is C_3-C_8-cycloalkyl-C_3-C_8-halocycloalkyl, preferably C_3-C_6-cycloalkyl-C_3-C_6-halocycloalkyl.

According to one another embodiment R^2 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl, preferably C_3-C_6-cycloalkyl-C_1-C_4-alkyl. In a special embodiment R^2 is $CH(CH_3)$(cyclopropyl). In a special embodiment R^2 is CH_2-(cyclopropyl).

According to a further preferred embodiment R^2 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl wherein the alkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein and the cycloalkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein.

According to a specific embodiment R^2 is C_3-C_8-cycloalkyl-C_1-C_4-haloalkyl, C_3-C_6-cycloalkyl-C_1-C_4-haloalkyl. According to a specific embodiment R^2 is C_3-C_8-halocycloalkyl-C_1-C_4-alkyl, C_3-C_6-halocycloalkyl-C_1-C_4-alkyl. In a special embodiment R^2 is fully or partially halogenated cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^2 is 1-Cl-cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^2 is 1-F-cyclopropyl-C_1-C_4-alkyl.

According to one embodiment R^2 is phenyl.

According to a one preferred embodiment R^2 is phenyl substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein.

According to a specific embodiment R^2 is phenyl substituted by one, two or three halogen atoms, preferably by one, two or three Cl or F. In a special embodiment R^2 is 2-Cl-phenyl. In a further special embodiment R^2 is 2-F-phenyl. In a further special embodiment R^2 is 4-Cl-phenyl. In a further special embodiment R^2 is 4-Cl-phenyl. In a further special embodiment R^2 is 4-F-phenyl. In a further special embodiment R^2 is 4-F-phenyl. In a further special embodiment R^2 is 2,4-Cl_2-phenyl. In a further special embodiment R^2 is 2,4-F_2-phenyl. In a further special embodiment R^2 is 2-Cl-4-F-phenyl. In a further special embodiment R^2 is 2-F-4-Cl-phenyl. In a further special embodiment R^2 is 2,4,6-Cl_3-phenyl. In a further special embodiment R^2 is 2,4,6-F_3-phenyl.

According to a specific embodiment R^2 is phenyl substituted by one, two or three CN or OH groups. In a special embodiment R^2 is 2-OH-phenyl. In a further special embodiment R^2 is 4-OH-phenyl. In a further special embodiment R^2 is 2,4-OH_2-phenyl. In a further special embodiment R^2 is 2,4,6-OH_3-phenyl.

According to a specific embodiment R^2 is phenyl substituted by one, two or three C_1-C_4-alkyl or C_1-C_4-haloalkyl groups, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl, t-butyl or CF_3, CHF_2, CFH_2, CCl_3, $CHCl_2$, $CClH_2$. In a special embodiment R^2 is 2-CH_3-phenyl. In a further special embodiment R^2 is 2-CF_3-phenyl. In a further special embodiment R^2 is 4-CH_3-phenyl. In a further special embodiment R^2 is 4-CF_3-phenyl.

According to a specific embodiment R^2 is phenyl substituted by one, two or three C_1-C_4-alkoxy or C_1-C_4-haloalkoxy groups, preferably preferably C_1-C_4-alkoxy, more preferably CH_3O, CH_3CH_2O, $CH_3CH_2CH_2O$, $CH_2(CH_3)CH_2O$, $CH_3CH(CH_3)O$, $CH_3CH_2CH_2CH_2O$, CF_3O, CCl_3O. In a special embodiment R^2 is 2-CH_3O-phenyl. In a further special embodiment R^2 is 2-CF_3O-phenyl. In a further special embodiment R^2 is 4-CH_3O-phenyl. In a further special embodiment R^2 is 4-CF_3O-phenyl.

According to one embodiment R^2 is phenyl-C_1-C_4-alkyl, preferably phenyl-C_1-C_2-alkyl. In a special embodiment R^2 is benzyl.

According to a one preferred embodiment R^2 is phenyl-C_1-C_4-alkyl therein the alkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein, in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN, and phenyl can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN. In a special embodiment R^2 is CH_2-(4-Cl)-phenyl. In a further special embodiment R^2 is CH_2-(4-CH_3)-phenyl. In a further special embodiment R^2 is CH_2-(4-OCH_3)-phenyl. In a further special embodiment R^2 is CH_2-(4-F)-phenyl. In a further special embodiment R^2 is CH_2-(2,4-Cl_2)-phenyl. In a further special embodiment R^2 is CH_2-(2,4-F_2)-phenyl.

According to one embodiment R^2 is phenyl-C_2-C_4-alkenyl, preferably phenyl-C_1-C_2-alkenyl. In a special embodiment R^2 is phenylethenyl.

According to a one preferred embodiment R^2 is phenyl-C_1-C_4-alkenyl therein the alkenyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein, in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN and phenyl can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN.

According to one embodiment R^2 is phenyl-C_2-C_4-alkynyl, preferably phenyl-C_1-C_2-alkynyl. In a special embodiment R^2 is phenylethinyl.

According to a one preferred embodiment R^2 is phenyl-C_1-C_4-alkynyl therein the alkynyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein, in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN, and phenyl can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein in particular selected from halogen, in particular Cl and F, C_1-C_4-alkoxy, in particular OCH_3, C_1-C_4-alkyl, in particular CH_3 or C_2H_5, and CN.

R^4 in the compounds according to the invention is, according to one embodiment, is halogen, CN, NO_2, OH, SH, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyloxy, NH_2, NH(C_1-C_4-alkyl), N(C_1-C_4-alkyl)$_2$, NH(C_3-C_6-cycloalkyl), N(C_3-C_6-cycloalkyl)$_2$, S(O)$_p$(C_1-C_4-alkyl), C(=O)(-C_1-C_4-alkyl), C(=O)OH, C(=O)(-O-C_1-C_4-alkyl), C(=O)-NH(C_1-C_4-alkyl), C(=O)-N(C_1-C_4-alkyl)$_2$, C(=O)-NH(C_3-C_6-cycloalkyl) or C(=O)-N(C_3-C_6-cycloalkyl)$_2$; wherein R^4 is unsubstituted or further substituted by one, two, three or four R^{4a}; wherein R^{4a} is independently selected from halogen, CN, NO_2, OH, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_3-C_8-cycloalkyl, C_3-C_8-halocycloalkyl, C_1-C_4-alkoxy and C_1-C_4-haloalkoxy; p is an integrer and is 0, 1, 2; and m is an integer and is 1, 2, 3, 4 or 5.

R^4 in the compounds according to the invention is, according to a further embodiment, halogen, C_1-C_6-alkyl, C_1-C_6-haloalkyl, C_1-C_6-alkoxy, C_1-C_6-haloalkoxy, wherein R^4 is unsubstituted or further substituted by one, two, three or four R^{4a}; wherein R^{4a} is independently selected from halogen, CN, NO_2, OH, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_3-C_8-cycloalkyl, C_3-C_8-halocycloalkyl, C_1-C_4-alkoxy and C_1-C_4-haloalkoxy; wherein m is 0, 1, 2 or 3.

According to one embodiment m is 1.

According to one embodiment m is 2.

According to one embodiment m is 3.

According to one specific embodiment thereof, said R^4 is in the 2-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 3-position of the phenyl ring. According to one further specific embodiment thereof, said R^4 is in the 4-position of the phenyl ring.
According to one specific embodiment thereof, said R^4 is in the 2,3-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 2,4-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 2,5-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 2,6-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 3,4-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 3,5-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 3,6-position of the phenyl ring. According to one specific embodiment thereof, said R^4 is in the 2,4,6-position of the phenyl ring. According to one embodiment R^4 is halogen. According to a specific embodiment R^4 is Cl. According to a further specific embodiment R^4 is F. According to a further specific embodiment R^4 is Br.

According to one further embodiment R^4 is CN.

According to one further embodiment R^4 is NO_2.

According to one further embodiment R^4 is OH.

According to one further embodiment R^4 is SH.

According to one further embodiment R^4 is C_1-C_6-alkyl, preferably methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl or t-butyl. In a special embodiment R^4 is methyl. In a further special embodiment R^4 is ethyl. In a further special embodiment R^4 is n-propyl. In a further special embodiment R^4 is i-propyl. In a further special embodiment R^4 is 1-methylpropyl. In a further special embodiment R^4 is n-butyl. In a further special embodiment R^4 is i-butyl. In a further special embodiment R^4 is t-butyl.

According to a one preferred embodiment R^4 is C_1-C_6-alkyl substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^4 is C_1-C_6-haloalkyl, more preferably fully or partially halogenated methyl, ethyl, n-propyl, i-propyl, n-butyl, i-butyl or t-butyl. In a special embodiment R^4 is CF_3. In a further special embodiment R^4 is CHF_2. In a further special embodiment R^4 is CFH_2. In a further special embodiment R^4 is CCl_3. In a further special embodiment R^4 is $CHCl_2$. In a further special embodiment R^4 is $CClH_2$. According to a further specific embodiment R^4 is C_1-C_6-alkyl, preferably C_1-C_4-alkyl substituted by OH, more preferably CH_2OH, CH_2CH_2OH, $CH_2CH_2CH_2OH$, $CH(CH_3)CH_2OH$, $CH_2CH(CH_3)OH$, $CH_2CH_2CH_2CH_2OH$. In a special embodiment R^4 is CH_2OH. According to a further specific embodiment R^4 is C_1-C_6-alkyl, preferably C_1-C_4-alkyl substituted by CN, more preferably CH_2CN, CH_2CH_2CN, $CH_2CH_2CH_2CN$, $CH(CH_3)CH_2CN$, $CH_2CH(CH_3)CN$, $CH_2CH_2CH_2CH_2CN$. In a special embodiment R^4 is CH_2CH_2CN. In a further special embodiment R^4 is $CH(CH_3)CN$. According to a further specific embodiment R^4 is C_1-C_4-alkoxy-C_1-C_6-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_4-alkyl. In a special embodiment R^4 is CH_2OCH_3. In a further special embodiment R^4 is $CH_2CH_2OCH_3$. In a further special embodiment R^4 is $CH(CH_3)OCH_3$. In a further special embodiment R^4 is $CH(CH_3)OCH_2CH_3$. In a further special embodiment R^4 is $CH_2CH_2OCH_2CH_3$. According to a further specific embodiment R^4 is C_1-C_4-haloalkoxy-C_1-C_6-alkyl, more preferably C_1-C_4-alkoxy-C_1-C_4-alkyl. In a special embodiment R^4 is CH_2OCF_3. In a further special embodiment R^4 is $CH_2CH_2OCF_3$. In a further special embodiment R^4 is CH_2OCCl_3. In a further special embodiment R^4 is $CH_2CH_2OCCl_3$.

According to one another embodiment R^4 is C_1-C_6-alkoxy, preferably C_1-C_4-alkoxy. In a special embodiment of the invention R^4 is OCH_3. In a further special embodiment of the invention R^4 is OCH_2CH_3.

According to one another embodiment R^4 is C_1-C_6-haloalkoxy, preferably C_1-C_4-haloalkoxy. In a special embodiment of the invention R^4 is OCF_3. In a further special embodiment of the invention R^4 is $OCHF_2$.

According to one another embodiment R^4 is C_2-C_6-alkenyl, preferably $CH=CH_2$, $CH_2CH=CH_2$, $CH=CHCH_3$ or $C(CH_3)=CH_2$. In a special embodiment R^4 is $CH=CH_2$. In a further special embodiment R^4 is $CH_2CH=CH_2$. In a further special embodiment R^4 is $CH_2CH=CHCH_3$. In a further special embodiment R^4 is $CH=CHCH_3$ In a further special embodiment R^4 is $CH_2C(CH_3)=CH_2$. In a further special embodiment R^4 is $C(CH_3)=CH_2$. In a further special embodiment R^4 is $C(CH_3)=C(CH_3)H$. In a further special embodiment R^4 is $C(CH_3)=C(CH_3)_2$. In a further special embodiment R^4 is $CH=C(CH_3)_2$.

According to a further preferred embodiment R^4 is C_2-C_6-alkenyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^4 is C_2-C_6-haloalkenyl, more preferably fully or partially halogenated C_2-C_6-alkenyl. In a special embodiment R^4 is fully or partially halogenated C_2-alkenyl. In a further special embodiment R^4 is fully or partially halogenated C_3-alkenyl. According to a further specific embodiment R^4 is C_2-C_6-alkenyl, preferably C_2-C_4-alkenyl, substituted by OH, more preferably, $CH=CHOH$, $CH=CHCH_2OH$, $C(CH_3)=CHOH$, $CH=C(CH_3)OH$. In a special embodiment R^4 is $CH=CHOH$. In a further special embodiment R^4 is $CH=CHCH_2OH$. According to a further specific embodiment R^4 is C_1-C_4-alkoxy-C_2-C_6-alkenyl, more preferably C_1-C_4-alkoxy-C_2-

C_4-alkenyl. In a special embodiment R^4 is CH=CHOCH$_3$. In a further special embodiment R^4 is CH=CHCH$_2$OCH$_3$. According to a further specific embodiment R^4 is C_1-C_4-haloalkoxy-C_2-C_6-alkenyl, more preferably C_1-C_4-haloalkoxy-C_2-C_4-alkenyl. In a special embodiment R^4 is CH=CHOCF$_3$. In a further special embodiment R^4 is CH=CHCH$_2$OCF$_3$. In a further special embodiment R^4 is CH=CHOCCl$_3$. In a further special embodiment R^4 is CH=CHCH$_2$OCCl$_3$. According to a further specific embodiment R^4 is C_3-C_8-cycloalkyl-C_2-C_6-alkenyl, preferably C_3-C_6-cycloalkyl-C_2-C_4-alkenyl. According to a further specific embodiment R^4 is C_3-C_6-halocycloalkyl-C_2-C_4-alkenyl, preferably C_3-C_8-halocycloalkyl-C_2-C_6-alkenyl.

According to one another embodiment R^4 is C_2-C_6-alkynyl, preferably CCH, CH$_2$CCH, CH$_2$CCCH$_3$. In a special embodiment R^4 is CCH. in a further special embodiment R^4 is CCCH$_3$. In a further special embodiment R^4 is CH$_2$CCH. In a further special embodiment R^4 is CH$_2$CCCH$_3$. In a further special embodiment R^4 is CH$_2$CCH$_2$CH$_3$.

According to a further preferred embodiment R^4 is C_2-C_6-alkynyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^4 is C_2-C_6-haloalkynyl, more preferably fully or partially halogenated C_2-C_6-alkynyl. In a special embodiment R^4 is fully or partially halogenated C_2-alkynyl. In a further special embodiment R^4 is fully or partially halogenated C_3-alkynyl. According to a further specific embodiment R^4 is C_2-C_6-alkynyl, preferably C_2-C_4-alkynyl, substituted by OH, more preferably, CCOH, CH$_2$CCOH. In a special embodiment R^4 is CCOH. In a further special embodiment R^4 is CH$_2$CCOH. According to a further specific embodiment R^4 is C_1-C_4-alkoxy-C_2-C_6-alkynyl, more preferably C_1-C_4-alkoxy-C_2-C_4-alkynyl. In a special embodiment R^4 is CCOCH$_3$. In a further special embodiment R^4 is CH$_2$CCOCH$_3$. According to a further specific embodiment R^4 is C_1-C_4-haloalkoxy-C_2-C_6-alkynyl, more preferably C_1-C_4-haloalkoxy-C_2-C_4-alkynyl. In a special embodiment R^4 is CCOCF$_3$. In a further special embodiment R^4 is CH$_2$CCOCF$_3$. In a further special embodiment R^4 is CCOCCl$_3$. In a further special embodiment R^4 is CH$_2$CCOCCl$_3$. According to a further specific embodiment R^4 is C_3-C_8-cycloalkyl-C_2-C_6-alkynyl, preferably C_3-C_6-cycloalkyl-C_2-C_4-alkynyl. According to a further specific embodiment R^4 is C_3-C_6-halocycloalkyl-C_2-C_4-alkynyl, preferably C_3-C_8-halocycloalkyl-C_2-C_6-alkynyl.

According to one another embodiment R^4 is C_3-C_8-cycloalkyl, preferably cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl, in particular cyclopropyl or cyclobutyl. In a special embodiment R^4 is cyclopropyl. In a further special embodiment R^4 is cyclobutyl. In a further special embodiment R^4 is cyclopentyl. In a further special embodiment R^4 is cyclohexyl.

According to one another embodiment R^4 is C_3-C_8-cycloalkoxy, preferably C_3-C_6-cycloalkoxy. In a special embodiment R^4 is O-cyclopropyl

According to a further preferred embodiment R^4 is C_3-C_8-cycloalkyl, substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein.

According to a specific embodiment R^4 is C_3-C_8-halocycloalkyl, more preferably fully or partially halogenated C_3-C_6-cycloalkyl. In a special embodiment R^4 is fully or partially halogenated cyclopropyl. In a further special embodiment R^4 is 1-Cl-cyclopropyl. In a further special embodiment R^4 is 2-Cl-cyclopropyl. In a further special embodiment R^4 is 1-F-cyclopropyl. In a further special embodiment R^4 is 2-F-cyclopropyl. In a further special embodiment R^4 is fully or partially halogenated cyclobutyl. In a further special embodiment R^4 is 1-Cl-cyclobutyl. In a further special embodiment R^4 is 1-F-cyclobutyl. In a further special embodiment R^4 is 3,3-$(Cl)_2$-cyclobutyl. In a further special embodiment R^4 is 3,3-$(F)_2$-cyclobutyl.According to a specific embodiment R^4 is C_3-C_8-cycloalkyl substituted by C_1-C_4-alkyl, more preferably is C_3-C_6-cycloalkyl substituted by C_1-C_4-alkyl. In a special embodiment R^4 is 1-CH_3-cyclopropyl. According to a specific embodiment R^4 is C_3-C_8-cycloalkyl substituted by CN, more preferably is C_3-C_6-cycloalkyl substituted by CN. In a special embodiment R^4 is 1-CN-cyclopropyl.According to a further specific embodiment R^4 is C_3-C_8-cycloalkyl-C_3-C_8-cycloalkyl, preferably C_3-C_6-cycloalkyl-C_3-C_6-cycloalkyl. In a special embodiment R^4 is cyclopropyl-cyclopropyl. In a special embodiment R^4 is 2-cyclopropyl-cyclopropyl. According to a further specific embodiment R^4 is C_3-C_8-cycloalkyl-C_3-C_8-halocycloalkyl, preferably C_3-C_6-cycloalkyl-C_3-C_6-halocycloalkyl.

According to one another embodiment R^4 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl, preferably C_3-C_6-cycloalkyl-C_1-C_4-alkyl. In a special embodiment R^4 is $CH(CH_3)$(cyclopropyl). In a further special embodiment R^4 is In a special embodiment R^4 is CH_2-(cyclopropyl).

According to a further preferred embodiment R^4 is C_3-C_8-cycloalkyl-C_1-C_4-alkyl wherein the alkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12a} as defined and preferably herein and the cycloalkyl moiety can be substituted by one, two, three or up to the maximum possible number of identical or different groups R^{12b} as defined and preferably herein.

According to a specific embodiment R^4 is C_3-C_8-cycloalkyl-C_1-C_4-haloalkyl, C_3-C_6-cycloalkyl-C_1-C_4-haloalkyl. According to a specific embodiment R^4 is C_3-C_8-halocycloalkyl-C_1-C_4-alkyl, C_3-C_6-halocycloalkyl-C_1-C_4-alkyl. In a special embodiment R^4 is fully or partially halogenated cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^4 is 1-Cl-cyclopropyl-C_1-C_4-alkyl. In a further special embodiment R^4 is 1-F-cyclopropyl-C_1-C_4-alkyl.

According to one another embodiment R^4 is NH_2.

According to one another embodiment R^4 is NH(C_1-C_4-alkyl). According to a specific embodiment R^4 is $NH(CH_3)$. According to a specific embodiment R^4 is $NH(CH_2CH_3)$. According to a specific embodiment R^4 is $NH(CH_2CH_2CH_3)$. According to a specific embodiment R^4 is $NH(CH(CH_3)_2)$. According to a specific embodiment R^4 is $NH(CH_2CH_2CH_2CH_3)$. According to a specific embodiment R^4 is $NH(C(CH_3)_3)$.

According to one another embodiment R^4 is N(C_1-C_4-alkyl$)_2$. According to a specific embodiment R^4 is $N(CH_3)_2$. According to a specific embodiment R^4 is $N(CH_2CH_3)_2$. According to a specific embodiment R^4 is $N(CH_2CH_2CH_3)_2$. According to a specific embodiment R^4 is $N(CH(CH_3)_2)_2$. According to a specific embodiment R^4 is $N(CH_2CH_2CH_2CH_3)_2$. According to a specific embodiment R^4 is $NH(C(CH_3)_3)_2$.

According to one another embodiment R^4 is NH(C_3-C_8-cycloalkyl) preferably NH(C_3-C_6-cycloalkyl). According to a specific embodiment R^4 is NH(cyclopropyl). According to a specific embodiment R^4

is NH(cyclobutyl). According to a specific embodiment R^4 is NH(cyclopentyl). According to a specific embodiment R^4 is NH(cyclohexyl).

According to one another embodiment R^4 is $N(C_3\text{-}C_8\text{-cycloalkyl})_2$ preferably $N(C_3\text{-}C_6\text{-cycloalkyl})_2$. According to a specific embodiment R^4 is $N(\text{cyclopropyl})_2$. According to a specific embodiment R^4 is $N(\text{cyclobutyl})_2$. According to a specific embodiment R^4 is $N(\text{cyclopentyl})_2$. According to a specific embodiment R^4 is $N(\text{cyclohexyl})_2$.

According to one another embodiment R^4 is $S(O)_p(C_1\text{-}C_4\text{-alkyl})$ wherein p is 0, 1, 2, preferably $S(O)_p(C_1\text{-}C_4\text{-alkyl})$ wherein p is 2. According to a specific embodiment R^4 is SO_2CH_3.. According to a specific embodiment R^4 is SO_2CF_3

According to one another embodiment R^4 is $C(=O)(-C_1\text{-}C_4\text{-alkyl})$. According to a specific embodiment R^4 is $C(=O)CH_3$.. According to a further specific embodiment R^4 is $C(=O)CH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)CH_2CH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)CH(CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)C(CH_3)_3$.

According to one another embodiment R^4 is C(=O)OH.

According to one another embodiment R^4 is $C(=O)(-O\text{-}C_1\text{-}C_4\text{-alkyl})$. According to a specific embodiment R^4 is $C(=O)OCH_3$.. According to a further specific embodiment R^4 is $C(=O)OCH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)OCH_2CH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)OCH(CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)OC(CH_3)_3$.

According to one another embodiment R^4 is $C(=O)\text{-}NH(C_1\text{-}C_4\text{-alkyl})$. According to a specific embodiment R^4 is $C(=O)NHCH_3$.. According to a further specific embodiment R^4 is $C(=O)NHCH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)NHCH_2CH_2CH_3$. According to a further specific embodiment R^4 is $C(=O)NHCH(CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)NHC(CH_3)_3$.

According to one another embodiment R^4 is $C(=O)\text{-}N(C_1\text{-}C_4\text{-alkyl})_2$. According to a specific embodiment R^4 is $C(=O)N(CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)N(CH_2CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)N(CH_2CH_2CH_3)_2$. According to a further specific embodiment R^4 is $C(=O)N(CH(CH_3)_2)_2$. According to a further specific embodiment R^4 is $C(=O)N(C(CH_3)_3)_2$.

According to one another embodiment R^4 is $C(=O)\text{-}NH(C_3\text{-}C_6\text{-cycloalkyl})$. According to a specific embodiment R^4 is C(=O)NH(cyclopropyl).. According to a further specific embodiment R^4 is C(=O)NH(cyclobutyl). According to a further specific embodiment R^4 is C(=O)NH(cyclopentyl). According to a further specific embodiment R^4 is C(=O)NH(cyclohexyl).

According to one another embodiment R^4 is $C(=O)\text{-}N(C_3\text{-}C_6\text{-cycloalkyl})_2$. According to a specific embodiment R^4 is $C(=O)N(\text{cyclopropyl})_2$. According to a further specific embodiment R^4 is $C(=O)N(\text{cyclobutyl})_2$. According to a further specific embodiment R^4 is $C(=O)N(\text{cyclopentyl})_2$. According to a further specific embodiment R^4 is $C(=O)N(\text{cyclohexyl})_2$.

The above mentioned list of particularly preferred embodiments of R^4 is independent for each m

$= 1$, $m = 2$, $m = 3$, $m = 4$ and $m= 5$ and is independent within $m = 2$, $m = 3$, $m = 4$ and $m= 5$.

In one specific embodiment, R^4 is selected from CH_3, OCH_3, CF_3, OCF_3 and CN.

In a further specific embodiment, $(R^4)_m$ is selected from 4-CH_3, 4-OCH_3, 3- CF_3, 4-CF_3, 4-OCF_3, 3-CN, 4-CN, 2-Cl, 3-Cl, 2-F, 3-F, 2,3-Cl_2, 3,4-Cl_2, 2,3-F_2, 2,4-F_2 and 2-F-4-Cl.

In one further specifc embodiment, $(R^4)_m$ is selected from 2-$(R^4)_1$, 3-$(R^4)_1$, 2,3-$(R^4)_2$, 2,5-$(R^4)_2$, 2,6-$(R^4)_2$, 3,4-$(R^4)_2$ and 3,5-$(R^4)_2$. In a more specific embodiment thereof, R^1 is selected from C_1-C_3-alkyl, CCl_3 and $CHCl_2$.

Particularly preferred embodiments of $R^4{}_m$ according to the invention are in Table A1 below, wherein each line of lines X1-1 to X1-152 corresponds to one particular embodiment of the invention, wherein X1-1 to X1-152 are also in any combination a preferred ambodiment of the present invention

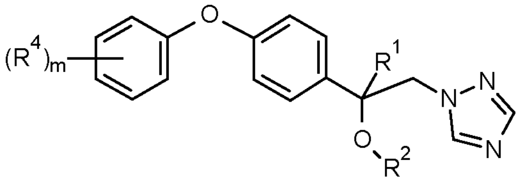
Table X

No.	$R^4{}_m$
X1-1	-*
X1-2	2-Cl
X1-3	3-Cl
X1-4	2-F
X1-5	3-F
X1-6	2-CN
X1-7	3-CN
X1-8	4-CN
X1-9	2-NO_2
X1-10	3-NO_2
X1-11	4-NO_2
X1-12	2-SCH_3
X1-13	3-SCH_3
X1-14	4-SCH_3
X1-15	2-$SOCH_3$
X1-16	3-$SOCH_3$
X1-17	4-$SOCH_3$
X1-18	2-SO_2CH_3
X1-19	3-SO_2CH_3
X1-20	4-SO_2CH_3
X1-21	2-CO_2CH_3
X1-22	3-CO_2CH_3
X1-23	4-CO_2CH_3
X1-24	2,3-Cl_2
X1-25	2,5-Cl_2
X1-26	3,4-Cl_2
X1-27	3,5-Cl_2
X1-28	2,6-Cl_2
X1-29	2,3-F_2
X1-30	2,4-F_2
X1-31	2,5-F_2
X1-32	3,4-F_2
X1-33	3,5-F_2
X1-34	2,6-F_2
X1-35	2-F-3-Cl
X1-36	2-F-4-Cl
X1-37	3-F-4-Cl
X1-38	2-F-6-Cl
X1-39	2-Cl-3-F
X1-40	2-Cl-4-F
X1-41	3-Cl-4-F
X1-42	2,3,4-Cl_3
X1-43	2,4,5-Cl_3
X1-44	3,4,5-Cl_3
X1-45	2,4,6-Cl_3
X1-46	2,3,4-F_3
X1-47	2,4,5-F_3
X1-48	3,4,5-F_3
X1-49	2,4,6-F_3
X1-50	2,3-4-F_3
X1-51	2,4-F_2-3-Cl
X1-52	2,6-F_2-4-Cl
X1-53	2,5-F_2-4-Cl
X1-54	2,4-Cl_2-3-F
X1-55	2,6-Cl_2-4-F
X1-56	2,5-Cl_2-4-F
X1-57	2-CH_3
X1-58	3-CH_3
X1-59	4-CH_3
X1-60	2-CH_2CH_3
X1-61	3-CH_2CH_3
X1-62	4-CH_2CH_3
X1-63	2-CF_3
X1-64	3-CF_3
X1-65	4-CF_3
X1-66	2-CHF_2
X1-67	3-CHF_2
X1-68	4-CHF_2
X1-69	2-OCH_3
X1-70	3-OCH_3
X1-71	4-OCH_3
X1-72	2-OCH_2CH_3
X1-73	3-OCH_2CH_3
X1-74	4-OCH_2CH_3
X1-75	2-OCF_3
X1-76	3-OCF_3
X1-77	4-OCF_3
X1-78	2-$OCHF_2$

No.	R^4_m
X1-79	3-OCHF$_2$
X1-80	4-OCHF$_2$
X1-81	2,3-(CH$_3$)$_2$
X1-82	2,4-(CH$_3$)$_2$
X1-83	3,4-(CH$_3$)$_2$
X1-84	2,6-(CH$_3$)$_2$
X1-85	2,3-(CH$_2$CH$_3$)$_2$
X1-86	2,4-(CH$_2$CH$_3$)$_2$
X1-87	3,4-(CH$_2$CH$_3$)$_2$
X1-88	2,6-(CH$_2$CH$_3$)$_2$
X1-89	2,3-(CF$_3$)$_2$
X1-90	2,4-(CF$_3$)$_2$
X1-91	3,4-(CF$_3$)$_2$
X1-92	2,6-(CF$_3$)$_2$
X1-93	2,3-(CHF$_2$)$_2$
X1-94	2,4-(CHF$_2$)$_2$
X1-95	3,4-(CHF$_2$)$_2$
X1-96	2,6-(CHF$_2$)$_2$
X1-97	2,3-(OCH$_3$)$_2$
X1-98	2,4-(OCH$_3$)$_2$
X1-99	3,4-(OCH$_3$)$_2$
X1-100	2,6-(OCH$_3$)$_2$
X1-101	2,3-(OCH$_2$CH$_3$)$_2$
X1-102	2,4-(OCH$_2$CH$_3$)$_2$
X1-103	3,4-(OCH$_2$CH$_3$)$_2$
X1-104	2,6-(OCH$_2$CH$_3$)$_2$
X1-105	2,3-(OCF$_3$)$_2$
X1-106	2,4-(OCF$_3$)$_2$
X1-107	3,4-(OCF$_3$)$_2$
X1-108	2,6-(OCF$_3$)$_2$
X1-109	2,3-(OCHF$_2$)$_2$
X1-110	2,4-(OCHF$_2$)$_2$
X1-111	3,4-(OCHF$_2$)$_2$
X1-112	2,6-(OCHF$_2$)$_2$
X1-113	2,3,4-(CH$_3$)$_3$
X1-114	2,4,5-(CH$_3$)$_3$
X1-115	3,4,5-(CH$_3$)$_3$
X1-116	2,4,6-(CH$_3$)$_3$
X1-117	2,3,4-(CH$_2$CH$_3$)$_3$
X1-118	2,4,5-(CH$_2$CH$_3$)$_3$
X1-119	3,4,5-(CH$_2$CH$_3$)$_3$
X1-120	2,4,6-(CH$_2$CH$_3$)$_3$
X1-121	2,3,4-(CF$_3$)$_3$
X1-122	2,4,5-(CF$_3$)$_3$
X1-123	3,4,5-(CF$_3$)$_3$
X1-124	2,4,6-(CF$_3$)$_3$
X1-125	2,3,4-(CHF$_2$)$_3$
X1-126	2,4,5-(CHF$_2$)$_3$
X1-127	3,4,5-(CHF$_2$)$_3$
X1-128	2,4,6-(CHF$_2$)$_3$
X1-129	2,3,4-(OCH$_3$)$_3$
X1-130	2,4,5-(OCH$_3$)$_3$
X1-131	3,4,5-(OCH$_3$)$_3$
X1-132	2,4,6-(OCH$_3$)$_3$
X1-133	2,3,4-(OCH$_2$CH$_3$)$_3$
X1-134	2,4,5-(OCH$_2$CH$_3$)$_3$
X1-135	3,4,5-(OCH$_2$CH$_3$)$_3$
X1-136	2,4,6-(OCH$_2$CH$_3$)$_3$
X1-137	2,3,4-(OCF$_3$)$_3$
X1-138	2,4,5-(OCF$_3$)$_3$
X1-139	3,4,5-(OCF$_3$)$_3$
X1-140	2,4,6-(OCF$_3$)$_3$
X1-141	2,3,4-(OCHF$_2$)$_3$
X1-142	2,4,5-(OCHF$_2$)$_3$
X1-143	3,4,5-(OCHF$_2$)$_3$
X1-144	2,4,6-(OCHF$_2$)$_3$
X1-145	2-CF$_3$-4-Cl
X1-146	2-CF$_3$-4-F
X1-147	2-Cl-4-CF$_3$
X1-148	2-F-4-CF$_3$
X1-149	2-CN-4-Cl
X1-150	2-CN-4-F
X1-151	2-Cl-4-CN
X1-152	2-F-4-CN

-* no substitution, m=0

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



I.A

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 according to the invention complied in Tables 1a to 70a, below with the provisos defined above. 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 1a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-1 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A1.B1 to I.A.A1.B155).

Table 2a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-2 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A2.B1 to I.A.A2.B155).

Table 3a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-3 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A3.B1 to I.A.A3.B155).

Table 4a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-4 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A4.B1 to I.A.A4.B155).

Table 5a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-5 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A5.B1 to I.A.A5.B155).

Table 6a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-6 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A6.B1 to I.A.A6.B155).

Table 7a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-7 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A7.B1 to I.A.A7.B155).

Table 8a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-8 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A8.B1 to I.A.A8.B155).

Table 9a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-9 of Table A and the meaning of $(R^4)_m$ each individual compound corresponds in each case to one line of Table B (compounds I.A.A9.B1 to I.A.A9.B155).

Table 10a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-10 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A10.B1 to I.A.A10.B155).

Table 11a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-11 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A11.B1 to I.A.A11.B155).

Table 12a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-12 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A12.B1 to I.A.A12.B155).

Table 13a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-13 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A13.B1 to I.A.A13.B155).

Table 14a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-14 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A14.B1 to I.A.A14.B155).

Table 15a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-15 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A15.B1 to I.A.A15.B155).

Table 16a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-16 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A16.B1 to I.A.A16.B155).

Table 17a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-17 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A17.B1 to I.A.A17.B155).

Table 18a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-18 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A18.B1 to I.A.A18.B155).

Table 19a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-19 of

Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A19.B1 to I.A.A19.B155).

Table 20a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-20 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A20.B1 to I.A.A20.B155).

Table 21a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-21 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A21.B1 to I.A.A21.B155).

Table 22a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-22 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A22.B1 to I.A.A22.B155).

Table 23a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-23 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A23.B1 to I.A.A23.B155).

Table 24a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-24 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A24.B1 to I.A.A24.B155).

Table 25a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-25 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A25.B1 to I.A.A25.B155).

Table 26a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-26 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A26.B1 to I.A.A26.B155).

Table 27a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-27 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A27.B1 to I.A.A27.B155).

Table 28a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-28 of Table A and the meaning of $(R^4)_m$, $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A28.B1 to I.A.A28.B155).

Table 29a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-29 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A29.B1 to I.A.A29.B155).

Table 30a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-30 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A30.B1 to I.A.A30.B155).

Table 31a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-31 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A31.B1 to I.A.A31.B155).

Table 32a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-32 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A32.B1 to I.A.A32.B155).

Table 33a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-33 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A33.B1 to I.A.A33.B155).

Table 34a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-34 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A34.B1 to I.A.A34.B155).

Table 35a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-35 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A35.B1 to I.A.A35.B155).

Table 36a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-36 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A36.B1 to I.A.A36.B155).

Table 37a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-37 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A37.B1 to I.A.A37.B155).

Table 38a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-38 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A38.B1 to I.A.A38.B155).

Table 39a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-39 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A39.B1 to I.A.A39.B155).

Table 40a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-40 of

Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A40.B1 to I.A.A40.B155).

Table 41a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-41 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A41.B1 to I.A.A41.B155).

Table 42a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-42 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A42.B1 to I.A.A42.B155).

Table 43a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-43 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A43.B1 to I.A.A43.B155).

Table 44a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-44 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A44.B1 to I.A.A44.B155).

Table 45a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-45 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A45.B1 to I.A.A45.B155).

Table 46a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-46 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A46.B1 to I.A.A46.B155).

Table 47a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-47 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A47.B1 to I.A.A47.B155).

Table 48a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-48 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A48.B1 to I.A.A48.B155).

Table 49a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-49 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A49.B1 to I.A.A49.B155).

Table 50a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-50 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A50.B1 to I.A.A50.B155).

Table 51a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-51 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A51.B1 to I.A.A51.B155).

Table 52a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-52 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A52.B1 to I.A.A52.B155).

Table 53a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-53 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A53.B1 to I.A.A53.B155).

Table 54a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-54 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A54.B1 to I.A.A54.B155).

Table 55a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-55 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A55.B1 to I.A.A55.B155).

Table 56a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-56 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A56.B1 to I.A.A56.B155).

Table 57a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-57 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A57.B1 to I.A.A57.B155).

Table 58a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-58 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A58.B1 to I.A.A58.B155).

Table 59a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-59 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A59.B1 to I.A.A59.B155).

Table 60a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-60 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A60.B1 to I.A.A60.B155).

Table 61a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-61 of

Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A61.B1 to I.A.A61.B155).

Table 62a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-62 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A62.B1 to I.A.A62.B155).

Table 63a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-63 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A63.B1 to I.A.A63.B155).

Table 64a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-64 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A64.B1 to I.A.A64.B155).

Table 65a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-65 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A65.B1 to I.A.A65.B155).

Table 66a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-66 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A66.B1 to I.A.A66.B155).

Table 67a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-67 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A67.B1 to I.A.A67.B155).

Table 68a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-68 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A68.B1 to I.A.A68.B155).

Table 69a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-69 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A69.B1 to I.A.A69.B155).

Table 70a

Compounds of the formula I.A in which the combination of R^1 and R^2 corresponds to line A-70 of Table A and the meaning of $(R^4)_m$ for each individual compound corresponds in each case to one line of Table B (compounds I.A.A70.B1 to I.A.A70.B155).

Table A:

line	R^1	R^2
A-1	H	H
A-2	CH_3	H
A-3	CH_2CH_3	H
A-4	$CH(CH_3)_2$	H
A-5	$CH_2CH_2CH_3$	H
A-6	CH_2OCH_3	H
A-7	$CH_2CH_2OCH_3$	H
A-8	CH_2(cyclobutyl)	H
A-9	CF_3	H
A-10	CHF_2	H
A-11	$C(F)(CH_3)_2$	H
A-12	CH_2F	H
A-13	CH_2(cyclopropyl)	H
A-14	$CH(CH_3)$(cyclopropyl)	H
A-15	H	CH_3
A-16	CH_3	CH_3
A-17	CH_2CH_3	CH_3
A-18	$CH(CH_3)_2$	CH_3
A-19	$CH_2CH_2CH_3$	CH_3
A-20	CH_2OCH_3	CH_3
A-21	$CH_2CH_2OCH_3$	CH_3
A-22	CH_2(cyclobutyl)	CH_3
A-23	CF_3	CH_3
A-24	CHF_2	CH_3
A-25	$C(F)(CH_3)_2$	CH_3
A-26	CH_2F	CH_3
A-27	CH_2(cyclopropyl)	CH_3
A-28	$CH(CH_3)$(cyclopropyl)	CH_3
A-29	H	CH_2CH_3
A-30	CH_3	CH_2CH_3
A-31	CH_2CH_3	CH_2CH_3
A-32	$CH(CH_3)_2$	CH_2CH_3
A-33	$CH_2CH_2CH_3$	CH_2CH_3
A-34	CH_2OCH_3	CH_2CH_3
A-35	$CH_2CH_2OCH_3$	CH_2CH_3
A-36	CH_2(cyclobutyl)	CH_2CH_3
A-37	CF_3	CH_2CH_3
A-38	CHF_2	CH_2CH_3
A-39	$C(F)(CH_3)_2$	CH_2CH_3
A-40	CH_2F	CH_2CH_3
A-41	CH_2(cyclopropyl)	CH_2CH_3
A-42	$CH(CH_3)$(cyclopropyl)	CH_2CH_3
A-43	H	$CH_2-CH=CH_2$
A-44	CH_3	$CH_2-CH=CH_2$
A-45	CH_2CH_3	$CH_2-CH=CH_2$
A-46	$CH(CH_3)_2$	$CH_2-CH=CH_2$
A-47	$CH_2CH_2CH_3$	$CH_2-CH=CH_2$
A-48	CH_2OCH_3	$CH_2-CH=CH_2$
A-49	$CH_2CH_2OCH_3$	$CH_2-CH=CH_2$
A-50	CH_2(cyclobutyl)	$CH_2-CH=CH_2$
A-51	CF_3	$CH_2-CH=CH_2$
A-52	CHF_2	$CH_2-CH=CH_2$
A-53	$C(F)(CH_3)_2$	$CH_2-CH=CH_2$
A-54	CH_2F	$CH_2-CH=CH_2$
A-55	CH_2(cyclopropyl)	$CH_2-CH=CH_2$
A-56	$CH(CH_3)$(cyclopropyl)	$CH_2-CH=CH_2$
A-57	H	$CH_2-C\equiv C-H$
A-58	CH_3	$CH_2-C\equiv C-H$
A-59	CH_2CH_3	$CH_2-C\equiv C-H$
A-60	$CH(CH_3)_2$	$CH_2-C\equiv C-H$
A-61	$CH_2CH_2CH_3$	$CH_2-C\equiv C-H$
A-62	CH_2OCH_3	$CH_2-C\equiv C-H$
A-63	$CH_2CH_2OCH_3$	$CH_2-C\equiv C-H$
A-64	CH_2(cyclobutyl)	$CH_2-C\equiv C-H$
A-65	CF_3	$CH_2-C\equiv C-H$
A-66	CHF_2	$CH_2-C\equiv C-H$
A-67	$C(F)(CH_3)_2$	$CH_2-C\equiv C-H$
A-68	CH_2F	$CH_2-C\equiv C-H$

line	R^1	R^2
A-69	CH_2(cyclopropyl)	CH_2-C≡C-H
A-70	$CH(CH_3)$(cyclopropyl)	CH_2-C≡C-H

Table B

No.	R^4_m
B-1	-*
B-2	2-Cl
B-3	3-Cl
B-4	4-Cl
B-5	2-F
B-6	3-F
B-7	4-F
B-8	2-CN
B-9	3-CN
B-10	4-CN
B-11	2-NO_2
B-12	3-NO_2
B-13	4-NO_2
B-14	2-SCH_3
B-15	3-SCH_3
B-16	4-SCH_3
B-17	2-$SOCH_3$
B-18	3-$SOCH_3$
B-19	4-$SOCH_3$
B-20	2-SO_2CH_3
B-21	3-SO_2CH_3
B-22	4-SO_2CH_3
B-23	2-CO_2CH_3
B-24	3-CO_2CH_3
B-25	4-CO_2CH_3
B-26	2,3-Cl_2
B-27	2,4-Cl_2
B-28	2,5-Cl_2
B-29	3,4-Cl_2
B-30	3,5-Cl_2
B-31	2,6-Cl_2
B-32	2,3-F_2
B-33	2,4-F_2
B-34	2,5-F_2
B-35	3,4-F_2
B-36	3,5-F_2
B-37	2,6-F_2
B-38	2-F-3-Cl
B-39	2-F-4-Cl
B-40	3-F-4-Cl
B-41	2-F-6-Cl
B-42	2-Cl-3-F
B-43	2-Cl-4-F
B-44	3-Cl-4-F
B-45	2,3,4-Cl_3
B-46	2,4,5-Cl_3
B-47	3,4,5-Cl_3
B-48	2,4,6-Cl_3
B-49	2,3,4-F_3
B-50	2,4,5-F_3
B-51	3,4,5-F_3
B-52	2,4,6-F_3
B-53	2,3-4-F_3
B-54	2,4-F_2-3-Cl
B-55	2,6-F_2-4-Cl
B-56	2,5-F_2-4-Cl
B-57	2,4-Cl_2-3-F
B-58	2,6-Cl_2-4-F
B-59	2,5-Cl_2-4-F
B-60	2-CH_3
B-61	3-CH_3
B-62	4-CH_3
B-63	2-CH_2CH_3
B-64	3-CH_2CH_3
B-65	4-CH_2CH_3
B-66	2-CF_3
B-67	3-CF_3
B-68	4-CF_3
B-69	2-CHF_2
B-70	3-CHF_2
B-71	4-CHF_2
B-72	2-OCH_3
B-73	3-OCH_3
B-74	4-OCH_3
B-75	2-OCH_2CH_3
B-76	3-OCH_2CH_3
B-77	4-OCH_2CH_3
B-78	2-OCF_3
B-79	3-OCF_3
B-80	4-OCF_3
B-81	2-$OCHF_2$
B-82	3-$OCHF_2$
B-83	4-$OCHF_2$
B-84	2,3-$(CH_3)_2$
B-85	2,4-$(CH_3)_2$
B-86	3,4-$(CH_3)_2$
B-87	2,6-$(CH_3)_2$
B-88	2,3-$(CH_2CH_3)_2$
B-89	2,4-$(CH_2CH_3)_2$
B-90	3,4-$(CH_2CH_3)_2$
B-91	2,6-$(CH_2CH_3)_2$
B-92	2,3-$(CF_3)_2$
B-93	2,4-$(CF_3)_2$
B-94	3,4-$(CF_3)_2$
B-95	2,6-$(CF_3)_2$
B-96	2,3-$(CHF_2)_2$
B-97	2,4-$(CHF_2)_2$
B-98	3,4-$(CHF_2)_2$
B-99	2,6-$(CHF_2)_2$
B-100	2,3-$(OCH_3)_2$
B-101	2,4-$(OCH_3)_2$
B-102	3,4-$(OCH_3)_2$

No.	R^4_m
B-103	2,6-$(OCH_3)_2$
B-104	2,3-$(OCH_2CH_3)_2$
B-105	2,4-$(OCH_2CH_3)_2$
B-106	3,4-$(OCH_2CH_3)_2$
B-107	2,6-$(OCH_2CH_3)_2$
B-108	2,3-$(OCF_3)_2$
B-109	2,4-$(OCF_3)_2$
B-110	3,4-$(OCF_3)_2$
B-111	2,6-$(OCF_3)_2$
B-112	2,3-$(OCHF_2)_2$
B-113	2,4-$(OCHF_2)_2$
B-114	3,4-$(OCHF_2)_2$
B-115	2,6-$(OCHF_2)_2$
B-116	2,3,4-$(CH_3)_3$
B-117	2,4,5-$(CH_3)_3$
B-118	3,4,5-$(CH_3)_3$
B-119	2,4,6-$(CH_3)_3$
B-120	2,3,4-$(CH_2CH_3)_3$
B-121	2,4,5-$(CH_2CH_3)_3$
B-122	3,4,5-$(CH_2CH_3)_3$
B-123	2,4,6-$(CH_2CH_3)_3$
B-124	2,3,4-$(CF_3)_3$
B-125	2,4,5-$(CF_3)_3$
B-126	3,4,5-$(CF_3)_3$
B-127	2,4,6-$(CF_3)_3$
B-128	2,3,4-$(CHF_2)_3$
B-129	2,4,5-$(CHF_2)_3$
B-130	3,4,5-$(CHF_2)_3$
B-131	2,4,6-$(CHF_2)_3$
B-132	2,3,4-$(OCH_3)_3$
B-133	2,4,5-$(OCH_3)_3$
B-134	3,4,5-$(OCH_3)_3$
B-135	2,4,6-$(OCH_3)_3$
B-136	2,3,4-$(OCH_2CH_3)_3$
B-137	2,4,5-$(OCH_2CH_3)_3$
B-138	3,4,5-$(OCH_2CH_3)_3$
B-139	2,4,6-$(OCH_2CH_3)_3$
B-140	2,3,4-$(OCF_3)_3$
B-141	2,4,5-$(OCF_3)_3$
B-142	3,4,5-$(OCF_3)_3$
B-143	2,4,6-$(OCF_3)_3$
B-144	2,3,4-$(OCHF_2)_3$
B-145	2,4,5-$(OCHF_2)_3$
B-146	3,4,5-$(OCHF_2)_3$
B-147	2,4,6-$(OCHF_2)_3$
B-148	2-CF_3-4-Cl
B-149	2-CF_3-4-F
B-150	2-Cl-4-CF_3
B-151	2-F-4-CF_3
B-152	2-CN-4-Cl
B-153	2-CN-4-F
B-154	2-Cl-4-CN
B-155	2-F-4-CN

The compounds I and the compositions according to the invention, 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 classes of the Plasmodiophoromycetes, Peronosporomycetes (syn. Oomycetes), Chytridiomycetes, Zygomycetes, Ascomycetes, Basidiomycetes and Deuteromycetes (syn. Fungi imperfecti). Some 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 hydroxylphenylpyruvate dioxygenase (HPPD) inhibitors or phytoene desaturase (PDS) inhibittors; 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 Streptomycetes toxins, plant lectins, such as pea or barley lectins; agglutinins; proteinase inhibitors, such as trypsin inhibitors, serine protease inhibitors, patatin, cystatin or papain inhibitors; ribosome-inactivating proteins (RIP), such as ricin, maize-RIP, abrin, luffin, saporin or bryodin; steroid metabolism enzymes, such as 3-hydroxysteroid oxidase, ecdysteroid-IDP-glycosyl-transferase, cholesterol oxidases, ecdysone inhibitors or HMG-CoA-reductase; ion channel blockers, such as blockers of sodium or calcium channels; juvenile hormone esterase; diuretic hormone receptors (helicokinin receptors); stilben synthase, bibenzyl synthase, chitinases or glucanases. In the context of the present invention these insecticidal proteins or toxins are to be understood expressly also as pre-toxins, hybrid proteins, truncated or otherwise modified proteins. Hybrid proteins are characterized by a new combination of protein domains, (see, 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 und 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 athropods, especially to beetles (Coeloptera), 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 enyzme), 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 amylvora*). 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. sojina* 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; *Cycloconium* 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*), *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 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 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* (powdery mildew) on soybeans; *Monilinia* spp., e. g. *M. laxa*, *M. fructicola* and *M. fructigena* (bloom and twig blight, brown rot) on stone fruits and other rosaceous plants; *Mycosphaerella* spp. on cereals, bananas, soft fruits and ground nuts, such as e. g. *M. graminicola* (anamorph: *Septoria tritici*, Septoria blotch) on wheat or *M. fijiensis* (black Sigatoka disease) on bananas; *Peronospora* spp. (downy mildew) on cabbage (e. g. *P. brassicae*), rape (e. g. *P. parasitica*), onions (e. g. *P. destructor*), tobacco (*P. tabacina*) and soybeans (e. g. *P. manshurica*); *Phakopsora pachyrhizi* and *P. meibomiae* (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*); *Physoderma maydis* (brown spots) on corn; *Phytophthora* spp. (wilt, root, leaf, fruit and stem root) on various plants, such as paprika and cucurbits (e. g. *P. capsici*), soybeans (e. g. *P. megasperma*, syn. *P. sojae*), potatoes and tomatoes (e. g. *P. infestans*: late blight) and broad-leaved trees (e. g. *P. ramorum*: sudden oak death); *Plasmodiophora brassicae* (club root) on cabbage, rape, radish and other plants; *Plasmopara* spp., e. g. *P. viticola* (grapevine downy mildew) on vines and *P. halstedii* on sunflowers; *Podosphaera* spp. (powdery mildew) on 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 transmitted viral diseases; *Pseudocercosporella 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; *Pseudopezicula tracheiphila* (red fire disease or ‚rotbrenner', anamorph: *Phialophora*) on vines; *Puccinia* spp. (rusts) on various plants, e. g. *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, *P. kuehnii* (orange rust) on sugar cane and *P. asparagi* on asparagus; *Pyrenophora* (anamorph: *Drechslera*) *tritici-repentis* (tan spot) on wheat or *P. teres* (net blotch) on barley; *Pyricularia* spp., e. g. *P. oryzae* (teleomorph: *Magnaporthe grisea*, rice blast) on rice and *P. grisea* on turf and cereals; *Pythium* spp. (damping-off) on turf, rice, corn, wheat, cotton, rape, sunflowers, soybeans, sugar beets, vegetables and various other plants (e. g. *P. ultimum* or *P. aphanidermatum*); *Ramularia* spp., e. g. *R. collo-cygni* (Ramularia leaf spots, Physiological leaf spots) on barley and *R. beticola* on sugar beets; *Rhizoctonia* spp. on cotton, rice, potatoes, turf, corn, rape, potatoes, sugar beets, vegetables and various other plants, e. g. *R. solani* (root and stem rot) on soybeans, *R. solani* (sheath blight) on rice or *R. cerealis* (Rhizoctonia spring blight) on wheat or barley; *Rhizopus stolonifer* (black mold, soft rot) on strawberries, carrots, cabbage, vines and tomatoes; *Rhynchosporium secalis* (scald) on barley, rye and triticale; *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* (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; *Setospaeria* 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; *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, 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*); *Ustilago* spp. (loose smut) on cereals (e. g. *U. nuda* and *U. avaenae*), 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.

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, colling 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., *Trichorma* 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 cerevisae*.

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, leafs, 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 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, resepectively, 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 compositions 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, benzylalcohol, cyclohexanol; glycols; DMSO; ketones, e.g. cyclohexanone; esters, e.g. lactates, carbonates, fatty acid esters, gamma-butyrolactone; fatty acids; phosphonates; amines; amides, e.g. N-methylpyrrolidone, fatty acid dimethylamides; and compositions thereof.

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

Suitable surfactants are surface-active compounds, such as anionic, cationic, nonionic and amphoteric surfactants, block polymers, polyelectrolytes, and compositions thereof. Such surfactants can be used as emusifier, 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.).

Suitable anionic surfactants are alkali, alkaline earth or ammonium salts of sulfonates, sulfates, phosphates, carboxylates, and compositions thereof. Examples of sulfonates are alkylarylsulfonates, diphenylsulfonates, alpha-olefin sulfonates, lignine sulfonates, sulfonates of fatty acids and oils, sulfonates of ethoxylated alkylphenols, sulfonates of alkoxylated arylphenols, sulfonates of condensed naphthalenes, sulfonates of dodecyl- and tridecylbenzenes, sulfonates of naphthalenes and alkylnaphthalenes, 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.

Suitable nonionic surfactants are alkoxylates, N-subsituted fatty acid amides, amine oxides, esters, sugar-based surfactants, polymeric surfactants, and compositions thereof. Examples of alkoxylates are compounds such as alcohols, alkylphenols, amines, amides, arylphenols, fatty acids or fatty acid esters which have been alkoxylated with 1 to 50 equivalents. Ethylene oxide and/or propylene oxide may be employed for the alkoxylation, preferably ethylene oxide. Examples of N-subsititued 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 vinylpyrrolidone, vinylalcohols, or vinylacetate.

Suitable cationic surfactants are quaternary surfactants, for example quaternary ammonium compounds with one or two hydrophobic groups, or salts of long-chain primary amines. Suitable amphoteric surfactants are alkylbetains and imidazolines. Suitable block polymers are block polymers of the A-B or A-B-A type comprising blocks of polyethylene oxide and polypropylene oxide, or of the A-B-C type comprising alkanol, polyethylene oxide and polypropylene oxide. Suitable polyelectrolytes are polyacids or polybases. Examples of polyacids are alkali salts of polyacrylic acid or polyacid comb polymers. Examples of polybases are polyvinylamines or polyethyleneamines.

Suitable adjuvants are compounds, which have a neglectable or even no pesticidal activity themselves, and which improve the biological performance of the compound I on the target. Examples are surfactants, mineral or vegetable oils, and other auxilaries. Further examples are listed by Knowles, Adjuvants and additives, Agrow Reports DS256, T&F Informa UK, 2006, chapter 5.

Suitable thickeners are polysaccharides (e.g. xanthan gum, carboxymethylcellulose), anorganic 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 polyvinylpyrrolidons, polyvinylacetates, 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. polyvinylpyrrolidone) 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 composition 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. polyvinylalcohol) 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. carboxymethylcellulose) 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.

iv) Microemulsion (ME)

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

iv) 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 initiated by a radical initiator 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.

ix) 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%.

x) 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.

xi) 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 xi) 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%, and in particular between 0.5 and 75%, by weight of active substance. The active substances are employed in a purity of from 90% to 100%, preferably from 95% to 100% (according to NMR spectrum).

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 for the purposes of treatment of plant propagation materials, particularly seeds. The compositions in question give, after two-to-tenfold dilution, active substance concentrations of from 0.01 to 60% by weight, preferably from 0.1 to 40%, in the ready-to-use preparations. Application can be carried out before or during sowing. Methods for applying compound I and compositions thereof, respectively, on to plant propagation material, especially seeds include dressing, coating, pelleting, dusting, soaking and in-furrow application methods of the propagation material. Preferably, compound I or the compositions thereof, respectively, are applied on to the plant 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, 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.

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. 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 a virus, bacterium, antimicrobial or disinfectant) that through its effect 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 pesticides includes also plant growth regulators that alter the expected growth, flowering, or reproduction rate of plants; defoliants 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 to increase plant growth, biomass, yield or any other quality parameter of the harvestable goods of acrop plant.

Biopesticides are typically created by growing and concentrating naturally occurring organisms and/or their metabolites including bacteria and other microbes, fungi, viruses, nematodes, proteins, etc. They are often considered to be important components of integrated pest management (IPM) programmes.

Biopesticides fall into two major classes, microbial and biochemical pesticides:

(1) Microbial pesticides consist of bacteria, fungi or viruses (and often include the metabolites that bacteria and fungi produce). Entomopathogenic nematodes are also classed as microbial pesticides, even though they are multi-cellular.

Biochemical pesticides are naturally occurring substances that control pests or provide other crop protection uses as defined below, but are relatively non-toxic to mammals.

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 composition 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.

When living microorganisms, such as pesticides from groups L1), L3) and L5), form part of such kit, it must be taken care that choice and amounts of the components (e.g. chemcial pesticidal agents) and of the further auxiliaries should not influence the viability of the microbial pesticides in the composition mixed by the user. Especially for bactericides and solvents, compatibility with the respective microbial pesticide has to be taken into account.

Consequently, one embodiment of the invention is a kit for preparing a usable pesticidal composition, the kit compring 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 (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 (e.g. strobilurins): azoxystrobin, coumethoxystrobin, coumoxystrobin, dimoxystrobin, enestroburin, fenaminstrobin, fenoxystrobin/flufenoxystrobin, fluoxastrobin, kresoxim-methyl, metominostrobin, orysastrobin, picoxystrobin, pyraclostrobin, pyrametostrobin, pyraoxystrobin, trifloxystrobin, and 2-(2-(3-(2,6-dichlorophenyl)-1-methyl-allylideneaminooxymethyl)-phenyl)-2-methoxyimino-N-methyl-acetamide, pyribencarb, triclopyricarb/chlorodincarb, famoxadone, fenamidone;
- inhibitors of complex III at Q_i site: cyazofamid, amisulbrom, [(3S,6S,7R,8R)-8-benzyl-3-[(3-acetoxy-4-methoxy-pyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate, [(3S,6S,7R,8R)-8-benzyl-3-[[3-(acetoxymethoxy)-4-methoxy-pyridine-

2-carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate, [(3S,6S,7R,8R)-8-benzyl-3-[(3-isobutoxycarbonyloxy-4-methoxy-pyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate, [(3S,6S,7R,8R)-8-benzyl-3-[[3-(1,3-benzodioxol-5-ylmethoxy)-4-methoxy-pyridine-2-carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate; (3S,6S,7R,8R)-3-[[(3-hydroxy-4-methoxy-2-pyridinyl)carbonyl]amino]-6-methyl-4,9-dioxo-8-(phenylmethyl)-1,5-dioxonan-7-yl 2-methylpropanoate, (3S,6S,7R,8R)-3-[[(3-hydroxy-4-methoxy-2-pyridinyl)carbonyl]amino]-6-methyl-4,9-dioxo-8-(phenylmethyl)-1,5-dioxonan-7-yl 2-methylpropanoate;

- inhibitors of complex II (e. g. carboxamides): benodanil, benzovindiflupyr, bixafen, boscalid, carboxin, fenfuram, fluopyram, flutolanil, fluxapyroxad, furametpyr, isofetamid, isopyrazam, mepronil, oxycarboxin, penflufen, penthiopyrad, sedaxane, tecloftalam, thifluzamide, N-(4'-trifluoromethylthiobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide, N-(2-(1,3,3-trimethyl-butyl)-phenyl)-1,3-dimethyl-5-fluoro-1H-pyrazole-4-carboxamide, 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide, 3-(trifluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide, 1,3-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide, 3-(trifluoromethyl)-1,5-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide, 1,3,5-trimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide, N-(7-fluoro-1,1,3-trimethyl-indan-4-yl)-1,3-dimethyl-pyrazole-4-carboxamide, N-[2-(2,4-dichlorophenyl)-2-methoxy-1-methyl-ethyl]-3-(difluoromethyl)-1-methyl-pyrazole-4-carboxamide;
- other respiration inhibitors (e.g. complex I, uncouplers): diflumetorim, (5,8-difluoroquinazolin-4-yl)-{2-[2-fluoro-4-(4-trifluoromethylpyridin-2-yloxy)-phenyl]-ethyl}-amine; nitrophenyl derivates: binapacryl, dinobuton, dinocap, fluazinam; ferimzone; organometal compounds: fentin salts, such as fentin-acetate, fentin chloride or fentin hydroxide; ametoctradin; and silthiofam;

B) Sterol biosynthesis inhibitors (SBI fungicides)

- C14 demethylase inhibitors (DMI fungicides): triazoles: azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, diniconazole-M, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, oxpoconazole, paclobutrazole, penconazole, propiconazole, prothioconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, uniconazole, 1-[*rel*-(2*S*;3*R*)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)-oxiranylmethyl]-5-thiocyanato-1H-[1,2,4]triazole, 2-[*rel*-(2*S*;3*R*)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)-oxiranylmethyl]-2H-[1,2,4]triazole-3-thiol; 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol, 1-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-cyclopropyl-2-(1,2,4-triazol-1-yl)ethanol, 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol, 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol, 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol, 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol, 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol, 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol, 2-[4-(4-fluorophenoxy)-2-

(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol; imidazoles: imazalil, pefurazoate, prochloraz, triflumizol; pyrimidines, pyridines and piperazines: fenarimol, nuarimol, pyrifenox, triforine, 3-(4-chloro-2-fluoro-phenyl)-5-(2,4-difluorophenyl)isoxazol-4-yl]-(3-pyridyl)methanol;

- Delta14-reductase inhibitors: aldimorph, dodemorph, dodemorph-acetate, fenpropimorph, tridemorph, fenpropidin, piperalin, spiroxamine;
- Inhibitors of 3-keto reductase: fenhexamid;

C) Nucleic acid synthesis inhibitors

- phenylamides or acyl amino acid fungicides: benalaxyl, benalaxyl-M, kiralaxyl, metalaxyl, metalaxyl-M (mefenoxam), ofurace, oxadixyl;
- others: hymexazole, octhilinone, oxolinic acid, bupirimate, 5-fluorocytosine, 5-fluoro-2-(p-tolylmethoxy)pyrimidin-4-amine, 5-fluoro-2-(4-fluorophenylmethoxy)pyrimidin-4-amine;

D) Inhibitors of cell division and cytoskeleton

- tubulin inhibitors, such as benzimidazoles, thiophanates: benomyl, carbendazim, fuberidazole, thiabendazole, thiophanate-methyl; triazolopyrimidines: 5-chloro-7-(4-methyl-piperidin-1-yl)-6-(2,4,6-trifluorophenyl)-[1,2,4]triazolo[1,5-a]pyrimidine
- other cell division inhibitors: diethofencarb, ethaboxam, pencycuron, fluopicolide, zoxamide, metrafenone, pyriofenone;

E) Inhibitors of amino acid and protein synthesis

- methionine synthesis inhibitors (anilino-pyrimidines): cyprodinil, mepanipyrim, pyrimethanil;
- protein synthesis inhibitors: blasticidin-S, kasugamycin, kasugamycin hydrochloride-hydrate, mildiomycin, streptomycin, oxytetracyclin, polyoxine, validamycin A;

F) Signal transduction inhibitors

- MAP / histidine kinase inhibitors: fluoroimid, iprodione, procymidone, vinclozolin, fenpiclonil, fludioxonil;
- G protein inhibitors: quinoxyfen;

G) Lipid and membrane synthesis inhibitors

- Phospholipid biosynthesis inhibitors: edifenphos, iprobenfos, pyrazophos, isoprothiolane;
- lipid peroxidation: dicloran, quintozene, tecnazene, tolclofos-methyl, biphenyl, chloroneb, etridiazole;
- phospholipid biosynthesis and cell wall deposition: dimethomorph, flumorph, mandipropamid, pyrimorph, benthiavalicarb, iprovalicarb, valifenalate and N-(1-(1-(4-cyano-phenyl)ethanesulfonyl)-but-2-yl) carbamic acid-(4-fluorophenyl) ester;
- compounds affecting cell membrane permeability and fatty acides: propamocarb, propamocarb-hydrochlorid
- fatty acid amide hydrolase inhibitors: oxathiapiprolin, 1-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-

1-yl]ethanone, 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, 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;

H) Inhibitors with Multi Site Action

- inorganic active substances: Bordeaux composition, copper acetate, copper hydroxide, copper oxychloride, basic copper sulfate, sulfur;
- thio- and dithiocarbamates: ferbam, mancozeb, maneb, metam, metiram, propineb, thiram, zineb, ziram;
- organochlorine compounds (e.g. phthalimides, sulfamides, chloronitriles): anilazine, chlorothalonil, captafol, captan, folpet, dichlofluanid, dichlorophen, hexachlorobenzene, pentachlorphenole and its salts, phthalide, tolylfluanid, N-(4-chloro-2-nitro-phenyl)-N-ethyl-4-methyl-benzenesulfonamide;
- guanidines and others: guanidine, dodine, dodine free base, guazatine, guazatine-acetate, iminoctadine, iminoctadine-triacetate, iminoctadine-tris(albesilate), dithianon, 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetraone;

I) Cell wall synthesis inhibitors

- inhibitors of glucan synthesis: validamycin, polyoxin B; melanin synthesis inhibitors: pyroquilon, tricyclazole, carpropamid, dicyclomet, fenoxanil;

J) Plant defence inducers

- acibenzolar-S-methyl, probenazole, isotianil, tiadinil, prohexadione-calcium; phosphonates: fosetyl, fosetyl-aluminum, phosphorous acid and its salts;

K) Unknown mode of action

- bronopol, chinomethionat, cyflufenamid, cymoxanil, dazomet, debacarb, diclomezine, difenzoquat, difenzoquat-methylsulfate, diphenylamin, fenpyrazamine, flumetover, flusulfamide, flutianil, methasulfocarb, nitrapyrin, nitrothal-isopropyl, oxathiapiprolin, tolprocarb, oxin-copper, proquinazid, tebufloquin, tecloftalam, triazoxide, 2-butoxy-6-iodo-3-propylchromen-4-one, , 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone, 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-fluoro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone, 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-chloro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone, N-(cyclopropylmethoxyimino-(6-difluoro-methoxy-2,3-difluoro-phenyl)-methyl)-2-phenyl acetamide, N'-(4-(4-chloro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine, N'-(4-(4-fluoro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine, N'-(2-methyl-5-trifluoromethyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine, N'-(5-difluoromethyl-2-methyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine, methoxy-acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester, 3-[5-(4-methylphenyl)-2,3-

dimethyl-isoxazolidin-3-yl]-pyridine, 3-[5-(4-chloro-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine (pyrisoxazole),
N-(6-methoxy-pyridin-3-yl) cyclopropanecarboxylic acid amide, 5-chloro-1-(4,6-dimethoxy-pyrimidin-2-yl)-2-methyl-1H-benzoimidazole, 2-(4-chloro-phenyl)-N-[4-(3,4-dimethoxy-phenyl)-isoxazol-5-yl]-2-prop-2-ynyloxy-acetamide; ethyl (Z)-3-amino-2-cyano-3-phenyl-prop-2-enoate , picarbutrazox, pentyl N-[6-[[(Z)-[(1-methyltetrazol-5-yl)-phenyl-methylene]amino]oxymethyl]-2-pyridyl]carbamate, 2-[2-[(7,8-difluoro-2-methyl-3-quinolyl)oxy]-6-fluoro-phenyl]propan-2-ol, 2-[2-fluoro-6-[(8-fluoro-2-methyl-3-quinolyl)oxy]-phen-yl]propan-2-ol, 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline, 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline;

L) Biopesticides

L1) Microbial pesticides with fungicidal, bactericidal, viricidal and/or plant defense activator activity: Ampelomyces quisqualis, Aspergillus flavus, Aureobasidium pullulans, Bacillus amyloliquefaciens, B. mojavensis, B. pumilus, B. simplex, B. solisalsi, B. subtilis, B. subtilis var. amyloliquefaciens, Candida oleophila, C. saitoana, Clavibacter michiganensis (bacteriophages), Coniothyrium minitans, Cryphonectria parasitica, Cryptococcus albidus, Dilophosphora alopecuri, Fusarium oxysporum, Clonostachys rosea f. catenulate (also named Gliocladium catenulatum), Gliocladium roseum, Lysobacter antibioticus, L. enzymogenes, Metschnikowia fructicola, Microdochium dimerum, Microsphaeropsis ochracea, Muscodor albus, Paenibacillus polymyxa, Pantoea vagans, Phlebiopsis gigantea, Pseudomonas sp., Pseudomonas chloraphis, Pseudozyma flocculosa, Pichia anomala, Pythium oligandrum, Sphaerodes mycoparasitica, Streptomyces griseoviridis, S. lydicus, S. violaceusniger, Talaromyces flavus, Trichoderma asperellum, T. atroviride, T. fertile, T. gamsii, T. harmatum, T. harzianum; mixture of T. harzianum and T. viride; mixture of T. polysporum and T. harzianum; T. stromaticum, T. virens (also named Gliocladium virens), T. viride, Typhula phacorrhiza, Ulocladium oudemansii, Verticillium dahlia, zucchini yellow mosaic virus (avirulent strain);

L2) Biochemical pesticides with fungicidal, bactericidal, viricidal and/or plant defense activator activity: chitosan (hydrolysate), harpin protein, laminarin, Menhaden fish oil, natamycin, Plum pox virus coat protein, potassium or sodium bicarbonate, Reynoutria sachlinensis extract, salicylic acid, tea tree oil;

L3) Microbial pesticides with insecticidal, acaricidal, molluscidal and/or nematicidal activity: Agrobacterium radiobacter, Bacillus cereus, B. firmus, B. thuringiensis, B. thuringiensis ssp. aizawai, B. t. ssp. israelensis, B. t. ssp. galleriae, B. t. ssp. kurstaki, B. t. ssp. tenebrionis, Beauveria bassiana, B. brongniartii , Burkholderia sp., Chromobacterium subtsugae, Cydia pomonella granulosis virus, Cryptophlebia leucotreta granulovirus (CrleGV), Isaria fumosorosea, Heterorhabditis bacteriophora, Lecanicillium longisporum, L. muscarium (formerly Verticillium lecanii), Metarhizium anisopliae, M. anisopliae var. acridum, Nomuraea rileyi, Paecilomyces fumosoroseus, P. lilacinus, Paenibacillus popilliae, Pasteuria spp., P. nishizawae, P. penetrans, P. ramose, P. reneformis, P. thornea, P. usgae, Pseudomonas fluorescens, Steinernema carpocapsae, S. feltiae, S. kraussei;

L4) Biochemical pesticides with insecticidal, acaricidal, molluscidal, pheromone and/or nematicidal activity: L-carvone, citral, (E,Z)-7,9-dodecadien-1-yl acetate, ethyl formate, (E,Z)-2,4-ethyl decadienoate (pear ester), (Z,Z,E)-7,11,13-hexadecatrienal, heptyl butyrate, isopropyl myristate, lavanulyl senecioate, cis-jasmone, 2-methyl 1-butanol, methyl eugenol, methyl jasmonate, (E,Z)-2,13-octadecadien-1-ol, (E,Z)-2,13-octadecadien-1-ol acetate, (E,Z)-3,13-octadecadien-1-ol, R-1-octen-3-ol, pentatermanone, potassium silicate, sorbitol actanoate, (E,Z,Z)-3,8,11-tetradecatrienyl acetate, (Z,E)-9,12-tetradecadien-1-yl acetate, Z-7-tetradecen-2-one, Z-9-tetradecen-1-yl acetate, Z-11-tetradecenal, Z-11-tetradecen-1-ol, Acacia negra extract, extract of grapefruit seeds and pulp, extract of Chenopodium ambrosiodae, Catnip oil, Neem oil, Quillay extract, Tagetes oil;

L5) Microbial pesticides with plant stress reducing, plant growth regulator, plant growth promoting and/or yield enhancing activity: Azospirillum amazonense, A. brasilense, A. lipoferum, A. irakense, A. halopraeferens, Bradyrhizobium sp., B. elkanii, B. japonicum, B. liaoningense, B. lupini, Delftia acidovorans, Glomus intraradices, Mesorhizobium sp., Paenibacillus alvei, Penicillium bilaiae, Rhizobium leguminosarum bv. phaseoli, R. l. trifolii, R. l. bv. viciae, R. tropici, Sinorhizobium meliloti;

L6) Biochemical pesticides with plant stress reducing, plant growth regulator and/or plant yield enhancing activity: abscisic acid, aluminium silicate (kaolin), 3-decen-2-one, formononetin, genistein, hesperetin, homobrassinlide, humates, jasmonic acid or salts or derivatives thereof, lysophosphatidyl ethanolamine, naringenin, polymeric polyhydroxy acid, Ascophyllum nodosum (Norwegian kelp, Brown kelp) extract and Ecklonia maxima (kelp) extract;

M) Growth regulators

abscisic acid, 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;

N) Herbicides

- acetamides: acetochlor, alachlor, butachlor, dimethachlor, dimethenamid, flufenacet, mefenacet, metolachlor, metazachlor, napropamide, naproanilide, pethoxamid, pretilachlor, propachlor, thenylchlor;
- amino acid derivatives: bilanafos, glyphosate, glufosinate, sulfosate;
- aryloxyphenoxypropionates: clodinafop, cyhalofop-butyl, fenoxaprop, fluazifop, haloxyfop, metamifop, propaquizafop, quizalofop, quizalofop-P-tefuryl;
- Bipyridyls: diquat, paraquat;

- (thio)carbamates: asulam, butylate, carbetamide, desmedipham, dimepiperate, eptam (EPTC), esprocarb, molinate, orbencarb, phenmedipham, prosulfocarb, pyributicarb, thiobencarb, triallate;
- cyclohexanediones: butroxydim, clethodim, cycloxydim, profoxydim, sethoxydim, tepraloxydim, tralkoxydim;
- dinitroanilines: benfluralin, ethalfluralin, oryzalin, pendimethalin, prodiamine, trifluralin;
- diphenyl ethers: acifluorfen, aclonifen, bifenox, diclofop, ethoxyfen, fomesafen, lactofen, oxyfluorfen;
- hydroxybenzonitriles: bomoxynil, dichlobenil, ioxynil;
- imidazolinones: imazamethabenz, imazamox, imazapic, imazapyr, imazaquin, imazethapyr;
- phenoxy acetic acids: clomeprop, 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4-DB, dichlorprop, MCPA, MCPA-thioethyl, MCPB, Mecoprop;
- pyrazines: chloridazon, flufenpyr-ethyl, fluthiacet, norflurazon, pyridate;
- pyridines: aminopyralid, clopyralid, diflufenican, dithiopyr, fluridone, fluroxypyr, picloram, picolinafen, thiazopyr;
- sulfonyl ureas: amidosulfuron, azimsulfuron, bensulfuron, chlorimuron-ethyl, chlorsulfuron, cinosulfuron, cyclosulfamuron, ethoxysulfuron, flazasulfuron, flucetosulfuron, flupyrsulfuron, foramsulfuron, halosulfuron, imazosulfuron, iodosulfuron, mesosulfuron, metazosulfuron, metsulfuron-methyl, nicosulfuron, oxasulfuron, primisulfuron, prosulfuron, pyrazosulfuron, rimsulfuron, sulfometuron, sulfosulfuron, thifensulfuron, triasulfuron, tribenuron, trifloxysulfuron, triflusulfuron, tritosulfuron, 1-((2-chloro-6-propyl-imidazo[1,2-b]pyridazin-3-yl)sulfonyl)-3-(4,6-dimethoxy-pyrimidin-2-yl)urea;
- triazines: ametryn, atrazine, cyanazine, dimethametryn, ethiozin, hexazinone, metamitron, metribuzin, prometryn, simazine, terbuthylazine, terbutryn, triaziflam;
- ureas: chlorotoluron, daimuron, diuron, fluometuron, isoproturon, linuron, methabenzthiazuron,tebuthiuron;
- other acetolactate synthase inhibitors: bispyribac-sodium, cloransulam-methyl, diclosulam, florasulam, flucarbazone, flumetsulam, metosulam, ortho-sulfamuron, penoxsulam, propoxycarbazone, pyribambenz-propyl, pyribenzoxim, pyriftalid, pyriminobac-methyl, pyrimisulfan, pyrithiobac, pyroxasulfone, pyroxsulam;
- others: amicarbazone, aminotriazole, anilofos, beflubutamid, benazolin, bencarbazone,benfluresate, benzofenap, bentazone, benzobicyclon, bicyclopyrone, bromacil, bromobutide, butafenacil, butamifos, cafenstrole, carfentrazone, cinidon-ethyl, chlorthal, cinmethylin, clomazone, cumyluron, cyprosulfamide, dicamba, difenzoquat, diflufenzopyr, *Drechslera monoceras*, endothal, ethofumesate, etobenzanid, fenoxasulfone, fentrazamide, flumiclorac-pentyl, flumioxazin, flupoxam, flurochloridone, flurtamone, indanofan, isoxaben, isoxaflutole, lenacil, propanil, propyzamide, quinclorac, quinmerac, mesotrione, methyl arsonic acid, naptalam, oxadiargyl, oxadiazon, oxaziclomefone,

pentoxazone, pinoxaden, pyraclonil, pyraflufen-ethyl, pyrasulfotole, pyrazoxyfen, pyrazolynate, quinoclamine, saflufenacil, sulcotrione, sulfentrazone, terbacil, tefuryltrione, tembotrione, thiencarbazone, topramezone, (3-[2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-trifluoromethyl-3,6-dihydro-2H-pyrimidin-1-yl)-phenoxy]-pyridin-2-yloxy)-acetic acid ethyl ester, 6-amino-5-chloro-2-cyclopropyl-pyrimidine-4-carboxylic acid methyl ester, 6-chloro-3-(2-cyclopropyl-6-methyl-phenoxy)-pyridazin-4-ol, 4-amino-3-chloro-6-(4-chloro-phenyl)-5-fluoro-pyridine-2-carboxylic acid, 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxy-phenyl)-pyridine-2-carboxylic acid methyl ester, and 4-amino-3-chloro-6-(4-chloro-3-dimethylamino-2-fluoro-phenyl)-pyridine-2-carboxylic acid methyl ester.

O) Insecticides

- organo(thio)phosphates: acephate, azamethiphos, azinphos-methyl, chlorpyrifos, chlorpyrifos-methyl, chlorfenvinphos, diazinon, dichlorvos, dicrotophos, dimethoate, disulfoton, ethion, fenitrothion, fenthion, isoxathion, malathion, methamidophos, methidathion, methyl-parathion, mevinphos, monocrotophos, oxydemeton-methyl, paraoxon, parathion, phenthoate, phosalone, phosmet, phosphamidon, phorate, phoxim, pirimiphos-methyl, profenofos, prothiofos, sulprophos, tetrachlorvinphos, terbufos, triazophos, trichlorfon;
- carbamates: alanycarb, aldicarb, bendiocarb, benfuracarb, carbaryl, carbofuran, carbosulfan, fenoxycarb, furathiocarb, methiocarb, methomyl, oxamyl, pirimicarb, propoxur, thiodicarb, triazamate;
- pyrethroids: allethrin, bifenthrin, cyfluthrin, cyhalothrin, cyphenothrin, cypermethrin, alpha-cypermethrin, beta-cypermethrin, zeta-cypermethrin, deltamethrin, esfenvalerate, etofenprox, fenpropathrin, fenvalerate, imiprothrin, lambda-cyhalothrin, permethrin, prallethrin, pyrethrin I and II, resmethrin, silafluofen, tau-fluvalinate, tefluthrin, tetramethrin, tralomethrin, transfluthrin, profluthrin, dimefluthrin;
- insect growth regulators: a) chitin synthesis inhibitors: benzoylureas: chlorfluazuron, cyramazin, diflubenzuron, flucycloxuron, flufenoxuron, hexaflumuron, lufenuron, novaluron, teflubenzuron, triflumuron; buprofezin, diofenolan, hexythiazox, etoxazole, clofentazine; b) ecdysone antagonists: halofenozide, methoxyfenozide, tebufenozide, azadirachtin; c) juvenoids: pyriproxyfen, methoprene, fenoxycarb; d) lipid biosynthesis inhibitors: spirodiclofen, spiromesifen, spirotetramat;
- nicotinic receptor agonists/antagonists compounds: clothianidin, dinotefuran, flupyradifurone, imidacloprid, thiamethoxam, nitenpyram, acetamiprid, thiacloprid, 1-2-chloro-thiazol-5-ylmethyl)-2-nitrimino-3,5-dimethyl-[1,3,5]triazinane;
- GABA antagonist compounds: endosulfan, ethiprole, fipronil, vaniliprole, pyrafluprole, pyriprole, 5-amino-1-(2,6-dichloro-4-methyl-phenyl)-4-sulfinamoyl-1H-pyrazole-3-carbothioic acid amide;
- macrocyclic lactone insecticides: abamectin, emamectin, milbemectin, lepimectin, spinosad, spinetoram;
- mitochondrial electron transport inhibitor (METI) I acaricides: fenazaquin, pyridaben,

tebufenpyrad, tolfenpyrad, flufenerim;

- METI II and III compounds: acequinocyl, fluacyprim, hydramethylnon;
- Uncouplers: chlorfenapyr;
- oxidative phosphorylation inhibitors: cyhexatin, diafenthiuron, fenbutatin oxide, propargite;
- moulting disruptor compounds: cryomazine;
- mixed function oxidase inhibitors: piperonyl butoxide;
- sodium channel blockers: indoxacarb, metaflumizone;
- ryanodine receptor inhibitors: chlorantraniliprole, cyantraniliprole, flubendiamide, N-[4,6-dichloro-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4-chloro-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4-chloro-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-6-methyl-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4,6-dichloro-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4,6-dichloro-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(difluoromethyl)pyrazole-3-carboxamide; N-[4,6-dibromo-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4-chloro-2-[(di-2-propyl-lambda-4-sulfanylidene)carbamoyl]-6-cyano-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide; N-[4,6-dibromo-2-[(diethyl-lambda-4-sulfanylidene)carbamoyl]-phenyl]-2-(3-chloro-2-pyridyl)-5-(trifluoromethyl)pyrazole-3-carboxamide);
- others: benclothiaz, bifenazate, cartap, flonicamid, pyridalyl, pymetrozine, sulfur, thiocyclam, cyenopyrafen, flupyrazofos, cyflumetofen, amidoflumet, imicyafos, bistrifluron, and pyrifluquinazon.

The present invention furthermore relates to agrochemical compositions comprising a composition 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 compositions are of particular interest, since many of them at the same application rate show higher efficiencies against harmful fungi. Furthermore, combating harmful fungi with a composition 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 synergistic effect can be obtained, i.e. more then simple addition of the individual effects is obtained (synergistic compositions).

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 seperately, or in succession, wherein the time interval between the individual applications is selected to ensure that the active substance 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 a compound of the present invention 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 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 case of a composition or mixture comprising a pesticide II selected from group L), it is preferred that the pesticide II is applied as last treatment.

According to the invention, the solid material (dry matter) of the biopesticides (with the exception of oils such as Neem oil, Tagetes oil, etc.) are considered as active components (e.g. to be obtained after drying or evaporation of the extraction medium or the suspension medium in case of liquid formulations of the microbial pesticides).

In accordance with the present invention, the weight ratios and percentages used herein for a biological extract such as Quillay extract are based on the total weight of the dry content (solid material) of the respective extract(s).

The total weight ratios of compositions comprising at least one microbial pesticide in the form of viable microbial cells including dormant forms, can be determined using the amount of CFU of the respective microorganism to calclulate the total weight of the respective active component with the following equation that 1 x 10^9 CFU equals one gram of total weight of the respective active component. Colony forming unit is measure of viable microbial cells, in particular fungal and bacterial cells. In addition, here “CFU” may also be understood as the number of (juvenile) individual nematodes in case of (entomopathogenic) nematode biopesticides, such as Steinernema feltiae.

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 1:100 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 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 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.

In compositions according to the invention comprising one compound I (component 1) and one further pesticidally active substance (component 2), e. g. one active substance from groups A) to O), the weight ratio of component 1 and component 2 generally 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 1:3 to 3:1.

In ternary compositions, i.e. compositions according to the invention comprising one compound I (component 1) and a first further pesticidally active substance (component 2) and a second further pesticidally active substance (component 3), e. g. two active substances from groups A) to O), the weight ratio of component 1 and component 2 depends from the properties of the active substances used, preferably it is in the range of from 1:50 to 50:1 and particularly in the range of from 1:10 to 10:1, and the weight ratio of component 1 and component 3 preferably is in the range of from 1:50 to 50:1 and particularly in the range of from 1:10 to 10:1.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group A) (component 2) and particularly selected from azoxystrobin, dimoxystrobin, fluoxastrobin, kresoxim-methyl, orysastrobin, picoxystrobin, pyraclostrobin, trifloxystrobin; famoxadone, fenamidone; benzovindiflupyr, bixafen, boscalid, fluopyram, fluxapyroxad, isopyrazam, penflufen, penthiopyrad, sedaxane; ametoctradin, cyazofamid, fluazinam, fentin salts, such as fentin acetate.

Preference is given to compositions comprising a compound of formula I (component 1) and at least one active substance selected from group B) (component 2) and particularly selected from cyproconazole, difenoconazole, epoxiconazole, fluquinconazole, flusilazole, flutriafol, metconazole, myclobutanil, penconazole, propiconazole, prothioconazole, triadimefon, triadimenol, tebuconazole, tetraconazole, triticonazole, prochloraz, fenarimol, triforine; dodemorph, fenpropimorph, tridemorph, fenpropidin, spiroxamine; fenhexamid.

Preference is given to compositions comprising a compound of formula I (component 1) and at least one active substance selected from group C) (component 2) and particularly selected from metalaxyl, (metalaxyl-M) mefenoxam, ofurace.

Preference is given to compositions comprising a compound of formula I (component 1) and at least one active substance selected from group D) (component 2) and particularly selected from benomyl, carbendazim, thiophanate-methyl, ethaboxam, fluopicolide, zoxamide, metrafenone, pyriofenone.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group E) (component 2) and particularly selected from cyprodinil, mepanipyrim, pyrimethanil.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group F) (component 2) and particularly selected from iprodione, fludioxonil, vinclozolin, quinoxyfen.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group G) (component 2) and particularly selected from dimethomorph, flumorph, iprovalicarb, benthiavalicarb, mandipropamid, propamocarb.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group H) (component 2) and particularly selected from copper acetate, copper hydroxide, copper oxychloride, copper sulfate, sulfur, mancozeb, metiram, propineb, thiram, captafol, folpet, chlorothalonil, dichlofluanid, dithianon.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group I) (component 2) and particularly selected from carpropamid and fenoxanil.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group J) (component 2) and particularly selected from acibenzolar-S-methyl, probenazole, tiadinil, fosetyl, fosetyl-aluminium, H_3PO_3 and salts thereof.

Preference is also given to compositions comprising a compound I (component 1) and at least one active substance selected from group K) (component 2) and particularly selected from cymoxanil, proquinazid and *N*-methyl-2-{1-[(5-methyl-3-trifluoromethyl-1H-pyrazol-1-yl)-acetyl]-piperidin-4-yl}-*N*-[(1R)-1,2,3,4-tetrahydronaphthalen-1-yl]-4-thiazolecarboxamide.

The biopesticides from group L) of pesticides II, their preparation and their pesticidal activity e.g. against harmful fungi or insects are known (e-Pesticide Manual V 5.2 (ISBN 978 1 901396 85 0) (2008-2011); http://www.epa.gov/opp00001/biopesticides/, see product lists therein; http://www.omri.org/omri-lists, see lists therein; Bio-Pesticides Database BPDB http://sitem.herts.ac.uk/aeru/bpdb/, see A to Z link therein).

The biopesticides from group L1) and/or L2) may also have insecticidal, acaricidal, molluscidal, pheromone, nematicidal, plant stress reducing, plant growth regulator, plant growth promoting and/or yield enhancing activity. The biopesticides from group L3) and/or L4) may also have fungicidal, bactericidal, viricidal, plant defense activator, plant stress reducing, plant growth regulator, plant growth promoting and/or yield enhancing activity. The biopesticides from group L5) and/or L6) may also have fungicidal, bactericidal, viricidal, plant defense activator, insecticidal, acaricidal, molluscidal, pheromone and/or nematicidal activity.

Many of these biopesticides are registered and/or are commercially available: aluminium silicate (Screen™ Duo from Certis LLC, USA), Agrobacterium radiobacter K1026 (e.g. NoGall® from Becker Underwood Pty Ltd., Australia), A. radiobacter K84 (Nature 280, 697-699, 1979; e.g. GallTroll® from AG Biochem, Inc., C, USA), Ampelomyces quisqualis M-10 (e.g. AQ 10® from Intrachem Bio GmbH & Co. KG, Germany), Ascophyllum nodosum (Norwegian kelp, Brown kelp) extract or filtrate (e.g. ORKA GOLD from Becker Underwood, South Africa; or Goemar® from Laboratoires Goemar, France), Aspergillus flavus NRRL 21882 isolated from a peanut in Georgia in 1991 by the USDA, National Peanut Research Laboratory (e.g. in Afla-Guard® from Syngenta, CH), mixtures of Aureobasidium pullulans DSM14940 and DSM 14941 (e.g. blastospores in BlossomProtect® from bio-ferm GmbH, Germany), Azospirillum amazonense BR 11140 (SpY2^T) (Proc. 9th Int. and 1st Latin American PGPR meeting, Quimara, Medellín, Colombia 2012, p. 60, ISBN 978-958-46-0908-3), A. brasilense AZ39 (Eur. J. Soil Biol 45(1), 28-35, 2009), A. brasilense XOH (e.g. AZOS from Xtreme Gardening, USA or RTI Reforestation Technologies International; USA), A. brasilense BR 11002 (Proc. 9th Int. and 1st Latin American PGPR meeting, Quimara, Medellín, Colombia 2012, p. 60, ISBN 978-958-46-0908-3), A. brasilense BR 11005 (SP245; e.g. in GELFIX Gramíneas from BASF Agricultural Specialties Ltd., Brazil), A. lipoferum BR 11646 (Sp31) (Proc. 9th Int. and 1st Latin American PGPR meeting, Quimara, Medellín, Colombia 2012, p. 60), Bacillus amyloliquefaciens FZB42 (e.g. in RhizoVital® 42 from AbiTEP GmbH, Berlin, Germany), B. amyloliquefaciens IN937a (J. Microbiol. Biotechnol. 17(2), 280–286, 2007; e.g. in BioYield® from Gustafson LLC, TX, USA), B. amyloliquefaciens IT-45 (CNCM I-3800) (e.g. Rhizocell C from ITHEC, France), B. amyloliquefaciens subsp. plantarum MBI600 (NRRL B-50595, deposited at United States Department of Agriculture) (e.g. Integral®, Subtilex® NG from Becker Underwood, USA), B. cereus CNCM I-1562 (US 6,406,690), B. firmus CNCM I-1582 (WO 2009/126473, WO 2009/124707, US 6,406,690; Votivo® from Bayer Crop Science LP, USA), B. pumilus GB34 (ATCC 700814; e.g. in YieldShield® from Gustafson LLC, TX, USA), and Bacillus pumilus KFP9F (NRRL B-50754) (e.g. in BAC-UP or FUSION-P from Becker Underwood South Africa), B. pumilus QST 2808 (NRRL B-30087) (e.g. Sonata® and Ballad® Plus from AgraQuest Inc., USA), B. subtilis GB03 (e.g. Kodiak® or BioYield® from Gustafson, Inc., USA; or Companion® from Growth Products, Ltd., White Plains, NY 10603, USA), B. subtilis GB07 (Epic® from Gustafson, Inc., USA), B. subtilis QST-713 (NRRL B-21661 in Rhapsody®, Serenade® MAX and Serenade® ASO from AgraQuest Inc., USA), B. subtilis var. amyloliquefaciens FZB24 (e.g. Taegro® from Novozyme Biologicals, Inc., USA), B. subtilis var. amyloliquefaciens D747 (e.g. Double Nickel 55 from Certis LLC, USA), B. thuringiensis ssp. aizawai ABTS-1857 (e.g. in XenTari® from BioFa AG, Münsingen, Germany), B. t. ssp. aizawai SAN 401 I, ABG-6305 and ABG-6346, Bacillus t. ssp. israelensis AM65-52 (e.g. in VectoBac® from Valent BioSciences, IL, USA), Bacillus thuringiensis ssp. kurstaki SB4 (NRRL B-50753; e.g. Beta Pro® from Becker

Underwood, South Africa), B. t. ssp. kurstaki ABTS-351 identical to HD-1 (ATCC SD-1275; e.g. in Dipel® DF from Valent BioSciences, IL, USA), B. t. ssp. kurstaki EG 2348 (e.g. in Lepinox® or Rapax® from CBC (Europe) S.r.l., Italy), B. t. ssp. tenebrionis DSM 2803 (EP 0 585 215 B1; identical to NRRL B-15939; Mycogen Corp.), B. t. ssp. tenebrionis NB-125 (DSM 5526; EP 0 585 215 B1; also referred to as SAN 418 I or ABG-6479; former production strain of Novo-Nordisk), B. t. ssp. tenebrionis NB-176 (or NB-176-1) a gamma-irridated, induced high-yielding mutant of strain NB-125 (DSM 5480; EP 585 215 B1; Novodor® from Valent BioSciences, Switzerland), Beauveria bassiana ATCC 74040 (e.g. in Naturalis® from CBC (Europe) S.r.l., Italy), B. bassiana DSM 12256 (US 200020031495; e.g. BioExpert® SC from Live Sytems Technology S.A., Colombia), B. bassiana GHA (BotaniGard® 22WGP from Laverlam Int. Corp., USA), B. bassiana PPRI 5339 (ARSEF number 5339 in the USDA ARS collection of entomopathogenic fungal cultures; NRRL 50757) (e.g. BroadBand® from Becker Underwood, South Africa), B. brongniartii (e.g. in Melocont® from Agrifutur, Agrianello, Italy, for control of cockchafer; J. Appl. Microbiol. 100(5),1063-72, 2006), Bradyrhizobium sp. (e.g. Vault® from Becker Underwood, USA), B. japonicum (e.g. VAULT® from Becker Underwood, USA), Candida oleophila I-182 (NRRL Y-18846; e.g. Aspire® from Ecogen Inc., USA, Phytoparasitica 23(3), 231-234, 1995), C. oleophila strain O (NRRL Y-2317; Biological Control 51, 403–408, 2009),, Candida saitoana (e.g. Biocure® (in mixture with lysozyme) and BioCoat® from Micro Flo Company, USA (BASF SE) and Arysta), Chitosan (e.g. Armour-Zen® from BotriZen Ltd., NZ), Clonostachys rosea f. catenulata, also named Gliocladium catenulatum (e.g. isolate J 1446: Prestop® from Verdera Oy, Finland), Chromobacterium subtsugae PRAA4-1 isolated from soil under an eastern hemlock (Tsuga canadensis) in the Catoctin Mountain region of central Maryland (e.g. in GRANDEVO from Marrone Bio Innovations, USA), Coniothyrium minitans CON/M/91-08 (e.g. Contans® WG from Prophyta, Germany), Cryphonectria parasitica (e.g. Endothia parasitica from CNICM, France), Cryptococcus albidus (e.g. YIELD PLUS® from Anchor Bio-Technologies, South Africa), Cryptophlebia leucotreta granulovirus (CrleGV) (e.g. in CRYPTEX from Adermatt Biocontrol, Switzerland), Cydia pomonella granulovirus (CpGV) V03 (DSM GV-0006; e.g. in MADEX Max from Andermatt Biocontrol, Switzerland), CpGV V22 (DSM GV-0014; e.g. in MADEX Twin from Adermatt Biocontrol, Switzerland), Delftia acidovorans RAY209 (ATCC PTA-4249; WO 2003/57861; e.g. in BIOBOOST from Brett Young, Winnipeg, Canada), Dilophosphora alopecuri (Twist Fungus from Becker Underwood, Australia), Ecklonia maxima (kelp) extract (e.g. KELPAK SL from Kelp Products Ltd, South Africa), formononetin (e.g. in MYCONATE from Plant Health Care plc, U.K.), Fusarium oxysporum (e.g. BIOFOX® from S.I.A.P.A., Italy, FUSACLEAN® from Natural Plant Protection, France), Glomus intraradices (e.g. MYC 4000 from ITHEC, France), Glomus intraradices RTI-801 (e.g. MYKOS from Xtreme Gardening, USA or RTI Reforestation Technologies International; USA), grapefruit seeds and pulp extract (e.g. BC-1000 from Chemie S.A., Chile), harpin (alpha-beta) protein (e.g. MESSENGER or HARP-N-Tek from Plant Health Care plc, U.K.; Science 257, 1–132, 1992), Heterorhabditis bacteriophaga (e.g. Nemasys® G from Becker Underwood Ltd., UK), Isaria fumosorosea Apopka-97 (ATCC 20874) (PFR-97™ from Certis LLC, USA), cis-jasmone (US 8,221,736), laminarin (e.g. in VACCIPLANT from Laboratoires Goemar, St. Malo, France or

Stähler SA, Switzerland), Lecanicillium longisporum KV42 and KV71 (e.g. VERTALEC® from Koppert BV, Netherlands), L. muscarium KV01 (formerly Verticillium lecanii) (e.g. MYCOTAL from Koppert BV, Netherlands), Lysobacter antibioticus 13-1 (Biological Control 45, 288-296, 2008), L. antibioticus HS124 (Curr. Microbiol. 59(6), 608-615, 2009), L. enzymogenes 3.1T8 (Microbiol. Res. 158, 107-115; Biological Control 31(2), 145-154, 2004), Metarhizium anisopliae var. acridum IMI 330189 (isolated from Ornithacris cavroisi in Niger; also NRRL 50758) (e.g. GREEN MUSCLE® from Becker Underwood, South Africa), M. a. var. acridum FI-985 (e.g. GREEN GUARD® SC from Becker Underwood Pty Ltd, Australia), M. anisopliae FI-1045 (e.g. BIOCANE® from Becker Underwood Pty Ltd, Australia), M. anisopliae F52 (DSM 3884, ATCC 90448; e.g. MET52® Novozymes Biologicals BioAg Group, Canada), M. anisopliae ICIPE 69 (e.g. METATHRIPOL from ICIPE, Nairobe, Kenya), Metschnikowia fructicola (NRRL Y-30752; e.g. SHEMER® from Agrogreen, Israel, now distributed by Bayer CropSciences, Germany; US 6,994,849), Microdochium dimerum (e.g. ANTIBOT® from Agrauxine, France), Microsphaeropsis ochracea P130A (ATCC 74412 isolated from apple leaves from an abandoned orchard, St-Joseph-du-Lac, Quebec, Canada in 1993; Mycologia 94(2), 297-301, 2002), Muscodor albus QST 20799 originally isolated from the bark of a cinnamon tree in Honduras (e.g. in development products Muscudor™ or QRD300 from AgraQuest, USA), Neem oil (e.g. TRILOGY®, TRIACT® 70 EC from Certis LLC, USA), Nomuraea rileyi strains SA86101, GU87401, SR86151, CG128 and VA9101, Paecilomyces fumosoroseus FE 9901 (e.g. NO FLY™ from Natural Industries, Inc., USA), P. lilacinus 251 (e.g. in BioAct®/MeloCon® from Prophyta, Germany; Crop Protection 27, 352-361, 2008; originally isolated from infected nematode eggs in the Philippines), P. lilacinus DSM 15169 (e.g. NEMATA® SC from Live Systems Technology S.A., Colombia), P. lilacinus BCP2 (NRRL 50756; e.g. PL GOLD from Becker Underwood BioAg SA Ltd, South Africa), mixture of Paenibacillus alvei NAS6G6 (NRRL B-50755), Pantoea vagans (formerly agglomerans) C9-1 (originally isolated in 1994 from apple stem tissue; BlightBan C9-1® from NuFrams America Inc., USA, for control of fire blight in apple; J. Bacteriol. 192(24) 6486–6487, 2010), Pasteuria spp. ATCC PTA-9643 (WO 2010/085795), Pasteuria spp. ATCC SD-5832 (WO 2012/064527), P. nishizawae (WO 2010/80169), P. penetrans (US 5,248,500), P. ramose (WO 2010/80619), P. thornea (WO 2010/80169), P. usgae (WO 2010/80169), Penicillium bilaiae (e.g. Jump Start® from Novozymes Biologicals BioAg Group, Canada, originally isolated from soil in southern Alberta; Fertilizer Res. 39, 97-103, 1994), Phlebiopsis gigantea (e.g. RotStop® from Verdera Oy, Finland), Pichia anomala WRL-076 (NRRL Y-30842; US 8,206,972), potassium bicarbonate (e.g. Amicarb® fromm Stähler SA, Switzerland), potassium silicate (e.g. Sil-MATRIX™ from Certis LLC, USA), Pseudozyma flocculosa PF-A22 UL (e.g. Sporodex® from Plant Products Co. Ltd., Canada), Pseudomonas sp. DSM 13134 (WO 2001/40441, e.g. in PRORADIX from Sourcon Padena GmbH & Co. KG, Hechinger Str. 262, 72072 Tübingen, Germany), P. chloraphis MA 342 (e.g. in CERALL or CEDEMON from BioAgri AB, Uppsala, Sweden), P. fluorescens CL 145A (e.g. in ZEQUANOX from Marrone BioInnovations, Davis, CA, USA; J. Invertebr. Pathol. 113(1):104-14, 2013), Pythium oligandrum DV 74 (ATCC 38472; e.g. POLYVERSUM® from Remeslo SSRO, Biopreparaty, Czech Rep. and GOWAN, USA; US

2013/0035230), Reynoutria sachlinensis extract (e.g. REGALIA® SC from Marrone BioInnovations, Davis, CA, USA), Rhizobium leguminosarum bv. phaseoli (e.g. RHIZO-STICK from Becker Underwood, USA), R. l. trifolii RP113-7 (e.g. DORMAL from Becker Underwood, USA; Appl. Environ. Microbiol. 44(5), 1096-1101), R. l. bv. viciae P1NP3Cst (also referred to as 1435; New Phytol 179(1), 224-235, 2008; e.g. in NODULATOR PL Peat Granule from Becker Underwood, USA; or in NODULATOR XL PL bfrom Becker Underwood, Canada), R. l. bv. viciae SU303 (e.g. NODULAID Group E from Becker Underwood, Australia), R. l. bv. viciae WSM1455 (e.g. NODULAID Group F from Becker Underwood, Australia), R. tropici SEMIA 4080 (identical to PRF 81; Soil Biology & Biochemistry 39, 867–876, 2007), Sinorhizobium meliloti MSDJ0848 (INRA, France) also referred to as strain 2011 or RCR2011 (Mol Gen Genomics (2004) 272: 1–17; e.g. DORMAL ALFALFA from Becker Underwood, USA; NITRAGIN® Gold from Novozymes Biologicals BioAg Group, Canada), Sphaerodes mycoparasitica IDAC 301008-01 (WO 2011/022809), Steinernema carpocapsae (e.g. MILLENIUM® from Becker Underwood Ltd., UK), S. feltiae (NEMASHIELD® from BioWorks, Inc., USA; NEMASYS® from Becker Underwood Ltd., UK), S. kraussei L137 (NEMASYS® L from Becker Underwood Ltd., UK), Streptomyces griseoviridis K61 (e.g. MYCOSTOP® from Verdera Oy, Espoo, Finland; Crop Protection 25, 468-475, 2006), S. lydicus WYEC 108 (e.g. Actinovate® from Natural Industries, Inc., USA, US 5,403,584), S. violaceusniger YCED-9 (e.g. DT-9® from Natural Industries, Inc., USA, US 5,968,503), Talaromyces flavus V117b (e.g. PROTUS® from Prophyta, Germany), Trichoderma asperellum SKT-1 (e.g. ECO-HOPE® from Kumiai Chemical Industry Co., Ltd., Japan), T. asperellum ICC 012 (e.g. in TENET WP, REMDIER WP, BIOTEN WP from Isagro NC, USA, BIO-TAM from AgraQuest, USA), T. atroviride LC52 (e.g. SENTINEL® from Agrimm Technologies Ltd, NZ), T. atroviride CNCM I-1237 (e.g. in Esquive WG from Agrauxine S.A., France, e.g. against pruning wound diseases on vine and plant root pathogens), T. fertile JM41R (NRRL 50759; e.g. RICHPLUS™ from Becker Underwood Bio Ag SA Ltd, South Africa), T. gamsii ICC 080 (e.g. in TENET WP, REMDIER WP, BIOTEN WP from Isagro NC, USA, BIO-TAM from AgraQuest, USA), T. harzianum T-22 (e.g. PLANTSHIELD® der Firma BioWorks Inc., USA), T. harzianum TH 35 (e.g. ROOT PRO® from Mycontrol Ltd., Israel), T. harzianum T-39 (e.g. TRICHODEX® and TRICHODERMA 2000® from Mycontrol Ltd., Israel and Makhteshim Ltd., Israel), T. harzianum and T. viride (e.g. TRICHOPEL from Agrimm Technologies Ltd, NZ), T. harzianum ICC012 and T. viride ICC080 (e.g. REMEDIER® WP from Isagro Ricerca, Italy), T. polysporum and T. harzianum (e.g. BINAB® from BINAB Bio-Innovation AB, Sweden), T. stromaticum (e.g. TRICOVAB® from C.E.P.L.A.C., Brazil), T. virens GL-21 (also named Gliocladium virens) (e.g. SOILGARD® from Certis LLC, USA), T. viride (e.g. TRIECO® from Ecosense Labs. (India) Pvt. Ltd., Indien, BIO-CURE® F from T. Stanes & Co. Ltd., Indien), T. viride TV1 (e.g. T. viride TV1 from Agribiotec srl, Italy) and Ulocladium oudemansii HRU3 (e.g. in BOTRY-ZEN® from Botry-Zen Ltd, NZ).

Strains can be sourced from genetic resource and deposition centers: American Type Culture Collection, 10801 University Blvd., Manassas, VA 20110-2209, USA (strains with ATCC prefic); CABI Europe - International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20

9TYNRRL, UK (strains with prefices CABI and IMI); Centraalbureau voor Schimmelcultures, Fungal Biodiversity Centre, Uppsalaan 8, PO Box 85167, 3508 AD Utrecht, Netherlands (strains with prefic CBS); Division of Plant Industry, CSIRO, Canberra, Australia (strains with prefix CC); Collection Nationale de Cultures de Microorganismes, Institut Pasteur, 25 rue du Docteur Roux, F-75724 PARIS Cedex 15 (strains with prefix CNCM); Leibniz-Institut DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH, Inhoffenstraße 7 B, 38124 Braunschweig, Germany (strains with prefix DSM); International Depositary Authority of Canada Collection, Canada (strains with prefix IDAC); Interntional Collection of Micro-orgniasms from Plants, Landcare Research, Private Bag 92170, Auckland Mail Centre, Auckland 1142, New Zealand (strans with prefix ICMP); IITA, PMB 5320, Ibadan, Nigeria (straisn with prefix IITA); The National Collections of Industrial and Marine Bacteria Ltd., Torry Research Station, P.O. Box 31, 135 Abbey Road, Aberdeen, AB9 8DG, Scotland (strains with prefix NCIMB); ARS Culture Collection of the National Center for Agricultural Utilization Research, Agricultural Research Service, U.S. Department of Agriculture, 1815 North University Street, Peoria, Illinois 61604, USA (strains with prefix NRRL); Department of Scientific and Industrial Research Culture Collection, Applied Biochemistry Division, Palmerston North, New Zealand (strains with prefix NZP); FEPAGRO-Fundação Estadual de Pesquisa Agropecuária, Rua Gonçalves Dias, 570, Bairro Menino Deus, Porto Alegre/RS, Brazil (strains with prefix SEMIA); SARDI, Adelaide, South Australia (strains with prefix SRDI); U.S. Department of Agriculture, Agricultural Research Service, Soybean and Alfalfa Research Laboratory, BARC-West, 10300 Baltimore Boulevard, Building 011, Room 19-9, Beltsville, MD 20705, USA (strains with prefix USDA: Beltsville Rhizobium Culture Collection Catalog March 1987 USDA-ARS ARS-30: http://pdf.usaid.gov/pdf_docs/PNAAW891.pdf); and Murdoch University, Perth, Western Australia (strains with prefix WSM). Further strains may be found at the Global catalogue of Microorganisms: http://gcm.wfcc.info/ and http://www.landcareresearch.co.nz/resources/collections/icmp and further references to strain collections and their prefixes at http://refs.wdcm.org/collections.htm.

Bacillus amyloliquefaciens subsp. plantarum MBI600 (NRRL B-50595) is deposited under accession number NRRL B-50595 with the strain designation Bacillus subtilis 1430 (and identical to NCIMB 1237). Recently, MBI 600 has been re-classified as Bacillus amyloliquefaciens subsp. plantarum based on polyphasic testing which combines classical microbiological methods relying on a mixture of traditional tools (such as culture-based methods) and molecular tools (such as genotyping and fatty acids analysis). Thus, Bacillus subtilis MBI600 (or MBI 600 or MBI-600) is identical to Bacillus amyloliquefaciens subsp. plantarum MBI600, formerly Bacillus subtilis MBI600. Bacillus amyloliquefaciens MBI600 is known as plant growth-promoting rice seed treatment from Int. J. Microbiol. Res. 3(2) (2011), 120-130 and further described e.g. in US 2012/0149571 A1. This strain MBI600 is e.g. commercially available as liquid formulation product INTEGRAL® (Becker-Underwood Inc., USA).

Bacillus subtilis strain FB17 was originally isolated from red beet roots in North America

(System Appl. Microbiol 27 (2004) 372-379). This B. subtilis strain promotes plant health (US 2010/0260735 A1; WO 2011/109395 A2). B. subtilis FB17 has also been deposited at ATCC under number PTA-11857 on April 26, 2011. Bacillus subtilis strain FB17 may be referred elsewhere to as UD1022 or UD10-22.

Bacillus amyloliquefaciens AP-136 (NRRL B-50614), B. amyloliquefaciens AP-188 (NRRL B-50615), B. amyloliquefaciens AP-218 (NRRL B-50618), B. amyloliquefaciens AP-219 (NRRL B-50619), B. amyloliquefaciens AP-295 (NRRL B-50620), B. japonicum SEMIA 5079 (e.g. Gelfix 5 or Adhere 60 from Nitral Urbana Laoboratories, Brazil, a BASF Company), B. japonicum SEMIA 5080 (e.g. GELFIX 5 or ADHERE 60 from Nitral Urbana Laoboratories, Brazil, a BASF Company), B. mojavensis AP-209 (NRRL B-50616), B. solisalsi AP-217 (NRRL B-50617), B. pumilus strain INR-7 (otherwise referred to as BU-F22 (NRRL B-50153) and BU-F33 (NRRL B-50185)), B. simplex ABU 288 (NRRL B-50340) and B. amyloliquefaciens subsp. plantarum MBI600 (NRRL B-50595) have been mentioned i.a. in US patent appl. 20120149571, US 8,445,255, WO 2012/079073. Bradyrhizobium japonicum USDA 3 is known from US patent 7,262,151.

Jasmonic acid or salts (jasmonates) or derivatives include without limitation potassium jasmonate, sodium jasmonate, lithium jasmonate, ammonium jasmonate, dimethylammonium jasmonate, isopropylammonium jasmonate, diolammonium jasmonate, diethtriethanolammonium jasmonate, jasmonic acid methyl ester, jasmonic acid amide, jasmonic acid methylamide, jasmonic acid-L-amino acid (amide-linked) conjugates (e.g., conjugates with L-isoleucine, L-valine, L-leucine, or L-phenylalanine), 12-oxo-phytodienoic acid, coronatine, coronafacoyl-L-serine, coronafacoyl-L-threonine, methyl esters of 1-oxo-indanoyl-isoleucine, methyl esters of 1-oxo-indanoyl-leucine, coronalon (2-[(6-ethyl-l-oxo-indane-4-carbonyl) -amino]-3-methyl -pentanoic acid methyl ester), linoleic acid or derivatives thereof and cis-jasmone, or combinations of any of the above.

Humates are humic and fulvic acids extracted from a form of lignite coal and clay, known as leonardite. Humic acids are organic acids that occur in humus and other organically derived materials such as peat and certain soft coal. They have been shown to increase fertilizer efficiency in phosphate and micro-nutrient uptake by plants as well as aiding in the development of plant root systems.

According to one embodiment, the microbial pesticides selected from groups L1), L3) and L5) embrace not only the isolated, pure cultures of the respective micro-organism as defined herein, but also its cell-free extract, its suspensions in a whole broth culture or as a metabolite-containing supernatant or a purified metabolite obtained from a whole broth culture of the microorganism or microorganism strain.

According to a further embodiment, the microbial pesticides selected from groups L1), L3 and L5) embraces not only the isolated, pure cultures of the respective micro-organism as defined herein, but also a cell-free extract thereof or at least one metabolite thereof, and/or a mutant of the respective micro-organism having all the identifying characteristics thereof and also a cell-free extract or at least one metabolite of the mutant.

"Whole broth culture" refers to a liquid culture containing both cells and media.

"Supernatant" refers to the liquid broth remaining when cells grown in broth are removed by centrifugation, filtration, sedimentation, or other means well known in the art.

The term "cell-free extract" refers to an extract of the vegetative cells, spores and/or the whole culture broth of a microorganism comprising cellular metabolites produced by the respective microorganism obtainable by cell disruption methods known in the art such as solvent-based (e.g. organic solvents such as alcohols sometimesin combination with suitable salts), temperature-based, application of shear forces, cell disrupotion with an ultrasonicator. The desired extract may be concentrated by conventional concentration techniques such as drying, evaporation, centrifugation or alike. Certain washing steps using organic solents and/or water-based media may also be applied to the crude extract preferably prior to use.

The term "metabolite" refers to any compound, substance or byproduct produced by a microorganism (such as fungi and bacteria) that has improves plant growth, water use efficiency of the plant, plant health, plant appearance, or the population of beneficial microorganisms in the soil around the plant activity.

The term "mutant" refers a microorganism obtained by direct mutant selection but also includes microorganisms that have been further mutagenized or otherwise manipulated (e.g., via the introduction of a plasmid). Accordingly, embodiments include mutants, variants, and or derivatives of the respective microorganism, both naturally occurring and artificially induced mutants. For example, mutants may be induced by subjecting the microorganism to known mutagens, such as N-methyl-nitrosoguanidine, using conventional methods.

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 polyvinylpyrrolidons, polyvinylacetates, polyvinyl alcohols, polyacrylates, biological or synthetic waxes, and cellulose ethers.

In the case of mixtures comprising microbial pesticides II selected from groups L1), L3) and L5), the microorganisms as used according to the invention can be cultivated continuously or discontinuously in the batch process or in the fed batch or repeated fed batch process. A review of known methods of cultivation will be found in the textbook by Chmiel (Bioprozesstechnik 1. Einführung in die Bioverfahrenstechnik (Gustav Fischer Verlag, Stuttgart, 1991)) or in the textbook by Storhas (Bioreaktoren und periphere Einrichtungen (Vieweg Verlag, Braunschweig/Wiesbaden, 1994)).

When living microorganisms, such as pesticides II from groups L1), L3) and L5), form part of the compositions, such compositions can be prepared as compositions comprising besides the active ingredients at least one auxiliary (inert ingredient) by usual means (see e.g. H.D. Burges: Formulation of Micobial Biopestcides, Springer, 1998). Suitable customary types of such compositions are suspensions, dusts, powders, pastes, granules, pressings, capsules, and mixtures thereof. Examples for composition types are suspensions (e.g. SC, OD, FS), 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). Herein, it has to be taken into account that each formulation type or choice of auxiliary should not influence the viability of the microorganism during storage of thecomposition and when finally applied to the soil, plant or plant propagation material. Suitable formulations are e.g. mentioned in WO 2008/002371, US 6955,912, US 5,422,107.

Examples for suitable auxiliaries are those mentioned earlier herein, wherein it must be taken care that choice and amounts of such auxiliaries should not influence the viability of the microbial pesticides in the composition. Especially for bactericides and solvents, compatibility with the respective microorganism of the respective microbial pesticide has to be taken into account. In addition, compositions with microbial pesticides may further contain stabilizers or nutrients and UV protectants. Suitable stabilzers or nutrients are e.g. alpha-tocopherol, trehalose, glutamate, potassium sorbate, various sugars like glucose, sucrose, lactose and maltodextrine (H.D. Burges: Formulation of Micobial Biopestcides, Springer, 1998). Suitable UV protectants are e.g. inorganic compouns like titan dioxide, zinc oxide and iron oxide pigments or organic compounds like benzophenones, benzotriazoles and phenyltriazines. The compositions may in addition to auxiliaries mentioned for compositions comprising compounds I herein optionally comprise 0.1 – 80% stabilizers or nutrients and 0.1-10% UV protectants.

When mixtures comprising microbial pesticides are employed in crop protection, the application rates preferably range from about 1 x 10^6 to 5 x 10^{15} (or more) CFU/ha. Preferably, the spore concentration is about 1 x 10^7 to about 1 x 10^{11} CFU/ha. In the case of (entomopathogenic) nematodes as microbial pesticides (e.g. Steinernema feltiae), the application rates preferably range inform about 1 x 10^5 to 1 x 10^{12} (or more), more preferably from 1 x 10^8 to 1 x 10^{11}, even more preferably from 5 x 10^8 to 1 x 10^{10} individuals (e.g. in the form of eggs, juvenile or any other live stages, preferably in an infetive juvenile stage) per ha.

When mixtures comprising microbial pesticides are employed in seed treatment, the application rates with respect to plant propagation material preferably range from about 1 x 10^6 to 1 x 10^{12} (or more) CFU/seed. Preferably, the concentration is about 1 x 10^6 to about 1 x 10^{11} CFU/seed. In the case of the microbial pesticides II, the application rates with respect to plant propagation material also preferably range from about 1 x 10^7 to 1 x 10^{14} (or more) CFU per 100 kg of seed, preferably from 1 x 10^9 to about 1 x 10^{11} CFU per 100 kg of seed.

Accordingly, the present invention furthermore relates to compositions comprising one compound I (component 1) and one further active substance (component 2), which further active substance is selected from the column "Component 2" of the lines B-1 to B-398 of Table

B.

A further embodiment relates to the compositions B-1 to B-398 listed in Table B, where a row of Table B corresponds in each case to a fungicidal composition comprising one of the in the present specification individualized compounds of formula I (component 1) and the respective further active substance from groups A) to O) (component 2) stated in the row in question. According to a preferred embodiment, the “individualized compound I” is one of the compounds as individualized in Tables 1a to 70a, or one of the inventive compounds as given in Table I. Preferably, the compositions described comprise the active substances in synergistically effective amounts.

Table B: Composition comprising one indiviualized compound I and one further active substance from groups A) to O)

Composition	Component 1	Component 2
B-1	one individualized compound I	Azoxystrobin
B-2	one individualized compound I	Coumethoxystrobin
B-3	one individualized compound I	Coumoxystrobin
B-4	one individualized compound I	Dimoxystrobin
B-5	one individualized compound I	Enestroburin
B-6	one individualized compound I	Fenaminstrobin
B-7	one individualized compound I	Fenoxystrobin/Flufenoxystrobin
B-8	one individualized compound I	Fluoxastrobin
B-9	one individualized compound I	Kresoxim-methyl
B-10	one individualized compound I	Metominostrobin
B-11	one individualized compound I	Orysastrobin
B-12	one individualized compound I	Picoxystrobin
B-13	one individualized compound I	Pyraclostrobin
B-14	one individualized compound I	Pyrametostrobin
B-15	one individualized compound I	Pyraoxystrobin
B-16	one individualized compound I	Pyribencarb
B-17	one individualized compound I	Trifloxystrobin
B-18	one individualized compound I	Triclopyricarb/Chlorodincarb
B-19	one individualized compound I	2-[2-(2,5-dimethyl-phenoxymethyl)-phenyl]-3-methoxy-acrylic acid methyl ester
B-20	one individualized compound I	2-(2-(3-(2,6-dichlorophenyl)-1-methyl-allylideneaminooxymethyl)-phenyl)-2-methoxyimino-N-methyl-acetamide
B-21	one individualized compound I	Benalaxyl
B-22	one individualized compound I	Benalaxyl-M
B-23	one individualized compound I	Benodanil
B-24	one individualized compound I	Benzovindiflupyr

Composition	Component 1	Component 2
B-25	one individualized compound I	Bixafen
B-26	one individualized compound I	Boscalid
B-27	one individualized compound I	Carboxin
B-28	one individualized compound I	Fenfuram
B-29	one individualized compound I	Fenhexamid
B-30	one individualized compound I	Flutolanil
B-31	one individualized compound I	Fluxapyroxad
B-32	one individualized compound I	Furametpyr
B-33	one individualized compound I	Isopyrazam
B-34	one individualized compound I	Isotianil
B-35	one individualized compound I	Kiralaxyl
B-36	one individualized compound I	Mepronil
B-37	one individualized compound I	Metalaxyl
B-38	one individualized compound I	Metalaxyl-M
B-39	one individualized compound I	Ofurace
B-40	one individualized compound I	Oxadixyl
B-41	one individualized compound I	Oxycarboxin
B-42	one individualized compound I	Penflufen
B-43	one individualized compound I	Penthiopyrad
B-44	one individualized compound I	Sedaxane
B-45	one individualized compound I	Tecloftalam
B-46	one individualized compound I	Thifluzamide
B-47	one individualized compound I	Tiadinil
B-48	one individualized compound I	2-Amino-4-methyl-thiazole-5-carboxylic acid anilide
B-49	one individualized compound I	N-(4'-trifluoromethylthiobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide
B-50	one individualized compound I	N-(2-(1,3,3-trimethyl-butyl)-phenyl)-1,3-dimethyl-5-fluoro-1H-pyrazole-4-carboxamide
B-51	one individualized compound I	3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide
B-52	one individualized compound I	3-(trifluoromethyl)-1-methyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide
B-53	one individualized compound I	1,3-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide

Composition	Component 1	Component 2
B-54	one individualized compound I	3-(trifluoromethyl)-1,5-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide
B-55	one individualized compound I	3-(difluoromethyl)-1,5-dimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide
B-56	one individualized compound I	1,3,5-trimethyl-N-(1,1,3-trimethylindan-4-yl)pyrazole-4-carboxamide
B-57	one individualized compound I	Dimethomorph
B-58	one individualized compound I	Flumorph
B-59	one individualized compound I	Pyrimorph
B-60	one individualized compound I	Flumetover
B-61	one individualized compound I	Fluopicolide
B-62	one individualized compound I	Fluopyram
B-63	one individualized compound I	Zoxamide
B-64	one individualized compound I	Carpropamid
B-65	one individualized compound I	Diclocymet
B-66	one individualized compound I	Mandipropamid
B-67	one individualized compound I	Oxytetracyclin
B-68	one individualized compound I	Silthiofam
B-69	one individualized compound I	N-(6-methoxy-pyridin-3-yl) cyclopropanecarboxylic acid amide
B-70	one individualized compound I	Azaconazole
B-71	one individualized compound I	Bitertanol
B-72	one individualized compound I	Bromuconazole
B-73	one individualized compound I	Cyproconazole
B-74	one individualized compound I	Difenoconazole
B-75	one individualized compound I	Diniconazole
B-76	one individualized compound I	Diniconazole-M
B-77	one individualized compound I	Epoxiconazole
B-78	one individualized compound I	Fenbuconazole
B-79	one individualized compound I	Fluquinconazole
B-80	one individualized compound I	Flusilazole
B-81	one individualized compound I	Flutriafol
B-82	one individualized compound I	Hexaconazol
B-83	one individualized compound I	Imibenconazole
B-84	one individualized compound I	Ipconazole
B-85	one individualized compound I	Metconazole
B-86	one individualized compound I	Myclobutanil
B-87	one individualized compound I	Oxpoconazol

Composition	Component 1	Component 2
B-88	one individualized compound I	Paclobutrazol
B-89	one individualized compound I	Penconazole
B-90	one individualized compound I	Propiconazole
B-91	one individualized compound I	Prothioconazole
B-92	one individualized compound I	Simeconazole
B-93	one individualized compound I	Tebuconazole
B-94	one individualized compound I	Tetraconazole
B-95	one individualized compound I	Triadimefon
B-96	one individualized compound I	Triadimenol
B-97	one individualized compound I	Triticonazole
B-98	one individualized compound I	Uniconazole
B-99	one individualized compound I	1-[*rel*-(2*S*;3*R*)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)-oxiranylmethyl]-5-thiocyanato-1H-[1,2,4]triazole,
B-100	one individualized compound I	2-[*rel*-(2*S*;3*R*)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)-oxiranylmethyl]-2H-[1,2,4]triazole-3-thiol
B-101	one individualized compound I	Cyazofamid
B-102	one individualized compound I	Amisulbrom
B-103	one individualized compound I	Imazalil
B-104	one individualized compound I	Imazalil-sulfate
B-105	one individualized compound I	Pefurazoate
B-106	one individualized compound I	Prochloraz
B-107	one individualized compound I	Triflumizole
B-108	one individualized compound I	Benomyl
B-109	one individualized compound I	Carbendazim
B-110	one individualized compound I	Fuberidazole
B-111	one individualized compound I	Thiabendazole
B-112	one individualized compound I	Ethaboxam
B-113	one individualized compound I	Etridiazole
B-114	one individualized compound I	Hymexazole
B-115	one individualized compound I	2-(4-Chloro-phenyl)-N-[4-(3,4-dimethoxy-phenyl)-isoxazol-5-yl]-2-prop-2-ynyloxy-acetamide
B-116	one individualized compound I	Fluazinam
B-117	one individualized compound I	Pyrifenox
B-118	one individualized compound I	3-[5-(4-Chloro-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine (Pyrisoxazole)
B-119	one individualized compound I	3-[5-(4-Methyl-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine

Composition	Component 1	Component 2
B-120	one individualized compound I	Bupirimate
B-121	one individualized compound I	Cyprodinil
B-122	one individualized compound I	5-Fluorocytosine
B-123	one individualized compound I	5-Fluoro-2-(p-tolylmethoxy)pyrimidin-4-amine
B-124	one individualized compound I	5-Fluoro-2-(4-fluorophenylmethoxy)-pyrimidin-4-amine
B-125	one individualized compound I	Diflumetorim
B-126	one individualized compound I	(5,8-Difluoroquinazolin-4-yl)-{2-[2-fluoro-4-(4-trifluoromethylpyridin-2-yloxy)-phenyl]-ethyl}-amine
B-127	one individualized compound I	Fenarimol
B-128	one individualized compound I	Ferimzone
B-129	one individualized compound I	Mepanipyrim
B-130	one individualized compound I	Nitrapyrin
B-131	one individualized compound I	Nuarimol
B-132	one individualized compound I	Pyrimethanil
B-133	one individualized compound I	Triforine
B-134	one individualized compound I	Fenpiclonil
B-135	one individualized compound I	Fludioxonil
B-136	one individualized compound I	Aldimorph
B-137	one individualized compound I	Dodemorph
B-138	one individualized compound I	Dodemorph-acetate
B-139	one individualized compound I	Fenpropimorph
B-140	one individualized compound I	Tridemorph
B-141	one individualized compound I	Fenpropidin
B-142	one individualized compound I	Fluoroimid
B-143	one individualized compound I	Iprodione
B-144	one individualized compound I	Procymidone
B-145	one individualized compound I	Vinclozolin
B-146	one individualized compound I	Famoxadone
B-147	one individualized compound I	Fenamidone
B-148	one individualized compound I	Flutianil
B-149	one individualized compound I	Octhilinone
B-150	one individualized compound I	Probenazole
B-151	one individualized compound I	Fenpyrazamine
B-152	one individualized compound I	Acibenzolar-S-methyl
B-153	one individualized compound I	Ametoctradin
B-154	one individualized compound I	Amisulbrom

Composition	Component 1	Component 2
B-155	one individualized compound I	[(3S,6S,7R,8R)-8-benzyl-3-[(3-isobutyryloxymethoxy-4-methoxypyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-[1,5]dioxonan-7-yl] 2-methylpropanoate
B-156	one individualized compound I	[(3S,6S,7R,8R)-8-benzyl-3-[(3-acetoxy-4-methoxy-pyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate
B-157	one individualized compound I	[(3S,6S,7R,8R)-8-benzyl-3-[[3-(acetoxymethoxy)-4-methoxy-pyridine-2-carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate
B-158	one individualized compound I	[(3S,6S,7R,8R)-8-benzyl-3-[(3-isobutoxycarbonyloxy-4-methoxy-pyridine-2-carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate
B-159	one individualized compound I	[(3S,6S,7R,8R)-8-benzyl-3-[[3-(1,3-benzodioxol-5-ylmethoxy)-4-methoxy-pyridine-2-carbonyl]amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl] 2-methylpropanoate
B-160	one individualized compound I	(3S,6S,7R,8R)-3-[[(3-hydroxy-4-methoxy-2-pyridinyl)carbonyl]amino]-6-methyl-4,9-dioxo-8-(phenylmethyl)-1,5-dioxonan-7-yl 2-methylpropanoate
B-161	one individualized compound I	Anilazin
B-162	one individualized compound I	Blasticidin-S
B-163	one individualized compound I	Captafol
B-164	one individualized compound I	Captan
B-165	one individualized compound I	Chinomethionat
B-166	one individualized compound I	Dazomet
B-167	one individualized compound I	Debacarb
B-168	one individualized compound I	Diclomezine
B-169	one individualized compound I	Difenzoquat,
B-170	one individualized compound I	Difenzoquat-methylsulfate
B-171	one individualized compound I	Fenoxanil
B-172	one individualized compound I	Folpet
B-173	one individualized compound I	Oxolinsäure
B-174	one individualized compound I	Piperalin
B-175	one individualized compound I	Proquinazid

Composition	Component 1	Component 2
B-176	one individualized compound I	Pyroquilon
B-177	one individualized compound I	Quinoxyfen
B-178	one individualized compound I	Triazoxid
B-179	one individualized compound I	Tricyclazole
B-180	one individualized compound I	2-Butoxy-6-iodo-3-propyl-chromen-4-one
B-181	one individualized compound I	5-Chloro-1-(4,6-dimethoxy-pyrimidin-2-yl)-2-methyl-1H-benzoimidazole
B-182	one individualized compound I	5-Chloro-7-(4-methyl-piperidin-1-yl)-6-(2,4,6-trifluoro-phenyl)-[1,2,4]triazolo[1,5-a]pyrimidine
B-183	one individualized compound I	Ferbam
B-184	one individualized compound I	Mancozeb
B-185	one individualized compound I	Maneb
B-186	one individualized compound I	Metam
B-187	one individualized compound I	Methasulphocarb
B-188	one individualized compound I	Metiram
B-189	one individualized compound I	Propineb
B-190	one individualized compound I	Thiram
B-191	one individualized compound I	Zineb
B-192	one individualized compound I	Ziram
B-193	one individualized compound I	Diethofencarb
B-194	one individualized compound I	Benthiavalicarb
B-195	one individualized compound I	Iprovalicarb
B-196	one individualized compound I	Propamocarb
B-197	one individualized compound I	Propamocarb hydrochlorid
B-198	one individualized compound I	Valifenalate
B-199	one individualized compound I	N-(1-(1-(4-cyanophenyl)ethanesulfonyl)-but-2-yl) carbamic acid-(4-fluorophenyl) ester
B-200	one individualized compound I	Dodine
B-201	one individualized compound I	Dodine free base
B-202	one individualized compound I	Guazatine
B-203	one individualized compound I	Guazatine-acetate
B-204	one individualized compound I	Iminoctadine
B-205	one individualized compound I	Iminoctadine-triacetate
B-206	one individualized compound I	Iminoctadine-tris(albesilate)
B-207	one individualized compound I	Kasugamycin
B-208	one individualized compound I	Kasugamycin-hydrochloride-hydrate
B-209	one individualized compound I	Polyoxine

Composition	Component 1	Component 2
B-210	one individualized compound I	Streptomycin
B-211	one individualized compound I	Validamycin A
B-212	one individualized compound I	Binapacryl
B-213	one individualized compound I	Dicloran
B-214	one individualized compound I	Dinobuton
B-215	one individualized compound I	Dinocap
B-216	one individualized compound I	Nitrothal-isopropyl
B-217	one individualized compound I	Tecnazen
B-218	one individualized compound I	Fentin salts
B-219	one individualized compound I	Dithianon
B-220	one individualized compound I	2,6-dimethyl-1H,5H-[1,4]dithiino [2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetraone
B-221	one individualized compound I	Isoprothiolane
B-222	one individualized compound I	Edifenphos
B-223	one individualized compound I	Fosetyl, Fosetyl-aluminium
B-224	one individualized compound I	Iprobenfos
B-225	one individualized compound I	Phosphorous acid (H_3PO_3) and derivatives
B-226	one individualized compound I	Pyrazophos
B-227	one individualized compound I	Tolclofos-methyl
B-228	one individualized compound I	Chlorothalonil
B-229	one individualized compound I	Dichlofluanid
B-230	one individualized compound I	Dichlorophen
B-231	one individualized compound I	Flusulfamide
B-232	one individualized compound I	Hexachlorbenzene
B-233	one individualized compound I	Pencycuron
B-234	one individualized compound I	Pentachlorophenol and salts
B-235	one individualized compound I	Phthalide
B-236	one individualized compound I	Quintozene
B-237	one individualized compound I	Thiophanate Methyl
B-238	one individualized compound I	Tolylfluanid
B-239	one individualized compound I	N-(4-chloro-2-nitro-phenyl)-N-ethyl-4-methyl-benzenesulfonamide
B-240	one individualized compound I	Bordeaux composition
B-241	one individualized compound I	Copper acetate
B-242	one individualized compound I	Copper hydroxide
B-243	one individualized compound I	Copper oxychloride
B-244	one individualized compound I	basic Copper sulfate
B-245	one individualized compound I	Sulfur

Composition	Component 1	Component 2
B-246	one individualized compound I	Biphenyl
B-247	one individualized compound I	Bronopol
B-248	one individualized compound I	Cyflufenamid
B-249	one individualized compound I	Cymoxanil
B-250	one individualized compound I	Diphenylamin
B-251	one individualized compound I	Metrafenone
B-252	one individualized compound I	Pyriofenone
B-253	one individualized compound I	Mildiomycin
B-254	one individualized compound I	Oxin-copper
B-255	one individualized compound I	Oxathiapiprolin
B-256	one individualized compound I	Prohexadione calcium
B-257	one individualized compound I	Spiroxamine
B-258	one individualized compound I	Tebufloquin
B-259	one individualized compound I	Tolylfluanid
B-260	one individualized compound I	N-(Cyclopropylmethoxyimino-(6-difluoromethoxy-2,3-difluoro-phenyl)-methyl)-2-phenyl acetamide
B-261	one individualized compound I	N'-(4-(4-chloro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine
B-262	one individualized compound I	N'-(4-(4-fluoro-3-trifluoromethyl-phenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine
B-263	one individualized compound I	N'-(2-methyl-5-trifluoromethyl-4-(3-tri-methylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine
B-264	one individualized compound I	N'-(5-difluoromethyl-2-methyl-4-(3-tri-methylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine
B-265	one individualized compound I	Methoxy-acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester
B-266	one individualized compound I	*Bacillus subtilis* NRRL No. B-21661
B-267	one individualized compound I	*Bacillus pumilus* NRRL No. B-30087
B-268	one individualized compound I	*Ulocladium oudemansii*
B-269	one individualized compound I	Carbaryl
B-270	one individualized compound I	Carbofuran
B-271	one individualized compound I	Carbosulfan
B-272	one individualized compound I	Methomylthiodicarb
B-273	one individualized compound I	Bifenthrin
B-274	one individualized compound I	Cyfluthrin

Composition	Component 1	Component 2
B-275	one individualized compound I	Cypermethrin
B-276	one individualized compound I	alpha-Cypermethrin
B-277	one individualized compound I	zeta-Cypermethrin
B-278	one individualized compound I	Deltamethrin
B-279	one individualized compound I	Esfenvalerate
B-280	one individualized compound I	Lambda-cyhalothrin
B-281	one individualized compound I	Permethrin
B-282	one individualized compound I	Tefluthrin
B-283	one individualized compound I	Diflubenzuron
B-284	one individualized compound I	Flufenoxuron
B-285	one individualized compound I	Lufenuron
B-286	one individualized compound I	Teflubenzuron
B-287	one individualized compound I	Spirotetramate
B-288	one individualized compound I	Clothianidin
B-289	one individualized compound I	Dinotefuran
B-290	one individualized compound I	Imidacloprid
B-291	one individualized compound I	Thiamethoxam
B-292	one individualized compound I	Flupyradifurone
B-293	one individualized compound I	Acetamiprid
B-294	one individualized compound I	Thiacloprid
B-295	one individualized compound I	Endosulfan
B-296	one individualized compound I	Fipronil
B-297	one individualized compound I	Abamectin
B-298	one individualized compound I	Emamectin
B-299	one individualized compound I	Spinosad
B-300	one individualized compound I	Spinetoram
B-301	one individualized compound I	Hydramethylnon
B-302	one individualized compound I	Chlorfenapyr
B-303	one individualized compound I	Fenbutatin oxide
B-304	one individualized compound I	Indoxacarb
B-305	one individualized compound I	Metaflumizone
B-306	one individualized compound I	Flonicamid
B-307	one individualized compound I	Lubendiamide
B-308	one individualized compound I	Chlorantraniliprole
B-309	one individualized compound I	Cyazypyr (HGW86)
B-310	one individualized compound I	Cyflumetofen
B-311	one individualized compound I	Acetochlor
B-312	one individualized compound I	Dimethenamid
B-313	one individualized compound I	metolachlor
B-314	one individualized compound I	Metazachlor

Composition	Component 1	Component 2
B-315	one individualized compound I	Glyphosate
B-316	one individualized compound I	Glufosinate
B-317	one individualized compound I	Sulfosate
B-318	one individualized compound I	Clodinafop
B-319	one individualized compound I	Fenoxaprop
B-320	one individualized compound I	Fluazifop
B-321	one individualized compound I	Haloxyfop
B-322	one individualized compound I	Paraquat
B-323	one individualized compound I	Phenmedipham
B-324	one individualized compound I	Clethodim
B-325	one individualized compound I	Cycloxydim
B-326	one individualized compound I	Profoxydim
B-327	one individualized compound I	Sethoxydim
B-328	one individualized compound I	Tepraloxydim
B-329	one individualized compound I	Pendimethalin
B-330	one individualized compound I	Prodiamine
B-331	one individualized compound I	Trifluralin
B-332	one individualized compound I	Acifluorfen
B-333	one individualized compound I	Bromoxynil
B-334	one individualized compound I	Imazamethabenz
B-335	one individualized compound I	Imazamox
B-336	one individualized compound I	Imazapic
B-337	one individualized compound I	Imazapyr
B-338	one individualized compound I	Imazaquin
B-339	one individualized compound I	Imazethapyr
B-340	one individualized compound I	2,4-Dichlorophenoxyacetic acid (2,4-D)
B-341	one individualized compound I	Chloridazon
B-342	one individualized compound I	Clopyralid
B-343	one individualized compound I	Fluroxypyr
B-344	one individualized compound I	Picloram
B-345	one individualized compound I	Picolinafen
B-346	one individualized compound I	Bensulfuron
B-347	one individualized compound I	Chlorimuron-ethyl
B-348	one individualized compound I	Cyclosulfamuron
B-349	one individualized compound I	Iodosulfuron
B-350	one individualized compound I	Mesosulfuron
B-351	one individualized compound I	Metsulfuron-methyl
B-352	one individualized compound I	Nicosulfuron
B-353	one individualized compound I	Rimsulfuron
B-354	one individualized compound I	Triflusulfuron

Composition	Component 1	Component 2
B-355	one individualized compound I	Atrazine
B-356	one individualized compound I	Hexazinone
B-357	one individualized compound I	Diuron
B-358	one individualized compound I	Florasulam
B-359	one individualized compound I	Pyroxasulfone
B-360	one individualized compound I	Bentazone
B-361	one individualized compound I	Cinidon-ethyl
B-362	one individualized compound I	Cinmethylin
B-363	one individualized compound I	Dicamba
B-364	one individualized compound I	Diflufenzopyr
B-365	one individualized compound I	Quinclorac
B-366	one individualized compound I	Quinmerac
B-367	one individualized compound I	Mesotrione
B-368	one individualized compound I	Saflufenacil
B-369	one individualized compound I	Topramezone
B-370	one individualized compound I	1,1'-[(3S,4R,4aR,6S,6aS,12R,12aS,12bS)-4-[[(2-cyclopropylacetyl)oxy]methyl]-1,3,4,4a,5,6,6a,12,12a,12b-decahydro-12-hydroxy-4,6a,12b-trimethyl-11-oxo-9-(3-pyridinyl)-2H,11H-naphtho[2,1-b]pyrano[3,4-e]pyran-3,6-diyl] cyclopropaneacetic acid ester
B-371	one individualized compound I	(3S,6S,7R,8R)-3-[[(3-hydroxy-4-methoxy-2-pyridinyl)carbonyl]amino]-6-methyl-4,9-dioxo-8-(phenylmethyl)-1,5-dioxonan-7-yl 2-methylpropanoate
B-372	one individualized compound I	isofetamid
B-373	one individualized compound I	N-(7-fluoro-1,1,3-trimethyl-indan-4-yl)-1,3-dimethyl-pyrazole-4-carboxamide
B-374	one individualized compound I	N-[2-(2,4-dichlorophenyl)-2-methoxy-1-methyl-ethyl]-3-(difluoromethyl)-1-methyl-pyrazole-4-carboxamide
B-375	one individualized compound I	2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol
B-376	one individualized compound I	1-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-cyclopropyl-2-(1,2,4-triazol-1-yl)ethanol
B-377	one individualized compound I	2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol

Composition	Component 1	Component 2
B-378	one individualized compound I	2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol
B-379	one individualized compound I	2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol
B-380	one individualized compound I	2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol
B-381	one individualized compound I	2-[2-chloro-4-(4-chlorophenoxy)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol
B-382	one individualized compound I	2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)pentan-2-ol
B-383	one individualized compound I	2-[4-(4-fluorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1,2,4-triazol-1-yl)propan-2-ol
B-384	one individualized compound I	3-(4-chloro-2-fluoro-phenyl)-5-(2,4-difluorophenyl)isoxazol-4-yl]-(3-pyridyl)methanol
B-385	one individualized compound I	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
B-386	one individualized compound I	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
B-387	one individualized compound I	tolprocarb
B-388	one individualized compound I	2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone
B-389	one individualized compound I	2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-fluoro-6-(prop-2-yn-1-yl-oxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone

Composition	Component 1	Component 2
B-390	one individualized compound I	2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-chloro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone
B-391	one individualized compound I	ethyl (Z)-3-amino-2-cyano-3-phenyl-prop-2-enoate ,
B-392	one individualized compound I	picarbutrazox
B-393	one individualized compound I	pentyl N-[6-[[(Z)-[(1-methyltetrazol-5-yl)-phenyl-methylene]amino]oxy-methyl]-2-pyridyl]carbamate,
B-394	one individualized compound I	2-[2-[(7,8-difluoro-2-methyl-3-quinolyl)oxy]-6-fluoro-phenyl]propan-2-ol
B-395	one individualized compound I	2-[2-fluoro-6-[(8-fluoro-2-methyl-3-quinolyl)oxy]phen-yl]propan-2-ol,
B-396	one individualized compound I	3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline
B-397	one individualized compound I	3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline
B-398	one individualized compound I	3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline;

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 fungicidal 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; 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 11/028657, WO2012/168188, WO 2007/006670, WO 2011/77514; WO13/047749, WO 10/069882, WO 13/047441, WO 03/16303, WO 09/90181, WO 13/007767, WO 13/010862, WO 13/127704, WO 13/024009and WO 13/024010).

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

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

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

I. Synthesis examples

With due modification of the starting compounds, the procedures shown in the synthesis examples below were used to obtain further compounds I. The resulting compounds, together with physical data, are listed in Table I below.

Example 1 Synthesis of 4-[4-[1-hydroxy-1-methyl-2-(1,2,4-triazol-1-yl)ethyl]phenoxy]benzonitrile (Compound I-3 of Table I)

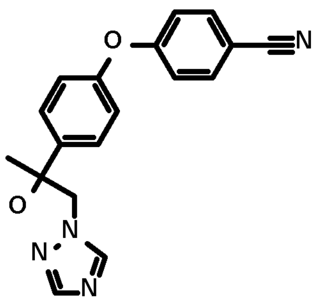
Step 1a) Synthesis of 2-(4-bromophenyl)-2-methyl-oxirane

To a suspension of NaH (150g) in THF (2L) at 10-15°C, DMSO (2.0L) was added and and stirred for 10 min. A solution of Me_3SI(160g in 3.0L DMSO) was added over a period of 90min keeping the temperature at 10-15 °C. after 1h, a solution of 4-Bromo acetophenone (500g in 2.5L THF) was slowly added dropwise. Stirring was continued for 16h and monitored by HPLC. After full conversion, sat aq NH_4Cl-solution (5.0L) was added and extracted with MTBE (2*5.0L). the combined organic phases were washed with H_2O (5.0L) and brine (2.0L) dried over Na_2SO_4 and evaporated to obtain the crude product as a yellow oil (650g), that was used in the next step without further purification.

Step 1b) Synthesis of 2-(4-bromophenyl)-1-(1,2,4-triazol-1-yl)propan-2-ol

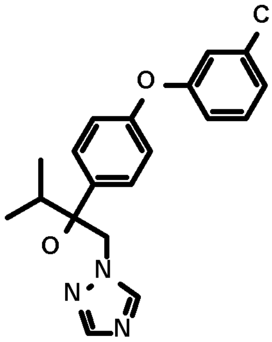
To a solution of 2-(4-bromophenyl)-2-methyl-oxirane (650g) in NMP (8.0L) was added NaOH (610g) and 1,2,4-triazole (1895g) at RT. The reaction mixture was heated to 100°C for 8h. after full conversion (indicated by HPLC) sat aqu. NH_4Cl (10L) was added and extracted with EtOAc (2*6L). The collected organic phases were washed with H_2O (2*5L) and brine (5L). After drying over Na_2SO_4, all solvent was removed and recrystallized from MTBE(1L) and petrolether (4L) to giv the title compound as a off-white solid (515g, 40% for 2 steps, mp: 83°C).

Step 1c) 4-[4-[1-hydroxy-1-methyl-2-(1,2,4-triazol-1-yl)ethyl]phenoxy]benzonitrile (I-3)



A mixture of 2-(4-bromophenyl)-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol (211mg), K_2CO_3 (207mg), CuI (30mg), $Fe(acac)_3$ (105mg) and 4-cyanophenol(182mg) in DMF(4mL) was heated to 135°C and stirred for 14 hours. After HPLC indicated full conversion, H_2O (5mL) was added. Extraction with CH_2Cl_2 (3*5mL), drying the combined organic phases with Na_2SO_4 and evaporation led to a crude product, that was purified by HPLC. The title compound was obtained as colorless oil (83 mg). HPLC-MS*: RT= 0.910 (M=321, $[M]^+$).

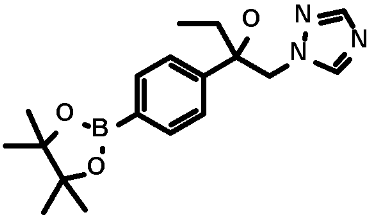
Example 2) Synthesis of 2-[4-(3-chlorophenoxy)phenyl]-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol (Compound I-12 of Table I)



A mixture of 2-(4-bromophenyl)-3-methyl-1-(1,2,4-triazol-1-yl)butan-2-ol (232mg), K_2CO_3 (207mg), CuI (30mg), $Fe(acac)_3$ (105mg) and 3-chloro phenol (165mg) in DMF (4mL) was heated to 135°C and stirred for 14 hours. After HPLC indicated full conversion, H_2O (5mL) was added. Extraction with CH_2Cl_2 (3*5mL), drying the combined organic phases with Na_2SO_4 and evaporation led to a crude product, that was purified by HPLC. The title compound was obtained as colorless oil (59mg). HPLC-MS*) : RT= 1.172 (M=358, $[M]^+$).

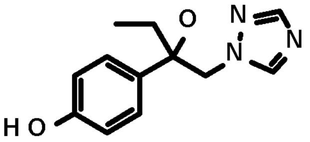
Example 3 Synthesis of 1-(1,2,4-triazol-1-yl)-2-[4-[4-(trifluoromethyl)phenoxy]phenyl]butan-2-ol (Compound I-18 of Table I)

Step 3a) Synthesis of 2-[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]-1-(1,2,4-triazol-1-yl)butan-2-ol



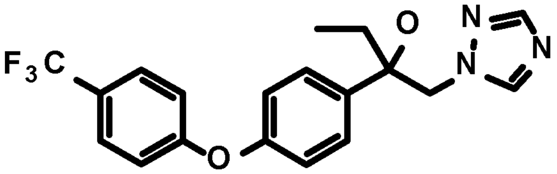
2-(4-bromophenyl)-1-(1,2,4-triazol-1-yl)butan-2-ol (synthesized in analogy as given above in Step 1b) (10.0 g), bispinacolato diboron (11.2g), KOAc (3.7g) and $Pd(dppf)Cl_2$ (500mg) were suspended in dioxane (120mL) and heated to reflux for 3.5h. The reaction mixture was added to sat aq NH_4Cl and extracted with MTBE (2*100mL). the combined organic phases were dried with Na_2SO_4 and evaporated. The crude product (12g) was used in the next reaction without further purification. HPLC-MS*: RT= 1.043 (M=344 $[M]^+$).

Step 3b) Synthesis of 4-[1-hydroxy-1-(1,2,4-triazol-1-ylmethyl)propyl]phenol



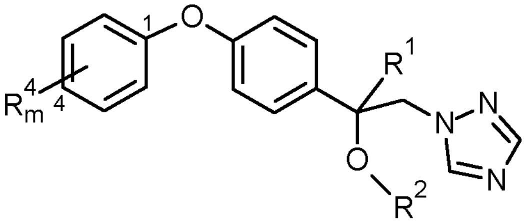
Crude Boronic ester from step 3a) (12g) was dissolved in MeOH (100mL) and NaOH (5.2g) was added. H_2O_2 (37%in H_2O, 10.2g) was added dropwise. After stirring for 5 min, conversion was complete. The reaction mixture was added to sat aq NH_4Cl (500mL) and extracted with EtOAc (5*100mL). Column chromatography (EA:heptane 1:1 → EA: MeOH 9:1) yielded the target compound as oil, that cyrstallized upon triturating with iPr_2O (9.22g). HPLC-MS*: RT= 0.615 (M=234 $[M]^+$).

Step 3c) Synthesis of 1-(1,2,4-triazol-1-yl)-2-[4-[4-(trifluoromethyl)phenoxy]phenyl]butan-2-ol (I-18)



4-[1-hydroxy-1-(1,2,4-triazol-1-ylmethyl)propyl]phenol (500mg), 3-trifluorphenylboronic acid (814mg), NEt_3 (1.0g), $Cu(OAc)_2$ (390mg) were stirred in CH_2Cl_2 (6mL) and MeCN (1mL). After 48 h, HPLC indicated full conversion. Ther compound was purified by means of preparative HPLC. HPLC-MS* : RT= 1.145 (M=378 $[M]^+$).

The compounds I listed in Table I have been prepared in an analogous manner.



I

Table I:

compound No.	$(R^4)_m$	R^1	R^2	HPLC * R_t (min)
I-1	4-CN	$CH(CH_3)_2$	H	1.045
I-2	4-CH_3	$CH(CH_3)_2$	H	1.152
I-3	4-CN	CH_3	H	0.910
I-4	4-CH_3	CH_3	H	1.025
I-5	2-Cl	CH_3	H	1.007
I-6	3-Cl	CH_3	H	1.047
I-7	3,4-Cl_2	CH_3	H	1.118
I-8	2,4-F_2	CH_3	H	0.986
I-9	2-F-4-Cl	CH_3	H	1.053
I-10	4-OCH_3	$CH(CH_3)_2$	H	1.084

compound No.	$(R^4)_m$	R^1	R^2	HPLC * R_t (min)
I-11	2-Cl	$CH(CH_3)_2$	H	1.135
I-12	3-Cl	$CH(CH_3)_2$	H	1.172
I-13	3,4-Cl_2	$CH(CH_3)_2$	H	1.239
I-14	2,4-F_2	$CH(CH_3)_2$	H	1.107
I-15	2-F-4-Cl	$CH(CH_3)_2$	H	1.175
I-16	4-CN	CH_3	CH_3	1.030
I-17	2-Cl	$CH(CH_3)_2$	CH_3	1.237
I-18	4-CF_3	C_2H_5	H	1.145

* :HPLC method Data:

Mobile Phase: A: Wasser + 0,1% T FA; B: acetonitrile; Gradient: 5% B to 100% B in 1.5min; Temperature: 60 °C; MS-Method: ESI positive; mass area (m/z): 100-700; Flow: 0.8ml/min to 1,0ml/min in 1.5min; Column: Kinetex XB C18 1.7µ 50 x 2.1mm; Aparatus: Shimadzu Nexera LC-30 LCMS-2020.

II. Biology

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

Microtest

The active compounds were formulated separately as a stock solution having a concentration of 10000 ppm in dimethyl sulfoxide.

M1 Activity against the grey mold *Botrytis cinerea* in the microtiterplate test (Botrci)

The stock solutions were mixed according to the ratio, pipetted onto a micro titer plate (MTP) and diluted with water to the stated concentrations. A spore suspension of *Botrci cinerea* in an aqueous biomalt or yeast-bactopeptone-sodiumacetate solution was then added. The plates were placed in a water vapor-saturated chamber at a temperature of 18°C. Using an absorption photometer, the MTPs were measured at 405 nm 7 days after the inoculation. Compounds I-1, I-2, I-4, I-5, I-6, I-7, I-9, I-10, I-11, I-12, I-13, I-14, I-15 and I-17 showed a growth of 12 % or less at 31 ppm.

M2 Activity against rice blast *Pyricularia oryzae* in the microtiterplate test (Pyrior)

The stock solutions were mixed according to the ratio, pipetted onto a micro titer plate (MTP) and diluted with water to the stated concentrations. A spore suspension of *Pyricularia oryzae* in an aqueous biomalt or yeast-bactopeptone-glycerine solution was then added. The plates were placed in a water vapor-saturated chamber at a temperature of 18°C. Using an absorption photometer, the MTPs were measured at 405 nm 7 days after the inoculation. Compounds I-2, I-4, I-5, I-9, I-10, I-11, I-12, I-13, I-14, I-15, I-16 and I-17 showed a growth of 11 % or less at 31 ppm.

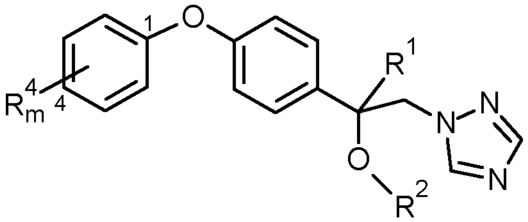
M3 Activity against leaf blotch on wheat caused by *Septoria tritici* (Septtr)

The stock solutions were mixed according to the ratio, pipetted onto a micro titer plate (MTP) and diluted with water to the stated concentrations. A spore suspension of *Septoria tritici* in an aqueous biomalt or yeast-bactopeptone-glycerine solution was then added. The plates were placed in a water vapor-saturated chamber at a temperature of 18°C. Using an absorption photometer, the MTPs were measured at 405 nm 7 days after the inoculation. Compounds I-1, I-2, I-4, I-5, I-6, I-7, I-8, I-9, I-10, I-11, I-12, I-13, I-14, I-15, I-16 and I-17 showed a growth of 14 % or less at 31 ppm.

The measured parameters were compared to the growth of the active compound-free control variant (100%) and the fungus-free and active compound-free blank value to determine the relative growth in % of the pathogens in the respective active compounds.

Claims

1. Compounds of formula I



I

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wherein:

R^1 is C_1-C_3-alkyl, C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl;

R^2 is hydrogen, C_1-C_6-alkyl, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkynyl;

wherein the aliphatic groups R^1 and/or R^2 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from:

R^{12a} OH, halogen, CN, nitro, C_1-C_4-alkoxy, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl;

wherein the cycloalkyl and/or phenyl moieties of R^1 and/or R^2 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} which independently of one another are selected from:

R^{12b} OH, halogen, CN, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-halogenalkyl, C_1-C_4-halogenalkoxy, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl;

R^4 is independently selected from halogen, CN, NO_2, OH, SH, C_1-C_6-alkyl, C_1-C_6-alkoxy, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_3-C_8-cycloalkyl, C_3-C_8-cycloalkyloxy, NH_2, $NH(C_1$-C_4-alkyl), $N(C_1$-C_4-alkyl$)_2$, $NH(C_3$-C_6-cycloalkyl), $N(C_3$-C_6-cycloalkyl$)_2$, $S(O)_p(C_1$-C_4-alkyl), C(=O)(-C_1-C_4-alkyl), C(=O)OH, C(=O)(-O-C_1-C_4-alkyl), C(=O)-NH(C_1-C_4-alkyl), C(=O)-N(C_1-C_4-alkyl$)_2$, C(=O)-NH(C_3-C_6-cycloalkyl) and C(=O)-N(C_3-C_6-cycloalkyl$)_2$; wherein each of R^4 is unsubstituted or further substituted by one, two, three or four R^{4a}; wherein

R^{4a} is independently selected from halogen, CN, NO_2, OH, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_3-C_8-cycloalkyl, C_3-C_8-halocycloalkyl, C_1-C_4-alkoxy and C_1-C_4-haloalkoxy;

m is an integer and is 1, 2, 3, 4 or 5;

and the N-oxides and the agriculturally acceptable salts thereof;

with the proviso that

if m is 1 R^4 is not 4-halogen; and

if m is 2 R^4 is not 2,4-Cl_2; and

if R^1 is CF_3, R^4 is not 3-CF_3.

2. The compounds according to claim 1, wherein R^1 is C_1-C_3-alkyl, C_1-C_4-alkoxy-C_1-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkyl, wherein the aliphatic groups of R^1 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from OH, halogen, CN, nitro, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl and wherein the cycloalkyl and/or phenyl moieties of R^1 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} as defined in claim 1.

3. The compounds according to claim 1, wherein R^1 is C_2-C_3-alkyl, C_1-C_4-alkoxy-C_2-C_3-alkyl, C_5-C_6-alkyl, C_1-C_4-alkoxy-C_5-C_6-alkyl, C_3-C_8-cycloalkyl-C_1-C_4-alkyl, phenyl, phenyl-C_1-C_4-alkyl, phenyl-C_2-C_4-alkenyl or phenyl-C_2-C_4-alkyl, wherein the aliphatic groups of R^1 may carry one, two, three or up to the maximum possible number of identical or different groups R^{12a} which independently of one another are selected from OH, halogen, CN, nitro, C_3-C_8-cycloalkyl and C_3-C_8-halocycloalkyl and wherein the cycloalkyl and/or phenyl moieties of R^1 may carry one, two, three, four, five or up to the maximum number of identical or different groups R^{12b} as defined in claim 1.

4. The compounds according to any of the claims 1 to 3, wherein R^1 is CCl_3 or $CHCl_2$.

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5. The compounds according to any of the claims 1 to 4, wherein R^2 is hydrogen, C_1-C_4-alkyl, allyl, propargyl or benzyl.

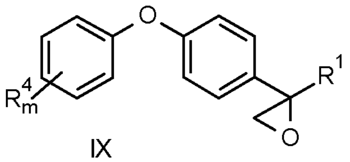
6. The compounds according to any of the claims 1 to 5, wherein R^4 is selected from CH_3, OCH_3, CF_3, OCF_3 and CN.

7. The compounds according to any one of claims 1 to 6, wherein R^1 is selected from C_1-C_3-alkyl, CCl_3 and $CHCl_2$ and $(R^4)_m$ is selected from 2-$(R^4)_1$, 3-$(R^4)_1$, 2,3-$(R^4)_2$, 2,5-$(R^4)_2$, 2,6-$(R^4)_2$, 3,4-$(R^4)_2$ and 3,5-$(R^4)_2$.

8. The compounds according to any of the claims 1 to 7, wherein $(R^4)_m$ is selected from 4-CH_3, 4-OCH_3, 3- CF_3, 4-CF_3, 4-OCF_3, 3-CN, 4-CN, 2-Cl, 3-Cl, 2-F, 3-F, 2,3-Cl_2, 3,4-Cl_2, 2,3-F_2, 2,4-F_2 and 2-F-4-Cl.

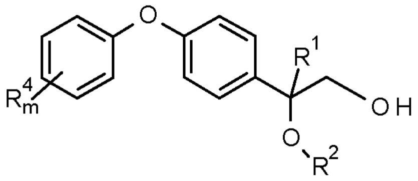
9. The compounds according to any of the claims 1 to 8, wherein m is 1.

10. A process for preparing compounds of formula I as defined in any of claims 1 to 9, which comprises reacting a compound of formula



IX ,

wherein R^1, R^4, m are as defined in any of claims 1 to 9,
under acidic conditions with R^2-OH, wherein R^2 is as defined in claims 1 or 9
and reacting the resulting compound of formula X



X

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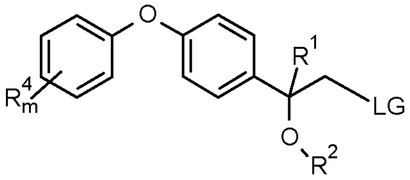
wherein R^1, R^2, R^4, m are as defined in any of claims 1 to 9, with a halogenating agent or sulfonating agent as defined herein; and reacting the resulting compound of formula XI



XI

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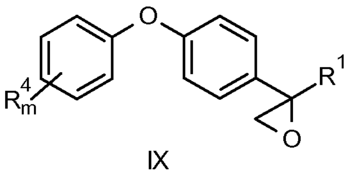
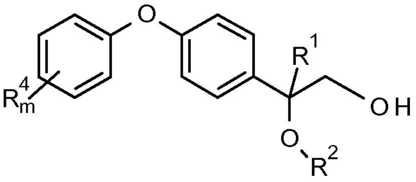
wherein R^1, R^2, R^4, m are as defined in any of claims 1 to 9 and LG is a nucleophilically replaceable leaving group with 1H-1,2,4-triazole to obtain compounds I.

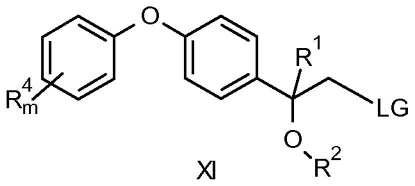
11. Compounds of formulae IX, X and XI



IX



X



XI

,

wherein R^1, R^2, R^4 and m and R^1, if applicable, are as defined in any of claims 1 to 10.

12. Agrochemical compositions, wherein said composition comprise an auxiliary and at least one compound of formula I, as defined in any of the claims 1 to 9, an N-oxide or an agriculturally acceptable salt thereof.

13. The compositions according to claim 12, comprising additionally a further active substance.

14. Use of a compound of the formula I, as defined in any of the claims 1 to 9, and/or of an agriculturally acceptable salt thereof or of the compositions, as defined in any of the claims 12 to 13, for combating phytopathogenic fungi.

15. A method for combating harmful fungi, comprising 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, as defined in any of the claims 1 to 9, or with a composition, as defined in any of the claims 12 to 13.

16. Seed, coated with at least one compound of the formula I, as defined in any of the claims

1 to 9, and/or an agriculturally acceptable salt thereof or with a composition, , as defined in any of the claims 12 to 13, in an amount of from 0.1 to 10 kg per 100 kg of seed.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/074010

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07D249/10 C07D303/22 A01N43/653 C07C217/34
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)
C07D A01N C07C

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, BIOSIS, CHEM ABS Data, EMBASE, WPI Data, BEILSTEIN Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 126 430 A2 (CIBA GEIGY AG [CH]) 28 November 1984 (1984-11-28) cited in the application page 3, paragraph 2; claims page 13; tables	1-16
X	EP 0 117 378 A1 (CIBA GEIGY AG [CH]) 5 September 1984 (1984-09-05) cited in the application page 5; claims; table 1	1-16
X	EP 0 077 479 A2 (BAYER AG [DE]) 27 April 1983 (1983-04-27) page 6, line 17 - page 10, line 9; claims; tables	1-16

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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search 9 January 2014	Date of mailing of the international search report 17/01/2014
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 Härtinger, Stefan

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/074010

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	EP 0 113 640 A2 (CIBA GEIGY AG [CH]) 18 July 1984 (1984-07-18) cited in the application page 1; claims; table 1 -----	1-16
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X	YU GUAN-PING ET AL: "Synthesis and fungicidal evaluation of 2-arylphenyl ether-3-(1H-1,2,4-triazol-1-yl)propan-2-ol derivatives", JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, AMERICAN CHEMICAL SOCIETY, US, vol. 57, no. 11, 10 June 2009 (2009-06-10) , pages 4854-4860, XP002659633, ISSN: 0021-8561, DOI: 10.1021/JF900222S [retrieved on 2009-05-07] *Scheme 1*; figures 1,2; table 1 -----	1-16
X	EP 0 440 950 A2 (BAYER AG [DE]) 14 August 1991 (1991-08-14) cited in the application page 2, line 45 - line 50; claims -----	1-16
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