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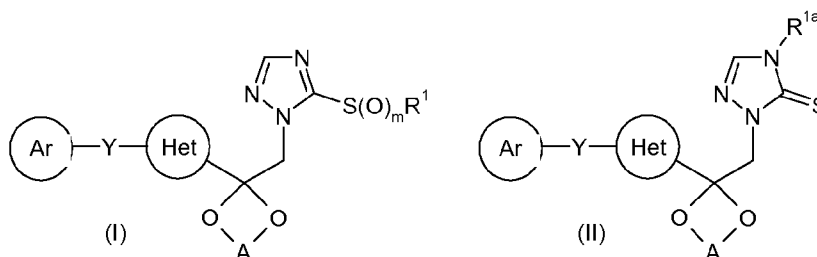
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(54) Title: TRIAZOLE COMPOUNDS CARRYING A SULFUR SUBSTITUENT



(57) Abstract: The present invention relates to novel triazole compounds of the formulae I and II as defined below which carry a sulfur substituent, to agricultural compositions containing them, to their use as fungicides and to intermediate compounds used in the method of producing them.

WO 2010/146116 A1

TRIAZOLE COMPOUNDS CARRYING A SULFUR SUBSTITUENT

Description

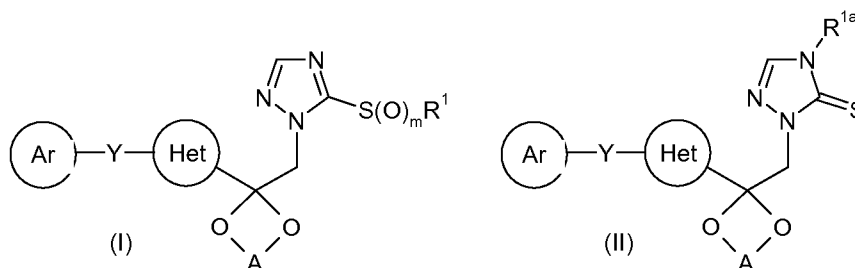
- 5 The present invention relates to novel triazole compounds of the formulae I and II as defined below which carry a sulfur substituent, to agricultural compositions containing them, to their use as fungicides and to intermediate compounds used in the method of producing them.
- 10 The control of plant diseases caused by phythopathogenic fungi is extremely important for achieving high crop efficiency. Plant disease damage to ornamental, vegetable, field, cereal, and fruit crops can cause significant reduction in productivity and thereby result in increased costs to the consumer.
- 15 WO 96/41804, WO 96/16048, WO 97/41107, WO 97/43269 and WO 97/44331 describe sulfurized triazolyl derivatives. The compounds are used for combating harmful fungi.

20 There is a continuous need for new compounds which are more effective, less costly, less toxic, environmentally safer and/or have different modes of action.

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

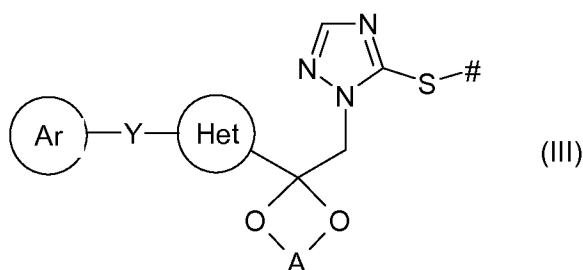
- 25 Surprisingly, these objects are achieved by triazole compounds of the general formulae I and II, defined below, and by the agriculturally acceptable salts of the compounds I and II.

30 Accordingly, the present invention relates to triazole compounds of the formulae I and II and to agriculturally useful salts thereof



wherein

- Ar is phenyl which may carry 1, 2, 3, 4 or 5 substituents R², or is a 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2, 3 or 4 substituents R³;
- 5 Het is a 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2, 3 or 4 substituents R⁴;
- 10 A is a linear C₁-C₅-alkylene bridge which may be substituted by 1, 2, 3 or 4 substituents R⁵;
- Y is O, S or NR⁶;
- 15 R¹ is selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R⁷, and a 5- or 6-
- 20 membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R⁷; or, in case m is 0, may also be selected from -C(=O)R⁸, -C(=S)R⁸, -S(O)₂R⁸, -CN, -P(=Q)R⁹R¹⁰, M and a group of the formula III



25

wherein

Ar, Het, A and Y are as defined for formulae I and II; and

is the attachment point to the remainder of the molecule;

- 30 R^{1a} is selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R⁷, a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3

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heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^7 , $-C(=O)R^8$, $-C(=S)R^8$, $-S(O)_2R^8$, $-CN$, $-P(=Q)R^9R^{10}$ and M;

- 5 each R^2 is independently selected from halogen, OH, SH, NO_2 , CN, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_2 - C_4 -alkenyl, C_2 - C_4 -haloalkenyl, C_2 - C_4 -alkynyl, C_2 - C_4 -haloalkynyl, C_3 - C_8 -cycloalkyl, C_3 - C_8 -halocycloalkyl, C_1 - C_4 -alkoxy, C_1 - C_4 -haloalkoxy, C_1 - C_4 -alkenyloxy, C_1 - C_4 -haloalkenyloxy, C_1 - C_4 -alkynyloxy, C_1 - C_4 -haloalkynyloxy, C_3 - C_8 -cycloalkoxy, C_3 - C_8 -halocycloalkoxy, C_1 - C_4 -alkylthio, C_1 - C_4 -haloalkylthio, C_1 - C_4 -alkenylylthio, C_1 - C_4 -haloalkynylylthio, phenyl, phenyl- C_1 - C_4 -alkyl, phenyl- C_1 - C_4 -alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^{11} ; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ; COR^{12} , $COOR^{12}$, $CONR^{13}R^{14}$, $NR^{13}R^{14}$ and $S(O)_pR^{12}$, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{15} and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{16} ; or
- 15
- 20 two radicals R^2 bound on adjacent carbon ring atoms, together with the carbon ring atoms to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ;
- 25

- each R^3 is independently selected from halogen, OH, SH, NO_2 , CN, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_2 - C_4 -alkenyl, C_2 - C_4 -haloalkenyl, C_2 - C_4 -alkynyl, C_2 - C_4 -haloalkynyl, C_3 - C_8 -cycloalkyl, C_3 - C_8 -halocycloalkyl, C_1 - C_4 -alkoxy, C_1 - C_4 -haloalkoxy, C_1 - C_4 -alkenyloxy, C_1 - C_4 -haloalkenyloxy, C_1 - C_4 -alkynyloxy, C_1 - C_4 -haloalkynyloxy, C_3 - C_8 -cycloalkoxy, C_3 - C_8 -halocycloalkoxy, C_1 - C_4 -alkylthio, C_1 - C_4 -haloalkylthio, C_1 - C_4 -alkenylylthio, C_1 - C_4 -haloalkynylylthio, phenyl, phenyl- C_1 - C_4 -alkyl, phenyl- C_1 - C_4 -alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^{11} ; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ; COR^{12} , $COOR^{12}$, $CONR^{13}R^{14}$, $NR^{13}R^{14}$ and $S(O)_pR^{12}$, where the aliphatic moieties in the above
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radicals may carry 1, 2 or 3 substituents R^{15} and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{16} ; or

two radicals R^3 bound on adjacent ring atoms (of the heterocyclic ring Ar), together with the ring atoms to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ;

each R^4 is independently selected from halogen, OH, SH, NO_2 , CN, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_2 - C_4 -alkenyl, C_2 - C_4 -haloalkenyl, C_2 - C_4 -alkynyl, C_2 - C_4 -haloalkynyl, C_3 - C_8 -cycloalkyl, C_3 - C_8 -halocycloalkyl, C_1 - C_4 -alkoxy, C_1 - C_4 -haloalkoxy, C_1 - C_4 -alkenyloxy, C_1 - C_4 -haloalkenyloxy, C_1 - C_4 -alkynyloxy, C_1 - C_4 -haloalkynyloxy, C_3 - C_8 -cycloalkoxy, C_3 - C_8 -halocycloalkoxy, C_1 - C_4 -alkylthio, C_1 - C_4 -haloalkylthio, C_1 - C_4 -alkenylthio, C_1 - C_4 -haloalkenylthio, phenyl, phenyl- C_1 - C_4 -alkyl, phenyl- C_1 - C_4 -alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^{11} ; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ; COR^{12} , $COOR^{12}$, $CONR^{13}R^{14}$, $NR^{13}R^{14}$ and $S(O)_pR^{12}$, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{15} and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{16} ; or

two radicals R^4 bound on adjacent ring atoms (of Het), together with the ring atom to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ;

each R^5 is independently selected from halogen, OH, SH, $NR^{13}R^{14}$, C_1 - C_4 -alkyl, C_1 - C_4 -haloalkyl, C_2 - C_4 -alkenyl, C_2 - C_4 -haloalkenyl, C_2 - C_4 -alkynyl, C_2 - C_4 -haloalkynyl, C_1 - C_4 -alkoxy, C_1 - C_4 -haloalkoxy, C_1 - C_4 -alkylthio and C_1 - C_4 -haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{15} ; or

two radicals R^5 bound on two adjacent carbon atoms, together with the carbon atoms to which they are bound, form a 3-, 4-, 5-, 6- or 7-membered saturated,

partly unsaturated or maximum unsaturated carbocyclic ring or a 3-, 4-, 5-, 6- or 7-membered saturated, partly unsaturated or maximum unsaturated heterocyclic ring containing 1, 2, or 3 heteroatoms selected from O, S and N as ring members, where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;

5

R⁶ is selected from hydrogen, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹; COR¹², COOR¹², CONR¹³R¹⁴ and S(O)_pR¹²;

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each R⁷ is independently selected from halogen, OH, SH, NR¹³R¹⁴, CN, NO₂, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkylthio and C₁-C₄-haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵;

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R⁸ is selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₁-C₁₀-alkoxy, C₁-C₁₀-haloalkoxy, C₁-C₁₀-aminoalkyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R⁷, a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R⁷, and NR¹³R¹⁴;

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R⁹ and R¹⁰, independently of each other, are selected from C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, C₁-C₁₀-alkoxy, C₁-C₁₀-haloalkoxy, C₁-C₄-alkoxy-C₁-C₁₀-alkyl, C₁-C₄-alkoxy-C₁-C₁₀-alkoxy, C₁-C₁₀-alkylthio, C₁-C₁₀-haloalkylthio, C₂-C₁₀-alkenyloxy, C₂-C₁₀-alkenylthio, C₂-C₁₀-alkynyloxy, C₂-C₁₀-alkynylthio, C₃-C₁₀-cycloalkoxy, C₃-C₁₀-cycloalkylthio, phenyl, phenyl-C₁-C₄-alkyl, phenylthio, phenyl-C₁-C₄-alkoxy, and NR¹³R¹⁴;

30

each R¹¹ is independently selected from halogen, OH, SH, NR¹³R¹⁴, CN, NO₂, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkylthio and C₁-C₄-haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵;

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- each R¹² is independently selected from hydrogen, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₁-C₄-aminoalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹, and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;
- each R¹³ is independently selected from hydrogen and C₁-C₈-alkyl;
- each R¹⁴ is independently selected from hydrogen, C₁-C₈-alkyl, phenyl, and phenyl-C₁-C₄-alkyl;
- or R¹³ and R¹⁴ together form a linear C₄- or C₅-alkylene bridge or a group -CH₂CH₂OCH₂CH₂- or -CH₂CH₂NR¹⁷CH₂CH₂-;
- each R¹⁵ is independently selected from nitro, CN, OH, SH, COR¹², COOR¹², CONR¹³R¹⁴; NR¹³R¹⁴, C₃-C₆-cycloalkyl, C₃-C₆-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₃-C₆-cycloalkoxy, phenyl and phenoxy;
- each R¹⁶ is independently selected from nitro, CN, OH, SH, COR¹², COOR¹², CONR¹³R¹⁴; NR¹³R¹⁴, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₃-C₆-cycloalkyl, C₃-C₆-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₃-C₆-cycloalkoxy, phenyl and phenoxy;
- each R¹⁷ is independently selected from hydrogen and C₁-C₄-alkyl;
- Q is O or S;
- M is a metal cation equivalent or an ammonium cation of formula (NR^aR^bR^cR^d)⁺, wherein R^a, R^b, R^c and R^d, independently of each other, are selected from hydrogen, C₁-C₁₀-alkyl, phenyl and benzyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2 or 3 substituents independently selected from halogen, CN, nitro, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy and NR¹³R¹⁴;
- m is 0, 1 or 2; and
- p is 1 or 2.

The present invention also provides the use of triazole compounds of the formulae I and II and/or their agriculturally useful salts for controlling harmful fungi.

5 The invention further provides fungicidal compositions comprising these triazole compounds of the formulae I and/or II (and/or also of the formula IV; see below) and/or their agriculturally acceptable salts and suitable carriers. Suitable agriculturally acceptable carriers are described below.

10 The compounds I and II can exist as one or more stereoisomers. The various stereoisomers include enantiomers, diastereomers, atropisomers and geometric isomers. One skilled in the art will appreciate that one stereoisomer may be more active and/or may exhibit beneficial effects when enriched relative to the other stereoisomer(s) or when separated from the other stereoisomer(s). Additionally, the skilled artisan knows how to separate, enrich, and/or to selectively prepare said stereoisomers. The compounds of
15 the invention may be present as a mixture of stereoisomers, e.g. a racemate, individual stereoisomers, or as an optically active form.

Compounds I and II can be understood as positional/double bond isomers of each other, at least in case the radicals R^1/R^{1a} are identical. In case R^1 (and of course also
20 R^{1a}) is hydrogen, the respective compounds I and II are tautomers.

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 I and II. Thus, suitable cations are in
25 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, tetrabutylammo-
30 nium, 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, hydrogen-
35 sulfate, 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 I or II with an acid of the corresponding anion, preferably hydrochloric acid, hydrobromic acid, sulfuric acid, phosphoric acid or nitric acid.

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

Halogen: fluorine, chlorine, bromine and iodine;

Alkyl and the alkyl moieties in alkoxy, alkoxyalkyl, alkoxyalkoxy, alkylcarbonyl, alkylthiocarbonyl, aminoalkyl, alkylamino, dialkylamino, alkylaminocarbonyl, dialkylaminocarbonyl, alkylthio, alkylsulfonyl and the like: saturated straight-chain or branched hydrocarbon radicals having 1 to 2 (C₁-C₂-alkyl), 2 or 3 (C₂-C₃-alkyl), 1 to 4 (C₁-C₄-alkyl), 1 to 6 (C₁-C₆-alkyl), 1 to 8 (C₁-C₈-alkyl) or 1 to 10 (C₁-C₁₀-alkyl) carbon atoms. C₂-C₃-Alkyl is ethyl, n-propyl or isopropyl. C₁-C₂-Alkyl is methyl or ethyl. C₁-C₄-Alkyl is methyl, ethyl, propyl, isopropyl, butyl, 1-methylpropyl (sec-butyl), 2-methylpropyl (isobutyl) or 1,1-dimethylethyl (tert-butyl). C₁-C₆-Alkyl is additionally also, for example, 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, or 1-ethyl-2-methylpropyl. C₁-C₈-Alkyl is additionally also, for example, heptyl, octyl, 2-ethylhexyl and positional isomers thereof. C₁-C₁₀-Alkyl is additionally also, for example, nonyl, decyl, 2-propylheptyl, 3-propylheptyl and positional isomers thereof.

Haloalkyl: straight-chain or branched alkyl groups having 1 to 2 (C₁-C₂-haloalkyl), 1 to 3 (C₁-C₃-haloalkyl), 1 to 4 (C₁-C₄-haloalkyl), 1 to 6 (C₁-C₆-haloalkyl), 1 to 8 (C₁-C₈-haloalkyl), 1 to 10 (C₁-C₁₀-haloalkyl) or 2 to 10 (C₂-C₁₀-haloalkyl) carbon atoms (as mentioned above), where some or all of the hydrogen atoms in these groups may be replaced by halogen atoms as mentioned above: in particular C₁-C₂-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, or pentafluoroethyl. C₁-C₃-Haloalkyl is additionally, for example, 1,1,1-trifluoroprop-2-yl, 3,3,3-trifluoropropyl or heptafluoropropyl. C₁-C₄-Haloalkyl is additionally, for example, 1-chlorobutyl, 2-chlorobutyl, 3-chlorobutyl or 4-chlorobutyl.

C₁-C₁₀-Hydroxyalkyl: straight-chain or branched alkyl groups having 1 to 2 (C₁-C₂-hydroxyalkyl), 1 to 4 (C₁-C₄-hydroxyalkyl), 2 to 4 (C₂-C₄-hydroxyalkyl), 1 to 6 (C₁-C₆-hydroxyalkyl), 2 to 6 (C₂-C₆-hydroxyalkyl), 1 to 8 (C₁-C₈-hydroxyalkyl), 2 to 8 (C₂-C₈-hydroxyalkyl), 1 to 10 (C₁-C₁₀-hydroxyalkyl) or 2 to 10 (C₂-C₁₀-hydroxyalkyl) carbon atoms (as mentioned above), where at least one of the hydrogen atoms is replaced by a hydroxyl group, such as in 2-hydroxyethyl or 3-hydroxypropyl.

Alkenyl and the alkenyl moieties in alkenyloxy, alkenylthio, alkenylcarbonyl and the like: monounsaturated straight-chain or branched hydrocarbon radicals having 2 to 4 (C₂-C₄-alkenyl), 2 to 6 (C₂-C₆-alkenyl), 2 to 8 (C₂-C₈-alkenyl), 3 to 8 (C₃-C₈-alkenyl), 2 to 10 (C₂-C₁₀-alkenyl) or 3 to 10 (C₃-C₁₀-alkenyl) carbon atoms and a double bond in any position, for example C₂-C₄-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 or 2-methyl-2-propenyl, or, for example, C₂-C₆-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, 1-ethyl-2-methyl-2-propenyl and the like;

Haloalkenyl and the haloalkenyl moieties in haloalkenyloxy, haloalkenylcarbonyl and the like: unsaturated straight-chain or branched hydrocarbon radicals having 2 to 4 (C₂-C₄-haloalkenyl), 2 to 6 (C₂-C₆-haloalkenyl), 2 to 8 (C₂-C₈-haloalkenyl) or 2 to 10 (C₂-C₁₀-haloalkenyl) carbon atoms and a double bond in any position (as mentioned above), where some or all of the hydrogen atoms in these groups may be replaced by

halogen atoms as mentioned above, in particular fluorine, chlorine and bromine, for example chlorovinyl, chloroallyl and the like;

Alkynyl and the alkynyl moieties in alkynyloxy, alkynylthio, alkynylcarbonyl and the like:
5 straight-chain or branched hydrocarbon groups having 2 to 4 (C_2 - C_4 -alkynyl), 2 to 6 (C_2 - C_6 -alkynyl), 2 to 8 (C_2 - C_8 -alkynyl), 3 to 8 (C_3 - C_8 -alkynyl), 2 to 10 (C_2 - C_{10} -alkynyl) or 3 to 10 (C_3 - C_{10} -alkynyl) carbon atoms and one or two triple bonds in any position, for example C_2 - C_4 -alkynyl, such as ethynyl, 1-propynyl, 2-propynyl, 1-butynyl, 2-butynyl, 3-butynyl, or 1-methyl-2-propynyl, or, for example, C_2 - C_6 -alkynyl, such as ethynyl, 1-
10 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-
15 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, 1-ethyl-1-methyl-2-propynyl and the like;

20 Haloalkynyl and the haloalkynyl moieties in haloalkynyloxy, haloalkynylcarbonyl and the like: unsaturated straight-chain or branched hydrocarbon radicals having 2 to 4 (C_2 - C_4 -haloalkynyl), 2 to 6 (C_2 - C_6 -haloalkynyl), 2 to 8 (C_2 - C_8 -haloalkynyl) or 2 to 10 (C_2 - C_{10} -haloalkynyl) carbon atoms and one or two triple bonds in any position (as mentioned above), where some or all of the hydrogen atoms in these groups may be replaced by
25 halogen atoms as mentioned above, in particular fluorine, chlorine and bromine;

Cycloalkyl and the cycloalkyl moieties in cycloalkoxy, cycloalkylcarbonyl and the like; monocyclic saturated hydrocarbon groups having 3 to 6 (C_3 - C_6 -cycloalkyl), 3 to 8 (C_3 - C_8 -cycloalkyl) or 3 to 10 (C_3 - C_{10} -cycloalkyl) carbon ring members, such as cyclopropyl,
30 cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, cyclononyl and cyclodecyl;

Halocycloalkyl and the halocycloalkyl moieties in halocycloalkoxy, halocycloalkylcarbonyl and the like: monocyclic saturated hydrocarbon groups having 3 to 6 (C_3 - C_6 -halocycloalkyl), 3 to 8 (C_3 - C_8 -halocycloalkyl) or 3 to 10 (C_3 - C_{10} -halocycloalkyl) carbon
35 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;

Cycloalkenyl and the cycloalkenyl moieties in cycloalkenyloxy, cycloalkenylcarbonyl and the like; monocyclic monounsaturated hydrocarbon groups having 3 to 6 (C₃-C₆-cycloalkenyl), 3 to 8 (C₃-C₈-cycloalkenyl) or 3 to 10 (C₃-C₁₀-cycloalkenyl) carbon ring members, such as cyclopropenyl, cyclobutenyl, cyclopentenyl, cyclohexenyl, cycloheptenyl, cyclooctenyl, cyclononenyl and cyclodecenyl;

Halocycloalkenyl and the halocycloalkenyl moieties in halocycloalkenyloxy, halocycloalkenylcarbonyl and the like: monocyclic monounsaturated hydrocarbon groups having 3 to 6 (C₃-C₆-halocycloalkenyl), 3 to 8 (C₃-C₈-halocycloalkenyl) or 3 to 10 (C₃-C₁₀-halocycloalkenyl) 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;

C₃-C₆-cycloalkyl-C₁-C₂-alkyl: a C₁-C₂-alkyl residue, as described above, wherein one of the hydrogen atoms is replaced by a C₃-C₆-cycloalkyl group. Examples are cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclopropyl-1-ethyl, cyclobutyl-1-ethyl, cyclopentyl-1-ethyl, cyclohexyl-1-ethyl, cyclopropyl-2-ethyl, cyclobutyl-2-ethyl, cyclopentyl-2-ethyl, cyclohexyl-2-ethyl and the like. C₃-C₁₀-cycloalkyl-C₁-C₄-alkyl is a C₁-C₄-alkyl residue, as described above, wherein one of the hydrogen atoms is replaced by a C₃-C₁₀-cycloalkyl group. Examples are, apart those mentioned above for C₃-C₆-cycloalkyl-C₁-C₄-alkyl, cycloheptylmethyl, cyclooctylmethyl, cyclononylmethyl, cyclodecylmethyl, cycloheptyl-1-ethyl, cyclooctyl-1-ethyl, cyclononyl-1-ethyl, cyclodecyl-1-ethyl, cycloheptyl-2-ethyl, cyclooctyl-2-ethyl, cyclononyl-2-ethyl, cyclodecyl-2-ethyl, cyclopropyl-1-propyl, cyclopropyl-2-propyl, cyclopropyl-3-propyl, cyclobutyl-1-propyl, cyclobutyl-2-propyl, cyclobutyl-3-propyl, cyclopentyl-1-propyl, cyclopentyl-2-propyl, cyclopentyl-3-propyl, cyclohexyl-1-propyl, cyclohexyl-2-propyl, cyclohexyl-3-propyl, cycloheptyl-1-propyl, cycloheptyl-2-propyl, cycloheptyl-3-propyl, cyclooctyl-1-propyl, cyclooctyl-2-propyl, cyclooctyl-3-propyl, cyclononyl-1-propyl, cyclononyl-2-propyl, cyclononyl-3-propyl, cyclodecyl-1-propyl, cyclodecyl-2-propyl, cyclodecyl-3-propyl, cyclopropyl-1-butyl, cyclopropyl-2-butyl, cyclopropyl-3-butyl, cyclopropyl-4-butyl, cyclobutyl-1-butyl, cyclobutyl-2-butyl, cyclobutyl-3-butyl, cyclobutyl-4-butyl, cyclopentyl-1-butyl, cyclopentyl-2-butyl, cyclopentyl-3-butyl, cyclopentyl-4-butyl, cyclohexyl-1-butyl, cyclohexyl-2-butyl, cyclohexyl-3-butyl, cyclohexyl-4-butyl, cycloheptyl-1-butyl, cycloheptyl-2-butyl, cycloheptyl-3-butyl, cycloheptyl-4-butyl, cyclooctyl-1-butyl, cyclooctyl-2-butyl, cyclooctyl-3-butyl, cyclooctyl-4-butyl, cyclononyl-1-butyl, cyclononyl-2-butyl, cyclononyl-3-butyl, cyclononyl-4-butyl, cyclodecyl-1-butyl, cyclodecyl-2-butyl, cyclodecyl-3-butyl, cyclodecyl-4-butyl, and the like.

C₃-C₆-halocycloalkyl-C₁-C₂-alkyl: a C₁-C₂-alkyl residue, as described above, wherein one of the hydrogen atoms is replaced by a C₃-C₆-halocycloalkyl group. Examples are 1-chlorocyclopropylmethyl, 1-chlorocyclobutylmethyl, 1-chlorocyclopentylmethyl, 1-chlorocyclohexylmethyl, 1-chlorocyclopropyl-1-ethyl, 1-chlorocyclobutyl-1-ethyl, 1-chlorocyclopentyl-1-ethyl, 1-chlorocyclohexyl-1-ethyl, 1-chlorocyclopropyl-2-ethyl, 1-chlorocyclobutyl-2-ethyl, 1-chlorocyclopentyl-2-ethyl, 1-chlorocyclohexyl-2-ethyl, 2-chlorocyclopropylmethyl, 2-chlorocyclobutylmethyl, 2-chlorocyclopentylmethyl, 2-chlorocyclohexylmethyl, 2-chlorocyclopropyl-1-ethyl, 2-chlorocyclobutyl-1-ethyl, 2-chlorocyclopentyl-1-ethyl, 2-chlorocyclohexyl-1-ethyl, 2-chlorocyclopropyl-2-ethyl, 2-chlorocyclobutyl-2-ethyl, 2-chlorocyclopentyl-2-ethyl, 2-chlorocyclohexyl-2-ethyl, 1-fluorocyclopropylmethyl, 1-fluorocyclobutylmethyl, 1-fluorocyclopentylmethyl, 1-fluorocyclohexylmethyl, 1-fluorocyclopropyl-1-ethyl, 1-fluorocyclobutyl-1-ethyl, 1-fluorocyclopentyl-1-ethyl, 1-fluorocyclohexyl-1-ethyl, 1-fluorocyclopropyl-2-ethyl, 1-fluorocyclobutyl-2-ethyl, 1-fluorocyclopentyl-2-ethyl, 1-fluorocyclohexyl-2-ethyl, 2-fluorocyclopropylmethyl, 2-fluorocyclobutylmethyl, 2-fluorocyclopentylmethyl, 2-fluorocyclohexylmethyl, 2-fluorocyclopropyl-1-ethyl, 2-fluorocyclobutyl-1-ethyl, 2-fluorocyclopentyl-1-ethyl, 2-fluorocyclohexyl-1-ethyl, 2-fluorocyclopropyl-2-ethyl, 2-fluorocyclobutyl-2-ethyl, 2-fluorocyclopentyl-2-ethyl, 2-fluorocyclohexyl-2-ethyl, and the like. C₃-C₁₀-halocycloalkyl-C₁-C₄-alkyl is a C₁-C₄-alkyl residue, as described above, wherein one of the hydrogen atoms is replaced by a C₃-C₁₀-halocycloalkyl group.

Alkoxy: an alkyl group attached via oxygen. C₁-C₂-Alkoxy is methoxy or ethoxy. C₁-C₃-Alkoxy is additionally, for example, n-propoxy or 1-methylethoxy (isopropoxy). C₁-C₄-Alkoxy is additionally, for example, butoxy, 1-methylpropoxy (sec-butoxy), 2-methylpropoxy (isobutoxy) or 1,1-dimethylethoxy (tert-butoxy). C₁-C₆-Alkoxy is additionally, 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. C₁-C₈-Alkoxy is additionally, for example, heptyloxy, octyloxy, 2-ethylhexyloxy and positional isomers thereof. C₁-C₁₀-Alkoxy is additionally, for example, nonyloxy, decyloxy and positional isomers thereof. C₂-C₁₀-Alkoxy is like C₁-C₁₀-alkoxy with the exception of methoxy.

Haloalkoxy: an alkoxy radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, preferably by fluorine. C₁-C₂-Haloalkoxy is, for example, OCH₂F, OCHF₂, OCF₃, OCH₂Cl, OCHCl₂, OCCl₃, chlorofluoromethoxy,

dichlorofluoromethoxy, chlorodifluoromethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2-bromoethoxy, 2-iodoethoxy, 2,2-difluoroethoxy, 2,2,2-trifluoroethoxy, 2-chloro-2-fluoroethoxy, 2-chloro-2,2-difluoroethoxy, 2,2-dichloro-2-fluoroethoxy, 2,2,2-trichloroethoxy or OC_2F_5 . C_1 - C_4 -Haloalkoxy is additionally, for example,

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, $\text{OCH}_2\text{-C}_2\text{F}_5$, $\text{OCF}_2\text{-C}_2\text{F}_5$, 1-(CH_2F)-2-fluoroethoxy, 1-(CH_2Cl)-2-chloroethoxy, 1-(CH_2Br)-2-bromoethoxy, 4-fluorobutoxy, 4-chlorobutoxy, 4-bromobutoxy or nonafluorobutoxy. C_1 - C_6 -Haloalkoxy

10 is additionally, for example, 5-fluoropentoxy, 5-chloropentoxy, 5-bromopentoxy, 5-iodopentoxy, undecafluoropentoxy, 6-fluorohexoxy, 6-chlorohexoxy, 6-bromohexoxy, 6-iodohexoxy or dodecafluorohexoxy.

Alkenyloxy: alkenyl as mentioned above which is attached via an oxygen atom, for example

15 C_2 - C_{10} -alkenyloxy, such as 1-ethenyloxy, 1-propenyloxy, 2-propenyloxy, 1-methylethenyloxy, 1-butenyloxy, 2-butenyloxy, 3-butenyloxy, 1-methyl-1-propenyloxy, 2-methyl-1-propenyloxy, 1-methyl-2-propenyloxy, 2-methyl-2-propenyloxy, 1-pentenyloxy, 2-pentenyloxy, 3-pentenyloxy, 4-pentenyloxy, 1-methyl-1-butenyloxy, 2-methyl-1-butenyloxy, 3-methyl-1-butenyloxy, 1-methyl-2-butenyloxy, 2-methyl-2-

20 butenyloxy, 3-methyl-2-butenyloxy, 1-methyl-3-butenyloxy, 2-methyl-3-butenyloxy, 3-methyl-3-butenyl, 1,1-dimethyl-2-propenyloxy, 1,2-dimethyl-1-propenyloxy, 1,2-dimethyl-2-propenyloxy, 1-ethyl-1-propenyloxy, 1-ethyl-2-propenyloxy, 1-hexenyloxy, 2-hexenyloxy, 3-hexenyloxy, 4-hexenyloxy, 5-hexenyloxy, 1-methyl-1-pentenyloxy, 2-methyl-1-pentenyloxy, 3-methyl-1-pentenyloxy, 4-methyl-1-pentenyloxy, 1-methyl-2-

25 pentenyloxy, 2-methyl-2-pentenyloxy, 3-methyl-2-pentenyloxy, 4-methyl-2-pentenyloxy, 1-methyl-3-pentenyloxy, 2-methyl-3-pentenyloxy, 3-methyl-3-pentenyloxy, 4-methyl-3-pentenyloxy, 1-methyl-4-pentenyloxy, 2-methyl-4-pentenyloxy, 3-methyl-4-pentenyloxy, 4-methyl-4-pentenyloxy, 1,1-dimethyl-2-butenyloxy, 1,1-dimethyl-3-butenyloxy, 1,2-dimethyl-1-butenyloxy, 1,2-dimethyl-2-butenyloxy, 1,2-dimethyl-3-butenyloxy,

30 1,3-dimethyl-1-butenyloxy, 1,3-dimethyl-2-butenyloxy, 1,3-dimethyl-3-butenyloxy, 2,2-dimethyl-3-butenyloxy, 2,3-dimethyl-1-butenyloxy, 2,3-dimethyl-2-butenyloxy, 2,3-dimethyl-3-butenyloxy, 3,3-dimethyl-1-butenyloxy, 3,3-dimethyl-2-butenyloxy, 1-ethyl-1-butenyloxy, 1-ethyl-2-butenyloxy, 1-ethyl-3-butenyloxy, 2-ethyl-1-butenyloxy, 2-ethyl-2-butenyloxy, 2-ethyl-3-butenyloxy, 1,1,2-trimethyl-2-propenyloxy, 1-ethyl-1-

35 methyl-2-propenyloxy, 1-ethyl-2-methyl-1-propenyloxy and 1-ethyl-2-methyl-2-propenyloxy and the like;

Haloalkenyloxy: an alkenyloxy radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, preferably by fluorine.

Alkynyloxy: alkynyl as mentioned above which is attached via an oxygen atom, for example C₂-C₁₀-alkynyloxy, such as 2-propynyloxy, 2-butyloxy, 3-butyloxy, 1-methyl-2-propynyloxy, 2-pentyloxy, 3-pentyloxy, 4-pentyloxy, 1-methyl-2-butyloxy, 1-methyl-3-butyloxy, 2-methyl-3-butyloxy, 1-ethyl-2-propynyloxy, 2-hexynyloxy, 3-hexynyloxy, 4-hexynyloxy, 5-hexynyloxy, 1-methyl-2-pentyloxy, 1-methyl-3-pentyloxy and the like;

Haloalkynyloxy: an alkynyloxy radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, preferably by fluorine.

Cycloalkoxy: cycloalkyl as mentioned above which is attached via an oxygen atom, for example C₃-C₁₀-cycloalkoxy or C₃-C₈-cycloalkoxy, such as cyclopropoxy, cyclopentoxy, cyclohexoxy, cycloheptoxy, cyclooctoxy, cyclononyloxy, cyclodecyloxy and the like;

Halocycloalkoxy: a cycloalkoxy radical as mentioned above which is partially or fully substituted by fluorine, chlorine, bromine and/or iodine, preferably by fluorine.

Cycloalkenyloxy: cycloalkenyl as mentioned above which is attached via an oxygen atom, for example C₃-C₁₀-cycloalkenyloxy, C₃-C₈-cycloalkenyloxy or, preferably, C₅-C₆-cycloalkenyloxy, such as cyclopent-1-enoxy, cyclopent-2-enoxy, cyclohex-1-enoxy and cyclohex-2-enoxy;

Alkoxyalkyl: alkyl as defined above having 1 to 10, 1 to 8, 1 to 6 or 1 to 4, in particular 1 to 3, carbon atoms, in which one hydrogen atom is replaced by an alkoxy group having 1 to 8, 1 to 6, 1 to 4 or 1 to 3 carbon atoms, for example methoxymethyl, 2-methoxyethyl, ethoxymethyl, 3-methoxypropyl, 3-ethoxypropyl and the like.

Alkoxyalkoxy: alkoxy as defined above having 1 to 10, 1 to 8, 1 to 6 or 1 to 4, in particular 1 to 3, carbon atoms, in which one hydrogen atom is replaced by an alkoxy group having 1 to 8, 1 to 6 or in particular 1 to 4 carbon atoms, for example 2-methoxyethoxy, 2-ethoxyethoxy, 3-methoxypropoxy, 3-ethoxypropoxy and the like.

Alkylcarbonyl: group of the formula R-CO- in which R is an alkyl group as defined above, for example C₁-C₁₀-alkyl, C₁-C₈-alkyl, C₁-C₆-alkyl, C₁-C₄-alkyl, C₁-C₂-alkyl or C₃-C₄-alkyl. Examples are acetyl, propionyl and the like. Examples for C₃-C₄-alkylcarbonyl are propylcarbonyl, isopropylcarbonyl, n-butylcarbonyl, sec-butylcarbonyl, isobutylcarbonyl and tert-butylcarbonyl.

Haloalkylcarbonyl: group of the formula R-CO- in which R is a haloalkyl group as defined above, for example C₁-C₁₀-haloalkyl, C₁-C₈-haloalkyl, C₁-C₆-haloalkyl, C₁-C₄-haloalkyl, C₁-C₂-haloalkyl or C₃-C₄-haloalkyl. Examples are difluoromethylcarbonyl, trifluoromethylcarbonyl, 2,2-difluoroethylcarbonyl, 2,2,3-trifluoroethylcarbonyl and the like.

Alkoxy carbonyl: group of the formula R-CO- in which R is an alkoxy group as defined above, for example C₁-C₁₀-alkoxy, C₁-C₈-alkoxy, C₁-C₆-alkoxy, C₁-C₄-alkoxy or C₁-C₂-alkoxy. Examples for C₁-C₄-alkoxy carbonyl are methoxy carbonyl, ethoxy carbonyl, propoxy carbonyl, isopropoxy carbonyl, n-butoxy carbonyl, sec-butoxy carbonyl, isobutoxy carbonyl and tert-butoxy carbonyl.

Haloalkoxy carbonyl: group of the formula R-CO- in which R is a haloalkoxy group as defined above, for example C₁-C₁₀-haloalkoxy, C₁-C₈-haloalkoxy, C₁-C₆-haloalkoxy, C₁-C₄-haloalkoxy or C₁-C₂-haloalkoxy. Examples for C₁-C₄-haloalkoxy carbonyl are difluoromethoxy carbonyl, trifluoromethoxy carbonyl, 2,2-difluoroethoxy carbonyl, 2,2,3-trifluoroethoxy carbonyl and the like.

Alkylaminocarbonyl: group of the formula R-NH-CO- in which R is an alkyl group as defined above, for example C₁-C₁₀-alkyl, C₁-C₈-alkyl, C₁-C₆-alkyl, C₁-C₄-alkyl, C₁-C₂-alkyl or C₃-C₄-alkyl. Examples for C₁-C₄-alkylaminocarbonyl are methylaminocarbonyl, ethylaminocarbonyl, propylaminocarbonyl, isopropylaminocarbonyl, butylaminocarbonyl, sec-butylaminocarbonyl, isobutylaminocarbonyl and tert-butylaminocarbonyl.

Dialkylaminocarbonyl: group of the formula RR'-N-CO- in which R and R', independently of each other, are an alkyl group as defined above, for example C₁-C₁₀-alkyl, C₁-C₈-alkyl, C₁-C₆-alkyl, C₁-C₄-alkyl, C₁-C₂-alkyl or C₃-C₄-alkyl. Examples for di-(C₁-C₄-alkyl)-aminocarbonyl are dimethylaminocarbonyl, diethylaminocarbonyl, dipropylaminocarbonyl, diisopropylaminocarbonyl and dibutylaminocarbonyl.

Aminoalkyl: group of the formula R-NH₂ in which R is an alkyl group as defined above, for example C₁-C₁₀-alkyl, C₁-C₈-alkyl, C₁-C₆-alkyl, C₁-C₄-alkyl, C₁-C₂-alkyl or C₃-C₄-alkyl. Examples are aminomethyl, 1- and 2-aminoethyl, 1-, 2- and 3-aminopropyl, 1- and 2-amino-1-methylethyl, 1-, 2-, 3- and 4-aminobutyl and the like.

Alkylsulfonyl: group of the formula R-S(O)₂- in which R is an alkyl group as defined above, for example C₁-C₁₀-alkyl, C₁-C₈-alkyl, C₁-C₆-alkyl, C₁-C₄-alkyl or C₁-C₂-alkyl. Examples for C₁-C₄-alkylsulfonyl are methylsulfonyl, ethylsulfonyl, propylsulfonyl, isopropylsulfonyl, n-butylsulfonyl, sec-butylsulfonyl, isobutylsulfonyl and tert-butylsulfonyl.

Alkylthio: alkyl as defined above which is attached via a sulfur atom.

Haloalkylthio: haloalkyl as defined above which is attached via a sulfur atom.

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Alkenylthio: alkenyl as defined above which is attached via a sulfur atom.

Haloalkenylthio: haloalkenyl as defined above which is attached via a sulfur atom.

10 Alkynylthio: alkynyl as defined above which is attached via a sulfur atom.

Haloalkynylthio: haloalkynyl as defined above which is attached via a sulfur atom.

Cycloalkylthio: cycloalkyl as defined above which is attached via a sulfur atom.

15

Aryl is a carbocyclic aromatic monocyclic or polycyclic ring containing 6 to 16 carbon atoms as ring members. Examples are phenyl, naphthyl, anthracenyl, phenanthrenyl, fluorenyl and azulenyl. Preferably, aryl is phenyl or naphthyl, and especially phenyl.

20 Phenyl-C₁-C₄-alkyl: C₁-C₄-alkyl (as defined above), where a hydrogen atom is replaced by a phenyl group, such as benzyl, phenethyl and the like.

Phenyl-C₁-C₄-alkoxy: C₁-C₄-alkoxy (as defined above), where one hydrogen atom is replaced by a phenyl group, such as benzyloxy, phenethyloxy and the like.

25

3-, 4-, 5-, 6- or 7- membered saturated, partially unsaturated or maximum unsaturated carbocyclic radical: cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclopropenyl, cyclobutenyl, cyclopentenyl, cyclohexenyl, cycloheptenyl, cyclobutadienyl, cyclopentadienyl, cyclohexadienyl, cycloheptadienyl or cycloheptatrienyl. Formally, phenyl is also included in this definition, but as it is also encompassed in the term aryl, it is not listed here.

30

3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocycle which contains 1, 2 or 3 heteroatoms or heteroatom containing groups selected from oxygen, nitrogen (as N or NR) and sulfur (as S, SO or SO₂) and optionally 1 or 2 groups selected from C(=O) and C(=S) as ring members:

35

- three- or four-membered saturated or partially unsaturated heterocycle (hereinbelow also referred to as heterocyclyl) which contains one, two or three heteroa-

- 5 toms from the group consisting of oxygen, nitrogen (as N or NR) and sulfur (as S, SO or SO₂) and optionally 1 or 2 groups selected from C(=O) and C(=S) as ring members: for example monocyclic saturated or partially unsaturated heterocycles which, in addition to carbon ring members, contain one to three nitrogen atoms and/or one oxygen or sulfur atom or one or two oxygen and/or sulfur atoms and optionally 1 or 2 groups selected from C(=O) and C(=S), for example 2-oxiranyl, 2-thiiranyl, 1- or 2-aziridinyl, 1-, 2- or 3-azetidinyl,
- 10 - five- or six-membered saturated or partially unsaturated heterocycle (hereinbelow also referred to as heterocyclyl) which contains one, two or three heteroatoms from the group consisting of oxygen, nitrogen (as N or NR) and sulfur (as S, SO or SO₂) and optionally 1 or 2 groups selected from C(=O) and C(=S) as ring members: for example monocyclic saturated or partially unsaturated heterocycles which, in addition to carbon ring members, contain one to three nitrogen atoms and/or one oxygen or sulfur atom or one or two oxygen and/or sulfur atoms and optionally 1 or 2 groups selected from C(=O) and C(=S), for example
- 15 2-tetrahydrofuranyl, 3-tetrahydrofuranyl, 3-tetrahydrofuran-2-onyl, 4-tetrahydrofuran-2-onyl, 5-tetrahydrofuran-2-onyl, 2-tetrahydrofuran-3-onyl, 4-tetrahydrofuran-3-onyl, 5-tetrahydrofuran-3-onyl, 2-tetrahydrothienyl, 3-tetrahydrothienyl, 3-tetrahydrothien-2-onyl, 4-tetrahydrothien-2-onyl, 5-tetrahydrothien-2-onyl, 2-tetrahydrothien-3-onyl, 4-tetrahydrothien-3-onyl, 5-tetrahydrothien-3-onyl, 2-pyrrolidinyl, 3-pyrrolidinyl, 1-pyrrolidin-2-onyl, 3-pyrrolidin-2-onyl, 4-pyrrolidin-2-onyl, 5-pyrrolidin-2-onyl, 1-pyrrolidin-3-onyl, 2-pyrrolidin-3-onyl, 4-pyrrolidin-3-onyl, 5-pyrrolidin-3-onyl, 1-pyrrolidin-2,5-dionyl, 3-pyrrolidin-2,5-dionyl, 3-isoxazolidinyl, 4-isoxazolidinyl, 5-isoxazolidinyl, 3-isothiazolidinyl, 4-isothiazolidinyl, 5-isothiazolidinyl, 3-pyrazolidinyl, 4-pyrazolidinyl, 5-pyrazolidinyl, 2-oxazolidinyl, 4-oxazolidinyl, 5-oxazolidinyl, 2-thiazolidinyl, 4-thiazolidinyl, 5-thiazolidinyl, 2-imidazolidinyl, 4-imidazolidinyl, 1,2,4-oxadiazolidin-3-yl, 1,2,4-oxadiazolidin-5-yl, 1,2,4-thiadiazolidin-3-yl, 1,2,4-thiadiazolidin-5-yl, 1,2,4-triazolidin-3-yl, 1,3,4-oxadiazolidin-2-yl, 1,3,4-thiadiazolidin-2-yl, 1,3,4-triazolidin-2-yl, 2,3-dihydrofur-2-yl, 2,3-dihydrofur-3-yl, 2,4-dihydrofur-2-yl, 2,4-dihydrofur-3-yl, 2,3-dihydrothien-2-yl, 2,3-dihydrothien-3-yl, 2,4-dihydrothien-2-yl, 2,4-dihydrothien-3-yl, 2-pyrrolin-2-yl, 2-pyrrolin-3-yl, 3-pyrrolin-2-yl, 3-pyrrolin-3-yl, 2-isoxazolin-3-yl, 3-isoxazolin-3-yl, 4-isoxazolin-3-yl, 2-isoxazolin-4-yl, 3-isoxazolin-4-yl, 4-isoxazolin-4-yl, 2-isoxazolin-5-yl, 3-isoxazolin-5-yl, 4-isoxazolin-5-yl, 2-isothiazolin-3-yl, 3-isothiazolin-3-yl, 4-isothiazolin-3-yl, 2-isothiazolin-4-yl, 3-isothiazolin-4-yl, 4-isothiazolin-4-yl, 2-isothiazolin-5-yl, 3-isothiazolin-5-yl, 4-isothiazolin-5-yl, 2,3-dihydropyrazol-1-yl, 2,3-dihydropyrazol-2-yl, 2,3-dihydropyrazol-3-yl, 2,3-dihydropyrazol-4-yl, 2,3-dihydropyrazol-5-yl, 3,4-dihydropyrazol-1-yl, 3,4-dihydropyrazol-3-yl, 3,4-dihydropyrazol-4-yl, 3,4-dihydropyrazol-5-yl, 4,5-dihydropyrazol-1-yl, 4,5-dihydropyrazol-3-yl, 4,5-dihydropyrazol-4-yl,
- 35
- 40

- 4,5-dihydropyrazol-5-yl, 2,3-dihydrooxazol-2-yl, 2,3-dihydrooxazol-3-yl, 2,3-dihydrooxazol-4-yl, 2,3-dihydrooxazol-5-yl, 3,4-dihydrooxazol-2-yl, 3,4-dihydrooxazol-3-yl, 3,4-dihydrooxazol-4-yl, 3,4-dihydrooxazol-5-yl, 3,4-dihydrooxazol-2-yl, 3,4-dihydrooxazol-3-yl, 3,4-dihydrooxazol-4-yl, 2-piperidinyl, 3-piperidinyl, 4-piperidinyl, 1,3-dioxan-5-yl, 2-tetrahydropyranyl, 4-tetrahydropyranyl, 2-tetrahydrothienyl, 3-hexahydropyridazinyl, 4-hexahydropyridazinyl, 2-hexahydropyrimidinyl, 4-hexahydropyrimidinyl, 5-hexahydropyrimidinyl, 2-piperazinyl, 1,3,5-hexahydrotriazin-2-yl and 1,2,4-hexahydrotriazin-3-yl and also the corresponding -ylidene radicals;
- 10 - a seven-membered saturated or partially unsaturated heterocycle which contains one, two or three heteroatoms from the group consisting of oxygen, nitrogen and sulfur as ring members: for example mono- and bicyclic heterocycles having 7 ring members which, in addition to carbon ring members, contain one to three nitrogen atoms and/or one oxygen or sulfur atom or one or two oxygen and/or sulfur atoms, for example tetra- and hexahydroazepinyl, such as 2,3,4,5-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, 3,4,5,6-tetrahydro[2H]azepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,4,7-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, 20 2,3,6,7-tetrahydro[1H]azepin-1-, -2-, -3-, -4-, -5-, -6- or -7-yl, hexahydroazepin-1-, -2-, -3- or -4-yl, tetra- and hexahydrooxepinyl, such as 2,3,4,5-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,4,7-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, 2,3,6,7-tetrahydro[1H]oxepin-2-, -3-, -4-, -5-, -6- or -7-yl, 25 hexahydroazepin-1-, -2-, -3- or -4-yl, tetra- and hexahydro-1,3-diazepinyl, tetra- and hexahydro-1,4-diazepinyl, tetra- and hexahydro-1,3-oxazepinyl, tetra- and hexahydro-1,4-oxazepinyl, tetra- and hexahydro-1,3-dioxepinyl, tetra- and hexahydro-1,4-dioxepinyl and the corresponding -ylidene radicals.
- 30 - a five- or six-membered aromatic (= maximum unsaturated) heterocycle (= heteroaromatic radical) which contains one, two or three heteroatoms selected from the group consisting of oxygen, nitrogen and sulfur, for example 5-membered heteroaryl which is attached via carbon and contains one to three nitrogen atoms or one or two nitrogen atoms and one sulfur or oxygen atom as ring members, 35 such as 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyrrolyl, 3-pyrrolyl, 3-isoxazolyl, 4-isoxazolyl, 5-isoxazolyl, 3-isothiazolyl, 4-isothiazolyl, 5-isothiazolyl, 3-pyrazolyl, 4-pyrazolyl, 5-pyrazolyl, 2-oxazolyl, 4-oxazolyl, 5-oxazolyl, 2-thiazolyl, 4-thiazolyl, 5-thiazolyl, 2-imidazolyl, 4-imidazolyl, 1,2,4-oxadiazol-3-yl, 1,2,4-oxadiazol-5-yl, 1,2,4-thiadiazol-3-yl, 1,2,4-thiadiazol-5-yl, 1,2,4-triazol-3-yl, 1,3,4-oxadiazol-2-yl, 40 1,3,4-thiadiazol-2-yl and 1,3,4-triazol-2-yl; 5-membered heteroaryl which is attached via nitrogen and contains one to three nitrogen atoms as ring members,

such as pyrrol-1-yl, pyrazol-1-yl, imidazol-1-yl, 1,2,3-triazol-1-yl and 1,2,4-triazol-1-yl; 6-membered heteroaryl, which contains one, two or three nitrogen atoms as ring members, such as pyridin-2-yl, pyridin-3-yl, pyridin-4-yl, 3-pyridazinyl, 4-pyridazinyl, 2-pyrimidinyl, 4-pyrimidinyl, 5-pyrimidinyl, 2-pyrazinyl, 1,3,5-triazin-2-yl and 1,2,4-triazin-3-yl;

Linear C₂-alkylene: divalent unbranched chains having 2 carbon atoms, namely CH₂CH₂.

10 Linear C₂- or C₃-alkylene: divalent unbranched chains having 2 or 3 carbon atoms, namely CH₂CH₂ and CH₂CH₂CH₂.

Linear C₁-C₅-alkylene: divalent unbranched chains having 1 to 5 carbon atoms, namely CH₂, CH₂CH₂, CH₂CH₂CH₂, CH₂CH₂CH₂CH₂ and CH₂CH₂CH₂CH₂CH₂.

15 C₂-C₅-Alkylene: divalent branched or preferably unbranched chains having 2 to 5 carbon atoms, for example CH₂CH₂, -CH(CH₃)-, CH₂CH₂CH₂, CH(CH₃)CH₂, CH₂CH(CH₃), CH₂CH₂CH₂CH₂, CH₂CH₂CH₂CH₂CH₂.

20 C₄-C₅-Alkylene: divalent branched or preferably unbranched chains having 4 to 5 carbon atoms, for example CH₂CH₂CH₂CH₂ or CH₂CH₂CH₂CH₂CH₂.

The group -SM is more correctly spoken a group -S·M⁺, where M⁺ is a metal cation equivalent or an ammonium cation as defined above. A metal cation equivalent is more correctly spoken 1/a M^{a+}, where a is the valence of the metal and is in general 1, 2 or 3.

The statements made below with respect to suitable and preferred features of the compounds according to the invention, especially with respect to their substituents Ar, Het, A, Y, R¹, R², R³, R⁴, R⁵, R⁶, R^{6a}, R⁷, R⁸, R⁹, R¹⁰, R¹¹, R¹², R¹³, R¹⁴, R¹⁵, R¹⁶, R¹⁷, R^a, R^b, R^c, R^d, M, Q and the indices m and p, and to their use, are valid both per se and, in particular, in every possible combination with one another.

Preferably, Ar, if it is a heterocyclic ring as defined above, is bound via a C-atom to the group Y.

35 In a preferred embodiment of the invention, Ar is phenyl which may carry 1, 2, 3, 4 or 5, preferably 1, 2 or 3, more preferably 1 or 2, substituents R², or is a 5- or 6-membered heteroaromatic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1, 2 or 3,

more preferably 1 or 2, substituents R³. More precisely spoken, Ar preferably is phenyl which may carry 1, 2, 3, 4 or 5, preferably 1, 2 or 3, more preferably 1 or 2, substituents R², or is a 5- or 6-membered heteroaromatic ring containing 1 heteroatom selected from N, O and S and optionally 1 or 2 further nitrogen atoms as ring members, where
5 the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R³. Suitable 5- or 6-membered heteroaromatic radicals are listed above.

Among the above-listed heteroaromatic rings, preference is given to pyridyl, such as pyridin-2-yl, pyridin-3-yl or pyridin-4-yl, pyrimidyl, such as 2-pyrimidinyl, 4-pyrimidinyl or
10 5-pyrimidinyl, furyl, such as 2-furyl or 3-furyl, thienyl, such as 2-thienyl or 3-thienyl, pyrrolyl, such as 1-pyrrolyl, 2-pyrrolyl or 3-pyrrolyl, especially 2-pyrrolyl or 3-pyrrolyl, pyrazolyl, such as 1-pyrazolyl, 3-pyrazolyl, 4-pyrazolyl or 5-pyrazolyl, especially 3-pyrazolyl, 4-pyrazolyl or 5-pyrazolyl, imidazolyl, such as 1-imidazolyl, 2-imidazolyl or 4-imidazolyl, especially 2-imidazolyl or 4-imidazolyl, oxazolyl, such as 2-oxazolyl, 4-oxazolyl or 5-
15 oxazolyl, isoxazolyl, such as 3-isoxazolyl, 4-isoxazolyl or 5-isoxazolyl, thiazolyl, such as 2-thiazolyl, 4-thiazolyl or 5-thiazolyl, isothiazolyl, such as 3-isothiazolyl, 4-isothiazolyl or 5-isothiazolyl, and triazolyl, such as 1,2,4-triazol-1-yl, 1,2,4-triazol-3-yl, 1,2,4-triazol-4-yl, 1,3,4-triazol-1-yl, 1,3,4-triazol-2-yl or 1,3,4-triazol-3-yl, especially 1,2,4-triazol-3-yl or 1,3,4-triazol-2-yl. The given binding positions are to be understood as relative to the 1-
20 position of the ring heteroatom with the highest priority. For instance, in rings containing 1 ring heteroatom, the given binding position is relative to the 1-position of the one ring heteroatom. In pyrazolyl, the given binding position is relative to the 1- and 2-positions of the 2 nitrogen ring atoms, in imidazolyl, it is relative to the 1- and 3-positions of the 2 nitrogen ring atoms, in oxazolyl, it is relative to the 1-position of the oxygen ring atom and to the 3-position of the nitrogen ring atom, in isoxazolyl, it is relative to the 1-
25 position of the oxygen ring atom and to the 2-position of the nitrogen ring atom, in thiazolyl, it is relative to the 1-position of the sulfur ring atom and to the 3-position of the nitrogen ring atom, in isothiazolyl, it is relative to the 1-position of the sulfur ring atom and to the 2-position of the nitrogen ring atom, etc.

30 More preferably, Ar is phenyl which may carry 1, 2, 3, 4 or 5, preferably 1, 2 or 3, more preferably 1 or 2, substituents R², or is a 5- or 6-membered heteroaromatic ring selected from pyridyl, such as pyridin-2-yl, pyridin-3-yl or pyridin-4-yl, thienyl, such as 2- or 3-thienyl, and thiazolyl, such as 2-thiazolyl, 4-thiazolyl or 5-thiazolyl. Particular preference is given to pyridyl, such as pyridin-2-yl, pyridin-3-yl or pyridin-4-yl, and especially to pyridin-2-yl, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1,
35 2 or 3, more preferably 1 or 2, substituents R³.

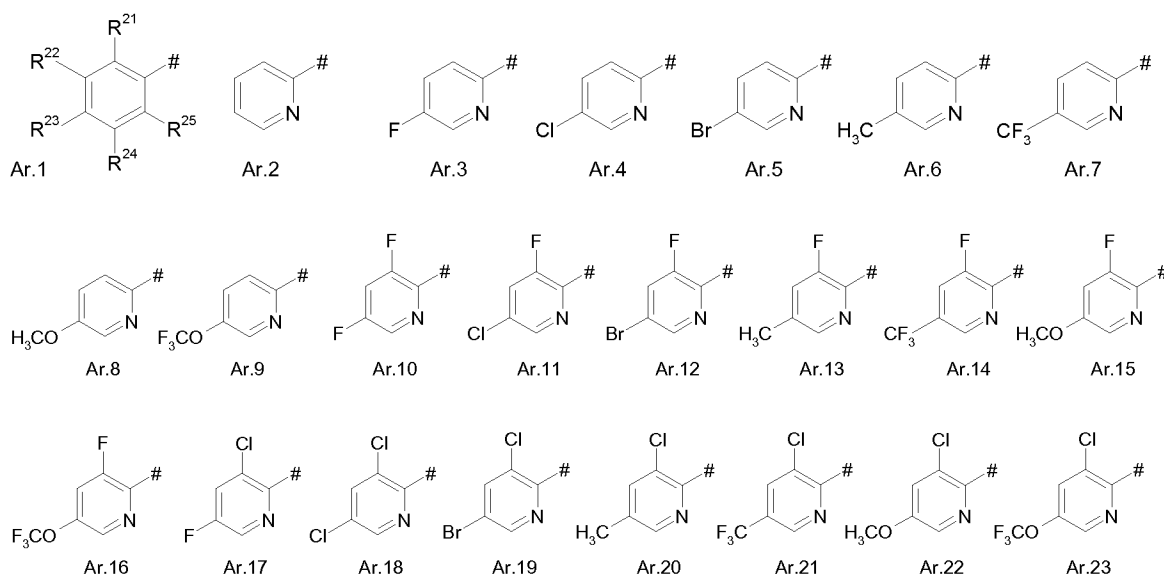
In case Ar is a 6-membered heteroaromatic ring, this carries preferably 0, 1, 2 or 3, more preferably 0, 1 or 2, substituents R³, where the two or more substituents R³ may be the same or different. In case Ar is a 5-membered heteroaromatic ring, this carries preferably 0, 1 or 2 substituents R³, where two substituents R³ may be the same or different.

R² is preferably selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy, and C₁-C₄-haloalkoxy, more preferably from fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy and C₁-C₄-haloalkoxy, even more preferably from fluorine, chlorine, bromine, CH₃, CHF₂, CF₃, OCH₃, OCHF₂ and OCF₃, and in particular from fluorine, chlorine, bromine, CH₃, CF₃, OCH₃ and OCF₃.

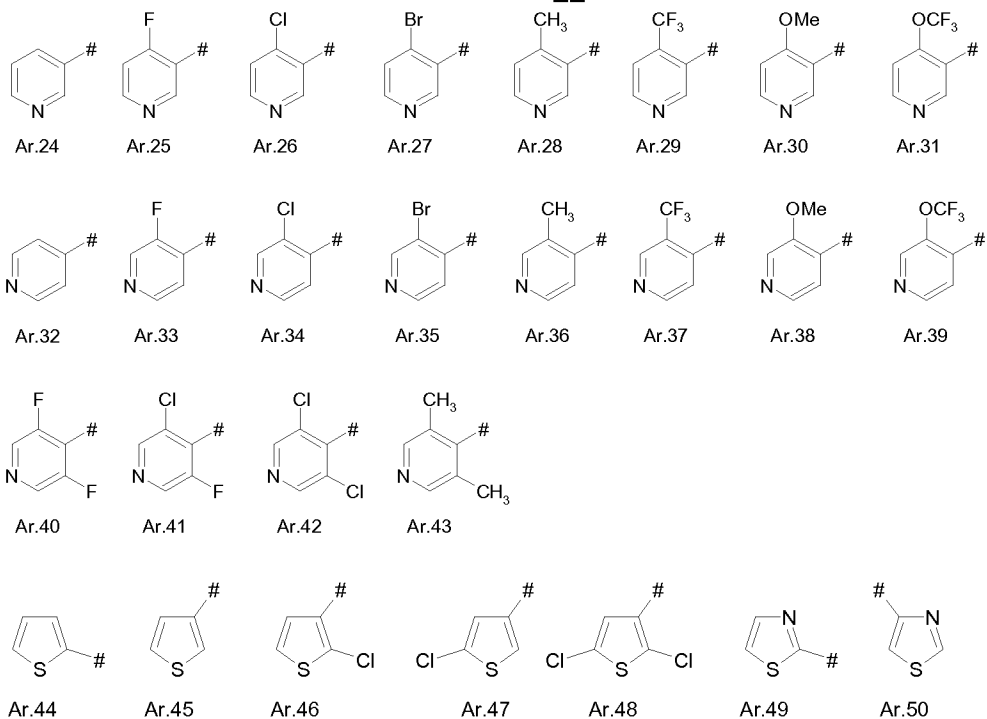
R³ may be C- or N-bound, but is preferably bound to a C-atom of Ar.

R³ is preferably selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy, and C₁-C₄-haloalkoxy, more preferably from fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy and C₁-C₄-haloalkoxy, even more preferably from fluorine, chlorine, bromine, CH₃, CHF₂, CF₃, OCH₃, OCHF₂ and OCF₃, and in particular from fluorine, chlorine, bromine, CH₃, CF₃, OCH₃ and OCF₃.

Specifically, Ar is selected from following formulae Ar.1 to Ar.50, where in formula Ar.1, the combination of the variables R²¹, R²², R²³, R²⁴ and R²⁵ is selected from the definition given in each line of Table A below.



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Table A

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No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-1	H	H	H	H	H
A-2	F	H	H	H	H
A-3	H	F	H	H	H
A-4	H	H	F	H	H
A-5	Cl	H	H	H	H
A-6	H	Cl	H	H	H
A-7	H	H	Cl	H	H
A-8	Br	H	H	H	H
A-9	H	Br	H	H	H
A-10	H	H	Br	H	H
A-11	CH ₃	H	H	H	H
A-12	H	CH ₃	H	H	H
A-13	H	H	CH ₃	H	H
A-14	CHF ₂	H	H	H	H
A-15	H	CHF ₂	H	H	H
A-16	H	H	CHF ₂	H	H
A-17	CF ₃	H	H	H	H
A-18	H	CF ₃	H	H	H
A-19	H	H	CF ₃	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-20	OCH ₃	H	H	H	H
A-21	H	OCH ₃	H	H	H
A-22	H	H	OCH ₃	H	H
A-23	OCHF ₂	H	H	H	H
A-24	H	OCHF ₂	H	H	H
A-25	H	H	OCHF ₂	H	H
A-26	OCF ₃	H	H	H	H
A-27	H	OCF ₃	H	H	H
A-28	H	H	OCF ₃	H	H
A-29	F	F	H	H	H
A-30	F	H	F	H	H
A-31	F	H	H	F	H
A-32	F	H	H	H	F
A-33	H	F	F	H	H
A-34	H	F	H	F	H
A-35	Cl	Cl	H	H	H
A-36	Cl	H	Cl	H	H
A-37	Cl	H	H	Cl	H
A-38	Cl	H	H	H	Cl
A-39	H	Cl	Cl	H	H
A-40	H	Cl	H	Cl	H
A-41	Br	Br	H	H	H
A-42	Br	H	Br	H	H
A-43	Br	H	H	Br	H
A-44	Br	H	H	H	Br
A-45	H	Br	Br	H	H
A-46	H	Br	H	Br	H
A-47	CH ₃	CH ₃	H	H	H
A-48	CH ₃	H	CH ₃	H	H
A-49	CH ₃	H	H	CH ₃	H
A-50	CH ₃	H	H	H	CH ₃
A-51	H	CH ₃	CH ₃	H	H
A-52	H	CH ₃	H	CH ₃	H
A-53	CHF ₂	CHF ₂	H	H	H
A-54	CHF ₂	H	CHF ₂	H	H
A-55	CHF ₂	H	H	CHF ₂	H
A-56	CHF ₂	H	H	H	CHF ₂

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-57	H	CHF ₂	CHF ₂	H	H
A-58	H	CHF ₂	H	CHF ₂	H
A-59	CF ₃	CF ₃	H	H	H
A-60	CF ₃	H	CF ₃	H	H
A-61	CF ₃	H	H	CF ₃	H
A-62	CF ₃	H	H	H	CF ₃
A-63	H	CF ₃	CF ₃	H	H
A-64	H	CF ₃	H	CF ₃	H
A-65	OCH ₃	OCH ₃	H	H	H
A-66	OCH ₃	H	OCH ₃	H	H
A-67	OCH ₃	H	H	OCH ₃	H
A-68	OCH ₃	H	H	H	OCH ₃
A-69	H	OCH ₃	OCH ₃	H	H
A-70	H	OCH ₃	H	OCH ₃	H
A-71	OCHF ₂	OCHF ₂	H	H	H
A-72	OCHF ₂	H	OCHF ₂	H	H
A-73	OCHF ₂	H	H	OCHF ₂	H
A-74	OCHF ₂	H	H	H	OCHF ₂
A-75	H	OCHF ₂	OCHF ₂	H	H
A-76	H	OCHF ₂	H	OCHF ₂	H
A-77	OCF ₃	OCF ₃	H	H	H
A-78	OCF ₃	H	OCF ₃	H	H
A-79	OCF ₃	H	H	OCF ₃	H
A-80	OCF ₃	H	H	H	OCF ₃
A-81	H	OCF ₃	OCF ₃	H	H
A-82	H	OCF ₃	H	OCF ₃	H
A-83	F	Cl	H	H	H
A-84	F	H	Cl	H	H
A-85	F	H	H	Cl	H
A-86	F	H	H	H	Cl
A-87	H	F	Cl	H	H
A-88	H	F	H	Cl	H
A-89	Cl	F	H	H	H
A-90	Cl	H	F	H	H
A-91	Cl	H	H	F	H
A-92	H	Cl	F	H	H
A-93	F	Br	H	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-94	F	H	Br	H	H
A-95	F	H	H	Br	H
A-96	F	H	H	H	Br
A-97	H	F	Br	H	H
A-98	H	F	H	Br	H
A-99	Br	F	H	H	H
A-100	Br	H	F	H	H
A-101	Br	H	H	F	H
A-102	H	Br	F	H	H
A-103	F	CH ₃	H	H	H
A-104	F	H	CH ₃	H	H
A-105	F	H	H	CH ₃	H
A-106	F	H	H	H	CH ₃
A-107	H	F	CH ₃	H	H
A-108	H	F	H	CH ₃	H
A-109	CH ₃	F	H	H	H
A-110	CH ₃	H	F	H	H
A-111	CH ₃	H	H	F	H
A-112	H	CH ₃	F	H	H
A-113	F	CHF ₂	H	H	H
A-114	F	H	CHF ₂	H	H
A-115	F	H	H	CHF ₂	H
A-116	F	H	H	H	CHF ₂
A-117	H	F	CHF ₂	H	H
A-118	H	F	H	CHF ₂	H
A-119	CHF ₂	F	H	H	H
A-120	CHF ₂	H	F	H	H
A-121	CHF ₂	H	H	F	H
A-122	H	CHF ₂	F	H	H
A-123	F	CF ₃	H	H	H
A-124	F	H	CF ₃	H	H
A-125	F	H	H	CF ₃	H
A-126	F	H	H	H	CF ₃
A-127	H	F	CF ₃	H	H
A-128	H	F	H	CF ₃	H
A-129	CF ₃	F	H	H	H
A-130	CF ₃	H	F	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-131	CF ₃	H	H	F	H
A-132	H	CF ₃	F	H	H
A-133	F	OCH ₃	H	H	H
A-134	F	H	OCH ₃	H	H
A-135	F	H	H	OCH ₃	H
A-136	F	H	H	H	OCH ₃
A-137	H	F	OCH ₃	H	H
A-138	H	F	H	OCH ₃	H
A-139	OCH ₃	F	H	H	H
A-140	OCH ₃	H	F	H	H
A-141	OCH ₃	H	H	F	H
A-142	H	OCH ₃	F	H	H
A-143	F	OCHF ₂	H	H	H
A-144	F	H	OCHF ₂	H	H
A-145	F	H	H	OCHF ₂	H
A-146	F	H	H	H	OCHF ₂
A-147	H	F	OCHF ₂	H	H
A-148	H	F	H	OCHF ₂	H
A-149	OCHF ₂	F	H	H	H
A-150	OCHF ₂	H	F	H	H
A-151	OCHF ₂	H	H	F	H
A-152	H	OCHF ₂	F	H	H
A-153	F	OCF ₃	H	H	H
A-154	F	H	OCF ₃	H	H
A-155	F	H	H	OCF ₃	H
A-156	F	H	H	H	OCF ₃
A-157	H	F	OCF ₃	H	H
A-158	H	F	H	OCF ₃	H
A-159	OCF ₃	F	H	H	H
A-160	OCF ₃	H	F	H	H
A-161	OCF ₃	H	H	F	H
A-162	H	OCF ₃	F	H	H
A-163	Cl	Br	H	H	H
A-164	Cl	H	Br	H	H
A-165	Cl	H	H	Br	H
A-166	Cl	H	H	H	Br
A-167	H	Cl	Br	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-168	H	Cl	H	Br	H
A-169	Br	Cl	H	H	H
A-170	Br	H	Cl	H	H
A-171	Br	H	H	Cl	H
A-172	H	Br	Cl	H	H
A-173	Cl	CH ₃	H	H	H
A-174	Cl	H	CH ₃	H	H
A-175	Cl	H	H	CH ₃	H
A-176	Cl	H	H	H	CH ₃
A-177	H	Cl	CH ₃	H	H
A-178	H	Cl	H	CH ₃	H
A-179	CH ₃	Cl	H	H	H
A-180	CH ₃	H	Cl	H	H
A-181	CH ₃	H	H	Cl	H
A-182	H	CH ₃	Cl	H	H
A-183	Cl	CHF ₂	H	H	H
A-184	Cl	H	CHF ₂	H	H
A-185	Cl	H	H	CHF ₂	H
A-186	Cl	H	H	H	CHF ₂
A-187	H	Cl	CHF ₂	H	H
A-188	H	Cl	H	CHF ₂	H
A-189	CHF ₂	Cl	H	H	H
A-190	CHF ₂	H	Cl	H	H
A-191	CHF ₂	H	H	Cl	H
A-192	H	CHF ₂	Cl	H	H
A-193	Cl	CF ₃	H	H	H
A-194	Cl	H	CF ₃	H	H
A-195	Cl	H	H	CF ₃	H
A-196	Cl	H	H	H	CF ₃
A-197	H	Cl	CF ₃	H	H
A-198	H	Cl	H	CF ₃	H
A-199	CF ₃	Cl	H	H	H
A-200	CF ₃	H	Cl	H	H
A-201	CF ₃	H	H	Cl	H
A-202	H	CF ₃	Cl	H	H
A-203	Cl	OCH ₃	H	H	H
A-204	Cl	H	OCH ₃	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-205	Cl	H	H	OCH ₃	H
A-206	Cl	H	H	H	OCH ₃
A-207	H	Cl	OCH ₃	H	H
A-208	H	Cl	H	OCH ₃	H
A-209	OCH ₃	Cl	H	H	H
A-210	OCH ₃	H	Cl	H	H
A-211	OCH ₃	H	H	Cl	H
A-212	H	OCH ₃	Cl	H	H
A-213	Cl	OCHF ₂	H	H	H
A-214	Cl	H	OCHF ₂	H	H
A-215	Cl	H	H	OCHF ₂	H
A-216	Cl	H	H	H	OCHF ₂
A-217	H	Cl	OCHF ₂	H	H
A-218	H	Cl	H	OCHF ₂	H
A-219	OCHF ₂	Cl	H	H	H
A-220	OCHF ₂	H	Cl	H	H
A-221	OCHF ₂	H	H	Cl	H
A-222	H	OCHF ₂	Cl	H	H
A-223	Cl	OCF ₃	H	H	H
A-224	Cl	H	OCF ₃	H	H
A-225	Cl	H	H	OCF ₃	H
A-226	Cl	H	H	H	OCF ₃
A-227	H	Cl	OCF ₃	H	H
A-228	H	Cl	H	OCF ₃	H
A-229	OCF ₃	Cl	H	H	H
A-230	OCF ₃	H	Cl	H	H
A-231	OCF ₃	H	H	Cl	H
A-232	H	OCF ₃	Cl	H	H
A-233	Br	CH ₃	H	H	H
A-234	Br	H	CH ₃	H	H
A-235	Br	H	H	CH ₃	H
A-236	Br	H	H	H	CH ₃
A-237	H	Br	CH ₃	H	H
A-238	H	Br	H	CH ₃	H
A-239	CH ₃	Br	H	H	H
A-240	CH ₃	H	Br	H	H
A-241	CH ₃	H	H	Br	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-242	H	CH ₃	Br	H	H
A-243	Br	CHF ₂	H	H	H
A-244	Br	H	CHF ₂	H	H
A-245	Br	H	H	CHF ₂	H
A-246	Br	H	H	H	CHF ₂
A-247	H	Br	CHF ₂	H	H
A-248	H	Br	H	CHF ₂	H
A-249	CHF ₂	Br	H	H	H
A-250	CHF ₂	H	Br	H	H
A-251	CHF ₂	H	H	Br	H
A-252	H	CHF ₂	Br	H	H
A-253	Br	CF ₃	H	H	H
A-254	Br	H	CF ₃	H	H
A-255	Br	H	H	CF ₃	H
A-256	Br	H	H	H	CF ₃
A-257	H	Br	CF ₃	H	H
A-258	H	Br	H	CF ₃	H
A-259	CF ₃	Br	H	H	H
A-260	CF ₃	H	Br	H	H
A-261	CF ₃	H	H	Br	H
A-262	H	CF ₃	Br	H	H
A-263	Br	OCH ₃	H	H	H
A-264	Br	H	OCH ₃	H	H
A-265	Br	H	H	OCH ₃	H
A-266	Br	H	H	H	OCH ₃
A-267	H	Br	OCH ₃	H	H
A-268	H	Br	H	OCH ₃	H
A-269	OCH ₃	Br	H	H	H
A-270	OCH ₃	H	Br	H	H
A-271	OCH ₃	H	H	Br	H
A-272	H	OCH ₃	Br	H	H
A-273	Br	OCHF ₂	H	H	H
A-274	Br	H	OCHF ₂	H	H
A-275	Br	H	H	OCHF ₂	H
A-276	Br	H	H	H	OCHF ₂
A-277	H	Br	OCHF ₂	H	H
A-278	H	Br	H	OCHF ₂	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-279	OCHF ₂	Br	H	H	H
A-280	OCHF ₂	H	Br	H	H
A-281	OCHF ₂	H	H	Br	H
A-282	H	OCHF ₂	Br	H	H
A-283	Br	OCF ₃	H	H	H
A-284	Br	H	OCF ₃	H	H
A-285	Br	H	H	OCF ₃	H
A-286	Br	H	H	H	OCF ₃
A-287	H	Br	OCF ₃	H	H
A-288	H	Br	H	OCF ₃	H
A-289	OCF ₃	Br	H	H	H
A-290	OCF ₃	H	Br	H	H
A-291	OCF ₃	H	H	Br	H
A-292	H	OCF ₃	Br	H	H
A-293	CH ₃	CHF ₂	H	H	H
A-294	CH ₃	H	CHF ₂	H	H
A-295	CH ₃	H	H	CHF ₂	H
A-296	CH ₃	H	H	H	CHF ₂
A-297	H	CH ₃	CHF ₂	H	H
A-298	H	CH ₃	H	CHF ₂	H
A-299	CHF ₂	CH ₃	H	H	H
A-300	CHF ₂	H	CH ₃	H	H
A-301	CHF ₂	H	H	CH ₃	H
A-302	H	CHF ₂	CH ₃	H	H
A-303	CH ₃	CF ₃	H	H	H
A-304	CH ₃	H	CF ₃	H	H
A-305	CH ₃	H	H	CF ₃	H
A-306	CH ₃	H	H	H	CF ₃
A-307	H	CH ₃	CF ₃	H	H
A-308	H	CH ₃	H	CF ₃	H
A-309	CF ₃	CH ₃	H	H	H
A-310	CF ₃	H	CH ₃	H	H
A-311	CF ₃	H	H	CH ₃	H
A-312	H	CF ₃	CH ₃	H	H
A-313	CH ₃	OCH ₃	H	H	H
A-314	CH ₃	H	OCH ₃	H	H
A-315	CH ₃	H	H	OCH ₃	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-316	CH ₃	H	H	H	OCH ₃
A-317	H	CH ₃	OCH ₃	H	H
A-318	H	CH ₃	H	OCH ₃	H
A-319	OCH ₃	CH ₃	H	H	H
A-320	OCH ₃	H	CH ₃	H	H
A-321	OCH ₃	H	H	CH ₃	H
A-322	H	OCH ₃	CH ₃	H	H
A-323	CH ₃	OCHF ₂	H	H	H
A-324	CH ₃	H	OCHF ₂	H	H
A-325	CH ₃	H	H	OCHF ₂	H
A-326	CH ₃	H	H	H	OCHF ₂
A-327	H	CH ₃	OCHF ₂	H	H
A-328	H	CH ₃	H	OCHF ₂	H
A-329	OCHF ₂	CH ₃	H	H	H
A-330	OCHF ₂	H	CH ₃	H	H
A-331	OCHF ₂	H	H	CH ₃	H
A-332	H	OCHF ₂	CH ₃	H	H
A-333	CH ₃	OCF ₃	H	H	H
A-334	CH ₃	H	OCF ₃	H	H
A-335	CH ₃	H	H	OCF ₃	H
A-336	CH ₃	H	H	H	OCF ₃
A-337	H	CH ₃	OCF ₃	H	H
A-338	H	CH ₃	H	OCF ₃	H
A-339	OCF ₃	CH ₃	H	H	H
A-340	OCF ₃	H	CH ₃	H	H
A-341	OCF ₃	H	H	CH ₃	H
A-342	H	OCF ₃	CH ₃	H	H
A-343	CHF ₂	CF ₃	H	H	H
A-344	CHF ₂	H	CF ₃	H	H
A-345	CHF ₂	H	H	CF ₃	H
A-346	CHF ₂	H	H	H	CF ₃
A-347	H	CHF ₂	CF ₃	H	H
A-348	H	CHF ₂	H	CF ₃	H
A-349	CF ₃	CHF ₂	H	H	H
A-350	CF ₃	H	CHF ₂	H	H
A-351	CF ₃	H	H	CHF ₂	H
A-352	H	CF ₃	CHF ₂	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-353	CHF ₂	OCH ₃	H	H	H
A-354	CHF ₂	H	OCH ₃	H	H
A-355	CHF ₂	H	H	OCH ₃	H
A-356	CHF ₂	H	H	H	OCH ₃
A-357	H	CHF ₂	OCH ₃	H	H
A-358	H	CHF ₂	H	OCH ₃	H
A-359	OCH ₃	CHF ₂	H	H	H
A-360	OCH ₃	H	CHF ₂	H	H
A-361	OCH ₃	H	H	CHF ₂	H
A-362	H	OCH ₃	CHF ₂	H	H
A-363	CHF ₂	OCHF ₂	H	H	H
A-364	CHF ₂	H	OCHF ₂	H	H
A-365	CHF ₂	H	H	OCHF ₂	H
A-366	CHF ₂	H	H	H	OCHF ₂
A-367	H	CHF ₂	OCHF ₂	H	H
A-368	H	CHF ₂	H	OCHF ₂	H
A-369	OCHF ₂	CHF ₂	H	H	H
A-370	OCHF ₂	H	CHF ₂	H	H
A-371	OCHF ₂	H	H	CHF ₂	H
A-372	H	OCHF ₂	CHF ₂	H	H
A-373	CHF ₂	OCF ₃	H	H	H
A-374	CHF ₂	H	OCF ₃	H	H
A-375	CHF ₂	H	H	OCF ₃	H
A-376	CHF ₂	H	H	H	OCF ₃
A-377	H	CHF ₂	OCF ₃	H	H
A-378	H	CHF ₂	H	OCF ₃	H
A-379	OCF ₃	CHF ₂	H	H	H
A-380	OCF ₃	H	CHF ₂	H	H
A-381	OCF ₃	H	H	CHF ₂	H
A-382	H	OCF ₃	CHF ₂	H	H
A-383	CF ₃	OCH ₃	H	H	H
A-384	CF ₃	H	OCH ₃	H	H
A-385	CF ₃	H	H	OCH ₃	H
A-386	CF ₃	H	H	H	OCH ₃
A-387	H	CF ₃	OCH ₃	H	H
A-388	H	CF ₃	H	OCH ₃	H
A-389	OCH ₃	CF ₃	H	H	H

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-390	OCH ₃	H	CF ₃	H	H
A-391	OCH ₃	H	H	CF ₃	H
A-392	H	OCH ₃	CF ₃	H	H
A-393	CF ₃	OCHF ₂	H	H	H
A-394	CF ₃	H	OCHF ₂	H	H
A-395	CF ₃	H	H	OCHF ₂	H
A-396	CF ₃	H	H	H	OCHF ₂
A-397	H	CF ₃	OCHF ₂	H	H
A-398	H	CF ₃	H	OCHF ₂	H
A-399	OCHF ₂	CF ₃	H	H	H
A-400	OCHF ₂	H	CF ₃	H	H
A-401	OCHF ₂	H	H	CF ₃	H
A-402	H	OCHF ₂	CF ₃	H	H
A-403	CF ₃	OCF ₃	H	H	H
A-404	CF ₃	H	OCF ₃	H	H
A-405	CF ₃	H	H	OCF ₃	H
A-406	CF ₃	H	H	H	OCF ₃
A-407	H	CF ₃	OCF ₃	H	H
A-408	H	CF ₃	H	OCF ₃	H
A-409	OCF ₃	CF ₃	H	H	H
A-410	OCF ₃	H	CF ₃	H	H
A-411	OCF ₃	H	H	CF ₃	H
A-412	H	OCF ₃	CF ₃	H	H
A-413	OCH ₃	OCHF ₂	H	H	H
A-414	OCH ₃	H	OCHF ₂	H	H
A-415	OCH ₃	H	H	OCHF ₂	H
A-416	OCH ₃	H	H	H	OCHF ₂
A-417	H	OCH ₃	OCHF ₂	H	H
A-418	H	OCH ₃	H	OCHF ₂	H
A-419	OCHF ₂	OCH ₃	H	H	H
A-420	OCHF ₂	H	OCH ₃	H	H
A-421	OCHF ₂	H	H	OCH ₃	H
A-422	H	OCHF ₂	OCH ₃	H	H
A-423	OCH ₃	OCF ₃	H	H	H
A-424	OCH ₃	H	OCF ₃	H	H
A-425	OCH ₃	H	H	OCF ₃	H
A-426	OCH ₃	H	H	H	OCF ₃

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-427	H	OCH ₃	OCF ₃	H	H
A-428	H	OCH ₃	H	OCF ₃	H
A-429	OCF ₃	OCH ₃	H	H	H
A-430	OCF ₃	H	OCH ₃	H	H
A-431	OCF ₃	H	H	OCH ₃	H
A-432	H	OCF ₃	OCH ₃	H	H
A-433	OCHF ₂	OCF ₃	H	H	H
A-434	OCHF ₂	H	OCF ₃	H	H
A-435	OCHF ₂	H	H	OCF ₃	H
A-436	OCHF ₂	H	H	H	OCF ₃
A-437	H	OCHF ₂	OCF ₃	H	H
A-438	H	OCHF ₂	H	OCF ₃	H
A-439	OCF ₃	OCHF ₂	H	H	H
A-440	OCF ₃	H	OCHF ₂	H	H
A-441	OCF ₃	H	H	OCHF ₂	H
A-442	H	OCF ₃	OCHF ₂	H	H
A-443	F	F	F	H	H
A-444	F	F	H	F	H
A-445	F	F	H	H	F
A-446	F	H	F	F	H
A-447	F	H	F	H	F
A-448	H	F	F	F	H
A-449	Cl	Cl	Cl	H	H
A-450	Cl	Cl	H	Cl	H
A-451	Cl	Cl	H	H	Cl
A-452	Cl	H	Cl	Cl	H
A-453	Cl	H	Cl	H	Cl
A-454	H	Cl	Cl	Cl	H
A-455	Br	Br	Br	H	H
A-456	Br	Br	H	Br	H
A-457	Br	Br	H	H	Br
A-458	Br	H	Br	Br	H
A-459	Br	H	Br	H	Br
A-460	H	Br	Br	Br	H
A-461	CH ₃	CH ₃	CH ₃	H	H
A-462	CH ₃	CH ₃	H	CH ₃	H
A-463	CH ₃	CH ₃	H	H	CH ₃

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-464	CH ₃	H	CH ₃	CH ₃	H
A-465	CH ₃	H	CH ₃	H	CH ₃
A-466	H	CH ₃	CH ₃	CH ₃	H
A-467	CF ₃	CF ₃	CF ₃	H	H
A-468	CF ₃	CF ₃	H	CF ₃	H
A-469	CF ₃	CF ₃	H	H	CF ₃
A-470	CF ₃	H	CF ₃	CF ₃	H
A-471	CF ₃	H	CF ₃	H	CF ₃
A-472	H	CF ₃	CF ₃	CF ₃	H
A-473	F	H	Cl	H	F
A-474	F	H	F	H	Cl
A-475	F	H	Cl	F	H
A-476	F	H	Cl	H	Cl
A-477	Cl	H	F	H	Cl
A-478	Cl	H	Cl	F	H
A-479	Cl	H	Cl	H	F
A-480	Cl	H	F	F	H
A-481	Cl	F	H	F	H
A-482	F	H	H	F	Cl
A-483	F	Cl	H	Cl	H
A-484	F	Cl	H	H	Cl
A-485	H	F	F	H	Cl
A-486	Cl	F	H	H	F
A-487	F	H	Cl	Cl	H
A-488	F	H	CH ₃	H	F
A-489	F	H	F	H	CH ₃
A-490	F	H	CH ₃	F	H
A-491	F	H	CH ₃	H	CH ₃
A-492	CH ₃	H	F	H	CH ₃
A-493	CH ₃	H	CH ₃	F	H
A-494	CH ₃	H	CH ₃	H	F
A-495	CH ₃	H	F	F	H
A-496	CH ₃	F	H	F	H
A-497	F	H	H	F	CH ₃
A-498	F	CH ₃	H	CH ₃	H
A-499	F	CH ₃	H	H	CH ₃
A-500	H	F	F	H	CH ₃

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-501	CH ₃	F	H	H	F
A-502	F	H	CH ₃	CH ₃	H
A-503	F	H	CF ₃	H	F
A-504	F	H	F	H	CF ₃
A-505	F	H	CF ₃	F	H
A-506	F	H	CF ₃	H	CF ₃
A-507	CF ₃	H	F	H	CF ₃
A-508	CF ₃	H	CF ₃	F	H
A-509	CF ₃	H	CF ₃	H	F
A-510	CF ₃	H	F	F	H
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A-514	F	CF ₃	H	H	CF ₃
A-515	H	F	F	H	CF ₃
A-516	CF ₃	F	H	H	F
A-517	F	H	CF ₃	CF ₃	H
A-518	Cl	H	CH ₃	H	Cl
A-519	Cl	H	Cl	H	CH ₃
A-520	Cl	H	CH ₃	Cl	H
A-521	Cl	H	CH ₃	H	CH ₃
A-522	CH ₃	H	Cl	H	CH ₃
A-523	CH ₃	H	CH ₃	Cl	H
A-524	CH ₃	H	CH ₃	H	Cl
A-525	CH ₃	H	Cl	Cl	H
A-526	CH ₃	Cl	H	Cl	H
A-527	Cl	H	H	Cl	CH ₃
A-528	Cl	CH ₃	H	CH ₃	H
A-529	Cl	CH ₃	H	H	CH ₃
A-530	H	Cl	Cl	H	CH ₃
A-531	CH ₃	Cl	H	H	Cl
A-532	Cl	H	CH ₃	CH ₃	H
A-533	Cl	H	CF ₃	H	Cl
A-534	Cl	H	Cl	H	CF ₃
A-535	Cl	H	CF ₃	Cl	H
A-536	Cl	H	CF ₃	H	CF ₃
A-537	CF ₃	H	Cl	H	CF ₃

37

No.	R ²¹	R ²²	R ²³	R ²⁴	R ²⁵
A-538	CF ₃	H	CF ₃	Cl	H
A-539	CF ₃	H	CF ₃	H	Cl
A-540	CF ₃	H	Cl	Cl	H
A-541	CF ₃	Cl	H	Cl	H
A-542	Cl	H	H	Cl	CF ₃
A-543	Cl	CF ₃	H	CF ₃	H
A-544	Cl	CF ₃	H	H	CF ₃
A-545	H	Cl	Cl	H	CF ₃
A-546	CF ₃	Cl	H	H	Cl
A-547	Cl	H	CF ₃	CF ₃	H
A-548	CF ₃	H	Cl	H	F
A-549	Cl	H	CF ₃	F	H
A-550	CF ₃	H	Cl	F	H
A-551	CF ₃	F	H	Cl	H
A-552	Cl	H	H	F	CF ₃
A-553	Cl	H	CF ₃	F	H
A-554	Cl	H	CH ₃	F	H
A-555	CH ₃	F	H	Cl	H
A-556	CH ₃	H	Cl	F	H
A-557	Cl	H	H	F	CH ₃
A-558	Cl	H	CH ₃	F	H

Preferably, Het is bound via two ring C-atoms to the group Y and the quaternary carbon atom (carrying the ketal group and the triazolylmethyl group).

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In a preferred embodiment of the invention, Het is a (divalent) 5- or 6-membered heteroaromatic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R⁴. More precisely spoken, Het preferably is a 5- or 6-membered heteroaromatic ring containing 1 heteroatom selected from N, O and S and optionally 1 or 2 further nitrogen atoms as ring members, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R⁴. Suitable 5- or 6-membered heteroaromatic radicals are listed above.

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Among the above-listed heteroaromatic rings, preference is given to pyridylene, such as 2,3-pyridylene, 2,4-pyridylene, 2,5-pyridylene, 2,6-pyridylene, 3,4-pyridylene or 3,5-pyridylene, pyrimidylene, such as 2,4-pyrimidylene, 2,5-pyrimidylene, 4,5-pyrimidylene

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or 4,6-pyrimidylene, furylene, such as 2,3-furylene, 2,4-furylene, 2,5-furylene or 3,4-furylene, thienyl, such as 2,3-thienylene, 2,4-thienylene, 2,5-thienylene or 3,4-thienylene, pyrrolyl, such as 1,2-pyrrolylene, 1,3-pyrrolylene, 2,3-pyrrolylene, 2,4-pyrrolylene, 2,5-pyrrolylene or 3,4-pyrrolylene, pyrazolylene, such as 1,3-pyrazolylene, 5 1,4-pyrazolylene, 1,5-pyrazolylene, 3,4-pyrazolylene or 3,5-pyrazolylene, imidazolylene, such as 1,2-imidazolylene, 1,4-imidazolylene, 1,5-imidazolylene, 2,4-imidazolylene, 2,5-imidazolylene, or 4,5-imidazolylene, oxazolylene, such as 2,4-oxazolylene or 2,5-oxazolylene, isoxazolyl, such as 3,4-isoxazolylene or 3,5-isoxazolylene, thiazolylene, such as 2,4-thiazolylene or 2,5-thiazolylene, isothiazolylene, such as 3,4-isothiazolylene or 3,5-isothiazolylene, and triazolylene, such as 1,2,3-triazolylene, 1,2,4-triazolylene or 1,3,4-triazolylene. The given binding positions are to be understood as relative to the 1-position of the ring heteroatom with the highest priority. For instance, in rings containing 1 ring heteroatom, the given binding position is relative to the 1-position of the one ring heteroatom. In pyrazolylene, the given binding position is relative to the 1- and 2-positions of the 2 nitrogen ring atoms, in imidazolylene, it is relative to the 1- and 3-positions of the 2 nitrogen ring atoms, in oxazolylene, it is relative to the 1-position of the oxygen ring atom and to the 3-position of the nitrogen ring atom, in isoxazolylene, it is relative to the 1-position of the oxygen ring atom and to the 2-position of the nitrogen ring atom, in thiazolylene, it is relative to the 1-position of the sulfur ring atom and to the 3-position of the nitrogen ring atom, in isothiazolylene, it is relative to the 1-position of the sulfur ring atom and to the 2-position of the nitrogen ring atom, etc.

More preference is given to pyridylene, especially 2,5- or 3,6-pyridylene, thienylene, especially 2,4- or 2,5-thienylene, and thiazolylene, especially 2,4-thiazolylene or 2,5-thiazolylene. Even more preference is given to pyridylene, especially 2,5- or 3,6-pyridylene, and thienylene, especially 2,4- or 2,5-thienylene. Particular preference is given to pyridylene, especially to 2,5- or 3,6-pyridylene.

In case Het is a 6-membered heteroaromatic ring, this carries preferably 0, 1, 2 or 3, more preferably 0, 1 or 2, substituents R⁴, where the two or more substituents R⁴ may be the same or different. In case Het is a 5-membered heteroaromatic ring, this carries preferably 0, 1 or 2 substituents R⁴, where two substituents R⁴ may be the same or different.

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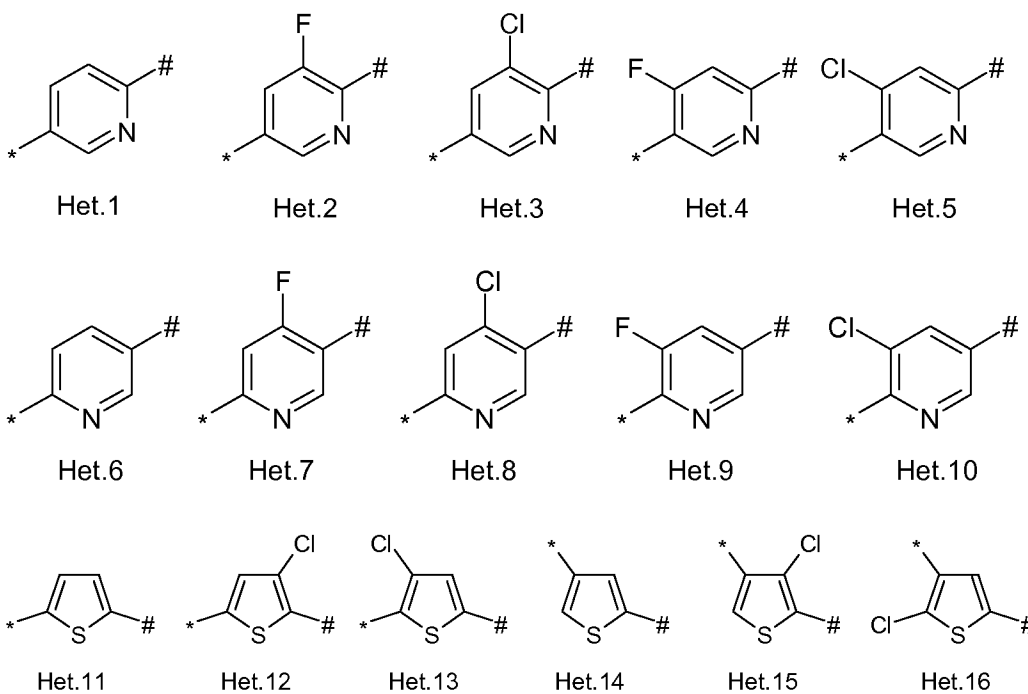
R⁴ may be C- or N-bound, but is preferably bound to a C-atom of Het.

R⁴ is preferably selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy, and C₁-C₄-

haloalkoxy, more preferably from fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy and C₁-C₄-haloalkoxy, even more preferably from fluorine, chlorine, bromine, CH₃, CHF₂, CF₃, OCH₃, OCHF₂ and OCF₃, particularly preferably from fluorine, chlorine, bromine, CH₃, CF₃, OCH₃ and OCF₃, and specifically from fluorine and chlorine.

Specifically, Het is selected from following formulae Het.1 to Het.16, where # is the attachment point to the quaternary carbon atom (which carries the ketale and the triazolymethyl group) and * is the attachment point to the group Y:

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Among the above formulae, preference is given to radicals Het.1 to Het.10.

R⁸ in the groups -C(=O)R⁸ and -S(O)₂R⁸ is preferably selected from C₁-C₄-alkyl, C₁-C₂-haloalkyl, C₁-C₄-alkoxy, C₁-C₂-haloalkoxy, phenyl, phenoxy and NR¹³R¹⁴, more preferably from C₁-C₄-alkyl, C₁-C₂-haloalkyl, C₁-C₄-alkoxy, C₁-C₂-haloalkoxy and NR¹³R¹⁴ and even more preferably from C₁-C₄-alkyl, C₁-C₄-alkoxy and NR¹³R¹⁴. In the group -C(=O)R⁸, R⁸ is specifically C₁-C₄-alkyl, such as methyl, ethyl, propyl, isopropyl, n-butyl, sec-butyl, isobutyl or tert-butyl, preferably methyl, or is C₁-C₄-alkoxy, such as methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, sec-butoxy, isobutoxy or tert-butoxy, preferably methoxy, and is more specifically methyl, and in the group -S(O)₂R⁸, R⁸ is specifically methyl. Preferably, R¹³ is hydrogen and R¹⁴ is selected from hydrogen, C₁-C₄-alkyl and phenyl, preferably from hydrogen and C₁-C₄-alkyl; or R¹³ and R¹⁴ are both C₁-C₄-alkyl, preferably methyl or ethyl.

M is preferably selected from an alkali metal cation, an earth alkaline metal cation equivalent, a cation equivalent of Cu, Zn, Fe or Ni or an ammonium cation of formula $(NR^aR^bR^cR^d)^+$, wherein one of R^a , R^b , R^c and R^d is hydrogen and three of R^a , R^b , R^c and R^d , independently of each other, are selected from C₁-C₁₀-alkyl. More preferably, M is selected from Li⁺, Na⁺, K⁺, $\frac{1}{2}Mg^{2+}$, a cation equivalent of Cu, Zn, Fe or Ni and an ammonium cation of formula $(NR^aR^bR^cR^d)^+$, wherein one of R^a , R^b , R^c and R^d is hydrogen and three of R^a , R^b , R^c and R^d , independently of each other, are selected from C₁-C₁₀-alkyl. Even more preferably, M is selected from Na⁺, K⁺, $\frac{1}{2}Mg^{2+}$, $\frac{1}{2}Cu^{2+}$, $\frac{1}{2}Zn^{2+}$, $\frac{1}{2}Fe^{2+}$, $\frac{1}{2}Ni^{2+}$, triethylammonium and trimethylammonium.

In the group of formula III, the variables preferably have the same meanings as in the remainder of the molecule I. Thus, the remarks made above as to preferred meanings of the radicals apply to this moiety, too.

R^1 is preferably selected from hydrogen, C₁-C₄-alkyl, $-C(=O)R^8$, $-S(O)_2R^8$, $-CN$, M and a group of the formula III, where R^8 has one of the above general meanings or, in particular, one of the above preferred meanings and M has one of the above general meanings or, in particular, one of the above-given preferred meanings.

R^1 is more preferably selected from hydrogen, C₁-C₄-alkyl, C₃-C₄-alkylcarbonyl, C₁-C₄-alkoxycarbonyl, $-C(=O)N(H)C_1-C_4\text{-alkyl}$, $-C(=O)N(C_1-C_4\text{-alkyl})_2$, C₁-C₄-alkylsulfonyl, CN, M and a group of the formula III, where M has one of the above general meanings or, in particular, one of the above preferred meanings. In particular, R^1 is selected from hydrogen, methyl, ethyl, propyl, isopropyl, methylcarbonyl, methoxycarbonyl, $-C(=O)N(CH_3)_2$, CN, M and a group of the formula III, where M has one of the above general meanings or, in particular, one of the preferred meanings and is preferably an alkaline metal cation or $\frac{1}{2}Cu^{2+}$. Specifically, R^1 is hydrogen, methyl, methylcarbonyl, methoxycarbonyl, Na⁺ or a group of the formula III.

R^{1a} is preferably selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₄-haloalkyl, phenyl, phenyl-C₁-C₄-alkyl, $-C(=O)R^8$ and $-S(O)_2R^8$, where R^8 has one of the above given general or, in particular, one of the above-given preferred meanings. More preferably, R^{1a} is selected from hydrogen, C₁-C₄-alkyl, C₁-C₄-haloalkyl, phenyl, benzyl, $-C(=O)R^8$ and $-S(O)_2R^8$, where R^8 has one of the above given general or, in particular, one of the above-given preferred meanings, and more preferably from hydrogen, C₁-C₄-alkyl, C₁-C₄-haloalkyl, $-C(=O)R^8$ and $-S(O)_2R^8$, where R^8 has one of the above given general or, in particular, one of the above-given preferred meanings. In particular, R^{1a} is hydrogen, C₁-C₄-alkyl, preferably methyl, or $-C(=O)R^8$, more particularly hydrogen, C₁-C₄-alkyl,

preferably methyl, methylcarbonyl or methoxycarbonyl, even more particularly hydrogen or C₁-C₄-alkyl, preferably methyl, and is specifically hydrogen.

Y is preferably O.

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A is preferably a linear C₂- or C₃-alkylene bridge, where 1 or 2 hydrogen atoms of the alkylene bridge may be replaced by 1 or 2 substituents R⁵, where each R⁵ is independently selected from C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy and C₁-C₄-haloalkoxy, and preferably from methyl, ethyl, methoxy, ethoxy and methoxymethoxy, or two substituents R⁵ bound on adjacent carbon atoms, together with the carbon atoms to which they are bound, form a cyclopentyl or cyclohexyl ring. More preferably, A is a linear C₂- or C₃-alkylene bridge, where 1 hydrogen atom of the alkylene bridge may be replaced by 1 substituent R⁵, where R⁵ is C₁-C₄-alkyl. Even more preferably, A is a linear C₂-alkylene bridge, where 1 hydrogen atom of the alkylene bridge may be replaced by 1 substituent R⁵, where R⁵ is C₁-C₄-alkyl and preferably methyl. Specifically, A is -CH(CH₃)-CH₂-.

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If m is 1, the oxygen atom is preferably bound via a double bond to the sulfur atom, the radical -S(O)_m-R¹ thus resulting in a group -S(=O)-R¹. If m is 2, the two oxygen atoms are preferably both bound via a double bond to the sulfur atom, the radical -S(O)_m-R¹ thus resulting in a group -S(=O)₂-R¹. If m is 3, the radical -S(O)_m-R¹ is a group -S(=O)₂-O-R¹.

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m is preferably 0 or 2 and more preferably 0.

In a particularly preferred embodiment, in compounds I, m is 0 and R¹ is H (or, alternatively, in compounds II, R^{1a} is H).

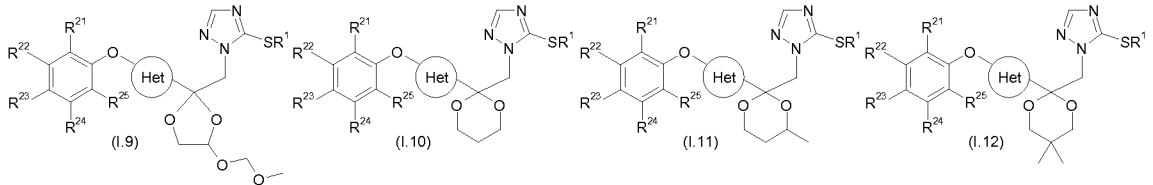
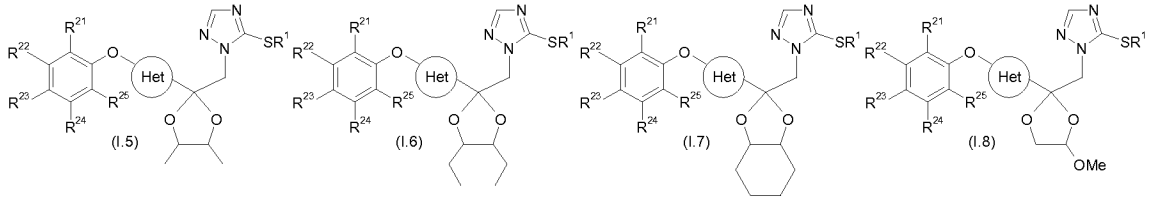
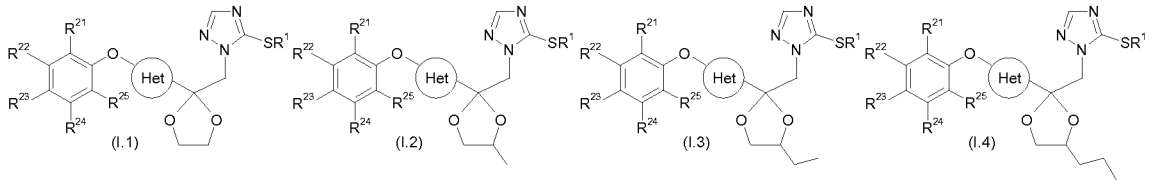
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Particular compounds I/II are the following:

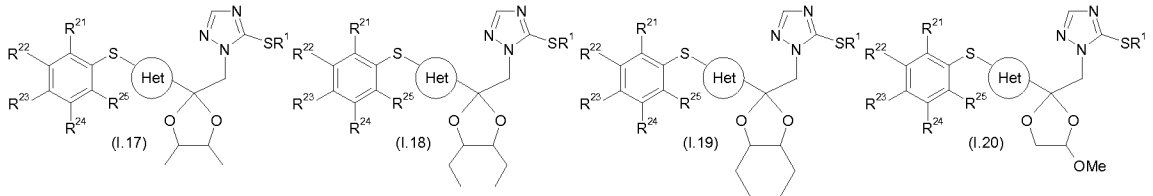
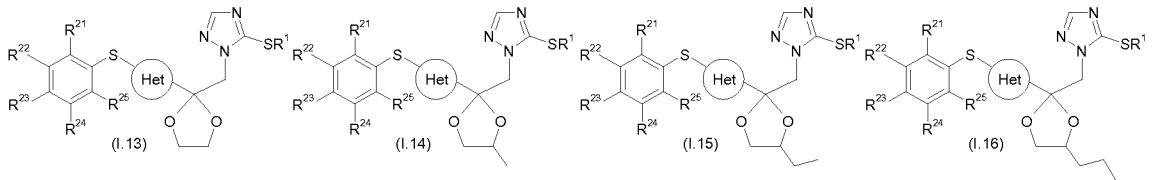
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Examples for preferred compounds I and II are compounds of formulae I.1 to I.192 and II.1 to II.96, where the variables have one of the general or, in particular, one of the preferred meanings given above. Examples of preferred compounds are the individual compounds compiled in the tables 1 to 70992 below. Moreover, the meanings mentioned below for the individual variables in the tables are per se, independently of the combination in which they are mentioned, a particularly preferred embodiment of the substituents in question.

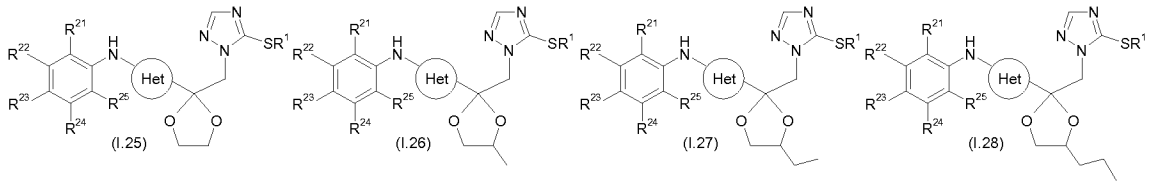
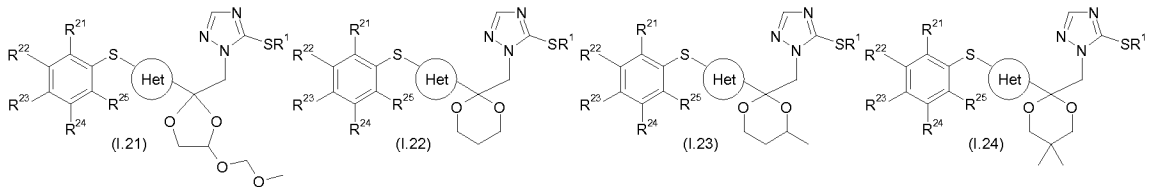
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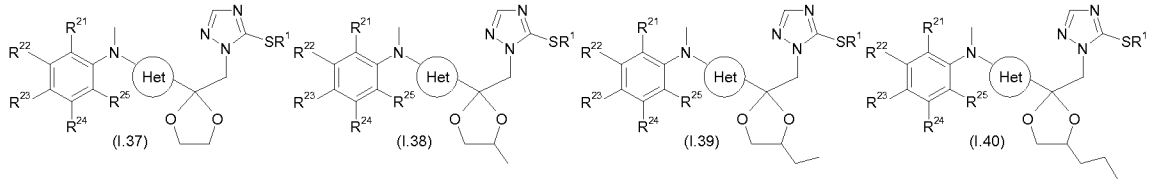
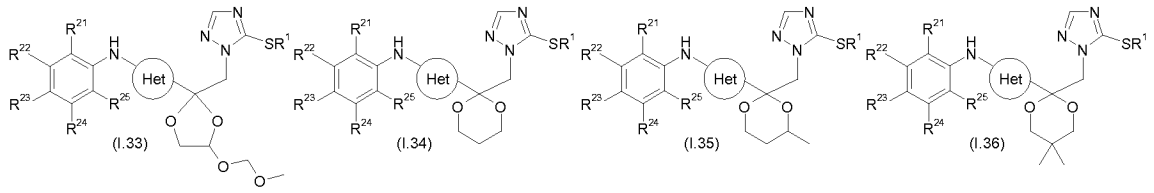
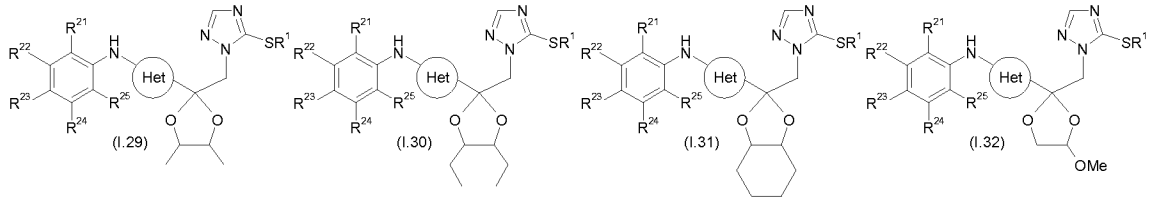
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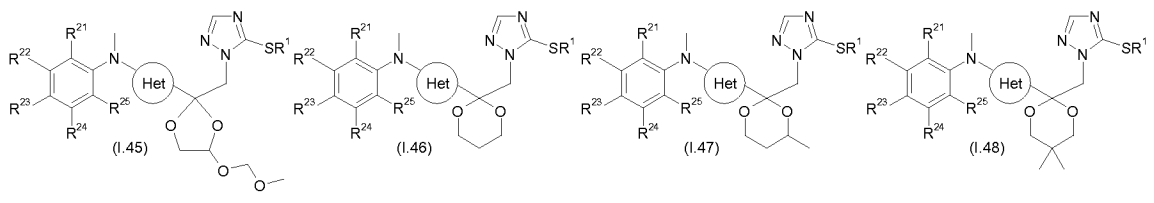
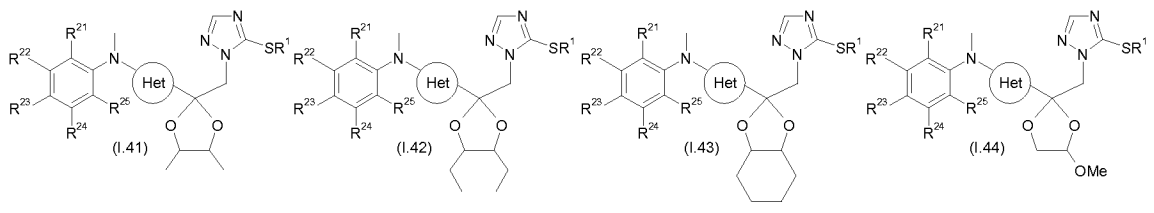
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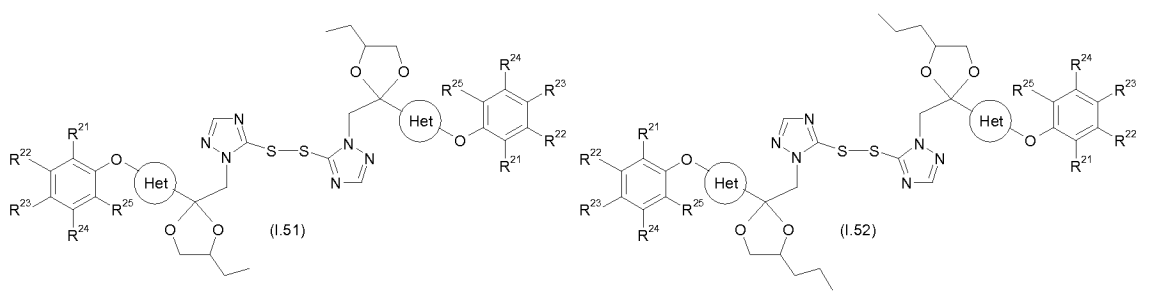
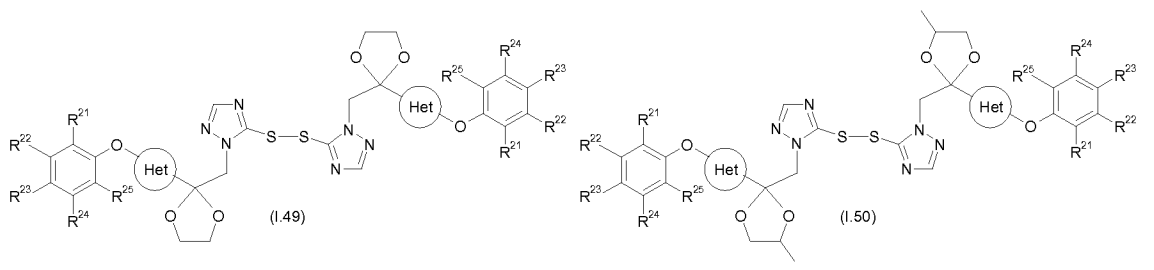
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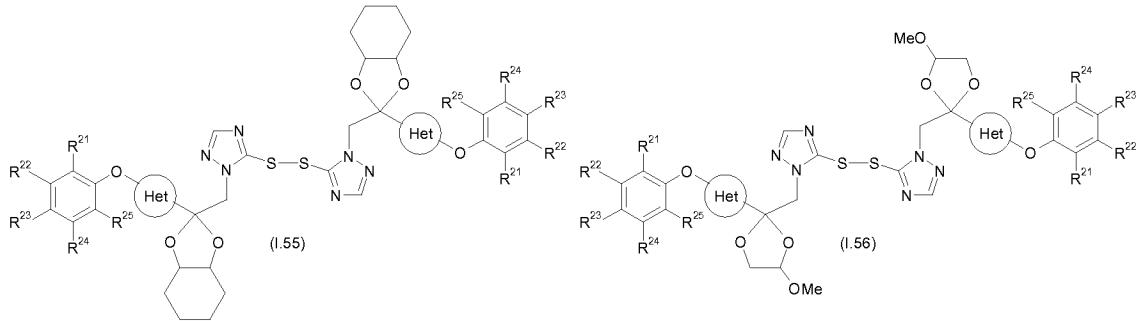
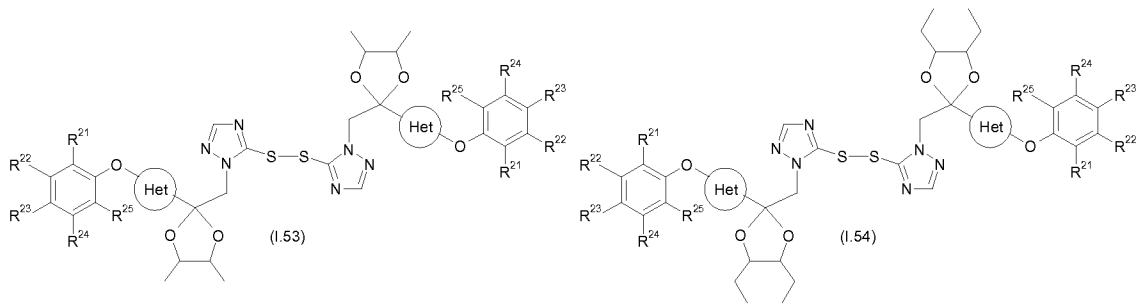


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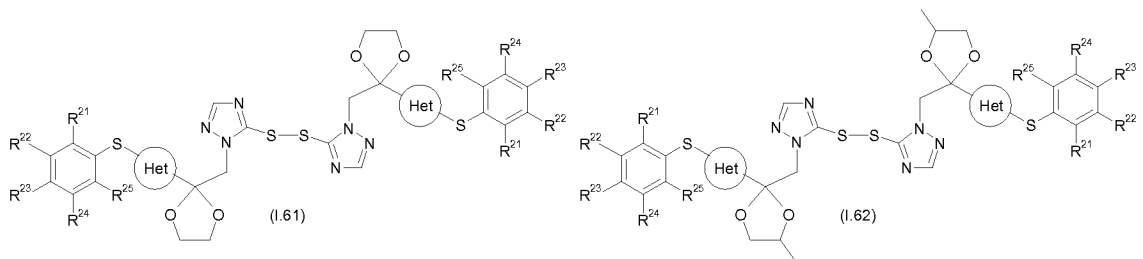
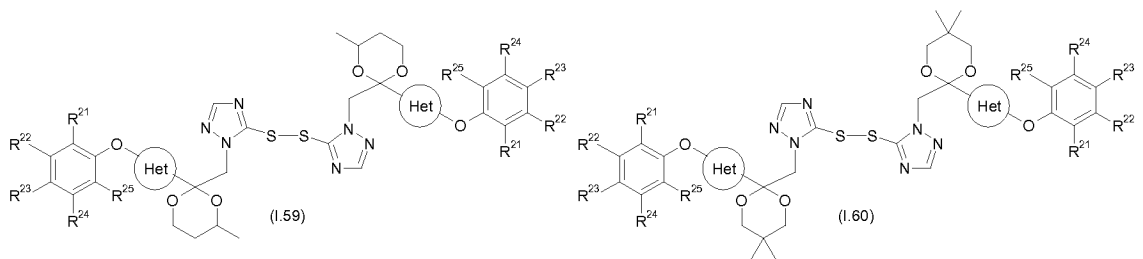
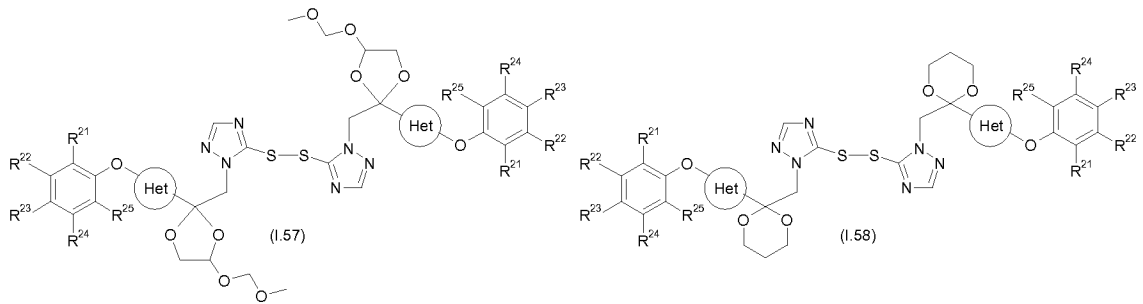


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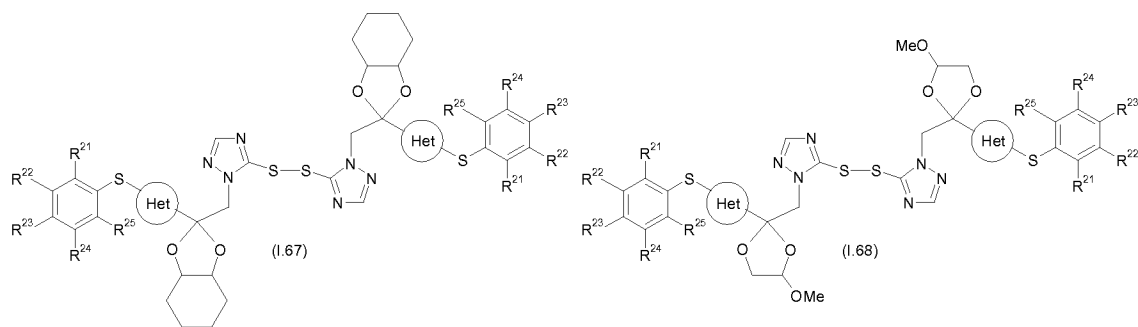
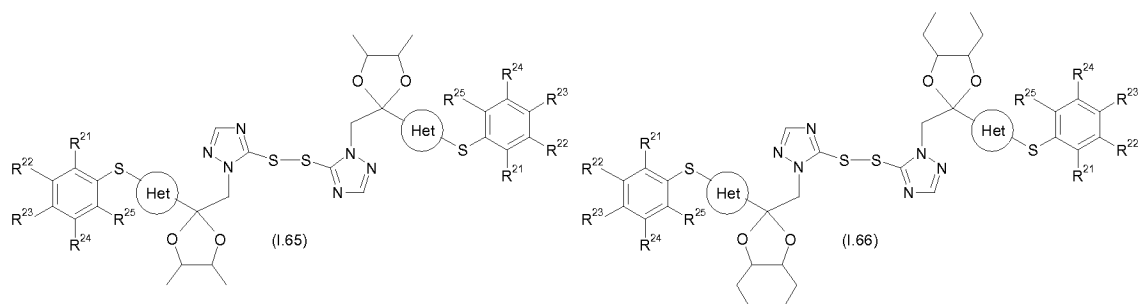
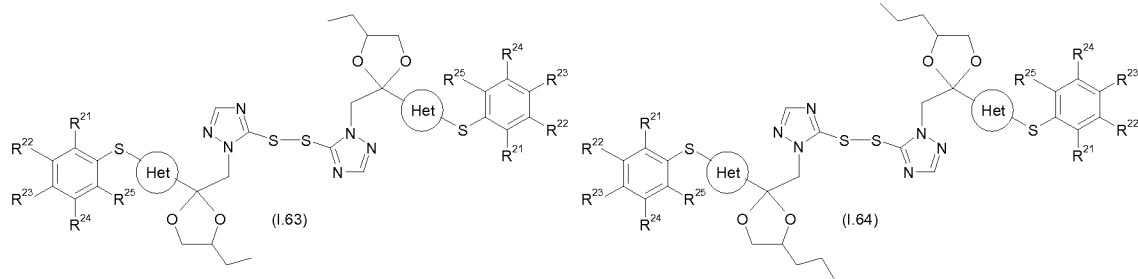


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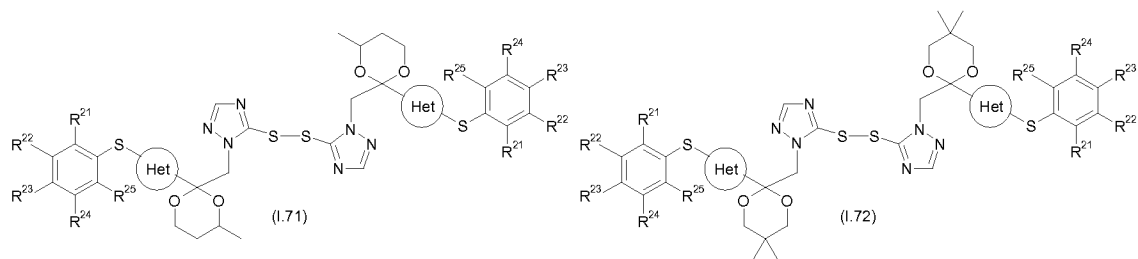
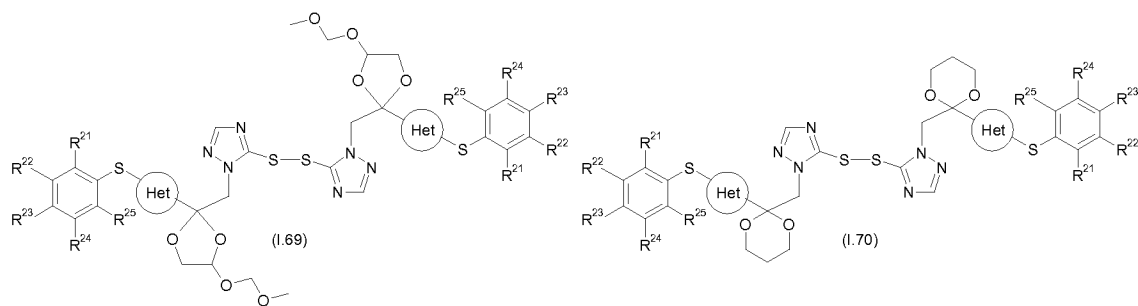


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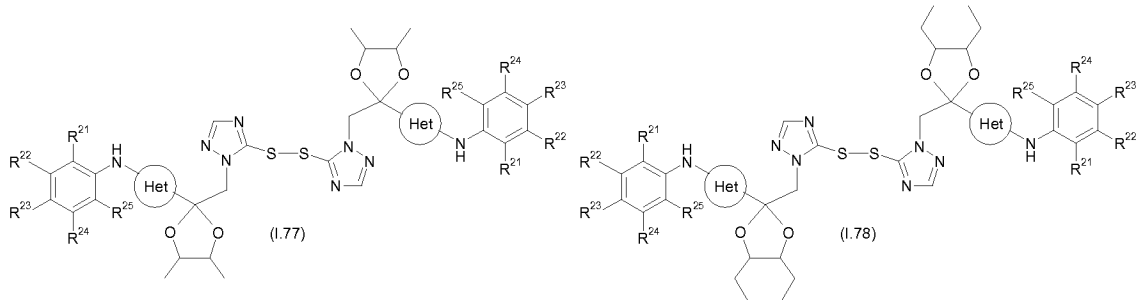
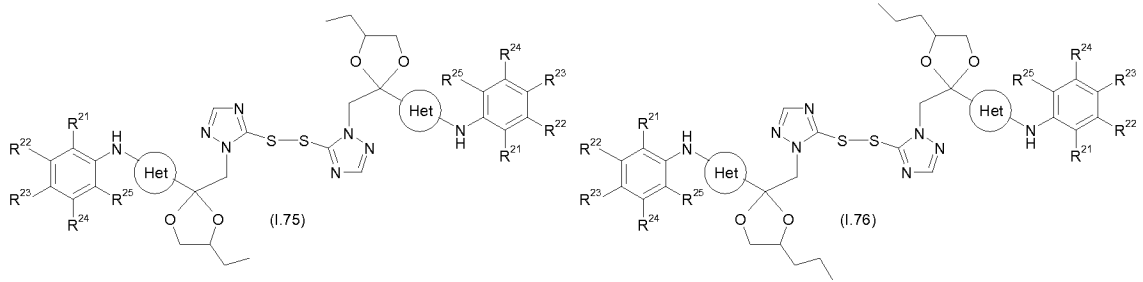
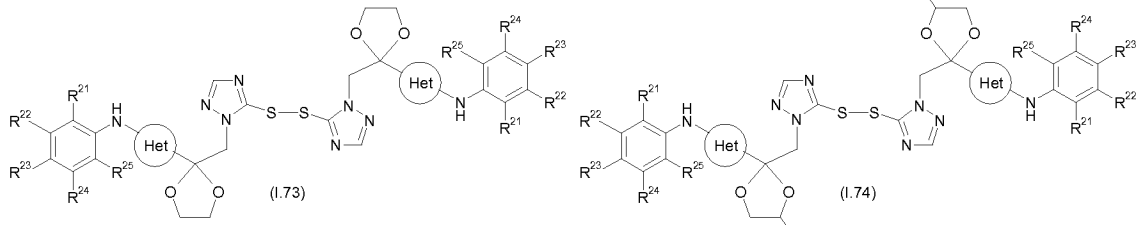


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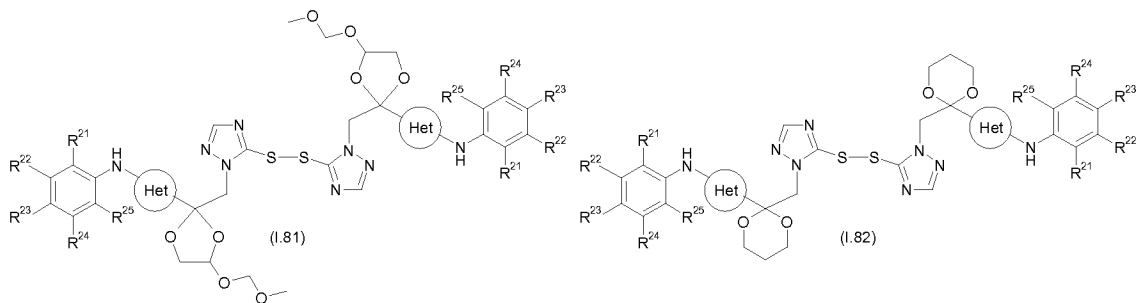
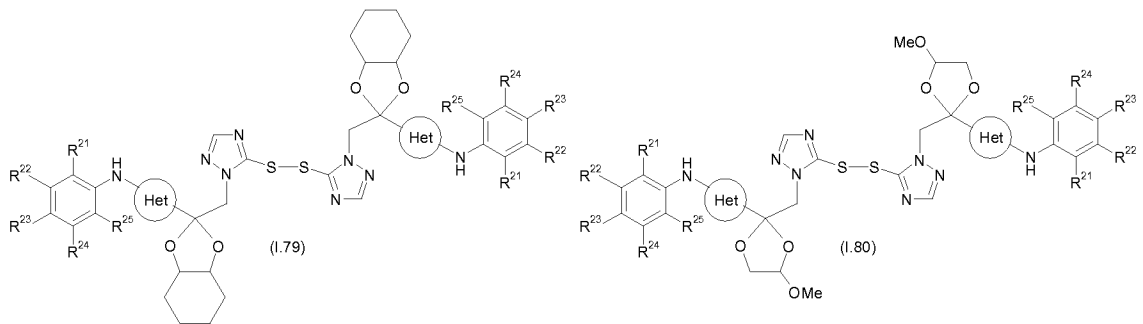


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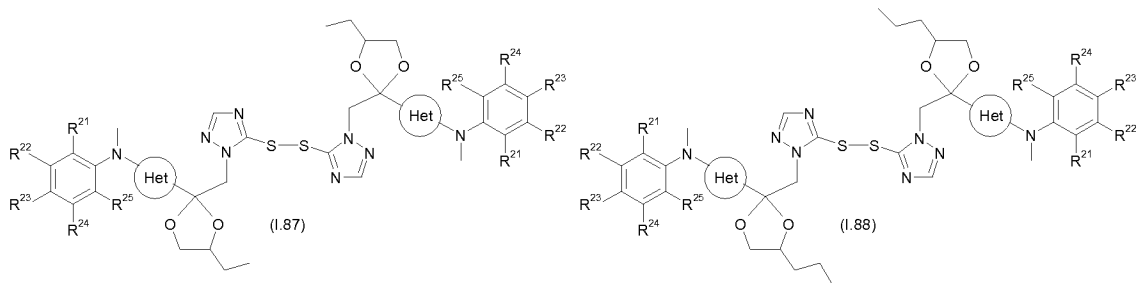
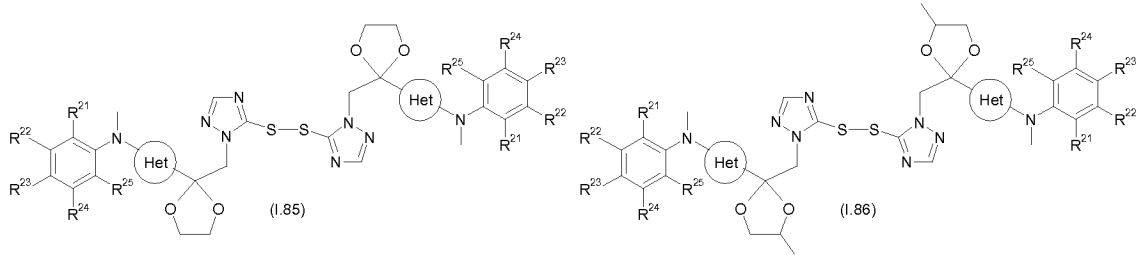
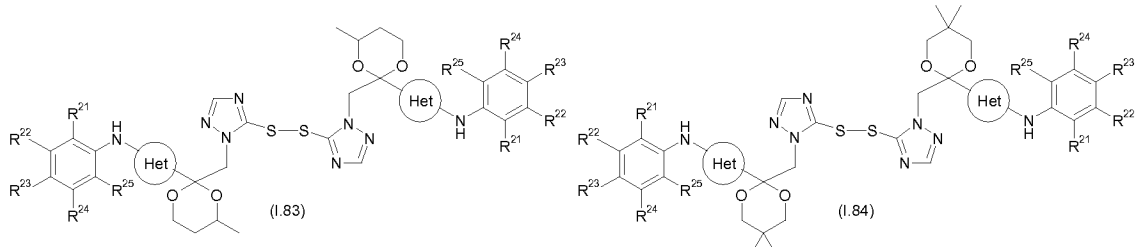
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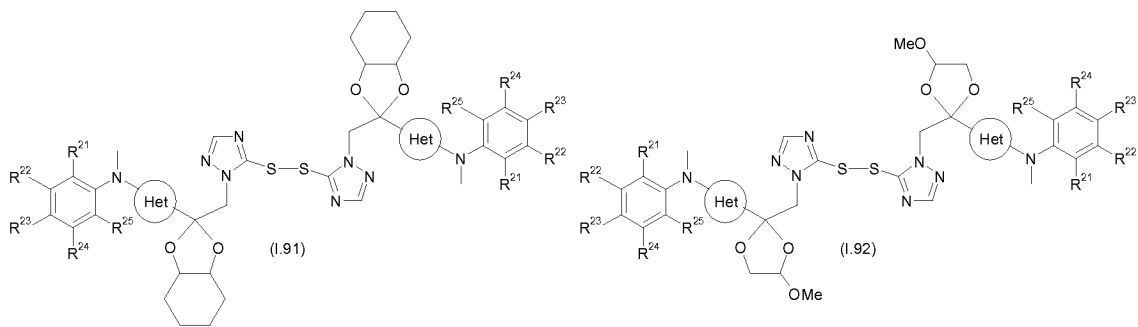
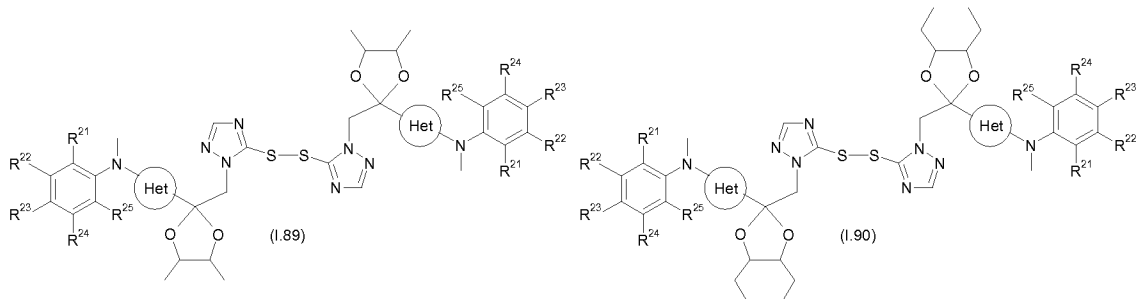
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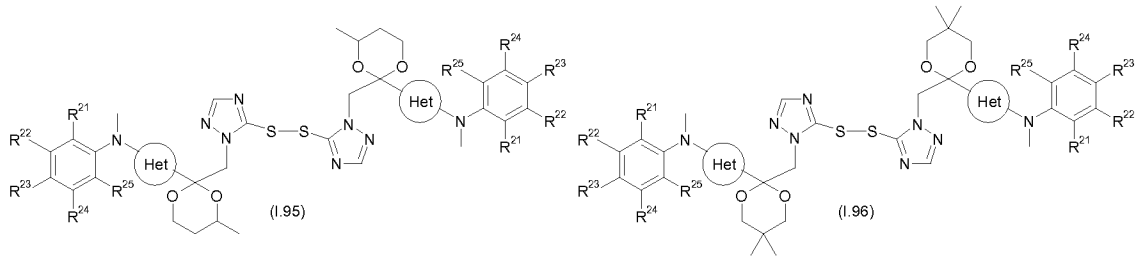
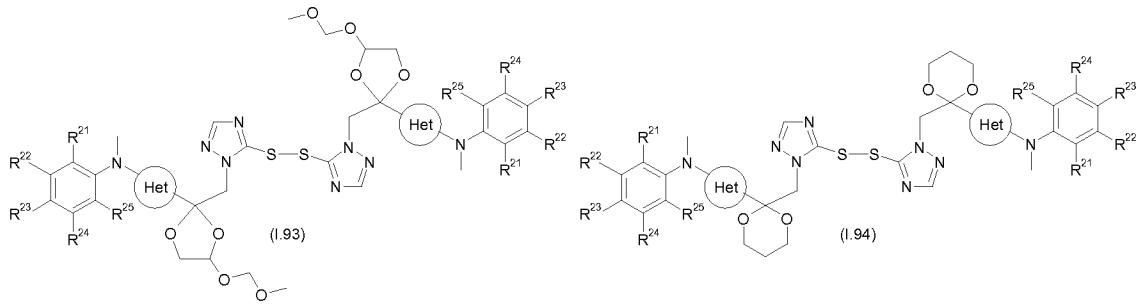
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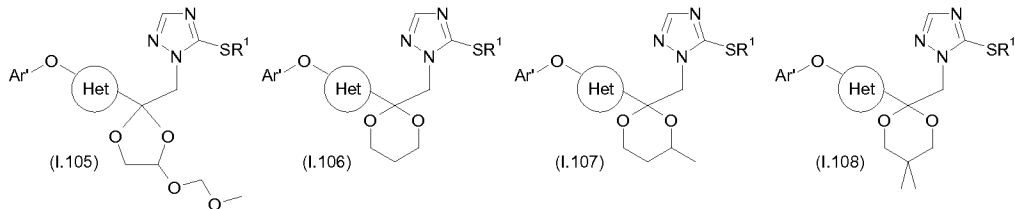
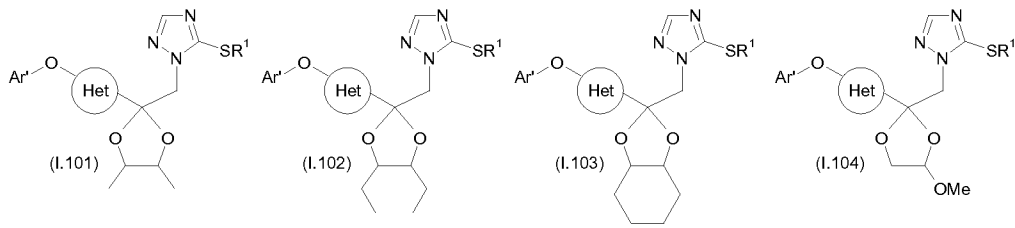
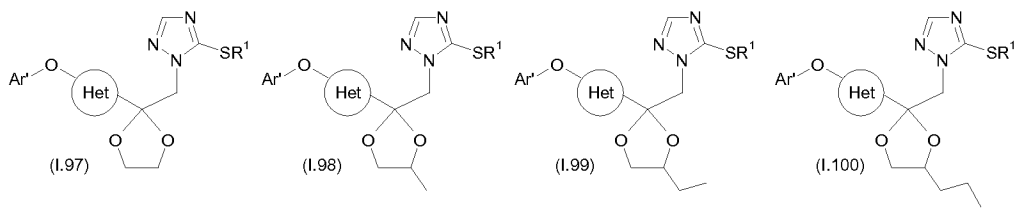
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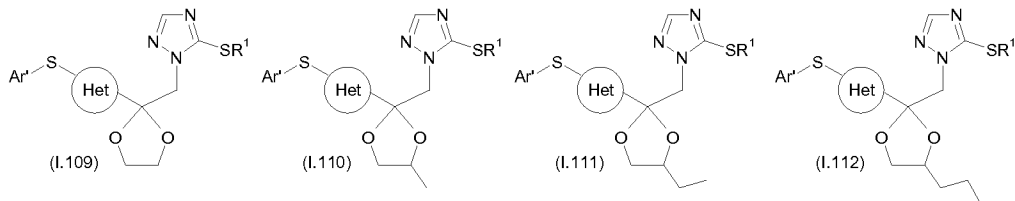
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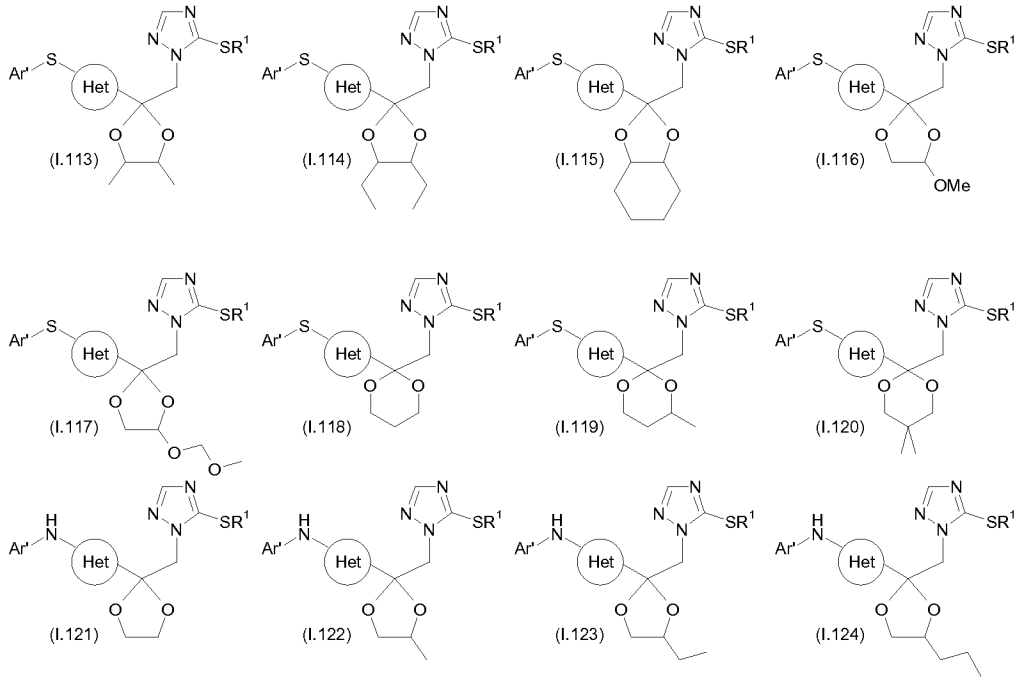
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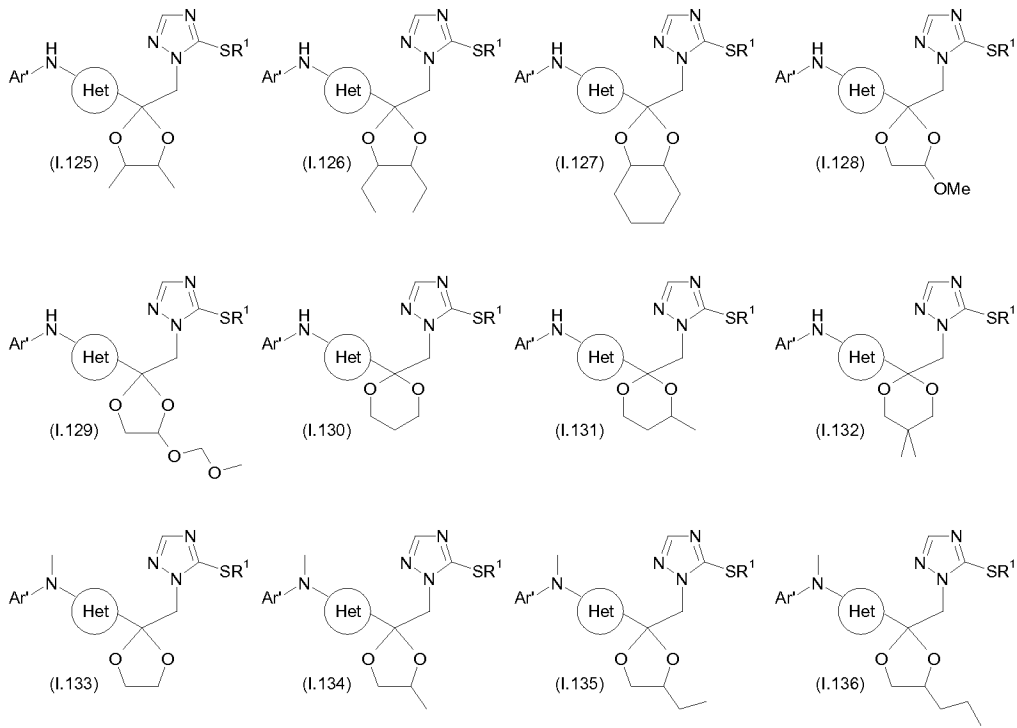
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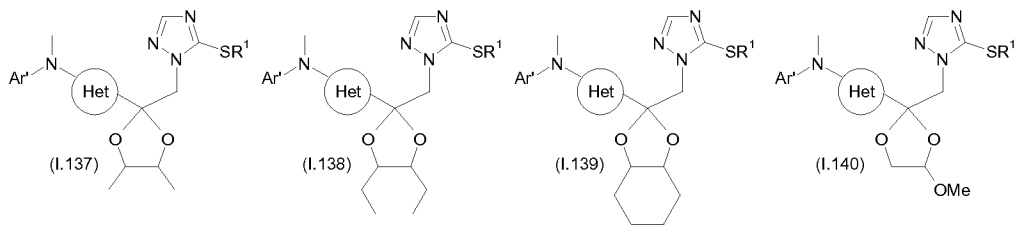
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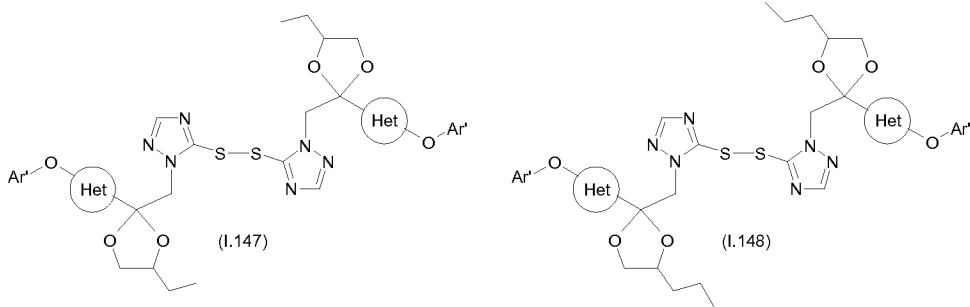
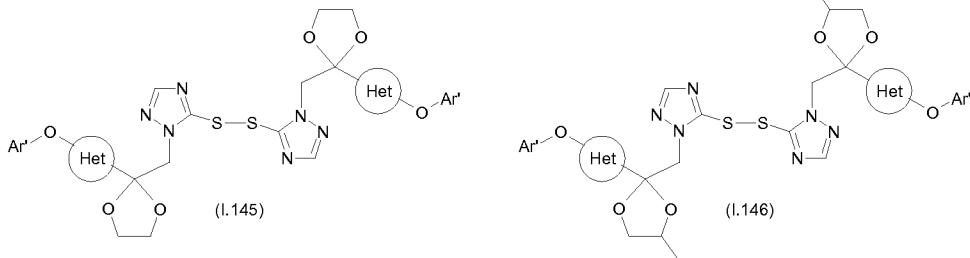
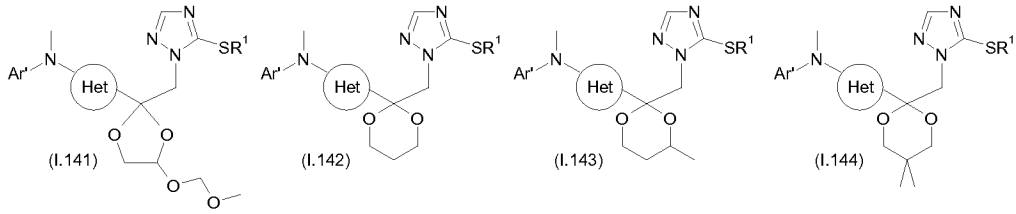
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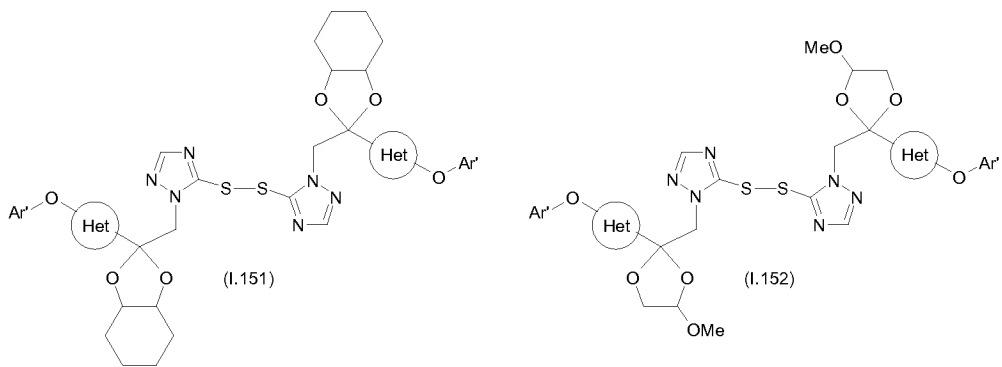
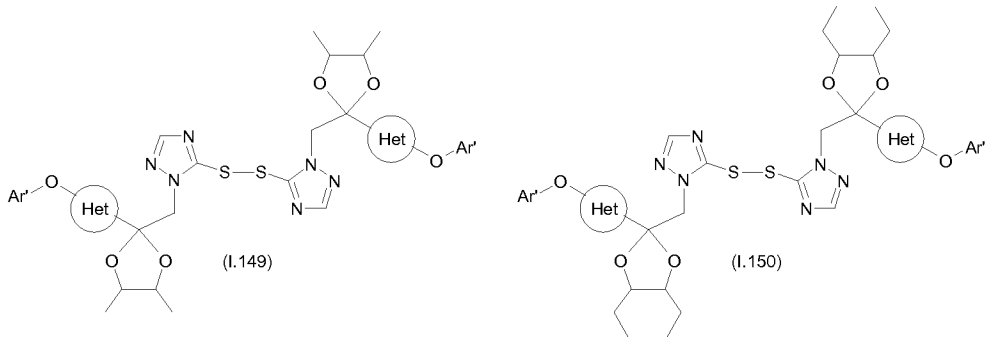
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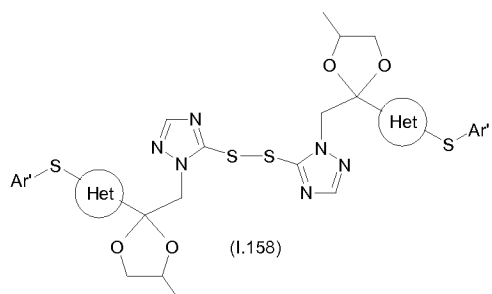
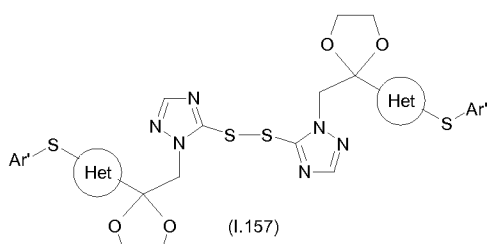
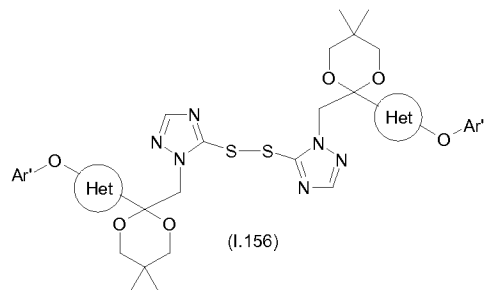
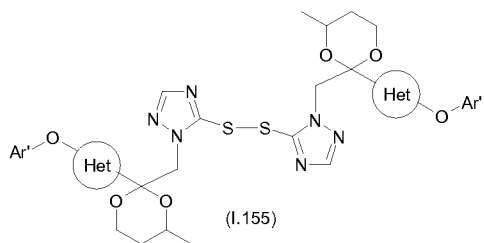
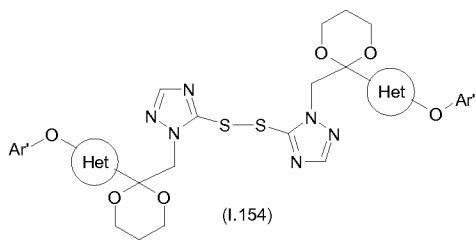
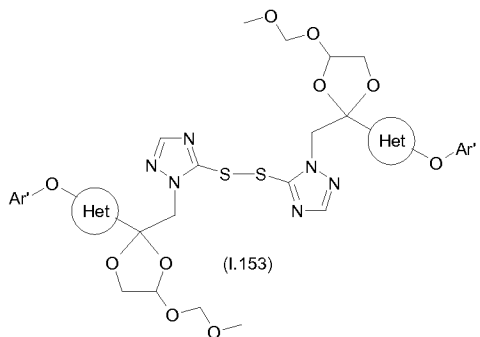


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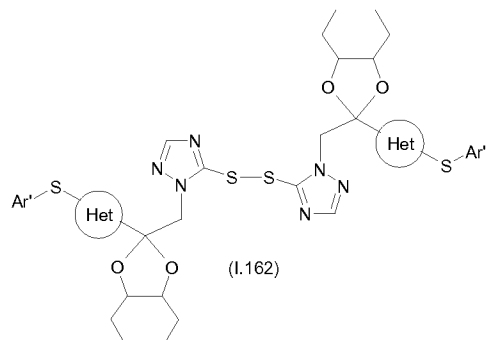
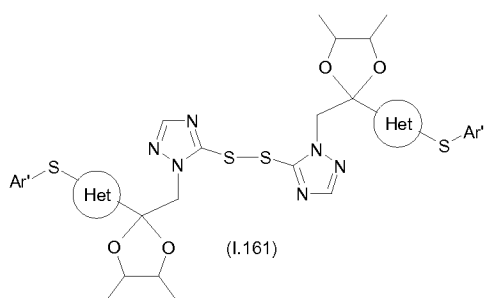
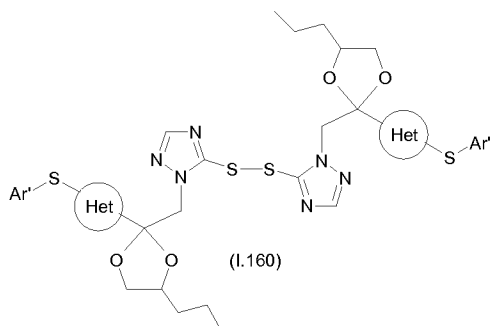
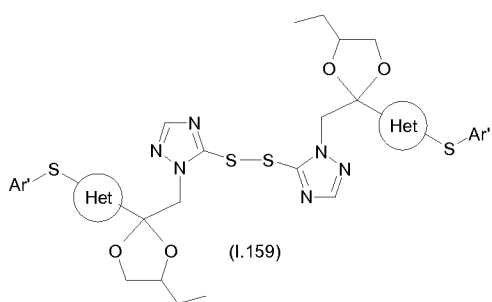


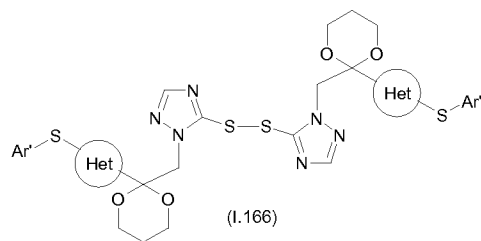
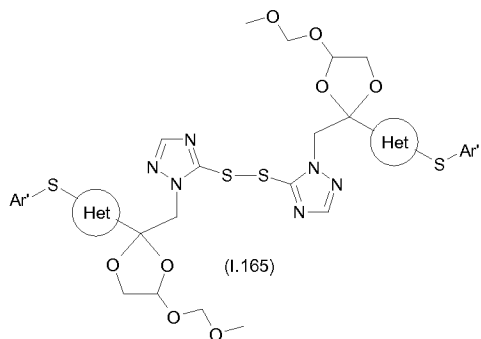
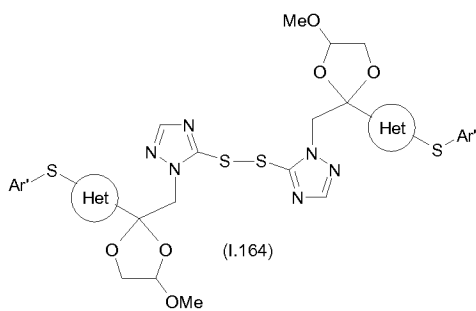
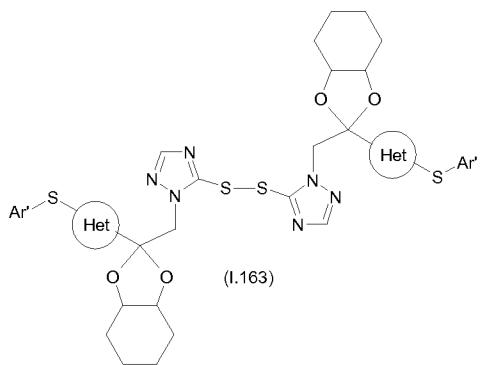
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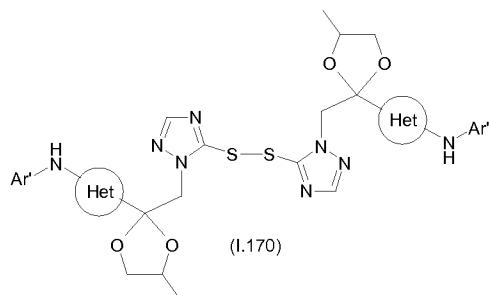
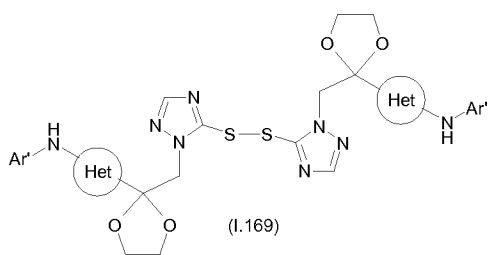
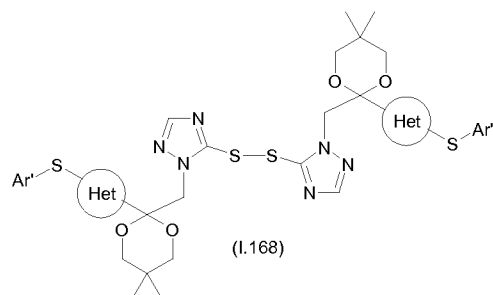
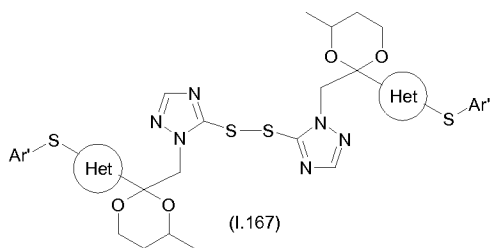


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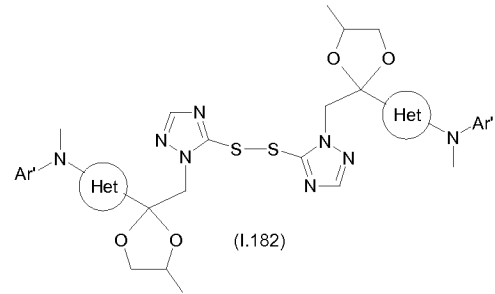
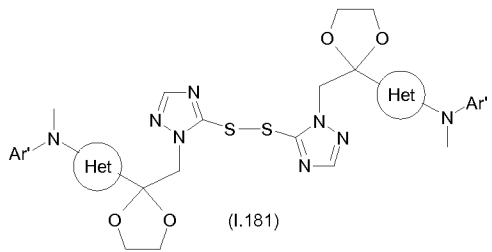
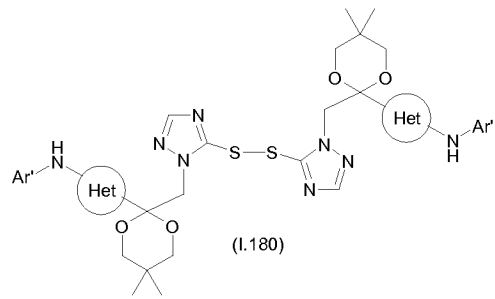
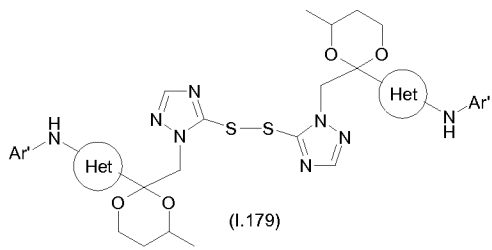


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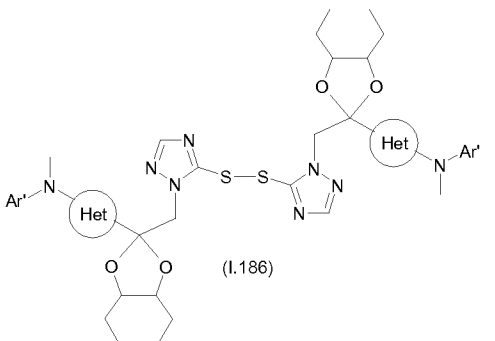
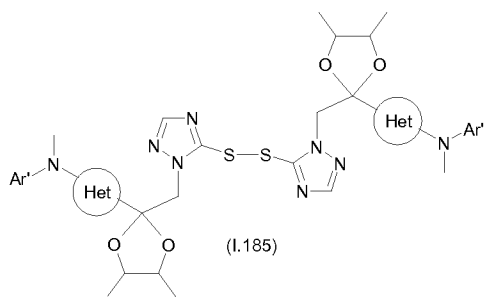
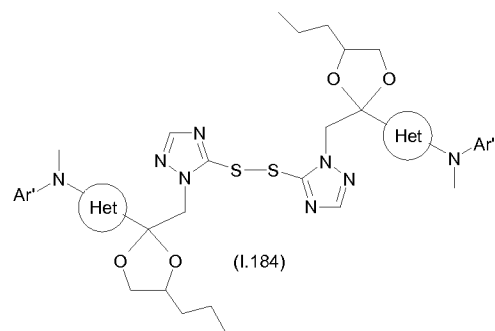
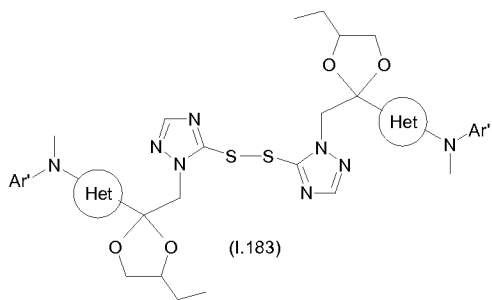


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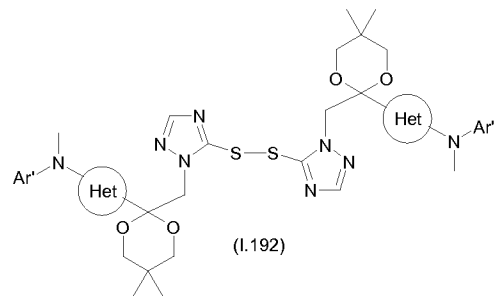
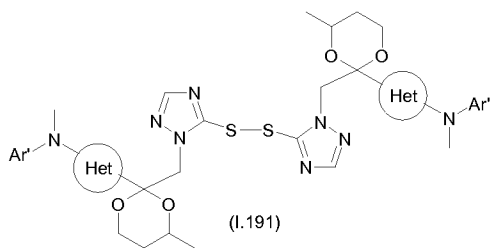
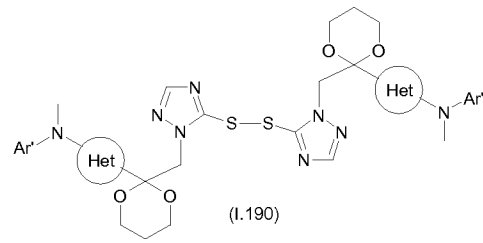
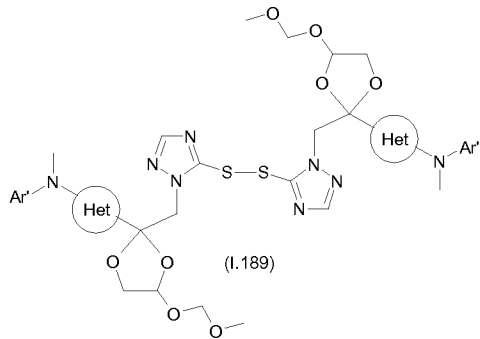
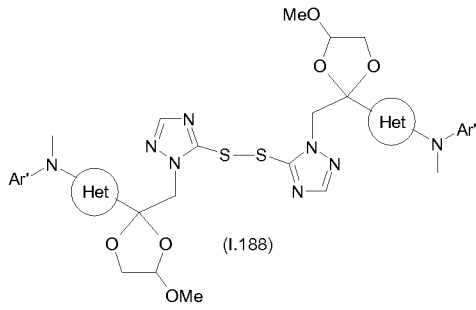
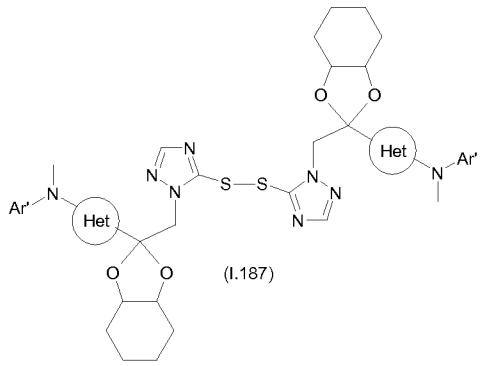
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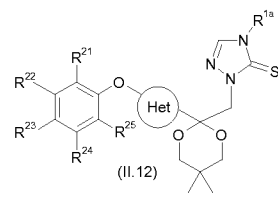
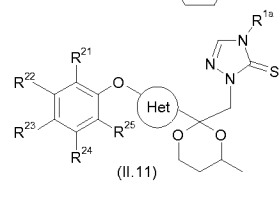
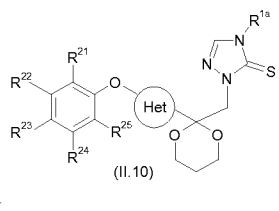
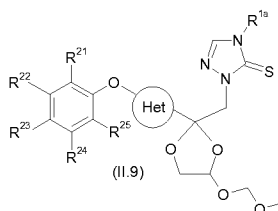
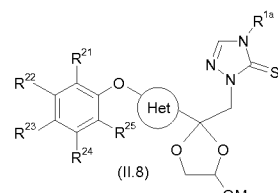
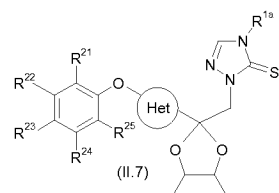
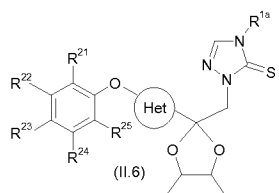
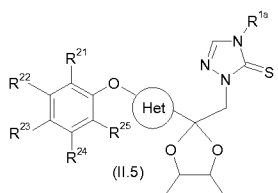
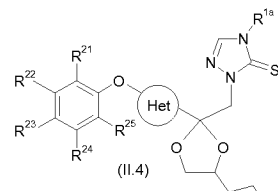
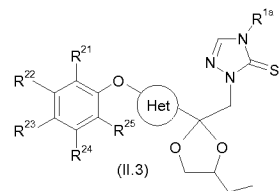
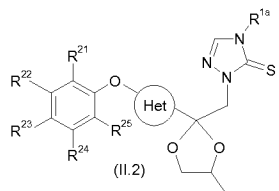
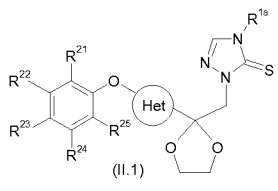
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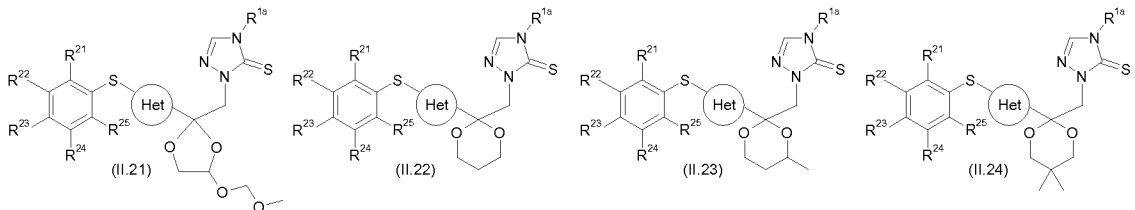
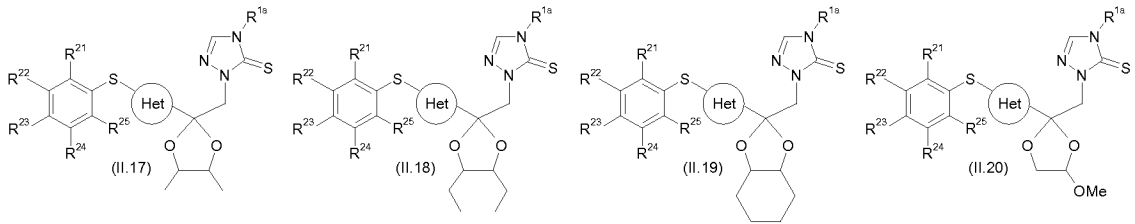
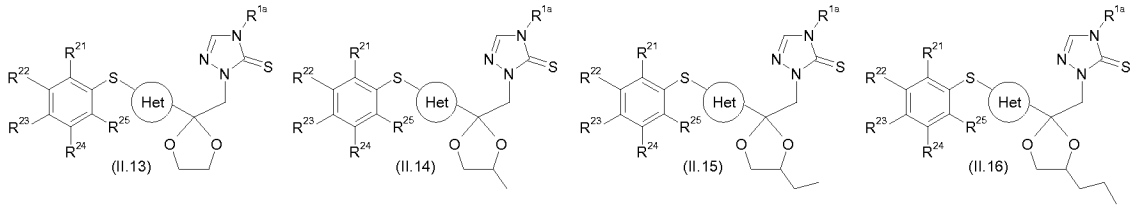


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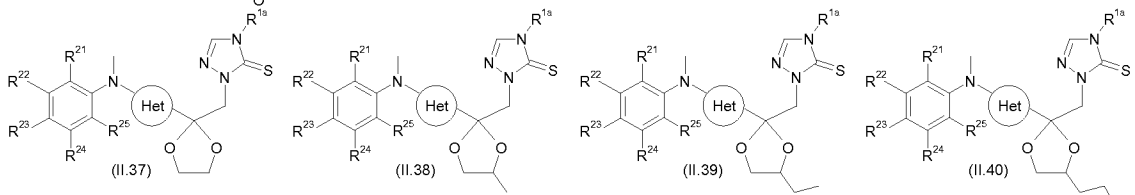
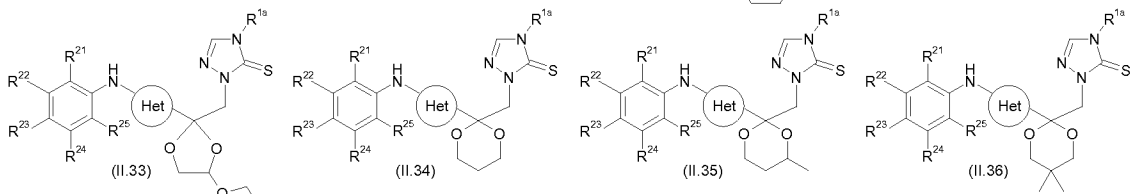
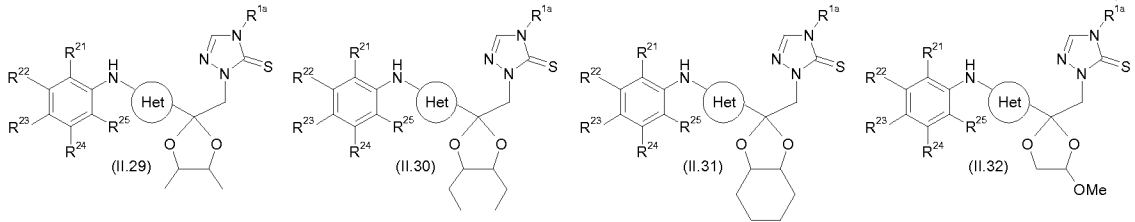
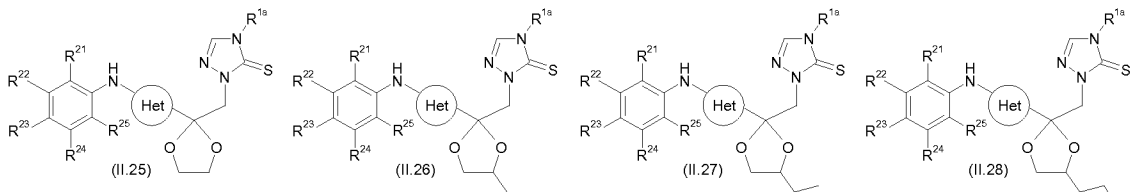


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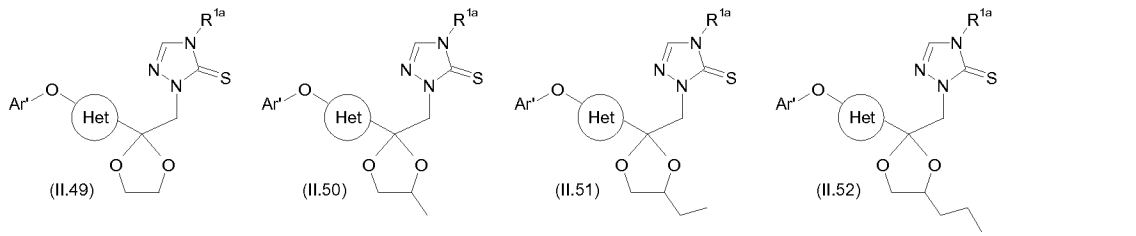
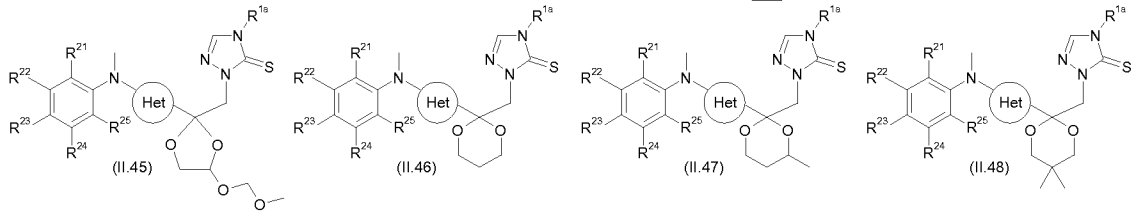
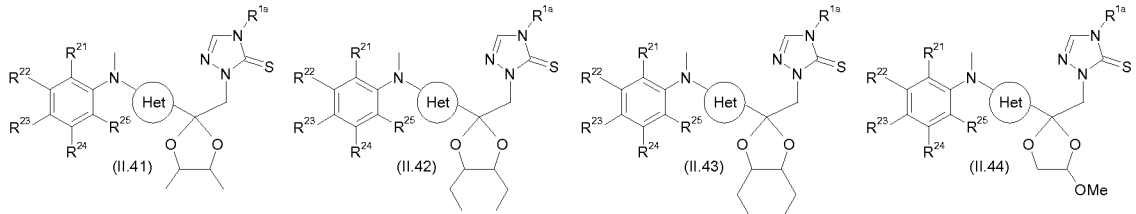


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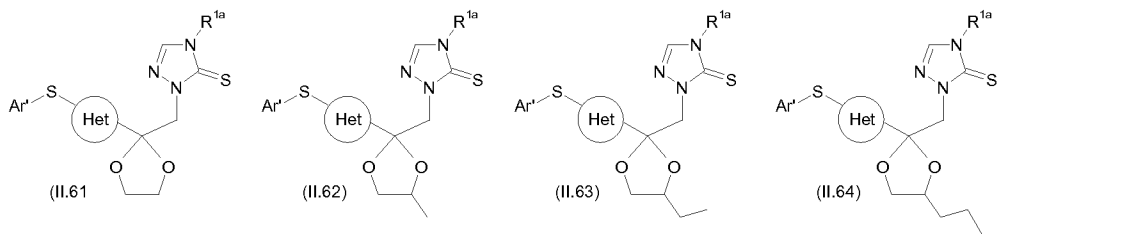
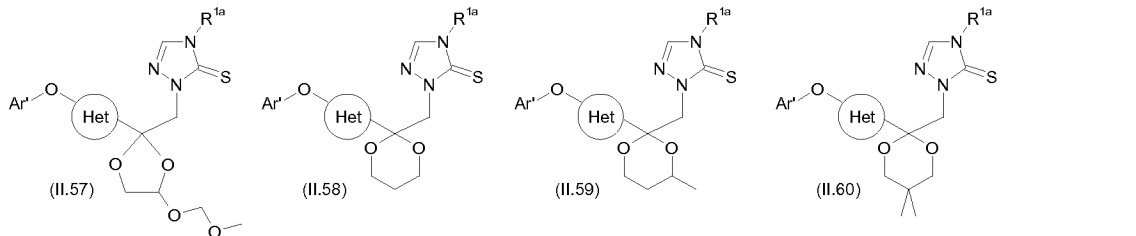
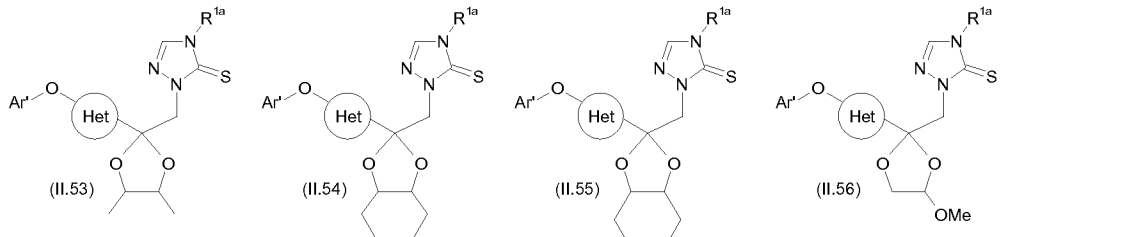


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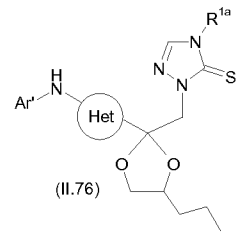
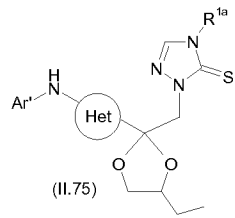
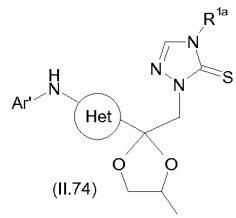
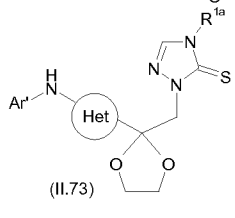
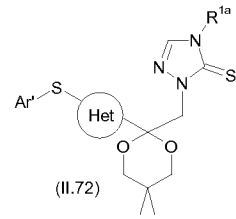
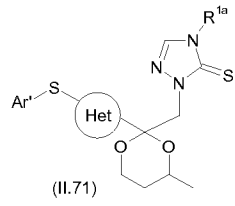
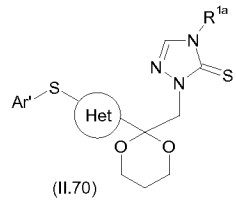
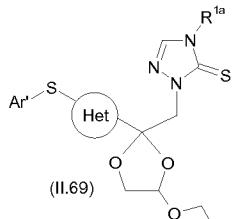
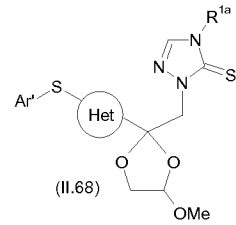
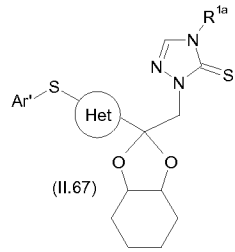
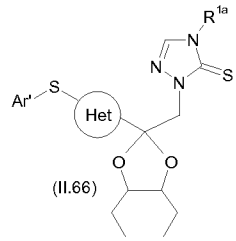
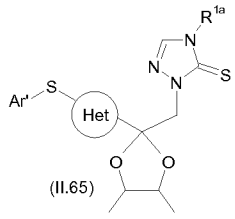


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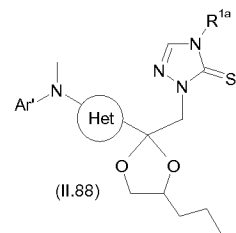
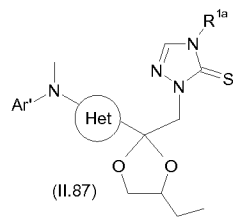
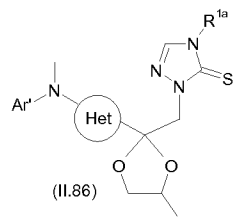
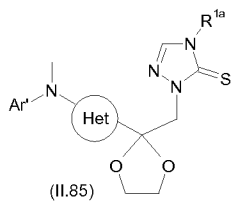
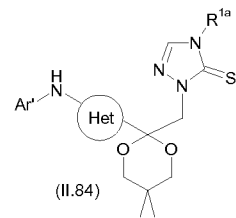
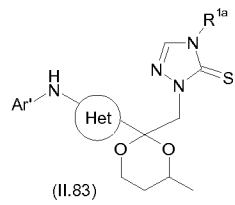
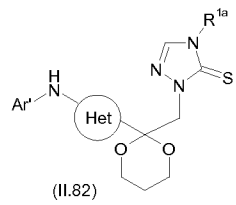
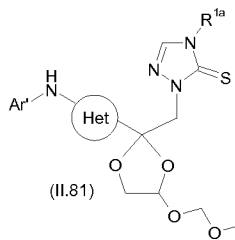
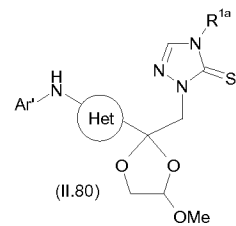
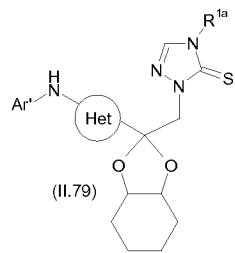
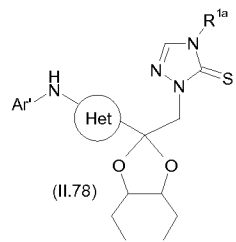
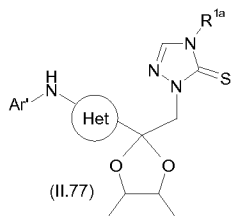


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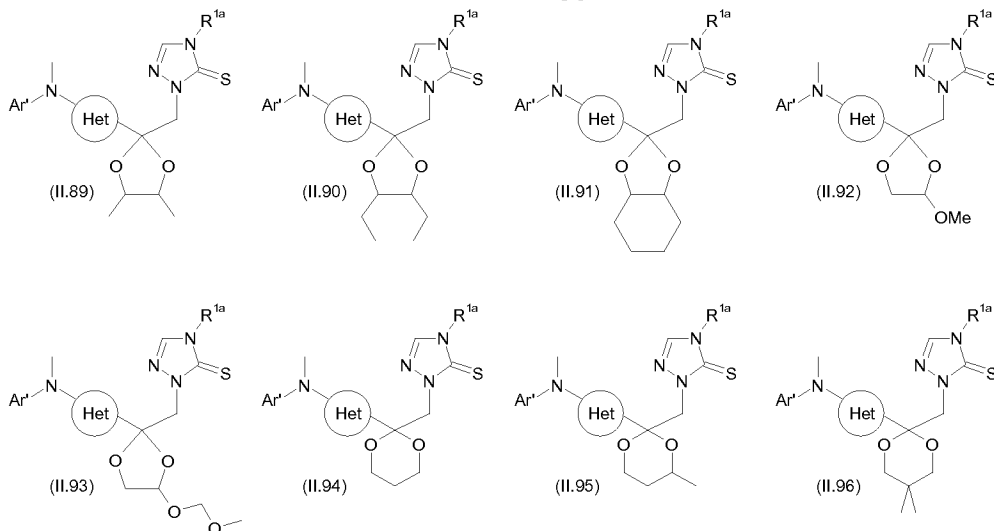


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Table 1

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is H

10 Table 2

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methyl

Table 3

15 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethyl

Table 4

20 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propyl

Table 5

25 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropyl

Table 6

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is n-butyl

30 Table 7

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for

a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is sec-butyl

Table 8

- 5 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isobutyl

Table 9

- 10 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is tert-butyl

Table 10

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is phenyl

- 15 Table 11

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is benzyl

Table 12

- 20 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is Li⁺

Table 13

- 25 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is Na⁺

Table 14

- 30 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is K⁺

Table 15

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\frac{1}{2}$ Mg²⁺

- 35 Table 16

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\frac{1}{2}$ Cu²⁺

Table 17

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\frac{1}{2}\text{Zn}^{2+}$

Table 18

- 5 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\frac{1}{2}\text{Fe}^{2+}$

Table 19

- 10 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\frac{1}{2}\text{Ni}^{2+}$

Table 20

- 15 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\text{NH}(\text{CH}_3)_3^+$

Table 21

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\text{NH}(\text{C}_2\text{H}_5)_3^+$

- 20 Table 22

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\text{NH}(\text{CH}_2\text{CH}_2\text{CH}_2)_3^+$

Table 23

- 25 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\text{NH}(\text{CH}(\text{CH}_3)_2)_3^+$

Table 24

- 30 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is $\text{NH}(\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2)_3^+$

Table 25

- 35 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methylcarbonyl

Table 26

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethylcarbonyl

Table 27

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propylcarbonyl

5 Table 28

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropylcarbonyl

Table 29

10 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methoxycarbonyl

Table 30

15 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethoxycarbonyl

Table 31

20 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propoxycarbonyl

Table 32

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropoxycarbonyl

25 Table 33

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is phenoxy carbonyl

Table 34

30 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methylaminocarbonyl

Table 35

35 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethylaminocarbonyl

Table 36

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propylaminocarbonyl

Table 37

- 5 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropylaminocarbonyl

Table 38

- 10 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is phenylaminocarbonyl

Table 39

- 15 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methylsulfonyl

Table 40

- 20 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethylsulfonyl

Table 41

- 25 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propylsulfonyl

Table 42

- 30 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropylsulfonyl

Table 43

- 35 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is phenylsulfonyl

Table 44

- Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is methoxysulfonyl

Table 45

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is ethoxysulfonyl

Table 46

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is propoxysulfonyl

5 Table 47

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is isopropoxysulfonyl

Table 48

10 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is phenoxysulfonyl

Table 49

15 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A above, Het is a radical of formula Het.1 and R¹ is CN

Tables 50 to 98

20 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R¹ is as defined in any of tables 1 to 49 and Het is a radical of formula Het.2

Tables 99 to 147

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R¹ is as defined in any of tables 1 to 49 and Het is a radical of formula Het.3

25 Tables 148 to 196

Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R¹ is as defined in any of tables 1 to 49 and Het is a radical of formula Het.4

Tables 197 to 245

30 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R¹ is as defined in any of tables 1 to 49 and Het is a radical of formula Het.5

Tables 246 to 294

35 Compounds of the formula I.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R¹ is as defined in any of tables 1 to 49 and Het is a radical of formula Het.6

Tables 295 to 343

- Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.7
Tables 344 to 392
- 5 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.8
Tables 393 to 441
- 10 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.9
Tables 442 to 490
- 15 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.10
Tables 491 to 539
- 20 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.11
Tables 540 to 588
- 25 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.12
Tables 589 to 637
- 30 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.14
Tables 687 to 735
- 35 Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.15
Tables 736 to 784
- Compounds of the formula I.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^1 is as defined in any of tables 1 to 49 and Het is a radical of formula Het.16

Tables 785 to 1568

Compounds of the formula I.2 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

5 Tables 1569 to 2352

Compounds of the formula I.3 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 2353 to 3136

10 Compounds of the formula I.4 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 3137 to 3920

15 Compounds of the formula I.5 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R⁶ and Het is as defined in any of tables 1 to 784

Tables 3921 to 4704

20 Compounds of the formula I.6 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 4705 to 5488

Compounds of the formula I.7 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

25 Tables 5489 to 6272

Compounds of the formula I.8 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 6273 to 7056

30 Compounds of the formula I.9 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 7057 to 7840

35 Compounds of the formula I.10 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 7841 to 8624

- Compounds of the formula I.11 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 8625 to 9408
- 5 Compounds of the formula I.12 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 9409 to 10192
- 10 Compounds of the formula I.13 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 10193 to 10976
- 15 Compounds of the formula I.14 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 10977 to 11760
- 20 Compounds of the formula I.15 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 11761 to 12544
- 25 Compounds of the formula I.16 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 12545 to 13328
- 30 Compounds of the formula I.17 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 13329 to 14112
- 35 Compounds of the formula I.18 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 14113 to 14896
- Compounds of the formula I.19 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 14897 to 15680
- Compounds of the formula I.20 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 15681 to 16464

Compounds of the formula I.21 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

5 Tables 16465 to 17248

Compounds of the formula I.22 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 17249 to 18032

10 Compounds of the formula I.23 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 18033 to 18816

15 Compounds of the formula I.24 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 18817 to 19600

20 Compounds of the formula I.25 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 19601 to 20384

Compounds of the formula I.26 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

25 Tables 20485 to 21168

Compounds of the formula I.27 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 21169 to 21952

30 Compounds of the formula I.28 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 21953 to 22736

35 Compounds of the formula I.29 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^1 and Het is as defined in any of tables 1 to 784

Tables 22737 to 23520

- Compounds of the formula I.30 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 23521 to 24304
- 5 Compounds of the formula I.31 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 24305 to 25088
- 10 Compounds of the formula I.32 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 25089 to 25872
- 15 Compounds of the formula I.33 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 25873 to 26656
- 20 Compounds of the formula I.34 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 26657 to 27440
- 25 Compounds of the formula I.35 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 27441 to 28224
- 30 Compounds of the formula I.36 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 28225 to 29008
- 35 Compounds of the formula I.37 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 29009 to 29792
- Compounds of the formula I.38 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784
Tables 29793 to 30576
- Compounds of the formula I.39 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 30577 to 31360

Compounds of the formula I.40 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

5 Tables 31361 to 32144

Compounds of the formula I.41 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 32145 to 32928

10 Compounds of the formula I.42 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 32929 to 33712

15 Compounds of the formula I.43 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 33713 to 34496

20 Compounds of the formula I.44 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 34497 to 35280

Compounds of the formula I.45 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

25 Tables 35281 to 36064

Compounds of the formula I.46 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 36065 to 36848

30 Compounds of the formula I.47 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Tables 36849 to 37632

35 Compounds of the formula I.48 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R¹ and Het is as defined in any of tables 1 to 784

Table 37633

- Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.1
Table 37634
- 5 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.2
Table 37635
- 10 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.3
Table 37636
- 15 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.4
Table 37637
- 20 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.5
Table 37638
- 25 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.6
Table 37639
- 30 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.7
Table 37640
- 35 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.8
Table 37641
- Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.9
Table 37642
- Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.10

Table 37643

Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.11

5 Table 37644

Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.12

Table 37645

10 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.13

Table 37646

15 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.14

Table 37647

20 Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.15

Table 37648

Compounds of the formula I.49 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is a radical of formula Het.16

25 Tables 37649 to 37664

Compounds of the formula I.50 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37665 to 37680

30 Compounds of the formula I.51 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37681 to 37696

35 Compounds of the formula I.52 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37697 to 37712

- Compounds of the formula I.53 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37713 to 37728
- 5 Compounds of the formula I.54 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37729 to 37744
- 10 Compounds of the formula I.55 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37745 to 37760
- 15 Compounds of the formula I.56 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37761 to 37776
- 20 Compounds of the formula I.57 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37777 to 37792
- Compounds of the formula I.58 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37793 to 37808
- 25 Compounds of the formula I.59 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37809 to 37824
- 30 Compounds of the formula I.60 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37825 to 37840
- 35 Compounds of the formula I.61 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 37841 to 37856
- Compounds of the formula I.62 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37857 to 378872

Compounds of the formula I.63 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

5 Tables 37873 to 378888

Compounds of the formula I.64 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37889 to 37904

10 Compounds of the formula I.65 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37905 to 37920

15 Compounds of the formula I.66 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37921 to 37936

20 Compounds of the formula I.67 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37937 to 37952

Compounds of the formula I.68 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

25 Tables 37953 to 37968

Compounds of the formula I.69 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37969 to 37984

30 Compounds of the formula I.70 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 37985 to 38000

35 Compounds of the formula I.71 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

Tables 38001 to 38016

- Compounds of the formula I.72 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38017 to 38032
- 5 Compounds of the formula I.73 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38033 to 38048
- 10 Compounds of the formula I.74 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38049 to 38064
- 15 Compounds of the formula I.75 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38065 to 38080
- 20 Compounds of the formula I.76 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38081 to 38096
- 25 Compounds of the formula I.77 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38097 to 38112
- 30 Compounds of the formula I.78 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38113 to 38128
- 35 Compounds of the formula I.79 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38129 to 38144
- Compounds of the formula I.80 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38145 to 38160
- Compounds of the formula I.81 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648

- Tables 38161 to 38176
Compounds of the formula I.82 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
- 5 Tables 38177 to 38192
Compounds of the formula I.83 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38193 to 38208
- 10 Compounds of the formula I.84 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38209 to 38224
Compounds of the formula I.85 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
- 15 Tables 38225 to 38240
Compounds of the formula I.86 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
- 20 Tables 38241 to 38256
Compounds of the formula I.87 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
- 25 Tables 38257 to 38272
Compounds of the formula I.88 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38273 to 38288
- 30 Compounds of the formula I.89 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38289 to 38304
Compounds of the formula I.90 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
- 35 Tables 38305 to 38320

- Compounds of the formula I.91 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38321 to 38336
- 5 Compounds of the formula I.92 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38337 to 38352
- 10 Compounds of the formula I.93 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38353 to 38368
- 15 Compounds of the formula I.94 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38369 to 38384
- 20 Compounds of the formula I.95 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38385 to 38400
- 25 Compounds of the formula I.96 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and Het is as defined in any of tables 37633 to 37648
Tables 38401 to 38449
- 30 Compounds of the formula I.97 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 38450 to 38498
- 35 Compounds of the formula I.98 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 38499 to 38547
- Compounds of the formula I.99 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 38548 to 38596
- Compounds of the formula I.100 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38597 to 38645

Compounds of the formula I.101 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

5 Tables 38646 to 38694

Compounds of the formula I.102 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38695 to 38743

10 Compounds of the formula I.103 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38744 to 38792

15 Compounds of the formula I.104 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38793 to 38841

20 Compounds of the formula I.105 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38842 to 38890

Compounds of the formula I.106 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

25 Tables 38891 to 38939

Compounds of the formula I.107 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38940 to 38988

30 Compounds of the formula I.108 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 38989 to 39037

35 Compounds of the formula I.109 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

Tables 39038 to 39086

- Compounds of the formula I.110 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39087 to 39135
- 5 Compounds of the formula I.111 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39136 to 39184
- 10 Compounds of the formula I.112 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39185 to 39233
- 15 Compounds of the formula I.113 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39234 to 39282
- 20 Compounds of the formula I.114 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39283 to 39331
- 25 Compounds of the formula I.115 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39332 to 39380
- 30 Compounds of the formula I.116 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39381 to 39429
- 35 Compounds of the formula I.117 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39430 to 39478
- Compounds of the formula I.118 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39479 to 39527
- Compounds of the formula I.119 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

- Tables 39528 to 39576
Compounds of the formula I.120 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
- 5 Tables 39577 to 39625
Compounds of the formula I.121 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39626 to 39674
- 10 Compounds of the formula I.122 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39675 to 39723
- 15 Compounds of the formula I.123 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39724 to 39772
- 20 Compounds of the formula I.124 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39773 to 39821
- 25 Compounds of the formula I.125 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39822 to 39870
- 30 Compounds of the formula I.126 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39871 to 39919
- 35 Compounds of the formula I.127 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39920 to 39968
- Compounds of the formula I.128 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 39969 to 40017

- Compounds of the formula I.129 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40018 to 40066
- 5 Compounds of the formula I.130 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40067 to 40115
- 10 Compounds of the formula I.131 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40116 to 40164
- 15 Compounds of the formula I.132 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40165 to 40213
- 20 Compounds of the formula I.133 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40214 to 40262
- 25 Compounds of the formula I.134 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40263 to 40311
- 30 Compounds of the formula I.135 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40312 to 40360
- 35 Compounds of the formula I.136 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40361 to 40409
- Compounds of the formula I.137 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40410 to 40458
- Compounds of the formula I.138 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49

- Tables 40459 to 40507
Compounds of the formula I.139 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
- 5 Tables 40508 to 40556
Compounds of the formula I.140 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40557 to 40605
- 10 Compounds of the formula I.141 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40606 to 40654
Compounds of the formula I.142 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
- 15 Tables 40655 to 40703
Compounds of the formula I.143 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
- 20 Tables 40704 to 40752
Compounds of the formula I.144 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
- 25 Tables 40753
Compounds of the formula I.145 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40754
Compounds of the formula I.146 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
- 30 Tables 40755
Compounds of the formula I.147 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40756
- 35 Compounds of the formula I.148 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40757
Compounds of the formula I.149 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B

- Tables 40758
Compounds of the formula I.150 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40759
- 5 Compounds of the formula I.151 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40760
Compounds of the formula I.152 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
- 10 Tables 40761
Compounds of the formula I.153 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40762
Compounds of the formula I.154 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
- 15 Tables 40763
Compounds of the formula I.155 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40764
- 20 Compounds of the formula I.156 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40765
Compounds of the formula I.157 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
- 25 Tables 40766
Compounds of the formula I.158 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40767
Compounds of the formula I.159 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
- 30 Tables 40768
Compounds of the formula I.160 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40769
- 35 Compounds of the formula I.161 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40770
Compounds of the formula I.162 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B Tables 40771

- Compounds of the formula I.163 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40772
- 5 Compounds of the formula I.164 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40773
- Compounds of the formula I.165 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40774
- 10 Compounds of the formula I.166 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40775
- Compounds of the formula I.167 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of
15 tables 1 to 49
Tables 40776
- Compounds of the formula I.168 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40777
- 20 Compounds of the formula I.169 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40778
- Compounds of the formula I.170 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
25 Tables 40779
- Compounds of the formula I.171 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40780
- Compounds of the formula I.172 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
30 Tables 40781
- Compounds of the formula I.173 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40782
- 35 Compounds of the formula I.174 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R¹ is as defined in any of tables 1 to 49
Tables 40783

- Compounds of the formula I.175 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40784
- 5 Compounds of the formula I.176 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40785
- Compounds of the formula I.177 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40786
- 10 Compounds of the formula I.178 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40787
- Compounds of the formula I.179 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
15 Tables 40788
- Compounds of the formula I.180 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40789
- Compounds of the formula I.181 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
20 Tables 40790
- Compounds of the formula I.182 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40791
- 25 Compounds of the formula I.183 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40792
- Compounds of the formula I.184 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
30 Tables 40793
- Compounds of the formula I.185 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40794
- Compounds of the formula I.186 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
35 Tables 40795
- Compounds of the formula I.187 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40796

- Compounds of the formula I.188 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40797
- 5 Compounds of the formula I.189 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40798
- Compounds of the formula I.190 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40799
- 10 Compounds of the formula I.191 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
Tables 40800
- Compounds of the formula I.192 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B
15 Table 40801
- Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is H
Table 40802
- 20 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methyl
Table 40803
- Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for
25 a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethyl
Table 40804
- Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for
30 a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is n-propyl
Table 40805
- Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for
a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropyl
35 Table 40806
- Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for
a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is n-butyl
Table 40807

- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is sec-butyl
Table 40808
- 5 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isobutyl
Table 40809
- 10 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is tert-butyl
Table 40810
- 15 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenyl
Table 40811
- 20 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is benzyl
Table 40812
- 25 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methylcarbonyl
Table 40813
- 30 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethylcarbonyl
Table 40814
- 35 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is propylcarbonyl
Table 40815
- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropylcarbonyl
Table 40816
- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenylcarbonyl

Table 40817

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methoxycarbonyl

5 Table 40818

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethoxycarbonyl

Table 40819

10 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is propoxycarbonyl

Table 40820

15 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropoxycarbonyl

Table 40821

20 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenoxycarbonyl

Table 40822

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methylaminocarbonyl

25 Table 40823

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethylaminocarbonyl

Table 40824

30 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is propylaminocarbonyl

Table 40825

35 Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropylaminocarbonyl

Table 40826

- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenylaminocarbonyl
Table 40827
- 5 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methylsulfonyl
Table 40828
- 10 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethylsulfonyl
Table 40829
- 15 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is propylsulfonyl
Table 40830
- 20 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropylsulfonyl
Table 40831
- 25 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenylsulfonyl
Table 40832
- 30 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is methoxysulfonyl
Table 40833
- 35 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is ethoxysulfonyl
Table 40834
- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is propoxysulfonyl
Table 40835
- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is isopropoxysulfonyl

Table 40836

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is phenoxysulfonyl

5 Table 40837

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, Het is a radical of formula Het.1 and R^{1a} is CN

Tables 40838 to 40874

10 Table 40875 to 40911

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.2

Tables 40875 to 40911

15 Table 40912 to 40948

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.3

Tables 40912 to 40948

20 Table 40949 to 40985

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.4

Tables 40949 to 40985

25 Table 40986 to 41022

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.5

Tables 40986 to 41022

30 Table 41023 to 41059

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.6

Tables 41023 to 41059

35 Table 41060 to 41096

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.7

Tables 41060 to 41096

Table 41097 to 41133

Compounds of the formula II.1 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any

of tables 40800 to 40837 and Het is a radical of formula Het.8

Tables 41097 to 41133

- Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.9
Tables 41134 to 41170
- 5 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.10
Tables 41171 to 41207
- 10 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.11
Tables 41208 to 41244
- 15 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.12
Tables 41245 to 41281
- 20 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.13
Tables 41282 to 41318
- 25 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.14
Tables 41319 to 41355
- 30 Compounds of the formula II.1 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A, R^{1a} is as defined in any of tables 40800 to 40837 and Het is a radical of formula Het.15
Tables 41356 to 41392
- 35 Compounds of the formula II.2 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 41985 to 42576
- Compounds of the formula II.3 in which the combination of R^{21} , R^{22} , R^{23} , R^{24} and R^{25} for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 42577 to 43168

Compounds of the formula II.4 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

5 Tables 43169 to 43760

Compounds of the formula II.5 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 43761 to 44352

10 Compounds of the formula II.6 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 44353 to 44944

15 Compounds of the formula II.7 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 44945 to 45536

20 Compounds of the formula II.8 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 45537 to 46128

Compounds of the formula II.9 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

25 Tables 46129 to 46720

Compounds of the formula II.10 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 46721 to 47312

30 Compounds of the formula II.11 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 47313 to 47904

35 Compounds of the formula II.12 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 47905 to 48496

- Compounds of the formula II.13 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 48497 to 49088
- 5 Compounds of the formula II.14 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 49089 to 49680
- 10 Compounds of the formula II.15 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 49681 to 50272
- 15 Compounds of the formula II.16 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 50273 to 50864
- 20 Compounds of the formula II.17 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 50865 to 51456
- 25 Compounds of the formula II.18 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 51457 to 52048
- 30 Compounds of the formula II.19 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 52049 to 52640
- 35 Compounds of the formula II.20 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 52641 to 53232
- Compounds of the formula II.21 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 53233 to 53824
- Compounds of the formula II.22 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 53825 to 54416

Compounds of the formula II.23 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

5 Tables 54417 to 55008

Compounds of the formula II.24 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 55009 to 55600

10 Compounds of the formula II.25 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 55601 to 56192

15 Compounds of the formula II.26 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 56193 to 56784

20 Compounds of the formula II.27 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 56785 to 57376

Compounds of the formula II.28 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

25 Tables 57377 to 57968

Compounds of the formula II.29 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 57969 to 58560

30 Compounds of the formula II.30 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 58561 to 59152

35 Compounds of the formula II.31 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

Tables 59153 to 59744

- Compounds of the formula II.32 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 59745 to 60336
- 5 Compounds of the formula II.33 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 60337 to 60982
- 10 Compounds of the formula II.34 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 60983 to 61520
- 15 Compounds of the formula II.35 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 61521 to 62112
- 20 Compounds of the formula II.36 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 62113 to 62704
- Compounds of the formula II.37 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 62705 to 63296
- 25 Compounds of the formula II.38 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 63297 to 63888
- 30 Compounds of the formula II.39 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 63889 to 64480
- 35 Compounds of the formula II.40 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 4481 to 65072
- Compounds of the formula II.41 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392

- Tables 65073 to 65664
Compounds of the formula II.42 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
- 5 Tables 65665 to 66256
Compounds of the formula II.43 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 66257 to 66848
- 10 Compounds of the formula II.44 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 66849 to 67440
Compounds of the formula II.45 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
- 15 Tables 67441 to 68032
Compounds of the formula II.46 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
- 20 Tables 68033 to 68624
Compounds of the formula II.47 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
- 25 Tables 68625 to 69216
Compounds of the formula II.48 in which the combination of R²¹, R²², R²³, R²⁴ and R²⁵ for a compound corresponds in each case to one row of Table A and the combination of R^{1a} and Het is as defined in any of tables 40800 to 41392
Tables 69217 to 69253
- 30 Compounds of the formula II.49 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69254 to 69290
Compounds of the formula II.50 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 35 Tables 69291 to 69327

- Compounds of the formula II.51 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69328 to 69364
- 5 Compounds of the formula II.52 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69365 to 69401
- 10 Compounds of the formula II.53 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69402 to 69438
- 15 Compounds of the formula II.54 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69439 to 69475
- 20 Compounds of the formula II.55 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69476 to 69512
- 25 Compounds of the formula II.56 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69513 to 69549
- 30 Compounds of the formula II.57 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69550 to 69586
- 35 Compounds of the formula II.58 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69587 to 69623
- Compounds of the formula II.59 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69624 to 69660
- Compounds of the formula II.60 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

- Tables 69661 to 69697
Compounds of the formula II.61 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 5 Tables 69698 to 69734
Compounds of the formula II.62 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69735 to 69771
- 10 Compounds of the formula II.63 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69772 to 69808
Compounds of the formula II.64 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 15 Tables 69809 to 69845
Compounds of the formula II.65 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 20 Tables 69846 to 69882
Compounds of the formula II.66 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 25 Tables 69883 to 69919
Compounds of the formula II.67 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69920 to 69956
- 30 Compounds of the formula II.68 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 69957 to 69993
Compounds of the formula II.69 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 35 Tables 69994 to 70030

- Compounds of the formula II.70 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70031 to 70067
- 5 Compounds of the formula II.71 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70068 to 70104
- 10 Compounds of the formula II.72 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70105 to 70141
- 15 Compounds of the formula II.73 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70142 to 70178
- 20 Compounds of the formula II.74 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70179 to 70215
- 25 Compounds of the formula II.75 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70216 to 70252
- 30 Compounds of the formula II.76 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70253 to 70289
- 35 Compounds of the formula II.77 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70290 to 70326
- Compounds of the formula II.78 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70327 to 70363
- Compounds of the formula II.79 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

- Tables 70364 to 70400
Compounds of the formula II.80 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 5 Tables 70401 to 70437
Compounds of the formula II.81 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70438 to 70474
- 10 Compounds of the formula II.82 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70475 to 70511
Compounds of the formula II.83 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 15 Tables 70512 to 70548
Compounds of the formula II.84 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 20 Tables 70549 to 70585
Compounds of the formula II.85 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 25 Tables 70586 to 70622
Compounds of the formula II.86 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70623 to 70659
- 30 Compounds of the formula II.87 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
Tables 70660 to 70696
Compounds of the formula II.88 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837
- 35 Tables 70697 to 70733

Compounds of the formula II.89 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70734 to 70770

- 5 Compounds of the formula II.90 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70771 to 70807

- 10 Compounds of the formula II.91 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70808 to 70844

- 15 Compounds of the formula II.92 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70845 to 70881

- 20 Compounds of the formula II.93 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70882 to 70918

- Compounds of the formula II.94 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70919 to 70955

- 25 Compounds of the formula II.95 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Tables 70956 to 70992

- 30 Compounds of the formula II.96 in which the combination of Het and Ar' for a compound corresponds in each case to one row of Table B and R^{1a} is as defined in any of tables 40800 to 40837

Table B

35

No.	Ar'	Het
B-1	Ar.2	Het.1
B-2	Ar.3	Het.1
B-3	Ar.4	Het.1

No.	Ar'	Het
B-4	Ar.5	Het.1
B-5	Ar.6	Het.1
B-6	Ar.7	Het.1

No.	Ar'	Het
B-7	Ar.8	Het.1
B-8	Ar.9	Het.1
B-9	Ar.10	Het.1
B-10	Ar.11	Het.1
B-11	Ar.12	Het.1
B-12	Ar.13	Het.1
B-13	Ar.14	Het.1
B-14	Ar.15	Het.1
B-15	Ar.16	Het.1
B-16	Ar.17	Het.1
B-17	Ar.18	Het.1
B-18	Ar.19	Het.1
B-19	Ar.20	Het.1
B-20	Ar.21	Het.1
B-21	Ar.22	Het.1
B-22	Ar.23	Het.1
B-23	Ar.24	Het.1
B-24	Ar.25	Het.1
B-25	Ar.26	Het.1
B-26	Ar.27	Het.1
B-27	Ar.28	Het.1
B-28	Ar.29	Het.1
B-29	Ar.30	Het.1
B-30	Ar.31	Het.1
B-31	Ar.32	Het.1
B-32	Ar.33	Het.1
B-33	Ar.34	Het.1
B-34	Ar.35	Het.1
B-35	Ar.36	Het.1
B-36	Ar.37	Het.1
B-37	Ar.38	Het.1
B-38	Ar.39	Het.1
B-39	Ar.40	Het.1
B-40	Ar.41	Het.1
B-41	Ar.42	Het.1
B-42	Ar.43	Het.1
B-43	Ar.44	Het.1

No.	Ar'	Het
B-44	Ar.45	Het.1
B-45	Ar.46	Het.1
B-46	Ar.47	Het.1
B-47	Ar.48	Het.1
B-48	Ar.49	Het.1
B-49	Ar.50	Het.1
B-50	Ar.2	Het.2
B-51	Ar.3	Het.2
B-52	Ar.4	Het.2
B-53	Ar.5	Het.2
B-54	Ar.6	Het.2
B-55	Ar.7	Het.2
B-56	Ar.8	Het.2
B-57	Ar.9	Het.2
B-58	Ar.10	Het.2
B-59	Ar.11	Het.2
B-60	Ar.12	Het.2
B-61	Ar.13	Het.2
B-62	Ar.14	Het.2
B-63	Ar.15	Het.2
B-64	Ar.16	Het.2
B-65	Ar.17	Het.2
B-66	Ar.18	Het.2
B-67	Ar.19	Het.2
B-68	Ar.20	Het.2
B-69	Ar.21	Het.2
B-70	Ar.22	Het.2
B-71	Ar.23	Het.2
B-72	Ar.24	Het.2
B-73	Ar.25	Het.2
B-74	Ar.26	Het.2
B-75	Ar.27	Het.2
B-76	Ar.28	Het.2
B-77	Ar.29	Het.2
B-78	Ar.30	Het.2
B-79	Ar.31	Het.2
B-80	Ar.32	Het.2

No.	Ar'	Het
B-81	Ar.33	Het.2
B-82	Ar.34	Het.2
B-83	Ar.35	Het.2
B-84	Ar.36	Het.2
B-85	Ar.37	Het.2
B-86	Ar.38	Het.2
B-87	Ar.39	Het.2
B-88	Ar.40	Het.2
B-89	Ar.41	Het.2
B-90	Ar.42	Het.2
B-91	Ar.43	Het.2
B-92	Ar.44	Het.2
B-93	Ar.45	Het.2
B-94	Ar.46	Het.2
B-95	Ar.47	Het.2
B-96	Ar.48	Het.2
B-97	Ar.49	Het.2
B-98	Ar.50	Het.2
B-99	Ar.2	Het.3
B-100	Ar.3	Het.3
B-101	Ar.4	Het.3
B-102	Ar.5	Het.3
B-103	Ar.6	Het.3
B-104	Ar.7	Het.3
B-105	Ar.8	Het.3
B-106	Ar.9	Het.3
B-107	Ar.10	Het.3
B-108	Ar.11	Het.3
B-109	Ar.12	Het.3
B-110	Ar.13	Het.3
B-111	Ar.14	Het.3
B-112	Ar.15	Het.3
B-113	Ar.16	Het.3
B-114	Ar.17	Het.3
B-115	Ar.18	Het.3
B-116	Ar.19	Het.3
B-117	Ar.20	Het.3

No.	Ar'	Het
B-118	Ar.21	Het.3
B-119	Ar.22	Het.3
B-120	Ar.23	Het.3
B-121	Ar.24	Het.3
B-122	Ar.25	Het.3
B-123	Ar.26	Het.3
B-124	Ar.27	Het.3
B-125	Ar.28	Het.3
B-126	Ar.29	Het.3
B-127	Ar.30	Het.3
B-128	Ar.31	Het.3
B-129	Ar.32	Het.3
B-130	Ar.33	Het.3
B-131	Ar.34	Het.3
B-132	Ar.35	Het.3
B-133	Ar.36	Het.3
B-134	Ar.37	Het.3
B-135	Ar.38	Het.3
B-136	Ar.39	Het.3
B-137	Ar.40	Het.3
B-138	Ar.41	Het.3
B-139	Ar.42	Het.3
B-140	Ar.43	Het.3
B-141	Ar.44	Het.3
B-142	Ar.45	Het.3
B-143	Ar.46	Het.3
B-144	Ar.47	Het.3
B-145	Ar.48	Het.3
B-146	Ar.49	Het.3
B-147	Ar.50	Het.3
B-148	Ar.2	Het.4
B-149	Ar.3	Het.4
B-150	Ar.4	Het.4
B-151	Ar.5	Het.4
B-152	Ar.6	Het.4
B-153	Ar.7	Het.4
B-154	Ar.8	Het.4

No.	Ar'	Het
B-155	Ar.9	Het.4
B-156	Ar.10	Het.4
B-157	Ar.11	Het.4
B-158	Ar.12	Het.4
B-159	Ar.13	Het.4
B-160	Ar.14	Het.4
B-161	Ar.15	Het.4
B-162	Ar.16	Het.4
B-163	Ar.17	Het.4
B-164	Ar.18	Het.4
B-165	Ar.19	Het.4
B-166	Ar.20	Het.4
B-167	Ar.21	Het.4
B-168	Ar.22	Het.4
B-169	Ar.23	Het.4
B-170	Ar.24	Het.4
B-171	Ar.25	Het.4
B-172	Ar.26	Het.4
B-173	Ar.27	Het.4
B-174	Ar.28	Het.4
B-175	Ar.29	Het.4
B-176	Ar.30	Het.4
B-177	Ar.31	Het.4
B-178	Ar.32	Het.4
B-179	Ar.33	Het.4
B-180	Ar.34	Het.4
B-181	Ar.35	Het.4
B-182	Ar.36	Het.4
B-183	Ar.37	Het.4
B-184	Ar.38	Het.4
B-185	Ar.39	Het.4
B-186	Ar.40	Het.4
B-187	Ar.41	Het.4
B-188	Ar.42	Het.4
B-189	Ar.43	Het.4
B-190	Ar.44	Het.4
B-191	Ar.45	Het.4

No.	Ar'	Het
B-192	Ar.46	Het.4
B-193	Ar.47	Het.4
B-194	Ar.48	Het.4
B-195	Ar.49	Het.4
B-196	Ar.50	Het.4
B-197	Ar.2	Het.5
B-198	Ar.3	Het.5
B-199	Ar.4	Het.5
B-200	Ar.5	Het.5
B-201	Ar.6	Het.5
B-202	Ar.7	Het.5
B-203	Ar.8	Het.5
B-204	Ar.9	Het.5
B-205	Ar.10	Het.5
B-206	Ar.11	Het.5
B-207	Ar.12	Het.5
B-208	Ar.13	Het.5
B-209	Ar.14	Het.5
B-210	Ar.15	Het.5
B-211	Ar.16	Het.5
B-212	Ar.17	Het.5
B-213	Ar.18	Het.5
B-214	Ar.19	Het.5
B-215	Ar.20	Het.5
B-216	Ar.21	Het.5
B-217	Ar.22	Het.5
B-218	Ar.23	Het.5
B-219	Ar.24	Het.5
B-220	Ar.25	Het.5
B-221	Ar.26	Het.5
B-222	Ar.27	Het.5
B-223	Ar.28	Het.5
B-224	Ar.29	Het.5
B-225	Ar.30	Het.5
B-226	Ar.31	Het.5
B-227	Ar.32	Het.5
B-228	Ar.33	Het.5

No.	Ar'	Het
B-229	Ar.34	Het.5
B-230	Ar.35	Het.5
B-231	Ar.36	Het.5
B-232	Ar.37	Het.5
B-233	Ar.38	Het.5
B-234	Ar.39	Het.5
B-235	Ar.40	Het.5
B-236	Ar.41	Het.5
B-237	Ar.42	Het.5
B-238	Ar.43	Het.5
B-239	Ar.44	Het.5
B-240	Ar.45	Het.5
B-241	Ar.46	Het.5
B-242	Ar.47	Het.5
B-243	Ar.48	Het.5
B-244	Ar.49	Het.5
B-245	Ar.50	Het.5
B-246	Ar.2	Het.6
B-247	Ar.3	Het.6
B-248	Ar.4	Het.6
B-249	Ar.5	Het.6
B-250	Ar.6	Het.6
B-251	Ar.7	Het.6
B-252	Ar.8	Het.6
B-253	Ar.9	Het.6
B-254	Ar.10	Het.6
B-255	Ar.11	Het.6
B-256	Ar.12	Het.6
B-257	Ar.13	Het.6
B-258	Ar.14	Het.6
B-259	Ar.15	Het.6
B-260	Ar.16	Het.6
B-261	Ar.17	Het.6
B-262	Ar.18	Het.6
B-263	Ar.19	Het.6
B-264	Ar.20	Het.6
B-265	Ar.21	Het.6

No.	Ar'	Het
B-266	Ar.22	Het.6
B-267	Ar.23	Het.6
B-268	Ar.24	Het.6
B-269	Ar.25	Het.6
B-270	Ar.26	Het.6
B-271	Ar.27	Het.6
B-272	Ar.28	Het.6
B-273	Ar.29	Het.6
B-274	Ar.30	Het.6
B-275	Ar.31	Het.6
B-276	Ar.32	Het.6
B-277	Ar.33	Het.6
B-278	Ar.34	Het.6
B-279	Ar.35	Het.6
B-280	Ar.36	Het.6
B-281	Ar.37	Het.6
B-282	Ar.38	Het.6
B-283	Ar.39	Het.6
B-284	Ar.40	Het.6
B-285	Ar.41	Het.6
B-286	Ar.42	Het.6
B-287	Ar.43	Het.6
B-288	Ar.44	Het.6
B-289	Ar.45	Het.6
B-290	Ar.46	Het.6
B-291	Ar.47	Het.6
B-292	Ar.48	Het.6
B-293	Ar.49	Het.6
B-294	Ar.50	Het.6
B-295	Ar.2	Het.7
B-296	Ar.3	Het.7
B-297	Ar.4	Het.7
B-298	Ar.5	Het.7
B-299	Ar.6	Het.7
B-300	Ar.7	Het.7
B-301	Ar.8	Het.7
B-302	Ar.9	Het.7

No.	Ar'	Het
B-303	Ar.10	Het.7
B-304	Ar.11	Het.7
B-305	Ar.12	Het.7
B-306	Ar.13	Het.7
B-307	Ar.14	Het.7
B-308	Ar.15	Het.7
B-309	Ar.16	Het.7
B-310	Ar.17	Het.7
B-311	Ar.18	Het.7
B-312	Ar.19	Het.7
B-313	Ar.20	Het.7
B-314	Ar.21	Het.7
B-315	Ar.22	Het.7
B-316	Ar.23	Het.7
B-317	Ar.24	Het.7
B-318	Ar.25	Het.7
B-319	Ar.26	Het.7
B-320	Ar.27	Het.7
B-321	Ar.28	Het.7
B-322	Ar.29	Het.7
B-323	Ar.30	Het.7
B-324	Ar.31	Het.7
B-325	Ar.32	Het.7
B-326	Ar.33	Het.7
B-327	Ar.34	Het.7
B-328	Ar.35	Het.7
B-329	Ar.36	Het.7
B-330	Ar.37	Het.7
B-331	Ar.38	Het.7
B-332	Ar.39	Het.7
B-333	Ar.40	Het.7
B-334	Ar.41	Het.7
B-335	Ar.42	Het.7
B-336	Ar.43	Het.7
B-337	Ar.44	Het.7
B-338	Ar.45	Het.7
B-339	Ar.46	Het.7

No.	Ar'	Het
B-340	Ar.47	Het.7
B-341	Ar.48	Het.7
B-342	Ar.49	Het.7
B-343	Ar.50	Het.7
B-344	Ar.2	Het.8
B-345	Ar.3	Het.8
B-346	Ar.4	Het.8
B-347	Ar.5	Het.8
B-348	Ar.6	Het.8
B-349	Ar.7	Het.8
B-350	Ar.8	Het.8
B-351	Ar.9	Het.8
B-352	Ar.10	Het.8
B-353	Ar.11	Het.8
B-354	Ar.12	Het.8
B-355	Ar.13	Het.8
B-356	Ar.14	Het.8
B-357	Ar.15	Het.8
B-358	Ar.16	Het.8
B-359	Ar.17	Het.8
B-360	Ar.18	Het.8
B-361	Ar.19	Het.8
B-362	Ar.20	Het.8
B-363	Ar.21	Het.8
B-364	Ar.22	Het.8
B-365	Ar.23	Het.8
B-366	Ar.24	Het.8
B-367	Ar.25	Het.8
B-368	Ar.26	Het.8
B-369	Ar.27	Het.8
B-370	Ar.28	Het.8
B-371	Ar.29	Het.8
B-372	Ar.30	Het.8
B-373	Ar.31	Het.8
B-374	Ar.32	Het.8
B-375	Ar.33	Het.8
B-376	Ar.34	Het.8

No.	Ar'	Het
B-377	Ar.35	Het.8
B-378	Ar.36	Het.8
B-379	Ar.37	Het.8
B-380	Ar.38	Het.8
B-381	Ar.39	Het.8
B-382	Ar.40	Het.8
B-383	Ar.41	Het.8
B-384	Ar.42	Het.8
B-385	Ar.43	Het.8
B-386	Ar.44	Het.8
B-387	Ar.45	Het.8
B-388	Ar.46	Het.8
B-389	Ar.47	Het.8
B-390	Ar.48	Het.8
B-391	Ar.49	Het.8
B-392	Ar.50	Het.8
B-393	Ar.2	Het.9
B-394	Ar.3	Het.9
B-395	Ar.4	Het.9
B-396	Ar.5	Het.9
B-397	Ar.6	Het.9
B-398	Ar.7	Het.9
B-399	Ar.8	Het.9
B-400	Ar.9	Het.9
B-401	Ar.10	Het.9
B-402	Ar.11	Het.9
B-403	Ar.12	Het.9
B-404	Ar.13	Het.9
B-405	Ar.14	Het.9
B-406	Ar.15	Het.9
B-407	Ar.16	Het.9
B-408	Ar.17	Het.9
B-409	Ar.18	Het.9
B-410	Ar.19	Het.9
B-411	Ar.20	Het.9
B-412	Ar.21	Het.9
B-413	Ar.22	Het.9

No.	Ar'	Het
B-414	Ar.23	Het.9
B-415	Ar.24	Het.9
B-416	Ar.25	Het.9
B-417	Ar.26	Het.9
B-418	Ar.27	Het.9
B-419	Ar.28	Het.9
B-420	Ar.29	Het.9
B-421	Ar.30	Het.9
B-422	Ar.31	Het.9
B-423	Ar.32	Het.9
B-424	Ar.33	Het.9
B-425	Ar.34	Het.9
B-426	Ar.35	Het.9
B-427	Ar.36	Het.9
B-428	Ar.37	Het.9
B-429	Ar.38	Het.9
B-430	Ar.39	Het.9
B-431	Ar.40	Het.9
B-432	Ar.41	Het.9
B-433	Ar.42	Het.9
B-434	Ar.43	Het.9
B-435	Ar.44	Het.9
B-436	Ar.45	Het.9
B-437	Ar.46	Het.9
B-438	Ar.47	Het.9
B-439	Ar.48	Het.9
B-440	Ar.49	Het.9
B-441	Ar.50	Het.9
B-442	Ar.2	Het.10
B-443	Ar.3	Het.10
B-444	Ar.4	Het.10
B-445	Ar.5	Het.10
B-446	Ar.6	Het.10
B-447	Ar.7	Het.10
B-448	Ar.8	Het.10
B-449	Ar.9	Het.10
B-450	Ar.10	Het.10

No.	Ar'	Het
B-451	Ar.11	Het.10
B-452	Ar.12	Het.10
B-453	Ar.13	Het.10
B-454	Ar.14	Het.10
B-455	Ar.15	Het.10
B-456	Ar.16	Het.10
B-457	Ar.17	Het.10
B-458	Ar.18	Het.10
B-459	Ar.19	Het.10
B-460	Ar.20	Het.10
B-461	Ar.21	Het.10
B-462	Ar.22	Het.10
B-463	Ar.23	Het.10
B-464	Ar.24	Het.10
B-465	Ar.25	Het.10
B-466	Ar.26	Het.10
B-467	Ar.27	Het.10
B-468	Ar.28	Het.10
B-469	Ar.29	Het.10
B-470	Ar.30	Het.10
B-471	Ar.31	Het.10
B-472	Ar.32	Het.10
B-473	Ar.33	Het.10
B-474	Ar.34	Het.10
B-475	Ar.35	Het.10
B-476	Ar.36	Het.10
B-477	Ar.37	Het.10
B-478	Ar.38	Het.10
B-479	Ar.39	Het.10
B-480	Ar.40	Het.10
B-481	Ar.41	Het.10
B-482	Ar.42	Het.10
B-483	Ar.43	Het.10
B-484	Ar.44	Het.10
B-485	Ar.45	Het.10
B-486	Ar.46	Het.10
B-487	Ar.47	Het.10

No.	Ar'	Het
B-488	Ar.48	Het.10
B-489	Ar.49	Het.10
B-490	Ar.50	Het.10
B-491	Ar.2	Het.11
B-492	Ar.3	Het.11
B-493	Ar.4	Het.11
B-494	Ar.5	Het.11
B-495	Ar.6	Het.11
B-496	Ar.7	Het.11
B-497	Ar.8	Het.11
B-498	Ar.9	Het.11
B-499	Ar.10	Het.11
B-500	Ar.11	Het.11
B-501	Ar.12	Het.11
B-502	Ar.13	Het.11
B-503	Ar.14	Het.11
B-504	Ar.15	Het.11
B-505	Ar.16	Het.11
B-506	Ar.17	Het.11
B-507	Ar.18	Het.11
B-508	Ar.19	Het.11
B-509	Ar.20	Het.11
B-510	Ar.21	Het.11
B-511	Ar.22	Het.11
B-512	Ar.23	Het.11
B-513	Ar.24	Het.11
B-514	Ar.25	Het.11
B-515	Ar.26	Het.11
B-516	Ar.27	Het.11
B-517	Ar.28	Het.11
B-518	Ar.29	Het.11
B-519	Ar.30	Het.11
B-520	Ar.31	Het.11
B-521	Ar.32	Het.11
B-522	Ar.33	Het.11
B-523	Ar.34	Het.11
B-524	Ar.35	Het.11

No.	Ar'	Het
B-525	Ar.36	Het.11
B-526	Ar.37	Het.11
B-527	Ar.38	Het.11
B-528	Ar.39	Het.11
B-529	Ar.40	Het.11
B-530	Ar.41	Het.11
B-531	Ar.42	Het.11
B-532	Ar.43	Het.11
B-533	Ar.44	Het.11
B-534	Ar.45	Het.11
B-535	Ar.46	Het.11
B-536	Ar.47	Het.11
B-537	Ar.48	Het.11
B-538	Ar.49	Het.11
B-539	Ar.50	Het.11
B-540	Ar.2	Het.12
B-541	Ar.3	Het.12
B-542	Ar.4	Het.12
B-543	Ar.5	Het.12
B-544	Ar.6	Het.12
B-545	Ar.7	Het.12
B-546	Ar.8	Het.12
B-547	Ar.9	Het.12
B-548	Ar.10	Het.12
B-549	Ar.11	Het.12
B-550	Ar.12	Het.12
B-551	Ar.13	Het.12
B-552	Ar.14	Het.12
B-553	Ar.15	Het.12
B-554	Ar.16	Het.12
B-555	Ar.17	Het.12
B-556	Ar.18	Het.12
B-557	Ar.19	Het.12
B-558	Ar.20	Het.12
B-559	Ar.21	Het.12
B-560	Ar.22	Het.12
B-561	Ar.23	Het.12

No.	Ar'	Het
B-562	Ar.24	Het.12
B-563	Ar.25	Het.12
B-564	Ar.26	Het.12
B-565	Ar.27	Het.12
B-566	Ar.28	Het.12
B-567	Ar.29	Het.12
B-568	Ar.30	Het.12
B-569	Ar.31	Het.12
B-570	Ar.32	Het.12
B-571	Ar.33	Het.12
B-572	Ar.34	Het.12
B-573	Ar.35	Het.12
B-574	Ar.36	Het.12
B-575	Ar.37	Het.12
B-576	Ar.38	Het.12
B-577	Ar.39	Het.12
B-578	Ar.40	Het.12
B-579	Ar.41	Het.12
B-580	Ar.42	Het.12
B-581	Ar.43	Het.12
B-582	Ar.44	Het.12
B-583	Ar.45	Het.12
B-584	Ar.46	Het.12
B-585	Ar.47	Het.12
B-586	Ar.48	Het.12
B-587	Ar.49	Het.12
B-588	Ar.50	Het.12
B-589	Ar.2	Het.13
B-590	Ar.3	Het.13
B-591	Ar.4	Het.13
B-592	Ar.5	Het.13
B-593	Ar.6	Het.13
B-594	Ar.7	Het.13
B-595	Ar.8	Het.13
B-596	Ar.9	Het.13
B-597	Ar.10	Het.13
B-598	Ar.11	Het.13

No.	Ar'	Het
B-599	Ar.12	Het.13
B-600	Ar.13	Het.13
B-601	Ar.14	Het.13
B-602	Ar.15	Het.13
B-603	Ar.16	Het.13
B-604	Ar.17	Het.13
B-605	Ar.18	Het.13
B-606	Ar.19	Het.13
B-607	Ar.20	Het.13
B-608	Ar.21	Het.13
B-609	Ar.22	Het.13
B-610	Ar.23	Het.13
B-611	Ar.24	Het.13
B-612	Ar.25	Het.13
B-613	Ar.26	Het.13
B-614	Ar.27	Het.13
B-615	Ar.28	Het.13
B-616	Ar.29	Het.13
B-617	Ar.30	Het.13
B-618	Ar.31	Het.13
B-619	Ar.32	Het.13
B-620	Ar.33	Het.13
B-621	Ar.34	Het.13
B-622	Ar.35	Het.13
B-623	Ar.36	Het.13
B-624	Ar.37	Het.13
B-625	Ar.38	Het.13
B-626	Ar.39	Het.13
B-627	Ar.40	Het.13
B-628	Ar.41	Het.13
B-629	Ar.42	Het.13
B-630	Ar.43	Het.13
B-631	Ar.44	Het.13
B-632	Ar.45	Het.13
B-633	Ar.46	Het.13
B-634	Ar.47	Het.13
B-635	Ar.48	Het.13

No.	Ar'	Het
B-636	Ar.49	Het.13
B-637	Ar.50	Het.13
B-638	Ar.2	Het.14
B-639	Ar.3	Het.14
B-640	Ar.4	Het.14
B-641	Ar.5	Het.14
B-642	Ar.6	Het.14
B-643	Ar.7	Het.14
B-644	Ar.8	Het.14
B-645	Ar.9	Het.14
B-646	Ar.10	Het.14
B-647	Ar.11	Het.14
B-648	Ar.12	Het.14
B-649	Ar.13	Het.14
B-650	Ar.14	Het.14
B-651	Ar.15	Het.14
B-652	Ar.16	Het.14
B-653	Ar.17	Het.14
B-654	Ar.18	Het.14
B-655	Ar.19	Het.14
B-656	Ar.20	Het.14
B-657	Ar.21	Het.14
B-658	Ar.22	Het.14
B-659	Ar.23	Het.14
B-660	Ar.24	Het.14
B-661	Ar.25	Het.14
B-662	Ar.26	Het.14
B-663	Ar.27	Het.14
B-664	Ar.28	Het.14
B-665	Ar.29	Het.14
B-666	Ar.30	Het.14
B-667	Ar.31	Het.14
B-668	Ar.32	Het.14
B-669	Ar.33	Het.14
B-670	Ar.34	Het.14
B-671	Ar.35	Het.14
B-672	Ar.36	Het.14

No.	Ar'	Het
B-673	Ar.37	Het.14
B-674	Ar.38	Het.14
B-675	Ar.39	Het.14
B-676	Ar.40	Het.14
B-677	Ar.41	Het.14
B-678	Ar.42	Het.14
B-679	Ar.43	Het.14
B-680	Ar.44	Het.14
B-681	Ar.45	Het.14
B-682	Ar.46	Het.14
B-683	Ar.47	Het.14
B-684	Ar.48	Het.14
B-685	Ar.49	Het.14
B-686	Ar.50	Het.14
B-687	Ar.2	Het.15
B-688	Ar.3	Het.15
B-689	Ar.4	Het.15
B-690	Ar.5	Het.15
B-691	Ar.6	Het.15
B-692	Ar.7	Het.15
B-693	Ar.8	Het.15
B-694	Ar.9	Het.15
B-695	Ar.10	Het.15
B-696	Ar.11	Het.15
B-697	Ar.12	Het.15
B-698	Ar.13	Het.15
B-699	Ar.14	Het.15
B-700	Ar.15	Het.15
B-701	Ar.16	Het.15
B-702	Ar.17	Het.15
B-703	Ar.18	Het.15
B-704	Ar.19	Het.15
B-705	Ar.20	Het.15
B-706	Ar.21	Het.15
B-707	Ar.22	Het.15
B-708	Ar.23	Het.15
B-709	Ar.24	Het.15

No.	Ar'	Het
B-710	Ar.25	Het.15
B-711	Ar.26	Het.15
B-712	Ar.27	Het.15
B-713	Ar.28	Het.15
B-714	Ar.29	Het.15
B-715	Ar.30	Het.15
B-716	Ar.31	Het.15
B-717	Ar.32	Het.15
B-718	Ar.33	Het.15
B-719	Ar.34	Het.15
B-720	Ar.35	Het.15
B-721	Ar.36	Het.15
B-722	Ar.37	Het.15
B-723	Ar.38	Het.15
B-724	Ar.39	Het.15
B-725	Ar.40	Het.15
B-726	Ar.41	Het.15
B-727	Ar.42	Het.15
B-728	Ar.43	Het.15
B-729	Ar.44	Het.15
B-730	Ar.45	Het.15
B-731	Ar.46	Het.15
B-732	Ar.47	Het.15
B-733	Ar.48	Het.15
B-734	Ar.49	Het.15
B-735	Ar.50	Het.15
B-736	Ar.2	Het.16
B-737	Ar.3	Het.16
B-738	Ar.4	Het.16
B-739	Ar.5	Het.16
B-740	Ar.6	Het.16
B-741	Ar.7	Het.16
B-742	Ar.8	Het.16
B-743	Ar.9	Het.16
B-744	Ar.10	Het.16
B-745	Ar.11	Het.16
B-746	Ar.12	Het.16

No.	Ar'	Het
B-747	Ar.13	Het.16
B-748	Ar.14	Het.16
B-749	Ar.15	Het.16
B-750	Ar.16	Het.16
B-751	Ar.17	Het.16
B-752	Ar.18	Het.16
B-753	Ar.19	Het.16
B-754	Ar.20	Het.16
B-755	Ar.21	Het.16
B-756	Ar.22	Het.16
B-757	Ar.23	Het.16
B-758	Ar.24	Het.16
B-759	Ar.25	Het.16
B-760	Ar.26	Het.16
B-761	Ar.27	Het.16
B-762	Ar.28	Het.16
B-763	Ar.29	Het.16
B-764	Ar.30	Het.16
B-765	Ar.31	Het.16

No.	Ar'	Het
B-766	Ar.32	Het.16
B-767	Ar.33	Het.16
B-768	Ar.34	Het.16
B-769	Ar.35	Het.16
B-770	Ar.36	Het.16
B-771	Ar.37	Het.16
B-772	Ar.38	Het.16
B-773	Ar.39	Het.16
B-774	Ar.40	Het.16
B-775	Ar.41	Het.16
B-776	Ar.42	Het.16
B-777	Ar.43	Het.16
B-778	Ar.44	Het.16
B-779	Ar.45	Het.16
B-780	Ar.46	Het.16
B-781	Ar.47	Het.16
B-782	Ar.48	Het.16
B-783	Ar.49	Het.16
B-784	Ar.50	Het.16

The radicals Ar.2 to Ar.50 correspond to the radicals listed above as specific embodiments of Ar as groups of formulae Ar.2 to Ar.50, and the radicals Het.1 to Het.16 correspond to the radicals listed above as specific embodiments of Het as groups of formulae Het.1 to Het.16.

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The radicals Ar.2 to Ar.50 correspond to the radicals listed above as specific embodiments of Ar as groups of formulae Ar.2 to Ar.50. The radicals Het.1 to Het.16 correspond to the radicals listed above as specific embodiments of Het as groups of formulae Het.1 to Het.16.

10

Among the above compounds, preference is given to compounds of formulae I.1 to I.24, I.49 to I.72, I.97 to I.120, I.145 to I.168; II.1 to II.24 and II.49 to II.72. Among these, preference is given to compounds I.1 to I.12, I.49 to I.60, I.97 to I.108, I.145 to I.156; II.1 to II.12 and II.49 to II.60. Particular preference is given to compounds I.2, I.50, I.98, I.146, II.2 and II.50.

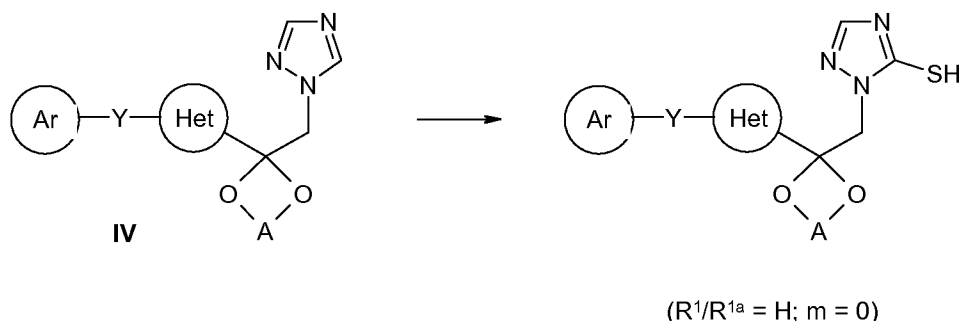
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Compounds of formulae I and II can be prepared by one or more of the following methods and variations as described in schemes 1 to 9 and in the syntheses descriptions below. The variables are as defined above for formulae I and II.

- 5 Compounds of formula I, wherein R¹ is H and m is 0 (or compounds II, wherein R^{1a} is H), can be prepared by sulfurizing the corresponding triazole derivative IV as outlined in scheme 1. Sulfurization can be carried out in analogy to known processes, for example as described in WO 96/41804. For instance, the triazolyl ring can be first deprotonated with a strong base, e.g. an organolithium base, such as n-butyllithium, tert-
- 10 butyllithium or sec-butyllithium, lithium diisopropyl amide, sodium hydride, sodium amide or potassium tert-butyrate mixed with tetramethylethylene diamine (TMEDA), and then the resulting anion is reacted with elemental sulfur. Sulfur is generally used in powdered form. The reaction is generally carried out in an inert solvent, such as ethers, e.g. diethylether, methyl-tert-butylether, tetrahydrofuran or dioxane, dimethoxyethane,
- 15 liquid ammonia, dimethylsulfoxide or dimethylformamide. The reaction temperature is not very critical and can range, for example, from -70 to +50 °C, preferably from -70 to 0°C. Alternatively, sulfurization can be carried out in the absence of a base by reacting 7 with elemental sulfur in a high-boiling solvent, such as N-methylpyrrolidinone, dioxane or N,N-dimethylformamide, while heating, e.g. to 160 to 250 °C. After completion of the reaction, the resulting mixture is hydrolyzed, e.g. by the addition of water or an aqueous acid, such as a mineral acid (e.g. dilute sulfuric acid or hydrochloric acid), acetic acid or ammoniumchloride, to give compound I.
- 20

Scheme 1

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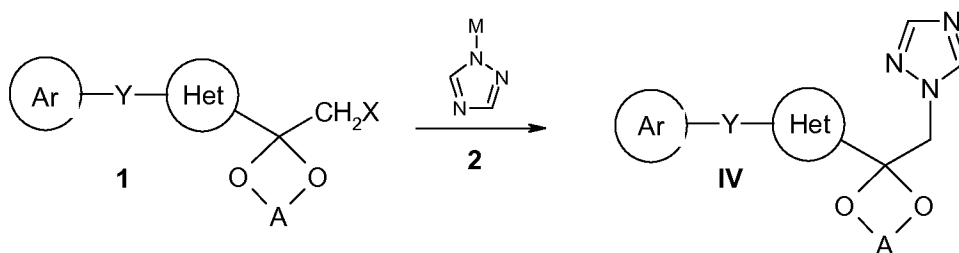


- The triazole compound IV can be prepared in analogy to known methods, such as described, for example, in EP-A-0065485, as outlined in scheme 2. For instance, the compound 1, wherein X is a good leaving group, such as a halogen atom, in particular Cl, Br or I, phenylsulfonyloxy, p-tosyloxy, trifluoroacetyloxy or alkylsulfonyloxy, such as mesyloxy, can be reacted with the [1,2,4]-1H-triazole compound 2, wherein M is a hydrogen atom or a metal atom, in particular an alkali metal atom, such as Li, Na or K. In case M is H, the reaction is suitably carried out in the presence of a base, such as an
- 30

alkali metal hydride (e.g. sodium hydride, potassium hydride), an alkali metal hydroxide (e.g. sodium hydroxide, potassium hydroxide), an alkali metal carbonate (e.g. sodium carbonate, potassium carbonate, caesium carbonate) or a suitable amine (e.g. triethylamine, triethylenediamine, piperidine, pyridine, 4-dimethylaminopyridine, 4-pyrrolidylpyridine). If X is Cl or Br, the reaction can be accelerated by the addition of an alkali metal iodide, such as NaI or KI. The reaction is suitably carried out in a solvent. Suitable solvents are inert versus the reactants and products and are rather polar, for example, N,N-dimethylformamide, N,N-dimethylacetamide, dimethylsulfoxide, acetonitrile, benzonitrile, ethers, such as diethyl ether, dipropyl ether, methyl-tert-butyl ether, tetrahydrofuran or dioxane, and the like, and can be used in combination with other inert, less polar solvents, such as benzene, toluene, the xylenes, chlorobenzene, nitrobenzene, hexane, heptane, petrolether and the like. The reaction temperature is not very critical and can range, for example from 0 to 220°C and preferably from 80 to 170°C. Suitably, the reaction is carried out at reflux temperature of the reaction mixture.

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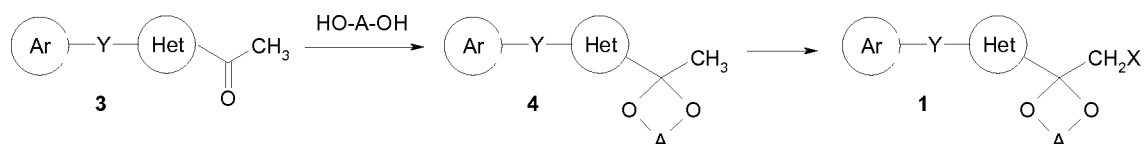
Scheme 2



Compound 1 in turn can be prepared in analogy to known methods, such as described, for example, in EP-A-0065485 or in Synthesis, 1974, I, 23, as outlined in scheme 3 below. For instance, the ketone 3 may be reacted with a diol HO-A-OH for several hours preferably in the presence of an azeotrope-forming compound, such as benzene, toluene, xylene, chloroform or tetrachloromethane, which can also serve as reaction solvents. The ketalization reaction is accelerated by the presence of a strong acid, such p-toluenesulfonic acid. Subsequent halogenation of the resulting ketal 4 yields ketal 1, wherein X is a halogen atom, which, if desired, can be converted into a compound 1, wherein X is a leaving group X other than halogen.

Scheme 3

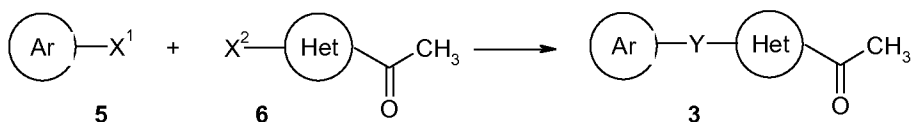
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The ketone **3** can be obtained in analogy to known methods, such as described, for example, in EP-A-0065485, from the condensation of compounds **5** and **6**, wherein X¹ is a group Y-H or Y-M, wherein M is a metal atom, in particular an alkali metal atom, such as Li, Na or K, and X² is a good leaving group, such as a halogen atom, such as F, Cl, Br or I, phenylsulfonyloxy, p-tosyloxy, trifluoroacetyloxy or alkylsulfonyloxy, such as mesyloxy, or, vice versa, wherein X¹ is a good leaving group and X² is a group Y-H or Y-M, as outlined in scheme 4 below. In case X¹ or X² is Y-H, the reaction is suitably carried out in the presence of a base, such as an alkali metal hydride (e.g. sodium hydride, potassium hydride), an alkali metal hydroxide (e.g. sodium hydroxide, potassium hydroxide), an alkali metal carbonate (e.g. sodium carbonate, potassium carbonate, caesium carbonate) or a suitable amine (e.g. triethylamine, triethylenediamine, piperidine, pyridine, 4-dimethylaminopyridine, 4-pyrrolidylpyridine). If the leaving group X¹ or X² is Cl or Br, the reaction can be accelerated by the addition of an alkali metal iodide, such as NaI or KI. The reaction is suitably carried out in a solvent. Suitable solvents are inert versus the reactants and products and are rather polar, for example, N,N-dimethylformamide, N,N-dimethylacetamide, dimethylsulfoxide, acetonitrile, benzonitrile, ethers, such as diethyl ether, dipropyl ether, methyl-tert-butyl ether, tetrahydrofuran or dioxane, and the like, and can be used in combination with other inert, less polar solvents, such as benzene, toluene, the xylenes, chlorobenzene, nitrobenzene, hexane, heptane, petrolether and the like. The reaction temperature is not very critical and can range, for example from 0 to 220°C and preferably from 80 to 170°C. Suitably, the reaction is carried out at reflux temperature of the reaction mixture.

Scheme 4

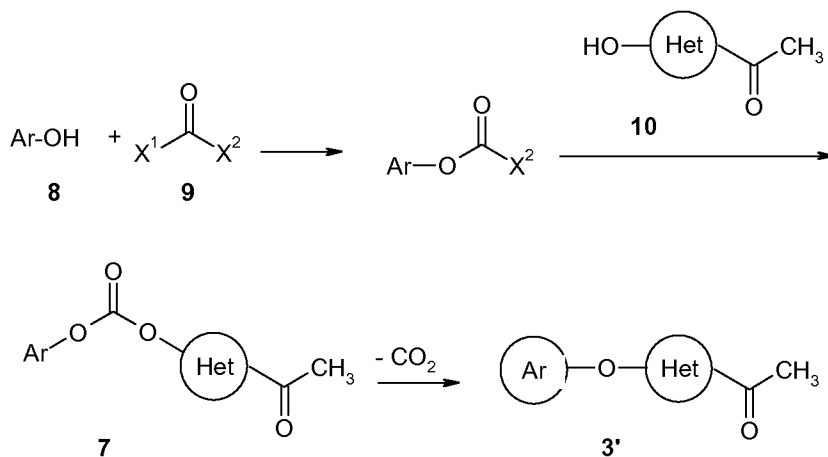
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As an alternative to the process described in scheme 4, the ketone **3**, wherein Y is O (= **3'**), can be prepared in analogy to the method described in EP-A-0065485 as outlined in scheme 5 below by decarboxylation of the carbonic ester **7**. This in turn can be prepared from the hydroxyl compound **8** which is reacted with a difunctional derivative **9** of carbonic acid, such as phosgene, a halogenoformic acid diester, a dialkylcarbonic diester or a diphenylcarbonic acid diester and further reaction with the hydroxyl compound **10**. Decarboxylation is carried out by heating **7** in substance or in a high-boiling inert solvent, such as diphenylether or ethyleneglycoldimethylether, to a temperature in the range of from 120 to 220°C.

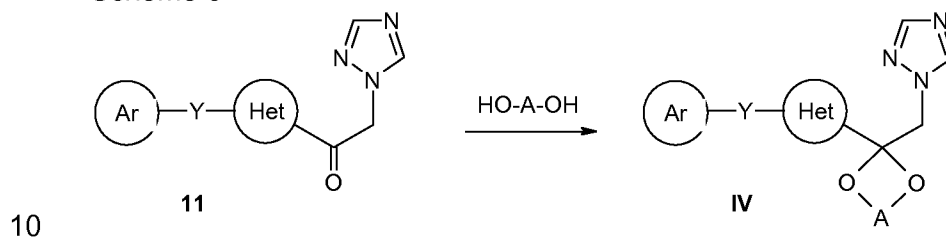
Scheme 5

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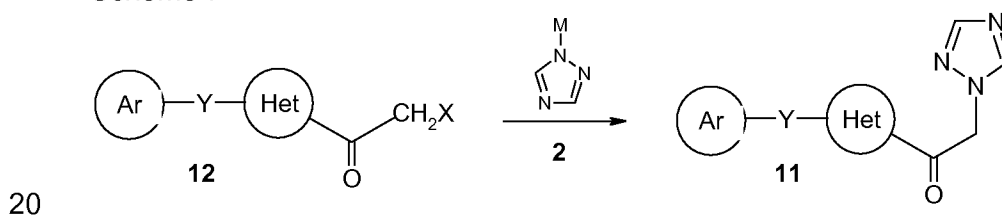
As an alternative to the process described in scheme 2, compound IV can be prepared in analogy to the method described in EP-A-0065485 as outlined in scheme 6 below by a ketalization reaction of the ketone 11 with a diol HO-A-OH. The ketalization reaction can be carried out under reaction conditions described for scheme 3.

Scheme 6



The ketone 11 in turn can be prepared in analogy to the method described in EP-A-0065485 as outlined in scheme 7 below by reacting the compound 12, wherein X is a good leaving group, such as a halogen atom, in particular Cl, Br or I, phenylsulfonyloxy, p-tosyloxy, trifluoroacetyloxy or alkylsulfonyloxy, such as mesyloxy, with the triazole compound 2 under reaction conditions described for the reaction in scheme 2. Compound 12, in turn, can be obtained from the halogenation of the ketone 3.

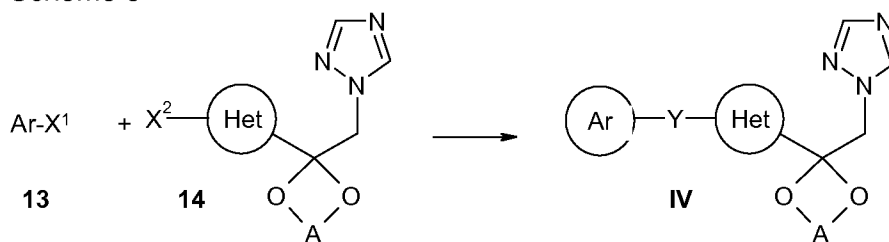
Scheme 7



As an alternative to the process described in scheme 2, compound IV can be prepared in analogy to the method described in EP-A-0065485 as outlined in scheme 8 below by

- condensation of compounds **13** and **14**, wherein X^1 is a group Y-H or Y-M, wherein M is a metal atom, in particular an alkali metal atom, such as Li, Na or K, and X^2 is a good leaving group, such as a halogen atom, in particular Cl, Br or I, phenylsulfonyloxy, p-tosyloxy, trifluoroacetyloxy or alkylsulfonyloxy, such as mesyloxy, or, vice versa,
- 5 wherein X^1 is a good leaving group and X^2 is a group Y-H or Y-M, under reaction conditions as described for scheme 4.

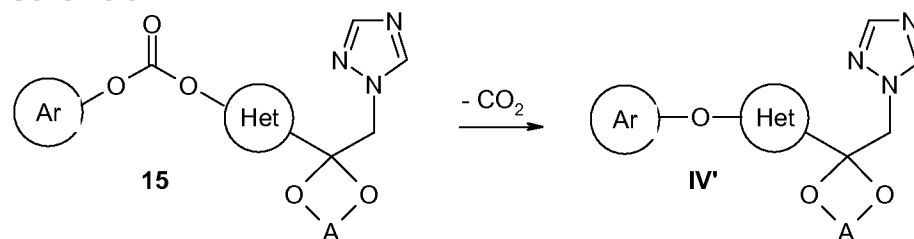
Scheme 8



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- As an alternative to the process described in scheme 2, compounds IV, wherein Y is O (= IV'), can be prepared in analogy to the method described in EP-A-0065485 as outlined in scheme 9 below by decarboxylation of the carbonic ester **15** under reaction conditions as described for scheme 5. The carbonic ester **15**, in turn, can be prepared under reaction conditions described for the condensation reaction in scheme 5.
- 15

Scheme 9



- 20 Compounds **5**, **6**, **8**, **9** and **10** used in the above reactions are either commercially available or can be produced by standard methods known to the skilled person.

The radicals in the above reactants, if inert towards the respective reaction, can be present in the above reaction steps or can be introduced at a later stage, e.g. into compound IV.

25

Compounds of formula I, wherein R^1 is different from hydrogen and m is 0, can be prepared from compounds I, wherein $R^1 = H$ and m = 0.

- 30 Compounds of formula I, wherein m is 0 and R^1 is C_1 - C_{10} -alkyl, C_1 - C_{10} -haloalkyl, C_2 - C_{10} -alkenyl, C_2 - C_{10} -haloalkenyl, C_2 - C_{10} -alkynyl, C_2 - C_{10} -haloalkynyl, C_3 - C_{10} -cycloalkyl,

- C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may be substituted as described above, and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may be substituted as described above, may be prepared in analogy to the method described in DE-A-19520098 or WO, 96/41804 by reacting a compound I, wherein m is 0 and R¹ is H, with a compound R¹-LG, where R¹ has one of the above meanings and LG is a leaving group, such as a halide (e.g. Cl, Br, I), a tosylate or a mesylate, in the presence of a base. Suitable bases are, for example, alkali metal hydrides (e.g. sodium hydride, potassium hydride), alkali metal hydroxides (e.g. sodium hydroxide, potassium hydroxide), alkali metal carbonates (e.g. sodium carbonate, potassium carbonate, caesium carbonate), alkali metal alkoxides (e.g. sodium methoxide, potassium methoxide, sodium ethoxide, potassium ethoxide, potassium tert-butoxide) or organolithium bases (e.g. n-butyl lithium, sec-butyl lithium, tert-butyl lithium and lithium diisopropylamine).
- The reaction is generally carried out in a suitable solvent. Suitable solvents are, for example, toluene, N-methylpyrrolidinone, ethers (e.g. diethyl ether, tetrahydrofuran, dioxane, 1,2-dimethoxyethane), acetonitrile, N,N-dimethylformamide or dimethylsulfoxide.
- Alternatively, compounds of formula I, wherein m is 0 and R¹ is C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may be substituted as described above, and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may be substituted as described above, may be prepared in analogy to the method described in Heterocycles, 23(7), 1645-1649, 1985 by reacting compound IV with a disulfide R¹-S-S-R¹ in the presence of a strong base under conditions similar to those described for scheme 1.
- Compounds of formulae I, wherein m is 0 and R¹ is -C(=O)R⁸ or -C(=S)R⁸, may be prepared in analogy to the method described in DE-A-19617461 by reacting a compound I, wherein m is 0 and R¹ is H, with a compound R⁸-C(=O)-W, R⁸-C(=S)-W, R⁸-N=C=O or R⁸-N=C=S, wherein R⁸ has one of the above meanings, R⁸ is C₁-C₁₀-alkyl or C₁-C₁₀-haloalkyl and W is a good leaving group, such as a halide (e.g. Cl, Br, I), an alkoxide (e.g. methoxide, ethoxide) or pentafluorophenoxide, in the presence of a base. Suitable bases are, for example, alkali metal hydrides (e.g. sodium hydride, potassium hydride), alkali metal hydroxides (e.g. sodium hydroxide, potassium hydroxide), alkali metal carbonates (e.g. sodium carbonate, potassium carbonate, caesium carbonate), alkali

metal alkoxides (e.g. sodium methoxide, potassium methoxide, sodium ethoxide, potassium ethoxide, potassium tert-butoxide) or organolithium bases (e.g. n-butyl lithium, sec-butyl lithium, tert-butyl lithium, lithium diisopropylamine). The reaction is generally carried out in a suitable solvent. Suitable solvents are, for example, toluene, N-methylpyrrolidinone, ethers (e.g. diethyl ether, tetrahydrofuran, dioxane, 1,2-dimethoxyethane), acetonitrile, N,N-dimethylformamide or dimethylsulfoxide.

Compounds of formula I, wherein m is 0 and R¹ is -SO₂R⁸, may be prepared in analogy to the method described in DE-A-19620590 by reacting a compound I, wherein m is 0 and R¹ is H, with a compound R⁸-SO₂-W, wherein R⁸ has one of the above meanings and W is a good leaving group, such as a halide (e.g. Cl, Br, I), an alkoxide (e.g. methoxide, ethoxide) or pentafluorophenoxide, in the presence of a base. Suitable bases are, for example, alkali metal hydrides (e.g. sodium hydride, potassium hydride), alkali metal hydroxides (e.g. sodium hydroxide, potassium hydroxide), alkali metal carbonates (e.g. sodium carbonate, potassium carbonate, caesium carbonate), alkali metal alkoxides (e.g. sodium methoxide, potassium methoxide, sodium ethoxide, potassium ethoxide, potassium tert-butoxide) or organolithium bases (e.g. n-butyl lithium, sec-butyl lithium, tert-butyl lithium, lithium diisopropylamine). The reaction is generally carried out in a suitable solvent. Suitable solvents are, for example, toluene, N-methylpyrrolidinone, ethers (e.g. diethyl ether, tetrahydrofuran, dioxane, 1,2-dimethoxyethane), acetonitrile, N,N-dimethylformamide or dimethylsulfoxide.

Compounds of formula I, wherein m is 0 and R¹ is -CN, may be prepared in analogy to the method described in DE-A-19620407 by reacting a compound I, wherein m is 0 and R¹ is H, with a compound CN-W, wherein W is a good leaving group, such as a halide (e.g. Cl, Br, I), in the presence of a base. Suitable bases are, for example, alkali metal hydrides (e.g. sodium hydride, potassium hydride), alkali metal hydroxides (e.g. sodium hydroxide, potassium hydroxide), alkali metal carbonates (e.g. sodium carbonate, potassium carbonate, caesium carbonate), alkali metal alkoxides (e.g. sodium methoxide, potassium methoxide, sodium ethoxide, potassium ethoxide, potassium tert-butoxide) or organolithium bases (e.g. n-butyl lithium, sec-butyl lithium, tert-butyl lithium, lithium diisopropylamine). The reaction is generally carried out in a suitable solvent. Suitable solvents are, for example, toluene, N-methylpyrrolidinone, ethers (e.g. diethyl ether, tetrahydrofuran, dioxane, 1,2-dimethoxyethane), acetonitrile, N,N-dimethylformamide or dimethylsulfoxide.

Compounds of formula I, wherein m is 0 and R¹ is M, may be prepared in analogy to the method described in DE-A-19617282 by reacting a compound I, wherein m is 0 and

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R¹ is H, with an amine NR^aR^bR^c, wherein R^a, R^b and R^c are as defined above, or with a metal salt, such as sodium hydroxide, potassium hydroxide or copper acetate.

5 Compounds of formula I, wherein m is 0 and R¹ is a group of formula III, may be prepared in analogy to the method described in WO 97/43269 by reacting a compound I, wherein m is 0 and R¹ is H, with a halogen, especially iodine, in the presence of a base. Suitable bases are, for example, alkali metal hydrides (e.g. sodium hydride, potassium hydride), alkali metal hydroxides (e.g. sodium hydroxide, potassium hydroxide), alkali metal carbonates (e.g. sodium carbonate, potassium carbonate, caesium carbonate), alkali metal alkoxides (e.g. sodium methoxide, potassium methoxide, sodium ethoxide, potassium ethoxide, potassium tert-butoxide) or organolithium bases (e.g. n-butyl lithium, sec-butyl lithium, tert-butyl lithium, lithium diisopropylamine). The reaction is generally carried out in a suitable solvent. Suitable solvents are, for example, 10 toluene, N-methylpyrrolidinone, ethers (e.g. diethyl ether, tetrahydrofuran, dioxane, 1,2-dimethoxyethane), acetonitrile, N,N-dimethylformamide or dimethylsulfoxide.

15 Compounds of formula I, wherein m is 0 and R¹ is -P(=Q)R⁹R¹⁰, may be prepared in analogy to the method described in WO 99/05149.

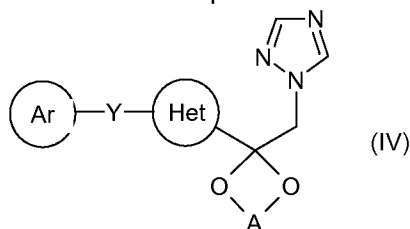
20 Compounds of formula II, wherein R^{1a} is different from hydrogen, can be prepared by reacting the NR^{1a} group, wherein R^{1a} is H, in analogy to the above-described conversion of compounds I, wherein R¹ is H, into compounds, wherein R¹ is different from H.

25 Compounds I, wherein m is 1 or 2, can be prepared from respective compounds I, wherein m is 0, by oxidation. Alternatively, compounds I, wherein m is 2, can be prepared from compounds IV by first deprotonating the triazolyl ring and then reacting with a sulfonyl chloride R¹SO₂Cl. Compounds I, wherein m is 3, can be prepared from compounds IV by first deprotonating the triazolyl ring and then reacting with sulfuric acid chloride or a sulfuric ester chloride of formula R¹OSO₂Cl, wherein R¹ is selected from 30 hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may be substituted as mentioned above, and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S, 35 wherein the heterocyclic ring may be substituted as mentioned above.

If individual compounds cannot be prepared via the above-described routes, they can be prepared by derivatization of other compounds I and II or by customary modifications of the synthesis routes described.

The reaction mixtures are worked up in the customary manner, for example by mixing with water, separating the phases, and, if appropriate, purifying the crude products by chromatography, for example on alumina or silica gel. Some of the intermediates and end products may be obtained in the form of colorless or pale brown viscous oils, which are freed or purified from volatile components under reduced pressure and at moderately elevated temperature. If the intermediates and end products are obtained as solids, they may be purified by recrystallization or digestion.

10 A further aspect of the invention relates to compounds of formula IV



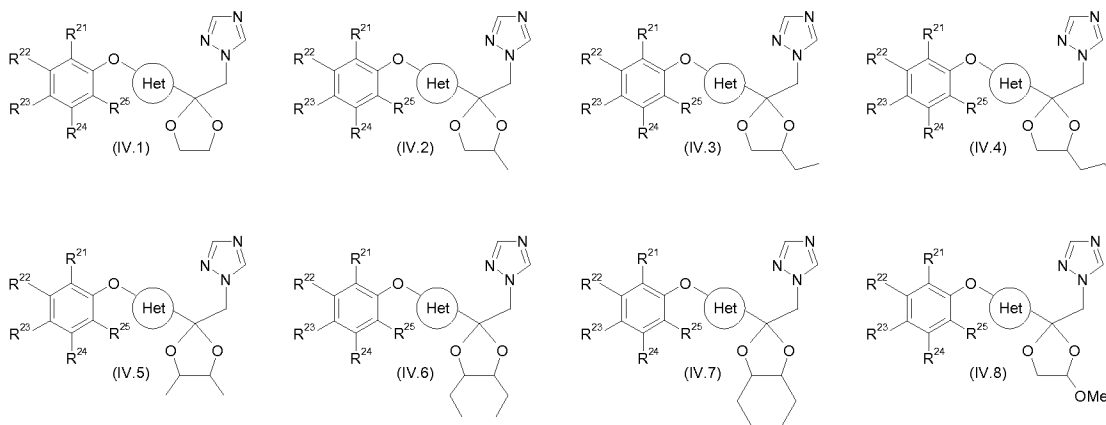
wherein Ar, Het, A and Y have one of the general or, in particular, one of the preferred meanings given above for compounds I and II.

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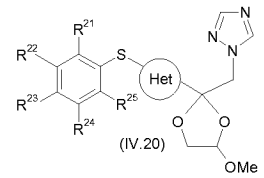
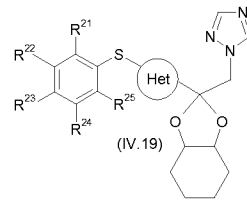
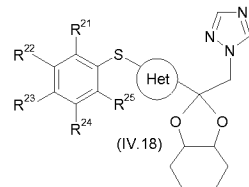
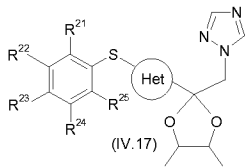
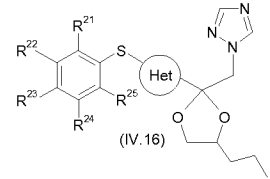
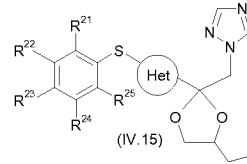
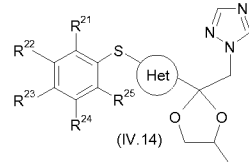
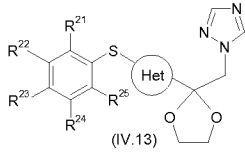
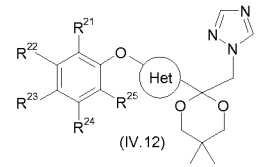
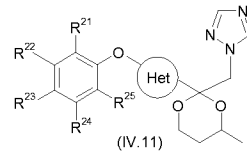
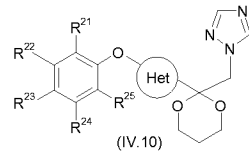
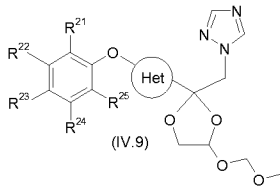
Compounds IV are on the one side valuable intermediates in the preparation of compounds I and II (see above schemes), but on the other side show a remarkable fungicidal activity, too.

20 Particularly preferred compounds IV are compounds of formulae IV.1 to IV.48, wherein the combination of R²¹, R²², R²³, R²⁴ and R²⁵ corresponds in each case to one row in table A above and Het has in each case one of the formulae Het.1 to Het.16, and compounds of formulae IV.49 to IV.96, wherein the combination of Het and Ar' corresponds in each case to one row in table B above.

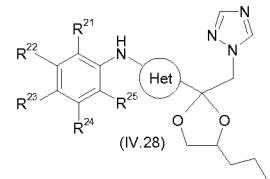
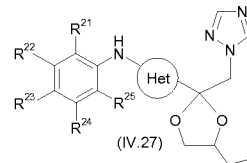
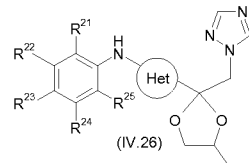
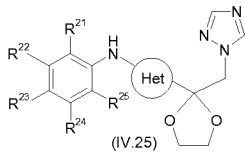
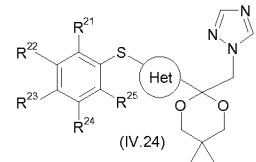
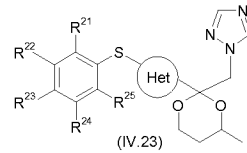
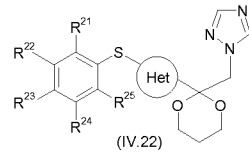
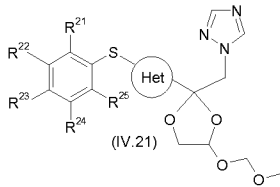
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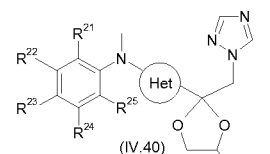
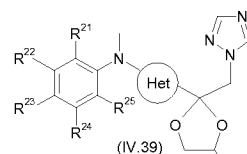
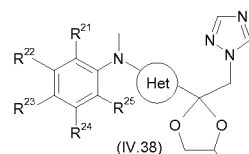
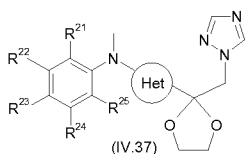
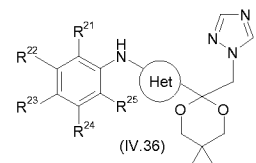
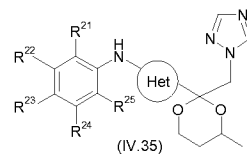
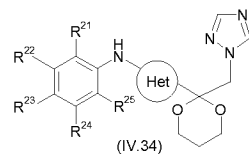
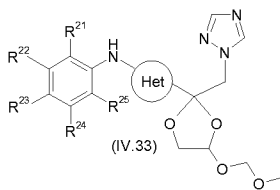
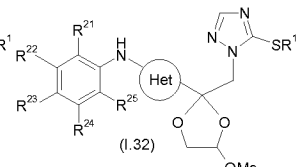
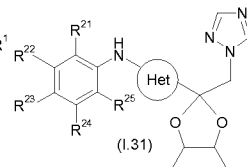
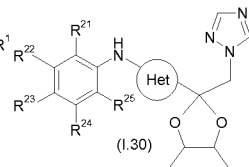
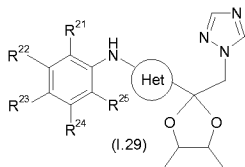
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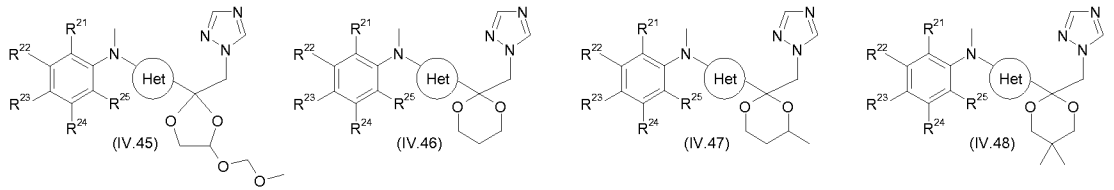
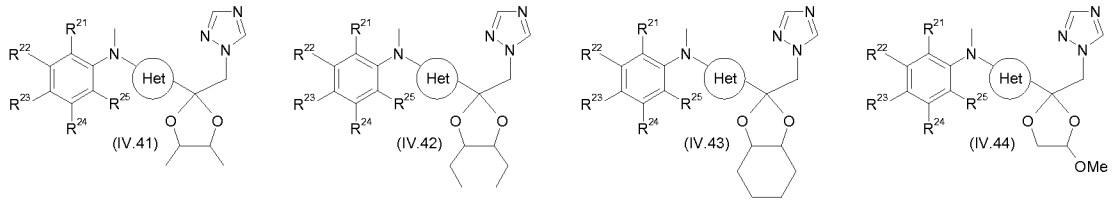


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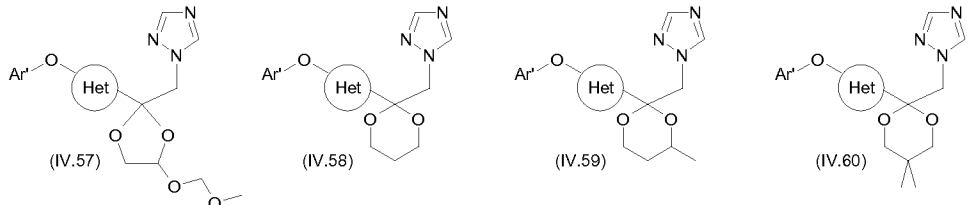
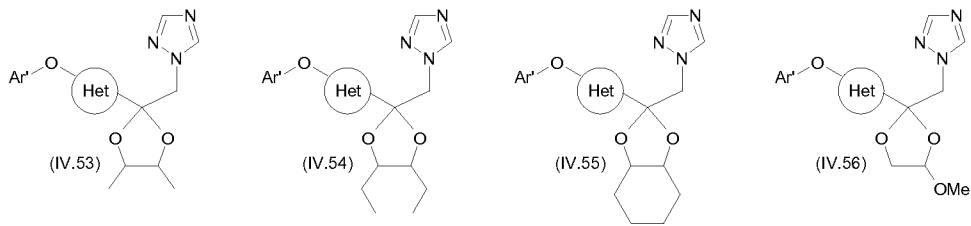
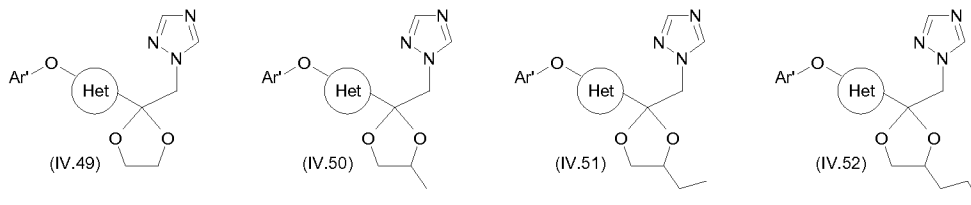


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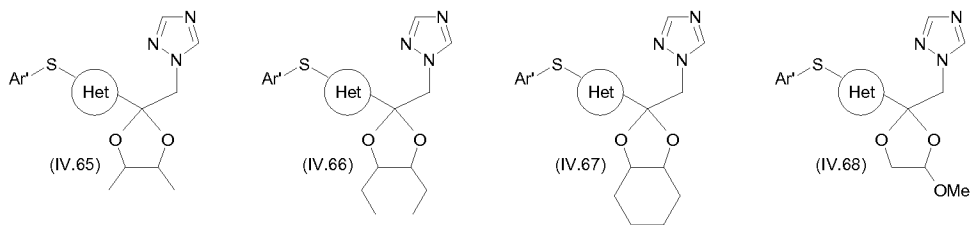
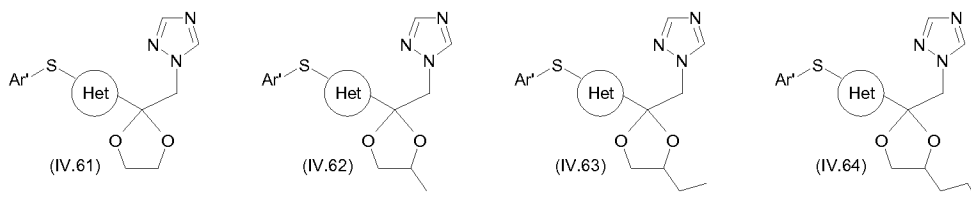
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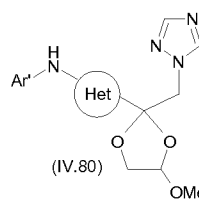
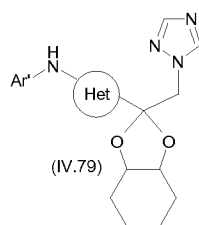
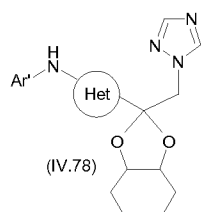
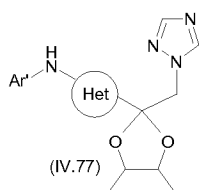
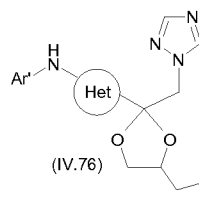
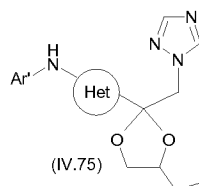
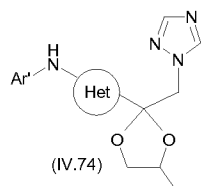
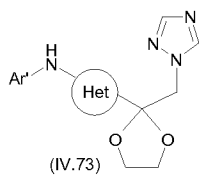
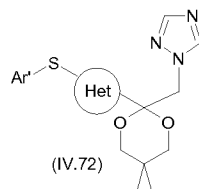
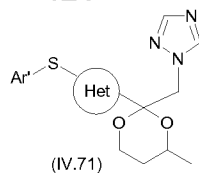
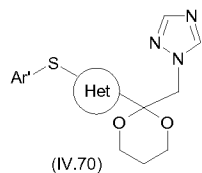
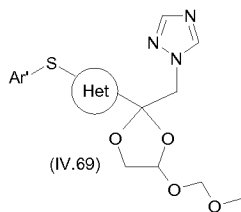


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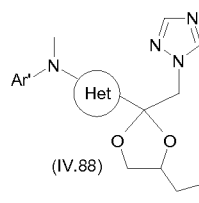
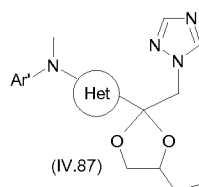
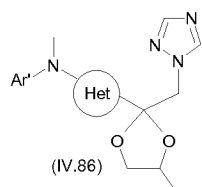
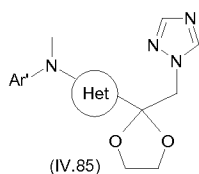
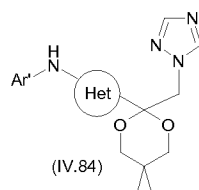
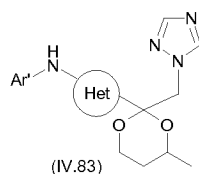
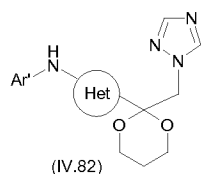
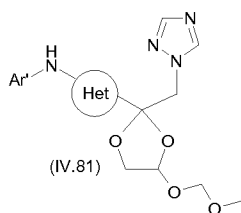


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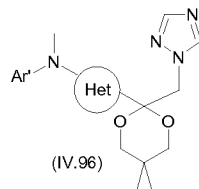
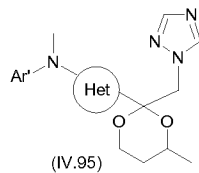
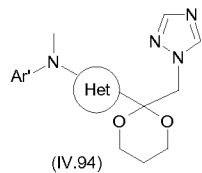
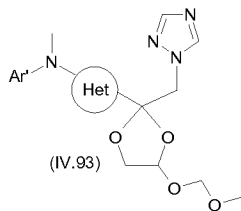
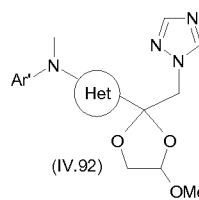
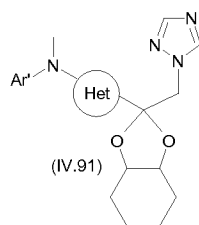
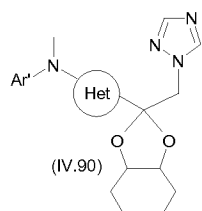
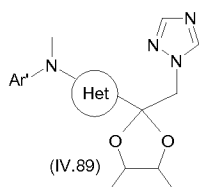
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Among these, preference is given to compounds IV.1 to IV.24 and IV.49 to I.72, more preference to compounds IV.1 to IV.12 and I.49 to I.60, and specific preference to compounds IV.2 and IV.50.

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The invention further refers to an agricultural composition comprising at least one compound of formula I, II and/or IV as defined above or an agriculturally acceptable salt thereof and a liquid or solid carrier. Suitable carriers, as well as auxiliaries and further active compounds which may also be contained in the composition of the invention are defined below.

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The compounds I and II as well as IV 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.

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The compounds I, II and IV 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; 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.

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Preferably, compounds I, II and IV 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, II and IV 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://www.bio.org/speeches/pubs/er/agri_products.asp). 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 hydroxyphenylpyruvate dioxygenase (HPPD) inhibitors; acetolactate synthase (ALS) inhibitors, such as sulfonyl ureas (see e. g. US 6,222,100, WO 01/82685, WO 00/26390, WO 97/41218, WO 98/02526, WO 98/02527, WO 04/106529, WO 05/20673, WO 03/14357, WO 03/13225, WO 03/14356, WO 04/16073) or imidazolinones (see e. g. US 6,222,100, WO 01/82685, WO 00/26390, WO 97/41218, WO 98/002526, WO 98/02527, WO 04/106529, WO 05/20673, WO 03/014357,

WO 03/13225, WO 03/14356, WO 04/16073); enolpyruvylshikimate-3-phosphate synthase (EPSPS) inhibitors, such as glyphosate (see e. g. WO 92/00377); glutamine synthetase (GS) inhibitors, such as glufosinate (see e.g. EP-A 242 236, EP-A 242 246) or oxynil herbicides (see e. g. US 5,559,024) as a result of conventional methods of
5 breeding or genetic engineering. 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. Genetic engineering methods have been used to render cultivated plants, such as soybean, cotton, corn, beets and rape, tolerant to herbicides such as glypho-
10 sate and glufosinate, some of which are commercially available under the trade names RoundupReady® (glyphosate-tolerant, Monsanto, U.S.A.) and LibertyLink® (glufosinate-tolerant, Bayer CropScience, Germany).

Furthermore, plants are also covered that, by the use of recombinant DNA techniques,
15 are capable to synthesize one or more insecticidal proteins, especially those known from the bacterial genus *Bacillus*, particularly from *Bacillus thuringiensis*, such as δ -endotoxins, e. g. CryIA(b), CryIA(c), CryIF, CryIF(a2), CryIIA(b), CryIIIA, CryIIIB(b1) or Cry9c; vegetative insecticidal proteins (VIP), e. g. VIP1, VIP2, VIP3 or VIP3A; insecticidal proteins of bacteria colonizing nematodes, e. g. *Photorhabdus* spp. or *Xenorhabdus* spp.; toxins produced by animals, such as scorpion toxins, arachnid toxins, wasp toxins, or other insect-specific neurotoxins; toxins produced by fungi, such as Streptomyces toxins, plant lectins, such as pea or barley lectins; agglutinins; proteinase inhibitors, such as trypsin inhibitors, serine protease inhibitors, patatin, cystatin or papain inhibitors; ribosome-inactivating proteins (RIP), such as ricin, maize-RIP, abrin,
20 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
30 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,
35 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

arthropods, especially to beetles (Coleoptera), two-winged insects (Diptera), and moths (Lepidoptera) and to nematodes (Nematoda). Genetically modified plants capable to synthesize one or more insecticidal proteins are, e. g., described in the publications mentioned above, and some of them are commercially available such as YieldGard® (corn cultivars producing the Cry1Ab toxin), YieldGard® Plus (corn cultivars producing Cry1Ab and Cry3Bb1 toxins), Starlink® (corn cultivars producing the Cry9c toxin), Herculex® RW (corn cultivars producing Cry34Ab1, Cry35Ab1 and the enzyme Phosphinothricin-N-Acetyltransferase [PAT]); NuCOTN® 33B (cotton cultivars producing the Cry1Ac toxin), Bollgard® I (cotton cultivars producing the Cry1Ac toxin), Bollgard® II (cotton cultivars producing Cry1Ac and Cry2Ab2 toxins); VIPCOT® (cotton cultivars producing a VIP-toxin); NewLeaf® (potato cultivars producing the Cry3A toxin); Bt-Xtra®, NatureGard®, KnockOut®, BiteGard®, Protecta®, Bt11 (e. g. Agrisure® CB) and Bt176 from Syngenta Seeds SAS, France, (corn cultivars producing the Cry1Ab toxin and PAT enzyme), MIR604 from Syngenta Seeds SAS, France (corn cultivars producing a modified version of the Cry3A toxin, c.f. WO 03/018810), MON 863 from Monsanto Europe S.A., Belgium (corn cultivars producing the Cry3Bb1 toxin), IPC 531 from Monsanto Europe S.A., Belgium (cotton cultivars producing a modified version of the Cry1Ac toxin) and 1507 from Pioneer Overseas Corporation, Belgium (corn cultivars producing the Cry1F toxin and PAT enzyme).

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Furthermore, plants are also covered that, by the use of recombinant DNA techniques, are capable to synthesize one or more proteins to increase the resistance or tolerance of those plants to bacterial, viral or fungal pathogens. Examples of such proteins are the so-called "pathogenesis-related proteins" (PR proteins, see, e. g. EP-A 392 225), plant disease resistance genes (e. g. potato cultivars, which express resistance genes acting against *Phytophthora infestans* derived from the Mexican wild potato *Solanum bulbocastanum*) or T4-lysozym (e. g. potato cultivars capable of synthesizing these proteins with increased resistance against bacteria such as *Erwinia amylovora*). The methods for producing such genetically modified plants are generally known to the person skilled in the art and are described, e. g., in the publications mentioned above.

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Furthermore, plants are also covered that, by the use of recombinant DNA techniques, are 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.

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Furthermore, plants are also covered that, by the use of recombinant DNA techniques, contain 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).

- 5 Furthermore, plants are also covered that, by the use of recombinant DNA techniques, contain 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).
- 10 The compounds I, II and IV 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. zea-maydis*), rice, sugar beets (e. g. *C. beticola*), sugar cane, vegetables, coffee, soybeans (e. g. *C. soja* or *C. kikuchii*) and rice; *Cladosporium* spp. on tomatoes (e. g. *C. fulvum*: leaf mold) and cereals, e. g. *C. herbarum* (black ear) on wheat; *Claviceps purpurea* (ergot) on cereals; *Cochliobolus* (anamorph: *Helminthosporium* of *Bipolaris*) spp. (leaf spots) on corn (*C. carbonum*), cereals (e. g. *C. sativus*, anamorph: *B. sorokiniana*) and rice (e. g. *C. miyabeanus*, anamorph: *H. oryzae*); *Colletotrichum* (teleomorph: *Glomerella*) spp. (anthracnose) on cotton (e. g. *C. gossypii*), corn (e. g. *C. graminicola*: Anthracnose stalk rot), soft fruits, potatoes (e. g. *C. coccoodes*: 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; *Cyloconium* spp., e. g. *C. oleaginum* on olive trees; *Cylindrocarpon* spp. (e. g. fruit tree canker or young vine decline, teleomorph: *Nectria* or *Neonectria* spp.)

on fruit trees, vines (e. g. *C. liriodendri*, teleomorph: *Neonectria liriodendri*: Black Foot Disease) and ornamentals; *Dematophora* (teleomorph: *Rosellinia*) necatrix (root and stem rot) on soybeans; *Diaporthe* spp., e. g. *D. phaseolorum* (damping off) on soybeans; *Drechslera* (syn. *Helminthosporium*, teleomorph: *Pyrenophora*) spp. on corn, cereals, such as barley (e. g. *D. teres*, net blotch) and wheat (e. g. *D. tritici-repentis*: tan spot), rice and turf; Esca (dieback, apoplexy) on vines, caused by *Formitiporia* (syn. *Phellinus*) *punctata*, *F. mediterranea*, *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* 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; Grain-staining 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. meibomiaae* (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 rot) on various plants, such as paprika and cucurbits (e. g. *P. capsici*), soybeans (e. g. *P. megasperma*, syn. *P. sojae*), potatoes and tomatoes (e. g. *P. infestans*: late blight) and broad-leaved trees (e. g. *P.*
5 *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*)
10 and thereby transmitted viral diseases; *Pseudocercospora herpotrichoides* (eyespot, teleomorph: *Tapesia yallundae*) on cereals, e. g. wheat or barley; *Pseudoperonospora* (downy mildew) on various plants, e. g. *P. cubensis* on cucurbits or *P. humili* on hop; *Pseudopezizicula tracheiphila* (red fire disease or 'rotbrenner', anamorph: *Phialophora*) on vines; *Puccinia* spp. (rusts) on various plants, e. g. *P. triticina* (brown or leaf
15 rust), *P. striiformis* (stripe or yellow rust), *P. hordei* (dwarf rust), *P. graminis* (stem or black rust) or *P. recondita* (brown or leaf rust) on cereals, such as e. g. wheat, barley or rye, and asparagus (e. g. *P. asparagi*); *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
20 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
25 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
30 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; *Setosphaeria* spp. (leaf blight) on corn (e. g. *S.*
35 *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. avenae*), corn (e. g. *U. maydis*: corn smut) and sugar cane; *Venturia* spp. (scab) on apples (e. g. *V. inaequalis*) and pears; and *Verticillium* spp. (wilt) on various plants, such as fruits and ornamentals, vines, soft fruits, vegetables and field crops, e. g. *V. dahliae* on strawberries, rape, potatoes and tomatoes.

15 The compounds I, II and IV 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 cerevisiae*.

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

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

The compounds I, II and IV 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
15 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, II and/or IV as such or a composition comprising at least one compound I, II and/or IV prophylactically either at
20 or before planting or transplanting.

The invention also relates to agrochemical compositions comprising a solvent or solid carrier and at least one compound I, II and/or IV and to the use for controlling harmful
25 fungi.

An agrochemical composition comprises a fungicidally effective amount of a compound I, II and/or IV. The term "effective amount" denotes an amount of the composition or of the compounds I, II and/or IV, which is sufficient for controlling harmful fungi on cultivated plants or in the protection of materials and which does not result in a substantial
30 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, II and IV and salts thereof can be converted into customary types of agrochemical compositions, e. g. solutions, emulsions, suspensions, dusts, powders, pastes and granules. The composition type depends on the particular intended purpose; in each case, it should ensure a fine and uniform distribution of the compound
35 according to the invention.

Examples for composition types are suspensions (SC, OD, FS), emulsifiable concentrates (EC), emulsions (EW, EO, ES), pastes, pastilles, wettable powders or dusts (WP, SP, SS, WS, DP, DS) or granules (GR, FG, GG, MG), which can be water-soluble or wettable, as well as gel formulations for the treatment of plant propagation materials such as seeds (GF).

Usually the composition types (e. g. SC, OD, FS, EC, WG, SG, WP, SP, SS, WS, GF) are employed diluted. Composition types such as DP, DS, GR, FG, GG and MG are usually used undiluted.

The compositions are prepared in a known manner (cf. US 3,060,084, EP-A 707 445 (for liquid concentrates), Browning: "Agglomeration", Chemical Engineering, Dec. 4, 1967, 147-48, Perry's Chemical Engineer's Handbook, 4th Ed., McGraw-Hill, New York, 1963, pp. 8-57 et seq., WO 91/13546, US 4,172,714, US 4,144,050, US 3,920,442, US 5,180,587, US 5,232,701, US 5,208,030, GB 2,095,558, US 3,299,566, Klingman: Weed Control as a Science (J. Wiley & Sons, New York, 1961), Hance et al.: Weed Control Handbook (8th Ed., Blackwell Scientific, Oxford, 1989) and Mollet, H. and Grubemann, A.: Formulation technology (Wiley VCH Verlag, Weinheim, 2001).

The agrochemical compositions may also comprise auxiliaries which are customary in agrochemical compositions. The auxiliaries used depend on the particular application form and active substance, respectively.

Examples for suitable auxiliaries are solvents, solid carriers, dispersants or emulsifiers (such as further solubilizers, protective colloids, surfactants and adhesion agents), organic and inorganic thickeners, bactericides, anti-freezing agents, anti-foaming agents, if appropriate colorants and tackifiers or binders (e. g. for seed treatment formulations).

Suitable solvents are water, organic solvents such as mineral oil fractions of medium to high boiling point, such as kerosene or diesel oil, furthermore coal tar oils and oils of vegetable or animal origin, aliphatic, cyclic and aromatic hydrocarbons, e.g. toluene, xylene, paraffin, tetrahydronaphthalene, alkylated naphthalenes or their derivatives, alcohols such as methanol, ethanol, propanol, butanol and cyclohexanol, glycols, ketones such as cyclohexanone and gamma-butyrolactone, fatty acid dimethylamides, fatty acids and fatty acid esters and strongly polar solvents, e. g. amines such as N-methylpyrrolidone.

Solid carriers are mineral earths such as silicates, silica gels, talc, kaolins, limestone, lime, chalk, bole, loess, clays, dolomite, diatomaceous earth, calcium sulfate, magne-

sium sulfate, magnesium oxide, ground synthetic materials, fertilizers, such as, e. g., ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas, and products of vegetable origin, such as cereal meal, tree bark meal, wood meal and nutshell meal, cellulose powders and other solid carriers.

5

Suitable surfactants (adjuvants, wetters, tackifiers, dispersants or emulsifiers) are alkali metal, alkaline earth metal and ammonium salts of aromatic sulfonic acids, such as ligninsulfonic acid (Borresperse® types, Borregard, Norway) phenolsulfonic acid, naphthalenesulfonic acid (Morwet® types, Akzo Nobel, U.S.A.), dibutyl-naphthalene-sulfonic acid (Nekal® types, BASF, Germany), and fatty acids, alkylsulfonates, alkyl-arylsulfonates, alkyl sulfates, lauryl ether sulfates, fatty alcohol sulfates, and sulfated hexa-, hepta- and octadecanates, sulfated fatty alcohol glycol ethers, furthermore condensates of naphthalene or of naphthalenesulfonic acid with phenol and formaldehyde, polyoxy-ethylene octylphenyl ether, ethoxylated isooctylphenol, octylphenol, nonylphenol, alkylphenyl polyglycol ethers, tributylphenyl polyglycol ether, tristearyl-phenyl polyglycol ether, alkylaryl polyether alcohols, alcohol and fatty alcohol/ethylene oxide condensates, ethoxylated castor oil, polyoxyethylene alkyl ethers, ethoxylated polyoxypropylene, lauryl alcohol polyglycol ether acetal, sorbitol esters, lignin-sulfite waste liquors and proteins, denatured proteins, polysaccharides (e. g. methylcellulose), hydrophobically modified starches, polyvinyl alcohols (Mowiol® types, Clariant, Switzerland), polycarboxylates (Sokolan® types, BASF, Germany), polyalkoxylates, polyvinylamines (Lupasol® types, BASF, Germany), polyvinylpyrrolidone and the copolymers thereof.

25 Examples for thickeners (i. e. compounds that impart a modified flowability to compositions, i. e. high viscosity under static conditions and low viscosity during agitation) are polysaccharides and organic and anorganic clays such as Xanthan gum (Kelzan®, CP Kelco, U.S.A.), Rhodopol® 23 (Rhodia, France), Veegum® (R.T. Vanderbilt, U.S.A.) or Attaclay® (Engelhard Corp., NJ, USA).

30

Bactericides may be added for preservation and stabilization of the composition. Examples for suitable bactericides are those based on dichlorophene and benzylalcohol hemi formal (Proxel® from ICI or Acticide® RS from Thor Chemie and Kathon® MK from Rohm & Haas) and isothiazolinone derivatives such as alkylisothiazolinones and benzisothiazolinones (Acticide® MBS from Thor Chemie).

35

Examples for suitable anti-freezing agents are ethylene glycol, propylene glycol, urea and glycerin.

Examples for anti-foaming agents are silicone emulsions (such as e. g. Silikon® SRE, Wacker, Germany or Rhodorsil®, Rhodia, France), long chain alcohols, fatty acids, salts of fatty acids, fluoroorganic compounds and mixtures thereof.

- 5 Suitable colorants are pigments of low water solubility and water-soluble dyes. Examples to be mentioned und the designations rhodamin B, C. I. pigment red 112, C. I. solvent red 1, pigment blue 15:4, pigment blue 15:3, pigment blue 15:2, pigment blue 15:1, pigment blue 80, pigment yellow 1, pigment yellow 13, pigment red 112, pigment red 48:2, pigment red 48:1, pigment red 57:1, pigment red 53:1, pigment orange 43,
10 pigment orange 34, pigment orange 5, pigment green 36, pigment green 7, pigment white 6, pigment brown 25, basic violet 10, basic violet 49, acid red 51, acid red 52, acid red 14, acid blue 9, acid yellow 23, basic red 10, basic red 108.

- 15 Examples for tackifiers or binders are polyvinylpyrrolidons, polyvinylacetates, polyvinyl alcohols and cellulose ethers (Tylose®, Shin-Etsu, Japan).

- Powders, materials for spreading and dusts can be prepared by mixing or concomitantly grinding the compounds I and, if appropriate, further active substances, with at least one solid carrier.

- 20 Granules, e. g. coated granules, impregnated granules and homogeneous granules, can be prepared by binding the active substances to solid carriers. Examples of solid carriers are mineral earths such as silica gels, silicates, talc, kaolin, attaclay, limestone, lime, chalk, bole, loess, clay, dolomite, diatomaceous earth, calcium sulfate, magnesium sulfate, magnesium oxide, ground synthetic materials, fertilizers, such as, e. g.,
25 ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas, and products of vegetable origin, such as cereal meal, tree bark meal, wood meal and nutshell meal, cellulose powders and other solid carriers.

- 30 Examples for composition types are:

1. Composition types for dilution with water

- i) Water-soluble concentrates (SL, LS)
35 10 parts by weight of a compound I according to the invention are dissolved in 90 parts by weight of water or in a water-soluble solvent. As an alternative, wetting agents or other auxiliaries are added. The active substance dissolves upon dilution with water. In this way, a composition having a content of 10% by weight of active substance is obtained.

ii) Dispersible concentrates (DC)

20 parts by weight of a compound I according to the invention are dissolved in 70 parts by weight of cyclohexanone with addition of 10 parts by weight of a dispersant, e. g. polyvinylpyrrolidone. Dilution with water gives a dispersion. The active substance content is 20% by weight.

iii) Emulsifiable concentrates (EC)

15 parts by weight of a compound I according to the invention are dissolved in 75 parts by weight of xylene with addition of calcium dodecylbenzenesulfonate and castor oil ethoxylate (in each case 5 parts by weight). Dilution with water gives an emulsion. The composition has an active substance content of 15% by weight.

iv) Emulsions (EW, EO, ES)

25 parts by weight of a compound I according to the invention are dissolved in 35 parts by weight of xylene with addition of calcium dodecylbenzenesulfonate and castor oil ethoxylate (in each case 5 parts by weight). This mixture is introduced into 30 parts by weight of water by means of an emulsifying machine (Ultraturrax) and made into a homogeneous emulsion. Dilution with water gives an emulsion. The composition has an active substance content of 25% by weight.

v) Suspensions (SC, OD, FS)

In an agitated ball mill, 20 parts by weight of a compound I according to the invention are comminuted with addition of 10 parts by weight of dispersants and wetting agents and 70 parts by weight of water or an organic solvent to give a fine active substance suspension. Dilution with water gives a stable suspension of the active substance. The active substance content in the composition is 20% by weight.

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

50 parts by weight of a compound I according to the invention are ground finely with addition of 50 parts by weight of dispersants and wetting agents 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. The composition has an active substance content of 50% by weight.

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

75 parts by weight of a compound I according to the invention are ground in a rotor-stator mill with addition of 25 parts by weight of dispersants, wetting agents and silica

gel. Dilution with water gives a stable dispersion or solution of the active substance. The active substance content of the composition is 75% by weight.

viii) Gel (GF)

- 5 In an agitated ball mill, 20 parts by weight of a compound I according to the invention are comminuted with addition of 10 parts by weight of dispersants, 1 part by weight of a gelling agent wetters and 70 parts by weight of water or of an organic solvent to give a fine suspension of the active substance. Dilution with water gives a stable suspension of the active substance, whereby a composition with 20% (w/w) of active substance is
10 obtained.

2. Composition types to be applied undiluted

ix) Dustable powders (DP, DS)

- 15 5 parts by weight of a compound I according to the invention are ground finely and mixed intimately with 95 parts by weight of finely divided kaolin. This gives a dustable composition having an active substance content of 5% by weight.

x) Granules (GR, FG, GG, MG)

- 20 0.5 parts by weight of a compound I according to the invention is ground finely and associated with 99.5 parts by weight of carriers. Current methods are extrusion, spray-drying or the fluidized bed. This gives granules to be applied undiluted having an active substance content of 0.5% by weight.

25 xi) ULV solutions (UL)

10 parts by weight of a compound I according to the invention are dissolved in 90 parts by weight of an organic solvent, e. g. xylene. This gives a composition to be applied undiluted having an active substance content of 10% by weight.

- 30 The agrochemical compositions generally comprise between 0.01 and 95%, preferably between 0.1 and 90%, most preferably between 0.5 and 90%, 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).

- 35 Water-soluble concentrates (LS), 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. These compositions can be applied to plant propagation materials, particularly seeds,

diluted or undiluted. The compositions in question give, after two-to-tenfold dilution, active substance concentrations of from 0.01 to 60% by weight, preferably from 0.1 to 40% by weight, in the ready-to-use preparations. Application can be carried out before or during sowing. Methods for applying or treating agrochemical compounds and compositions thereof, respectively, on to plant propagation material, especially seeds, are known in the art, and include dressing, coating, pelleting, dusting, soaking and in-furrow application methods of the propagation material. In a preferred embodiment, the compounds 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.

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

The active substances can be used as such or in the form of their compositions, e. g. in the form of directly sprayable solutions, powders, suspensions, dispersions, emulsions, oil dispersions, pastes, dustable products, materials for spreading, or granules, by means of spraying, atomizing, dusting, spreading, brushing, immersing or pouring. The application forms depend entirely on the intended purposes; it is intended to ensure in each case the finest possible distribution of the active substances according to the invention.

Aqueous application forms can be prepared from emulsion concentrates, pastes or wettable powders (sprayable powders, oil dispersions) by adding water. To prepare emulsions, pastes or oil dispersions, the substances, as such or dissolved in an oil or solvent, can be homogenized in water by means of a wetter, tackifier, dispersant or emulsifier. Alternatively, it is possible to prepare concentrates composed of active substance, wetter, tackifier, dispersant or emulsifier and, if appropriate, solvent or oil, and such concentrates are suitable for dilution with water.

The active substance concentrations in the ready-to-use preparations can be varied within relatively wide ranges. In general, they are from 0.0001 to 10%, preferably from 0.001 to 1% by weight of active substance.

The active substances may also be used successfully in the ultra-low-volume process (ULV), it being possible to apply compositions comprising over 95% by weight of active substance, or even to apply the active substance without additives.

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, 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 seed) are generally required.

When used in the protection of materials or stored products, the amount of active substance applied depends on the kind of application area and on the desired effect. Amounts customarily applied in the protection of materials are, e. g., 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, herbicides, bactericides, other fungicides and/or pesticides may be added to the active substances or the compositions comprising them, 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.

Adjuvants which can be used are in particular organic modified polysiloxanes such as Break Thru S 240®; alcohol alkoxylates such as Atplus 245®, Atplus MBA 1303®, Plurafac LF 300® and Lutensol ON 30®; EO/PO block polymers, e. g. Pluronic RPE 2035® and Genapol B®; alcohol ethoxylates such as Lutensol XP 80®; and dioctyl sulfosuccinate sodium such as Leophen RA®.

The compositions according to the invention can, in the use form as fungicides, also be present together with other active substances, e. g. with herbicides, insecticides, growth regulators, fungicides or else with fertilizers, as pre-mix or, if appropriate, not until immediately prior to use (tank mix).

Mixing the compounds I, II and/or IV 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 active substances, in conjunction with which the compounds according to the invention can be used, is intended to illustrate the possible combinations but does not limit them:

- 5 A) strobilurins
azoxystrobin, dimoxystrobin, enestroburin, fluoxastrobin, kresoxim-methyl, meto-
minostrobin, oryastrobin, picoxystrobin, pyraclostrobin, pyribencarb, triflox-
ystrobin, 2-(2-(6-(3-chloro-2-methyl-phenoxy)-5-fluoro-pyrimidin-4-yloxy)-phenyl)-
2-methoxyimino-N-methyl-acetamide, 3-methoxy-2-(2-(N-(4-methoxy-phenyl)-
10 cyclopropane-carboximidoylsulfanylmethyl)-phenyl)-acrylic acid methyl ester,
methyl (2-chloro-5-[1-(3-methylbenzyloxyimino)ethyl]benzyl)carbamate and 2-(2-
(3-(2,6-dichlorophenyl)-1-methyl-allylideneaminooxymethyl)-phenyl)-2-
methoxyimino-N-methyl-acetamide;
- B) carboxamides
- 15 - carboxanilides: benalaxyl, benalaxyl-M, benodanil, bixafen, boscalid, carboxin,
fenfuram, fenhexamid, flutolanil, furametpyr, isopyrazam, isotianil, kiralaxyl, me-
pronil, metalaxyl, metalaxyl-M (mefenoxam), ofurace, oxadixyl, oxycarboxin, pen-
thiopyrad, sedaxane, tecloftalam, thifluzamide, tiadinil, 2-amino-4-methyl-
thiazole-5-carboxanilide, 2-chloro-N-(1,1,3-trimethyl-indan-4-yl)-nicotinamide, N-
20 (3',4',5'-trifluorobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-
4-carboxamide, N-(4'-trifluoromethylthiobiphenyl-2-yl)-3-difluoromethyl-1-methyl-
1H-pyrazole-4-carboxamide, N-(2-(1,3-dimethyl-butyl)-phenyl)-1,3-dimethyl-5-
fluoro-1H-pyrazole-4-carboxamide and N-(2-(1,3,3-trimethyl-butyl)-phenyl)-1,3-
dimethyl-5-fluoro-1H-pyrazole-4-carboxamide;
- 25 - carboxylic morpholides: dimethomorph, flumorph, pyrimorph;
- benzoic acid amides: flumetover, fluopicolide, fluopyram, zoxamide, N-(3-Ethyl-
3,5,5-trimethyl-cyclohexyl)-3-formylamino-2-hydroxy-benzamide;
- other carboxamides: carpropamid, dicyclomet, mandiproamid, oxytetracyclin,
silthiofarm and N-(6-methoxy-pyridin-3-yl) cyclopropanecarboxylic acid amide;
- 30 C) azoles
- triazoles: azaconazole, bitertanol, bromuconazole, cyproconazole, difenocona-
zole, diniconazole, diniconazole-M, epoxiconazole, fenbuconazole, fluquincona-
zole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metcona-
zole, myclobutanil, oxpoconazole, paclobutrazole, penconazole, propiconazole,
35 prothioconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadi-
menol, triticonazole, uniconazole, 1-(4-chloro-phenyl)-2-([1,2,4]triazol-1-yl)-
cycloheptanol;
- imidazoles: cyazofamid, imazalil, pefurazoate, prochloraz, triflumizol;
- benzimidazoles: benomyl, carbendazim, fuberidazole, thiabendazole;

142

- others: ethaboxam, etridiazole, hymexazole and 2-(4-chloro-phenyl)-N-[4-(3,4-dimethoxy-phenyl)-isoxazol-5-yl]-2-prop-2-ynyloxy-acetamide;
- D) heterocyclic compounds
- pyridines: fluazinam, pyrifenox, 3-[5-(4-chloro-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine, 3-[5-(4-methyl-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine, 2,3,5,6-tetra-chloro-4-methanesulfonyl-pyridine, 3,4,5-trichloropyridine-2,6-dicarbonitrile, N-(1-(5-bromo-3-chloro-pyridin-2-yl)-ethyl)-2,4-dichloronicotinamide, N-[(5-bromo-3-chloro-pyridin-2-yl)-methyl]-2,4-dichloro-nicotinamide;
- pyrimidines: bupirimate, cyprodinil, diflumetorim, fenarimol, ferimzone, mepanipyrim, nitrapyrin, nuarimol, pyrimethanil;
- piperazines: triforine;
- pyrroles: fenpiclonil, fludioxonil;
- morpholines: aldimorph, dodemorph, dodemorph-acetate, fenpropimorph, tridemorph;
- piperidines: fenpropidin;
- dicarboximides: fluoroimid, iprodione, procymidone, vinclozolin;
- non-aromatic 5-membered heterocycles: famoxadone, fenamidone, flutianil, oclthilnone, probenazole, 5-amino-2-isopropyl-3-oxo-4-ortho-tolyl-2,3-dihydro-pyrazole-1-carbothioic acid S-allyl ester;
- others: acibenzolar-S-methyl, amisulbrom, anilazin, blasticidin-S, captafol, captan, chinomethionat, dazomet, debacarb, diclomezine, difenzoquat, difenzoquat-methylsulfate, fenoxanil, Folpet, oxolinic acid, piperalin, proquinazid, pyroquilon, quinoxifen, triazoxide, tricyclazole, 2-butoxy-6-iodo-3-propylchromen-4-one, 5-chloro-1-(4,6-dimethoxy-pyrimidin-2-yl)-2-methyl-1H-benzoimidazole, 5-chloro-7-(4-methylpiperidin-1-yl)-6-(2,4,6-trifluorophenyl)-[1,2,4]triazolo[1,5-a]pyrimidine and 5-ethyl-6-octyl-[1,2,4]triazolo[1,5-a]pyrimidine-7-ylamine;
- E) carbamates
- thio- and dithiocarbamates: ferbam, mancozeb, maneb, metam, methasulphocarb, metiram, propineb, thiram, zineb, ziram;
- carbamates: benthiavalicarb, diethofencarb, iprovalicarb, propamocarb, propamocarb hydrochlorid, valiphenal and N-(1-(1-(4-cyano-phenyl)ethanesulfonyl)-but-2-yl) carbamic acid-(4-fluorophenyl) ester;
- F) other active substances
- guanidines: guanidine, dodine, dodine free base, guazatine, guazatine-acetate, iminoctadine, iminoctadine-triacetate, iminoctadine-tris(albesilate);
- antibiotics: kasugamycin, kasugamycin hydrochloride-hydrate, streptomycin, polyxine, validamycin A;
- nitrophenyl derivates: binapacryl, dinobuton, dinocap, nitrthal-isopropyl, tecnazen,

- organometal compounds: fentin salts, such as fentin-acetate, fentin chloride or fentin hydroxide;
- sulfur-containing heterocyclyl compounds: dithianon, isoprothiolane;
 - organophosphorus compounds: edifenphos, fosetyl, fosetyl-aluminum, iprobenfos, phosphorous acid and its salts, pyrazophos, tolclofos-methyl;
 - organochlorine compounds: chlorothalonil, dichlofluanid, dichlorophen, flusulfamide, hexachlorobenzene, pencycuron, pentachlorophenole and its salts, phthalide, quintozone, thiophanate-methyl, tolylfluanid, N-(4-chloro-2-nitrophenyl)-N-ethyl-4-methyl-benzenesulfonamide;
 - inorganic active substances: Bordeaux mixture, copper acetate, copper hydroxide, copper oxychloride, basic copper sulfate, sulfur;
 - others: biphenyl, bronopol, cyflufenamid, cymoxanil, diphenylamin, metrafenone, mildiomicin, oxin-copper, prohexadione-calcium, spiroxamine, tolylfluanid, 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,
 - 2-{1-[2-(5-methyl-3-trifluoromethyl-pyrazole-1-yl)-acetyl]-piperidin-4-yl}-thiazole-4-carboxylic acid methyl-(1,2,3,4-tetrahydro-naphthalen-1-yl)-amide, 2-{1-[2-(5-methyl-3-trifluoromethyl-pyrazole-1-yl)-acetyl]-piperidin-4-yl}-thiazole-4-carboxylic acid methyl-(R)-1,2,3,4-tetrahydro-naphthalen-1-yl-amide, acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester and methoxy-acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester.
- G) 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 phosphotriothioate,
- 2,3,5-tri-iodobenzoic acid, trinexapac-ethyl and uniconazole;
- H) 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;
- 5 - (thio)carbamates: asulam, butylate, carbetamide, desmedipham, dimepiperate, eptam (EPTC), esprocarb, molinate, orbencarb, phenmedipham, prosulfocarb, pyributicarb, thiobencarb, triallate;
- cyclohexanediones: butoxydim, clethodim, cycloxydim, profoxydim, sethoxydim, tepraloxydim, tralkoxydim;
- 10 - dinitroanilines: benfluralin, ethalfluralin, oryzalin, pendimethalin, prodiamine, trifluralin;
- diphenyl ethers: acifluorfen, aclonifen, bifenox, diclofop, ethoxyfen, fomesafen, lactofen, oxyfluorfen;
- hydroxybenzonitriles: bomoxynil, dichlobenil, ioxynil;
- 15 - 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;
- 20 - pyridines: aminopyralid, clopyralid, diflufenican, dithiopyr, fluridone, fluroxypyr, picloram, picolinafen, thiazopyr;
- sulfonyl ureas: amidosulfuron, azimsulfuron, bensulfuron, chlorimuron-ethyl, chlorsulfuron, cinosulfuron, cyclosulfamuron, ethoxysulfuron, flazasulfuron, fluce-tosulfuron, flupyrsulfuron, foramsulfuron, halosulfuron, imazosulfuron, iodosulfu-
 25 ron, mesosulfuron, metsulfuron-methyl, nicosulfuron, oxasulfuron, primisulfuron, prosulfuron, pyrazosulfuron, rimsulfuron, sulfometuron, sulfosulfuron, thifensulfu-
 ron, 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;
- 30 - triazines: ametryn, atrazine, cyanazine, dimethametryn, ethiozin, hexazinone, metamitron, metribuzin, prometryn, simazine, terbuthylazine, terbutryn, triaziflam;
- ureas: chlorotoluron, daimuron, diuron, fluometuron, isoproturon, linuron, metha-
 benzthiazuron, tebuthiuron;
- other acetolactate synthase inhibitors: bispyribac-sodium, cloransulam-methyl,
 35 diclosulam, florasulam, flucarbazone, flumetsulam, metosulam, ortho-sulfamuron, penoxsulam, propoxycarbazone, pyribambenz-propyl, pyribenzoxim, pyriftalid, pyriminobac-methyl, pyrimisulfan, pyri-thiobac, pyroxasulfone, pyroxsulam;
- others: amicarbazone, aminotriazole, anilofos, beflubutamid, benazolin, bencar-
 bazone, benfluresate, benzofenap, bentazone, benzobicyclon, bromacil, bromo-

- butide, butafenacil, butamifos, cafenstrole, carfentrazone, cinidon-ethyl, chlorthal, cinmethylin, clomazone, cumyluron, cyprosulfamide, dicamba, difenzoquat, diflufenzopyr, *Drechslera monoceras*, endothal, ethofumesate, etobenzanid, fen-
 5 trazamide, 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, quinochloramine, saflufenacil, sulcotrione, sulfentra-
 10 zone, terbacil, tefuryltrione, tembotrione, thiencarbazone, topramezone, 4-hydroxy-3-[2-(2-methoxy-ethoxymethyl)-6-trifluoromethyl-pyridine-3-carbonyl]-bicyclo[3.2.1]oct-3-en-2-one, (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-
 15 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.
- l) insecticides
- 20 - 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, tetra-
 25 trachlorvinphos, terbufos, triazophos, trichlorfon;
- carbamates: alanycarb, aldicarb, bendiocarb, benfuracarb, carbaryl, carbofuran, carbosulfan, fenoxycarb, furathiocarb, methiocarb, methomyl, oxamyl, pirimicarb, propoxur, thiodicarb, triazamate;
- 30 - 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, taufluvalinate, tefluthrin, tetramethrin, tralomethrin, transfluthrin, profluthrin, dimefluthrin;
- 35 - insect growth regulators: a) chitin synthesis inhibitors: benzoylureas: chlorfluazuron, cyramazin, diflubenzuron, flucyclohexuron, flufenoxuron, hexaflumuron, lufenuron, novaluron, teflubenzuron, triflumuron; buprofezin, diofenolan, hexythiazox, etoxazole, clofentazine; b) ecdysone antagonists: halofenozide, methoxyfeno-

- zide, tebufenozide, azadirachtin; c) juvenoids: pyriproxyfen, methoprene, fenoxycarb; d) lipid biosynthesis inhibitors: spiroadiclofen, spiromesifen, spirotetramat;
- nicotinic receptor agonists/antagonists compounds: clothianidin, dinotefuran, imidacloprid, thiamethoxam, nitenpyram, acetamiprid, thiacloprid, 1-(2-chloro-
- 5 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-sulfenamoyl-1H-pyrazole-3-carbothioic acid amide;
- macrocyclic lactone insecticides: abamectin, emamectin, milbemectin, lepimectin,
- 10 spinosad, spinetoram;
- mitochondrial electron transport inhibitor (METI) I acaricides: fenazaquin, pyridaben, tebufenpyrad, tolfenpyrad, flufenerim;
- METI II and III compounds: acequinocyl, fluacyprim, hydramethylnon;
- Uncouplers: chlorfenapyr;
- 15 - oxidative phosphorylation inhibitors: cyhexatin, diafenthiuron, fenbutatin oxide, propargite;
- moulting disruptor compounds: cryomazine;
- mixed function oxidase inhibitors: piperonyl butoxide;
- sodium channel blockers: indoxacarb, metaflumizone;
- 20 - others: benclonthiaz, bifenazate, cartap, flonicamid, pyridalyl, pymetrozine, sulfur, thiocyclam, flubendiamide, chlorantraniliprole, cyazypyr (HGW86), cyenopyrafen, flupyrazofos, cyflumetofen, amidoflumet, imicyafos, bistrifluron, and pyrifluquinazon.

25 The present invention furthermore relates to agrochemical compositions comprising a mixture of at least one compound I, II and/or IV (component 1) and at least one further active substance useful for plant protection, e. g. selected from the groups A) to I) (component 2), in particular one further fungicide, e. g. one or more fungicide from the groups A) to F), as described above, and if desired one suitable solvent or solid carrier.

30 Those mixtures 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 mixture of compounds I, II and/or IV and at least one fungicide from groups A) to F), as described above, is more efficient than combating those fungi with individual compounds I, II or IV or individual fungicides from groups A) to F). By applying

35 compounds I, II and/or IV together with at least one active substance from groups A) to I) a synergistic effect can be obtained, i.e. more than simple addition of the individual effects is obtained (synergistic mixtures).

According to this invention, applying the compounds I, II and/or IV together with at least one further active substance is to be understood to denote that at least one compound of formula I, II and/or IV and at least one further active substance occur simultaneously at the site of action (i.e. the harmful fungi to be controlled or their habitats such as infected plants, plant propagation materials, particularly seeds, surfaces, materials or the soil as well as plants, plant propagation materials, particularly seeds, soil, surfaces, materials or rooms to be protected from fungal attack) in a fungicidally effective amount. This can be obtained by applying the compounds I, II and/or IV and at least one further active substance simultaneously, either jointly (e. g. as tank-mix) or separately, or in succession, wherein the time interval between the individual applications is selected to ensure that the active substance 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.

In binary mixtures, i.e. compositions according to the invention comprising one compound I, II or IV (component 1) and one further active substance (component 2), e. g. one active substance from groups A) to I), 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 mixtures, i.e. compositions according to the invention comprising one compound I (component 1) and a first further active substance (component 2) and a second further active substance (component 3), e. g. two active substances from groups A) to I), 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.

The components can be used individually or already partially or completely mixed with one another to prepare the composition according to the invention. It is also possible for them to be packaged and used further as combination composition such as a kit of parts.

In one embodiment of the invention, the kits may include one or more, including all, components that may be used to prepare a subject agrochemical composition. E. g., kits may include one or more fungicide component(s) and/or an adjuvant component

and/or an insecticide component and/or a growth regulator component and/or a herbicide. One or more of the components may already be combined together or pre-formulated. In those embodiments where more than two components are provided in a kit, the components may already be combined together and as such are packaged in a
5 single container such as a vial, bottle, can, pouch, bag or canister. In other embodiments, two or more components of a kit may be packaged separately, i. e., not pre-formulated. As such, kits may include one or more separate containers such as vials, cans, bottles, pouches, bags or canisters, each container containing a separate component for an agrochemical composition. In both forms, a component of the kit may be
10 applied separately from or together with the further components or as a component of a combination composition according to the invention for preparing the composition according to the invention.

The user applies the composition according to the invention usually from a predosage
15 device, a knapsack sprayer, a spray tank or a spray plane. Here, the agrochemical composition is made up with water and/or buffer to the desired application concentration, it being possible, if appropriate, to add further auxiliaries, and the ready-to-use spray liquor or the agrochemical composition according to the invention is thus obtained. Usually, 50 to 500 liters of the ready-to-use spray liquor are applied per hectare
20 of agricultural useful area, preferably 100 to 400 liters.

According to one embodiment, individual components of the composition according to the invention such as parts of a kit or parts of a binary or ternary mixture may be mixed by the user himself in a spray tank and further auxiliaries may be added, if appropriate
25 (tank mix).

In a further embodiment, either individual components of the composition according to the invention or partially premixed components, e. g. components comprising compounds I, II and/or IV and/or active substances from the groups A) to I), may be mixed
30 by the user in a spray tank and further auxiliaries and additives may be added, if appropriate (tank mix).

In a further embodiment, either individual components of the composition according to the invention or partially premixed components, e. g. components comprising compounds I, II and/or IV and/or active substances from the groups A) to I), can be applied
35 jointly (e. g. after tankmix) or consecutively.

Preference is also given to mixtures comprising a compound I, II and/or IV (component 1) and at least one active substance selected from the strobilurines of group A) (com-

ponent 2) and particularly selected from azoxystrobin, dimoxystrobin, fluoxastrobin, kresoxim-methyl, oryastrobin, picoxystrobin, pyraclostrobin and trifloxystrobin.

5 Preference is also given to mixtures comprising a compound I, II and/or IV (component 1) and at least one active substance selected from the carboxamides of group B) (component 2) and particularly selected from bixafen, boscalid, sedaxane, fenhexamid, metalaxyl, isopyrazam, mefenoxam, ofurace, dimethomorph, flumorph, fluopicolid (picobenzamid), zoxamide, carpropamid, mandipropamid and N-(3',4',5'-trifluorobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide.

10 Preference is given to mixtures comprising a compound of formula I, II and/or IV (component 1) and at least one active substance selected from the azoles of group C) (component 2) and particularly selected from cyproconazole, difenoconazole, epoxiconazole, fluquinconazole, flusilazole, flutriafol, metconazole, myclobutanil, penconazole, propiconazole, prothioconazole, triadimefon, triadimenol, tebuconazole, tetraconazole, triticonazole, prochloraz, cyazofamid, benomyl, carbendazim and ethaboxam.

20 Preference is also given to mixtures comprising a compound I, II and/or IV (component 1) and at least one active substance selected from the heterocyclic compounds of group D) (component 2) and particularly selected from fluazinam, cyprodinil, fenarimol, mepanipyrim, pyrimethanil, triforine, fludioxonil, dodemorph, fenpropimorph, tridemorph, fenpropidin, iprodione, vinclozolin, famoxadone, fenamidone, probenazole, proquinazid, acibenzolar-S-methyl, captafol, folpet, fenoxanil, quinoxifen and 5-ethyl-6-octyl-[1,2,4]triazolo[1,5-a]pyrimidine-7-ylamine.

30 Preference is also given to mixtures comprising a compound I, II and/or IV (component 1) and at least one active substance selected from the carbamates of group E) (component 2) and particularly selected from mancozeb, metiram, propineb, thiram, iprovalicarb, bentiavalicarb and propamocarb.

35 Preference is also given to mixtures comprising a compound I, II and/or IV (component 1) and at least one active substance selected from the fungicides given in group F) (component 2) and particularly selected from dithianon, fentin salts, such as fentin acetate, fosetyl, fosetyl-aluminium, H₃PO₃ and salts thereof, chlorthalonil, dichlofluanid, thiophanat-methyl, copper acetate, copper hydroxide, copper oxychloride, copper sulfate, sulfur, cymoxanil, metrafenone and spiroxamine.

Accordingly, the present invention furthermore relates to compositions comprising one compound I, II and/or IV (component 1) and one further active substance (component 2), which further active substance is selected from the column "Component 2" of the lines C-1 to C-346 of Table C.

5

A further embodiment relates to the compositions C-1 to C-346 listed in Table C, where a row of Table C corresponds in each case to a fungicidal composition comprising one of the in the present specification individualized compounds of formula I, II and/or IV (component 1) and the respective further active substance from groups A) to I) (component 2) stated in the row in question. Preferably, the compositions described comprise the active substances in synergistically effective amounts.

10

Table C: Composition comprising one individualized compound I, II or IV and one further active substance from groups A) to I)

Mixture	Component 1	Component 2
C-1	one individualized compound I, II or IV	Azoxystrobin
C-2	one individualized compound I, II or IV	Dimoxystrobin
C-3	one individualized compound I, II or IV	Enestroburin
C-4	one individualized compound I, II or IV	Fluoxastrobin
C-5	one individualized compound I, II or IV	Kresoxim-methyl
C-6	one individualized compound I, II or IV	Metominostrobin
C-7	one individualized compound I, II or IV	Orysastrobin
C-8	one individualized compound I, II or IV	Picoxystrobin
C-9	one individualized compound I, II or IV	Pyraclostrobin
C-10	one individualized compound I, II or IV	Pyribencarb
C-11	one individualized compound I, II or IV	Trifloxystrobin
C-12	one individualized compound I, II or IV	2-(2-(6-(3-Chloro-2-methylphenoxy)-5-fluoro-pyrimidin-4-ylloxy)-phenyl)-2-methoxyimino-N-methyl-acetamide
C-13	one individualized compound I, II or IV	2-(ortho-((2,5-Dimethylphenyl-oxymethylen)phenyl)-3-methoxy-acrylsäuremethylester
C-14	one individualized compound I, II or IV	3-Methoxy-2-(2-(N-(4-methoxyphenyl)-cyclopropanecarboximidoylsulfanylmethyl)-phenyl)-acrylic acid methyl ester

Mix- ture	Component 1	Component 2
C-15	one individualized compound I, II or IV	2-(2-(3-(2,6-dichlorophenyl)-1-methyl-allylideneaminoxy-methyl)-phenyl)-2-methoxyimino-N-methyl-acetamide
C-16	one individualized compound I, II or IV	Benalaxyl
C-17	one individualized compound I, II or IV	Benalaxyl-M
C-18	one individualized compound I, II or IV	Benodanil
C-19	one individualized compound I, II or IV	Bixafen
C-20	one individualized compound I, II or IV	Boscalid
C-21	one individualized compound I, II or IV	Carboxin
C-22	one individualized compound I, II or IV	Fenfuram
C-23	one individualized compound I, II or IV	Fenhexamid
C-24	one individualized compound I, II or IV	Flutolanil
C-25	one individualized compound I, II or IV	Furametpyr
C-26	one individualized compound I, II or IV	Isopyrazam
C-27	one individualized compound I, II or IV	Isotianil
C-28	one individualized compound I, II or IV	Kiralaxyl
C-29	one individualized compound I, II or IV	Mepronil
C-30	one individualized compound I, II or IV	Metalaxyl
C-31	one individualized compound I, II or IV	Metalaxyl-M
C-32	one individualized compound I, II or IV	Ofurace
C-33	one individualized compound I, II or IV	Oxadixyl
C-34	one individualized compound I, II or IV	Oxycarboxin
C-35	one individualized compound I, II or IV	Penthiopyrad
C-36	one individualized compound I, II or IV	Sedaxane
C-37	one individualized compound I, II or IV	Tecloftalam
C-38	one individualized compound I, II or IV	Thifluzamide
C-39	one individualized compound I, II or IV	Tiadinil
C-40	one individualized compound I, II or IV	2-Amino-4-methyl-thiazole-5-carboxylic acid anilide
C-41	one individualized compound I, II or IV	2-Chloro-N-(1,1,3-trimethyl-indan-4-yl)-nicotinamide
C-42	one individualized compound I, II or IV	N-(3',4',5'-trifluorobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide

Mix- ture	Component 1	Component 2
C-43	one individualized compound I, II or IV	N-(4'-trifluoromethylthiobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide
C-44	one individualized compound I, II or IV	N-(2-(1,3-dimethyl-butyl)-phenyl)-1,3-dimethyl-5-fluoro-1H-pyrazole-4-carboxamide
C-45	one individualized compound I, II or IV	N-(2-(1,3,3-trimethyl-butyl)-phenyl)-1,3-dimethyl-5-fluoro-1H-pyrazole-4-carboxamide
C-46	one individualized compound I, II or IV	Dimethomorph
C-47	one individualized compound I, II or IV	Flumorph
C-48	one individualized compound I, II or IV	Pyrimorph
C-49	one individualized compound I, II or IV	Flumetover
C-50	one individualized compound I, II or IV	Fluopicolide
C-51	one individualized compound I, II or IV	Fluopyram
C-52	one individualized compound I, II or IV	Zoxamide
C-53	one individualized compound I, II or IV	N-(3-Ethyl-3,5,5-trimethyl-cyclohexyl)-3-formylamino-2-hydroxy-benzamide
C-54	one individualized compound I, II or IV	Carpropamid
C-55	one individualized compound I, II or IV	Diclocymet
C-56	one individualized compound I, II or IV	Mandipropamid
C-57	one individualized compound I, II or IV	Oxytetracyclin
C-58	one individualized compound I, II or IV	Silthiofam
C-59	one individualized compound I, II or IV	N-(6-methoxy-pyridin-3-yl) cyclopropanecarboxylic acid amide
C-60	one individualized compound I, II or IV	Azaconazole
C-61	one individualized compound I, II or IV	Bitertanol
C-62	one individualized compound I, II or IV	Bromuconazole
C-63	one individualized compound I, II or IV	Cyproconazole
C-64	one individualized compound I, II or IV	Difenoconazole
C-65	one individualized compound I, II or IV	Diniconazole
C-66	one individualized compound I, II or IV	Diniconazole-M
C-67	one individualized compound I, II or IV	Epoxyconazole
C-68	one individualized compound I, II or IV	Fenbuconazole
C-69	one individualized compound I, II or IV	Fluquinconazole

Mix- ture	Component 1	Component 2
C-70	one individualized compound I, II or IV	Flusilazole
C-71	one individualized compound I, II or IV	Flutriafol
C-72	one individualized compound I, II or IV	Hexaconazol
C-73	one individualized compound I, II or IV	Imibenconazole
C-74	one individualized compound I, II or IV	Ipconazole
C-75	one individualized compound I, II or IV	Metconazole
C-76	one individualized compound I, II or IV	Myclobutanil
C-77	one individualized compound I, II or IV	Oxpoconazol
C-78	one individualized compound I, II or IV	Paclobutrazol
C-79	one individualized compound I, II or IV	Penconazole
C-80	one individualized compound I, II or IV	Propiconazole
C-81	one individualized compound I, II or IV	Prothioconazole
C-82	one individualized compound I, II or IV	Simeconazole
C-83	one individualized compound I, II or IV	Tebuconazole
C-84	one individualized compound I, II or IV	Tetraconazole
C-85	one individualized compound I, II or IV	Triadimefon
C-86	one individualized compound I, II or IV	Triadimenol
C-87	one individualized compound I, II or IV	Triticonazole
C-88	one individualized compound I, II or IV	Uniconazole
C-89	one individualized compound I, II or IV	1-(4-Chloro-phenyl)-2- ([1,2,4]triazol-1-yl)-cycloheptanol
C-90	one individualized compound I, II or IV	Cyazofamid
C-91	one individualized compound I, II or IV	Imazalil
C-92	one individualized compound I, II or IV	Imazalil-sulfate
C-93	one individualized compound I, II or IV	Pefurazoate
C-94	one individualized compound I, II or IV	Prochloraz
C-95	one individualized compound I, II or IV	Triflumizole
C-96	one individualized compound I, II or IV	Benomyl
C-97	one individualized compound I, II or IV	Carbendazim
C-98	one individualized compound I, II or IV	Fuberidazole
C-99	one individualized compound I, II or IV	Thiabendazole
C-100	one individualized compound I, II or IV	Ethaboxam
C-101	one individualized compound I, II or IV	Etridiazole
C-102	one individualized compound I, II or IV	Hymexazole

Mix- ture	Component 1	Component 2
C-103	one individualized compound I, II or IV	2-(4-Chloro-phenyl)-N-[4-(3,4-dimethoxy-phenyl)-isoxazol-5-yl]-2-prop-2-ynyloxy-acetamide
C-104	one individualized compound I, II or IV	Fluazinam
C-105	one individualized compound I, II or IV	Pyrifenox
C-106	one individualized compound I, II or IV	3-[5-(4-Chloro-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine
C-107	one individualized compound I, II or IV	3-[5-(4-Methyl-phenyl)-2,3-dimethyl-isoxazolidin-3-yl]-pyridine
C-108	one individualized compound I, II or IV	2,3,5,6-Tetrachloro-4-methanesulfonyl-pyridine
C-109	one individualized compound I, II or IV	3,4,5-Trichloro-pyridine-2,6-dicarbonitrile
C-110	one individualized compound I, II or IV	N-(1-(5-Bromo-3-chloro-pyridin-2-yl)-ethyl)-2,4-dichloro-nicotinamide
C-111	one individualized compound I, II or IV	N-((5-Bromo-3-chloro-pyridin-2-yl)-methyl)-2,4-dichloro-nicotinamide
C-112	one individualized compound I, II or IV	Bupirimate
C-113	one individualized compound I, II or IV	Cyprodinil
C-114	one individualized compound I, II or IV	Diflumetorim
C-115	one individualized compound I, II or IV	Fenarimol
C-116	one individualized compound I, II or IV	Ferimzone
C-117	one individualized compound I, II or IV	Mepanipyrim
C-118	one individualized compound I, II or IV	Nitrapyrin
C-119	one individualized compound I, II or IV	Nuarimol
C-120	one individualized compound I, II or IV	Pyrimethanil
C-121	one individualized compound I, II or IV	Triforine
C-122	one individualized compound I, II or IV	Fenpiclonil
C-123	one individualized compound I, II or IV	Fludioxonil
C-124	one individualized compound I, II or IV	Aldimorph
C-125	one individualized compound I, II or IV	Dodemorph
C-126	one individualized compound I, II or IV	Dodemorph-acetate
C-127	one individualized compound I, II or IV	Fenpropimorph

Mix- ture	Component 1	Component 2
C-128	one individualized compound I, II or IV	Tridemorph
C-129	one individualized compound I, II or IV	Fenpropidin
C-130	one individualized compound I, II or IV	Fluoroimid
C-131	one individualized compound I, II or IV	Iprodione
C-132	one individualized compound I, II or IV	Procymidone
C-133	one individualized compound I, II or IV	Vinclozolin
C-134	one individualized compound I, II or IV	Famoxadone
C-135	one individualized compound I, II or IV	Fenamidone
C-136	one individualized compound I, II or IV	Flutianil
C-137	one individualized compound I, II or IV	Octhilinone
C-138	one individualized compound I, II or IV	Probenazole
C-139	one individualized compound I, II or IV	5-Amino-2-iso-propyl-4-ortho- tolyl-2,3-dihydro-pyrazole-1- carbothioic acid S-allyl ester
C-140	one individualized compound I, II or IV	Acibenzolar-S-methyl
C-141	one individualized compound I, II or IV	Amisulbrom
C-142	one individualized compound I, II or IV	Anilazin
C-143	one individualized compound I, II or IV	Blasticidin-S
C-144	one individualized compound I, II or IV	Captafol
C-145	one individualized compound I, II or IV	Captan
C-146	one individualized compound I, II or IV	Chinomethionat
C-147	one individualized compound I, II or IV	Dazomet
C-148	one individualized compound I, II or IV	Debacarb
C-149	one individualized compound I, II or IV	Diclomezine
C-150	one individualized compound I, II or IV	Difenzoquat,
C-151	one individualized compound I, II or IV	Difenzoquat-methylsulfate
C-152	one individualized compound I, II or IV	Fenoxanil
C-153	one individualized compound I, II or IV	Folpet
C-154	one individualized compound I, II or IV	Oxolinsäure
C-155	one individualized compound I, II or IV	Piperalin
C-156	one individualized compound I, II or IV	Proquinazid
C-157	one individualized compound I, II or IV	Pyroquilon
C-158	one individualized compound I, II or IV	Quinoxifen
C-159	one individualized compound I, II or IV	Triazoxid
C-160	one individualized compound I, II or IV	Tricyclazole

Mix- ture	Component 1	Component 2
C-161	one individualized compound I, II or IV	2-Butoxy-6-iodo-3-propyl-chromen-4-one
C-162	one individualized compound I, II or IV	5-Chloro-1-(4,6-dimethoxy-pyrimidin-2-yl)-2-methyl-1H-benzoimidazole
C-163	one individualized compound I, II or IV	5-Chloro-7-(4-methyl-piperidin-1-yl)-6-(2,4,6-trifluoro-phenyl)-[1,2,4]triazolo[1,5-a]pyrimidine
C-164	one individualized compound I, II or IV	5-ethyl-6-octyl-[1,2,4]triazolo[1,5-a]pyrimidine-7-ylamine
C-165	one individualized compound I, II or IV	Ferbam
C-166	one individualized compound I, II or IV	Mancozeb
C-167	one individualized compound I, II or IV	Maneb
C-168	one individualized compound I, II or IV	Metam
C-169	one individualized compound I, II or IV	Methasulphocarb
C-170	one individualized compound I, II or IV	Metiram
C-171	one individualized compound I, II or IV	Propineb
C-172	one individualized compound I, II or IV	Thiram
C-173	one individualized compound I, II or IV	Zineb
C-174	one individualized compound I, II or IV	Ziram
C-175	one individualized compound I, II or IV	Diethofencarb
C-176	one individualized compound I, II or IV	Benthiavalicarb
C-177	one individualized compound I, II or IV	Iprovalicarb
C-178	one individualized compound I, II or IV	Propamocarb
C-179	one individualized compound I, II or IV	Propamocarb hydrochlorid
C-180	one individualized compound I, II or IV	Valiphenal
C-181	one individualized compound I, II or IV	N-(1-(1-(4-cyanophenyl)ethanesulfonyl)-but-2-yl) carbamic acid-(4-fluorophenyl) ester
C-182	one individualized compound I, II or IV	Dodine
C-183	one individualized compound I, II or IV	Dodine free base
C-184	one individualized compound I, II or IV	Guazatine
C-185	one individualized compound I, II or IV	Guazatine-acetate
C-186	one individualized compound I, II or IV	Iminoctadine
C-187	one individualized compound I, II or IV	Iminoctadine-triacetate
C-188	one individualized compound I, II or IV	Iminoctadine-tris(albesilate)

Mix- ture	Component 1	Component 2
C-189	one individualized compound I, II or IV	Kasugamycin
C-190	one individualized compound I, II or IV	Kasugamycin-hydrochloride-hydrate
C-191	one individualized compound I, II or IV	Polyoxine
C-192	one individualized compound I, II or IV	Streptomycin
C-193	one individualized compound I, II or IV	Validamycin A
C-194	one individualized compound I, II or IV	Binapacryl
C-195	one individualized compound I, II or IV	Dicloran
C-196	one individualized compound I, II or IV	Dinobuton
C-197	one individualized compound I, II or IV	Dinocap
C-198	one individualized compound I, II or IV	Nitrothal-isopropyl
C-199	one individualized compound I, II or IV	Tecnazen
C-200	one individualized compound I, II or IV	Fentin salts
C-201	one individualized compound I, II or IV	Dithianon
C-202	one individualized compound I, II or IV	Isoprothiolane
C-203	one individualized compound I, II or IV	Edifenphos
C-204	one individualized compound I, II or IV	Fosetyl, Fosetyl-aluminium
C-205	one individualized compound I, II or IV	Iprobenfos
C-206	one individualized compound I, II or IV	Phosphorous acid (H ₃ PO ₃) and derivatives
C-207	one individualized compound I, II or IV	Pyrazophos
C-208	one individualized compound I, II or IV	Tolclofos-methyl
C-209	one individualized compound I, II or IV	Chlorothalonil
C-210	one individualized compound I, II or IV	Dichlofluanid
C-211	one individualized compound I, II or IV	Dichlorophen
C-212	one individualized compound I, II or IV	Flusulfamide
C-213	one individualized compound I, II or IV	Hexachlorbenzene
C-214	one individualized compound I, II or IV	Pencycuron
C-215	one individualized compound I, II or IV	Pentachlorophenol and salts
C-216	one individualized compound I, II or IV	Phthalide
C-217	one individualized compound I, II or IV	Quintozene
C-218	one individualized compound I, II or IV	Thiophanate Methyl
C-219	one individualized compound I, II or IV	Tolyfluanid
C-220	one individualized compound I, II or IV	N-(4-chloro-2-nitro-phenyl)-N-ethyl-4-methyl-benzenesulfonamide

Mix- ture	Component 1	Component 2
C-221	one individualized compound I, II or IV	Bordeaux mixture
C-222	one individualized compound I, II or IV	Copper acetate
C-223	one individualized compound I, II or IV	Copper hydroxide
C-224	one individualized compound I, II or IV	Copper oxychloride
C-225	one individualized compound I, II or IV	basic Copper sulfate
C-226	one individualized compound I, II or IV	Sulfur
C-227	one individualized compound I, II or IV	Biphenyl
C-228	one individualized compound I, II or IV	Bronopol
C-229	one individualized compound I, II or IV	Cyflufenamid
C-230	one individualized compound I, II or IV	Cymoxanil
C-231	one individualized compound I, II or IV	Diphenylamin
C-232	one individualized compound I, II or IV	Metrafenone
C-233	one individualized compound I, II or IV	Mildiomycin
C-234	one individualized compound I, II or IV	Oxin-copper
C-235	one individualized compound I, II or IV	Prohexadione calcium
C-236	one individualized compound I, II or IV	Spiroxamine
C-237	one individualized compound I, II or IV	Tolyfluanid
C-238	one individualized compound I, II or IV	N-(Cyclopropylmethoxyimino-(6-difluoromethoxy-2,3-difluorophenyl)-methyl)-2-phenyl acetamide
C-239	one individualized compound I, II or IV	N'-(4-(4-chloro-3-trifluoromethylphenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine
C-240	one individualized compound I, II or IV	N'-(4-(4-fluoro-3-trifluoromethylphenoxy)-2,5-dimethyl-phenyl)-N-ethyl-N-methyl formamidine
C-241	one individualized compound I, II or IV	N'-(2-methyl-5-trifluoromethyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine
C-242	one individualized compound I, II or IV	N'-(5-difluoromethyl-2-methyl-4-(3-trimethylsilanyl-propoxy)-phenyl)-N-ethyl-N-methyl formamidine

Mix- ture	Component 1	Component 2
C-243	one individualized compound I, II or IV	2-{1-[2-(5-Methyl-3-trifluoromethyl-pyrazole-1-yl)-acetyl]-piperidin-4-yl}-thiazole-4-carboxylic acid methyl-(1,2,3,4-tetrahydro-naphthalen-1-yl)-amide
C-244	one individualized compound I, II or IV	2-{1-[2-(5-Methyl-3-trifluoromethyl-pyrazole-1-yl)-acetyl]-piperidin-4-yl}-thiazole-4-carboxylic acid methyl-(R)-1,2,3,4-tetrahydro-naphthalen-1-yl-amide
C-245	one individualized compound I, II or IV	Acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester
C-246	one individualized compound I, II or IV	Methoxy-acetic acid 6-tert-butyl-8-fluoro-2,3-dimethyl-quinolin-4-yl ester
C-247	one individualized compound I, II or IV	Carbaryl
C-248	one individualized compound I, II or IV	Carbofuran
C-249	one individualized compound I, II or IV	Carbosulfan
C-250	one individualized compound I, II or IV	Methomylthiodicarb
C-251	one individualized compound I, II or IV	Bifenthrin
C-252	one individualized compound I, II or IV	Cyfluthrin
C-253	one individualized compound I, II or IV	Cypermethrin
C-254	one individualized compound I, II or IV	alpha-Cypermethrin
C-255	one individualized compound I, II or IV	zeta-Cypermethrin
C-256	one individualized compound I, II or IV	Deltamethrin
C-257	one individualized compound I, II or IV	Esfenvalerate
C-258	one individualized compound I, II or IV	Lambda-cyhalothrin
C-259	one individualized compound I, II or IV	Permethrin
C-260	one individualized compound I, II or IV	Tefluthrin
C-261	one individualized compound I, II or IV	Diflubenzuron
C-262	one individualized compound I, II or IV	Flufenoxuron
C-263	one individualized compound I, II or IV	Lufenuron
C-264	one individualized compound I, II or IV	Teflubenzuron
C-265	one individualized compound I, II or IV	Spirotetramate

Mix- ture	Component 1	Component 2
C-266	one individualized compound I, II or IV	Clothianidin
C-267	one individualized compound I, II or IV	Dinotefuran
C-268	one individualized compound I, II or IV	Imidacloprid
C-269	one individualized compound I, II or IV	Thiamethoxam
C-270	one individualized compound I, II or IV	Acetamiprid
C-271	one individualized compound I, II or IV	Thiacloprid
C-272	one individualized compound I, II or IV	Endosulfan
C-273	one individualized compound I, II or IV	Fipronil
C-274	one individualized compound I, II or IV	Abamectin
C-275	one individualized compound I, II or IV	Emamectin
C-276	one individualized compound I, II or IV	Spinosad
C-277	one individualized compound I, II or IV	Spinetoram
C-278	one individualized compound I, II or IV	Hydramethylnon
C-279	one individualized compound I, II or IV	Chlorfenapyr
C-280	one individualized compound I, II or IV	Fenbutatin oxide
C-281	one individualized compound I, II or IV	Indoxacarb
C-282	one individualized compound I, II or IV	Metaflumizone
C-283	one individualized compound I, II or IV	Fonicamid
C-284	one individualized compound I, II or IV	Lubendiamide
C-285	one individualized compound I, II or IV	Chlorantraniliprole
C-286	one individualized compound I, II or IV	Cyazypyr (HGW86)
C-287	one individualized compound I, II or IV	Cyflumetofen
C-288	one individualized compound I, II or IV	Acetochlor
C-289	one individualized compound I, II or IV	Dimethenamid
C-290	one individualized compound I, II or IV	metolachlor
C-291	one individualized compound I, II or IV	Metazachlor
C-292	one individualized compound I, II or IV	Glyphosate
C-293	one individualized compound I, II or IV	Glufosinate
C-294	one individualized compound I, II or IV	Sulfosate
C-295	one individualized compound I, II or IV	Clodinafop
C-296	one individualized compound I, II or IV	Fenoxaprop
C-297	one individualized compound I, II or IV	Fluazifop
C-298	one individualized compound I, II or IV	Haloxifop
C-299	one individualized compound I, II or IV	Paraquat
C-300	one individualized compound I, II or IV	Phenmedipham
C-301	one individualized compound I, II or IV	Clethodim

Mix- ture	Component 1	Component 2
C-302	one individualized compound I, II or IV	Cycloxydim
C-303	one individualized compound I, II or IV	Profoxydim
C-304	one individualized compound I, II or IV	Sethoxydim
C-305	one individualized compound I, II or IV	Tepraloxydim
C-306	one individualized compound I, II or IV	Pendimethalin
C-307	one individualized compound I, II or IV	Prodiamine
C-308	one individualized compound I, II or IV	Trifluralin
C-309	one individualized compound I, II or IV	Acifluorfen
C-310	one individualized compound I, II or IV	Bromoxynil
C-311	one individualized compound I, II or IV	Imazamethabenz
C-312	one individualized compound I, II or IV	Imazamox
C-313	one individualized compound I, II or IV	Imazapic
C-314	one individualized compound I, II or IV	Imazapyr
C-315	one individualized compound I, II or IV	Imazaquin
C-316	one individualized compound I, II or IV	Imazethapyr
C-317	one individualized compound I, II or IV	2,4-Dichlorophenoxyacetic acid (2,4-D)
C-318	one individualized compound I, II or IV	Chloridazon
C-319	one individualized compound I, II or IV	Clopyralid
C-320	one individualized compound I, II or IV	Fluroxypyr
C-321	one individualized compound I, II or IV	Picloram
C-322	one individualized compound I, II or IV	Picolinafen
C-323	one individualized compound I, II or IV	Bensulfuron
C-324	one individualized compound I, II or IV	Chlorimuron-ethyl
C-325	one individualized compound I, II or IV	Cyclosulfamuron
C-326	one individualized compound I, II or IV	Iodosulfuron
C-327	one individualized compound I, II or IV	Mesosulfuron
C-328	one individualized compound I, II or IV	Metsulfuron-methyl
C-329	one individualized compound I, II or IV	Nicosulfuron
C-330	one individualized compound I, II or IV	Rimsulfuron
C-331	one individualized compound I, II or IV	Triflusulfuron
C-332	one individualized compound I, II or IV	Atrazine
C-333	one individualized compound I, II or IV	Hexazinone
C-334	one individualized compound I, II or IV	Diuron
C-335	one individualized compound I, II or IV	Florasulam
C-336	one individualized compound I, II or IV	Pyroxasulfone

Mix- ture	Component 1	Component 2
C-337	one individualized compound I, II or IV	Bentazone
C-338	one individualized compound I, II or IV	Cinidon-ethyl
C-339	one individualized compound I, II or IV	Cinmethylin
C-340	one individualized compound I, II or IV	Dicamba
C-341	one individualized compound I, II or IV	Diflufenzopyr
C-342	one individualized compound I, II or IV	Quinclorac
C-343	one individualized compound I, II or IV	Quinmerac
C-344	one individualized compound I, II or IV	Mesotrione
C-345	one individualized compound I, II or IV	Saflufenacil
C-346	one individualized compound I, II or IV	Topramezone

The active substances referred to as component 2, their preparation and their activity 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).

The mixtures of active substances can be prepared as compositions comprising besides the active ingredients at least one inert ingredient by usual means, e. g. by the means given for the compositions of compounds I, II and/or IV.

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Concerning usual ingredients of such compositions reference is made to the explanations given for the compositions containing compounds I, II and/or IV.

The mixtures of active substances according to the present invention are suitable as fungicides, as are the compounds of formula I, II ad IV. They are distinguished by an outstanding effectiveness against a broad spectrum of phytopathogenic fungi, especially from the classes of the Ascomycetes, Basidiomycetes, Deuteromycetes and Per-

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onosporomycetes (syn. Oomycetes). In addition, it is referred to the explanations regarding the fungicidal activity of the compounds and the compositions containing compounds I, II and/or IV respectively.

- 5 The compounds I, II and IV and pharmaceutically acceptable salts thereof are also suitable for treating diseases in men and animals, especially as antimycotics, for treating cancer and for treating virus infections. The term "antimycotic", as distinguished from the term "fungicide", refers to a medicament for combating zoopathogenic or humanpathogenic fungi, i.e. for combating fungi in animals, especially in mammals (including humans) and birds.

Thus, a further aspect of the present invention relates to a medicament comprising at least one compound of the formulae I, II and/or IV and/or at least one pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier.

- 15 Suitable pharmaceutically acceptable salts are especially physiologically tolerated salts of the compound I, in particular the acid addition salts with physiologically acceptable acids. Examples of suitable organic and inorganic acids are hydrochloric acid, hydrobromic acid, phosphoric acid, sulfuric acid, C₁-C₄-alkylsulfonic acids, such as methanesulfonic acid, aromatic sulfonic acids, such as benzenesulfonic acid and toluenesulfonic acid, oxalic acid, maleic acid, fumaric acid, lactic acid, tartaric acid, adipic acid and benzoic acid. Further suitable acids are described, for example, in Fortschritte der Arzneimittelforschung, Volume 10, pages 224 ff., Birkhäuser Verlag, Basle and Stuttgart, 1966, the entire contents of which is expressly incorporated herein by way of reference.

Suitable carriers are, for example, solvents, carriers, excipients, binders and the like customarily used for pharmaceutical formulations, which are described below in an exemplary manner for individual types of administration.

- 30 A further aspect of the present invention relates to the use of compounds I, II and IV or of pharmaceutically acceptable salts thereof for preparing an antimycotic medicament; i.e. for preparing a medicament for the treatment and/or prophylaxis of infections with humanpathogenic and/or zoopathogenic fungi. Another aspect of the present invention relates to the use of compounds of formulae I, II and/or IV or of pharmaceutically acceptable salts thereof for preparing a medicament for the treatment of cancer. Another aspect of the present invention relates to the use of compounds of formulae I, II and/or IV or of pharmaceutically acceptable salts thereof for preparing a medicament for the treatment or prophylaxis of virus infections.

- The compounds of formulae I, II and IV and/or their pharmaceutically acceptable salts are suitable for the treatment, inhibition or control of growth and/or propagation of tumor cells and the disorders associated therewith. Accordingly, they are suitable for cancer
- 5 therapy in warm-blooded vertebrates, for example mammals and birds, in particular man, but also other mammals, in particular useful and domestic animals, such as dogs, cats, pigs, ruminants (cattle, sheep, goats, bison, etc.), horses and birds, such as chicken, turkey, ducks, geese, guineafowl and the like.
- 10 The compounds of formulae I, II and IV and/or their pharmaceutically acceptable salts are suitable for the therapy of cancer or cancerous disorders of the following organs: breast, lung, intestine, prostate, skin (melanoma), kidney, bladder, mouth, larynx, oesophagus, stomach, ovaries, pancreas, liver and brain or CNS.
- 15 The compounds of formulae I, II and IV and/or their pharmaceutically acceptable salts are suitable for the treatment of virus infections in warm-blooded vertebrates, for example mammals and birds, in particular man, but also other mammals, in particular useful and domestic animals, such as dogs, cats, pigs, ruminants (cattle, sheep, goats, bison, etc.), horses and birds, such as chicken, turkey, ducks, geese, guineafowl and
- 20 the like. They are suitable for treating virus infections like retrovirus infections such as HIV and HTLV, influenza virus infection, rhinovirus infections, herpes and the like.

The compounds according to the invention can be administered in a customary manner, for example orally, intravenously, intramuscularly or subcutaneously. For oral

25 administration, the active compound can be mixed, for example, with an inert diluent or with an edible carrier; it can be embedded into a hard or soft gelatin capsule, it can be compressed to tablets or it can be mixed directly with the food/feed. The active compound can be mixed with excipients and administered in the form of indigestible tablets, buccal tablets, pastilles, pills, capsules, suspensions, potions, syrups and the like.

30 Such preparations should contain at least 0.1% of active compound. The composition of the preparation may, of course, vary. It usually comprises from 2 to 60% by weight of active compound, based on the total weight of the preparation in question (dosage unit). Preferred preparations of the compound I according to the invention comprise from 10 to 1000 mg of active compound per oral dosage unit.

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The tablets, pastilles, pills, capsules and the like may furthermore comprise the following components: binders, such as tragacanth, gum arabic, corn starch or gelatin, excipients, such as dicalcium phosphate, disintegrants, such as corn starch, potato starch, alginate acid and the like, glidants, such as magnesium stearate, sweeteners, such as

sucrose, lactose or saccharin, and/or flavors, such as peppermint, vanilla and the like. Capsules may furthermore comprise a liquid carrier. Other substances which modify the properties of the dosage unit may also be used. For example, tablets, pills and capsules may be coated with schellack, sugar or mixtures thereof. In addition to the
5 active compound, syrups or potions may also comprise sugar (or other sweeteners), methyl- or propylparaben as preservative, a colorant and/or a flavor. The components of the active compound preparations must, of course, be pharmaceutically pure and nontoxic at the quantities employed. Furthermore, the active compounds can be formu-
10 lated as preparations with a controlled release of active compound, for example as delayed-release preparations.

The active compounds can also be administered parenterally or intraperitoneally. Solutions or suspensions of the active compounds or their salts can be prepared with water using suitable wetting agents, such as hydroxypropylcellulose. Dispersions can also be
15 prepared using glycerol, liquid polyethylene glycols and mixtures thereof in oils. Frequently, these preparations furthermore comprise a preservative to prevent the growth of microorganisms.

Preparations intended for injections comprise sterile aqueous solutions and dispersions
20 and also sterile powders for preparing sterile solutions and dispersions. The preparation has to be sufficiently liquid for injection. It has to be stable under the preparation and storage conditions and it has to be protected against contamination by microorganisms. The carrier may be a solvent or a dispersion medium, for example, water, ethanol, a polyol (for example glycerol, propylene glycol or liquid polyethylene glycol), a
25 mixture thereof and/or a vegetable oil.

The invention is further illustrated by the following, non-limiting examples.

I. Synthesis examples
30

II. Examples of the action against harmful fungi

35 The fungicidal action of the compounds of the formulae I and II was demonstrated by the following experiments:

A) Microtiter tests

The active substances were formulated separately as a stock solution in dimethyl sulfide (DMSO) at a concentration of 10 000 ppm.

5 Use example 1: Activity against the late blight pathogen *Phytophthora infestans* in the microtiter test

The stock solution was pipetted into a microtiter plate (MTP) and diluted to the stated active substance concentration using a pea juice-based aqueous nutrient medium for fungi. An aqueous zoospore suspension of *Phytophthora infestans* was then added.
10 The plates were placed in a water vapor-saturated chamber at temperatures of 18°C. Using an absorption photometer, the MTPs were measured at 405 nm on day 7 after the inoculation. The measured parameters were compared to the growth of the active substance-free control variant (= 100 %) and the fungus- and active substance-free blank value to determine the relative growth in % of the pathogens in the individual
15 active substances.

Use example 2: Activity against the rice blast pathogen caused by *Pyricularia oryzae* in the microtiter test

20 The stock solution was pipetted into a microtiter plate (MTP) and diluted to the stated active substance concentration using a malt-based aqueous nutrient medium for fungi. An aqueous spore suspension of *Pyricularia oryzae* was then added. The plates were placed in a water vapor-saturated chamber at temperatures of 18°C. Using an absorption photometer, the microtiter plates were measured at 405 nm on day 7 after the in-
25 oculation. The measured parameters were compared to the growth of the active substance-free control variant (= 100%) and the fungus- and active substance-free blank value to determine the relative growth in % of the pathogens in the individual active substances.

30 Use example 3: Activity against the Septoria blotch pathogen caused by *Septoria tritici* in the microtiter test

The stock solution was pipetted into a microtiter plate (MTP) and diluted to the stated active substance concentration using a malt-based aqueous nutrient medium for fungi.
35 An aqueous spore suspension of *Septoria tritici* was then added. The plates were placed in a water vapor-saturated chamber at temperatures of 18°C. Using an absorption photometer, the microtiter plates were measured at 405 nm on day 7 after the inoculation. The measured parameters were compared to the growth of the active substance-free control variant (= 100%) and the fungus- and active substance-free blank

value to determine the relative growth in % of the pathogens in the individual active substances.

B) Greenhouse tests

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The active substances were formulated separately or together as a stock solution comprising 25 mg of active substance which was made up to 10 ml using a mixture of acetone and/or dimethyl sulfoxide (DMSO) and the emulsifier Wettol EM 31 (wetting agent having emulsifying and dispersing action based on ethoxylated alkylphenols) in a volume ratio of solvent/emulsifier of 99 to 1. This solution was then made up to 100 ml using water. This stock solution was diluted with the solvent/emulsifier/water mixture described to the active substance concentration given below.

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Use example 4: Activity against early blight on tomatoes caused by *Phytophthora infestans* with protective application

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Young seedlings of tomato plants were grown in pots. The plants were sprayed to runoff with an aqueous suspension containing the concentration of active substance stated below. The next day, the treated plants were inoculated with an aqueous suspension of sporangia of *Phytophthora infestans*. After inoculation, the trial plants were immediately transferred to a humid chamber. After 6 days at 18 to 20°C and a relative humidity close to 100%, the extent of fungal attack on the leaves was visually assessed as % diseased leaf area.

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Use example 5: Curative action against *Puccinia recondita* on wheat (brown rust of wheat)

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Leaves of potted wheat seedlings of the cultivar "Kanzler" were dusted with a suspension of spores of brown rust of wheat (*Puccinia recondita*). The plants were then placed in a chamber with high atmospheric humidity (90 to 95%), at 20-22°C, for 24 hours. During this time, the spores germinated and the germinal tubes penetrated into the leaf tissue. The next day, the infected plants were sprayed to runoff point with an aqueous suspension having the concentration of active substance stated below. After drying of the sprayed suspension, the test plants were returned into the greenhouse and cultivated at temperatures between 20 and 22°C and at 65 to 70% relative atmospheric humidity for a further 7 days. The extent of the rust development on the leaves was then determined visually.

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Use example 6: Protective action against *Puccinia recondita* on wheat (brown rust of wheat)

5 Leaves of potted wheat seedlings of the cultivar "Kanzler" were sprayed to runoff point with an aqueous suspension having the concentration of active substance stated below. The next day, the treated plants were dusted with a suspension of spores of brown rust of wheat (*Puccinia recondita*). The plants were then placed in a chamber with high atmospheric humidity (90 to 95%), at 20-22°C, for 24 hours. During this time, the spores germinated and the germinal tubes penetrated into the leaf tissue. The next
10 day, the test plants were returned into the greenhouse and cultivated at temperatures between 20 and 22°C and at 65 to 70% relative atmospheric humidity for a further 7 days. The extent of the rust development on the leaves was then determined visually.

15 Use example 7: Protective action against *Blumeria graminis tritici* on wheat (mildew of wheat)

20 Leaves of potted wheat seedlings of the cultivar "Kanzler" were sprayed to runoff point with an aqueous suspension having the concentration of active substance stated below. The next day, the treated plants were dusted with a suspension of spores of mildew of wheat (*Blumeria graminis tritici*). The plants were then returned into the greenhouse and cultivated at temperatures between 20 and 24°C and at 60 to 90% relative atmospheric humidity for a further 7 days. The extent of the mildew development on the leaves was then determined visually.

25 Use example 8: Protective action against *Sphaerotheca fuliginea* on cucumber (mildew of cucumber)

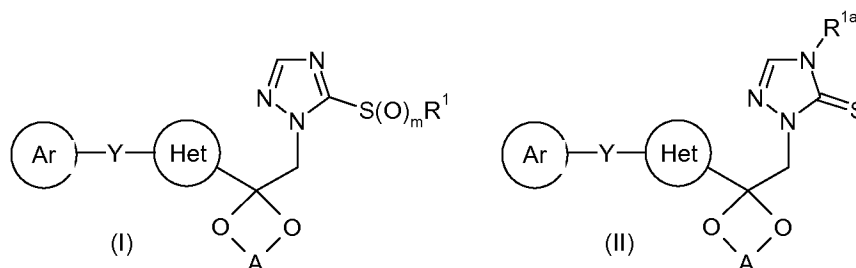
30 Leaves of potted cucumber seedlings (in the germ layer stage) were sprayed to runoff point with an aqueous suspension having the concentration of active substance stated below. The next day, the treated plants were dusted with a suspension of spores of mildew of cucumber (*Sphaerotheca fuliginea*). The plants were then returned into the greenhouse and cultivated at temperatures between 20 and 24°C and at 60 to 80% relative atmospheric humidity for a further 7 days. The extent of the mildew development on the seed leaves was then determined visually.

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We claim:

1. Triazole compounds of the formulae I and II

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wherein

Ar is phenyl which may carry 1, 2, 3, 4 or 5 substituents R^2 , or is a 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2, 3 or 4 substituents R^3 ;

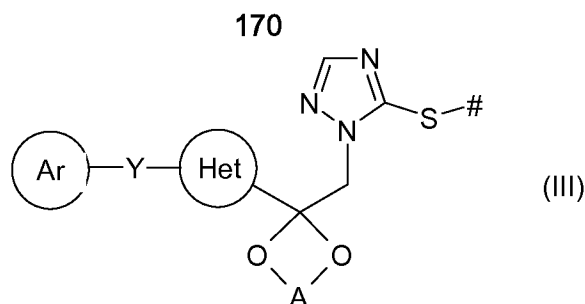
Het is a 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2, 3 or 4 substituents R^4 ;

A is a linear C_1 - C_5 -alkylene bridge which may be substituted by 1, 2, 3 or 4 substituents R^5 ;

Y is O, S or NR^6 ;

R^1 is selected from hydrogen, C_1 - C_{10} -alkyl, C_1 - C_{10} -haloalkyl, C_2 - C_{10} -alkenyl, C_2 - C_{10} -haloalkenyl, C_2 - C_{10} -alkynyl, C_2 - C_{10} -haloalkynyl, C_3 - C_{10} -cycloalkyl, C_3 - C_{10} -halocycloalkyl, phenyl, phenyl- C_1 - C_4 -alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^7 , and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^7 ; or, in case m is 0, may also be selected from $-C(=O)R^8$, $-C(=S)R^8$, $-S(O)_2R^8$, $-CN$, $-P(=Q)R^9R^{10}$, M and a group of the formula III

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wherein

Ar, Het, A and Y are as defined for formulae I and II; and

is the attachment point to the remainder of the molecule;

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R^{1a} is selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R⁷, a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R⁷, -C(=O)R⁸, -C(=S)R⁸, -S(O)₂R⁸, -CN, -P(=Q)R⁹R¹⁰ and M;

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each R² is independently selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₃-C₈-cycloalkyl, C₃-C₈-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkenyloxy, C₁-C₄-haloalkenyloxy, C₁-C₄-alkynyloxy, C₁-C₄-haloalkynyloxy, C₃-C₈-cycloalkoxy, C₃-C₈-halocycloalkoxy, C₁-C₄-alkylthio, C₁-C₄-haloalkylthio, C₁-C₄-alkenylthio, C₁-C₄-haloalkynylythio, phenyl, phenyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R¹¹; COR¹², COOR¹², CONR¹³R¹⁴, NR¹³R¹⁴ and S(O)_pR¹², where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵ and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁶; or

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two radicals R² bound on adjacent carbon ring atoms, together with the carbon ring atoms to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly un-

saturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;

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each R³ is independently selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₃-C₈-cycloalkyl, C₃-C₈-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkenyloxy, C₁-C₄-haloalkenyloxy, C₁-C₄-alkynyloxy, C₁-C₄-haloalkynyloxy, C₃-C₈-cycloalkoxy, C₃-C₈-halocycloalkoxy, C₁-C₄-alkylthio, C₁-C₄-haloalkylthio, C₁-C₄-alkenylylthio, C₁-C₄-haloalkynylylthio, phenyl, phenyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R¹¹; COR¹², COOR¹², CONR¹³R¹⁴, NR¹³R¹⁴ and S(O)_pR¹², where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵ and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁶; or

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two radicals R³ bound on adjacent ring atoms, together with the ring atoms to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;

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each R⁴ is independently selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₃-C₈-cycloalkyl, C₃-C₈-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkenyloxy, C₁-C₄-haloalkenyloxy, C₁-C₄-alkynyloxy, C₁-C₄-haloalkynyloxy, C₃-C₈-cycloalkoxy, C₃-C₈-halocycloalkoxy, C₁-C₄-alkylthio, C₁-C₄-haloalkylthio, C₁-C₄-alkenylylthio, C₁-C₄-haloalkynylylthio, phenyl, phenyl-C₁-C₄-alkyl, phenyl-C₁-C₄-alkoxy, phenoxy, phenylthio, where the phenyl moiety in the 5 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹; 3-, 4-, 5-, 6- or 7-membered saturated, partially unsaturated or maximum unsaturated heterocyclic ring containing 1, 2 or 3

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172

heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R¹¹; COR¹², COOR¹², CONR¹³R¹⁴, NR¹³R¹⁴ and S(O)_pR¹², where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵ and where the cycloaliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁶; or

two radicals R⁴ bound on adjacent ring atoms, together with the ring atom to which they are bound, form a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered carbocyclic ring or a partly unsaturated or maximum unsaturated 5-, 6- or 7-membered heterocyclic ring containing 1, 2 or 3 heteroatoms selected from O, S and N as ring members; where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;

each R⁵ is independently selected from halogen, OH, SH, NR¹³R¹⁴, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkylthio and C₁-C₄-haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵; or

two radicals R⁵ bound on two adjacent carbon atoms, together with the carbon atoms to which they are bound, form a 3-, 4-, 5-, 6- or 7-membered saturated, partly unsaturated or maximum unsaturated carbocyclic ring or a 3-, 4-, 5-, 6- or 7-membered saturated, partly unsaturated or maximum unsaturated heterocyclic ring containing 1, 2, or 3 heteroatoms selected from O, S and N as ring members, where the carbocyclic or heterocyclic ring may carry 1, 2 or 3 substituents R¹¹;

R⁶ is selected from hydrogen, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R¹¹; COR¹², COOR¹², CONR¹³R¹⁴ and S(O)_pR¹²;

each R⁷ is independently selected from halogen, OH, SH, NR¹³R¹⁴, CN, NO₂, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkylthio and C₁-C₄-haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R¹⁵;

- 5 R^8 is selected from hydrogen, C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₁-C₁₀-alkoxy, C₁-C₁₀-haloalkoxy, C₁-C₁₀-aminoalkyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^7 , a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^7 , and NR¹³R¹⁴;
- 10 R^9 and R^{10} , independently of each other, are selected from C₁-C₁₀-alkyl, C₁-C₁₀-haloalkyl, C₂-C₁₀-alkenyl, C₂-C₁₀-haloalkenyl, C₂-C₁₀-alkynyl, C₂-C₁₀-haloalkynyl, C₃-C₁₀-cycloalkyl, C₃-C₁₀-halocycloalkyl, C₁-C₁₀-alkoxy, C₁-C₁₀-haloalkoxy, C₁-C₄-alkoxy-C₁-C₁₀-alkyl, C₁-C₄-alkoxy-C₁-C₁₀-alkoxy, C₁-C₁₀-alkylthio, C₁-C₁₀-haloalkylthio, C₂-C₁₀-alkenyloxy, C₂-C₁₀-alkenylthio, C₂-C₁₀-alkynyloxy, C₂-C₁₀-alkynylthio, C₃-C₁₀-cycloalkoxy, C₃-C₁₀-cycloalkylthio, phenyl, phenyl-C₁-C₄-alkyl, phenylthio, phenyl-C₁-C₄-alkoxy, and NR¹³R¹⁴;
- 15
- 20 each R^{11} is independently selected from halogen, OH, SH, NR¹³R¹⁴, CN, NO₂, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₂-C₄-alkynyl, C₂-C₄-haloalkynyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₁-C₄-alkylthio and C₁-C₄-haloalkylthio, where the aliphatic moieties in the above radicals may carry 1, 2 or 3 substituents R^{15} ;
- 25
- 30 each R^{12} is independently selected from hydrogen, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₂-C₄-alkenyl, C₂-C₄-haloalkenyl, C₁-C₄-aminoalkyl, phenyl, phenyl-C₁-C₄-alkyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2, 3, 4 or 5 substituents R^{11} , and a 5- or 6-membered saturated, partially unsaturated or aromatic heterocyclic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heterocyclic ring may carry 1, 2 or 3 substituents R^{11} ;
- 35
- each R^{13} is independently selected from hydrogen and C₁-C₈-alkyl;
- each R^{14} is independently selected from hydrogen, C₁-C₈-alkyl, phenyl, and phenyl-C₁-C₄-alkyl;
- or R^{13} and R^{14} together form a linear C₄- or C₅-alkylene bridge or a group -CH₂CH₂OCH₂CH₂- or -CH₂CH₂NR¹⁷CH₂CH₂-;

174

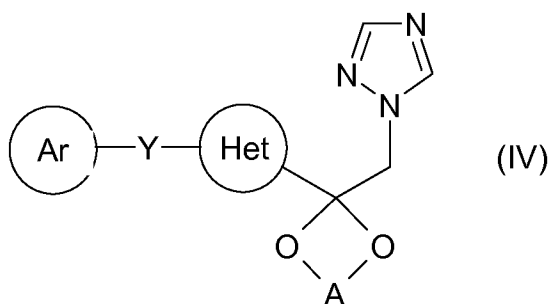
- each R¹⁵ is independently selected from nitro, CN, OH, SH, COR¹², COOR¹², CONR¹³R¹⁴; NR¹³R¹⁴, C₃-C₆-cycloalkyl, C₃-C₆-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₃-C₆-cycloaloxo, phenyl and phenoxy;
- 5 each R¹⁶ is independently selected from nitro, CN, OH, SH, COR¹², COOR¹², CONR¹³R¹⁴; NR¹³R¹⁴, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₃-C₆-cycloalkyl, C₃-C₆-halocycloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy, C₃-C₆-cycloaloxo, phenyl and phenoxy;
- 10 each R¹⁷ is independently selected from hydrogen and C₁-C₄-alkyl;
- Q is O or S;
- M is a metal cation equivalent or an ammonium cation of formula
15 (NR^aR^bR^cR^d)⁺, wherein R^a, R^b, R^c and R^d, independently of each other, are selected from hydrogen, C₁-C₁₀-alkyl, phenyl and benzyl, where the phenyl moiety in the 2 last-mentioned radicals may carry 1, 2 or 3 substituents independently selected from halogen, CN, nitro, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy, C₁-C₄-haloalkoxy and NR¹³R¹⁴;
- 20 m is 0, 1 or 2; and
- p is 1 or 2;
- 25 and the agriculturally acceptable salts thereof.
2. The compounds of formulae I and II as claimed in claim 1, where Ar is phenyl, which may carry 1, 2, 3, 4 or 5 substituents R², or is a 5- or 6-membered heteroaromatic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as
30 ring members, where the heteroaromatic ring may carry 1, 2, 3 or 4 substituents R³.
3. The compounds of formulae I and II as claimed in claim 2, where Ar is phenyl, which may carry 1, 2, 3, 4 or 5, preferably 1, 2 or 3, substituents R², or is a 5- or
35 6-membered heteroaromatic ring selected from pyridyl, pyrimidyl, furyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl and triazolyl, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R³.

175

4. The compounds of formulae I and II as claimed in claim 3, where Ar is phenyl, which may carry 1, 2, 3, 4 or 5, preferably 1, 2 or 3, substituents R², or is a 5- or 6-membered heteroaromatic ring selected from pyridyl, thienyl and thiazolyl and preferably pyridyl, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R³.
5. The compounds of formulae I and II as claimed in any of the preceding claims, where Het is a 5- or 6-membered heteroaromatic ring containing 1, 2 or 3 heteroatoms selected from N, O and S as ring members, where the heteroaromatic ring may carry 1, 2, 3 or 4 substituents R⁴.
6. The compounds of formulae I and II as claimed in claim 5, where Het is a 5- or 6-membered heteroaromatic ring selected from pyridyl, pyrimidyl, furyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl and triazolyl, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R⁴.
7. The compounds of formulae I and II as claimed in claim 6, where Het is a 5- or 6-membered heteroaromatic ring selected from pyridyl, thienyl and thiazolyl and is preferably pyridyl, where the heteroaromatic ring may carry 1, 2, 3 or 4, preferably 1 or 2, substituents R⁴.
8. The compounds of formulae I and II as claimed in any of the preceding claims, where R², R³ and R⁴, independently of each other and independently of each occurrence, are selected from halogen, OH, SH, NO₂, CN, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy-C₁-C₄-alkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy, and C₁-C₄-haloalkoxy, and preferably from hydrogen, fluorine, chlorine, bromine, C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy and C₁-C₄-haloalkoxy.
9. The compounds of formulae I and II as claimed in any of the preceding claims, where R⁸ is selected from C₁-C₄-alkyl, C₁-C₂-haloalkyl, C₁-C₄-alkoxy, C₁-C₂-haloalkoxy, phenyl, phenoxy and NR¹³R¹⁴, where R¹³ is hydrogen and R¹⁴ is selected from hydrogen, C₁-C₄-alkyl and phenyl, or both R¹³ and R¹⁴ are C₁-C₄-alkyl.
10. The compounds of formulae I and II as claimed in any of the preceding claims, where R¹ is selected from hydrogen, C₁-C₄-alkyl, -C(=O)R⁸, -S(O)₂R⁸, -CN, M and a group of the formula III and is preferably selected from hydrogen, methyl, ethyl, propyl, isopropyl, -C(=O)CH₃, -C(=O)OCH₃, -C(=O)N(CH₃)₂, CN, a group of the

formula III, an alkaline metal cation and $\frac{1}{2}$ Cu²⁺.

11. The compounds of formulae I and II as claimed in any of the preceding claims, where R^{1a} is selected from hydrogen, C₁-C₄-alkyl, -S(O)₂R⁸, and -C(=O)R⁸.
- 5
12. The compounds of formulae I and II as claimed in any of the preceding claims, where A is a linear C₂- or C₃-alkylene bridge, where 1 or 2 hydrogen atoms of the alkylene bridge may be replaced by 1 or 2 substituents R⁵, where each R⁵ is independently selected from C₁-C₄-alkyl, C₁-C₄-haloalkyl, C₁-C₄-alkoxy, C₁-C₄-alkoxy-C₁-C₄-alkoxy and C₁-C₄-haloalkoxy, and preferably from methyl, ethyl, methoxy, ethoxy and methoxymethoxy, or two substituents R⁵ bound on adjacent carbon atoms, together with the carbon atoms to which they are bound, form a cyclopentyl or cyclohexyl ring.
- 10
13. The compounds of formulae I and II as claimed in any of the preceding claims, where Y is O.
- 15
14. The compounds of formulae I and II as claimed in any of the preceding claims, where m is 0.
- 20
15. Compounds of formula IV



where Ar, Het, A and Y are as defined in any of claims 1 to 8 and 12 to 14.

- 25
16. An agricultural composition comprising at least one compound of formula I, II and/or IV as defined in any of claims 1 to 15 or an agriculturally acceptable salt thereof and a liquid or solid carrier.
- 30
17. The use of a compound of formula I, II and/or IV as defined in any of claims 1 to 15 for controlling harmful fungi.
18. A method for controlling harmful fungi, wherein the fungi, their habitat or the materials or plants to be protected against fungal attack, or the soil or propagation

material are treated with an effective amount of at least compound of formula I, II and/or IV, where compounds I, II and IV are as defined in any of claims 1 to 15.

- 5 19. Seed, comprising at least compound of formula I, II and/or IV, where compounds I, II and IV are as defined in any of claims 1 to 15, in an amount of from 0.1 g to 10 kg per 100 kg of seeds.
- 10 20. A pharmaceutical composition comprising at least one compound of formula I, II and/or IV as defined in any of claims 1 to 15 or a pharmaceutically acceptable salt thereof and at least one pharmaceutically acceptable carrier.
- 15 21. The use of a compound of formula I, II and/or IV as defined in any of claims 1 to 15 or a pharmaceutically acceptable salt thereof for preparing a medicament for the treatment of cancer or virus infections or for preparing an antimycotic medicament.
- 20 22. A method for treating cancer or virus infections or for combating zoopathogenic or humanpathogenic fungi, which comprises treating an individual in need thereof with at least one compound of formula I, II and/or IV as defined in any of claims 1 to 15, with at least one pharmaceutically acceptable salt thereof or with a pharmaceutical composition as defined in claim 20.

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2010/058541

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C07D405/14 A01N43/653
 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

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 practical, search terms used)

EPO-Internal, WPI Data, BEILSTEIN Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GLASER, ROBERT ET AL: "Solid-state structure determination and solution-state NMR characterization of the (2R,4R)/(2S,4S)- and (2R,4S)/(2S,4R)-diastereomers of the agricultural fungicide propiconazole, the (2R,4S)/(2S,4R)-symmetrical triazole constitutional isomer, and a ditriazole analog" STRUCTURAL CHEMISTRY, vol. 6, no. 3, 1995, XP002577816 Schemes 1-5	1-22
A	EP 0 065 485 A2 (CIBA GEIGY AG [CH]) 24 November 1982 (1982-11-24) cited in the application claims 1,49 ----- -/--	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

27 August 2010

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/058541

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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