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Declarations under Rule 4.17:

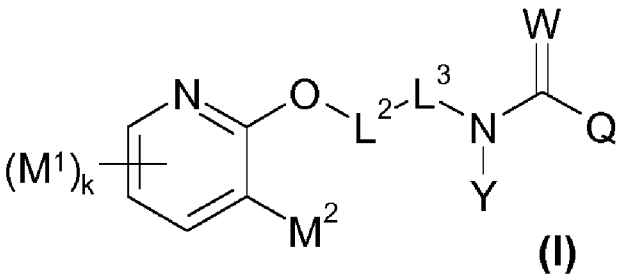
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

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

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(54) Title: USE OF PYRIDYLOXYALKYLCARBOXAMIDES FOR THE CONTROL OF UNWANTED MICROORGANISMS



(I)

(57) Abstract: The present application relates to the use of pyridyloxyalkylcarboxamides of the formula (I) for controlling harmful microorganisms in plants, composition comprising these compounds and to processes for preparation these fungicidal compositions.

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Use of pyridyloxyalkylcarboxamides for the control of unwanted microorganisms

The present application relates to the use of known pyridyloxyalkylcarboxamides for controlling harmful microorganisms in plants, composition comprising these compounds and to processes for preparation of suitable compositions for the control of harmful microorganisms.

In modern crop protection the ecological and economic demands made on active ingredients, for example fungicides, are increasing constantly, for example with respect to activity spectrum, toxicity, selectivity, application rate, formation of residues and favourable manufacture.

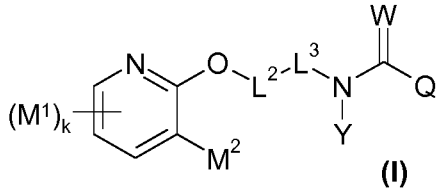
Thus, there is a constant need for developing new, alternative plant protection products which in some areas at least help to fulfill the above-mentioned requirements. In view of this, it was in particular an object of the present invention to provide compounds which exhibit activity against harmful microorganisms in plants, in the protection of materials. Moreover, it was a further particular object of the present invention, to reduce the application rates and broaden the activity spectrum of the fungicides, and thereby to provide compounds which, preferably at a reduced total amount of active compound applied, has improved activity against harmful microorganisms. In particular, it was a further object of the present invention to provide compounds which, when applied to a crop, results in a decreased amount of residues in the crop, and nevertheless provides efficient control of unwanted microorganisms.

WO-A 2013/064460 and WO-A 2013/064461 describe pyridylethylcarboxamides and their use as nematicides. WO-A 2013/ 076230 also claims phenyloxyethylcarboxamides and their use as medicaments for controlling endoparasites in animals or humans.

PCT/EP2013/073424, which will be published after the priority date of this application, describes the compounds as shown below as pesticides being active as endoparasiticides in the field of veterinary medicine and as nematicides in crop cultivation. As animal pests and harmful microorganisms are very different in many aspects such as physiology, genetics and lifestyle the skilled person would not expect that compounds showing pesticidal activity would also be active against unwanted microorganisms.

Invention

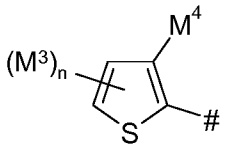
The present invention now provides the novel use of compounds of the formula (I)



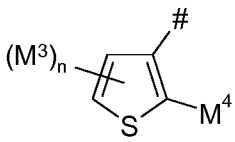
(I)

in which

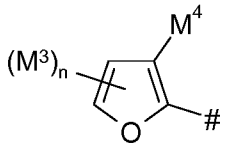
Q represents the structural elements below, where n for each Q is in each case as defined below:



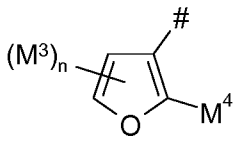
Q1
n = 1-2



Q2
n =1-2



Q3
n = 1-2



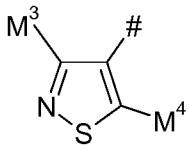
Q4
n =1-2



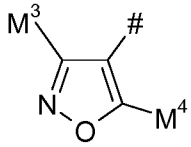
Q5



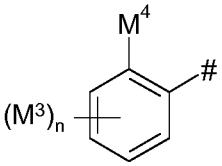
Q6



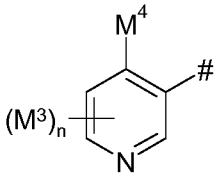
Q7



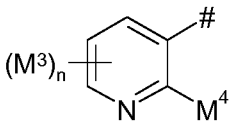
Q8



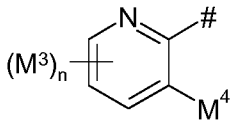
Q9
n =1-4



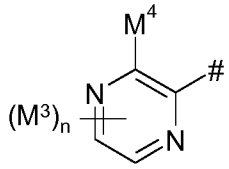
Q10
n =1-3



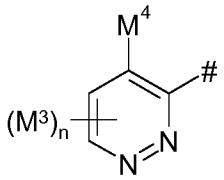
Q11
n = 1-3



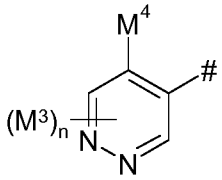
Q12
n = 1-3



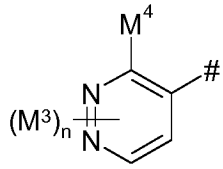
Q13
n = 1-2



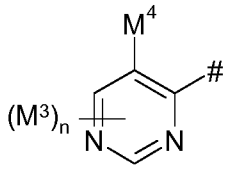
Q14
n = 1-2



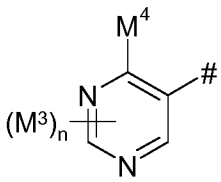
Q15
n = 1-2



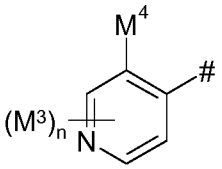
Q16
n = 1-2



Q17
n = 1-2



Q18
n = 1-2



Q19
n = 1-3

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

W represents oxygen or sulphur;

L^2 represents -C(R^{21}, R^{22})-;

L^3 represents -C(R^{31}, R^{32})-;

M^1, M^2 and M^3 each independently of one another represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

k represents 1, 2 or 3;

R^{21}, R^{22} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{21}, R^{22} together represent an optionally mono- or poly-M^2-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

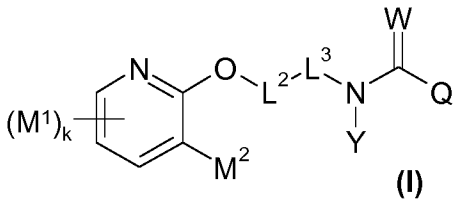
R^{31}, R^{32} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{31}, R^{32} together represent an optionally mono- or poly-M^5-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (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_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_2-C_{10})-haloalkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{10})-haloalkynyloxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_2-C_{10})-alkenylthio, (C_2-C_{10})-haloalkenylthio, (C_3-C_{10})-alkynylthio, (C_3-C_{10})-haloalkynylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_2-C_{10})-alkenylsulphonyl, (C_2-C_{10})-haloalkenylsulphonyl, (C_3-C_{10})-alkynylsulphonyl, (C_3-C_{10})-haloalkynylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl, (C_2-C_{10})-alkenylsulphanyl, (C_2-C_{10})-haloalkenylsulphanyl, (C_3-C_{10})-alkynylsulphanyl, (C_3-C_{10})-haloalkynylsulphanyl, (C_1-C_{10})-alkylcarbonyl, (C_1-C_{10})-haloalkylcarbonyl, (C_2-C_{10})-alkenylcarbonyl, (C_2-C_{10})-haloalkenylcarbonyl, (C_2-C_{10})-alkynylcarbonyl, (C_2-C_{10})-haloalkynylcarbonyl, (C_1-C_{10})-alkoxycarbonyl, (C_1-C_{10})-haloalkoxycarbonyl, (C_2-C_{10})-alkenyloxycarbonyl, (C_2-C_{10})-haloalkenyloxycarbonyl, (C_3-C_{10})-alkynyloxycarbonyl, (C_3-C_{10})-haloalkynyloxycarbonyl, (C_1-C_{10})-alkylcarbonyloxy, (C_1-C_{10})-haloalkylcarbonyloxy, (C_2-C_{10})-alkenylcarbonyloxy, (C_2-C_{10})-haloalkenylcarbonyloxy, (C_2-C_{10})-alkynylcarbonyloxy, (C_2-C_{10})-haloalkynylcarbonyloxy, a 3- to 14-membered cyclic group;

and salts, N-oxides and tautomeric forms thereof for controlling unwanted microorganisms.

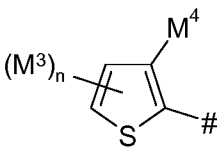
A further embodiment provides the novel use of compounds of the formula (I)



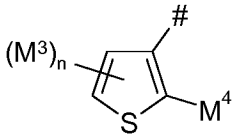
(I)

in which

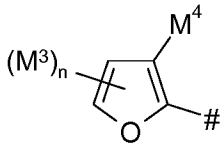
Q represents the structural elements below, where n for each Q is in each case as defined below:



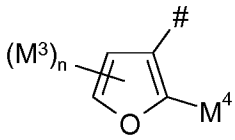
Q1
n = 1-2



Q2
n =1-2



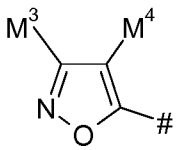
Q3
n = 1-2



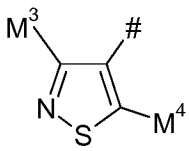
Q4
n =1-2



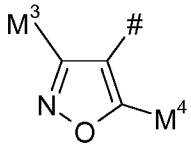
Q5



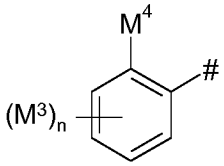
Q6



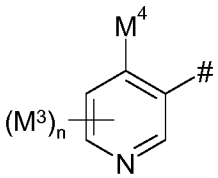
Q7



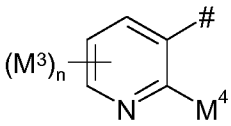
Q8



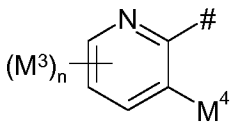
Q9
n =1-4



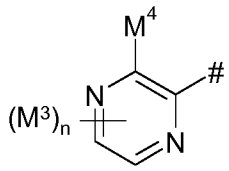
Q10
n =1-3



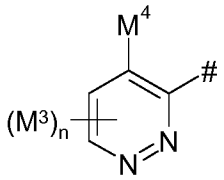
Q11
n = 1-3



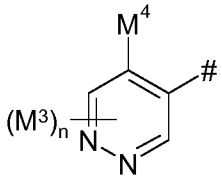
Q12
n = 1-3



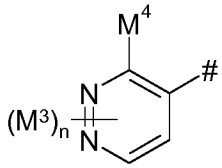
Q13
n = 1-2



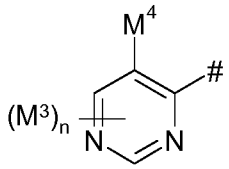
Q14
n = 1-2



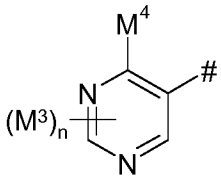
Q15
n = 1-2



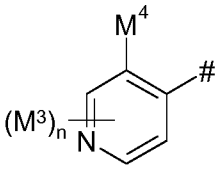
Q16
n = 1-2



Q17
n = 1-2



Q18
n = 1-2



Q19
n = 1-3

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

W represents oxygen or sulphur;

L^2 represents -C(R^{21}, R^{22})-;

L^3 represents -C(R^{31}, R^{32})-;

M^1, M^2 and M^3 each independently of one another represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

k represents 1, 2 or 3;

R^{21}, R^{22} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{21}, R^{22} together represent an optionally mono- or poly-M^2-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

R^{31}, R^{32} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{31}, R^{32} together represent an optionally mono- or poly-M^5-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (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_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_2-C_{10})-haloalkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{10})-haloalkynyloxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_2-C_{10})-alkenylthio, (C_2-C_{10})-haloalkenylthio, (C_3-C_{10})-alkynylthio, (C_3-C_{10})-haloalkynylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_2-C_{10})-alkenylsulphonyl, (C_2-C_{10})-haloalkenylsulphonyl, (C_3-C_{10})-alkynylsulphonyl, (C_3-C_{10})-haloalkynylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl, (C_2-C_{10})-alkenylsulphanyl, (C_2-C_{10})-haloalkenylsulphanyl, (C_3-C_{10})-alkynylsulphanyl, (C_3-C_{10})-haloalkynylsulphanyl, (C_1-C_{10})-alkylcarbonyl, (C_1-C_{10})-haloalkylcarbonyl, (C_2-C_{10})-alkenylcarbonyl, (C_2-C_{10})-haloalkenylcarbonyl, (C_2-C_{10})-alkynylcarbonyl, (C_2-C_{10})-haloalkynylcarbonyl, (C_1-C_{10})-alkoxycarbonyl, (C_1-C_{10})-haloalkoxycarbonyl, (C_2-C_{10})-alkenyloxycarbonyl, (C_2-C_{10})-haloalkenyloxycarbonyl, (C_3-C_{10})-alkynyloxycarbonyl, (C_3-C_{10})-haloalkynyloxycarbonyl, (C_1-C_{10})-alkylcarbonyloxy, (C_1-C_{10})-haloalkylcarbonyloxy, (C_2-C_{10})-alkenylcarbonyloxy, (C_2-C_{10})-haloalkenylcarbonyloxy, (C_2-C_{10})-alkynylcarbonyloxy, (C_2-C_{10})-haloalkynylcarbonyloxy, a 3- to 14-membered cyclic group;

and salts, N-oxides and tautomeric forms thereof for controlling unwanted microorganisms.

It has been found that the known compounds of formula (I) have pronounced biological properties and are suitable especially for controlling unwanted microorganisms, in particular phytopathogenic fungi,

phytopathogenic bacteria, phytopathogenic oomycetes, and phytopathogenic viruses, encountered in agriculture, in forests, in the protection of stored products and materials and in the hygiene sector.

The invention also comprises a method for preparing an agricultural composition comprising adding agriculturally suitable components such as suitable extenders, solvents, spontaneity promoters, carriers, emulsifiers, dispersants, frost protectants, thickeners, adjuvants or the like to the composition according to the invention. Furthermore the invention comprises a method for reducing damage of plants and plant parts or losses in harvested fruits or vegetables caused by harmful microorganisms by controlling such harmful microorganisms, comprising applying the compounds to the plant or the harmful microorganisms or the habitat of the plant or the habitat of the harmful microorganisms.

In view of this, the problem underlying the present invention has been solved by using known compounds which exhibit fungicidal activity against harmful microorganisms in plants, in the protection of materials. Moreover, the novel compositions according to the invention enable reduced application rates and broaden the activity spectrum of the fungicides. Finally the new use of the known compounds provide improved activity harmful microorganisms and consequently provide efficient disease control for reducing damage of plants and plant parts or losses in harvested fruits or vegetables.

The compounds of the formula (I) may, where appropriate, depending on the nature of the substituents, be in the form of geometric and/or optically active isomers or corresponding isomer mixtures of varying composition. The invention relates both to the pure isomers and to the isomer mixtures.

The compounds according to the invention can also be present as metal complexes.

Definitions

In the context of the present invention "harmful microorganisms" are phytopathogenic fungi, phytopathogenic bacteria, phytopathogenic oomycetes, and phytopathogenic viruses. "Phytopathogenic" means that the respective organism is capable of infesting plants or plant parts.

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

An "effective but non-phytotoxic amount" means an amount of the compounds according to formula (I) which is sufficient to control the fungal disease of the plant in a satisfactory manner or to eradicate the

fungal disease completely, and which, at the same time, does not cause any significant symptoms of phytotoxicity. In general, this application rate may vary within a relatively wide range. It depends on several factors, for example on the fungus to be controlled, the plant, the climatic conditions and the ingredients of the inventive compositions.

The term "mono- or poly-" means preferably mono- to hexa-, particularly preferably mono- to tetra-, very particularly preferably mono- to tri- and especially preferably mono- or di-.

The person skilled in the art is aware that the expressions "a" or "an" as used in the present application may, depending on the situation, mean "one (1)", "one (1) or more" or "at least one (1)".

For all ring systems hitherto described, adjacent atoms must not be -O-O- or -O-S-.

For the sake of simplicity, structures having a variable number of possible carbon atoms (C atoms) are referred to as C_1-C_{10}-structures (C_1-C_{10}) in the present application. Example: an alkyl group of 1 to 10 carbon atoms corresponds to (C_1-C_{10})-alkyl. Ring structures of carbon atoms and heteroatoms are referred to as "3- to 14-membered" structures.

If a collective term for a substituent, for example (C_1-C_{10})-alkyl, is at the end of a composite substituent such as, for example, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl, the component at the end of the composite substituent, for example the (C_1-C_{10})-alkyl, may be mono- or polysubstituted by identical or different substituents and independently of the substituent at the beginning, for example (C_3-C_{14})-cycloalkyl.

Unless defined differently, the definition for collective terms also applies to these collective terms in composite substituents. Example: The definition of (C_1-C_{10})-alkyl also applies to (C_1-C_{10})-alkyl as component of a composite substituent such as, for example, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl.

It is obvious to the person skilled in the art that the examples given in the present application are not to be considered as limiting, but rather describe some embodiments in more detail.

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

Collective terms

Halogen, unless defined otherwise: elements of the 7th main group; preference is given to fluorine, chlorine, bromine and iodine.

(C_1-C_{10})-Alkyl, unless defined differently elsewhere: saturated straight-chain or branched hydrocarbon radicals having preferably (C_1-C_6)-, particularly preferably (C_1-C_4)- carbon atoms. Examples: methyl, ethyl, isopropyl, n-propyl, 1-methylethyl, butyl, tert- butyl, etc.

(C_2-C_{10})-Alkenyl, unless defined differently elsewhere: unsaturated straight-chain or branched hydrocarbon radicals having a double bond. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenyl. Examples: ethenyl, 1-propenyl, 3-butenyl, etc.

(C_2-C_{10})-Alkynyl, unless defined differently elsewhere: unsaturated straight-chain or branched hydrocarbon radicals having a triple bond. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkynyl. Examples: ethynyl, 1-propynyl, etc.

(C_1-C_{10})-Alkoxy (alkyl radical-O-), unless defined differently elsewhere: an alkyl radical which is attached to the skeleton via an oxygen atom (-O-). Preference is given to (C_1-C_6)- or (C_1-C_4)-alkoxy. Examples: methoxy, ethoxy, propoxy, 1-methylethoxy, etc.

Analogously, **(C_2-C_{10})-alkenyloxy** and **(C_3-C_{10})-alkynyloxy,** unless defined differently elsewhere, are alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via -O-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenyloxy. Preference is given to (C_3-C_6)- or (C_3-C_4)-alkynyloxy.

(C_1-C_{10})-Alkylcarbonyl (alkyl radical-C(=O)-), unless defined differently elsewhere: preference is given to (C_1-C_6)- or (C_1-C_4)-alkylcarbonyl. Here, the number of the carbon atoms refers to the alkyl radical in the alkylcarbonyl group.

Analogously, **(C_2-C_{10})-alkenylcarbonyl** and **(C_3-C_{10})-alkynylcarbonyl,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via -C(=O)-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenylcarbonyl. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkynylcarbonyl.

(C_1-C_{10})-Alkoxycarbonyl (alkyl radical-O-C(=O)-), unless defined differently elsewhere: preference is given to (C_1-C_6)- or (C_1-C_4)-alkoxycarbonyl. Here, the number of the carbon atoms refers to the alkyl radical in the alkoxycarbonyl group.

Analogously, **(C_2-C_{10})-alkenyloxycarbonyl** and **(C_3-C_{10})-alkynyloxycarbonyl,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via -O-C(=O)-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenyloxycarbonyl. Preference is given to (C_3-C_6)- or (C_3-C_4)-alkynyloxycarbonyl.

(C_1-C_{10})-Alkylcarbonyloxy (alkyl radical-C(=O)-O-), unless defined differently elsewhere: an alkyl radical which is attached to the skeleton via a carbonyloxy group (-C(=O)-O-) with the oxygen. Preference is given to (C_1-C_6)- or (C_1-C_4)-alkylcarbonyloxy.

Analogously, **(C_2-C_{10})-alkenylcarbonyloxy** and **(C_2-C_{10})-alkynylcarbonyloxy,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the

skeleton via (-C(=O)-O-). Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenylcarbonyloxy. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkynylcarbonyloxy.

(C_1-C_{10})-Alkylthio, unless defined differently elsewhere: an alkyl radical which is attached to the skeleton via -S-. Preference is given to (C_1-C_6)- or (C_1-C_4)-alkylthio.

Analogously, **(C_2-C_{10})-alkenylthio** and **(C_3-C_{10})-alkynylthio,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via -S-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenylthio. Preference is given to (C_3-C_6)- or (C_3-C_4)-alkynylthio.

(C_1-C_{10})-Alkylsulphinyl, unless defined differently elsewhere: an alkyl radical which is attached to the skeleton via –S(=O)-. Preference is given to (C_1-C_6)- or (C_1-C_4)-alkylsulphinyl.

Analogously, **(C_2-C_{10})-alkenylsulphinyl** and **(C_3-C_{10})-alkynylsulphinyl,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via –S(=O)-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenylsulphinyl. Preference is given to (C_3-C_6)- or (C_3-C_4)-alkynylsulphinyl.

(C_1-C_{10})-Alkylsulphonyl, unless defined differently elsewhere: an alkyl radical which is attached to the skeleton via -S(=O)$_2$-. Preference is given to (C_1-C_6)- or (C_1-C_4)-alkylsulphonyl.

Analogously, **(C_2-C_{10})-alkenylsulphonyl** and **(C_3-C_{10})-alkynylsulphonyl,** unless defined differently elsewhere, are: alkenyl radicals and alkynyl radicals, respectively, which are attached to the skeleton via -S(=O)$_2$-. Preference is given to (C_2-C_6)- or (C_2-C_4)-alkenylsulphonyl. Preference is given to (C_3-C_6)- or (C_3-C_4)-alkynylsulphonyl.

(C_1-C_{10})-Haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-haloalkenyloxy, (C_3-C_{10})-haloalkynyloxy, (C_1-C_{10})-haloalkylcarbonyl, (C_2-C_{10})-haloalkenylcarbonyl, (C_2-C_{10})-haloalkynylcarbonyl, (C_1-C_{10})-haloalkoxycarbonyl, (C_2-C_{10})-haloalkenyloxycarbonyl, (C_3-C_{10})-haloalkynyloxycarbonyl, (C_2-C_{10})-haloalkylcarbonyloxy, (C_2-C_{10})-haloalkenylcarbonyloxy, (C_2-C_{10})-haloalkynylcarbonyloxy, (C_1-C_{10})-haloalkylthio, (C_2-C_{10})-haloalkenylthio, (C_3-C_{10})-haloalkynylthio, (C_1-C_{10})-haloalkylsulphinyl, (C_2-C_{10})-haloalkenylsulphinyl, (C_3-C_{10})-haloalkynylsulphinyl, (C_1-C_{10})-haloalkylsulphonyl, (C_2-C_{10})-haloalkenylsulphonyl, (C_3-C_{10})-haloalkynylsulphonyl are, unless defined differently, defined analogously to (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-alkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_1-C_{10})-alkylcarbonyl, (C_2-C_{10})-alkenylcarbonyl, (C_2-C_{10})-alkynylcarbonyl, (C_1-C_{10})-alkoxycarbonyl, (C_2-C_{10})-alkenyloxycarbonyl, (C_3-C_{10})-alkynyloxycarbonyl, (C_1-C_{10})-alkylcarbonyloxy, (C_2-C_{10})-alkenylcarbonyloxyl, (C_2-C_{10})-alkynylcarbonyloxy, (C_1-C_{10})-alkylthio, (C_2-C_{10})-alkenylthio, (C_3-C_{10})-alkynylthio, (C_1-C_{10})-alkylsulphinyl, (C_2-C_{10})-alkenylsulphinyl, (C_3-C_{10})-alkynylsulphinyl, (C_1-C_{10})-alkylsulphonyl, (C_3-C_{10})-alkenylsulphonyl, (C_3-C_{10})-

alkynylsulphonyl, where at least one hydrogen atom is replaced by a halogen atom as defined above. In one embodiment, all hydrogen atoms are replaced by halogen. Examples of halogenated structures are, for example, chloromethyl, trichloromethyl, fluoromethyl, chlorodifluoromethyl, dichlorofluoromethyl, trifluoromethyl, 2,2-difluoroethyl, difluoromethyl, difluoromethoxy, trifluoromethoxy, difluoromethylthio, trifluoromethylthio.

Cyclic groups

3- to 14-membered cyclic group, unless defined differently elsewhere: (C_3-C_{14})-carbocyclic group, 3- to 10-membered heterocyclic group, halogenated (C_3-C_{14})-carbocyclic group, halogenated 3- to 10-membered heterocyclic group.

(C_3-C_{14})-Carbocyclic group, unless defined differently elsewhere: (C_3-C_{14})-cycloalkyl, (C_3-C_{14})-cycloalkenyl, (C_6-C_{14})-aryl, halogenated (C_3-C_{14})-cycloalkyl, halogenated (C_3-C_{14})-cycloalkenyl, halogenated (C_6-C_{14})-aryl.

(C_3-C_{14})-Cycloalkyl, unless defined differently elsewhere: mono-, bi- or tricyclic saturated hydrocarbon groups preferably having (C_3-C_{14})-, (C_3-C_8)- or (C_3-C_6)-ring atoms. Cycloalkyl may also be a spirocyclic group. Examples: cyclopropyl, -butyl, -pentyl, -hexyl, -heptyl, bicyclo[2.2.1]heptyl or adamantyl. "Cycloalkyl" preferably represents monocyclic groups of 3, 4, 5, 6 or 7 ring atoms.

Analogously, **(C_3-C_{14})-cycloalkenyl,** unless defined differently elsewhere, is: a mono-, bi- or tricyclic, but partially unsaturated hydrocarbon group having at least one double bond, preferably having (C_3-C_8)- or (C_3-C_6)-ring atoms. Examples: cyclopropenyl, cyclobutenyl, cyclopentenyl and cyclohexenyl.

(C_6-C_{14})-Aryl, unless defined differently elsewhere: mono-, bi- or tricyclic ring system group where at least one cycle is aromatic, preferably having (C_6-C_8)- or (C_6)-ring atoms. Preferably, aryl is an aromatic C_6-monocyclic ring system group; a bicyclic (C_8-C_{14})-ring system group; or a tricyclic (C_{10}-C_{14})-ring system group. Examples: phenyl, naphthyl, anthryl, phenanthryl, tetrahydronaphthyl, indenyl, indanyl, fluorenyl.

Halogenated (C_3-C_{14})-carbocyclic group, halogenated (C_3-C_{14})-cycloalkyl, halogenated (C_3-C_{14})-cycloalkenyl, halogenated (C_6-C_{14})-aryl are in each case, unless defined differently, defined analogously to (C_3-C_{14})-carbocyclic group, (C_3-C_{14})-cycloalkyl, (C_3-C_{14})-cycloalkenyl, (C_6-C_{14})-aryl, where at least one hydrogen atom is replaced by a halogen atom as mentioned above. In one embodiment, all hydrogen atoms are replaced by halogen. Examples of halogenated structures are 3-chlorophenyl, 2-bromocyclopentyl.

Heteroatom: for example N, O, S, P, B, Si.

3- to 10-membered heterocyclic group, unless defined differently elsewhere: 3- to 9-membered heterocyclyl group or 5- to 10-membered heteroaryl group, halogenated 3- to 9-membered heterocyclyl group or halogenated 5- to 10-membered heteroaryl group.

3- to 9-membered heterocyclyl, unless defined differently elsewhere: 3- to 9-membered saturated or partially unsaturated mono-, bi- or tricyclic ring system group of carbon atoms and at least one heteroatom preferably selected from the group consisting of N, O and S. The ring system is preferably a 3- to 6-membered ring system. Preferably, the ring system contains 1, 2, 3 or 4 heteroatoms, particularly preferably 1 or 2 heteroatoms. Preference is also given to a monocyclic ring system. In a further preferred embodiment, a monocyclic ring system is a partially unsaturated monocyclic ring system having a double bond. Heterocyclyl may be a spirocyclic system. Examples: piperazinyl, dihydropyridyl, morpholinyl, etc. This definition also applies to heterocyclyl as component of a composite substituent such as, for example, 3- to 9-membered heterocyclyl-(C_1-C_{10})-alkyl, unless defined differently elsewhere.

5- to 10-membered heteroaryl, unless defined differently elsewhere: mono-, bi- or tricyclic 5- to 10-membered heterocyclic group of carbon atoms and at least one heteroatom, preferably selected from the group consisting of N, O and S, where at least one cycle is aromatic. The ring system is preferably a 5- to 6-membered ring system. In one embodiment, heteroaryl is an aromatic monocyclic ring system of 5 or 6 ring atoms. Preferably, heteroaryl is an aromatic monocyclic ring system containing 1 to 4 heteroatoms from the group consisting of O, N and S. Furthermore, heteroaryl may be a bicyclic ring system consisting of 8 to 14 ring atoms or a tricyclic ring system consisting of 13 or 14 ring atoms. Examples: furyl, thienyl, pyrazolyl, imidazolyl, triazolyl, thiazolyl, indolyl, benzimidazolyl, indazolyl, benzofuranyl, benzothiophenyl, benzothiazolyl, benzoxazolyl, quinolinyl, isoquinolinyl. This definition also applies to heteroaryl as component of a composite substituent such as, for example, 5- to 10-membered heteroaryl-(C_5-C_{10})-alkyl, unless defined differently elsewhere. 5- and 6-membered heteroaryl groups are described in more detail below:

5-membered heteroaryl, unless defined differently elsewhere: heteroaryl group containing one to three or one to four nitrogen, oxygen and/or sulphur atom(s) as ring atoms. Examples: furanyl, thienyl, oxazolyl, thiazolyl. In one embodiment, a 5-membered heteroaryl group contains, in addition to carbon atoms, one to four nitrogen atoms or one to three nitrogen atoms as ring members. Examples: pyrrolyl, pyrazolyl, triazolyl, imidazolyl. In a further embodiment, a 5-membered heteroaryl contains one to three nitrogen atoms or one nitrogen atom and one oxygen or sulphur atom. Examples: thiazolyl, oxazolyl, oxadiazolyl.

6-membered heteroaryl, unless defined differently elsewhere: heteroaryl group containing one to three or one to four nitrogen atom(s) as ring atoms. In one embodiment, a 6-membered heteroaryl group

contains one to three nitrogen atoms. Examples: pyridyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazinyl, tetrazinyl.

Halogenated 3- to 9-membered heterocyclyl group or halogenated 5- to 10-membered heteroaryl group, in each case unless defined differently, are defined analogously to 3- to 9-membered heterocyclyl group or 5- to 10-membered heteroaryl group, where at least one hydrogen atom is replaced by a halogen atom as mentioned above. In one embodiment, all hydrogen atoms are replaced by halogen. Example of halogenated heterocyclic structures: 3-chlorotetrahydrothiopyran-2-yl, 4-chloropyridin-2-yl.

Not included are combinations which are against natural laws and which the person skilled in the art would therefore exclude based on his/her expert knowledge. Ring structures having three or more adjacent oxygen atoms, for example, are excluded.

Embodiments of the compounds according to the invention

It is obvious to the person skilled in the art that all embodiments can be present on their own or in combination. In particular, the various radical definitions for the compounds according to formula (I) may be combined with one another.

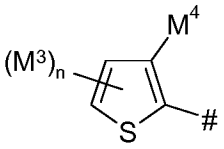
The compounds of the formula (I) may, where appropriate, depending on the nature of the substituents, be in the form of salts, tautomers, geometric and/or optically active isomers or corresponding isomer mixtures in different compositions.

If appropriate, the compounds according to the invention may be present in various polymorphic forms or as mixtures of different polymorphic forms. Both the pure polymorphs and the polymorph mixtures are provided by the invention and can be used in accordance with the invention.

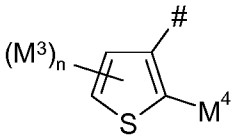
All embodiments described below refer to the known compounds according to formula (I) to be used for the control of unwanted microorganisms.

Embodiments of the compounds of the formula (I) are described in more detail below:

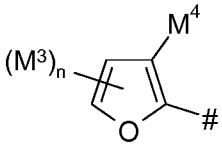
Q preferably represents the structural elements below, where n for each Q is in each case as defined below:



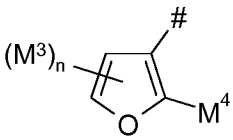
Q1
n = 1-2



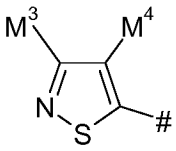
Q2
n =1-2



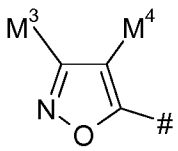
Q3
n = 1-2



Q4
n =1-2



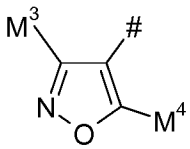
Q5



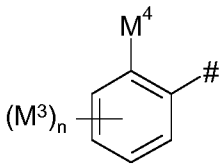
Q6



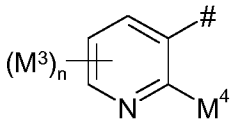
Q7



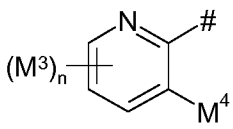
Q8



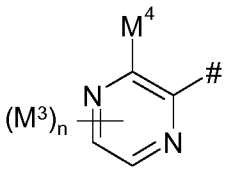
Q9
n =1-4



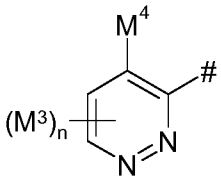
Q11
n = 1-3



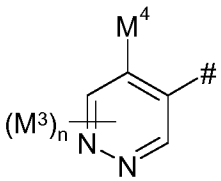
Q12
n = 1-3



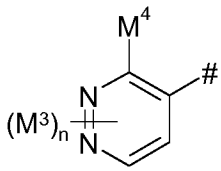
Q13
n = 1-2



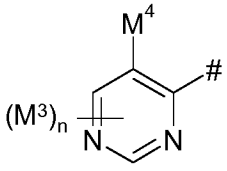
Q14
n = 1-2



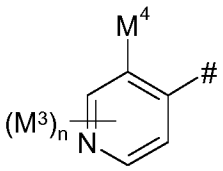
Q15
n = 1-2



Q16
n = 1-2

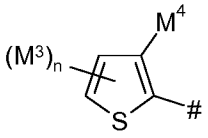


Q17
n = 1-2

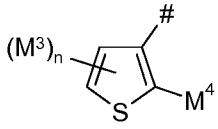


Q19
n = 1-3

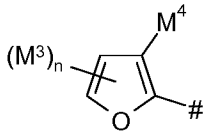
Q particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



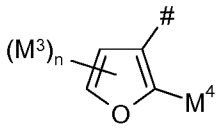
Q[1]
n =1-2



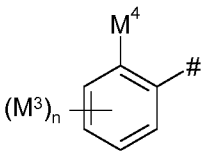
Q[2]
n = 1-2



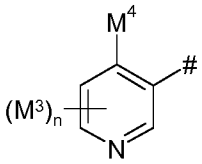
Q[3]
n = 1-2



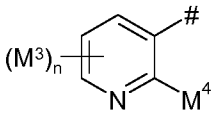
Q[4]
n = 1-2



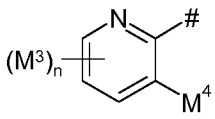
Q[9]
n = 1-4



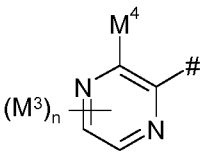
Q[10]
n = 1-3



Q[11]
n = 1-3

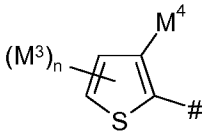


Q[12]
n = 1-3

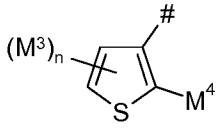


Q[13]
n =1-2

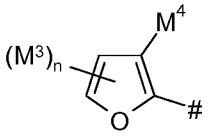
Q particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



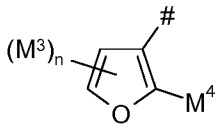
Q[1]
n =1-2



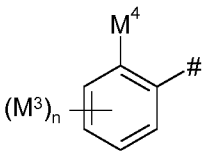
Q[2]
n = 1-2



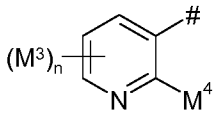
Q[3]
n = 1-2



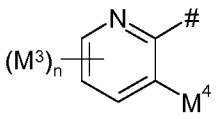
Q[4]
n = 1-2



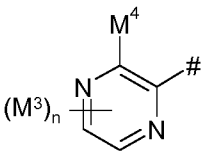
Q[9]
n = 1-4



Q[11]
n = 1-3

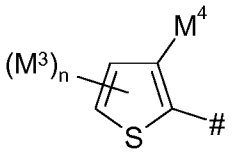


Q[12]
n = 1-3

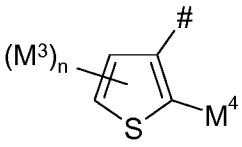


Q[13]
n =1-2

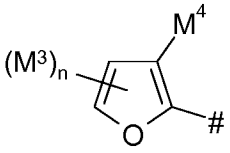
Q very particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



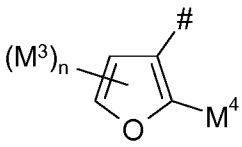
Q[1]
n = 1



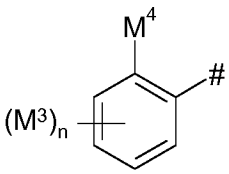
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n = 1



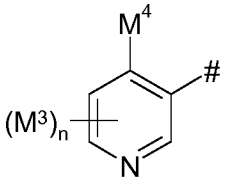
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n = 1



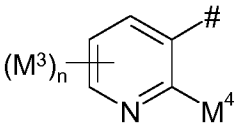
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n = 0-1



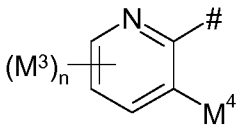
Q[9]
n = 1-3



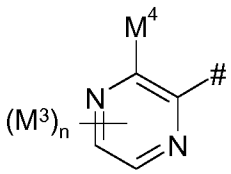
Q[10]
n = 1-2



Q[11]
n = 1-2

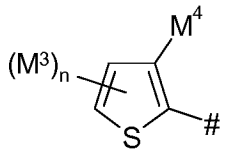


Q[12]
n =1-2

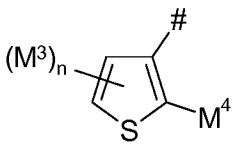


Q[13]
n = 1

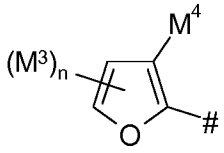
Q very particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



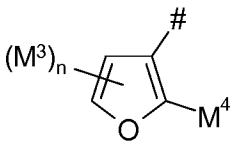
Q[1]
n = 1



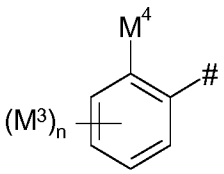
Q[2]
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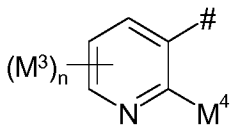
Q[3]
n = 1



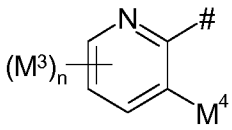
Q[4]
n = 0-1



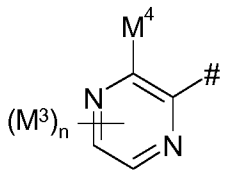
Q[9]
n = 1-3



Q[11]
n = 1-2

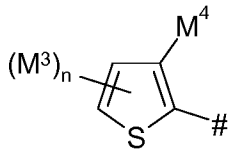


Q[12]
n =1-2

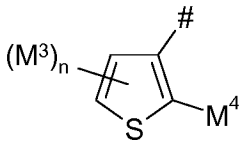


Q[13]
n = 1

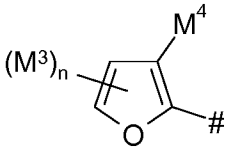
Q very particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



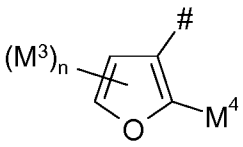
Q[1]
n = 1



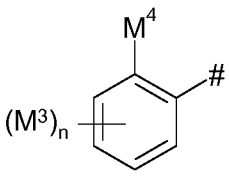
Q[2]
n = 1



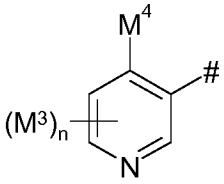
Q[3]
n = 1



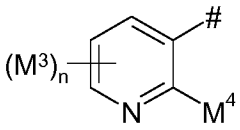
Q[4]
n = 0-1



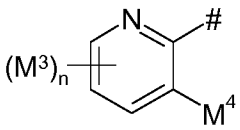
Q[9]
n = 1-3



Q[10]
n = 1-2

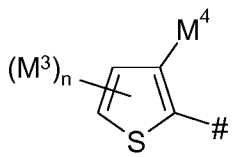


Q[11]
n = 1-2

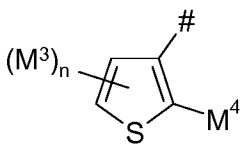


Q[12]
n =1-2

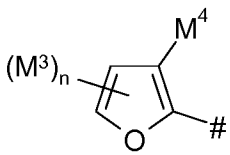
Q very particularly preferably represents the structural elements below, where n for each Q is in each case as defined below:



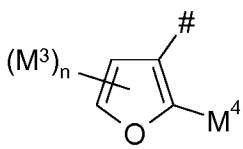
Q[1]
n = 1



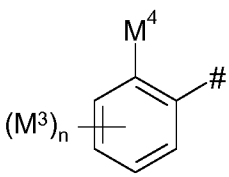
Q[2]
n = 1



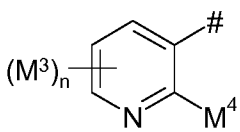
Q[3]
n = 1



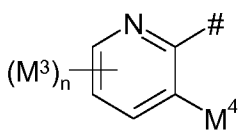
Q[4]
n = 0-1



Q[9]
n = 1-3



Q[11]
n = 1-2



Q[12]
n =1-2

Q in particular very particularly preferably represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 2,5-dichloro-3-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-

3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl , 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-(methylsulphanyl)phenyl, 2-(methylsulphonyl)phenyl, 2-(trifluoromethoxy)phenyl, 2-(trifluoromethylsulphanyl)phenyl, 2-(trifluoromethylsulphonyl)-phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl, 2-(difluoromethyl)-3-pyridyl, 2-(trifluoromethyl)-3-pyridyl, 2-(methylsulphanyl)-3-pyridyl, 2-(methylsulphonyl)-3-pyridyl, 2-(trifluoromethoxy)-3-pyridyl, 2-(trifluoromethylsulphanyl)-3-pyridyl or 2-(trifluoromethylsulphonyl)-3-pyridyl;

Q in particular very particularly preferably represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl , 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl, 2-(difluoromethyl)-3-pyridyl, 2-(trifluoromethyl)-3-pyridyl;

Y preferably represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 10-membered cyclic group;

Y preferably represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-

alkyl or represents an optionally mono- or poly-M^2-substituted C_3- to C_6-membered carbocyclic group;

Y particularly preferably represents hydrogen or represents optionally mono- or poly-M^2-substituted $(C_1$-$C_4)$-alkyl, $(C_2$-$C_4)$-alkenyl, $(C_3$-$C_4)$-alkynyl, $(C_1$-$C_4)$-haloalkyl, $(C_2$-$C_4)$-haloalkenyl, $(C_1$-$C_4)$-alkoxy, $(C_3$-$C_6)$-cycloalkyl, $(C_3$-$C_6)$-cycloalkyl-$(C_1$-$C_4)$-alkyl;

Y particularly preferably represents hydrogen, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, cyanomethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, allyl, butenyl, propargyl, butynyl, 3,3-dichloroprop-2-enyl, methoxy, ethoxy, cyclopropylmethyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl;

Y very particularly preferably represents hydrogen, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, methoxy, ethoxy, cyclopropylmethyl, cyclopropyl, cyclobutyl;

Y very particularly preferably represents hydrogen, cyclopropyl;

Y very particularly preferably represents hydrogen;

W preferably represents oxygen;

W preferably represents sulphur;

M^1, M^2 and M^3 each independently of one another preferably represent hydrogen, halogen, cyano, nitro, OH, $(C_1$-$C_6)$-alkyl, $(C_1$-$C_6)$-haloalkyl, $(C_1$-$C_6)$-alkoxy, $(C_1$-$C_6)$-haloalkoxy, $(C_1$-$C_6)$-alkylthio, $(C_1$-$C_6)$-haloalkylthio, $(C_1$-$C_6)$-alkylsulphonyl, $(C_1$-$C_6)$-haloalkylsulphonyl, $(C_1$-$C_6)$-alkylsulphanyl, $(C_1$-$C_6)$-haloalkylsulphanyl, $(C_3$-$C_{14})$-cycloalkyl-O-, $(C_3$-$C_{14})$-cycloalkenyl-O-, $(C_6$-$C_{14})$-aryl-O-, halogenated $(C_3$-$C_{14})$-cycloalkyl-O-, halogenated $(C_3$-$C_{14})$-cycloalkenyl-O-, halogenated $(C_6$-$C_{14})$-aryl-O-;

M^1, M^2 and M^3 each independently of one another preferably represent hydrogen, halogen, cyano, nitro, OH, $(C_1$-$C_6)$-alkyl, $(C_1$-$C_6)$-haloalkyl, $(C_1$-$C_6)$-alkoxy, $(C_1$-$C_6)$-haloalkoxy, $(C_1$-$C_6)$-alkylthio, $(C_1$-$C_6)$-haloalkylthio, $(C_1$-$C_6)$-alkylsulphonyl, $(C_1$-$C_6)$-haloalkylsulphonyl, $(C_1$-$C_6)$-alkylsulphanyl, $(C_1$-$C_6)$-haloalkylsulphanyl, $(C_3$-$C_{14})$-cycloalkyl-O-, $(C_3$-$C_{14})$-cycloalkenyl-O-, $(C_6$-$C_{14})$-aryl-O-, halogenated $(C_3$-$C_{14})$-cycloalkyl-O-, halogenated $(C_3$-$C_{14})$-cycloalkenyl-O-, halogenated $(C_6$-$C_{14})$-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not $(C_1$-$C_4)$-haloalkyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another preferably represent hydrogen, halogen, cyano, nitro, OH, $(C_1$-$C_4)$-alkyl, $(C_1$-$C_4)$-haloalkyl, $(C_1$-$C_4)$-alkoxy, $(C_1$-$C_4)$-haloalkoxy, $(C_1$-$C_4)$-alkylthio, $(C_1$-$C_4)$-haloalkylthio, $(C_1$-$C_4)$-alkylsulphonyl, $(C_1$-$C_4)$-haloalkylsulphonyl, $(C_1$-$C_4)$-alkylsulphanyl, $(C_1$-$C_6)$-haloalkylsulphanyl, $(C_3$-$C_{14})$-cycloalkyl-O-, $(C_3$-$C_{14})$-cycloalkenyl-O-, $(C_6$-$C_{14})$-aryl-O-,

halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O- ;

M^1, M^2 and M^3 each independently of one another preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_6-C_{14})-aryl-O-, halogenated (C_6-C_{14})-aryl-O-;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_6-C_{14})-aryl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_2)-alkyl, (C_1-C_2)-haloalkyl, (C_1-C_2)-alkoxy, (C_1-C_2)-haloalkoxy, (C_1-C_2)-alkylthio, (C_1-C_2)-haloalkylthio, (C_1-C_2)-alkylsulphonyl, (C_1-C_2)-haloalkylsulphonyl, (C_1-C_2)-alkylsulphanyl, (C_1-C_2)-haloalkylsulphanyl, (C_6)-aryl-O-, halogenated (C_6)-aryl-O-;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_2)-alkyl, (C_1-C_2)-haloalkyl, (C_1-C_2)-alkoxy, (C_1-C_2)-haloalkoxy, (C_1-C_2)-alkylthio, (C_1-C_2)-haloalkylthio, (C_1-C_2)-alkylsulphonyl, (C_1-C_2)-haloalkylsulphonyl, (C_1-C_2)-alkylsulphanyl, (C_1-C_2)-haloalkylsulphanyl, (C_6)-aryl-O-, halogenated (C_6)-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_2)-haloalkyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, trifluoromethyl, difluoromethyl, fluoromethyl, trichloromethyl, dichloromethyl, chloromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, trifluoromethyl, difluoromethyl, fluoromethyl, trichloromethyl, dichloromethyl, chloromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy, where, if Q corresponds to Q^{11}, M^3 is not trifluoromethyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, isopropyl, tert-butyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy;

M^1, M^2 and M^3 each independently of one another very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, isopropyl, tert-butyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy, where, if Q corresponds to Q^{11}, M^3 is not trifluoromethyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another in particular very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy;

M^1, M^2 and M^3 each independently of one another in particular very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy, where, if Q corresponds to Q^{11}, M^3 is not trifluoromethyl in position 4 at the pyridyl;

M^1, M^2 and M^3 each independently of one another in particular very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, trifluoromethyl, difluoromethyl;

M^1, M^2 and M^3 each independently of one another in particular very particularly preferably represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, trifluoromethyl, difluoromethyl, where, if Q corresponds to Q^{11}, M^3 is not trifluoromethyl in position 4 at the pyridyl;

M^4 preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-;

M^4 preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

M^4 preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-;

M^4 preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

M^4 very particularly preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_6-C_{14})-aryl-O-, halogenated (C_6-C_{14})-aryl)-O-;

M^4 very particularly preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl,

(C_6-C_{14})-aryl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_2)-haloalkyl;

M^4 very particularly preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_2)-alkyl, (C_1-C_2)-haloalkyl, (C_1-C_2)-alkoxy, (C_1-C_2)-haloalkoxy, (C_1-C_2)-alkylthio, (C_1-C_2)-haloalkylthio, (C_1-C_2)-alkylsulphonyl, (C_1-C_2)-haloalkylsulphonyl, (C_1-C_2)-alkylsulphanyl, (C_1-C_2)-haloalkylsulphanyl, (C_6)-aryl-O-, halogenated (C_6)-aryl)-O-;

M^4 very particularly preferably represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_2)-alkyl, (C_1-C_2)-haloalkyl, (C_1-C_2)-alkoxy, (C_1-C_2)-haloalkoxy, (C_1-C_2)-alkylthio, (C_1-C_2)-haloalkylthio, (C_1-C_2)-alkylsulphonyl, (C_1-C_2)-haloalkylsulphonyl, (C_1-C_2)-alkylsulphanyl, (C_1-C_2)-haloalkylsulphanyl, (C_6)-aryl-O-, halogenated (C_6)-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_2)-haloalkyl;

M^4 very particularly preferably represents fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, trifluoromethyl, difluoromethyl, fluoromethyl, trichloromethyl, dichloromethyl, chloromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy;

M^4 very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, trifluoromethyl, difluoromethyl, fluoromethyl, trichloromethyl, dichloromethyl, chloromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy, where, if Q corresponds to Q^{10}, M^4 is not trifluoromethyl;

M^4 very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, isopropyl, tert-butyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy;

M^4 very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, OH, methyl, ethyl, isopropyl, tert-butyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl or phenoxy, where, if Q corresponds to Q^{10}, M^4 is not trifluoromethyl;

M^4 in particular very particularly preferably represents fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, trifluoromethylsulphanyl, trifluoromethoxy, difluoromethoxy, ethoxy, isopropoxy or phenoxy;

M^4 in particular very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, trifluoromethylsulphanyl, trifluoromethoxy, difluoromethoxy, ethoxy, isopropoxy or phenoxy, where, if Q corresponds to Q^{10}, M^4 is not trifluoromethyl;

M^4 in particular very particularly preferably represents fluorine, bromine, chlorine, iodine, cyano, nitro, trifluoromethyl, difluoromethyl, methoxy, trifluoromethylsulphanyl, trifluoromethoxy, difluoromethoxy;

M^4 in particular very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, trifluoromethyl, difluoromethyl, methoxy, trifluoromethylsulphanyl, trifluoromethoxy, difluoromethoxy, where, if Q corresponds to Q^{10}, M^4 is not trifluoromethyl;

M^4 in particular very particularly preferably represents fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy;

M^4 in particular very particularly preferably represents hydrogen, fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy, where, if Q corresponds to Q^{10}, M^4 is not trifluoromethyl;

k preferably represents 1 or 2;

k particularly preferably represents 1;

R^{21}, R^{22} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-

C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic grouop;

R^{21}, R^{22} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl, (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

R^{21}, R^{22} preferably represent C(R^{21}, R^{22}) as spiro-C(CH_2-CH_2);

R^{21}, R^{22} particularly preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_1-C_6)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl, (C_3-C_6)-cycloalkyl;

R^{21}, R^{22} preferably each independently of one another represent hydrogen, fluorine, methyl, ethyl, n-propyl, isopropyl, tert-butyl, butyl, allyl, propargyl, chloromethyl, trichloromethyl, fluoromethyl, chlorodifluoromethyl, dichlorofluoromethyl, trifluoromethyl, 2,2-difluoroethyl, difluoromethyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl;

R^{21}, R^{22} preferably each independently of one another represent hydrogen, fluorine, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl;

R^{21}, R^{22} very particularly preferably each independently of one another represent hydrogen, fluorine or (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl;

R^{21}, R^{22} in particular very particularly preferably represent hydrogen, methyl or ethyl;

R^{31}, R^{32} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic group;

R^{31}, R^{32} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-

C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

R^{31}, R^{32} preferably represents C(R^{31}, R^{32}) as spiro-C(CH_2-CH_2);

R^{31}, R^{32} particularly preferably represents C(R^{31}, R^{32}) as 1,1-cyclopropyl;

R^{31}, R^{32} particularly preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_6)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_3-C_4)-alkyl, (C_3-C_6)-cycloalkyl;

R^{31}, R^{32} particularly preferably each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl, tert-butyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl;

R^{31}, R^{32} very particularly preferably each independently of one another represent hydrogen, fluorine or (C_1-C_4)-alkyl;

R^{31}, R^{32} in particular very particularly preferably each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl or tert-butyl;

M^5 preferably in each case independently of the others represents halogen, formyl, cyano, nitro, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-alkynyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_2-C_6)-haloalkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-haloalkynyloxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_2-C_6)-alkenylthio, (C_2-C_6)-haloalkenylthio, (C_3-C_6)-alkynylthio, (C_3-C_6)-haloalkynylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_2-C_6)-alkenylsulphonyl, (C_2-C_6)-haloalkenylsulphonyl, (C_3-C_6)-alkynylsulphonyl, (C_3-C_6)-haloalkynylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_2-C_6)-alkenylsulphanyl, (C_2-C_6)-haloalkenylsulphanyl, (C_3-C_6)-alkynylsulphanyl, (C_3-C_6)-haloalkynylsulphanyl, formyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-haloalkylcarbonyl, (C_2-C_6)-alkenylcarbonyl, (C_2-C_6)-haloalkenylcarbonyl, (C_2-C_6)-alkynylcarbonyl, (C_2-C_6)-haloalkynylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_6)-haloalkoxycarbonyl, (C_2-C_6)-alkenyloxycarbonyl, (C_2-C_6)-haloalkenyloxycarbonyl, (C_3-C_6)-alkynyloxycarbonyl, (C_3-C_6)-haloalkynyloxycarbonyl, (C_1-C_6)-alkylcarbonyloxy, (C_1-C_6)-haloalkylcarbonyloxy, (C_2-C_6)-alkenylcarbonyloxy, (C_2-C_6)-haloalkenylcarbonyloxy, (C_2-C_6)-alkynylcarbonyloxy, (C_2-C_6)-haloalkynylcarbonyloxy or (C_3-C_{14})-cycloalkyl.

M^5 particularly preferably in each case independently of the others represents halogen, formyl, cyano, nitro, (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_2-C_4)-alkenyloxy, (C_2-C_4)-haloalkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-haloalkynyloxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_2-C_4)-alkenylthio, (C_2-C_4)-haloalkenylthio, (C_3-C_4)-alkynylthio, (C_3-C_4)-haloalkynylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_2-C_4)-alkenylsulphonyl, (C_2-C_4)-haloalkenylsulphonyl, (C_3-C_4)-alkynylsulphonyl, (C_3-C_4)-haloalkynylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_2-C_4)-alkenylsulphanyl, (C_2-C_4)-haloalkenylsulphanyl, (C_3-C_4)-alkynylsulphanyl, (C_3-C_4)-haloalkynylsulphanyl, (C_1-C_4)-alkylcarbonyl, (C_1-C_4)-haloalkylcarbonyl, (C_2-C_4)-alkenylcarbonyl, (C_2-C_4)-haloalkenylcarbonyl, (C_2-C_4)-alkynylcarbonyl, (C_2-C_4)-haloalkynylcarbonyl, (C_1-C_4)-alkoxycarbonyl, (C_1-C_4)-haloalkoxycarbonyl, (C_2-C_4)-alkenyloxycarbonyl, (C_2-C_4)-haloalkenyloxycarbonyl, (C_3-C_4)-alkynyloxycarbonyl, (C_3-C_4)-haloalkynyloxycarbonyl, (C_1-C_4)-alkylcarbonyloxy, (C_1-C_4)-haloalkylcarbonyloxy, (C_2-C_4)-alkenylcarbonyloxy, (C_2-C_4)-haloalkenylcarbonyloxy, (C_2-C_4)-alkynylcarbonyloxy, (C_2-C_4)-haloalkynylcarbonyloxy or (C_3-C_6)-cycloalkyl.

M^5 very particularly preferably in each case independently of the others represents chlorine, fluorine, formyl, cyano, nitro, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_1-C_4)-alkylcarbonyl, (C_1-C_4)-haloalkylcarbonyl or (C_3-C_6)-cycloalkyl.

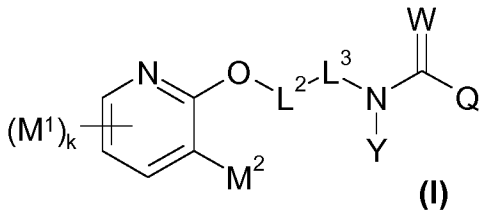
M^5 very particularly preferably in each case independently of the others represents fluorine, bromine, chlorine, iodine, cyano, nitro, methyl, ethyl, isopropyl, tert-butyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy, trifluoromethoxy, difluoromethoxy, methylthio, trifluoromethylthio, difluoromethylthio, 2,2,2-trifluoroethylthio, methylsulphonyl, ethylsulphonyl, trifluoromethylsulphonyl, 2,2,2-trifluoroethylsulphonyl, methylsulphanyl, ethylsulphanyl, trifluoromethylsulphanyl, 2,2,2-trifluoroethylsulphanyl, cyclopropyl, cyclobutyl or cyclopentyl.

However, the general or preferred radical definitions or explanations given above can also be combined with one another as desired, i.e. including combinations between the respective ranges and preferred ranges. They apply both to the end products and, correspondingly, to precursors and intermediates.

The definitions mentioned can be combined with one another as desired. Moreover, individual definitions may not apply.

Preference, particular preference and very particular preference is given to compounds of the formula (I) which carry the substituents mentioned under preferred, particularly preferred, very particularly preferred or in particular very particularly preferred in each case.

Preference is furthermore given to the use of compounds of the formula (I)

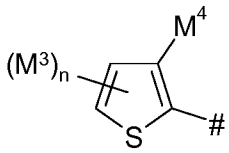


(I)

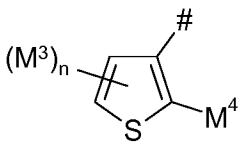
for controlling unwanted microorganisms

in which M^1, M^2, M^3, M^4, M^5, k, L^2, L^3, W and Y are as defined above and

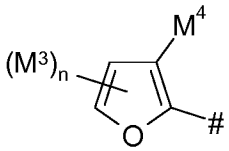
Q preferably represents the structural elements below, where n for each Q is in each case as defined below:



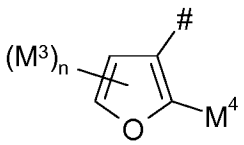
Q^1
n = 1-2



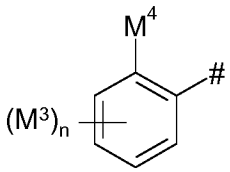
Q^2
n = 1-2



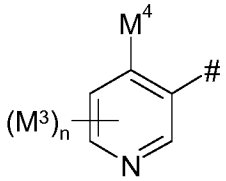
Q^3
n =1-2



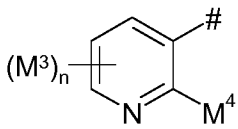
Q^4
n =1-2



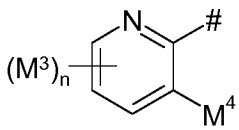
Q^9
n =1-4



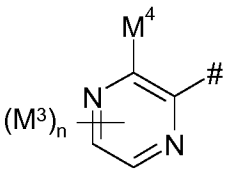
Q^{10}
n = 1-3



Q^{11}
n = 1-3

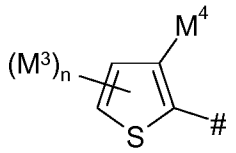


Q^{12}
n = 1-3

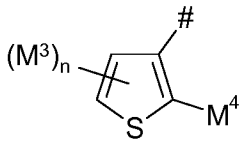


Q^{13}
n = 1-2

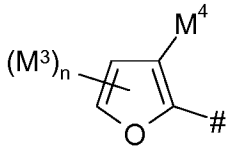
Q preferably represents the structural elements below, where n for each Q is in each case as defined below:



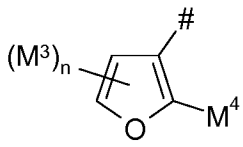
Q[1]
n = 1-2



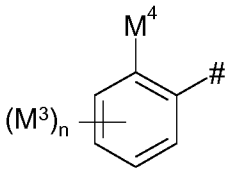
Q[2]
n = 1-2



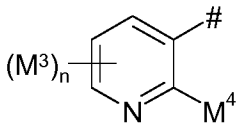
Q[3]
n =1-2



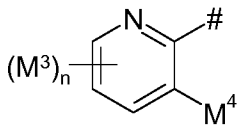
Q[4]
n =1-2



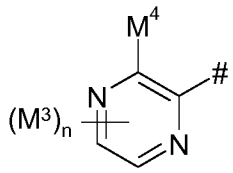
Q[9]
n =1-4



Q[11]
n = 1-3

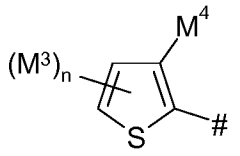


Q[12]
n = 1-3

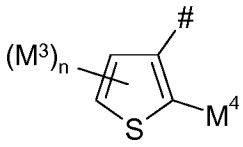


Q[13]
n = 1-2

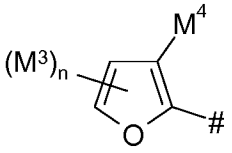
Q preferably represents the structural elements below, where n for each Q is in each case as defined below:



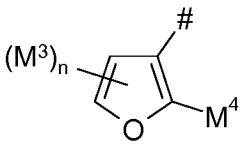
Q[1]
n = 1



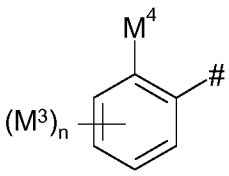
Q[2]
n = 1



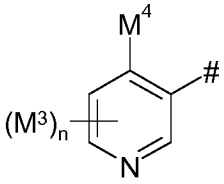
Q[3]
n = 1



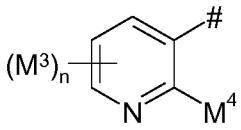
Q[4]
n = 0-1



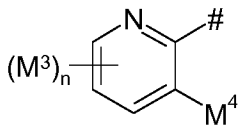
Q[9]
n = 1-3



Q[10]
n = 1-2

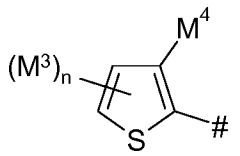


Q[11]
n = 1-2

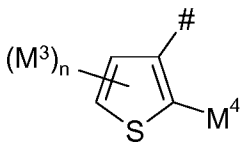


Q[12]
n =1-2

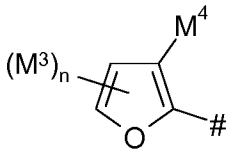
Q preferably represents the structural elements below, where n for each Q is in each case as defined below:



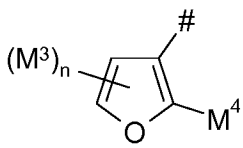
Q[1]
n = 1



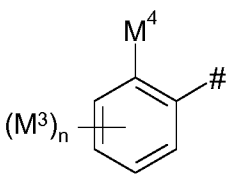
Q[2]
n = 1



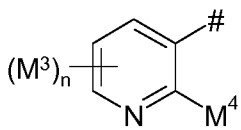
Q[3]
n = 1



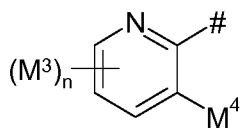
Q[4]
n = 0-1



Q[9]
n = 1-3



Q[11]
n = 1-2



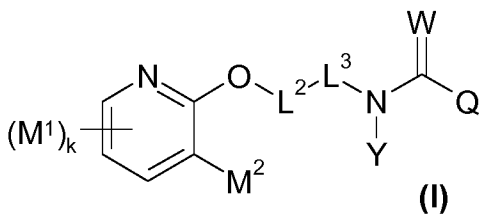
Q[12]
n =1-2

Q particularly preferably represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 2,5-dichloro-3-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-

thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl, 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-(methylsulphanyl)phenyl, 2-(methylsulphonyl)phenyl, 2-(trifluoromethoxy)phenyl, 2-(trifluoromethylsulphanyl)phenyl, 2-(trifluoromethylsulphonyl)-phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl, 2-(difluoromethyl)-3-pyridyl, 2-(trifluoromethyl)-3-pyridyl, 2-(methylsulphanyl)-3-pyridyl, 2-(methylsulphonyl)-3-pyridyl, 2-(trifluoromethoxy)-3-pyridyl, 2-(trifluoromethylsulphanyl)-3-pyridyl or 2-(trifluoromethylsulphonyl)-3-pyridyl;

Q particularly preferably represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl, 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl or 2-(trifluoromethyl)-3-pyridyl.

Preference is furthermore given to the use of compounds of the formula (I)



(I)

for controlling unwanted microorganisms

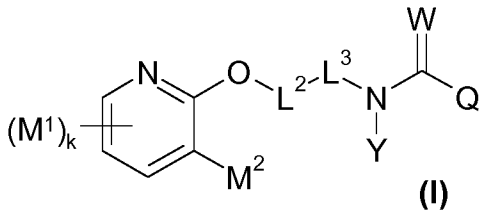
in which M^1, M^2, M^3, M^4, M^5, k, L^2, L^3, Q and W are as defined above and

Y preferably represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-alkyl or represents an optionally substituted C_3- to C_6-membered carbocyclic group;

Y particularly preferably represents hydrogen, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, cyanomethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, allyl, butenyl, propargyl, butynyl, 3,3-dichloroprop-2-enyl, methoxy, ethoxy, cyclopropylmethyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl;

Y very particularly preferably represents hydrogen.

Preference is furthermore given to the use of compounds of the formula (I)



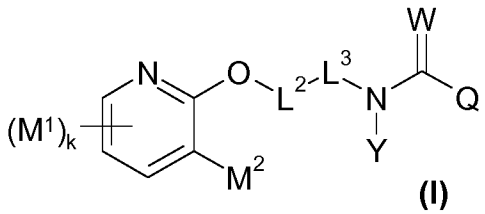
(I)

for controlling unwanted microorganisms

in which M^1, M^2, M^3, M^4, M^5, k, L^2, L^3, Q and Y are as defined above and

W preferably represents oxygen.

Preference is furthermore given to the use of compounds of the formula (I)



(I)

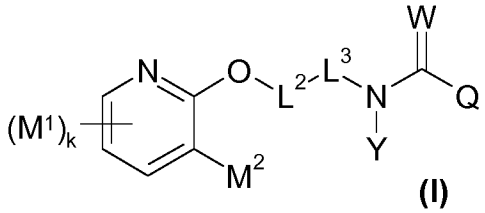
for controlling unwanted microorganisms
in which M^1, M^2, M^3, M^4, M^5, k, L^3, Q, W and Y are as defined above and

L^2 preferably represents $C(R^{21}, R^{22})$, where R^{21} and R^{22} each independently of one another represent hydrogen hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_3-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_3-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_3-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-alkyl or represents an

optionally substituted C_3- to C_6-membered carbocyclic group, or where R^{21} and R^{22} together represent an optionally substituted spiro-linked 3- to 6-membered cyclic group;

L^2 particularly preferably represents $C(R^{21}, R^{22})$ where R^{21} and R^{22} each independently of one another represent hydrogen, fluorine, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{21}, R^{22})$ represents spiro-$C(CH_2\text{-}CH_2)$.

Preference is furthermore given to the use of compounds of the formula (I)



(I)

for controlling unwanted microorganisms

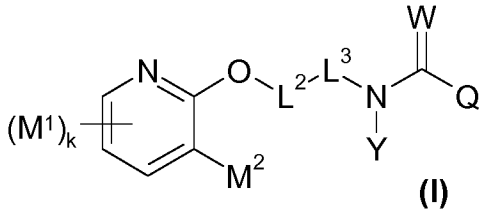
in which M^1, M^2, M^3, M^4, M^5, k, L^2, Q, W and Y are as defined above and

L^3 preferably represents $C(R^{31}, R^{32})$, where R^{31} and R^{32} each independently of one another represent hydrogen hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_3-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_3-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_3-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-alkyl or represents an optionally substituted C_3- to C_6-membered carbocyclic group, or where R^{31} and R^{32} together represent an optionally substituted spiro-linked 3- to 6-membered cyclic group;

L^3 particularly preferably represents $C(R^{31}, R^{32})$ where R^{31} and R^{32} each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{31}, R^{32})$ represents spiro-$C(CH_2\text{-}CH_2)$;

and salts, N-oxides and tautomeric forms of the compounds of the formula (I).

Very particular preference is furthermore given to the use of compounds of the formula (I)



(I)

for controlling unwanted microorganisms

in which

Q represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl, 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl or 2-(trifluoromethyl)-3-pyridyl;

Y represents hydrogen, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, cyanomethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, allyl, butenyl, propargyl, butynyl, 3,3-dichloroprop-2-enyl, methoxy, ethoxy, cyclopropylmethyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl;

W represents oxygen;

L^2 represents $C(R^{21}, R^{22})$ where R^{21} and R^{22} each independently of one another represent hydrogen, fluorine, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{21}, R^{22})$ represents spiro-$C(CH_2\text{-}CH_2)$;

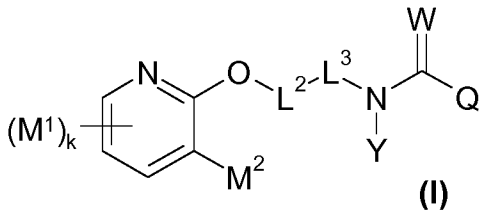
L^3 represents $C(R^{31}, R^{32})$ where R^{31} and R^{32} each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{31}, R^{32})$ represents spiro-$C(CH_2\text{-}CH_2)$;

k represents 1 and

M^1 and M^2 each independently of one another represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy;

and salts, N-oxides and tautomeric forms of the compounds of the formula (I).

Very particular preference is furthermore given to the use of compounds of the formula (I)

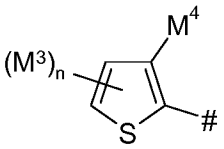


(I)

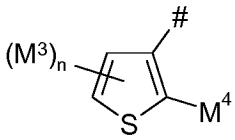
for controlling unwanted microorganisms

in which

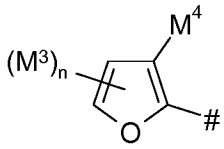
Q represents the structural elements below, where n for each Q is in each case as defined below:



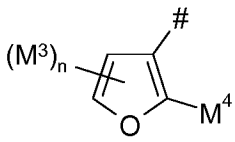
Q1
n = 1-2



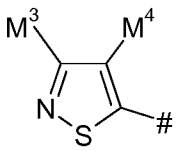
Q2
n =1-2



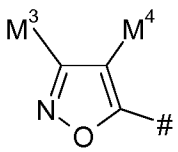
Q3
n = 1-2



Q4
n =1-2



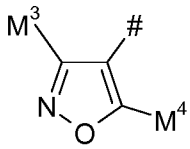
Q5



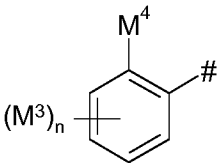
Q6



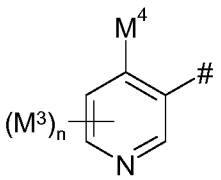
Q7



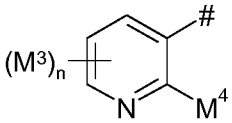
Q8



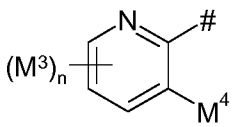
Q9
n =1-4



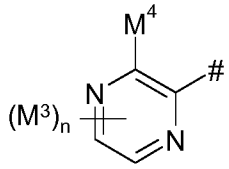
Q10
n =1-3



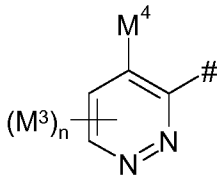
Q11
n = 1-3



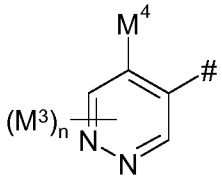
Q12
n = 1-3



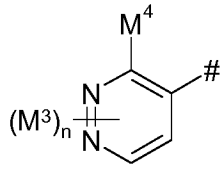
Q13
n = 1-2



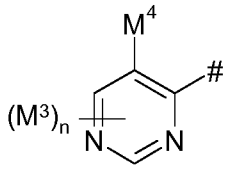
Q14
n = 1-2



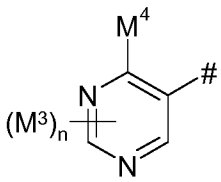
Q15
n = 1-2



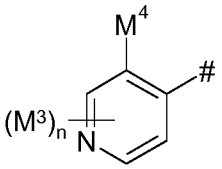
Q16
n = 1-2



Q17
n = 1-2



Q18
n = 1-2



Q19
n = 1-3

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

W represents oxygen or sulphur;

L^2 represents -C(R^{21}, R^{22})-;

L^3 represents -C(R^{31}, R^{32})-;

M^1, M^2 and M^3 each independently of one another represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl, or (3- to 14-membered cyclic group)-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

k represents 1, 2 or 3;

R^{21}, R^{22} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{21}, R^{22} together represent an optionally mono- or poly-M^2-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

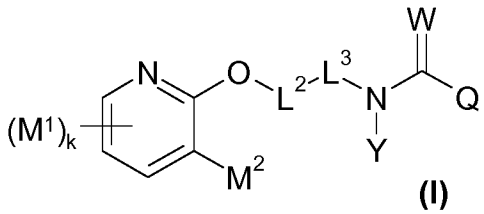
R^{31}, R^{32} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{31}, R^{32} together represent an optionally mono- or poly-M^5-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (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_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_2-C_{10})-haloalkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{10})-haloalkynyloxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_2-C_{10})-alkenylthio, (C_2-C_{10})-haloalkenylthio, (C_3-C_{10})-alkynylthio, (C_3-C_{10})-haloalkynylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_2-C_{10})-alkenylsulphonyl, (C_2-C_{10})-haloalkenylsulphonyl, (C_3-C_{10})-alkynylsulphonyl, (C_3-C_{10})-haloalkynylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl, (C_2-C_{10})-alkenylsulphanyl, (C_2-C_{10})-haloalkenylsulphanyl, (C_3-C_{10})-alkynylsulphanyl, (C_3-C_{10})-haloalkynylsulphanyl, (C_1-C_{10})-alkylcarbonyl, (C_1-C_{10})-haloalkylcarbonyl, (C_2-C_{10})-alkenylcarbonyl, (C_2-C_{10})-haloalkenylcarbonyl, (C_2-C_{10})-alkynylcarbonyl, (C_2-C_{10})-haloalkynylcarbonyl, (C_1-C_{10})-alkoxycarbonyl, (C_1-C_{10})-haloalkoxycarbonyl, (C_2-C_{10})-alkenyloxycarbonyl, (C_2-C_{10})-haloalkenyloxycarbonyl, (C_3-C_{10})-alkynyloxycarbonyl, (C_3-C_{10})-haloalkynyloxycarbonyl, (C_1-C_{10})-alkylcarbonyloxy, (C_1-C_{10})-haloalkylcarbonyloxy, (C_2-C_{10})-alkenylcarbonyloxy, (C_2-C_{10})-haloalkenylcarbonyloxy, (C_2-C_{10})-alkynylcarbonyloxy, (C_2-C_{10})-haloalkynylcarbonyloxy, a 3- to 14-membered cyclic group;

and salts, N-oxides and tautomeric forms of the compounds of the formula (I).

Very particular preference is furthermore given to the use of compounds of the formula (I)



(I)

for controlling unwanted microorganisms

in which

Q represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 2,5-dichloro-3-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl , 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-(methylsulphanyl)phenyl, 2-(methylsulphonyl)phenyl, 2-(trifluoromethoxy)phenyl, 2-(trifluoromethylsulphanyl)phenyl, 2-(trifluoromethylsulphonyl)phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl, 2-(difluoromethyl)-3-pyridyl, 2-(trifluoromethyl)-3-pyridyl, 2-(methylsulphanyl)-3-pyridyl, 2-(methylsulphonyl)-3-pyridyl, 2-(trifluoromethoxy)-3-pyridyl, 2-(trifluoromethylsulphanyl)-3-pyridyl or 2-(trifluoromethylsulphonyl)-3-pyridyl;

Y represents hydrogen, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, cyanomethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, allyl, butenyl, propargyl, butynyl, 3,3-dichloroprop-2-enyl, methoxy, ethoxy, cyclopropylmethyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl;

W represents oxygen;

L^2 represents $C(R^{21}, R^{22})$ where R^{21} and R^{22} each independently of one another represent hydrogen, fluorine, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{21}, R^{22})$ represents spiro-$C(CH_2\text{-}CH_2)$;

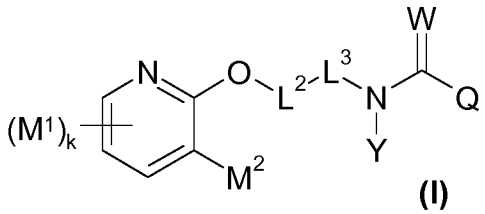
L^3 represents $C(R^{31}, R^{32})$ where R^{31} and R^{32} each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl, allyl, propargyl, methoxy, ethoxy, allyloxy, propargyloxy, cyclopropylmethyl, cyclopropyl, or where $C(R^{31}, R^{32})$ represents spiro-$C(CH_2\text{-}CH_2)$;

k represents 1 and

M^1 and M^2 each independently of one another represent hydrogen, fluorine, bromine, chlorine, iodine, cyano, methyl, trifluoromethyl, difluoromethyl, methoxy, ethoxy, isopropoxy or phenoxy;

and salts, N-oxides and tautomeric forms of the compounds of the formula (I).

Very particular preference is furthermore given to the use of compounds of the formula (I)



(I)

for controlling unwanted microorganisms

in which

Q represents 2-thienyl, 3-fluoro-2-thienyl, 3-chloro-2-thienyl, 3,4-dichloro-2-thienyl, 2,5-dichloro-3-thienyl, 3,4,5-trichloro-2-thienyl, 3-bromo-2-thienyl, 3-iodo-2-thienyl, 3-cyano-2-thienyl, 3-methyl-2-thienyl, 3-(trifluoromethyl)-2-thienyl, 3-methoxy-2-thienyl, 3-ethoxy-2-thienyl, 3-thienyl, 2-fluoro-3-thienyl, 2-chloro-3-thienyl, 2-bromo-3-thienyl, 2-iodo-3-thienyl, 2-cyano-3-thienyl, 2-methyl-3-thienyl, 2-(trifluoromethyl)-3-thienyl, 2-methoxy-3-thienyl, 2-ethoxy-3-thienyl, 2-furanyl, 3-fluoro-2-furanyl, 3-chloro-2-furanyl, 3-bromo-2-furanyl, 3-iodo-2-furanyl, 3-cyano-2-furanyl, 3-methyl-2-furanyl, 3-(trifluoromethyl)-2-furanyl, 3-methoxy-2-furanyl, 3-ethoxy-2-furanyl, 3-furanyl, 2-chloro-3-furanyl, 2-bromo-3-furanyl, 2-iodo-3-furanyl, 2-cyano-3-furanyl, 2-methyl-3-furanyl, 2-(trifluoromethyl)-3-furanyl, 2-methoxy-3-furanyl, 2-ethoxy-3-furanyl, 2-methylphenyl , 2-fluorophenyl, 2,6-difluorophenyl, 2-chlorophenyl, 2,6-dichlorophenyl, 2-bromophenyl, 2-iodophenyl, 2-(difluoromethyl)phenyl, 2-(trifluoromethyl)phenyl, 2-(methylsulphanyl)phenyl, 2-(methylsulphonyl)phenyl, 2-(trifluoromethoxy)phenyl, 2-(trifluoromethylsulphanyl)phenyl, 2-(trifluoromethylsulphonyl)phenyl, 2-nitrophenyl, 2-chloro-3-pyridyl, 3-chloro-2-pyridyl, 2-(difluoromethyl)-3-pyridyl, 2-(trifluoromethyl)-3-pyridyl, 2-(methylsulphanyl)-3-pyridyl, 2-(methylsulphonyl)-3-pyridyl, 2-(trifluoromethoxy)-3-pyridyl, 2-(trifluoromethylsulphanyl)-3-pyridyl or 2-(trifluoromethylsulphonyl)-3-pyridyl;

Y represents hydrogen;

W represents oxygen;

L^2 represents $C(R^{21}, R^{22})$, where R^{21} and R^{22} each independently of one another represent hydrogen, methyl, cyclopropyl;

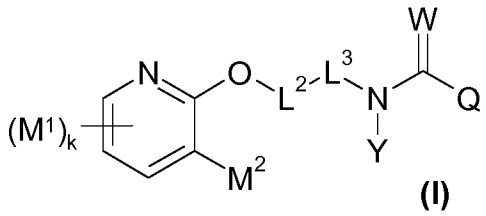
L^3 represents $C(R^{31}, R^{32})$, where R^{31} and R^{32} each independently of one another represent hydrogen, methyl, ethyl, n-propyl, isopropyl, or where $C(R^{31}, R^{32})$ represents 1,1-cyclopropyl;

k represents 1 and

M^1 and M^2 each independently of one another represent hydrogen, fluorine, bromine, chlorine, cyano, trifluoromethyl, difluoromethyl or nitro;

and salts, N-oxides and tautomeric forms of the compounds of the formula (I).

Very particular preference is given to the use of compounds of the formula (I)

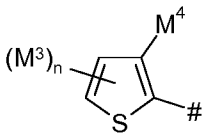


(I)

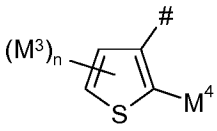
for controlling unwanted microorganisms

in which

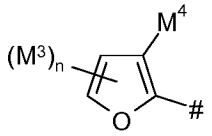
Q represents the structural elements below, where n for each Q is in each case as defined below:



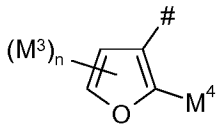
Q¹
n =1-2



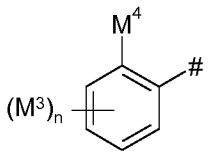
Q²
n = 1-2



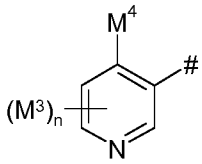
Q³
n = 1-2



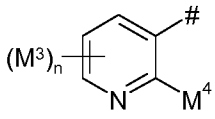
Q⁴
n = 1-2



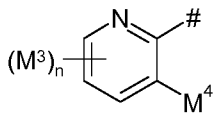
Q⁹
n = 1-4



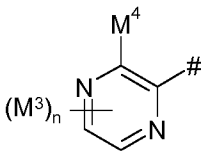
Q¹⁰
n = 1-3



Q¹¹
n = 1-3



Q¹²
n = 1-3



Q¹³
n =1-2

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 10-membered cyclic group;

W represents oxygen;

M^1, M^2 and M^3 each independently of one another preferably represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl)-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-

C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-alkynyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_2-C_6)-haloalkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-haloalkynyloxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_2-C_6)-alkenylthio, (C_2-C_6)-haloalkenylthio, (C_3-C_6)-alkynylthio, (C_3-C_6)-haloalkynylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_2-C_6)-alkenylsulphonyl, (C_2-C_6)-haloalkenylsulphonyl, (C_3-C_6)-alkynylsulphonyl, (C_3-C_6)-haloalkynylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_2-C_6)-alkenylsulphanyl, (C_2-C_6)-haloalkenylsulphanyl, (C_3-C_6)-alkynylsulphanyl, (C_3-C_6)-haloalkynylsulphanyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-haloalkylcarbonyl, (C_2-C_6)-alkenylcarbonyl, (C_2-C_6)-haloalkenylcarbonyl, (C_2-C_6)-alkynylcarbonyl, (C_2-C_6)-haloalkynylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_6)-haloalkoxycarbonyl, (C_2-C_6)-alkenyloxycarbonyl, (C_2-C_6)-haloalkenyloxycarbonyl, (C_3-C_6)-alkynyloxycarbonyl, (C_3-C_6)-haloalkynyloxycarbonyl, (C_1-C_6)-alkylcarbonyloxy, (C_1-C_6)-haloalkylcarbonyloxy, (C_2-C_6)-alkenylcarbonyloxy, (C_2-C_6)-haloalkenylcarbonyloxy, (C_2-C_6)-alkynylcarbonyloxy, (C_2-C_6)-haloalkynylcarbonyloxy or (C_3-C_{14})-cycloalkyl.

k represents 1 or 2;

R^{21}, R^{22} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic group; or

R^{21}, R^{22} represents C(R^{21}, R^{22}) as spiro-C(CH_2-CH_2);

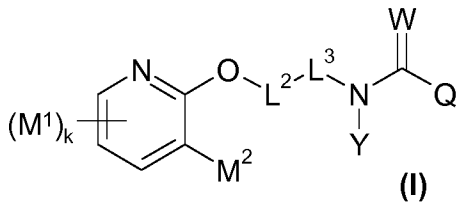
R^{31}, R^{32} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic group; or

R^{31}, R^{32} represents C(R^{31}, R^{32}) as spiro-C(CH_2-CH_2);

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-alkynyl, (C_2-C_6)-haloalkynyl,

(C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_2-C_6)-haloalkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-haloalkynyloxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_2-C_6)-alkenylthio, (C_2-C_6)-haloalkenylthio, (C_3-C_6)-alkynylthio, (C_3-C_6)-haloalkynylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_2-C_6)-alkenylsulphonyl, (C_2-C_6)-haloalkenylsulphonyl, (C_3-C_6)-alkynylsulphonyl, (C_3-C_6)-haloalkynylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_2-C_6)-alkenylsulphanyl, (C_2-C_6)-haloalkenylsulphanyl, (C_3-C_6)-alkynylsulphanyl, (C_3-C_6)-haloalkynylsulphanyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-haloalkylcarbonyl, (C_2-C_6)-alkenylcarbonyl, (C_2-C_6)-haloalkenylcarbonyl, (C_2-C_6)-alkynylcarbonyl, (C_2-C_6)-haloalkynylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_6)-haloalkoxycarbonyl, (C_2-C_6)-alkenyloxycarbonyl, (C_2-C_6)-haloalkenyloxycarbonyl, (C_3-C_6)-alkynyloxycarbonyl, (C_3-C_6)-haloalkynyloxycarbonyl, (C_1-C_6)-alkylcarbonyloxy, (C_1-C_6)-haloalkylcarbonyloxy, (C_2-C_6)-alkenylcarbonyloxy, (C_2-C_6)-haloalkenylcarbonyloxy, (C_2-C_6)-alkynylcarbonyloxy, (C_2-C_6)-haloalkynylcarbonyloxy or (C_3-C_{14})-cycloalkyl.

Very particular preference is furthermore given to the use of compounds of the formula (I)

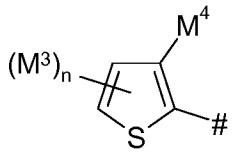


(I)

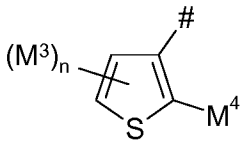
for controlling unwanted microorganisms

in which

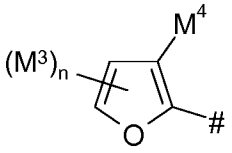
Q represents the structural elements below, where n for each Q is in each case as defined below:



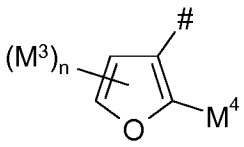
Q[1]
n = 1



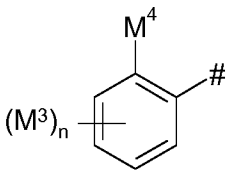
Q[2]
n = 1



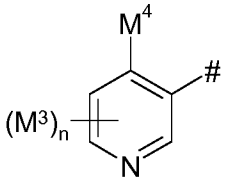
Q[3]
n = 1



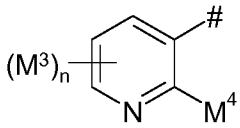
Q[4]
n = 0-1



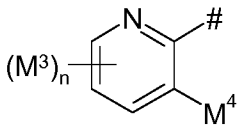
Q[9]
n = 1-3



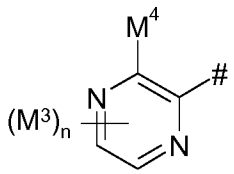
Q[10]
n = 1-2



Q[11]
n = 1-2



Q[12]
n =1-2



Q[13]
n = 1

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-alkyl or represents an optionally mono- or poly-M^2-substituted C_3- to C_6-membered carbocyclic group;

M^1, M^2 and M^3 represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-

C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

k represents 1;

R^{21}, R^{22} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl, (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

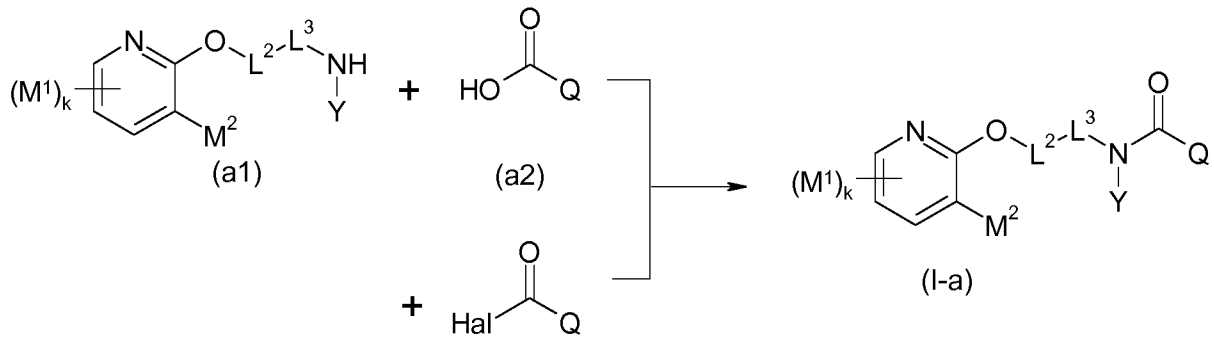
R^{31}, R^{32} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

M^5 represents in each case independently of the others halogen, formyl, cyano, nitro, (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_2-C_4)-alkenyloxy, (C_2-C_4)-haloalkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-haloalkynyloxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_2-C_4)-alkenylthio, (C_2-C_4)-haloalkenylthio, (C_3-C_4)-alkynylthio, (C_3-C_4)-haloalkynylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_2-C_4)-alkenylsulphonyl, (C_2-C_4)-haloalkenylsulphonyl, (C_3-C_4)-alkynylsulphonyl, (C_3-C_4)-haloalkynylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_2-C_4)-alkenylsulphanyl, (C_2-C_4)-haloalkenylsulphanyl, (C_3-C_4)-alkynylsulphanyl, (C_3-C_4)-haloalkynylsulphanyl, (C_1-C_4)-alkylcarbonyl, (C_1-C_4)-haloalkylcarbonyl, (C_2-C_4)-alkenylcarbonyl, (C_2-C_4)-haloalkenylcarbonyl, (C_2-C_4)-alkynylcarbonyl, (C_2-C_4)-haloalkynylcarbonyl, (C_1-C_4)-alkoxycarbonyl, (C_1-C_4)-haloalkoxycarbonyl, (C_2-C_4)-alkenyloxycarbonyl, (C_2-C_4)-haloalkenyloxycarbonyl, (C_3-C_4)-alkynyloxycarbonyl, (C_3-C_4)-haloalkynyloxycarbonyl, (C_1-C_4)-alkylcarbonyloxy, (C_1-C_4)-haloalkylcarbonyloxy, (C_2-C_4)-alkenylcarbonyloxy, (C_2-C_4)-haloalkenylcarbonyloxy, (C_2-C_4)-alkynylcarbonyloxy, (C_2-C_4)-haloalkynylcarbonyloxy or (C_3-C_6)-cycloalkyl.

The compounds of the formula (I) can be obtained by the processes described in PCT/EP2013/073424.

The production processes for obtaining the compounds according to formula (I) is outlined below :

Preparation Process A



The radicals M^1, M^2, L^2, L^3, Q and Y and k have the meanings described above. W in this case represents oxygen.

Compounds of the general formula (I-a) according to the invention can be prepared proceeding from amines of the formula (a1) and carboxylic acids of the formula (a2) or halides thereof of the formula (a3) by generally known processes as described, for example, in WO-A 2009/012998. The amines of the formula (a1) and carboxylic acids of the formula (a2) and their halides of the formula (a3) are commercially available. Alternatively, the halides of the formula (a3) can be prepared by generally known methods from carboxylic acids of the formula (a2) using appropriate halogenating agents, for example phosphoryl chloride, phosphoryl bromide, thionyl chloride, oxalyl chloride or phosgene.

When using carbonyl halides of the general structure (a3), the compounds of the general formula (I-a) according to the invention are preferably prepared in the presence of a reaction auxiliary. Suitable reaction auxiliaries are all customary inorganic or organic bases. These include, for example, alkaline earth metal or alkali metal hydrides, hydroxides, amides, alcoholates, acetates, carbonates or hydrogencarbonates, such as, for example, sodium hydride, sodium amide, sodium methoxide, sodium ethoxide, potassium tert-butoxide, sodium hydroxide, potassium hydroxide, ammonium hydroxide, sodium acetate, potassium acetate, calcium acetate, ammonium acetate, sodium carbonate, potassium carbonate, potassium hydrogencarbonate or ammonium carbonate, and also tertiary amines, such as, for example, trimethylamine, triethylamine, diisopropylethylamine, tributylamine, N,N-dimethylaniline, pyridine, N-methylpiperidine, 4-(N,N-dimethylamino)pyridine, diazabicyclooctane (DABCO), diazabicyclononene (DBN) or diazabicycloundecene (DBU), in particular triethylamine.

When using carboxylic acids of the general structure (a2), the compounds of the general formula (I-a) according to the invention are prepared in the presence of a condensing agent. The carboxylic acids are commercially available. Suitable condensing agents are especially dehydrating chemicals. These preferably include acid anhydrides and acid halides, such as, for example, acetic anhydride, propionic anhydride, phosphorus(V) oxide, phosphoryl chloride, phosphoryl bromide, phosphorus trichloride, phosphorus tribromide, thionyl chloride, oxalyl chloride, phosgene, diphosgene, methyl formate, ethyl

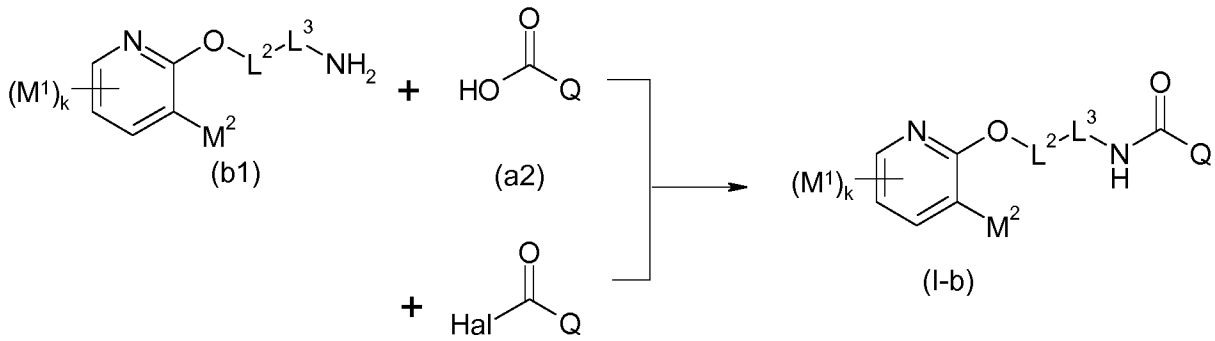
formate, and also carbodiimides such as, for example, N,N'-dicyclohexylcarbodiimide (DCC) or 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride (EDC-HCl). Other known condensing agents are triphenylphosphine/carbon tetrachloride, 4-(4,6-dimethoxy[1.3.5]triazin-2-yl)-4-methylmorpholinium chloride hydrate or hydroxybenzotriazole (HOBt). Particular mention may be made here of the combination of 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride (EDC-HCl) and hydroxybenzotriazole (HOBt).

The compounds of the general formula (I-a) according to the invention are optionally prepared using one or more diluents. Suitable diluents are especially inert organic solvents. These include in particular aliphatic, alicyclic or aromatic, optionally halogenated hydrocarbons such as, for example, benzine, benzene, toluene, xylene, chlorobenzene, dichlorobenzene, petroleum ether, hexane, cyclohexane, dichloromethane, chloroform, carbon tetrachloride, tetrahydrofuran, dioxane, acetonitrile or dimethylformamide.

When carrying out process A-1, the reaction temperatures can be varied within a relatively wide range. In general, the process is carried out at temperatures between 0°C and 150°C, preferably between 10°C and 120°C.

Process A is generally carried out under atmospheric pressure. However, it is also possible to carry out process A under elevated or reduced pressure – generally between 0.1 bar and 10 bar.

Preparation Process B

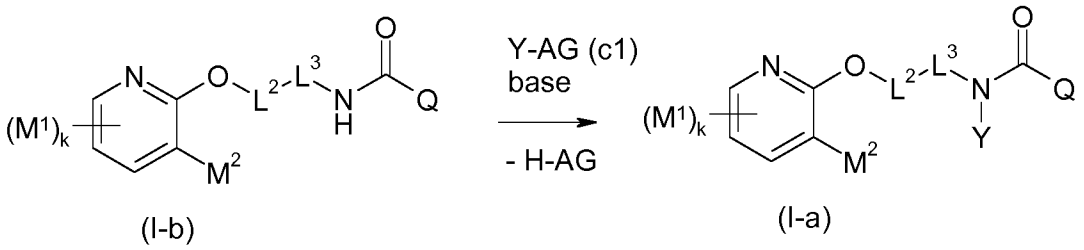


The radicals M^1, M^2, L^2, L^3 and Q and k have the meanings described above. W in this case represents oxygen.

Compounds of the general formula (I-a) according to the invention can be prepared from amines of the formula (b1) and carboxylic acids of the formula (a2) or halides thereof of the formula (a3) by generally known processes as described, for example, in WO-A 2009/012998. The amines of the formula (b1) and carboxylic acids of the formula (a2) and their halides of the formula (a3) are commercially available. Alternatively, the halides of the formula (a3) can be prepared by generally known methods from

carboxylic acids of the formula (a2) using appropriate halogenating agents, for example phosphoryl chloride, phosphoryl bromide, thionyl chloride, oxalyl chloride or phosgene.

Preparation Process C

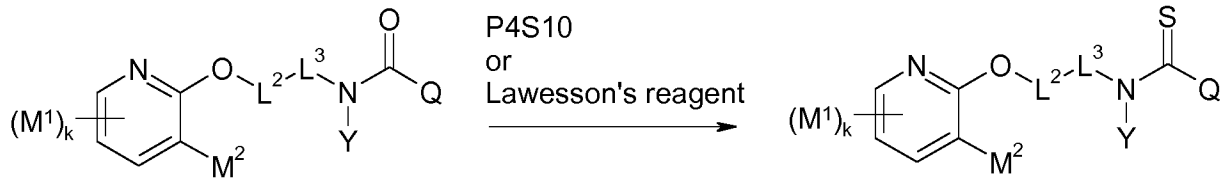


(I-b) (I-a)

The radicals M^1, M^2, L^2, L^3, Q and Y and k have the meanings described above. In this case, W represents oxygen and AG represents a leaving group, for example halogens or alkyl- or arylsulphonates such as, for example, tolylsulphonates or benzenesulphonates.

Compounds of the general formula (I) according to the invention and their embodiment (I-a) can be prepared from amides of the formula (I-b) and alkylating agents of the formula (c1) by generally known processes as described, for example, in EP2007060166.

Preparation Process D



(I-a) (I-c)

The radicals M^1, M^2, L^2, L^3, Q and Y and k have the meanings described above. W = oxygen is transformed directly into W = sulphur.

Compounds of the general formula (I) according to the invention and their embodiment (I-c) can be prepared from compounds of the formula (I-a) and appropriate sulphurizing agents, for example tetraphosphorus decasulphide ("phosphorus pentasulphide") or 2,4-bis[4-methoxyphenyl]-2,4-dithiono-1,2,3,4-dithiadiphosphetane ("Lawesson's reagent"), by generally known processes. Process examples are known *inter alia* from Houben-Weyl, Methoden der Organischen Chemie [Methods of Organic Chemistry], E5, 1255 (Thieme Verlag, Stuttgart, 1985).

Formulations

The present invention further relates to formulations and use forms prepared therefrom as compositions controlling unwanted microorganisms, for example drench, drip and spray liquors, comprising at least

one compound of the formula (I). In some cases, the use forms comprise further fungicides and/or adjuvants which improve action, such as penetrants, e.g. vegetable oils, for example rapeseed oil, sunflower oil, mineral oils, for example paraffin oils, alkyl esters of vegetable fatty acids, for example rapeseed oil methyl ester or soya oil methyl ester, or alkanol alkoxylates and/or spreaders, for example alkylsiloxanes and/or salts, for example organic or inorganic ammonium or phosphonium salts, for example ammonium sulphate or diammonium hydrogenphosphate and/or retention promoters, for example dioctyl sulphosuccinate or hydroxypropyl guar polymers and/or humectants, for example glycerol and/or fertilizers, for example ammonium-, potassium- or phosphorus-containing fertilizers.

Customary formulations are, for example, water-soluble liquids (SL), emulsion concentrates (EC), emulsions in water (EW), suspension concentrates (SC, SE, FS, OD), water-dispersible granules (WG), granules (GR) and capsule concentrates (CS); these and further possible formulation types are described, for example, by Crop Life International and in Pesticide Specifications, Manual on development and use of FAO and WHO specifications for pesticides, FAO Plant Production and Protection Papers – 173, prepared by the FAO/WHO Joint Meeting on Pesticide Specifications, 2004, ISBN: 9251048576. The formulations, in addition to one or more compounds of the formula (I), optionally comprise further agrochemically active compounds.

These are preferably formulations or use forms which comprise auxiliaries, for example extenders, solvents, spontaneity promoters, carriers, emulsifiers, dispersants, frost protectants, biocides, thickeners and/or further auxiliaries, for example adjuvants. An adjuvant in this context is a component which enhances the biological effect of the formulation, without the component itself having any biological effect. Examples of adjuvants are agents which promote retention, spreading, attachment to the leaf surface or penetration.

These formulations are prepared in a known way, for example by mixing the compounds of the formula (I) with auxiliaries such as, for example, extenders, solvents and/or solid carriers and/or other auxiliaries such as, for example, surfactants. The formulations are prepared either in suitable facilities or else before or during application.

The auxiliaries used may be substances suitable for imparting special properties, such as certain physical, technical and/or biological properties, to the formulation of the compounds of the formula (I), or to the use forms prepared from these formulations (for example ready-to-use fungicides such as spray liquors or seed dressing products).

Suitable extenders are, for example, water, polar and nonpolar organic chemical liquids, for example from the classes of the aromatic and non-aromatic hydrocarbons (such as paraffins, alkylbenzenes, alkylnaphthalenes, chlorobenzenes), the alcohols and polyols (which, if appropriate, may also be substituted, etherified and/or esterified), the ketones (such as acetone, cyclohexanone), esters (including

fats and oils) and (poly)ethers, the unsubstituted and substituted amines, amides, lactams (such as N-alkylpyrrolidones) and lactones, the sulphones and sulphoxides (such as dimethyl sulphoxide).

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

In principle, it is possible to use all suitable solvents. Examples of suitable solvents are aromatic hydrocarbons, such as xylene, toluene or alkylnaphthalenes, chlorinated aromatic or chlorinated aliphatic hydrocarbons, such as chlorobenzene, chloroethylene or methylene chloride, aliphatic hydrocarbons, such as cyclohexane, paraffins, petroleum fractions, mineral and vegetable oils, alcohols, such as methanol, ethanol, isopropanol, butanol or glycol and their ethers and esters, ketones such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents, such as dimethyl sulphoxide, and also water.

In principle, it is possible to use all suitable carriers. Useful carriers include especially: for example ammonium salts and ground natural minerals such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and ground synthetic materials such as finely divided silica, alumina and natural or synthetic silicates, resins, waxes and/or solid fertilizers. Mixtures of such carriers can likewise be used. Useful carriers for granules include: for example crushed and fractionated natural rocks such as calcite, marble, pumice, sepiolite, dolomite, and synthetic granules of inorganic and organic meals, and also granules of organic material such as sawdust, paper, coconut shells, corn cobs and tobacco stalks.

Liquefied gaseous extenders or solvents can also be used. Particularly suitable extenders or carriers are those which are gaseous at ambient temperature and under atmospheric pressure, for example aerosol propellant gases, such as halohydrocarbons, and also butane, propane, nitrogen and carbon dioxide.

Examples of emulsifiers and/or foam-formers, dispersants or wetting agents with ionic or nonionic properties, or mixtures of these surfactants, are salts of polyacrylic acid, salts of lignosulphonic acid, salts of phenolsulphonic acid or naphthalenesulphonic acid, polycondensates of ethylene oxide with fatty alcohols or with fatty acids or with fatty amines, with substituted phenols (preferably alkylphenols or arylphenols), salts of sulphosuccinic esters, taurine derivatives (preferably alkyl taurates), phosphoric esters of polyethoxylated alcohols or phenols, fatty esters of polyols, and derivatives of the compounds

containing sulphates, sulphonates and phosphates, for example alkylaryl polyglycol ethers, alkylsulphonates, alkyl sulphates, arylsulphonates, protein hydrolysates, lignosulphite waste liquors and methylcellulose. The presence of a surfactant is advantageous if one of the compounds of the formula (I) and/or one of the inert carriers is insoluble in water and when the application takes place in water.

It is possible to use colorants such as inorganic pigments, for example iron oxide, titanium oxide and Prussian Blue, and organic dyes such as alizarin dyes, azo dyes and metal phthalocyanine dyes, and nutrients and trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc as further auxiliaries in the formulations and the use forms derived therefrom.

Additional components may be stabilizers, such as low-temperature stabilizers, preservatives, antioxidants, light stabilizers or other agents which improve chemical and/or physical stability. Foam formers or antifoams may also be present.

Tackifiers such as carboxymethylcellulose and natural and synthetic polymers in the form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, or else natural phospholipids such as cephalins and lecithins and synthetic phospholipids may also be present as additional auxiliaries in the formulations and the use forms derived therefrom. Further possible auxiliaries are mineral and vegetable oils.

Optionally, further auxiliaries may be present in the formulations and the use forms derived therefrom. Examples of such additives include fragrances, protective colloids, binders, adhesives, thickeners, thixotropic agents, penetrants, retention promoters, stabilizers, sequestrants, complexing agents, humectants, spreaders. In general, the compounds of the formula (I) can be combined with any solid or liquid additive commonly used for formulation purposes.

Useful retention promoters include all those substances which reduce the dynamic surface tension, for example dioctyl sulphosuccinate, or increase the viscoelasticity, for example hydroxypropylguar polymers.

Suitable penetrants in the present context are all those substances which are usually used for improving the penetration of agrochemical active compounds into plants. Penetrants are defined in this context by their ability to penetrate from the (generally aqueous) application liquor and/or from the spray coating into the cuticle of the plant and thereby increase the mobility of active compounds in the cuticle. The method described in the literature (Baur et al., 1997, Pesticide Science 51, 131-152) can be used to determine this property. Examples include alcohol alkoxylates such as coconut fatty ethoxylate (10) or isotridecyl ethoxylate (12), fatty acid esters, for example rapeseed oil methyl ester or soya oil methyl ester, fatty amine alkoxylates, for example tallowamine ethoxylate (15), or ammonium and/or phosphonium salts, for example ammonium sulphate or diammonium hydrogenphosphate.

The formulations preferably comprise between 0.00000001 and 98% by weight of the compound of the formula (I) or, with particular preference, between 0.01% and 95% by weight of the compound of the formula (I), more preferably between 0.5% and 90% by weight of the compound of the formula (I), based on the weight of the formulation.

The content of the compound of the formula (I) in the use forms prepared from the formulations (in particular fungicides) may vary within wide ranges. The concentration of the compound of the formula (I) in the use forms is usually between 0.00000001 and 95% by weight of the compound of the formula (I), preferably between 0.00001 and 1% by weight, based on the weight of the use form. The compounds are employed in a customary manner appropriate for the use forms.

Plant/Crop Protection

The compounds according to the invention have potent microbicidal activity and can be used for control of harmful microorganisms, such as fungi and bacteria, in crop protection and in the protection of materials.

The invention also relates to a method for controlling harmful microorganisms, characterized in that the compounds according to the invention are applied to the harmful microorganims and/or their habitat.

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

The compounds according to the invention can be used in crop protection for control of phytopathogenic bacteria. They are characterized by an outstanding efficacy against a broad spectrum of phytopathogenic bacteria, including Pseudomonadaceae, Rhizobiaceae, Enterobacteriaceae, Corynebacteriaceae and Streptomycetaceae.

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

diseases caused by powdery mildew pathogens, for example Blumeria species, for example Blumeria graminis; Podosphaera species, for example Podosphaera leucotricha; Sphaerotheca species, for example Sphaerotheca fuliginea; Uncinula species, for example Uncinula necator;

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

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

leaf blotch diseases and leaf wilt diseases caused, for example, by Alternaria species, for example Alternaria solani; Cercospora species, for example Cercospora beticola; Cladiosporium species, for example Cladiosporium cucumerinum; Cochliobolus species, for example Cochliobolus sativus (conidia form: Drechslera, Syn: Helminthosporium), Cochliobolus miyabeanus; Colletotrichum species, for example Colletotrichum lindemuthanium; Cycloconium species, for example Cycloconium oleaginum; Diaporthe species, for example Diaporthe citri; Elsinoe species, for example Elsinoe fawcettii; Gloeosporium species, for example Gloeosporium laeticolor; Glomerella species, for example Glomerella cingulata; Guignardia species, for example Guignardia bidwelli; Leptosphaeria species, for example Leptosphaeria maculans, Leptosphaeria nodorum; Magnaporthe species, for example Magnaporthe grisea; Microdochium species, for example Microdochium nivale; Mycosphaerella species, for example Mycosphaerella graminicola, M. arachidicola and M. fijiensis; Phaeosphaeria species, for example Phaeosphaeria nodorum; Pyrenophora species, for example Pyrenophora teres, Pyrenophora tritici repentis; Ramularia species, for example Ramularia collo-cygni, Ramularia areola; Rhynchosporium species, for example Rhynchosporium secalis; Septoria species, for example Septoria apii, Septoria lycopersii; Typhula species, for example Typhula incarnata; Venturia species, for example Venturia inaequalis;

root and stem diseases caused, for example, by Corticium species, for example Corticium graminearum; Fusarium species, for example Fusarium oxysporum; Gaeumannomyces species, for example Gaeumannomyces graminis; Rhizoctonia species, such as, for example Rhizoctonia solani; Sarocladium diseases caused for example by Sarocladium oryzae; Sclerotium diseases caused for example by Sclerotium oryzae; Tapesia species, for example Tapesia acuformis; Thielaviopsis species, for example Thielaviopsis basicola;

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

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

fruit rot caused, for example, by Aspergillus species, for example Aspergillus flavus; Botrytis species, for example Botrytis cinerea; Penicillium species, for example Penicillium expansum and P. purpurogenum; Sclerotinia species, for example Sclerotinia sclerotiorum; Verticilium species, for example Verticilium alboatrum;

seed and soilborne decay, mould, wilt, rot and damping-off diseases caused, for example, by Alternaria species, caused for example by Alternaria brassicicola; Aphanomyces species, caused for example by Aphanomyces euteiches; Ascochyta species, caused for example by Ascochyta lentis; Aspergillus species, caused for example by Aspergillus flavus; Cladosporium species, caused for example by Cladosporium herbarum; Cochliobolus species, caused for example by Cochliobolus sativus; (Conidiaform: Drechslera, Bipolaris Syn: Helminthosporium); Colletotrichum species, caused for example by Colletotrichum coccodes; Fusarium species, caused for example by Fusarium culmorum; Gibberella species, caused for example by Gibberella zeae; Macrophomina species, caused for example by Macrophomina phaseolina; Monographella species, caused for example by Monographella nivalis; Penicillium species, caused for example by Penicillium expansum; Phoma species, caused for example by Phoma lingam; Phomopsis species, caused for example by Phomopsis sojae; Phytophthora species, caused for example by Phytophthora cactorum; Pyrenophora species, caused for example by Pyrenophora graminea; Pyricularia species, caused for example by Pyricularia oryzae; Pythium species, caused for example by Pythium ultimum; Rhizoctonia species, caused for example by Rhizoctonia solani; Rhizopus species, caused for example by Rhizopus oryzae; Sclerotium species, caused for example by Sclerotium rolfsii; Septoria species, caused for example by Septoria nodorum; Typhula species, caused for example by Typhula incarnata; Verticillium species, caused for example by Verticillium dahliae;

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

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

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

Taphrina species, for example Taphrina deformans;

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

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

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

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

diseases caused by bacterial pathogens, for example Xanthomonas species, for example Xanthomonas cam-pestris pv. oryzae; Pseudomonas species, for example Pseudomonas syringae pv. lachrymans; Erwinia species, for example Erwinia amylovora.

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

Fungal diseases on leaves, stems, pods and seeds caused, for example, by Alternaria leaf spot (Alternaria spec. atrans tenuissima), Anthracnose (Colletotrichum gloeosporoides dematium var. truncatum), brown spot (Septoria glycines), cercospora leaf spot and blight (Cercospora kikuchii), choanephora leaf blight (Choanephora infundibulifera trispora (Syn.)), dactuliophora leaf spot (Dactuliophora glycines), downy mildew (Peronospora manshurica), drechslera blight (Drechslera glycini), frogeye leaf spot (Cercospora sojina), leptosphaerulina leaf spot (Leptosphaerulina trifolii), phyllostica leaf spot (Phyllosticta sojaecola), pod and stem blight (Phomopsis sojae), powdery mildew (Microsphaera diffusa), pyrenochaeta leaf spot (Pyrenochaeta glycines), rhizoctonia aerial, foliage, and web blight (Rhizoctonia solani), rust (Phakopsora pachyrhizi, Phakopsora meibomiae), scab (Sphaceloma glycines), stemphylium leaf blight (Stemphylium botryosum), target spot (Corynespora cassiicola).

Fungal diseases on roots and the stem base caused, for example, by black root rot (Calonectria crotalariae), charcoal rot (Macrophomina phaseolina), fusarium blight or wilt, root rot, and pod and collar rot (Fusarium oxysporum, Fusarium orthoceras, Fusarium semitectum, Fusarium equiseti), mycoleptodiscus root rot (Mycoleptodiscus terrestris), neocosmospora (Neocosmospora vasinfecta), pod and stem blight (Diaporthe phaseolorum), stem canker (Diaporthe phaseolorum var. caulivora), phytophthora rot (Phytophthora megasperma), brown stem rot (Phialophora gregata), pythium rot

(Pythium aphanidermatum, Pythium irregulare, Pythium debaryanum, Pythium myriotylum, Pythium ultimum), rhizoctonia root rot, stem decay, and damping-off (Rhizoctonia solani), sclerotinia stem decay (Sclerotinia sclerotiorum), sclerotinia southern blight (Sclerotinia rolfsii), thielaviopsis root rot (Thielaviopsis basicola).

The compounds according to the invention, compositions comprising these compounds are suitable for controlling the following plant diseases:

Albugo spp. (white rust) on ornamental plants, vegetable crops (e.g. A. candida) and sunflowers (e.g. A. tragopogonis); Alternaria spp. (black spot disease, black blotch) on vegetables, oilseed rape (e.g. A. brassicola or A. brassicae), sugar beet (e.g. A. tenuis), fruit, rice, soybeans and also on potatoes (e.g. A. solani or A. alternata) and tomatoes (e.g. A. solani or A. alternata) and Alternaria spp. (black head) on wheat; Aphanomyces spp. on sugar beet and vegetables; Ascochyta spp. on cereals and vegetables, e.g. A. tritici (Ascochyta leaf blight) on wheat and A. hordei on barley; Bipolaris and Drechslera spp. (teleomorph: Cochliobolus spp.), e.g. leaf spot diseases (D. maydis and B. zeicola) on corn, e.g. glume blotch (B. sorokiniana) on cereals and e.g. B. oryzae on rice and on lawn; Blumeria (old name: Erysiphe) graminis (powdery mildew) on cereals (e.g. wheat or barley); Botryo¬sphaeria spp. ('Slack Dead Arm Disease') on grapevines (e.g. B. obtusa); Botrytis cinerea (teleomorph: Botryotinia fuckeliana: gray mold, gray rot) on soft fruit and pomaceous fruit (inter alia strawberries), vegetables (inter alia lettuce, carrots, celeriac and cabbage), oilseed rape, flowers, grapevines, forest crops and wheat (ear mold); Bremia lactucae (downy mildew) on lettuce; Ceratocystis (syn. Ophiostoma) spp. (blue stain fungus) on deciduous trees and coniferous trees, e.g. C. ulmi (Dutch elm disease) on elms; Cercospora spp. (Cereospora leat spot) on corn (e.g. C. zeae-maydis), rice, sugar beet (e.g. C. beticola), sugar cane, vegetables, coffee, soybeans (e.g. C. sojina or C. kikuchil) and rice; Cladosporium spp. on tomato (e.g. C. fulvum: tomato leaf mold) and cereals, e.g. C. herbarum (ear rot) on wheat; Claviceps purpurea (ergot) on cereals; Cochliobolus (anamorph: Helminthosporium or Bipolaris) spp. (leaf spot) on corn (e.g. C. carbonum), cereals (e.g. C. sativus, anamorph: B. sorokiniana: glume blotch) and rice (tor example C. miyabeanus, anamorph: H. oryzae); Colletotrichum(teleomorph: Glomerella) spp. (anthracnosis) on cotton (e.g. C. gossypii), corn (e.g. C. graminicola: stem rot and anthracnosis), soft fruit, potatoes (e.g. C. coccodes: wilt disease), beans (e.g. C. lindemuthianum) and soybeans (e.g. C. truncatum); Corticium spp., e.g. C. sasakii (sheath blight) on rice; Corynespora cassiicola (leaf spot) on soybeans and ornamental plants; Cycloconium spp., e.g. C. oleaginum on olives; Cylindrocarpon spp. (e.g. fruit tree cancer or black foot disease of grapevine, teleomorph: Nectria or Neonectria spp.) on fruit trees, grapevines (e.g. C. liriodendn; teleomorph: Neonectria liriodendri, black foot disease) and many ornamental trees; Dematophora (teleomorph: Rosellinia) necatrix (root/stem rot) on soybeans; Diaporthe spp. e.g. D. phaseolorum (stem disease) on soybeans; Drechslera (syn. Helminthosporium, teleomorph: Pyrenophora) spp. on corn, cereals, such as barley (e.g. D. teres, net blotch) and on wheat (e.g. D. tritici-repentis: DTR leaf spot), rice and lawn; Esca disease (dieback of grapevine, apoplexia) on grapevines,

caused by Formitiporia (syn. Phellinus) punctata, F mediterranea. Phaeomoniella chlamydospora (old name Phaeoacremonium chlamydosporum) , Phaeoacremonium aleophilum and/or Botryosphaeria obtusa; Elsinoe spp. on pome fruit (E. pyri) and soft fruit (E. veneta: anthracnosis) and also grapevines (E. ampelina: anthracnosis); Entyloma oryzae (leaf smut) on rice; Epicoccum spp. (black head) on wheat; Erysiphe spp. (powdery mildew) on sugar beet (E. betae), vegetables (e.g. E. pisi), such as cucumber species (e.g. E. cichoracearum) and cabbage species, such as oilseed rape (e.g. E. cruciferarum); Eutypa fata (Eutypa cancer or dieback, anamorph: Cytosporina lata, syn. Libertella blepharis) on fruit trees, grapevines and many ornamental trees; Exserohilum (syn. Helminthosporium) spp. on corn (e.g. E. turcicum); Fusarium (teleomorph: Gibberella) spp. (wilt disease, root and stem rot) on various plants, such as e.g. F. graminearum or F. culmorum (root rot and silver-top) on cereals (e.g. wheat or barley), F. oxysporum on tomatoes, F. solani on soybeans and F. verticillioides on corn; Gaeumannomyces graminis (takeall) on cereals (e.g. wheat or barley) and corn; Gibberella spp. on cereals (e.g. G. zeae) and rice (e.g. G. fujikuroi: bakanae disease); Glomerella cingulata on grapevines, pomaceous fruit and other plants and G. gossypii on cotton; grainstaining complex on rice; Guignardia bidwellii (black rot) on grapevines; Gymno-sporangium spp. on Rosaceae and juniper, e.g. G. sabinae (pear rust) on pears; Helminthosporium spp. (syn. Drechslera, teleomorph: Cochliobolus) on corn, cereals and rice; Hemileia spp., e.g. H. vastatrix (coffee leaf rust) on coffee; Isariopsis clavispora (syn. Cladosporium vitis) on grapevines; Macrophomina phaseolina (syn. phaseoli) (root/stem rot) on soybeans and cotton; Microdochium (syn. Fusarium) nivale (pink snow mold) on cereals (e.g. wheat or barley); Microsphaera diffusa (powdery mildew) on soybeans; Monilinia spp., e.g. M. laxa. M. fructicola and M. fructigena (blossom and twig blight) on stone fruit and other Rosaceae; Mycosphaerella spp. on cereals, bananas, soft fruit and peanuts, such as e.g. M. graminicola (anamorph: Septoria tritici, Septoria leaf blotch) on wheat or M. fijiensis (Sigatoka disease) on bananas; Peronospora spp. (downy mildew) on cabbage (e.g. P. brassicae), oilseed rape (e.g. P. parasitica), bulbous plants (e.g. P. destructor), tobacco (P. tabacina) and soybeans (e.g. P. manshurica); Phakopsora pachyrhizi and P. meibomiae (soybean rust) on soybeans; Phialophora spp. e.g. on grapevines (e.g. P. tracheiphila and P. tetraspora) and soybeans (e.g. P. gregata: stem disease); Phoma lingam (root and stem rot) on oilseed rape and cabbage and P. betae (leaf spot) on sugar beet; Phomopsis spp. on sunflowers, grapevines (e.g. P. viticola: dead-arm disease) and soybeans (e.g. stem canker/stem blight: P. phaseoli, teleomorph: Diaporthe phaseolorum); Physoderma maydis (brown spot) on corn; Phytophthora spp. (wilt disease, root, leaf, stem and fruit rot) on various plants, such as on bell peppers and cucumber species (e.g. P. capsici), soybeans (e.g. P. megasperma, syn. P. sojae), potatoes and tomatoes (e.g. P. infestans. late blight and brown rot) and deciduous trees (e.g. P. ramorum sudden oak death); Plasmodiophora brassicae (club-root) on cabbage, oilseed rape, radish and other plants; Plasmopara spp., e.g. P. viticola (peronospora of grapevines, downy mildew) on grapevines and P. halstedii on sunflowers; Podosphaera spp. (powdery mildew) on Rosaceae, hops, pomaceaus fruit and soft fruit, e.g. P. leucotricha on apple; Polymyxa spp., e.g. on cereals, such as barley and wheat (P. graminis) and sugar beet (P. betae) and the

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

according to the invention can be used for curative or protective/preventive control of harmful microorganisms. The invention therefore also relates to curative and protective methods for controlling harmful microorganisms by the use of the compounds according to the invention , which are applied to the seed, the plant or plant parts, the fruit or the soil in which the plants grow.

The fact that the compounds according to the invention are well tolerated by plants at the concentrations required for controlling harmful microorganisms allows the treatment of above-ground parts of plants, of propagation stock and seeds, and of the soil.

Plant and Plant Parts

All plants and plant parts can be treated in accordance with the invention. Here, plants are to be understood to mean all plants and plant parts such as wanted and unwanted wild plants or crop plants (including naturally occurring crop plants), for example cereals (wheat, rice, triticale, barley, rye, oats), maize, soya bean, potato, sugar beet, sugar cane, tomatoes, peas and other vegetable species, cotton, tobacco, oilseed rape, and also fruit plants (with the fruits apples, pears, citrus fruits and grapevines). Crop plants can be plants which can be obtained by conventional breeding and optimization methods or by biotechnological and genetic engineering methods or combinations of these methods, including the transgenic plants and including the plant varieties which can or cannot be protected by varietal property rights. Plant parts should be understood to mean all parts and organs of the plants above and below ground, such as shoot, leaf, flower and root, examples given being leaves, needles, stalks, stems, flowers, fruit bodies, fruits and seeds, and also tubers, roots and rhizomes. Parts of plants also include harvested plants and vegetative and generative propagation material, for example seedlings, tubers, rhizomes, cuttings and seeds.

Treatment according to the invention of the plants and plant parts with the compounds of the formula (I) is carried out directly or by allowing the compounds to act on the surroundings, environment or storage space by the customary treatment methods, for example by immersion, spraying, evaporation, fogging, scattering, painting on, injection and, in the case of propagation material, in particular in the case of seeds, also by applying one or more coats.

As already mentioned above, it is possible to treat all plants and their parts according to the invention. In a preferred embodiment, wild plant species and plant cultivars, or those obtained by conventional biological breeding methods, such as crossing or protoplast fusion, and also parts thereof, are treated. In a further preferred embodiment, transgenic plants and plant cultivars obtained by genetic engineering methods, if appropriate in combination with conventional methods (genetically modified organisms), and parts thereof are treated. The term “parts” or “parts of plants” or “plant parts” has been explained above. The invention is used with particular preference to treat plants of the respective commercially customary cultivars or those that are in use. Plant cultivars are to be understood as meaning plants

having new properties ("traits") and which have been obtained by conventional breeding, by mutagenesis or by recombinant DNA techniques. They can be cultivars, varieties, bio- or genotypes.

The compounds to be used in accordance with the invention can preferably be employed in the following plants, the enumeration which follows not being limiting.

Preferred plants are those from the group of the useful plants, ornamentals, turfs, generally used trees which are employed as ornamentals in the public and domestic sectors, and forestry trees. Forestry trees comprise trees for the production of timber, cellulose, paper and products made from parts of the trees.

The term useful plants as used in the present context refers to crop plants which are employed as plants for obtaining foodstuffs, feedstuffs, fuels or for industrial purposes.

The useful plants include, for example, the following types of plants: turf, vines, cereals, for example wheat, barley, rye, oats, triticale, rice, maize and millet/sorghum; beet, for example sugar beet and fodder beet; fruits, for example pome fruit, stone fruit and soft fruit, for example apples, pears, plums, peaches, almonds, cherries and berries, for example strawberries, raspberries, blackberries; legumes, for example beans, lentils, peas and soya beans; oil crops, for example oilseed rape, mustard, poppies, olives, sunflowers, coconuts, castor oil plants, cacao beans and peanuts; cucurbits, for example pumpkin/squash, cucumbers and melons; fibre plants, for example cotton, flax, hemp and jute; citrus fruit, for example oranges, lemons, grapefruit and tangerines; vegetables, for example spinach, lettuce, asparagus, cabbage species, carrots, onions, tomatoes, potatoes and bell peppers; Lauraceae, for example avocado, Cinnamomum, camphor, or also plants such as tobacco, nuts, coffee, aubergine, sugar cane, tea, pepper, grapevines, hops, bananas, latex plants and ornamentals, for example flowers, shrubs, deciduous trees and coniferous trees such as conifers. This enumeration does not constitute a limitation.

Particularly suitable target crops are the plants below: cotton, aubergine, turf, pome fruit, stone fruit, soft fruit, maize, wheat, barley, cucumber, tobacco, vines, rice, cereals, pear, beans, soya beans, oilseed rape, tomato, bell pepper, melons, cabbage, potatoes and apples.

Examples of trees include: Abies sp., Eucalyptus sp., Picea sp., Pinus sp., Aesculus sp., Platanus sp., Tilia sp., Acer sp., Tsuga sp., Fraxinus sp., Sorbus sp., Betula sp., Crataegus sp., Ulmus sp., Quercus sp., Fagus sp., Salix sp., Populus sp.

Preferred trees which may be mentioned are: from the tree species Aesculus: A. hippocastanum, A. pariflora, A. carnea; from the tree species Platanus: P. aceriflora, P. occidentalis, P. racemosa; from the tree species Picea: P. abies; from the tree species Pinus: P. radiate, P. ponderosa, P. contorta, P. sylvestre, P. elliottii, P. montecola, P. albicaulis, P. resinosa, P. palustris, P. taeda, P. flexilis, P. jeffregi,

P. baksiana, P. strobes; from the tree species Eucalyptus: E. grandis, E. globulus, E. camadentis, E. nitens, E. obliqua, E. regnans, E. pilularus.

Particularly preferred trees which may be mentioned are: from the tree species Pinus: P. radiate, P. ponderosa, P. contorta, P. sylvestre, P. strobes; from the tree species Eucalyptus: E. grandis, E. globulus, E. camadentis.

Very particularly preferred trees which may be mentioned are: horse chestnut, Platanaceae, linden tree, maple tree.

The present invention can also be applied to any turfgrasses, including cool-season turfgrasses and warm-season turfgrasses. Examples of cool-season turfgrasses are bluegrasses (*Poa spp.*), such as Kentucky bluegrass (*Poa pratensis* L.), rough bluegrass (*Poa trivialis* L.), Canada bluegrass (*Poa compressa* L.), annual bluegrass (*Poa annua* L.), upland bluegrass (*Poa glaucantha* Gaudin), wood bluegrass (*Poa nemoralis* L.) and bulbous bluegrass (*Poa bulbosa* L.); bentgrasses (*Agrostis spp.*) such as creeping bentgrass (*Agrostis palustris* Huds.), colonial bentgrass (*Agrostis tenuis* Sibth.), velvet bentgrass (*Agrostis canina* L.), South German Mixed Bentgrass (*Agrostis spp.* including *Agrostis tenius* Sibth., *Agrostis canina* L., and *Agrostis palustris* Huds.), and redtop (*Agrostis alba* L.);

fescues (*Festuca spp.*), such as red fescue (*Festuca rubra* L. spp. *rubra*), creeping fescue (*Festuca rubra* L.), chewings fescue (*Festuca rubra commutata* Gaud.), sheep fescue (*Festuca ovina* L.), hard fescue (*Festuca longifolia* Thuill.), hair fescue (*Festucu capillata* Lam.), tall fescue (*Festuca arundinacea* Schreb.) and meadow fescue (*Festuca elanor* L.);

ryegrasses (*Lolium* spp.), such as annual ryegrass (*Lolium multiflorum* Lam.), perennial ryegrass (*Lolium perenne* L.) and italian ryegrass (*Lolium multiflorum* Lam.);

and wheatgrasses (*Agropyron* spp.), such as fairway wheatgrass (*Agropyron cristatum* (L.) Gaertn.), crested wheatgrass (*Agropyron desertorum* (Fisch.) Schult.) and western wheatgrass (*Agropyron smithii* Rydb.).

Examples of further cool-season turfgrasses are beachgrass (*Ammophila breviligulata* Fern.), smooth bromegrass (*Bromus inermis* Leyss.), cattails such as Timothy (*Phleum pratense* L.), sand cattail (*Phleum subulatum* L.), orchard grass (*Dactylis glomerata* L.), weeping alkaligrass (*Puccinellia distans* (L.) Parl.) and crested dog's-tail (*Cynosurus cristatus* L.).

Examples of warm-season turfgrasses are Bermuda grass (*Cynodon spp.* L. C. Rich), zoysia grass (*Zoysia spp.* Willd.), St. Augustine grass (*Stenotaphrum secundatum* Walt Kuntze), centipede grass (*Eremochloa ophiuroides* Munro Hack.), carpet grass (*Axonopus affinis* Chase), Bahia grass (*Paspalum notatum* Flugge), Kikuyu grass (*Pennisetum clandestinum* Hochst. ex Chiov.), buffalo grass (*Buchloe*

dactyloids (Nutt.) Engelm.), Blue gramma (*Bouteloua gracilis* (H.B.K.) Lag. ex Griffiths), seashore paspalum (*Paspalum vaginatum* Swartz) and sideoats grama (*Bouteloua curtipendula* (Michx. Torr.). Cool-season turfgrasses are generally preferred for the use in accordance with the invention. Particular preference is given to bluegrass, bentgrass and redtop, fescues and ryegrasses. Bentgrass is especially preferred.

Particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or a combination of transformation events, and that are listed for example in the databases for various national or regional regulatory agencies including Event 531/ PV-GHBK04 (cotton, insect control, described in WO 2002/040677), Event 1143-14A (cotton, insect control, not deposited, described in WO 06/128569); Event 1143-51B (cotton, insect control, not deposited, described in WO 06/128570); Event 1445 (cotton, herbicide tolerance, not deposited, described in US-A 2002-120964 or WO 02/034946Event 17053 (rice, herbicide tolerance, deposited as PTA-9843, described in WO 10/117737); Event 17314 (rice, herbicide tolerance, deposited as PTA-9844, described in WO 10/117735); Event 281-24-236 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in WO 05/103266 or US-A 2005-216969); Event 3006-210-23 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in US-A 2007-143876 or WO 05/103266); Event 3272 (corn, quality trait, deposited as PTA-9972, described in WO 06/098952 or US-A 2006-230473); Event 33391 (wheat, herbicide tolerance, deposited as PTA-2347, described in WO 2002/027004), Event 40416 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-11508, described in WO 11/075593); Event 43A47 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-11509, described in WO 11/075595); Event 5307 (corn, insect control, deposited as ATCC PTA-9561, described in WO 10/077816); Event ASR-368 (bent grass, herbicide tolerance, deposited as ATCC PTA-4816, described in US-A 2006-162007 or WO 04/053062); Event B16 (corn, herbicide tolerance, not deposited, described in US-A 2003-126634); Event BPS-CV127-9 (soybean, herbicide tolerance, deposited as NCIMB No. 41603, described in WO 10/080829); Event BLR1 (oilseed rape, restoration of male sterility, deposited as NCIMB 41193, described in WO 2005/074671), Event CE43-67B (cotton, insect control, deposited as DSM ACC2724, described in US-A 2009-217423 or WO 06/128573); Event CE44-69D (cotton, insect control, not deposited, described in US-A 2010-0024077); Event CE44-69D (cotton, insect control, not deposited, described in WO 06/128571); Event CE46-02A (cotton, insect control, not deposited, described in WO 06/128572); Event COT102 (cotton, insect control, not deposited, described in US-A 2006-130175 or WO 04/039986); Event COT202 (cotton, insect control, not deposited, described in US-A 2007-067868 or WO 05/054479); Event COT203 (cotton, insect control, not deposited, described in WO 05/054480);); Event DAS21606-3 / 1606 (soybean, herbicide tolerance, deposited as PTA-11028, described in WO 012/033794), Event DAS40278 (corn, herbicide tolerance, deposited as ATCC PTA-10244, described in WO 11/022469); Event DAS-44406-6 / pDAB8264.44.06.1 (soybean, herbicide tolerance, deposited as PTA-11336,

described in WO 2012/075426), Event DAS-14536-7 /pDAB8291.45.36.2 (soybean, herbicide tolerance, deposited as PTA-11335, described in WO 2012/075429), Event DAS-59122-7 (corn, insect control - herbicide tolerance, deposited as ATCC PTA 11384 , described in US-A 2006-070139); Event DAS-59132 (corn, insect control - herbicide tolerance, not deposited, described in WO 09/100188); Event DAS68416 (soybean, herbicide tolerance, deposited as ATCC PTA-10442, described in WO 11/066384 or WO 11/066360); Event DP-098140-6 (corn, herbicide tolerance, deposited as ATCC PTA-8296, described in US-A 2009-137395 or WO 08/112019); Event DP-305423-1 (soybean, quality trait, not deposited, described in US-A 2008-312082 or WO 08/054747); Event DP-32138-1 (corn, hybridization system, deposited as ATCC PTA-9158, described in US-A 2009-0210970 or WO 09/103049); Event DP-356043-5 (soybean, herbicide tolerance, deposited as ATCC PTA-8287, described in US-A 2010-0184079 or WO 08/002872); Event EE-1 (brinjal, insect control, not deposited, described in WO 07/091277); Event FI117 (corn, herbicide tolerance, deposited as ATCC 209031, described in US-A 2006-059581 or WO 98/044140); Event FG72 (soybean, herbicide tolerance, deposited as PTA-11041, described in WO 2011/063413), Event GA21 (corn, herbicide tolerance, deposited as ATCC 209033, described in US-A 2005-086719 or WO 98/044140); Event GG25 (corn, herbicide tolerance, deposited as ATCC 209032, described in US-A 2005-188434 or WO 98/044140); Event GHB119 (cotton, insect control - herbicide tolerance, deposited as ATCC PTA-8398, described in WO 08/151780); Event GHB614 (cotton, herbicide tolerance, deposited as ATCC PTA-6878, described in US-A 2010-050282 or WO 07/017186); Event GJ11 (corn, herbicide tolerance, deposited as ATCC 209030, described in US-A 2005-188434 or WO 98/044140); Event GM RZ13 (sugar beet, virus resistance , deposited as NCIMB-41601, described in WO 10/076212); Event H7-1 (sugar beet, herbicide tolerance, deposited as NCIMB 41158 or NCIMB 41159, described in US-A 2004-172669 or WO 04/074492); Event JOPLIN1 (wheat, disease tolerance, not deposited, described in US-A 2008-064032); Event LL27 (soybean, herbicide tolerance, deposited as NCIMB41658, described in WO 06/108674 or US-A 2008-320616); Event LL55 (soybean, herbicide tolerance, deposited as NCIMB 41660, described in WO 06/108675 or US-A 2008-196127); Event LLcotton25 (cotton, herbicide tolerance, deposited as ATCC PTA-3343, described in WO 03/013224 or US-A 2003-097687); Event LLRICE06 (rice, herbicide tolerance, deposited as ATCC 203353, described in US 6,468,747 or WO 00/026345); Event LLRice62 (rice, herbicide tolerance, deposited as ATCC 203352, described in WO 2000/026345), Event LLRICE601 (rice, herbicide tolerance, deposited as ATCC PTA-2600, described in US-A 2008-2289060 or WO 00/026356); Event LY038 (corn, quality trait, deposited as ATCC PTA-5623, described in US-A 2007-028322 or WO 05/061720); Event MIR162 (corn, insect control, deposited as PTA-8166, described in US-A 2009-300784 or WO 07/142840); Event MIR604 (corn, insect control, not deposited, described in US-A 2008-167456 or WO 05/103301); Event MON15985 (cotton, insect control, deposited as ATCC PTA-2516, described in US-A 2004-250317 or WO 02/100163); Event MON810 (corn, insect control, not deposited, described in US-A 2002-102582); Event MON863 (corn, insect control, deposited as ATCC PTA-2605, described in WO 04/011601 or

US-A 2006-095986); Event MON87427 (corn, pollination control, deposited as ATCC PTA-7899, described in WO 11/062904); Event MON87460 (corn, stress tolerance, deposited as ATCC PTA-8910, described in WO 09/111263 or US-A 2011-0138504); Event MON87701 (soybean, insect control, deposited as ATCC PTA-8194, described in US-A 2009-130071 or WO 09/064652); Event MON87705 (soybean, quality trait - herbicide tolerance, deposited as ATCC PTA-9241, described in US-A 2010-0080887 or WO 10/037016); Event MON87708 (soybean, herbicide tolerance, deposited as ATCC PTA-9670, described in WO 11/034704); Event MON87712 (soybean, yield, deposited as PTA-10296, described in WO 2012/051199), Event MON87754 (soybean, quality trait, deposited as ATCC PTA-9385, described in WO 10/024976); Event MON87769 (soybean, quality trait, deposited as ATCC PTA-8911, described in US-A 2011-0067141 or WO 09/102873); Event MON88017 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-5582, described in US-A 2008-028482 or WO 05/059103); Event MON88913 (cotton, herbicide tolerance, deposited as ATCC PTA-4854, described in WO 04/072235 or US-A 2006-059590); Event MON88302 (oilseed rape, herbicide tolerance, deposited as PTA-10955, described in WO 2011/153186), Event MON88701 (cotton, herbicide tolerance, deposited as PTA-11754, described in WO 2012/134808), Event MON89034 (corn, insect control, deposited as ATCC PTA-7455, described in WO 07/140256 or US-A 2008-260932); Event MON89788 (soybean, herbicide tolerance, deposited as ATCC PTA-6708, described in US-A 2006-282915 or WO 06/130436); Event MS11 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-850 or PTA-2485, described in WO 01/031042); Event MS8 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO 01/041558 or US-A 2003-188347); Event NK603 (corn, herbicide tolerance, deposited as ATCC PTA-2478, described in US-A 2007-292854); Event PE-7 (rice, insect control, not deposited, described in WO 08/114282); Event RF3 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO 01/041558 or US-A 2003-188347); Event RT73 (oilseed rape, herbicide tolerance, not deposited, described in WO 02/036831 or US-A 2008-070260); Event SYHT0H2 / SYN-000H2-5 (soybean, herbicide tolerance, deposited as PTA-11226, described in WO 2012/082548), Event T227-1 (sugar beet, herbicide tolerance, not deposited, described in WO 02/44407 or US-A 2009-265817); Event T25 (corn, herbicide tolerance, not deposited, described in US-A 2001-029014 or WO 01/051654); Event T304-40 (cotton, insect control - herbicide tolerance, deposited as ATCC PTA-8171, described in US-A 2010-077501 or WO 08/122406); Event T342-142 (cotton, insect control, not deposited, described in WO 06/128568); Event TC1507 (corn, insect control - herbicide tolerance, not deposited, described in US-A 2005-039226 or WO 04/099447); Event VIP1034 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-3925., described in WO 03/052073), Event 32316 (corn, insect control-herbicide tolerance, deposited as PTA-11507, described in WO 11/084632), Event 4114 (corn, insect control-herbicide tolerance, deposited as PTA-11506, described in WO 11/084621), event EE-GM3 / FG72 (soybean, herbicide tolerance, ATCC Accession N° PTA-11041, WO 2011/063413A2), event DAS-68416-4 (soybean, herbicide tolerance, ATCC Accession N° PTA-10442, WO2 011/066360A1),

event DAS-68416-4 (soybean, herbicide tolerance, ATCC Accession N° PTA-10442, WO 2011/066384A1), event DP-040416-8 (corn, insect control, ATCC Accession N° PTA-11508, WO 2011/075593A1), event DP-043A47-3 (corn, insect control, ATCC Accession N° PTA-11509, WO 2011/075595A1), event DP-004114-3 (corn, insect control, ATCC Accession N° PTA-11506, WO 2011/084621A1), event DP-032316-8 (corn, insect control, ATCC Accession N° PTA-11507, WO 2011/084632A1), event MON-88302-9 (oilseed rape, herbicide tolerance, ATCC Accession N° PTA-10955, WO 2011/153186A1), event DAS-21606-3 (soybean, herbicide tolerance, ATCC Accession No. PTA-11028, WO 2012/033794A2), event MON-87712-4 (soybean, quality trait, ATCC Accession N°. PTA-10296, WO 2012/051199A2), event DAS-44406-6 (soybean, stacked herbicide tolerance, ATCC Accession N°. PTA-11336, WO 2012/075426A1), event DAS-14536-7 (soybean, stacked herbicide tolerance, ATCC Accession N°. PTA-11335, WO 2012/075429A1), event SYN-000H2-5 (soybean, herbicide tolerance, ATCC Accession N°. PTA-11226, WO 2012/082548A2), event DP-061061-7 (oilseed rape, herbicide tolerance, no deposit N° available, WO 2012071039A1), event DP-073496-4 (oilseed rape, herbicide tolerance, no deposit N° available, US2012131692), event 8264.44.06.1 (soybean, stacked herbicide tolerance, Accession N° PTA-11336, WO 2012075426A2), event 8291.45.36.2 (soybean, stacked herbicide tolerance, Accession N°. PTA-11335, WO 2012075429A2), event SYHT0H2 (soybean, ATCC Accession N°. PTA-11226, WO 2012/082548A2), event MON88701 (cotton, ATCC Accession N° PTA-11754, WO 2012/134808A1), event KK179-2 (alfalfa, ATCC Accession N° PTA-11833, WO2013003558A1), event pDAB8264.42.32.1 (soybean, stacked herbicide tolerance, ATCC Accession N° PTA-11993, WO 2013010094A1), event MZDT09Y (corn, ATCC Accession N° PTA-13025, WO 2013012775A1), event KK179-2 (alfalfa, ATCC Accession N° PTA-11833, WO2013003558A1), event pDAB8264.42.32.1 (soybean, stacked herbicide tolerance, ATCC Accession N° PTA-1 1993, WO2013010094A1), event MZDT09Y (corn, ATCC Accession N° PTA-13025, WO2013012775A1), event VCO-01981-5 (corn, herbicide tolerance, NCIMB Accession N° 41842, WO2013014241A1), event DAS-81419-2 X DAS-68416-4 (soybean stacked insect resistance and herbicide tolerance, ATCC Accession N° PTA- 10442, WO2013016516A1), event DAS-81419-2 (soybean stacked insect resistance and herbicide tolerance, ATCC Accession N° PTA-12006, WO2013016527A1), event HCEM485 (corn, herbicide tolerance, ATCC Accession N° PTA-12014, WO2013025400A1), event pDAB4468.18.07.1 (cotton, herbicide tolerance, ATCC Accession N° PTA-12456, WO2013112525A2), event pDAB4468.19.10.3 (cotton, herbicide tolerance, ATCC Accession N° PTA-12457, WO2013112527A1).

Crop protection – types of treatment

The treatment of the plants and plant parts with the compounds of the formula (I) is carried out directly or by action on their surroundings, habitat or storage space using customary treatment methods, for example by dipping, spraying, atomizing, irrigating, evaporating, dusting, fogging, broadcasting, foaming, painting, spreading-on, injecting, watering (drenching), drip irrigating and, in the case of

propagation material, in particular in the case of seed, furthermore as a powder for dry seed treatment, a solution for liquid seed treatment, a water-soluble powder for slurry treatment, by incrusting, by coating with one or more coats, etc. It is furthermore possible to apply the compounds of the formula (I) by the ultra-low volume method or to inject the application form or the compound of the formula (I) itself into the soil.

A preferred direct treatment of the plants is foliar application, i.e. the compounds of the formula (I) are applied to the foliage, where treatment frequency and the application rate should be adjusted according to the level of infestation with the harmful microorganism in question.

In the case of systemically active compounds, the compounds of the formula (I) also access the plants via the root system. The plants are then treated by the action of the compounds of the formula (I) on the habitat of the plant. This may be done, for example, by drenching, or by mixing into the soil or the nutrient solution, i.e. the locus of the plant (e.g. soil or hydroponic systems) is impregnated with a liquid form of the compounds of the formula (I), or by soil application, i.e. the compounds of the formula (I) according to the invention are introduced in solid form (e.g. in the form of granules) into the locus of the plants. In the case of paddy rice crops, this can also be done by metering the compound of the formula (I) in a solid application form (for example as granules) into a flooded paddy field.

Application Rates and Timing

When using the compounds according to the invention as fungicides, the application rates can be varied within a relatively wide range, depending on the kind of application. The application rate of the compounds according to the invention is

- in the case of treatment of plant parts, for example leaves: from 0.1 to 10 000 g/ha, preferably from 10 to 1000 g/ha, more preferably from 10 to 800 g/ha, even more preferably from 50 to 300 g/ha (in the case of application by watering or dripping, it is even possible to reduce the application rate, especially when inert substrates such as rockwool or perlite are used);

- in the case of seed treatment: from 2 to 200 g per 100 kg of seed, preferably from 3 to 150 g per 100 kg of seed, more preferably from 2.5 to 25 g per 100 kg of seed, even more preferably from 2.5 to 12.5 g per 100 kg of seed;

- in the case of soil treatment: from 0.1 to 10 000 g/ha, preferably from 1 to 5000 g/ha.

These application rates are merely by way of example and are not limiting for the purposes of the invention.

The compounds according to the invention can thus be used to protect plants from attack by the pathogens mentioned for a certain period of time after treatment. The period for which protection is provided extends generally for 1 to 28 days, preferably for 1 to 14 days, more preferably for 1 to 10 days, most preferably for 1 to 7 days, after the treatment of the plants with the active ingredients, or for up to 200 days after a seed treatment.

Mycotoxins

In addition, the inventive treatment can reduce the mycotoxin content in the harvested material and the foods and feeds prepared therefrom. Mycotoxins include particularly, but not exclusively, the following: deoxynivalenol (DON), nivalenol, 15-Ac-DON, 3-Ac-DON, T2- and HT2-toxin, fumonisins, zearalenon, moniliformin, fusarin, diaceotoxyscirpenol (DAS), beauvericin, enniatin, fusaroproliferin, fusarenol, ochratoxins, patulin, ergot alkaloids and aflatoxins which can be produced, for example, by the following fungi: Fusarium spec., such as F. acuminatum, F. asiaticum, F. avenaceum, F. crookwellense, F. culmorum, F. graminearum (Gibberella zeae), F. equiseti, F. fujikoroi, F. musarum, F. oxysporum, F. proliferatum, F. poae, F. pseudograminearum, F. sam¬bucinum, F. scirpi, F. semitectum, F. solani, F. sporotrichoides, F. langsethiae, F. subglutinans, F. tricinctum, F. verticillioides etc., and also by Aspergillus spec., such as A. flavus, A. parasiticus, A. nomius, A. ochraceus, A. clavatus, A. terreus, A. versicolor, Penicillium spec., such as P. verrucosum, P. viridicatum, P. citrinum, P. expansum, P. claviforme, P. roqueforti, Claviceps spec., such as C. purpurea, C. fusiformis, C. paspali, C. africana, Stachybotrys spec. and others.

Material Protection

The compounds according to the invention can also be used in the protection of materials, for protection of industrial materials against attack and destruction by unwanted microorganisms, for example fungi, and insects.

In addition, the inventive compoundscan be used as antifouling compositions, alone or in combinations with other active ingredients.

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

Industrial materials within the scope of the present invention preferably include adhesives, sizes, paper and card, leather, wood, paints, cooling lubricants and heat transfer fluids, more preferably wood.

The compoundsaccording to the invention may prevent adverse effects, such as rotting, decay, discoloration, decoloration or formation of mould.

In the case of treatment of wood the compounds/compositions according to the invention may also be used against fungal diseases liable to grow on or inside timber. The term "timber" means all types of species of wood, and all types of working of this wood intended for construction, for example solid wood, high density wood, laminated wood, and plywood. The method for treating timber according to the invention mainly consists in contacting one or more compounds according to the invention or a compoundsaccording to the invention; this includes for example direct application, spraying, dipping, injection or any other suitable means.

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

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

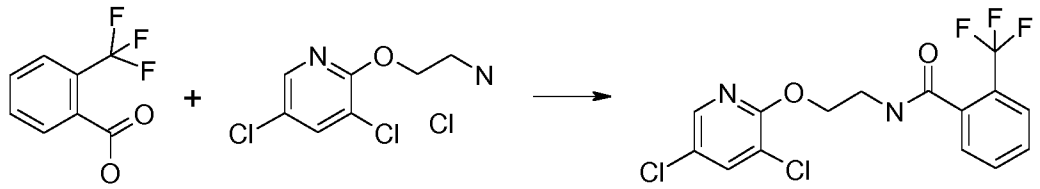
Microorganisms capable of degrading or altering the industrial materials include, for example, bacteria, fungi, yeasts, algae and slime organisms. The compoundsaccording to the invention preferably act against fungi, especially moulds, wood-discoloring and wood-destroying fungi (Ascomycetes, Basidiomycetes, Deuteromycetes and Zygomycetes), and against slime organisms and algae. Examples include microorganisms of the following genera: Alternaria, such as Alternaria tenuis; Aspergillus, such as Aspergillus niger; Chaetomium, such as Chaetomium globosum; Coniophora, such as Coniophora puetana; Lentinus, such as Lentinus tigrinus; Penicillium, such as Penicillium glaucum; Polyporus, such as Polyporus versicolor; Aureobasidium, such as Aureobasidium pullulans; Sclerophoma, such as Sclerophoma pityophila; Trichoderma, such as Trichoderma viride; Ophiostoma spp., Ceratocystis spp., Humicola spp., Petriella spp., Trichurus spp., Coriolus spp., Gloeophyllum spp., Pleurotus spp., Poria

spp., Serpula spp. and Tyromyces spp., Cladosporium spp., Paecilomyces spp. Mucor spp., Escherichia, such as Escherichia coli; Pseudomonas, such as Pseudomonas aeruginosa; Staphylococcus, such as Staphylococcus aureus, Candida spp. and Saccharomyces spp., such as Saccharomyces cerevisae.

The Use and Synthesis Examples which follow illustrate the invention without limiting it.

Preparation examples:

Example 1-20



76 mg (0.4 mmol) of 2-(trifluoromethyl)benzoic acid, 107.2 mg (0.44 mmol) of 2-[(3,5-dichloropyridin-2-yl)oxy]ethanamine (hydrochloride), 30.6 mg (0.2 mmol) of 1-hydroxybenzotriazole (HOBt), 24.4 mg (0.02 mmol) of DMAP, 76.7 mg (0.4 mmol) of EDC hydrochloride and 51.7 mg (0.4 mmol) of diisopropylethylamine are dissolved in 10 ml of dichloromethane, and the solution is stirred at room temperature for 16 h. After the reaction has ended, 10 ml of water are added, the organic phase is separated off and the aqueous phase is re-extracted with 5 ml of dichloromethane. The dichloromethane phases are filtered through sodium sulphate/silica gel cartridges, the solvent is evaporated and the residue is separated by preparative HPLC.

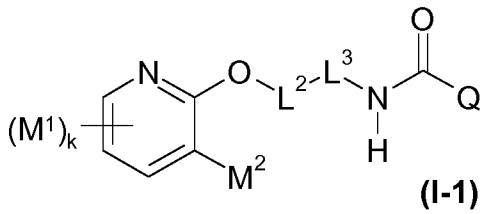
Yield: 107 mg (70.6% of theory), colourless solid.

^{1}H-NMR (d6-DMSO): δ [ppm], 8.70 (t, NH), 8.22 (s, 1H), 8.18 (d, 1H), 7.78 – 7.49 (m, 4H), 4.46 (t, 2H), 3.65 – 3.61 (q, 2H).

The examples listed in the table 1 below can be prepared in the same manner.

The compounds for the formula (I-1) described in Table 1 are likewise preferred compounds which are used in experiments showing activity in controlling harmful microorganisms.

Table 1



(I-1)

Number	Q	M^1	M^2	L^2	L^3
1-1	2-(trifluoromethyl)phenyl	5-CF3	Cl	CH2	CH2
1-2	2-(difluoromethyl)phenyl	5-CF3	Cl	CH2	CH2
1-3	3-chloro-2-pyridyl	5-CF3	Cl	CH2	CH2
1-4	2-(trifluoromethyl)phenyl	5-CF3	Cl	CH2	CH(CH3)
1-5	2-fluorophenyl	H	Cl	CH2	CH2
1-6	2-chlorophenyl	H	Cl	CH2	CH2
1-7	2-bromophenyl	H	Cl	CH2	CH2
1-8	2-iodophenyl	H	Cl	CH2	CH2
1-9	2,6-difluorophenyl	H	Cl	CH2	CH2
1-10	2-(trifluoromethyl)phenyl	H	Cl	CH2	CH2
1-11	2-chloro-3-pyridyl	H	Cl	CH2	CH2
1-12	3-iodothien-2-yl	H	Cl	CH2	CH2
1-13	3-chlorothien-2-yl	H	Cl	CH2	CH2
1-14	3-bromofuran-2-yl	H	Cl	CH2	CH2
1-15	2-fluorophenyl	5-Cl	Cl	CH2	CH2
1-16	2-chlorophenyl	5-Cl	Cl	CH2	CH2
1-17	2-bromophenyl	5-Cl	Cl	CH2	CH2
1-18	2-iodophenyl	5-Cl	Cl	CH2	CH2
1-19	2,6-difluorophenyl	5-Cl	Cl	CH2	CH2
1-20	2-(trifluoromethyl)phenyl	5-Cl	Cl	CH2	CH2
1-21	2-chloro-3-pyridyl	5-Cl	Cl	CH2	CH2
1-22	3-iodothien-2-yl	5-Cl	Cl	CH2	CH2
1-23	3-chlorothien-2-yl	5-Cl	Cl	CH2	CH2
1-24	3-bromofuran-2-yl	5-Cl	Cl	CH2	CH2
1-25	2-(trifluoromethyl)phenyl	5-CF3	Cl	CH(CH3)	CH2
1-26	2-chlorophenyl	5-CF3	Cl	CH2	CH2
1-27	2-bromophenyl	5-CF3	Cl	CH2	CH2

Number	Q	M^1	M^2	L^2	L^3
1-28	2-iodophenyl	5-CF3	Cl	CH2	CH2
1-29	2-methylphenyl	5-CF3	Cl	CH2	CH2
1-30	2-(trifluoromethyl)phenyl	5-CF3	Cl	CH(cPr)	CH2
1-31	2-fluorophenyl	5-Cl	H	CH2	CH2
1-32	2-chlorophenyl	5-Cl	H	CH2	CH2
1-33	2-bromophenyl	5-Cl	H	CH2	CH2
1-34	2-iodophenyl	5-Cl	H	CH2	CH2
1-35	2,6-difluorophenyl	5-Cl	H	CH2	CH2
1-36	2-(trifluoromethyl)phenyl	5-Cl	H	CH2	CH2
1-37	2-chloro-3-pyridyl	5-Cl	H	CH2	CH2
1-38	3-iodothien-2-yl	5-Cl	H	CH2	CH2
1-39	3-chlorothien-2-yl	5-Cl	H	CH2	CH2
1-40	3-bromofuran-2-yl	5-Cl	H	CH2	CH2
1-41	2-fluorophenyl	5-CF3	H	CH2	CH2
1-42	2-chlorophenyl	5-CF3	H	CH2	CH2
1-43	2-bromophenyl	5-CF3	H	CH2	CH2
1-44	2-iodophenyl	5-CF3	H	CH2	CH2
1-45	2,6-difluorophenyl	5-CF3	H	CH2	CH2
1-46	2-(trifluoromethyl)phenyl	5-CF3	H	CH2	CH2
1-47	2-chloro-3-pyridyl	5-CF3	H	CH2	CH2
1-48	3-iodothien-2-yl	5-CF3	H	CH2	CH2
1-49	3-chlorothien-2-yl	5-CF3	H	CH2	CH2
1-50	3-bromofuran-2-yl	5-CF3	H	CH2	CH2
1-51	2-fluorophenyl	5-CF3	Cl	CH2	CH2
1-52	2,6-difluorophenyl	5-CF3	Cl	CH2	CH2
1-53	2-nitrophenyl	5-CF3	Cl	CH2	CH2
1-54	2-chloro-3-pyridyl	H	Cl	CH2	CH2
1-55	3-chloro-2-thienyl	H	Cl	CH2	CH2
1-56	3-bromofuran-2-yl	5-CF3	Cl	CH2	CH2
1-57	2-(trifluoromethyl)-3-pyridyl	5-CF3	H	CH2	CH2
1-58	2-(trifluoromethyl)-3-pyridyl	H	Cl	CH2	CH2
1-59	2-(trifluoromethyl)-5-chloro-3-pyridyl	5-CF3	Cl	CH2	CH2
1-60	2-(trifluoromethyl)-5-chloro-3-pyridyl	5-CF3	H	CH2	CH2
1-61	2-(trifluoromethyl)-5-chloro-3-pyridyl	H	Cl	CH2	CH2
1-62	2-chloro-4-(trifluormethyl)-3-pyridyl	H	Cl	CH2	CH2

Number	Q	M^1	M^2	L^2	L^3
1-63	2-(trifluoromethyl)-3-pyridyl	5-CF3	Cl	CH2	CH2
1-64	2-chloro-4-(trifluormethyl)-3-pyridyl	5-CF3	H	CH2	CH2
1-65	2-nitrophenyl	H	Cl	CH2	C(CH3)(CH2CH3)
1-66	2-nitrophenyl	H	CF3	CH2	CH2
1-67	2-nitrophenyl	H	F	CH2	CH2
1-68	2-nitrophenyl	H	CF3	CH2	C(CH3)2
1-69	2-nitrophenyl	Cl	Cl	CH2	C(CH3)2
1-70	2-(trifluoromethyl)-3-pyridyl	H	F	CH2	CH2
1-71	2-(trifluoromethyl)-3-pyridyl	5-CF3	H	CH2	C(CH3)2
1-72	2-nitrophenyl	H	Br	CH2	C(CH3)2
1-73	2-(trifluoromethyl)-3-pyridyl	H	Cl	CH2	C(CH3)(CH2CH3)
1-74	2-(trifluoromethyl)-3-pyridyl	H	CF3	CH2	CH2
1-75	2-(trifluoromethyl)-3-pyridyl	H	Br	CH2	C(CH3)2
1-76	2-(trifluoromethyl)-3-pyridyl	H	CF3	CH2	C(CH3)2
1-77	2-(trifluoromethyl)-3-pyridyl	Cl	Cl	CH2	C(CH3)2
1-78	2-(trifluoromethyl)phenyl	5-CF3	H	CH2	C(CH3)2
1-79	2-(trifluoromethyl)phenyl	H	F	CH2	CH2
1-80	2-(trifluoromethyl)phenyl	H	Cl	CH2	C(CH3)(CH2CH3)
1-81	2-(trifluoromethyl)phenyl	H	CF3	CH2	CH2
1-82	2-(trifluoromethyl)phenyl	Cl	Cl	CH2	C(CH3)2
1-83	2-(trifluoromethyl)phenyl	H	Br	CH2	C(CH3)2
1-84	2,6-difluorophenyl	5-CF3	H	CH2	C(CH3)2
1-85	2,6-difluorophenyl	H	F	CH2	CH2
1-86	2,6-difluorophenyl	H	CF3	CH2	CH2
1-87	2,6-difluorophenyl	H	Cl	CH2	C(CH3)(CH2CH3)
1-88	2,6-difluorophenyl	Cl	Cl	CH2	C(CH3)2
1-89	2,6-difluorophenyl	H	Br	CH2	C(CH3)2
1-90	2-nitrophenyl	5-CF3	H	CH2	C(CH3)2
1-91	2-(trifluoromethylsulphanyl)phenyl	5-CF3	Cl	CH2	CH2
1-92	2-(trifluoromethylsulphanyl)phenyl	5-CF3	H	CH2	CH2
1-93	2-(trifluoromethylsulphanyl)phenyl	H	CF3	CH2	CH2
1-94	2-(trifluoromethylsulphanyl)phenyl	5-CF3	H	CH2	C(CH3)2
1-95	2-(trifluoromethylsulphanyl)phenyl	H	Cl	CH2	CH2
1-96	2-(trifluoromethylsulphanyl)-3-pyridyl	5-CF3	Cl	CH2	CH2
1-97	2-(trifluoromethylsulphonyl)phenyl	5-CF3	Cl	CH2	CH2

Number	Q	M^1	M^2	L^2	L^3
1-98	2-(trifluoromethylsulphonyl)phenyl	H	Cl	CH2	CH2
1-99	2-(trifluoromethylsulphonyl)phenyl	H	CF3	CH2	CH2
1-100	2-(trifluoromethylsulphonyl)-3-pyridyl	5-CF3	Cl	CH2	CH2
1-101	2-(trifluoromethoxy)-3-pyridyl	H	CF3	CH2	CH2
1-102	2-(trifluoromethoxy)-3-pyridyl	5-CF3	H	CH2	C(CH3)2
1-103	2-(trifluoromethoxy)-3-pyridyl	H	Cl	CH2	CH2
1-104	2-(trifluoromethoxy)-3-pyridyl	5-CF3	H	CH2	CH2
1-105	2-(trifluoromethoxy)-3-pyridyl	5-CF3	Cl	CH2	CH2
1-106	2-(difluoromethoxy)-3-pyridyl	5-CF3	Cl	CH2	CH2
1-107	2-fluorophenyl	4-CN	H	CH2	CH2
1-108	2-chlorophenyl	4-CN	H	CH2	CH2
1-109	2-bromophenyl	4-CN	H	CH2	CH2
1-110	2-iodophenyl	4-CN	H	CH2	CH2
1-111	2,6-difluorophenyl	4-CN	H	CH2	CH2
1-112	2-(trifluoromethyl)phenyl	4-CN	H	CH2	CH2
1-113	2-chloro-3-pyridyl	4-CN	H	CH2	CH2
1-114	2-(trifluoromethyl)-3-pyridyl	4-CN	H	CH2	CH2
1-115	2-(trifluoromethoxy)-3-pyridyl	4-CN	H	CH2	CH2
1-116	2-(trifluoromethyl)phenyl	4-Cl	H	CH2	CH2
1-117	2-(trifluoromethyl)-3-pyridyl	4-Cl	H	CH2	CH2
1-118	2,6-difluorophenyl	4-Cl	H	CH2	CH2
1-119	2-iodophenyl	4-Cl	H	CH2	CH2
1-120	2-fluorophenyl	4-CF3	H	CH2	CH2
1-121	2-chlorophenyl	4-CF3	H	CH2	CH2
1-122	2-bromophenyl	4-CF3	H	CH2	CH2
1-123	2-iodophenyl	4-CF3	H	CH2	CH2
1-124	2,6-difluorophenyl	4-CF3	H	CH2	CH2
1-125	2-(trifluoromethyl)phenyl	4-CF3	H	CH2	CH2
1-126	2-chloro-3-pyridyl	4-CF3	H	CH2	CH2
1-127	2-(trifluoromethyl)-3-pyridyl	4-CF3	H	CH2	CH2
1-128	2-(trifluoromethoxy)-3-pyridyl	4-CF3	H	CH2	CH2
1-129	2-(trifluoromethylsulphanyl)-3-pyridyl	4-CF3	H	CH2	CH2
1-130	2-(trifluoromethylsulphanyl)phenyl	4-CF3	H	CH2	CH2
1-131	2-fluorophenyl	5-F	F	CH2	CH2
1-132	2-bromophenyl	5-F	F	CH2	CH2

Number	Q	M^1	M^2	L^2	L^3
1-133	2,6-difluorophenyl	5-F	F	CH2	CH2
1-134	2-(trifluoromethyl)phenyl	5-F	F	CH2	CH2
1-135	2-chloro-3-pyridyl	5-F	F	CH2	CH2
1-136	2-(trifluoromethyl)-3-pyridyl	5-F	F	CH2	CH2
1-137	2-(trifluoromethoxy)-3-pyridyl	5-F	F	CH2	CH2
1-138	2-(trifluoromethylsulphanyl)-3-pyridyl	5-F	F	CH2	CH2
1-139	2-(trifluoromethylsulphanyl)phenyl	5-F	F	CH2	CH2
1-140	2,6-bis(trifluoromethyl)phenyl	5-F	F	CH2	CH2
1-141	2-iodophenyl	5-F	F	CH2	CH2
1-142	2,6-difluorophenyl	6-CF3	H	CH2	CH2
1-143	2-(trifluoromethylsulphanyl)phenyl	6-CF3	H	CH2	CH2
1-144	2-bromo-3-pyridyl	6-CF3	H	CH2	CH2
1-145	2-(trifluoromethyl)phenyl	6-CF3	H	CH2	CH2
1-146	2-(trifluoromethylsulphanyl)-3-pyridyl	6-CF3	H	CH2	CH2
1-147	2-(trifluoromethyl)-3-pyridyl	6-CF3	H	CH2	CH2
1-148	2-bromo-3-pyridyl	H	NO2	CH2	CH2
1-149	2-(trifluoromethyl)phenyl	H	NO2	CH2	CH2
1-150	2,6-difluorophenyl	H	NO2	CH2	CH2
1-151	2-(trifluoromethylsulphanyl)phenyl	H	NO2	CH2	CH2
1-152	2-(trifluoromethylsulphanyl)-3-pyridyl	H	NO2	CH2	CH2
1-153	2,5-dichloro-3-thienyl	5-CF3	H	CH2	CH2
1-154	2,5-dichloro-3-thienyl	5-CF3	Cl	CH2	CH2
1-155	2-methoxy-3-pyridyl	5-CF3	Cl	CH2	CH2
1-156	2-chlorophenyl	5-CF3	Cl	CH(CH3)	CH2
1-157	2-(difluoromethyl)phenyl	5-CF3	Cl	CH2	CH(CH3)
1-158	2-(difluoromethyl)phenyl	5-CF3	Cl	CH2	C(CH3)2
1-159	2-(difluoromethyl)phenyl	5-CF3	Cl	CH(CH3)	CH2
1-160	2-nitrophenyl	5-CF3	Cl	CH2	CH(CH3)
1-161	2-nitrophenyl	5-CF3	Cl	CH2	C(CH3)2
1-162	2-nitrophenyl	5-CF3	Cl	CH(CH3)	CH2
1-163	2-fluorophenyl	5-CF3	Cl	CH2	CH(CH3)
1-164	2-(trifluoromethyl)phenyl	5-CN	F	CH2	CH2
1-165	2-bromophenyl	5-CF3	Cl	CH2	1,1-cPr
1-166	2-(trifluoromethoxy)-3-pyridyl	5-CF3	Cl	CH2	1,1-cPr
1-167	2,6-difluorophenyl	5-CF3	Cl	CH2	1,1-cPr

Number	Q	M^1	M^2	L^2	L^3
1-168	2,6-difluorophenyl	5-CF3	H	CH2	1,1-cPr
1-169	2-(trifluoromethyl)phenyl	5-CF3	Cl	CH2	1,1-cPr
1-170	2-iodophenyl	5-CF3	Cl	CH2	1,1-cPr
1-171	2-bromo-3-pyridyl	5-CF3	Cl	CH2	1,1-cPr
1-172	2-chloro-3-pyridyl	5-CF3	Cl	CH2	1,1-cPr
1-173	2-(trifluoromethyl)phenyl	5-CF3	H	CH2	1,1-cPr
1-174	2-iodophenyl	5-CF3	H	CH2	1,1-cPr
1-175	2-bromo-3-pyridyl	5-CF3	H	CH2	1,1-cPr
1-176	2-bromophenyl	5-CF3	H	CH2	1,1-cPr
1-177	2-chloro-3-pyridyl	5-CF3	H	CH2	1,1-cPr
1-178	2-(trifluoromethyl)-2-pyridyl	5-CF3	H	CH2	1,1-cPr
1-179	2-(trifluoromethyl)-2-pyridyl	5-CF3	Cl	CH2	1,1-cPr
1-180	2-(trifluoromethoxy)-3-pyridyl	5-CF3	H	CH2	1,1-cPr
1-181	2-nitrophenyl	5-CN	H	CH2	CH2
1-182	2-(trifluoromethyl)-2-pyridyl	5-CN	F	CH2	CH2
1-183	2-nitrophenyl	5-CN	F	CH2	CH2
1-184	2-chloro-3-pyridyl	5-CN	F	CH2	CH2
1-185	2-iodophenyl	5-CN	H	CH2	CH2
1-186	2-bromo-3-pyridyl	5-CN	F	CH2	CH2
1-187	2-iodophenyl	5-CN	F	CH2	CH2
1-188	2,6-difluorophenyl	5-CN	H	CH2	CH2
1-189	2,6-difluorophenyl	5-CN	F	CH2	CH2
1-190	2-(trifluoromethoxy)-3-pyridyl	5-CN	H	CH2	CH2
1-191	2-bromophenyl	5-CN	H	CH2	CH2
1-192	2-bromophenyl	5-CN	F	CH2	CH2
1-193	2-fluorophenyl	5-CN	H	CH2	CH2
1-194	2-fluorophenyl	5-CN	F	CH2	CH2
1-195	2-nitrophenyl	5-CF3	Cl	CH2	1,1-cPr
1-196	2-nitrophenyl	5-CF3	H	CH2	1,1-cPr
1-197	2-iodophenyl	5-CF3	Cl	CH(CH3)	CH2
1-198	2-(trifluoromethyl)-3-pyridyl	5-CF3	Cl	CH2	CH(CH3)
1-199	2-(trifluoromethyl)-3-pyridyl	5-CF3	Cl	CH2	C(CH3)2
1-200	2-(trifluoromethyl)-3-pyridyl	5-CF3	Cl	CH(CH3)	CH2
1-201	2-bromophenyl	5-CF3	Cl	CH2	CH(CH3)
1-202	2-bromophenyl	5-CF3	Cl	CH(CH3)	CH2

Number	Q	M^1	M^2	L^2	L^3
1-203	2-chlorophenyl	5-CF3	Cl	CH2	CH(CH3)
1-204	2,6-difluorophenyl	5-CF3	Cl	CH(CH3)	CH2
1-205	2-chloro-3-pyridyl	5-CF3	Cl	CH2	C(CH3)2
1-206	2-chloro-3-pyridyl	5-CF3	Cl	CH(CH3)	CH2
1-207	2-chloro-3-pyridyl	5-CF3	Cl	CH2	CH(CH3)
1-208	3-chloro-2-pyridyl	5-CF3	Cl	CH2	CH(CH3)
1-209	3-chloro-2-pyridyl	5-CF3	Cl	CH(CH3)	CH2
1-210	2-(trifluoromethylsulphanyl)-3-pyridyl	5-CF3	Cl	CH(CH3)	CH2
1-211	2-iodophenyl	5-CF3	Cl	CH2	CH(CH3)
1-212	2-iodophenyl	5-CF3	Cl	CH2	C(CH3)2

cPr means cyclopropyl.

^{1}H NMR data

The ^{1}H NMR data were determined with a Bruker Avance 400 equipped with a flow probe head (volume 60 µl), with tetramethylsilane as a reference (0.0) and the solvents CD_3CN, $CDCl_3$ or D_6-DMSO.

The NMR data for selected examples are listed either in conventional form (δ values, multiplet splitting, number of hydrogen atoms) or as NMR peak lists.

NMR peak list method

The ^{1}H NMR data of selected examples are stated in the form of ^{1}H NMR peak lists. For each signal peak, first the δ value in ppm and then the signal intensity in round brackets are listed. The δ value – signal intensity number pairs for different signal peaks are listed with separation from one another by semicolons.

The peak list for one example therefore takes the form of:

δ_1 (intensity$_1$); δ_2 (intensity$_2$);……..; δ_i (intensity$_i$);……; δ_n (intensity$_n$)

The intensity of sharp signals correlates with the height of the signals in a printed example of an NMR spectrum in cm and shows the true ratios of the signal intensities. In the case of broad signals, several peaks or the middle of the signal and their relative intensities may be shown in comparison to the most intense signal in the spectrum.

For calibration of the chemical shift of the ^{1}H NMR spectra we use tetramethylsilane and/or the chemical shift of the solvent, particularly in the case of spectra measured in DMSO. Therefore, the tetramethylsilane peak may but need not occur in the NMR peak lists.

The lists of the ^{1}H NMR peaks are similar to the conventional ^{1}H NMR printouts and thus usually contain all peaks listed in conventional NMR interpretations.

In addition, like conventional ^{1}H NMR printouts, they may show solvent signals, signals of stereoisomers of the target compounds, which likewise form part of the subject matter of the invention, and/or peaks of impurities.

In the reporting of compound signals in the delta range of solvents and/or water, our lists of ^{1}H NMR peaks show the usual solvent peaks, for example peaks of DMSO in DMSO-d_6 and the peak of water, which usually have a high intensity on average.

The peaks of stereoisomers of the target compounds and/or peaks of impurities usually have a lower intensity on average than the peaks of the target compounds (for example with a purity of > 90%).

Such stereoisomers and/or impurities may be typical of the particular preparation process. Their peaks can thus help to identify reproduction of our preparation process with reference to "by-product fingerprints".

An expert calculating the peaks of the target compounds by known methods (MestreC, ACD simulation, but also with empirically evaluated expected values) can, if required, isolate the peaks of the target compounds, optionally using additional intensity filters. This isolation would be similar to the relevant peak picking in conventional ^{1}H NMR interpretation.

Further details of 1H NMR peak lists can be found in Research Disclosure Database Number 564025.

Compound No. 1-1, solvent: [CD_3CN], spectrometer: 399.95MHz 8.4284 (6.38); 8.4257 (6.49); 8.0664 (7.14); 8.0618 (6.79); 7.7463 (4.17); 7.7269 (5.38); 7.6702 (1.71); 7.6528 (4.6); 7.6515 (4.61); 7.6345 (3.86); 7.6125 (3.65); 7.5936 (4.22); 7.5758 (1.45); 7.5747 (1.44); 7.4977 (5.11); 7.4792 (4.09); 7.0749 (1.4); 4.6125 (9); 4.5988 (16); 4.5851 (9.66); 3.7802 (4.97); 3.7659 (12.33); 3.7521 (11.66); 3.7381 (4.63); 2.1732 (9.66); 2.1635 (17.44); 1.9645 (0.67); 1.9583 (0.92); 1.9526 (8.01); 1.9465 (15.25); 1.9403 (21.55); 1.9341 (14.99); 1.9279 (7.75); 1.1711 (0.37); 1.0063 (0.37); 0.008 (0.36); -0.0002 (10.83); -0.0085 (0.43)

Compound No. 1-4, solvent: [CD3CN], spectrometer: 399.95MHz 8.4 (0.65); 8.3973 (0.67); 8.3819 (0.4); 8.0603 (0.75); 8.0549 (0.72); 7.4706 (0.54); 7.4573 (0.44); 7.4502 (1.05); 7.2413 (0.6); 7.2352 (0.64); 7.2201 (0.41); 7.2138 (0.39); 6.9853 (0.69); 5.7284 (1.61); 5.2623 (0.38); 4.8564 (5.11); 4.6238 (0.39); 4.6127 (0.4); 4.6012 (0.49); 4.1401 (0.39); 4.1287 (0.39); 4.1173 (0.36); 4.0177 (0.48); 2.1329 (19.61); 1.9638 (1.92); 1.9578 (3.13); 1.9519 (13.39); 1.9457 (23.31); 1.9396 (30.3); 1.9334 (20.84); 1.9272 (10.7); 1.3864 (0.7); 1.3714 (12.25); 1.3631 (0.66); 1.3571 (0.62); 1.3404 (13.77); 1.2851 (16); 1.2765 (6.8); -0.0002 (1.15)
Compound No. 1-8, solvent: [DMSO], spectrometer: 399.95MHz 8.5946 (1.92); 8.581 (3.66); 8.5673 (1.93); 8.1423 (6.72); 8.1382 (7.16); 8.1301 (7.07); 8.126 (7.09); 7.9081 (6.71); 7.904 (6.68); 7.8982 (0.58); 7.8889 (7.4); 7.8848 (7.24); 7.8803 (6.62); 7.878 (6.78); 7.8605 (6.79); 7.8582 (6.69); 7.4538 (2.91); 7.4512 (3.01); 7.4351 (6.91); 7.4324 (6.93); 7.4164 (4.56); 7.4137 (4.42); 7.3186 (6.45); 7.3145 (7.13); 7.2997 (5.2); 7.2955 (5.05); 7.1814 (3.87); 7.1772 (3.77); 7.1622 (5.67); 7.158 (5.41); 7.1432 (3.3); 7.1389 (3.06); 7.0512 (7.48); 7.039 (7.28); 7.032 (7.15); 7.0198 (7.05); 5.7563 (1.36); 4.5058 (7.03); 4.4909 (16); 4.476 (7.48); 3.6449 (3.68); 3.6303 (10.55); 3.6159 (10.24); 3.6011 (3.36); 3.3232 (54.71); 2.6752 (0.49); 2.6708 (0.64); 2.6661 (0.46); 2.524 (2.03); 2.5107 (37.32); 2.5062 (73.77); 2.5016 (96.79); 2.4971 (70.12); 2.4926 (33.56); 2.3328 (0.46); 2.3284 (0.63); 2.3237 (0.45); 1.9889 (0.55); 1.336 (0.75); 1.2496 (0.97); -0.0002 (3.84)
Compound No. 1-10, solvent: [DMSO], spectrometer: 399.95MHz 8.7155 (1.98); 8.702 (3.69); 8.6889 (1.96); 8.144 (6.72); 8.1399 (7.07); 8.1318 (7.05); 8.1277 (7); 7.9115 (6.74); 7.9075 (6.53); 7.8924 (7.17); 7.8882 (6.63); 7.7801 (4.83); 7.7606 (6.4); 7.7362 (2.1); 7.7176 (5.47); 7.699 (4); 7.6573 (3.85); 7.6381 (4.89); 7.6192 (1.81); 7.5103 (5.82); 7.4915 (4.87); 7.0541 (7.36); 7.0419 (7.18); 7.0349 (7.05); 7.0227 (6.95); 5.757 (2.59); 4.4825 (7.25); 4.4679 (16); 4.4533 (7.67); 3.6571 (3.83); 3.6427 (10.84); 3.6283 (10.5); 3.6139 (3.46); 3.3247 (50.54); 2.6756 (0.39); 2.671 (0.52); 2.6665 (0.38); 2.5243 (1.76); 2.5109 (31.68); 2.5065 (61.85); 2.502 (80.34); 2.4974 (58.04); 2.493 (27.81); 2.3332 (0.4); 2.3288 (0.51); 2.3243 (0.38); 1.9891 (0.46); 1.3366 (0.72); 1.2497 (0.91); -0.0002 (2.89)

Compound No. 1-11, solvent: [DMSO], spectrometer: 399.95MHz 8.823 (1.96); 8.8094 (3.58); 8.7962 (1.92); 8.4847 (0.37); 8.4708 (6.39); 8.4659 (6.69); 8.4587 (6.71); 8.4539 (6.51); 8.316 (0.5); 8.1423 (6.67); 8.1382 (7.3); 8.1301 (6.99); 8.126 (6.95); 8.1157 (0.58); 7.922 (0.37); 7.9126 (6.78); 7.9085 (6.69); 7.8934 (7.57); 7.8893 (6.78); 7.8795 (0.6); 7.8687 (6.56); 7.8638 (6.62); 7.8499 (7.54); 7.845 (7.37); 7.8247 (0.47); 7.6927 (0.37); 7.6743 (0.36); 7.521 (0.57); 7.5049 (7.6); 7.4929 (7.28); 7.4861 (6.75); 7.4741 (6.55); 7.055 (7.39); 7.0427 (7.2); 7.0358 (7.06); 7.0236 (6.87); 6.5738 (2.9); 4.5072 (7.47); 4.4929 (16); 4.4786 (7.88); 3.7336 (0.74); 3.7185 (0.47); 3.6769 (3.96); 3.6627 (11.19); 3.6485 (10.86); 3.6343 (3.62); 3.5788 (0.6); 3.5642 (0.49); 3.3225 (134.17); 2.6752 (1.15); 2.6707 (1.55); 2.6662 (1.11); 2.6616 (0.53); 2.5238 (5.54); 2.5105 (89.08); 2.5061 (173.3); 2.5016 (226.16); 2.4971 (163.99); 2.4926 (79.08); 2.3373 (0.57); 2.3329 (1.12); 2.3284 (1.49); 2.3239 (1.06); 2.3194 (0.5); 1.9888 (0.55); 1.3358 (0.52); 1.2983 (0.35); 1.2586 (0.56); 1.2493 (0.81); 1.235 (1.49); 1.1748 (0.34); -0.0002 (6.57)
Compound No. 1-13, solvent: [DMSO], spectrometer: 399.95MHz 8.3163 (0.6); 8.2175 (0.79); 8.204 (1.37); 8.1919 (0.76); 8.137 (0.45); 8.1268 (2.53); 8.1229 (2.55); 8.1147 (2.76); 8.1106 (2.44); 7.9085 (2.51); 7.9044 (2.34); 7.8893 (2.65); 7.8853 (2.37); 7.8425 (4.48); 7.8293 (4.62); 7.3365 (0.79); 7.333 (0.72); 7.182 (1.34); 7.1767 (0.78); 7.1477 (4.72); 7.1345 (4.52); 7.0507 (2.71); 7.0385 (2.67); 7.0315 (2.6); 7.0193 (2.49); 6.574 (2.18); 4.5135 (3.03); 4.499 (6.48); 4.4847 (3.17); 3.6937 (1.62); 3.6793 (4.63); 3.6651 (4.48); 3.6507 (1.48); 3.3228 (240.25); 2.6757 (1.66); 2.6713 (2.19); 2.6666 (1.54); 2.6624 (0.7); 2.5242 (8.37); 2.5109 (136.82); 2.5067 (256.87); 2.5022 (327.09); 2.4977 (233.46); 2.4934 (110.5); 2.3335 (1.67); 2.329 (2.19); 2.3244 (1.54); 1.3516 (0.87); 1.3362 (13.59); 1.2988 (1.08); 1.2591 (1.99); 1.2501 (16); 1.236 (2.12); 1.1878 (0.94); 1.1484 (0.41); 0.8544 (0.35); 0.0083 (0.35); 0.0003 (8.84)
Compound No. 1-15, solvent: [DMSO], spectrometer: 399.95MHz 8.4628 (2.84); 8.3169 (0.37); 8.207 (11.18); 8.2011 (15.18); 8.171 (14.45); 8.1651 (10.66); 7.6256 (2.56); 7.6211 (2.97); 7.6072 (4.99); 7.6025 (5.95); 7.5925 (0.74); 7.5876 (3.14); 7.5832 (3.12); 7.5523 (1.47); 7.5477 (1.4); 7.5391 (1.65); 7.5342 (3.27); 7.5312 (2.51); 7.5294 (2.4); 7.5271 (2.07); 7.5202 (2.63); 7.5185 (2.53); 7.5161 (2.52); 7.5133 (3.53); 7.5085 (1.94); 7.4999 (1.99); 7.4953 (1.72); 7.3788 (0.82); 7.3017 (4.26); 7.2916 (4.81); 7.2892 (4.64); 7.2806 (4.16); 7.2732 (10.06); 7.2537 (8.53); 4.4986 (7.3); 4.4841 (16); 4.4697 (7.79); 3.6787 (3.6); 3.6645 (10.28); 3.6502 (10.04); 3.6359 (3.36); 3.3253 (39.68); 2.6766 (0.37); 2.6721 (0.49); 2.6674 (0.36); 2.5254 (1.53); 2.512 (28.48); 2.5076 (56.26); 2.503 (73.42); 2.4984 (53.33); 2.494 (25.81); 2.3342 (0.34); 2.3298 (0.48); 2.3253 (0.35); 2.0612 (0.52); 2.0418 (0.5); 1.3368 (1.84); 1.3181 (0.36); 1.2729 (0.36); 1.2498 (2.21); 1.1881 (0.46); -0.0002 (2.5)

Compound No. 1-16, solvent: [DMSO], spectrometer: 399.95MHz 8.6294 (2.12); 8.616 (4.03); 8.6027 (2.13); 8.2196 (10.99); 8.2137 (14.01); 8.1748 (12.77); 8.169 (9.97); 7.493 (3.9); 7.4736 (8.74); 7.4722 (8.38); 7.455 (3.58); 7.4481 (4.25); 7.4397 (4.64); 7.4328 (6.58); 7.4289 (1.88); 7.4198 (2.42); 7.4129 (5.92); 7.398 (12.53); 7.3955 (11.71); 7.3923 (14.07); 7.3801 (4.62); 7.3768 (4.61); 7.3611 (1.17); 7.3579 (1.12); 5.7567 (0.94); 4.4947 (7.41); 4.4804 (16); 4.4661 (7.79); 3.6557 (3.91); 3.6415 (11.01); 3.6273 (10.66); 3.613 (3.54); 3.3238 (41.2); 2.6756 (0.44); 2.6711 (0.6); 2.6668 (0.43); 2.5243 (1.93); 2.511 (34.39); 2.5066 (67.44); 2.5021 (88); 2.4976 (64.27); 2.4932 (31.35); 2.3333 (0.4); 2.3288 (0.54); 2.3245 (0.39); 1.3364 (1.72); 1.2496 (2.1); 1.2345 (0.39); -0.0002 (2.65)
Compound No. 1-18, solvent: [DMSO], spectrometer: 399.95MHz 8.5901 (2.13); 8.5763 (4.19); 8.5625 (2.12); 8.2209 (12.78); 8.215 (16); 8.1723 (15.92); 8.1664 (12.64); 7.879 (6.65); 7.8767 (7.02); 7.8592 (7.27); 7.8569 (7.19); 7.4547 (3.16); 7.452 (3.27); 7.4359 (7.42); 7.4332 (7.5); 7.4172 (4.91); 7.4145 (4.78); 7.3149 (6.87); 7.3108 (7.62); 7.296 (5.6); 7.2918 (5.45); 7.1817 (4.36); 7.1775 (4.14); 7.1625 (6.05); 7.1583 (5.77); 7.1434 (3.64); 7.1392 (3.33); 5.7564 (0.34); 4.4968 (6.84); 4.4822 (15.38); 4.4677 (7.23); 3.6411 (3.61); 3.6268 (10.3); 3.6124 (9.99); 3.5979 (3.27); 3.3225 (68.56); 2.6753 (0.58); 2.6708 (0.81); 2.6662 (0.58); 2.5241 (2.63); 2.5193 (4.22); 2.5108 (45.29); 2.5063 (89.94); 2.5017 (118.6); 2.4971 (85.59); 2.4926 (40.71); 2.333 (0.57); 2.3284 (0.77); 2.3239 (0.56); 1.989 (0.48); 1.3359 (1.94); 1.2586 (0.36); 1.2495 (2.5); 1.2345 (0.4); -0.0002 (4.14)
Compound No. 1-20, solvent: [DMSO], spectrometer: 399.95MHz 8.7112 (1.85); 8.6977 (3.57); 8.6839 (1.84); 8.3161 (2.56); 8.2246 (12.63); 8.2187 (16); 8.1782 (15); 8.1723 (11.66); 7.7793 (4.55); 7.7599 (6.05); 7.7369 (1.97); 7.7195 (5.22); 7.7008 (3.79); 7.6586 (3.61); 7.6394 (4.62); 7.6204 (1.73); 7.5078 (5.53); 7.489 (4.66); 5.7564 (0.71); 4.4739 (6.53); 4.4595 (14.43); 4.4452 (6.92); 3.6534 (3.33); 3.6392 (9.44); 3.625 (9.18); 3.6107 (3.06); 3.3241 (92.23); 3.3003 (0.91); 2.6755 (0.54); 2.6711 (0.75); 2.6665 (0.55); 2.5244 (2.62); 2.5197 (4.12); 2.5111 (43.72); 2.5066 (87.05); 2.502 (114.72); 2.4974 (82.67); 2.4928 (39.27); 2.3334 (0.59); 2.3288 (0.78); 2.3242 (0.57); 1.3361 (1); 1.2496 (1.28); 0.008 (1.97); -0.0002 (55.4); -0.0086 (1.75)
Compound No. 1-21, solvent: [DMSO], spectrometer: 399.95MHz 8.8179 (2.16); 8.8042 (4.07); 8.7906 (2.12); 8.472 (7.01); 8.4672 (7.48); 8.46 (7.48); 8.4551 (7.33); 8.3156 (2.8); 8.2234 (12.42); 8.2175 (15.92); 8.1801 (16); 8.1742 (12.38); 7.8707 (7.31); 7.8658 (7.43); 7.8519 (8.38); 7.847 (7.92); 7.5064 (8.23); 7.4943 (8.01); 7.4875 (7.51); 7.4755 (7.32); 5.7562 (0.42); 4.4992 (7.32); 4.4851 (15.51); 4.471 (7.79); 3.6736 (3.81); 3.6596 (10.75); 3.6454 (10.46); 3.6313 (3.55); 3.3229 (204.99); 3.2992 (1.58); 2.6796 (0.5); 2.6753 (1.08); 2.6707 (1.52); 2.6663 (1.08); 2.6617 (0.52); 2.524 (4.78); 2.5107 (87.35); 2.5062 (173.27); 2.5017 (227.98); 2.4971 (166.85); 2.4927 (81.56); 2.3373 (0.57); 2.333 (1.15); 2.3285 (1.56); 2.3239 (1.14); 2.3195 (0.56); 1.3357 (0.39); 1.2586 (0.34); 1.2494 (0.51); 1.234 (0.33); 0.1459 (0.36); 0.0079 (3.21); -0.0002 (90.25); -0.0085 (3.42); -0.1497 (0.4)

Compound No. 1-22, solvent: [DMSO], spectrometer: 399.95MHz 8.3452 (2.08); 8.3315 (3.94); 8.3172 (2.07); 8.2057 (11.24); 8.1998 (14.92); 8.1932 (1.04); 8.166 (16); 8.1601 (11.87); 7.8415 (0.35); 7.8283 (0.35); 7.7404 (0.51); 7.7306 (0.35); 7.7099 (14); 7.6972 (14.54); 7.2166 (14.91); 7.2039 (14.09); 7.1463 (0.34); 5.7569 (0.6); 4.497 (6.57); 4.4827 (14.1); 4.4684 (6.79); 3.6621 (3.5); 3.6479 (9.66); 3.6336 (9.43); 3.6193 (3.28); 3.3246 (50.2); 2.6767 (0.39); 2.6721 (0.53); 2.6674 (0.37); 2.5254 (1.83); 2.5205 (2.99); 2.512 (31.02); 2.5076 (61.25); 2.503 (80.27); 2.4984 (57.89); 2.4939 (27.62); 2.3342 (0.39); 2.3297 (0.52); 2.3251 (0.37); 2.1006 (0.5); 2.0384 (0.43); 1.3365 (1.61); 1.2991 (0.52); 1.2588 (0.78); 1.2496 (1.93); 1.1878 (0.76); 0.008 (1.41); -0.0002 (38.07); -0.0085 (1.26)
Compound No. 1-27: 1H-NMR(400.0 MHz, CD3CN): δ = 8.427(4.6); 8.425(5.8); 8.422(5.9); 8.419(4.7); 8.064(6.4); 8.063(6.3); 8.058(6.4); 8.057(6.0); 7.619(4.0); 7.618(5.1); 7.617(5.2); 7.616(4.2); 7.599(4.5); 7.598(7.7); 7.596(4.6); 7.415(0.7); 7.413(0.6); 7.407(0.4); 7.396(5.2); 7.394(6.0); 7.391(6.8); 7.390(7.0); 7.382(15.8); 7.380(16.0); 7.372(1.5); 7.371(1.3); 7.346(0.7); 7.336(4.9); 7.326(3.4); 7.322(3.1); 7.316(4.2); 7.313(2.8); 7.306(2.8); 7.302(3.0); 7.293(2.3); 6.997(1.2); 4.635(10.0); 4.622(15.9); 4.608(10.7); 3.785(5.6); 3.770(12.2); 3.757(11.3); 3.747(0.8); 3.743(5.2); 2.134(13.5); 2.107(0.3); 1.964(3.4); 1.958(4.9); 1.952(22.8); 1.946(40.4); 1.940(53.6); 1.934(37.2); 1.927(19.2); 1.921(0.6); 1.768(0.3); 1.436(1.7); 1.372(0.6); 1.276(0.7); 0.000(1.1)
Compound No. 1-28: 1H-NMR(400.0 MHz, CD3CN): δ = 8.429(4.6); 8.426(5.7); 8.424(5.7); 8.421(4.4); 8.063(6.7); 8.057(6.4); 7.888(5.2); 7.885(5.2); 7.868(5.5); 7.865(5.4); 7.436(2.6); 7.433(2.5); 7.417(6.2); 7.415(5.9); 7.398(4.2); 7.396(4.0); 7.330(5.8); 7.326(6.3); 7.311(4.1); 7.307(4.0); 7.160(3.4); 7.155(3.2); 7.141(4.8); 7.136(4.5); 7.121(2.9); 7.117(2.6); 6.958(1.3); 4.640(9.4); 4.627(16.0); 4.613(10.0); 3.779(5.3); 3.764(12.1); 3.751(11.5); 3.737(4.9); 2.135(54.6); 2.120(0.7); 2.113(0.9); 2.107(1.2); 2.101(0.9); 2.095(0.4); 1.971(1.0); 1.964(10.7); 1.958(16.3); 1.952(71.6); 1.946(125.5); 1.940(164.4); 1.933(113.4); 1.927(58.1); 1.914(0.8); 1.780(0.4); 1.774(0.7); 1.768(1.0); 1.762(0.7); 1.756(0.3); 1.437(1.8); 1.372(0.9); 1.285(0.4); 1.277(1.1); 1.271(0.4); 1.222(0.4); 0.000(3.2)

Compound No. 1-32: 1H-NMR(400.0 MHz, DMSO): δ = 8.642(1.4); 8.629(2.7); 8.616(1.5); 8.316(1.8); 8.218(6.8); 8.217(7.1); 8.212(7.2); 8.210(6.9); 7.825(6.7); 7.818(6.4); 7.803(6.9); 7.796(6.8); 7.490(3.4); 7.488(2.6); 7.472(5.6); 7.471(6.9); 7.469(6.5); 7.452(3.4); 7.444(4.0); 7.437(4.1); 7.429(5.7); 7.425(1.7); 7.417(2.3); 7.410(3.9); 7.405(0.6); 7.399(2.1); 7.398(2.3); 7.386(16.0); 7.383(8.7); 7.380(6.5); 7.371(4.5); 7.368(4.0); 7.364(0.9); 7.352(0.9); 7.349(0.9); 6.882(8.7); 6.881(8.6); 6.860(8.4); 6.859(8.2); 4.387(6.4); 4.373(14.4); 4.358(6.9); 3.622(3.3); 3.608(9.3); 3.594(9.0); 3.579(3.0); 3.323(100.9); 3.299(0.6); 2.680(0.4); 2.675(0.7); 2.671(1.0); 2.666(0.7); 2.662(0.3); 2.524(3.2); 2.519(4.9); 2.511(56.4); 2.506(113.3); 2.502(149.6); 2.497(106.9); 2.493(50.2); 2.338(0.3); 2.333(0.7); 2.328(1.0); 2.324(0.7); 2.319(0.3); 1.336(0.7); 1.298(0.7); 1.259(1.1); 1.250(0.9); 0.008(1.4); 0.000(43.2); -0.009(1.2)
Compound No. 1-37: 1H-NMR(400.0 MHz, DMSO): δ = 8.830(1.8); 8.817(3.4); 8.803(1.8); 8.468(7.3); 8.463(7.8); 8.456(7.9); 8.451(7.7); 8.316(0.4); 8.222(8.1); 8.221(8.9); 8.216(8.7); 8.214(8.8); 7.873(7.7); 7.868(7.9); 7.855(8.8); 7.850(8.3); 7.830(8.4); 7.823(8.0); 7.808(8.7); 7.801(8.5); 7.496(8.7); 7.484(8.4); 7.477(8.0); 7.465(7.8); 6.886(10.2); 6.885(10.8); 6.875(0.3); 6.864(9.8); 6.863(10.3); 4.394(7.4); 4.379(16.0); 4.365(8.0); 3.641(3.9); 3.627(11.0); 3.613(10.6); 3.599(3.6); 3.324(172.2); 2.680(0.5); 2.675(1.0); 2.671(1.4); 2.666(1.0); 2.662(0.4); 2.524(4.2); 2.520(6.5); 2.511(74.3); 2.506(150.5); 2.502(199.5); 2.497(143.7); 2.493(68.0); 2.447(0.5); 2.338(0.5); 2.333(1.0); 2.329(1.3); 2.324(0.9); 2.319(0.4); 1.234(0.4); 0.008(1.6); 0.000(48.7); -0.009(1.5)
Compound No. 1-38: 1H-NMR(400.0 MHz, DMSO): δ = 8.366(1.9); 8.353(3.5); 8.339(1.9); 8.316(0.7); 8.212(8.4); 8.206(8.4); 8.205(8.2); 7.821(8.1); 7.814(7.8); 7.799(8.4); 7.792(8.1); 7.709(15.0); 7.696(15.8); 7.223(0.4); 7.215(16.0); 7.202(15.2); 6.907(10.1); 6.906(10.3); 6.885(9.6); 6.883(9.8); 4.397(6.9); 4.382(15.3); 4.368(7.4); 3.629(3.6); 3.615(10.2); 3.600(9.9); 3.586(3.3); 3.323(178.2); 2.680(0.6); 2.675(1.3); 2.671(1.9); 2.666(1.3); 2.662(0.6); 2.524(5.3); 2.519(8.1); 2.511(101.6); 2.506(207.1); 2.502(275.5); 2.497(199.2); 2.493(95.0); 2.338(0.6); 2.333(1.3); 2.329(1.8); 2.324(1.3); 2.319(0.6); 1.336(1.7); 1.259(0.4); 1.249(2.1); 1.235(0.5); 0.008(2.0); 0.000(64.2); -0.009(2.0)

Compound No. 1-42: 1H-NMR(400.0 MHz, DMSO): δ = 8.662(1.5); 8.649(2.9); 8.635(1.5); 8.598(5.1); 8.596(5.1); 8.595(5.1); 8.592(5.1); 8.316(3.5); 8.090(3.7); 8.084(3.7); 8.068(3.9); 8.062(3.8); 7.490(3.9); 7.488(2.7); 7.471(7.3); 7.470(6.9); 7.452(3.4); 7.444(4.0); 7.438(4.1); 7.430(5.6); 7.425(1.6); 7.418(2.5); 7.410(3.5); 7.401(0.4); 7.393(2.1); 7.383(16.0); 7.380(9.3); 7.376(6.7); 7.368(4.7); 7.365(4.1); 7.349(0.8); 7.346(0.8); 7.022(6.3); 7.000(6.1); 4.498(6.4); 4.484(13.8); 4.470(6.8); 3.657(3.2); 3.643(9.1); 3.629(8.9); 3.615(3.0); 3.324(101.5); 3.300(1.2); 2.676(0.6); 2.671(0.8); 2.666(0.6); 2.524(2.7); 2.520(4.2); 2.511(45.8); 2.507(91.6); 2.502(120.9); 2.497(87.1); 2.493(41.3); 2.333(0.6); 2.329(0.8); 2.324(0.6); 1.336(1.3); 1.250(1.6); 0.008(0.5); 0.000(14.7); -0.009(0.4)
Compound No. 1-43: 1H-NMR(400.0 MHz, DMSO): δ = 8.655(2.0); 8.641(3.7); 8.628(1.9); 8.599(6.1); 8.597(6.2); 8.596(6.2); 8.593(6.1); 8.316(0.6); 8.088(4.4); 8.082(4.3); 8.066(4.6); 8.060(4.5); 7.649(4.6); 7.645(6.1); 7.641(1.7); 7.635(1.5); 7.625(8.5); 7.434(2.2); 7.432(2.4); 7.424(0.6); 7.417(3.2); 7.414(6.4); 7.412(4.7); 7.398(6.9); 7.395(6.2); 7.369(2.0); 7.364(10.0); 7.360(9.9); 7.356(8.0); 7.347(7.1); 7.342(7.9); 7.337(4.5); 7.329(3.5); 7.324(2.3); 7.028(7.4); 7.007(7.2); 4.499(7.4); 4.485(16.0); 4.470(7.8); 3.652(3.9); 3.637(10.9); 3.623(10.5); 3.609(3.5); 3.324(96.0); 2.680(0.3); 2.676(0.7); 2.671(0.9); 2.667(0.6); 2.524(3.0); 2.520(4.8); 2.511(50.5); 2.507(99.8); 2.502(130.7); 2.497(94.0); 2.493(44.5); 2.333(0.6); 2.329(0.9); 2.324(0.6); 1.336(1.6); 1.259(0.4); 1.250(2.0); 1.235(0.4); 0.008(0.6); 0.000(16.8); -0.009(0.5)
Compound No. 1-44: 1H-NMR(400.0 MHz, DMSO): δ = 8.614(2.3); 8.599(10.1); 8.593(7.9); 8.084(4.5); 8.077(4.5); 8.062(4.7); 8.055(4.6); 7.877(6.9); 7.875(7.2); 7.857(7.6); 7.855(7.4); 7.443(3.3); 7.440(3.4); 7.424(7.7); 7.421(7.7); 7.405(5.1); 7.403(4.9); 7.296(7.0); 7.292(7.9); 7.277(5.8); 7.273(5.7); 7.179(4.4); 7.175(4.2); 7.160(6.2); 7.156(5.9); 7.141(3.7); 7.137(3.4); 7.041(7.6); 7.019(7.3); 5.757(1.7); 4.504(7.3); 4.489(16.0); 4.475(7.8); 3.645(3.9); 3.631(10.9); 3.617(10.5); 3.603(3.5); 3.325(64.0); 2.676(0.4); 2.671(0.6); 2.667(0.4); 2.525(2.0); 2.511(34.9); 2.507(69.7); 2.502(91.9); 2.498(67.0); 2.493(32.3); 2.334(0.4); 2.329(0.6); 2.324(0.4); 1.989(0.8); 1.336(1.2); 1.259(0.4); 1.250(1.5); 1.234(0.4); 1.175(0.5); 0.008(0.4); 0.000(12.7); -0.009(0.4)

Compound No. 1-45: 1H-NMR(400.0 MHz, DMSO): δ = 8.957(1.9); 8.944(3.6); 8.930(1.9); 8.597(6.3); 8.595(6.3); 8.593(6.4); 8.591(6.3); 8.317(0.6); 8.094(4.6); 8.087(4.6); 8.072(4.8); 8.065(4.7); 7.542(1.5); 7.525(3.3); 7.521(2.8); 7.508(2.1); 7.504(6.2); 7.499(2.2); 7.487(2.8); 7.483(3.6); 7.466(1.7); 7.181(1.3); 7.178(1.7); 7.171(10.3); 7.160(1.6); 7.157(2.2); 7.151(12.5); 7.145(2.2); 7.141(1.5); 7.131(8.6); 7.123(1.5); 7.012(7.8); 6.990(7.5); 4.476(7.8); 4.462(16.0); 4.448(8.3); 3.679(4.1); 3.665(11.1); 3.651(10.8); 3.637(3.7); 3.328(115.6); 3.305(0.3); 2.676(0.5); 2.672(0.6); 2.667(0.5); 2.525(2.0); 2.520(3.2); 2.512(35.3); 2.507(70.5); 2.503(92.8); 2.498(66.8); 2.494(31.7); 2.334(0.4); 2.330(0.6); 2.325(0.4); 1.337(1.9); 1.259(0.4); 1.250(2.4); 1.235(0.4); 0.008(0.4); 0.000(12.7); -0.009(0.4)
Compound No. 1-46: 1H-NMR(400.0 MHz, DMSO): δ = 8.736(2.0); 8.722(3.8); 8.708(2.0); 8.603(6.2); 8.601(6.2); 8.599(6.2); 8.597(6.2); 8.316(0.6); 8.096(4.6); 8.089(4.5); 8.074(4.7); 8.067(4.7); 7.777(4.9); 7.758(6.5); 7.725(2.0); 7.707(5.5); 7.688(4.2); 7.655(4.0); 7.636(5.0); 7.617(1.8); 7.491(5.9); 7.472(5.0); 7.007(7.6); 6.985(7.3); 4.474(7.5); 4.460(16.0); 4.446(7.9); 3.657(3.9); 3.643(10.9); 3.629(10.5); 3.615(3.5); 3.324(150.7); 2.680(0.5); 2.676(1.0); 2.671(1.3); 2.666(0.9); 2.662(0.4); 2.524(4.2); 2.520(6.7); 2.511(73.3); 2.507(145.7); 2.502(191.4); 2.497(137.2); 2.493(64.5); 2.338(0.4); 2.333(0.9); 2.329(1.3); 2.324(0.9); 2.320(0.4); 1.336(1.2); 1.259(0.3); 1.250(1.5); 1.234(0.4); 0.008(0.8); 0.000(23.6); -0.009(0.7)
Compound No. 1-58: 1H-NMR(400.0 MHz, DMSO): δ = 8.897(2.1); 8.884(3.9); 8.870(2.0); 8.814(0.3); 8.799(5.0); 8.797(5.1); 8.788(5.1); 8.785(5.0); 8.147(7.1); 8.143(7.4); 8.135(7.4); 8.131(7.3); 7.985(4.6); 7.983(4.7); 7.966(5.6); 7.963(5.5); 7.915(7.2); 7.911(7.1); 7.896(7.8); 7.892(7.2); 7.796(5.1); 7.784(5.1); 7.777(4.3); 7.765(4.1); 7.059(7.8); 7.046(7.6); 7.039(7.4); 7.027(7.4); 4.490(7.5); 4.475(16.0); 4.461(7.9); 3.722(0.7); 3.707(0.5); 3.683(4.0); 3.669(11.1); 3.655(10.7); 3.640(3.6); 3.584(0.5); 3.569(0.4); 3.326(45.8); 2.676(0.3); 2.672(0.5); 2.667(0.3); 2.525(1.6); 2.511(28.1); 2.507(54.4); 2.503(70.3); 2.498(50.2); 2.493(23.8); 2.334(0.3); 2.329(0.5); 2.325(0.3); 1.337(0.4); 1.250(0.6); 0.008(1.5); 0.000(38.0); -0.009(1.2)
Compound No. 1-63: 1H-NMR(400.0 MHz, DMSO): δ = 8.905(2.5); 8.891(4.8); 8.877(2.5); 8.798(6.0); 8.789(5.9); 8.787(6.0); 8.589(7.0); 8.586(9.0); 8.584(9.1); 8.581(7.6); 8.406(10.1); 8.401(9.7); 8.316(0.5); 7.989(5.2); 7.987(5.5); 7.970(6.4); 7.967(6.5); 7.796(5.8); 7.784(5.7); 7.777(5.0); 7.765(4.7); 5.756(0.6); 4.586(7.7); 4.572(16.0); 4.558(8.1); 3.713(4.0); 3.699(11.2); 3.685(10.9); 3.671(3.8); 3.322(125.4); 2.676(1.0); 2.671(1.5); 2.667(1.1); 2.662(0.5); 2.524(4.2); 2.511(82.7); 2.507(167.5); 2.502(222.2); 2.498(162.6); 2.493(79.6); 2.338(0.6); 2.333(1.1); 2.329(1.5); 2.324(1.1); 1.235(1.9); 1.183(0.6); 1.166(0.9); 1.149(0.6); 0.146(0.7); 0.008(5.4); 0.000(157.9); -0.008(5.7); -0.150(0.7)

Compound No. 1-66: 1H-NMR(400.0 MHz, DMSO): δ = 8.870(2.0); 8.857(3.8); 8.843(2.0); 8.466(4.2); 8.463(4.3); 8.454(4.3); 8.451(4.2); 8.122(4.2); 8.119(4.2); 8.104(4.5); 8.101(4.2); 8.042(6.0); 8.039(6.3); 8.021(7.0); 8.019(6.9); 7.811(2.8); 7.808(3.0); 7.792(7.2); 7.789(7.2); 7.773(5.0); 7.770(4.6); 7.710(4.4); 7.706(4.9); 7.690(5.4); 7.686(5.7); 7.671(3.0); 7.667(2.9); 7.553(6.7); 7.549(6.7); 7.534(5.9); 7.530(5.6); 7.212(3.7); 7.199(3.8); 7.194(3.7); 7.181(3.4); 4.555(7.0); 4.540(16.0); 4.525(7.4); 3.649(3.7); 3.634(10.7); 3.620(10.3); 3.605(3.4); 3.327(176.0); 3.306(0.4); 2.676(0.6); 2.671(0.8); 2.667(0.6); 2.542(3.2); 2.525(2.4); 2.520(3.8); 2.511(47.5); 2.507(95.6); 2.502(125.9); 2.498(90.3); 2.493(42.7); 2.333(0.6); 2.329(0.8); 2.324(0.6); 0.008(0.5); 0.000(16.0); -0.009(0.5)
Compound No. 1-67: 1H-NMR(400.0 MHz, DMSO): δ = 8.946(1.7); 8.932(3.3); 8.918(1.7); 8.041(5.8); 8.038(5.9); 8.021(6.8); 8.018(6.5); 7.992(5.4); 7.989(5.5); 7.980(5.6); 7.977(5.5); 7.801(2.8); 7.798(2.9); 7.782(7.3); 7.779(7.2); 7.763(5.1); 7.760(4.8); 7.706(7.5); 7.702(7.9); 7.686(9.0); 7.683(9.1); 7.678(3.9); 7.675(3.8); 7.667(3.2); 7.664(3.1); 7.659(3.9); 7.655(3.6); 7.577(6.7); 7.573(6.5); 7.558(5.8); 7.554(5.3); 7.058(3.7); 7.050(4.0); 7.046(3.7); 7.038(6.0); 7.030(3.5); 7.026(3.5); 7.018(3.3); 4.497(7.3); 4.482(16.0); 4.468(7.7); 3.662(3.8); 3.648(10.8); 3.633(10.5); 3.619(3.4); 3.327(150.7); 2.676(0.5); 2.671(0.7); 2.666(0.5); 2.541(3.7); 2.524(2.2); 2.520(3.5); 2.511(43.2); 2.507(86.8); 2.502(114.0); 2.497(81.4); 2.493(38.3); 2.333(0.5); 2.329(0.7); 2.324(0.5); 0.008(0.5); 0.000(13.8); -0.009(0.4)
Compound No. 1-70: 1H-NMR(400.0 MHz, DMSO): δ = 8.925(1.9); 8.912(3.6); 8.898(1.9); 8.794(4.7); 8.792(5.0); 8.783(4.9); 8.780(4.9); 7.990(5.8); 7.987(6.2); 7.978(10.2); 7.974(10.6); 7.957(5.5); 7.955(5.4); 7.787(5.1); 7.775(5.0); 7.767(4.3); 7.756(4.2); 7.707(3.5); 7.703(3.5); 7.687(3.9); 7.683(3.8); 7.679(3.7); 7.675(3.5); 7.659(3.8); 7.656(3.6); 7.058(3.7); 7.050(4.0); 7.046(3.8); 7.038(6.3); 7.030(3.6); 7.026(3.6); 7.018(3.3); 4.490(7.7); 4.476(16.0); 4.462(8.2); 3.686(4.0); 3.672(11.2); 3.658(10.8); 3.644(3.7); 3.326(124.5); 2.676(0.6); 2.671(0.8); 2.667(0.6); 2.541(2.6); 2.524(2.4); 2.520(3.9); 2.511(48.8); 2.507(97.3); 2.502(127.0); 2.498(90.6); 2.493(43.0); 2.333(0.6); 2.329(0.8); 2.324(0.6); 0.008(0.7); 0.000(19.8); -0.009(0.6)
Compound No. 1-71: 1H-NMR(400.0 MHz, DMSO): δ = 8.768(0.8); 8.759(0.8); 8.757(0.8); 8.591(1.0); 8.589(1.0); 8.587(1.0); 8.465(1.4); 8.099(0.7); 8.092(0.7); 8.077(0.7); 8.070(0.7); 7.915(0.7); 7.912(0.7); 7.895(0.9); 7.893(0.9); 7.757(0.8); 7.745(0.8); 7.738(0.7); 7.726(0.6); 7.037(1.2); 7.015(1.1); 4.525(5.1); 3.324(31.1); 2.541(0.6); 2.524(0.8); 2.519(1.3); 2.511(15.9); 2.506(32.0); 2.502(42.0); 2.497(30.2); 2.493(14.4); 1.432(16.0); 0.000(7.6)

Compound No. 1-72: 1H-NMR(400.0 MHz, DMSO): δ = 8.470(1.4); 8.163(1.2); 8.159(1.3); 8.151(1.2); 8.146(1.3); 8.056(1.9); 8.052(2.2); 8.037(1.6); 8.033(2.2); 7.794(0.5); 7.791(0.5); 7.775(1.2); 7.772(1.2); 7.756(0.8); 7.753(0.8); 7.680(0.7); 7.676(0.8); 7.660(0.9); 7.657(0.9); 7.641(0.5); 7.637(0.5); 7.541(1.2); 7.538(1.1); 7.522(1.0); 7.519(0.9); 6.973(1.3); 6.961(1.2); 6.954(1.2); 6.942(1.2); 4.504(5.2); 3.325(11.7); 2.541(2.3); 2.524(0.4); 2.511(6.6); 2.507(13.0); 2.502(16.9); 2.497(12.0); 2.493(5.7); 1.455(16.0); 0.000(3.1)
Compound No. 1-73: 1H-NMR(400.0 MHz, DMSO): δ = 8.771(1.8); 8.761(1.7); 8.759(1.7); 8.355(2.9); 8.131(2.4); 8.127(2.6); 8.119(2.6); 8.114(2.6); 7.917(2.6); 7.913(2.6); 7.898(4.2); 7.894(3.3); 7.880(2.0); 7.878(2.0); 7.778(1.8); 7.766(1.8); 7.759(1.4); 7.747(1.3); 7.047(2.7); 7.035(2.6); 7.028(2.5); 7.015(2.5); 4.649(2.6); 4.623(3.3); 4.466(3.4); 4.440(2.7); 3.325(54.4); 2.671(0.3); 2.541(5.1); 2.524(1.0); 2.520(1.7); 2.511(20.2); 2.507(40.3); 2.502(52.9); 2.497(38.3); 2.493(18.6); 2.329(0.3); 2.046(0.8); 2.027(1.0); 2.012(1.1); 1.993(1.0); 1.752(1.0); 1.733(1.2); 1.717(1.0); 1.699(0.9); 1.385(16.0); 0.939(3.7); 0.920(8.2); 0.902(3.4); 0.000(7.9)
Compound No. 1-74: 1H-NMR(400.0 MHz, DMSO): δ = 8.841(5.4); 8.828(3.0); 8.800(6.9); 8.798(6.8); 8.788(6.5); 8.464(6.4); 8.451(6.2); 8.123(6.3); 8.105(6.3); 7.941(5.9); 7.921(7.3); 7.801(5.8); 7.789(6.3); 7.782(4.5); 7.770(3.9); 7.212(4.7); 7.199(5.8); 7.181(3.8); 4.553(8.8); 4.539(16.0); 4.525(7.8); 3.671(5.3); 3.657(12.1); 3.643(11.2); 3.629(3.7); 3.332(71.8); 3.326(160.7); 2.676(1.0); 2.671(1.1); 2.541(7.2); 2.540(7.3); 2.507(156.5); 2.502(171.5); 2.498(118.5); 2.333(1.0); 2.329(1.1); 1.236(0.4); 0.005(5.5); 0.000(14.7); -0.002(13.0); -0.008(0.7)
Compound No. 1-75: 1H-NMR(400.0 MHz, DMSO): δ = 8.773(0.8); 8.771(0.9); 8.762(0.9); 8.759(0.9); 8.501(1.5); 8.164(1.3); 8.160(1.5); 8.152(1.4); 8.147(1.4); 8.061(1.4); 8.057(1.4); 8.042(1.6); 8.038(1.4); 7.923(0.7); 7.920(0.8); 7.904(1.0); 7.901(0.9); 7.774(0.9); 7.762(0.9); 7.754(0.7); 7.743(0.7); 6.977(1.5); 6.964(1.4); 6.957(1.4); 6.945(1.4); 4.503(5.3); 3.326(16.5); 2.542(2.0); 2.525(0.3); 2.520(0.5); 2.512(5.6); 2.507(11.1); 2.502(14.5); 2.498(10.3); 2.493(4.8); 1.450(16.0); 0.000(2.5)
Compound No. 1-76: 1H-NMR(400.0 MHz, DMSO): δ = 8.772(0.8); 8.770(0.8); 8.761(0.8); 8.758(0.8); 8.496(1.4); 8.449(0.7); 8.447(0.7); 8.437(0.7); 8.434(0.7); 8.126(0.7); 8.123(0.7); 8.108(0.8); 8.105(0.7); 7.859(0.6); 7.856(0.7); 7.839(1.0); 7.836(1.0); 7.776(0.9); 7.764(0.9); 7.756(0.6); 7.745(0.6); 7.202(0.6); 7.189(0.6); 7.184(0.6); 7.171(0.6); 4.580(5.1); 3.324(20.8); 2.542(1.5); 2.525(0.4); 2.520(0.7); 2.511(8.9); 2.507(18.1); 2.502(23.9); 2.498(17.0); 2.493(8.0); 1.429(16.0); 0.000(4.8)

Compound No. 1-77: 1H-NMR(400.0 MHz, DMSO): δ = 8.773(0.8); 8.771(0.9); 8.761(0.8); 8.759(0.8); 8.501(1.5); 8.216(2.2); 8.210(3.4); 8.189(3.3); 8.183(2.2); 7.904(0.7); 7.902(0.7); 7.885(1.0); 7.882(0.9); 7.773(0.9); 7.762(0.9); 7.754(0.7); 7.742(0.7); 4.514(5.2); 3.326(29.4); 2.542(4.1); 2.525(0.4); 2.520(0.7); 2.511(8.7); 2.507(17.6); 2.502(23.2); 2.498(16.5); 2.493(7.8); 1.437(16.0); 0.000(3.5)
Compound No. 1-78: 1H-NMR(400.0 MHz, DMSO): δ = 8.586(1.0); 8.584(1.0); 8.582(1.0); 8.580(1.0); 8.293(1.4); 8.092(0.7); 8.085(0.7); 8.069(0.7); 8.063(0.7); 7.745(0.8); 7.725(1.0); 7.700(0.3); 7.682(0.9); 7.663(0.7); 7.626(0.6); 7.607(0.8); 7.431(0.9); 7.413(0.8); 7.032(1.2); 7.010(1.2); 4.534(5.1); 3.325(15.9); 2.525(0.4); 2.520(0.7); 2.511(7.9); 2.507(15.9); 2.502(20.8); 2.498(14.8); 2.493(6.9); 1.423(16.0); 0.000(4.0)
Compound No. 1-79: 1H-NMR(400.0 MHz, DMSO): δ = 8.745(1.8); 8.732(3.4); 8.718(1.8); 7.987(5.5); 7.983(5.7); 7.974(5.8); 7.971(5.7); 7.776(4.6); 7.756(6.2); 7.729(2.0); 7.711(5.4); 7.702(3.8); 7.698(3.9); 7.693(4.1); 7.682(3.9); 7.678(3.8); 7.674(3.7); 7.670(3.5); 7.655(7.3); 7.651(6.1); 7.635(4.7); 7.616(1.7); 7.490(5.6); 7.471(4.7); 7.053(3.6); 7.045(3.9); 7.041(3.6); 7.033(6.1); 7.025(3.4); 7.021(3.4); 7.013(3.2); 4.483(7.4); 4.469(16.0); 4.454(7.8); 3.659(3.8); 3.645(10.8); 3.631(10.5); 3.617(3.5); 3.325(120.8); 2.675(0.6); 2.671(0.8); 2.667(0.6); 2.541(1.7); 2.524(2.6); 2.511(48.6); 2.506(96.6); 2.502(126.3); 2.497(90.6); 2.493(43.0); 2.469(0.4); 2.333(0.6); 2.328(0.8); 2.324(0.6); 1.235(0.3); 0.008(0.6); 0.000(19.7); -0.009(0.6)
Compound No. 1-80: 1H-NMR(400.0 MHz, DMSO): δ = 8.184(2.8); 8.126(2.6); 8.122(2.8); 8.114(2.8); 8.110(2.8); 7.913(2.7); 7.908(2.7); 7.893(3.0); 7.889(2.7); 7.748(1.6); 7.728(2.2); 7.715(0.7); 7.697(1.9); 7.678(1.3); 7.628(1.3); 7.609(1.7); 7.590(0.6); 7.472(2.0); 7.454(1.6); 7.040(2.9); 7.028(2.8); 7.021(2.7); 7.009(2.8); 4.665(2.6); 4.639(3.3); 4.457(3.4); 4.431(2.8); 3.325(36.5); 2.541(0.5); 2.524(0.7); 2.520(1.2); 2.511(15.1); 2.506(30.5); 2.502(40.1); 2.497(28.5); 2.493(13.4); 2.063(0.8); 2.044(1.0); 2.028(1.1); 2.010(1.0); 1.740(1.0); 1.721(1.2); 1.705(1.0); 1.687(0.9); 1.373(16.0); 0.932(3.7); 0.914(8.3); 0.895(3.4); 0.000(7.0)

Compound No. 1-81: 1H-NMR(400.0 MHz, DMSO): δ = 8.671(2.0); 8.658(3.8); 8.644(2.0); 8.462(4.4); 8.459(4.5); 8.449(4.6); 8.447(4.4); 8.121(4.4); 8.118(4.4); 8.102(4.7); 8.099(4.5); 7.780(5.0); 7.761(6.6); 7.738(2.2); 7.720(5.6); 7.701(4.0); 7.658(3.9); 7.639(5.0); 7.620(1.9); 7.477(5.9); 7.458(5.1); 7.208(3.8); 7.196(3.9); 7.191(3.9); 7.178(3.6); 4.547(7.2); 4.533(16.0); 4.518(7.6); 3.648(3.8); 3.634(10.8); 3.620(10.4); 3.605(3.5); 3.326(87.0); 3.308(0.4); 2.676(0.5); 2.671(0.7); 2.667(0.5); 2.542(1.4); 2.525(2.1); 2.511(42.1); 2.507(84.0); 2.502(109.9); 2.498(79.3); 2.493(38.1); 2.333(0.5); 2.329(0.7); 2.324(0.5); 1.235(0.4); 0.008(0.6); 0.000(16.6); -0.009(0.5)
Compound No. 1-82: 1H-NMR(400.0 MHz, DMSO): δ = 8.327(1.4); 8.210(2.1); 8.204(3.2); 8.183(3.0); 8.177(2.0); 7.746(0.8); 7.726(1.1); 7.709(0.4); 7.692(0.9); 7.673(0.7); 7.627(0.6); 7.608(0.8); 7.448(1.0); 7.429(0.8); 4.521(5.3); 3.325(16.6); 2.541(0.3); 2.524(0.4); 2.520(0.6); 2.511(7.6); 2.507(15.3); 2.502(20.1); 2.497(14.3); 2.493(6.7); 1.428(16.0); 0.000(3.8)
Compound No. 1-83: 1H-NMR(400.0 MHz, DMSO): δ = 8.320(1.4); 8.159(1.2); 8.155(1.3); 8.147(1.3); 8.143(1.3); 8.057(1.2); 8.053(1.2); 8.038(1.3); 8.034(1.2); 7.748(0.9); 7.728(1.1); 7.710(0.4); 7.692(1.0); 7.673(0.7); 7.627(0.7); 7.608(0.9); 7.482(1.0); 7.464(0.9); 6.971(1.3); 6.958(1.3); 6.951(1.2); 6.939(1.2); 4.508(5.3); 3.326(13.1); 2.511(5.5); 2.507(11.0); 2.502(14.5); 2.497(10.5); 2.493(5.1); 1.441(16.0); 0.000(2.3)
Compound No. 1-99: 1H-NMR(400.0 MHz, DMSO): δ = 8.806(2.6); 8.793(5.0); 8.779(2.5); 8.465(5.3); 8.455(5.2); 8.155(6.4); 8.135(7.5); 8.124(5.3); 8.121(5.2); 8.105(5.3); 8.073(0.3); 8.060(3.3); 8.058(3.4); 8.041(7.4); 8.040(7.2); 8.022(4.4); 7.904(0.4); 7.899(0.5); 7.895(0.4); 7.873(4.4); 7.871(4.5); 7.852(7.0); 7.835(3.2); 7.832(3.1); 7.630(7.2); 7.612(6.7); 7.548(0.3); 7.213(4.3); 7.200(4.4); 7.194(4.5); 7.182(4.0); 5.757(3.6); 4.547(7.3); 4.532(16.0); 4.517(7.6); 4.039(0.6); 4.023(0.6); 3.651(4.0); 3.636(11.0); 3.622(10.7); 3.607(3.6); 3.324(28.5); 2.676(0.8); 2.672(1.0); 2.667(0.8); 2.507(118.7); 2.503(153.3); 2.498(114.7); 2.334(0.7); 2.329(1.0); 2.325(0.8); 1.755(0.6); 1.236(3.0); 1.183(1.1); 1.166(1.7); 1.150(0.9); 0.854(0.3); 0.008(0.3); 0.000(7.2)

Compound No. 1-106: 1H-NMR(400.0 MHz, DMSO): δ = 8.971(2.6); 8.957(4.7); 8.943(2.4); 8.784(7.0); 8.780(7.4); 8.772(7.3); 8.768(7.1); 8.576(7.6); 8.574(9.4); 8.571(9.4); 8.568(7.6); 8.414(10.6); 8.408(10.0); 8.317(0.4); 7.984(5.1); 7.982(5.4); 7.965(5.9); 7.963(6.1); 7.674(5.1); 7.662(5.0); 7.654(4.6); 7.643(4.3); 7.296(5.6); 7.161(12.7); 7.025(6.2); 6.574(0.4); 5.757(2.1); 4.621(8.0); 4.607(16.0); 4.594(8.2); 3.728(4.2); 3.714(11.3); 3.700(10.9); 3.686(3.8); 3.324(109.5); 2.891(3.6); 2.731(2.9); 2.680(0.4); 2.676(0.8); 2.671(1.2); 2.667(0.8); 2.662(0.4); 2.542(0.8); 2.525(3.7); 2.511(67.8); 2.507(134.9); 2.502(175.9); 2.498(124.2); 2.493(57.6); 2.338(0.4); 2.334(0.8); 2.329(1.1); 2.325(0.8); 2.320(0.4); 1.754(2.5); 1.336(0.3); 1.235(0.3); 0.146(0.5); 0.008(5.2); 0.000(129.8); -0.009(3.9); -0.150(0.5)
Compound No. 1-123: 1H-NMR(400.0 MHz, DMSO): δ = 8.602(2.2); 8.588(4.2); 8.575(2.2); 8.452(7.4); 8.439(7.6); 7.876(7.2); 7.858(7.5); 7.856(7.4); 7.446(3.1); 7.444(3.1); 7.428(7.3); 7.425(7.2); 7.409(4.7); 7.407(4.5); 7.343(5.8); 7.340(6.0); 7.329(5.6); 7.327(5.7); 7.306(6.7); 7.302(7.6); 7.287(5.5); 7.283(5.5); 7.180(13.5); 7.177(13.1); 7.161(6.2); 7.157(5.9); 7.142(3.3); 7.138(3.1); 5.756(2.2); 4.498(7.3); 4.483(16.0); 4.469(7.8); 3.641(3.9); 3.626(11.0); 3.612(10.7); 3.598(3.6); 3.323(26.8); 2.676(0.5); 2.671(0.6); 2.667(0.5); 2.542(0.4); 2.524(1.8); 2.511(38.2); 2.507(76.3); 2.502(99.9); 2.498(72.4); 2.494(35.8); 2.334(0.5); 2.329(0.6); 2.325(0.5); 1.989(1.2); 1.193(0.3); 1.175(0.7); 1.158(0.3); 0.146(0.4); 0.008(3.4); 0.000(88.4); -0.008(3.9); -0.150(0.4)
Compound No. 1-125: 1H-NMR(400.0 MHz, DMSO): δ = 8.723(1.7); 8.710(3.1); 8.696(1.6); 8.456(5.9); 8.442(6.0); 7.778(4.1); 7.759(5.4); 7.729(1.7); 7.711(4.6); 7.692(3.4); 7.656(3.3); 7.637(4.1); 7.618(1.5); 7.502(4.9); 7.483(4.1); 7.347(4.7); 7.345(4.6); 7.334(4.4); 7.332(4.3); 7.177(0.5); 7.136(8.0); 7.135(8.3); 5.757(16.0); 4.485(0.8); 4.470(6.0); 4.456(12.0); 4.442(5.9); 4.057(0.7); 4.039(2.0); 4.021(2.1); 4.004(0.7); 3.655(3.1); 3.641(8.6); 3.627(8.3); 3.613(3.0); 3.326(13.8); 2.512(19.3); 2.508(36.6); 2.503(46.5); 2.499(32.6); 2.494(15.2); 1.990(8.9); 1.194(2.4); 1.176(4.7); 1.158(2.3); 0.008(2.2); 0.000(46.1); -0.009(1.5)

Biological Examples

Example 1: **In vivo preventive test on *Alternaria brassicae* (leaf spot on radish)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Alternaria brassicae* spores. The contaminated radish plants are incubated for 6 days at 20°C and at 100% relative humidity.

The test is evaluated 6 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-1; 1-4; 1-18; 1-20; 1-21; 1-22; 1-28; 1-63; 1-74; 1-106; 1-123

Example 2: **In vivo preventive test on *Botrytis cinerea* (grey mould)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Botrytis cinerea* spores. The contaminated gherkin plants are incubated for 4 to 5 days at 17°C and at 90% relative humidity.

The test is evaluated 4 to 5 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-1; 1-4; 1-11; 1-18; 1-20; 1-21; 1-22; 1-27; 1-28; 1-58; 1-63; 1-66; 1-71; 1-72; 1-73; 1-74; 1-75; 1-77; 1-79; 1-81; 1-83; 1-106; 1-125

Example 3: **In vivo preventive test on *Puccinia recondita* (brown rust on wheat)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Puccinia recondita* spores. The contaminated wheat plants are incubated for 24 hours at 20°C and at 100% relative humidity and then for 10 days at 20°C and at 70-80% relative humidity.

The test is evaluated 11 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-22; 1-32; 1-37

Example 4: **In vivo preventive test on *Pyrenophora teres* (net blotch on barley)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Pyrenophora teres* spores. The contaminated barley plants are incubated for 48 hours at 20°C and at 100% relative humidity and then for 12 days at 20°C and at 70-80% relative humidity.

The test is evaluated 14 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-1; 1-4; 1-13; 1-18; 1-20; 1-21; 1-22; 1-28; 1-48; 1-58; 1-63; 1-74; 1-81; 1-106

Example5 : **In vivo preventive test on *Pyricularia oryzae* (rice blast)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Pyricularia oryzae* spores. The contaminated rice plants are incubated at 25°C and at 80% relative humidity.

The test is evaluated 6 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-7; 1-10; 1-11; 1-12; 1-21; 1-22; 1-24; 1-32; 1-38; 1-42; 1-43; 1-44

Example 6: **In vivo preventive test on *Septoria tritici* (leaf spot on wheat)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Septoria tritici* spores. The contaminated wheat plants are incubated for 72 hours at 18°C and at 100% relative humidity and then for 21 days at 20°C and at 90% relative humidity.

The test is evaluated 24 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-1; 1-4; 1-8; 1-10; 1-11; 1-15; 1-16; 1-18; 1-20; 1-21; 1-22; 1-27; 1-28; 1-44; 1-46; 1-58; 1-63; 1-66; 1-67; 1-70; 1-73; 1-74; 1-75; 1-81; 1-99; 1-106; 1-123; 1-125

Example 7: ***in vivo* preventive test on *Sphaerotheca fuliginea* (powdery mildew on cucurbits)**

The tested active ingredients are prepared by homogenization in a mixture of Acetone/Dimethyl sulfoxide/Tween® 80, and then diluted with water to obtain the desired active material concentration.

The young plants of radish are treated by spraying the active ingredient prepared as described above. Control plants are treated only with an aqueous solution of acetone/Dimethyl sulfoxide/Tween® 80.

After 24 hours, the plants are contaminated by spraying the leaves with an aqueous suspension of *Sphaerotheca fuliginea* spores. The contaminated gherkin plants are incubated for 72 hours at 18°C and at 100% relative humidity and then for 12 days at 20°C and at 70-80% relative humidity.

The test is evaluated 15 days after the inoculation. 0% means an efficacy which corresponds to that of the control plants while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 500 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%:
1-1; 1-4; 1-7; 1-8; 1-10; 1-11; 1-16; 1-18; 1-20; 1-21; 1-22; 1-27; 1-28; 1-58; 1-63; 1-66; 1-74; 1-75; 1-81; 1-106; 1-125

Example 8: **Blumeria test (barley) / preventive**

Solvent: 49 parts by weight of N,N-dimethylacetamide

Emulsifier: 1 part by weight of alkylaryl polyglycol ether

To produce a suitable preparation of active compound, 1 part by weight of active compound or active compound combination is mixed with the stated amounts of solvent and emulsifier, and the concentrate is diluted with water to the desired concentration. To test for preventive activity, young plants are sprayed with the preparation of active compound or active compound combination at the stated rate of application. After the spray coating has been dried, the plants are dusted with spores of ***Blumeria graminis f.sp. hordei***. The plants are placed in the greenhouse at a temperature of approximately 18 °C and a relative atmospheric humidity of approximately 80% to promote the development of mildew pustules. The test is evaluated 7 days after the inoculation. 0% means an efficacy which corresponds to that of the untreated control, while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 1000 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%: 1-27

Example 9: **Pyrenophora teres-test (barley) / preventive**

Solvent: 49 parts by weight of N,N-dimethylacetamide

Emulsifier: 1 part by weight of alkylaryl polyglycol ether

To produce a suitable preparation of active compound, 1 part by weight of active compound or active compound combination is mixed with the stated amounts of solvent and emulsifier, and the concentrate is diluted with water to the desired concentration. To test for preventive activity, young plants are sprayed with the preparation of active compound or active compound combination at the stated rate of application. After the spray coating has been dried, the plants are sprayed with a spore suspension of ***Pyrenophora teres***. The plants remain for 48 hours in an incubation cabinet at approximately 20 °C and a relative atmospheric humidity of approximately 100%. The plants are placed in the greenhouse at a temperature of approximately 20 °C and a relative atmospheric humidity of approximately 80%. The test is evaluated 8 days after the inoculation. 0% means an efficacy which corresponds to that of the untreated control, while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 1000 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%: 1-27

Example 10: **Venturia test (apples) / preventive**

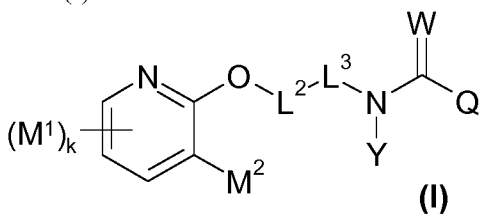
Solvent:	24.5	parts by weight of acetone
	24.5	parts by weight of dimethylacetamide
Emulsifier:	1	part by weight of alkylaryl polyglycol ether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amounts of solvent and emulsifier, and the concentrate is diluted with water to the desired concentration. To test for preventive activity, young plants are sprayed with the preparation of active compound at the stated rate of application. After the spray coating has dried on, the plants are inoculated with an aqueous conidia suspension of the causal agent of apple scab ***(Venturia inaequalis)*** and then remain for 1 day in an incubation cabinet at approximately 20 °C and a relative atmospheric humidity of 100%. The plants are then placed in a greenhouse at approximately 21 °C and a relative atmospheric humidity of approximately 90%. The test is evaluated 10 days after the inoculation. 0% means an efficacy which corresponds to that of the untreated control, while an efficacy of 100% means that no disease is observed.

In this test, under these conditions, at a concentration of 250 ppm of active ingredient, the following compounds according to the invention showed biological efficacy higher than or equal to 70%: 1-27; 1-28

Claims

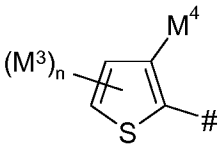
1. Use of compounds of the formula (I)



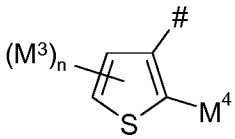
(I)

where

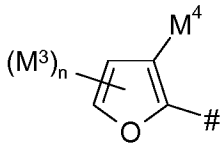
Q represents the structural elements below, where n for each Q is in each case as defined below:



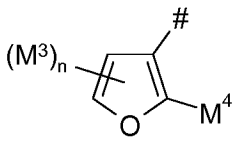
Q1
n = 1-2



Q2
n =1-2



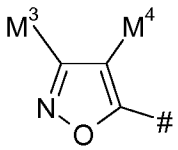
Q3
n = 1-2



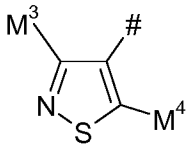
Q4
n =1-2



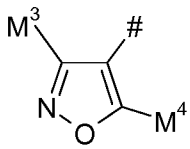
Q5



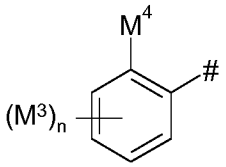
Q6



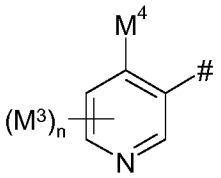
Q7



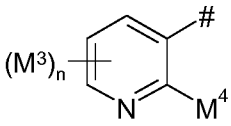
Q8



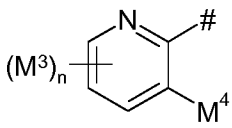
Q9
n =1-4



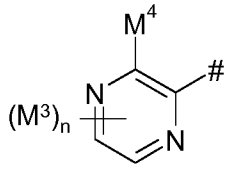
Q10
n =1-3



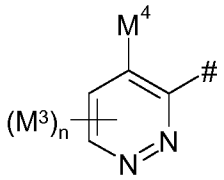
Q11
n = 1-3



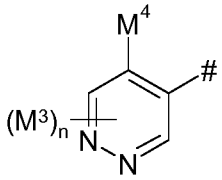
Q12
n = 1-3



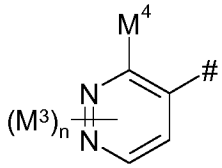
Q13
n = 1-2



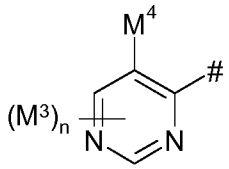
Q14
n = 1-2



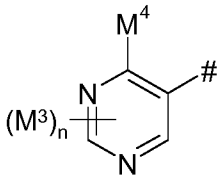
Q15
n = 1-2



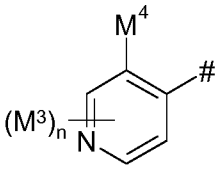
Q16
n = 1-2



Q17
n = 1-2



Q18
n = 1-2



Q19
n = 1-3

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

W represents oxygen or sulphur;

L^2 represents -C(R^{21}, R^{22})-;

L^3 represents -C(R^{31}, R^{32})-;

M^1, M^2 and M^3 each independently of one another represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl or (3- to 14-membered cyclic group)-O-;

k represents 1, 2 or 3;

R^{21}, R^{22} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{21}, R^{22} together represent an optionally mono- or poly-M^2-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

R^{31}, R^{32} each independently of one another represent hydrogen, halogen or optionally mono- or poly-M^2-substituted (C_1-C_{10})-alkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-alkynyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-haloalkynyl, (C_3-C_{14})-cycloalkyl-(C_1-C_{10})-alkyl or represent an optionally mono- or poly-M^2-substituted 3- to 14-membered cyclic group;

R^{31}, R^{32} together represent an optionally mono- or poly-M^5-substituted spiro-attached 3- to 14-membered carbo- or 3- to 10-membered heterocyclic group;

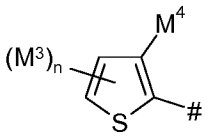
M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (C_1-C_{10})-alkyl, (C_1-C_{10})-haloalkyl, (C_2-C_{10})-alkenyl, (C_2-C_{10})-haloalkenyl, (C_2-C_{10})-alkynyl, (C_2-C_{10})-haloalkynyl, (C_1-C_{10})-alkoxy, (C_1-C_{10})-haloalkoxy, (C_2-C_{10})-alkenyloxy, (C_2-C_{10})-haloalkenyloxy, (C_3-C_{10})-alkynyloxy, (C_3-C_{10})-haloalkynyloxy, (C_1-C_{10})-alkylthio, (C_1-C_{10})-haloalkylthio, (C_2-C_{10})-alkenylthio, (C_2-C_{10})-haloalkenylthio, (C_3-C_{10})-alkynylthio, (C_3-C_{10})-haloalkynylthio, (C_1-C_{10})-alkylsulphonyl, (C_1-C_{10})-haloalkylsulphonyl, (C_2-C_{10})-alkenylsulphonyl, (C_2-C_{10})-haloalkenylsulphonyl, (C_3-C_{10})-alkynylsulphonyl, (C_3-C_{10})-haloalkynylsulphonyl, (C_1-C_{10})-alkylsulphanyl, (C_1-C_{10})-haloalkylsulphanyl, (C_2-C_{10})-alkenylsulphanyl, (C_2-C_{10})-haloalkenylsulphanyl, (C_3-C_{10})-alkynylsulphanyl, (C_3-C_{10})-haloalkynylsulphanyl, (C_1-C_{10})-alkylcarbonyl, (C_1-C_{10})-haloalkylcarbonyl, (C_2-C_{10})-alkenylcarbonyl, (C_2-C_{10})-haloalkenylcarbonyl, (C_2-C_{10})-alkynylcarbonyl, (C_2-C_{10})-haloalkynylcarbonyl, (C_1-C_{10})-alkoxycarbonyl, (C_1-C_{10})-haloalkoxycarbonyl, (C_2-C_{10})-alkenyloxycarbonyl, (C_2-C_{10})-haloalkenyloxycarbonyl, (C_3-C_{10})-alkynyloxycarbonyl, (C_3-C_{10})-haloalkynyloxycarbonyl, (C_1-C_{10})-alkylcarbonyloxy, (C_1-C_{10})-haloalkylcarbonyloxy, (C_2-C_{10})-alkenylcarbonyloxy, (C_2-C_{10})-haloalkenylcarbonyloxy, (C_2-C_{10})-alkynylcarbonyloxy, (C_2-C_{10})-haloalkynylcarbonyloxy, a 3- to 14-membered cyclic group;

and salts, N-oxides and tautomeric forms thereof for controlling unwanted microorganisms in plants.

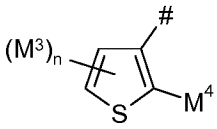
2. Use of compounds of the formula (I) according to Claim 1

where

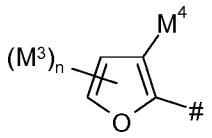
Q represents the structural elements below, where n for each Q is in each case as defined below:



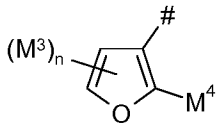
Q¹
n =1-2



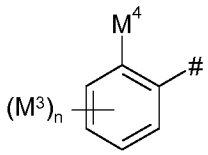
Q²
n = 1-2



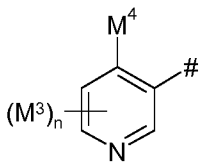
Q³
n = 1-2



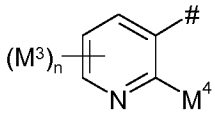
Q⁴
n = 1-2



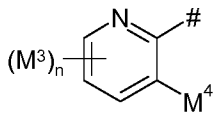
Q⁹
n = 1-4



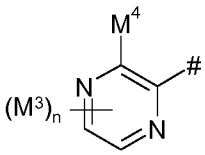
Q¹⁰
n = 1-3



Q¹¹
n = 1-3



Q¹²
n = 1-3



Q¹³
n =1-2

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_{10})-cycloalkyl-(C_1-C_6)-alkyl or represents an optionally mono- or poly-M^2-substituted 3- to 10-membered cyclic group;

W represents oxygen,

M^1, M^2 and M^3 each independently of one another represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^4 represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-,

(C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

k represents 1or 2;

R^{21}, R^{22} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic group; or

R^{21}, R^{22} represents C(R^{21}, R^{22}) as spiro-C(CH_2-CH_2);

R^{31}, R^{32} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-alkynyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_{14})-carbocyclic group; or

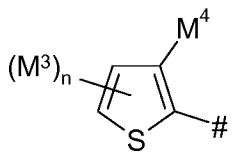
R^{31}, R^{32} represents C(R^{31}, R^{32}) as spiro-C(CH_2-CH_2);

M^5 in each case independently of the others represents halogen, formyl, cyano, nitro, (C_1-C_6)-alkyl, (C_1-C_6)-haloalkyl, (C_2-C_6)-alkenyl, (C_2-C_6)-haloalkenyl, (C_2-C_6)-alkynyl, (C_2-C_6)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_6)-haloalkoxy, (C_2-C_6)-alkenyloxy, (C_2-C_6)-haloalkenyloxy, (C_3-C_6)-alkynyloxy, (C_3-C_6)-haloalkynyloxy, (C_1-C_6)-alkylthio, (C_1-C_6)-haloalkylthio, (C_2-C_6)-alkenylthio, (C_2-C_6)-haloalkenylthio, (C_3-C_6)-alkynylthio, (C_3-C_6)-haloalkynylthio, (C_1-C_6)-alkylsulphonyl, (C_1-C_6)-haloalkylsulphonyl, (C_2-C_6)-alkenylsulphonyl, (C_2-C_6)-haloalkenylsulphonyl, (C_3-C_6)-alkynylsulphonyl, (C_3-C_6)-haloalkynylsulphonyl, (C_1-C_6)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_2-C_6)-alkenylsulphanyl, (C_2-C_6)-haloalkenylsulphanyl, (C_3-C_6)-alkynylsulphanyl, (C_3-C_6)-haloalkynylsulphanyl, formyl, (C_1-C_6)-alkylcarbonyl, (C_1-C_6)-haloalkylcarbonyl, (C_2-C_6)-alkenylcarbonyl, (C_2-C_6)-haloalkenylcarbonyl, (C_2-C_6)-alkynylcarbonyl, (C_2-C_6)-haloalkynylcarbonyl, (C_1-C_6)-alkoxycarbonyl, (C_1-C_6)-haloalkoxycarbonyl, (C_2-C_6)-alkenyloxycarbonyl, (C_2-C_6)-haloalkenyloxycarbonyl, (C_3-C_6)-alkynyloxycarbonyl, (C_3-C_6)-haloalkynyloxycarbonyl, (C_1-C_6)-alkylcarbonyloxy, (C_1-C_6)-haloalkylcarbonyloxy, (C_2-C_6)-alkenylcarbonyloxy, (C_2-C_6)-haloalkenylcarbonyloxy, (C_2-C_6)-alkynylcarbonyloxy, (C_2-C_6)-haloalkynylcarbonyloxy or (C_3-C_{14})-cycloalkyl.

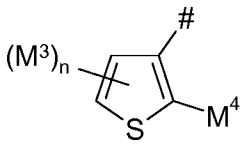
3. Use of compounds of the formula (I) according to Claim 1 or 2

where

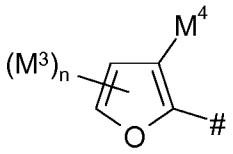
Q represents the structural elements below, where n for each Q is in each case as defined below:



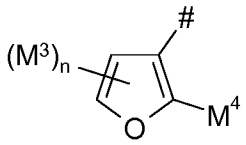
Q¹
n = 1



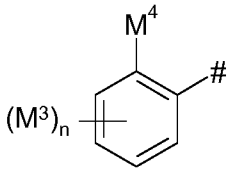
Q²
n = 1



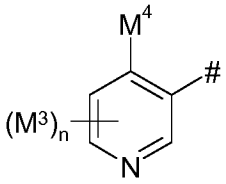
Q³
n = 1



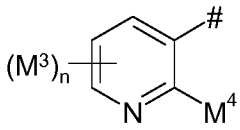
Q⁴
n = 0-1



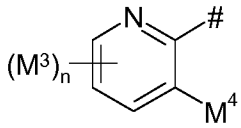
Q⁹
n = 1-3



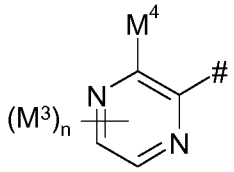
Q¹⁰
n = 1-2



Q¹¹
n = 1-2



Q¹²
n =1-2



Q¹³
n = 1

Y represents hydrogen or represents optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_3-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_3-C_4)-haloalkynyl, (C_1-C_4)-alkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_6)-cycloalkyl-(C_1-C_4)-alkyl or represents an optionally mono- or poly-M^2-substituted C_3- to C_6-membered carbocyclic group;

M^1, M^2 and M^3 represent hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{11}, M^3 is not (C_1-C_4)-haloalkyl in position 4 at the pyridyl;

M^4 in each case independently of the others represents hydrogen, halogen, cyano, nitro, OH, (C_1-C_4)-alkyl, (C_1-C_4)-haloalkyl, (C_1-C_4)-alkoxy, (C_1-C_4)-haloalkoxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_6)-haloalkylsulphanyl, (C_3-C_{14})-cycloalkyl-O-, (C_3-C_{14})-cycloalkenyl-O-, (C_6-C_{14})-aryl-O-, halogenated (C_3-C_{14})-cycloalkyl-O-, halogenated (C_3-C_{14})-cycloalkenyl-O-, halogenated (C_6-C_{14})-aryl-O-, where, if Q corresponds to Q^{10}, M^4 is not (C_1-C_4)-haloalkyl;

k represents 1;

R^{21}, R^{22} each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl, (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

R^{31}, R^{32} preferably each independently of one another represent hydrogen, fluorine or optionally mono- or poly-M^2-substituted (C_1-C_4)-alkyl, (C_2-C_4)-alkenyl, (C_2-C_4)-alkynyl, (C_1-C_4)-haloalkyl, (C_2-C_4)-haloalkenyl, (C_2-C_4)-haloalkynyl, (C_1-C_6)-alkoxy, (C_1-C_4)-haloalkoxy, (C_2-C_4)-alkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-cycloalkyl-(C_1-C_4)-alkyl or represent an optionally mono- or poly-M^2-substituted (C_3-C_8)-cycloalkyl or halogenated (C_3-C_8)-cycloalkyl;

M^5 represents halogen, formyl, cyano, nitro, (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_2-C_4)-alkenyloxy, (C_2-C_4)-haloalkenyloxy, (C_3-C_4)-alkynyloxy, (C_3-C_4)-haloalkynyloxy, (C_1-C_4)-alkylthio, (C_1-C_4)-haloalkylthio, (C_2-C_4)-alkenylthio, (C_2-C_4)-haloalkenylthio, (C_3-C_4)-alkynylthio, (C_3-C_4)-haloalkynylthio, (C_1-C_4)-alkylsulphonyl, (C_1-C_4)-haloalkylsulphonyl, (C_2-C_4)-alkenylsulphonyl, (C_2-C_4)-haloalkenylsulphonyl, (C_3-C_4)-alkynylsulphonyl, (C_3-C_4)-haloalkynylsulphonyl, (C_1-C_4)-alkylsulphanyl, (C_1-C_4)-haloalkylsulphanyl, (C_2-C_4)-alkenylsulphanyl, (C_2-C_4)-haloalkenylsulphanyl, (C_3-C_4)-alkynylsulphanyl, (C_3-C_4)-haloalkynylsulphanyl, (C_1-C_4)-alkylcarbonyl, (C_1-C_4)-haloalkylcarbonyl, (C_2-C_4)-alkenylcarbonyl, (C_2-C_4)-haloalkenylcarbonyl, (C_2-C_4)-alkynylcarbonyl, (C_2-C_4)-haloalkynylcarbonyl, (C_1-C_4)-alkoxycarbonyl, (C_1-C_4)-haloalkoxycarbonyl, (C_2-C_4)-alkenyloxycarbonyl, (C_2-C_4)-haloalkenyloxycarbonyl, (C_3-C_4)-alkynyloxycarbonyl, (C_3-C_4)-haloalkynyloxycarbonyl, (C_1-C_4)-alkylcarbonyloxy, (C_1-C_4)-haloalkylcarbonyloxy, (C_2-C_4)-alkenylcarbonyloxy, (C_2-C_4)-haloalkenylcarbonyloxy, (C_2-C_4)-alkynylcarbonyloxy, (C_2-C_4)-haloalkynylcarbonyloxy or (C_3-C_6)-cycloalkyl.

4. Compositions for controlling unwanted microorganisms in plants, characterized in that the compositions comprise at least one compound of the formula (I) as described in any of Claim 1 to 3 and further comprising surfactants and/or extenders.

5. Use of compositions according to any of Claim 1 to 3 for controlling unwanted microorganisms in plants, characterized in that the compositions comprise at least one compound of the formula (I) as described in any of Claim 1 to 3 and further comprising surfactants and/or extenders.

6. Use of compositions according to any of Claim 1 to 3 for controlling phytopathogenic fungi in plants, characterized in that the compositions comprise at least one compound of the formula (I) as described in any of Claim 1 to 3 and further comprising surfactants and/or extenders.

7. Use of one or more compounds according to any of Claim 1 to 3 or a composition according to Claim 4 for controlling phytopathogenic fungi.

8. Method for controlling harmful microorganisms, characterized in that one or more compounds of the formula (I) according to any of Claim 1 to 3 or a composition according to Claim 4 are applied to the harmful microorganisms or their habitat.

9. Process for producing compositions for controlling harmful microorganisms, characterized in that one or more compounds according to any of Claims 1 to 3 are mixed with auxiliaries, solvents, carriers, surfactants and/or extenders .

10. Use of one or more compounds according to any of Claims 1 to 3 or a composition according to Claim 4 for controlling unwanted microorganisms in transgenic plants.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2015/056181

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-10(partially)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/056181

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01P3/00 A01N43/40 A01N43/48 A01N43/50 A01N43/56
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A01N C07D

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI 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.
X,P	WO 2014/076015 A1 (BAYER CROPSCIENCE AG [DE]) 22 May 2014 (2014-05-22) the whole document	4,9
X	WO 2009/012998 A1 (SYNGENTA PARTICIPATIONS AG [CH]; STIERLI DANIEL [CH]; DAINA ANTOINE [C) 29 January 2009 (2009-01-29) cited in the application page 37; example P4; compound 1.239 Biological examples; pages 136-140	1-10
X	WO 2010/015681 A1 (BAYER CROPSCIENCE SA [FR]; BENNABI SAMIR [FR]; COQUERON PIERRE-YVES [F) 11 February 2010 (2010-02-11) claim 1	1-10

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 April 2015	23/07/2015

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Davies, Maxwell

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/056181

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2011/151370 A1 (BAYER CROPSCIENCE AG [DE]; BENTING JUERGEN [DE]; COQUERON PIERRE-YVES) 8 December 2011 (2011-12-08) page 1, lines 10-20	1-10
A	WO 2008/003746 A1 (BAYER CROPSCIENCE SA [FR]; COQUERON PIERRE-YVES [FR]; GROSJEAN-COURNOY) 10 January 2008 (2008-01-10) the whole document	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2015/056181

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2014076015 A1	22-05-2014	AU 2013346957 A1	21-05-2015
		CA 2890826 A1	22-05-2014
		EP 2730570 A1	14-05-2014
		TW 201439063 A	16-10-2014
		UY 35134 A	30-06-2014
		WO 2014076015 A1	22-05-2014
WO 2009012998 A1	29-01-2009	AR 067663 A1	21-10-2009
		BR PI0814314 A2	26-05-2015
		CL 2008002172 A1	21-11-2008
		CN 101778827 A	14-07-2010
		EP 2181097 A1	05-05-2010
		JP 5390520 B2	15-01-2014
		JP 2010534626 A	11-11-2010
		RU 2010106393 A	10-09-2011
		TW 200920256 A	16-05-2009
		US 2010292239 A1	18-11-2010
		WO 2009012998 A1	29-01-2009
WO 2010015681 A1	11-02-2010	EP 2324011 A1	25-05-2011
		JP 2011529949 A	15-12-2011
		US 2011136874 A1	09-06-2011
		WO 2010015681 A1	11-02-2010
WO 2011151370 A1	08-12-2011	AR 081834 A1	24-10-2012
		AU 2011260333 A1	08-11-2012
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		CL 2012003358 A1	25-01-2013
		CN 102918028 A	06-02-2013
		CO 6660480 A2	30-04-2013
		EP 2576517 A1	10-04-2013
		ES 2532971 T3	06-04-2015
		JP 5730993 B2	10-06-2015
		JP 2013532138 A	15-08-2013
		KR 20130088022 A	07-08-2013
		US 2013079302 A1	28-03-2013
		WO 2011151370 A1	08-12-2011
WO 2008003746 A1	10-01-2008	NONE	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10(partially)

   Invention 1: Use of compounds of formula (I) for controlling unwanted microorganisms in plants, wherein Q is selected from Q1 to Q4.

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2. claims: 1, 4-10(all partially)

   Use of compounds of formula (I) for controlling unwanted microorganisms in plants, wherein Q is Q5 or Q6.

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3. claims: 1, 4-10(all partially)

   Use of compounds of formula (I) for controlling unwanted microorganisms in plants, wherein Q is Q7.

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4. claims: 1, 4-10(all partially)

   Use of compounds of formula (I) for controlling unwanted microorganisms in plants, wherein Q is Q8.

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5. claims: 1-10(partially)

   Use of compounds of formula (I) for controlling unwanted microorganisms in plants, wherein Q is Q9 to Q19.
