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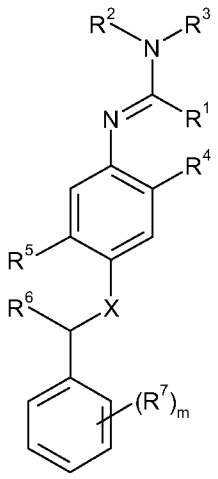
(54) Title: PESTICIDE BENZYLOXY- AND PHENETYL-SUBSTITUTED PHENYL-AMIDINE DERIVATIVES



(Ia): X = O

(Ib): X = CH2

(I)

(57) Abstract: The present invention relates to benzyloxy- and phenethyl-substituted phenyl-amidine derivatives of formula (I) wherein the substituents are as in the description, their process of preparation, their use as fungicide or insecticide active agents, particularly in the form of fungicide or insecticide compositions, and methods for the control of phytopathogenic fungi or damaging insects, notably of plants, using these compounds or compositions.

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PESTICIDE BENZYLOXY- AND PHENETHYL-SUBSTITUTED PHENYL-AMIDINE DERIVATIVES

DESCRIPTION

The present invention relates to novel 4-benzyloxy- and 4-(2-phenylethyl)-substituted phenyl-amidine derivatives, their process of preparation, their use as fungicide or insecticide active agents, particularly in the form of fungicide or insecticide compositions, and methods for the control of phytopathogenic fungi or damaging insects, notably of plants, using these compounds or compositions.

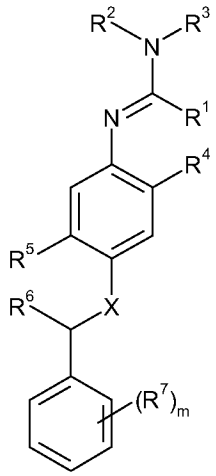
In international patent application WO-00/46184 certain phenyl-amidine derivatives are disclosed. However, this document does not specifically disclose nor suggest to select such compounds wherein the phenyl ring is substituted according to the invention thus allowing an unexpected and significantly higher fungicide or insecticide activity.

It is always of high-interest in agriculture to use novel pesticide compounds in order to avoid or to control the development of resistant strains to the active ingredients. It is also of high-interest to use novel compounds being more active than those already known, with the aim of decreasing the amounts of active compound to be used, whilst at the same time maintaining an effectiveness at least equivalent to the already known compounds.

In the same way, it is also always of high-interest to use novel insecticide, namatocide or acaricide agents to control damaging insects or other damaging organisms.

We have now found a new family of compounds which possess the above mentioned effects or advantages.

Accordingly, the present invention provides bi-phenyl-amidine derivatives of formula (I) :



(Ia): X = O - (Ib): X = CH_2

(I)

wherein

- X = O or CH_2 ;
- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2, R^1 and R^3 or R^2 and R^3 can form together a substituted or non substituted 5- to 7-membered heterocycle ;
- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl
- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7, which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, $-S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, $-SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, $-CR^{10}$=N-O-R^{12} ;
- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- n represents 0, 1 or 2 ;
- R^8 and R^9, which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;

- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;

as well as salts, N-oxydes, metallic complexes, metalloidic complexes and optically active or geometric isomers thereof.

Any of the compounds according to the invention can exist in one or more optical, geometric or chiral isomer forms depending on the number of asymmetric centres in the compound. The invention thus relates equally to all the optical isomers and to their racemic or scalemic mixtures (the term "scalemic" denotes a mixture of enantiomers in different proportions), and to the mixtures of all the possible stereoisomers, in all proportions. The diastereoisomers and/or the optical isomers can be separated according to the methods which are known *per se* by the man ordinary skilled in the art.

Any of the compounds according to the invention can also exist in one or more geometric isomer forms depending on the number of double bonds in the compound. The invention thus relates equally to all geometric isomers and to all possible mixtures, in all proportions. The geometric isomers can be separated according to general methods, which are known *per se* by the man ordinary skilled in the art.

For the compounds according to the invention, halogen means either one of fluorine, bromine, chlorine or iodine and heteroatom can be nitrogen, oxygen or sulphur.

Preferred compounds of formula (I) according to the invention are those wherein R^1 represents H ; C_1-C_{12}-alkyl, preferably C_1-C_{12}-alkyl like methyl ; or SH.

Other preferred compounds of formula (I) according to the invention are those wherein R^2 represents methyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^3 represents C_2-C_{12}-alkyl, preferably a non substituted C_2-C_4-alkyl like ethyl, n-propyl, i-propyl ; C_2-C_{12}-alkenyl, preferably C_3-C_4-alkenyl like propenyl or allyl ; C_3-C_6-cycloalkyl like cyclopropyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle, preferably a 6-membered heterocycle, more preferably a pipiridinyl or a pyrolidinyl, even more preferably a 2-alkylated-pyrolidinyl like a 2-methyl-pyrolidinyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^4 represents a C_1-C_{12}-alkyl, preferably a non substituted C_1-C_{12}-alkyl like methyl and ethyl ; a halogen atom like a fluorine and a chlorine atom ; trifluoromethyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^5 represents a C_1-C_{12}-alkyl, preferably a non substituted C_1-C_{12}-alkyl like methyl and ethyl ; a halogen atom like a fluorine and a chlorine atom ; trifluoromethyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^6 represents H or a non substituted C_1-C_6-alkyl like methyl and ethyl.

Still other preferred compounds of formula (I) according to the invention are those wherein m represents 1, 2, 3 or 4 ; even more preferably m represents 1, 2 or 3.

Still other preferred compounds of formula (I) according to the invention are those wherein R^7, which may be the same or different, represents H ; F, Cl, Br, I ; nitro ; cyano ; C_1-C_6-alkyl ; C_1-C_4-alkyl-phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; C_1-C_6-halogenoalkyl ; C_1-C_6-halogenalkoxy ; C_1-C_6-halogenoalkylthio ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; benzyloxy which may be non substituted or substituted by halogen ; phenoxy which may be non substituted or substituted by a halogen atom or CF_3 ; NR^8R^9 ; C_1-C_4-alkyl-NR^8R^9 ; $S(O)_nR^{10}$; C_1-C_4-alkyl-$S(O)_nR^{10}$; OR^{11} ; C_1-C_4-alkyl-COR^{11} ; $-CR^{10}$=N-O-R^{12}.

Still other preferred compounds of formula (I) according to the invention are those wherein R^8 and R^9 which may be the same or different, represent H, C_1-C_6-alkyl or $R^8$and R^9 can form a heterocyclic ring comprising further heteroatoms selected in the list consisting of O, S, N.

Still other preferred compounds of formula (I) according to the invention are those wherein R^{10} represents H, methyl or ethyl.

Still other preferred compounds of formula (I) according to the invention are those wherein R^{11} represents H ; C_1-C_4-alkyl ; C_1-C_4-alkoxy ; NR^8R^9.

Still other preferred compounds of formula (I) according to the invention are those wherein R^{12} represents H ; C_1-C_4-alkyl ; C_1-C_4-halogenoalkyl ; C_1-C_4-alkyl-phenyl wherein phenyl may be substituted by F, Cl, Br, I, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl or C_1-C_4-halogenoalkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; phenoxy ; benzyloxy.

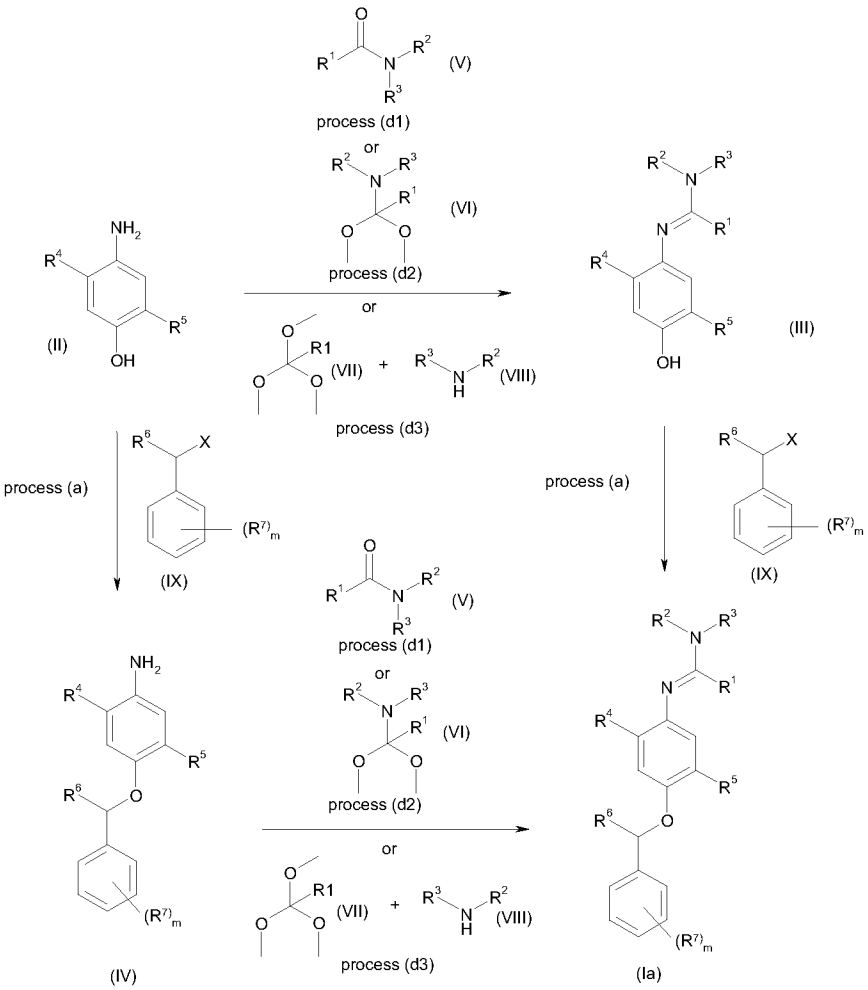
Still other preferred compounds of formula (I) according to the invention are those wherein R^{10} and R^{12} can form a 5- or 6-membered heterocyclic ring comprising a further heteroatom selected in the list consisting of O, S, N.

The above mentioned preferences with regard to the substituents of the compounds according to the invention can be combined in various manners. These combinations of preferred features thus provide sub-classes of compounds according to the invention. Examples of such sub-classes of preferred compounds according to the invention can combine:

- preferred features of R^1 with preferred features of R^2 to R^7 or to R^{12} where applicable ;
- preferred features of R^2 with preferred features of R^1 to R^7 or to R^{12} where applicable ;
- preferred features of R^3 with preferred features of R^1 to R^7 or to R^{12} where applicable ;
- preferred features of R^4 with preferred features of R^1 to R^7 or to R^{12} where applicable ;
- preferred features of R^5 with preferred features of R^1 to R^7 or to R^{12} where applicable.
- preferred features of R^6 with preferred features of R^1 to R^7 or to R^{12} where applicable

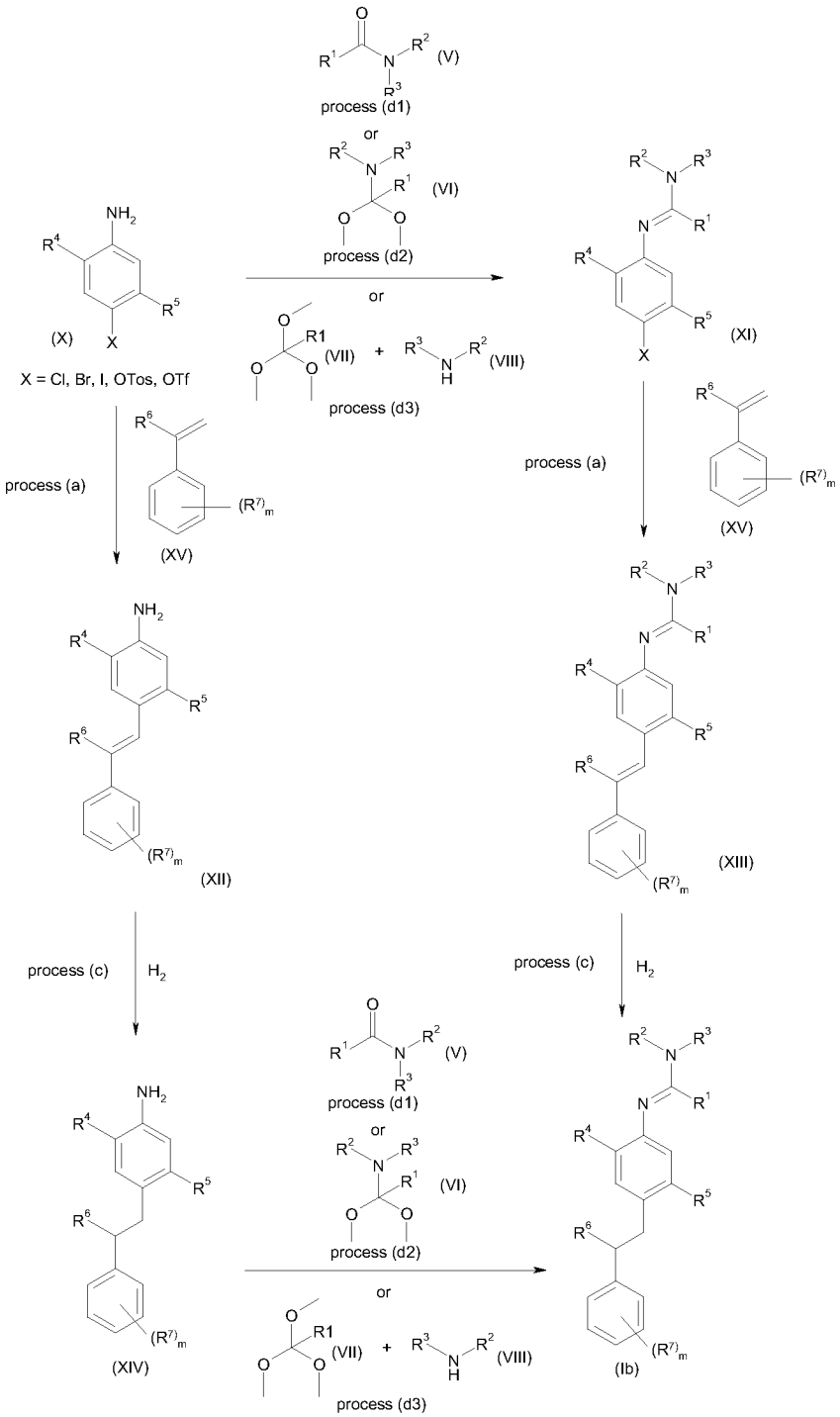
In these combinations of preferred features of the substituents of the compounds according to the invention, the said preferred features can also be selected among the more preferred features of each of m, n and R^1 to R^{12} so as to form most preferred subclasses of compounds according to the invention.

The present invention also relates to a process for the preparation of a compound of formula (Ia). Generally, the preparation of compound of formula (Ia) according to the invention can be carried out as illustrated by scheme 1.



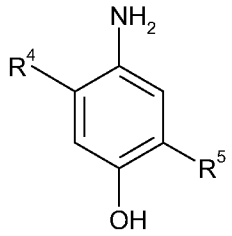
Scheme 1

The present invention also relates to a process for the preparation of a compound of formula (Ib). Generally, the preparation of compound of formula (Ib) according to the invention can be carried out as illustrated by scheme 2.



Scheme 2

Thus according to a further aspect according to the invention, there is provided a process (a) for the preparation of aniline derivatives of formulae (Ia) or (IV) by reacting aniline derivatives of formulae (II) or (III)



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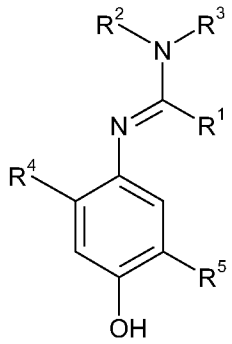
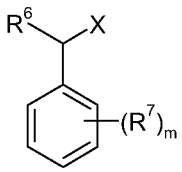


(III)

wherein

- R^1, R^2, R^3, R^4 and R^5 are as herein-defined ;

with a benzylic derivative (IV)



(IX)

wherein

- m, R^6 and R^7 are as herein-defined ;
- X represents Cl, Br, I, tosylate, SOMe, mesylate or triflate.

Process (a) according to the invention can further comprise one or more of the following characteristics:

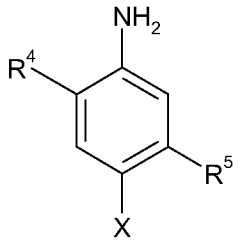
- presence of a base;
- presence of an inert organic diluent.

For carrying out process (a) according to the invention, aniline or amidine derivatives of formulae (II) or (III) respectively can be used as starting materials. Preferred starting materials for process (a) according to the invention are compounds of formulae (II) or (III) wherein R^1, R^2, R^3, R^4 and R^5 represent substituents as herein-defined for preferred compound of formula (I) according to the invention.

Aniline derivatives of formula (II) and benzylic compounds of formula (IX), as well as respective process for their preparation are known.

Formula (IX) provides a general definition of the benzylic compounds that can be used as starting materials for carrying out process (a) according to the invention. In formula (IX), R^6, R^7 and m represent preferably substituents which have already been described as preferred in connection with compounds of formula (I).

A further aspect according to the invention lies in a process (b) for the preparation of aniline derivatives of formulae (XII) or (XIII) by reacting aniline derivatives of formulae (X) or (XI)



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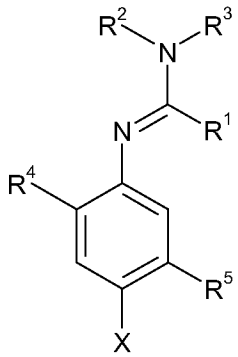
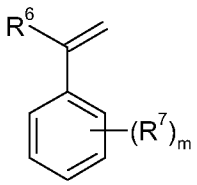


(XI)

wherein

- R^1, R^2, R^3, R^4 and R^5 are as herein-defined
- X represents Cl, Br, I, triflate, mesylate, SOMe or tosylate ;

with a styrene derivative of formula (XV)



(XV)

wherein

- m, R^6 and R^7 are as herein-defined.

Process (b) according to the invention can further comprise one or more of the following characteristics:

- presence of a base;
- presence of an inert organic diluent;
- presence of a catalyst;
- presence of a ligand;
- presence of additives.

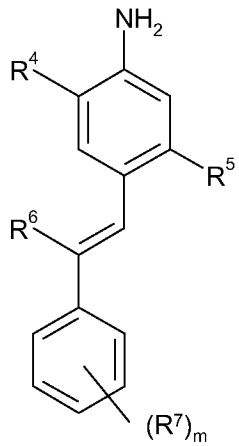
For carrying out process (b) according to the invention, aniline or amidine derivatives of formulae (VI) or (VII) respectively can be used as starting materials.

Preferred starting materials for process (b) according to the invention are compounds of formulae (X) or (XI) wherein R^1, R^2, R^3, R^4 and R^5 represent substituents as herein-defined for preferred compound of formula (I) according to the invention.

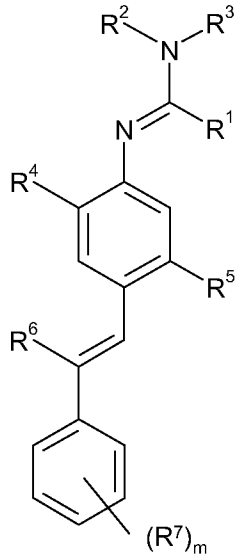
Aniline derivatives of formula (X) and styrene dervatives of formula (XV), as well as respective process for their preparation are known.

Formula (XV) provides a general definition of the styrene derivatives that can be used as starting materials for carrying out process (a) according to the invention. In formula (XV), R^6, R^7 and m represent preferably substituents which have already been described as preferred in connection with compounds of formula (I).

A further aspect according to the invention lies in a process (c) for the preparation of the aniline derivatives of formulae (XIV) or (Ib) by reacting aniline derivatives of formulae (XII) or (XIII)



(XII)



(XII)

wherein

- m, R^6 and R^7 are as herein-defined ;

with a source of hydrogen, preferably hydrogen itself.

Process (c) according to the invention can further comprise one or more of the following characteristics:

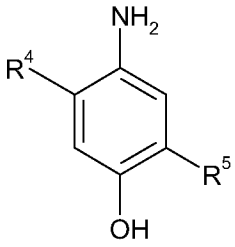
- presence of an inert organic diluent;
- presence of an acid or a base;
- presence of a catalyst.

For carrying out process (c) according to the invention, aniline or amidine derivatives of formulae (XII) or (XIII) respectively can be used as starting materials.

Preferred starting materials for process (c) according to the invention are compounds of formulae (XII) or (XIII) wherein R^1, R^2, R^3, R^4, R^5, R^6 and R^7 represent substituents as herein-defined for preferred compound of formula (I) according to the invention.

Amidine derivatives of formulae (Ia), (Ib), (III) and (XI) can be obtained by a further process according to the invention. Various alternatives of process (d) according to the invention can be considered, they are defined as process (d1), process (d2) and process (d3) according to the invention.

Process (d) according to the invention comprises reacting aniline derivatives of formulae (II), (IV), (X) or (XIV) with different reagents thus defining processes (d1), (d2) and (d3) respectively.



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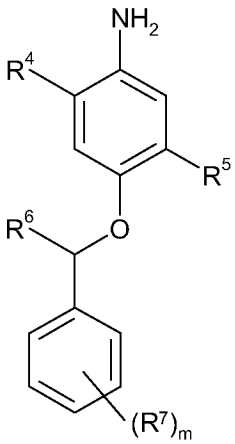

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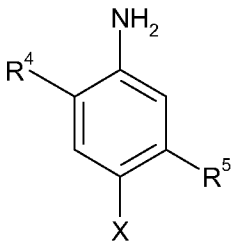
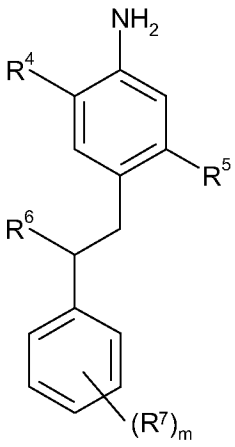


(X)

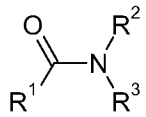


(XIV)

wherein

- R^4, R^5, R^6, R^7 and m are as herein-defined ;
- X represents halogen, triflate, SOMe, mesylate or tosylate.

Process (d1) is carried out further using amide derivatives of formula (V)



(V)

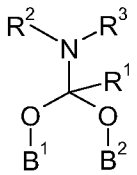
wherein

- R^1, R^2, R^3 are as herein-defined.

Process (d1) according to the invention can further comprise one or more of the following characteristics:

- presence of a halogenation agent, like PCl_5, PCl_3, $POCl_3$, $SOCl_2$;
- presence of a diluent.

Process (d2) is carried out further using amino-acetal derivatives of formula (VI)



(VI)

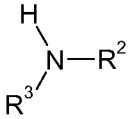
wherein

- R^1, R^2, R^3 are as herein-defined ;
- B^1 and B^2 represent each alkyl or together cycloalkyl.

Process (d2) according to the invention can further comprise one or more of the following characteristics:

- presence of an acid or a base ;
- presence of a diluent.

Process (d3) is carried out further using amine derivatives of formula (VIII)

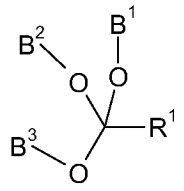


(VIII)

wherein

- R^2 and R^3 are as herein-defined ;

in presence of orthoester derivatives of formula (VII)



(VII)

wherein

- R^1 is as herein-defined ;
- B^1, B^2 and B^3 represent each alkyl.

Formulae (II), (IV), (X) or (XIV) provide general definitions of the aniline derivatives useful as starting materials for carrying out the processes (d1), (d2) and (d3) according to the invention. In these formulae R^1, R^2, R^3, R^4, R^5, R^6, R^7 and m preferably represent substituents or values as herein-defined in connection with the description of compounds of formula (I) according to the invention.

Processes (d), (d1), (d2) or (d3) according to the invention can further comprise one or more of the following characteristics:

- presence of an acid or a base ;
- presence of a diluent.

Suitable diluents for carrying out process (a) according to the invention are all customary inert organic solvents. Preference is given to using aliphatic, alicyclic or aromatic hydrocarbons, such as petroleum ether, hexane, heptane, cyclohexane, methylcyclohexane, benzene, toluene, xylene or decalin; halogenated hydrocarbons, such as chlorobenzene, dichlorobenzene, dichloromethane, chloroform, carbon tetrachloride, dichloroethane or trichloroethane; ethers, such as diethyl ether, diisopropyl ether, methyl tert-butyl ether, methyl tert-amyl ether, dioxane, tetrahydrofuran, 1,2-dimethoxyethane, 1,2-diethoxyethane or anisole; nitriles, such as acetonitrile, propionitrile, n- or iso-butyronitrile or benzonitrile; amides, such as N,N-dimethyl-formamide, N,N-dimethylacetamide, N-methylformanilide, N-methylpyrrolidone or hexamethyl-phosphoric triamide.

Suitable diluents for carrying out process (b) according to the invention are all customary inert organic solvents. Preference is given to using aliphatic, alicyclic or aromatic hydrocarbons, such as petroleum ether, hexane, heptane, cyclohexane, methylcyclohexane, benzene, toluene, xylene or decalin; halogenated hydrocarbons, such as chlorobenzene, dichlorobenzene, dichloromethane, chloroform, carbon tetrachloride, dichloroethane or trichloroethane; ethers, such as diethyl ether, diisopropyl ether, methyl tert-butyl ether, methyl tert-amyl ether, dioxane, tetrahydrofuran, 1,2-dimethoxyethane, 1,2-diethoxyethane or anisole; nitriles, such as

acetonitrile, propionitrile, n- or iso-butyronitrile or benzonitrile; amides, such as N,N-dimethylformamide, N,N-dimethylacetamide, N-methylformanilide, N-methylpyrrolidone or hexamethylphosphoric triamide, esters, such as methyl acetate or ethyl acetate; sulphoxides, such as dimethylsulphoxide; or sulphones, such as sulpholane; alcohols, such as methanol, ethanol, n- or iso-propanol, n-, iso-, sec- or tert-butanol, ethanediol, propane-1,2-diol, ethoxyethanol, methoxyethanol, diethyleneglycolmonomethylether, diethyleneglycolmonoethylether; mixtures thereof with water or pure water.

Suitable diluents for carrying out process (c) according to the invention are customary inert organic solvents. Preference is given to using aliphatic, alicyclic or aromatic hydrocarbons, such as petroleum ether, hexane, heptane, cyclohexane, methylcyclohexane, benzene, toluene, xylene or decalin; ethers, such as diethyl ether, diisopropyl ether, methyl tert-butyl ether, methyl tert-amyl ether, dioxane, tetrahydrofuran, 1,2-dimethoxyethane, 1,2-diethoxyethane or anisole; nitriles, such as acetonitrile, propionitrile, n- or iso-butyronitrile or benzonitrile; amides, such as N,N-dimethylformamide, N,N-dimethylacetamide, N-methylformanilide, N-methylpyrrolidone or hexamethylphosphoric triamide; esters, such as methyl acetate or ethyl acetate; sulphoxides, such as dimethylsulphoxide; or sulphones, such as sulpholane; alcohols, such as methanol, ethanol, n- or iso-propanol, n-, iso-, sec- or tert-butanol, ethanediol, propane-1,2-diol, ethoxyethanol, methoxyethanol, diethyleneglycolmonomethylether, diethyleneglycolmonoethylether; mixtures thereof with water or pure water.

Suitable diluents for carrying out the processes (d1), (d2) and (d3) according to the invention are in each case all customary inert organic solvents. Preference is given to using aliphatic, alicyclic or aromatic hydrocarbons, such as petroleum ether, hexane, heptane, cyclohexane, methylcyclohexane, benzene, toluene, xylene or decalin; ethers, such as diethyl ether, diisopropyl ether, methyl tert-butyl ether, methyl tert-amyl ether, dioxane, tetrahydrofuran, 1,2-dimethoxyethane, 1,2-diethoxyethane or anisole; nitriles, such as acetonitrile, propionitrile, n- or iso-butyronitrile or benzonitrile; amides, such as N,N-dimethylformamide, N,N-dimethylacetamide, N-methylformanilide, N-methylpyrrolidone or hexamethylphosphoric triamide; esters, such as methyl acetate or ethyl acetate; sulphoxides, such as dimethylsulphoxide; or sulphones, such as sulpholane; alcohols, such as methanol, ethanol, n- or iso-propanol, n-, iso-, sec- or tert-butanol, ethanediol, propane-1,2-diol, ethoxyethanol, methoxyethanol, diethyleneglycolmonomethylether, diethyleneglycolmonoethylether; mixtures thereof with water or pure water.

Suitable acid binders for carrying out process (a) are all inorganic and organic bases customary for such reactions. Preference is given to using alkaline earth metal or alkali metal hydrides, carbonates or hydrogen carbonates, phosphates or fluorides, such as sodium hydride, sodium carbonate, potassium carbonate, caesium carbonate, potassium bicarbonate, sodium bi-

carbonate, sodium phosphate, potassium phosphate, or ammonium carbonate; and also tertiary amines, such as trimethylamine, triethylamine, tributylamine, N,N-dimethylaniline, N,N-dimethyl-benzylamine, pyridine, N-methylpiperidine, N-methylmorpholine, N,N-dimethylaminopyridine, diazabicyclooctane (DABCO), diazabicyclononene (DBN) or di-azabicycloundecene (DBU).

Suitable acid binders for carrying out process (b) are all inorganic and organic bases customary for such reactions. Preference is given to using alkaline earth metal or alkali metal alcoholates, carbonates or phosphates, such as potassium tert-butanolate, sodium carbonate, potassium carbonate, caesium carbonate, sodium phosphate, potassium phosphate, and also tertiary amines, such as trimethylamine, triethylamine, tributylamine, dicyclohexylamin, dicyclohexylmethylamin or diazabicyclooctane (DABCO).

Suitable acid binders for carrying out the processes (c) and (d) according to the invention are in each case all inorganic and organic bases customary for such reactions. Preference is given to using alkaline earth metal or alkali metal hydrides, hydroxides, amides, alcoholates, acetates, fluorides, phosphates, carbonates or hydrogen carbonates, such as sodium hydride, sodium - amide, lithium diisopropylamide, sodium methanolate, sodium ethanolate, potassium tert-butanolate, sodium hydroxide, potassium hydroxide, sodium acetate, sodium phosphate, potassium phosphate, potassium fluoride, caesium fluoride, sodium carbonate, potassium carbonate, potassium hydrogencarbonate, sodium hydrogencarbonate or caesium carbonate; and also tertiary amines, such as trimethylamine, triethylamine, tributylamine, N,N-dimethylaniline, N,N-dimethyl-benzylamine, pyridine, N-methylpiperidine, N-methylmorpholine, N,N-dimethylamino-pyridine, diazabicyclooctane (DABCO), diazabicyclononene (DBN) or diazabicycloundecene (DBU).

Suitable acids for carrying out the process (d3) according to the invention are all inorganic and organic acids customary for such reactions. Preference is given to using para-toluene sulfonic acid, methane sulfonic acid, hydrochloric acid (gas, aqueous or organic solution) or sulphuric acid.

Suitable condensing agents for carrying out the process (d1) according to the invention are all condensing agents customary for such amidation reactions. Preference is given to using acid halide former, such as phosgene, phosphorous tribromide, phosphorous trichloride, phosphorous pentachloride, phosphorous trichloride oxide or thionyl chloride; anhydride former, such as ethyl chloroformate, methyl chloroformate, isopropyl chloroformate, isobutyl chloroformate or methanesulfonyl chloride; carbodiimides, such as N,N'-dicyclo-hexylcarbodiimide (DCC) or other customary condensing agents, such as phosphorous pentoxide, polyphosphoric acid, N,N'-carbonyldiimidazole, 2-ethoxy-N-ethoxycarbonyl-1,2-

dihydroquinoline (EEDQ), triphenylphosphine/tetrachloromethane or bromo-tripyrrolidino-phosphonium-hexafluorophosphate.

Process (b) according to the invention can be carried out in the presence of a catalyst. Preference is given to palladium salts or complexes, such as palladium chloride, palladium acetate, bis-(dibenzylidenaceton)-palladium, tris-(dibenzylidenaceton)-bis-palladium, tetrakis-(triphenylphosphine) palladium, bis-(triphenylphosphine) palladium dichloride or 1,1'-Bis(diphenylphosphino)ferrocenepalladium(II)chloride.
It is also possible to generate a palladium complex directly in the reaction mixture by separately adding to the reaction mixture a palladium salt and a complex ligand, such as triethylphosphane, tri-tert-butylphosphane, tricyclohexylphosphane, 2-(dicyclohexylphosphane)biphenyl, 2-(di-tert-butylphosphan)biphenyl, 2-(dicyclohexylphosphane)-2'-(N,N-dimethylamino)-biphenyl, triphenylphosphane, tris-(o-tolyl)phosphane, sodium 3-(diphenylphosphino)benzolsulfonate, tris-2-(methoxyphenyl)phosphane, 2,2'-bis-(diphenylphosphane)-1,1'-binaphthyl, 1,4-bis-(diphenylphosphane)butane, 1,2-bis-(diphenylphosphane)ethane, 1,4-bis-(dicyclohexylphosphane)butane, 1,2-bis-(dicyclohexylphosphane)ethane, 2-(dicyclohexylphosphane)-2'-(N,N-dimethylamino)-biphenyl, bis(diphenylphosphino)ferrocene or tris-(2,4-tert-butylphenyl)-phosphite.

Process (b) according to the invention can be carried out in the presence of an additive such as alkali metal salts as lithium chloride or sodium chloride or potassium chloride or a silver salt such as silver carbonate, silver phosphate, silver nitrate, silver acetate or silver triflate or a thallium salt such as thallium carbonate or thallium acetate or a phase transfer catalyst such as tetrabutylammonium bromide or tetrabutylammonium acetate.

Process (c) according to the invention can be carried out in the presence of a catalyst. Preference is given to metals like platinum, palladium, nickel, rhodium, iridium and ruthernium, preferably adsorbed on a solid support like carbon, alumina, calcium sulphate or barium sulphate; oxides or hydroxides of platinum, palladium, nickel, rhodium, iridium and ruthernium or soluble complexes thereorf, like Wilkinson's catalyst or Vaska's catalyst.

When carrying out processes (a), (b), (c) and (d) according to the invention, the reaction temperatures can in each case be varied within a relatively wide range. In general, the processes are carried out at temperatures from 0°C to 180°C, preferably from 10°C to 150°C, particularly preferably from 20°C to 120°C.

When carrying out process (a) according to the invention, in general 0.5 to 15 mole, preferably from 0.8 to 8 mole, of benzylic derivative of formula (IX) and from 1 to 5 mol of acid binder and are employed per mole of amine or amidine of formula (II) or (III). However, it is also possible to

employ the reaction components in other ratios. Work-up is carried out by customary methods. In general, water is added to the reaction mixture and the precipitate is separated off and dried. The residue that remains may, if appropriate, be freed of any impurities that may still be present using customary methods, such as chromatography or recrystallization.

When carrying out process (b) according to the invention, in general 0.8 to 15 mole, preferably from 0.8 to 8 mole of styrene (XV) and from 1 to 10 mol of acid binder and from 0.5 to 10 mole% of a catalyst and from 0.5 to 20 mole% of a ligand are employed per mole of amine or amidine of formula (X) or (XI). However, it is also possible to employ the reaction components in other ratios. Work-up is carried out by customary methods. In general, water is added to the reaction mixture and the precipitate is separated off and dried. The residue that remains may, if appropriate, be freed of any impurities that may still be present using customary methods, such as chromatography or recrystallization.

When carrying out process (c) according to the invention, in general 0.5 to 10 mol-% of catalyst are employed per mole of of amine or amidine of formula (XII) or (XIII). However, it is also possible to employ the reaction components in other ratios. Work-up is carried out by customary methods. In general, the catalyst is filtered off and the residue that remains may, if appropriate, be freed of any impurities that may still be present using customary methods, such as chromatography or recrystallization.

When carrying out process (d1) according to the invention, per mole of the amine of formula (II), (IV), (X) or (XIV) in general 0.8 to 50 mole, preferably 1 to 10 mole of amide of formula (V) and 1 to 10 mole of halogenation agent are employed. However, it is also possible to employ the reaction components in other ratios. Work-up is carried out by customary methods.

When carrying out process (d2) according to the invention, per mole of the amine of formula (II), (V), (VI) or (XI) in general 0.8 to 50 mole, preferably 1 to 10 mole of an aminoacetal of formula (VI) are employed. However, it is also possible to employ the reaction components in other ratios. Work-up is carried out by customary methods.

When carrying out process (d3) according to the invention, per mole of the amine of formula (II), (IV), (X) or (XIV) in general 0.8 to 50 mole, preferably 1 to 10 mole of an orthoester of formula (VII) and 0.8 to 50 mole, preferably 1 to 10 mole of an amine of formula (VIII) and a catalytic amount of acid are employed. However, it is also possible to employ the reaction components in other ratios. Work-up is carried out by customary methods.

All processes according to the invention are generally carried out under atmospheric pressure. However, in each case it is also possible to operate under elevated or reduced pressure, in general between 0,1 bar and 10 bar.

Process (b) according to theinvention is generally carried out under an inert gas atmosphere such nitrogen or argon, process (c) under hydrogen atmosphere.

Compounds of formula (I) according to the invention can be prepared according to the herein described processes. It will nevertheless be understood that, on the basis of his general knowledge and of available publications, the skilled worker will be able to adapt these processes according to the specifics of each of the compounds which it is desired to synthesise.

In a further aspect, the present invention also relates to a fungicide or insecticide composition comprising an effective and non-phytotoxic amount of an active compound of formula (I).

The expression "effective and non-phytotoxic amount" means an amount of composition according to the invention which is sufficient to control or destroy the fungi present or liable to appear on the crops, and which does not entail any appreciable symptom of phytotoxicity for the said crops. Such an amount can vary within a wide range depending on the fungus to be controlled, the type of crop, the climatic conditions and the compounds included in the fungicide composition according to the invention.
This amount can be determined by systematic field trials, which are within the capabilities of a person skilled in the art.

Thus, according to the invention, there is provided a fungicide or insecticide composition comprising, as an active ingredient, an effective amount of a compound of formula (I) as herein-defined and an agriculturally acceptable support, carrier or filler.

According to the invention, the term "support" denotes a natural or synthetic, organic or inorganic compound with which the active compound of formula (I) is combined or associated to make it easier to apply, notably to the parts of the plant. This support is thus generally inert and should be agriculturally acceptable. The support may be a solid or a liquid. Examples of suitable supports include clays, natural or synthetic silicates, silica, resins, waxes, solid fertilisers, water, alcohols, in particular butanol, organic solvents, mineral and plant oils and derivatives thereof. Mixtures of such supports may also be used.

The composition according to the invention may also comprise additional components. In particular, the composition may further comprise a surfactant. The surfactant can be an emulsifier, a dispersing agent or a wetting agent of ionic or non-ionic type or a mixture of such

surfactants. Mention may be made, for example, of polyacrylic acid salts, lignosulphonic acid salts, phenolsulphonic or naphthalenesulphonic acid salts, polycondensates of ethylene oxide with fatty alcohols or with fatty acids or with fatty amines, substituted phenols (in particular alkylphenols or arylphenols), salts of sulphosuccinic acid esters, taurine derivatives (in particular alkyl taurates), phosphoric esters of polyoxyethylated alcohols or phenols, fatty acid esters of polyols, and derivatives of the present compounds containing sulphate, sulphonate and phosphate functions. The presence of at least one surfactant is generally essential when the active compound and/or the inert support are water-insoluble and when the vector agent for the application is water. Preferably, surfactant content may be comprised from 5% to 40% by weight of the composition.

Optionally, additional components may also be included, e.g. protective colloids, adhesives, thickeners, thixotropic agents, penetration agents, stabilisers, sequestering agents. More generally, the active compounds can be combined with any solid or liquid additive, which complies with the usual formulation techniques.

In general, the composition according to the invention may contain from 0.05 to 99% by weight of active compound, preferably 10 to 70% by weight.

Compositions according to the invention can be used in various forms such as aerosol dispenser, bait (ready for use), bait concentrate, block bait, capsule suspension, cold fogging concentrate, dustable powder, emulsifiable concentrate, emulsion oil in water, emulsion water in oil, encapsulated granule, fine granule, flowable concentrate for seed treatment, gas (under pressure), gas generating product, grain bait, granular bait, granule, hot fogging concentrate, macrogranule, microgranule, oil dispersible powder, oil miscible flowable concentrate, oil miscible liquid, paste, plant rodlet, plate bait, powder for dry seed treatment, scrap bait, seed coated with a pesticide, smoke candle, smoke cartridge, smoke generator, smoke pellet, smoke rodlet, smoke tablet, smoke tin, soluble concentrate, soluble powder, solution for seed treatment, suspension concentrate (= flowable concentrate), tracking powder, ultra low volume (ulv) liquid, ultra low volume (ulv) suspension, vapour releasing product, water dispersible granules or tablets, water dispersible powder for slurry treatment, water soluble granules or tablets, water soluble powder for seed treatment and wettable powder.

These compositions include not only compositions which are ready to be applied to the plant or seed to be treated by means of a suitable device, such as a spraying or dusting device, but also concentrated commercial compositions which must be diluted before application to the crop.

The compounds according to the invention can also be mixed with one or more insecticide, fungicide, bactericide, attractant, acaricide or pheromone active substance or other compounds with biological activity. The mixtures thus obtained have a broadened spectrum of activity.

The mixtures with other fungicide compounds are particularly advantageous. Examples of suitable fungicide mixing partners may be selected in the following lists :

B1) a compound capable to inhibit the nucleic acid synthesis like benalaxyl, benalaxyl-M, bupirimate, chiralaxyl, clozylacon, dimethirimol, ethirimol, furalaxyl, hymexazol, metalaxyl, metalaxyl-M, ofurace, oxadixyl, oxolinic acid ;

B2) a compound capable to inhibit the mitosis and cell division like benomyl, carbendazim, diethofencarb, fuberidazole, pencycuron, thiabendazole thiophanate-methyl, zoxamide ;

B3) a compound capable to inhibit the respiration for example

as CI-respiration inhibitor like diflumetorim ;

as CII-respiration inhibitor like boscalid, carboxin, fenfuram, flutolanil, furametpyr, mepronil, oxycarboxine, penthiopyrad, thifluzamide ;

as CIII-respiration inhibitor like azoxystrobin, cyazofamid, dimoxystrobin, enestrobin, famoxadone, fenamidone, fluoxastrobin, kresoxim-methyl, metominostrobin, orysastrobin, pyraclostrobin, picoxystrobin, trifloxystrobin ;

B4) a compound capable of to act as an uncoupler like dinocap, fluazinam ;

B5) a compound capable to inhibit ATP production like fentin acetate, fentin chloride, fentin hydroxide, silthiofam ;

B6) a compound capable to inhibit AA and protein biosynthesis like andoprim, blasticidin-S, cyprodinil, kasugamycin, kasugamycin hydrochloride hydrate, mepanipyrim, pyrimethanil ;

B7) a compound capable to inhibit the signal transduction like fenpiclonil, fludioxonil, quinoxyfen ;

B8) a compound capable to inhibit lipid and membrane synthesis like chlozolinate, iprodione, procymidone, vinclozolin, pyrazophos, edifenphos, iprobenfos (IBP), isoprothiolane, tolclofos-methyl, biphenyl, iodocarb, propamocarb, propamocarb-hydrochloride ;

B9) a compound capable to inhibit ergosterol biosynthesis like fenhexamid, azaconazole, bitertanol, bromuconazole, cyproconazole, diclobutrazole, difenoconazole, diniconazole, diniconazole-M, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, furconazole, furconazole-cis, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, paclobutrazol, penconazole, propiconazole, prothioconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, uniconazole, voriconazole, imazalil, imazalil sulfate, oxpoconazole, fenarimol, flurprimidol, nuarimol, pyrifenox, triforine, pefurazoate, prochloraz, triflumizole, viniconazole, aldimorph, dodemorph, dodemorph acetate, fenpropimorph, tridemorph, fenpropidin, spiroxamine, naftifine, pyributicarb, terbinafine ;

B10) a compound capable to inhibit cell wall synthesis like benthiavalicarb, bialaphos, dimethomorph, flumorph, iprovalicarb, polyoxins, polyoxorim, validamycin A ;

B11) a compound capable to inhibit melanine biosynthesis like carpropamid, diclocymet, fenoxanil, phtalide, pyroquilon, tricyclazole ;

B12) a compound capable to induce a host defence like acibenzolar-S-methyl, probenazole, tiadinil ;

B13) a compound capable to have a multisite action like captafol, captan, chlorothalonil, copper preparations such as copper hydroxide, copper naphthenate, copper oxychloride, copper sulphate, copper oxide, oxine-copper and Bordeaux mixture, dichlofluanid, dithianon, dodine, dodine free base, ferbam, fluorofolpet, folpet, guazatine, guazatine acetate, iminoctadine, iminoctadine albesilate, iminoctadine triacetate, mancopper, mancozeb, maneb, metiram, metiram zinc, propineb, sulphur and sulphur preparations including calcium polysulphide, thiram, tolylfluanid, zineb, ziram ;

B14) a compound selected in the following list: amibromdole, benthiazole, bethoxazin, capsimycin, carvone, chinomethionat, chloropicrin, cufraneb, cyflufenamid, cymoxanil, dazomet, debacarb, diclomezine, dichlorophen, dicloran, difenzoquat, difenzoquat methylsulphate, diphenylamine, ethaboxam, ferimzone, flumetover, flusulfamide, fosetyl-aluminium, fosetyl-calcium, fosetyl-sodium, fluopicolide, fluoroimide, hexachlorobenzene, 8-hydroxyquinoline sulfate, irumamycin, methasulphocarb, metrafenone, methyl isothiocyanate, mildiomycin, natamycin, nickel dimethyldithiocarbamate, nitrothal-isopropyl,octhilinone, oxamocarb, oxyfenthiin, pentachlorophenol and salts, 2-phenylphenol and salts, phosphorous acid and its salts, piperalin, propanosine–sodium, proquinazid, pyrrolnitrine, quintozene, tecloftalam, tecnazene, triazoxide, trichlamide, zarilamid and 2,3,5,6-tetrachloro-4-(methylsulfonyl)-pyridine, N-(4-Chloro-2-nitrophenyl)-N-ethyl-4-methyl-benzenesulfonamide, 2-amino-4-methyl-N-phenyl-5-thiazolecarboxamide, 2-chloro-N-(2,3-dihydro-1,1,3-trimethyl-1H-inden-4-yl)-3-

pyridincarboxamide, 3-[5-(4-chlorophenyl)-2,3-dimethylisoxazolidin-3-yl]pyridine, cis-1-(4-chlorophenyl)-2-(1H-1,2,4-triazole-1-yl)-cycloheptanol, methyl 1-(2,3-dihydro-2,2-dimethyl-1H-inden-1-yl)-1H-imidazole-5-carboxylate, 3,4,5-trichloro-2,6-pyridinedicarbonitrile, Methyl 2-[[[cyclopropyl[(4-methoxyphenyl)imino]methyl]thio]methyl]-.alpha.-(methoxymethylene)-benzeneacetate, 4-Chloro-alpha-propynyloxy-N-[2-[3-methoxy-4-(2-propynyloxy)phenyl]ethyl]-benzeneacetamide, (2S)-N-[2-[4-[[3-(4-chlorophenyl)-2-propynyl]oxy]-3-methoxyphenyl]ethyl]- 3-methyl-2-[(methylsulfonyl)amino]-butanamide, 5-chloro-7-(4-methylpiperidin-1-yl)-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine, 5-chloro-6-(2,4,6-trifluorophenyl)-N-[(1R)-1,2,2-trimethylpropyl][1,2,4]triazolo[1,5-a]pyrimidin-7-amine, 5-chloro-N-[(1R)-1,2-dimethylpropyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidin-7-amine, N-[1-(5-bromo-3-chloropyridin-2-yl)ethyl]-2,4-dichloronicotinamide, N-(5-bromo-3-chloropyridin-2-yl)methyl-2,4-dichloronicotinamide, 2-butoxy-6-iodo-3-propyl-benzopyranon-4-one, N-{(Z)-[(cyclopropylmethoxy)imino][6-(difluoromethoxy)-2,3-difluorophenyl]methyl}-2-phenylacetamide, N-(3-ethyl-3,5,5-trimethyl-cyclohexyl)-3-formylamino-2-hydroxy-benzamide, 2-[[[[1-[3(1Fluoro-2-phenylethyl)oxy]phenyl]ethylidene]amino]oxy]methyl]-alpha-(methoxyimino)-N-methyl-alphaE-benzeneacetamide, N-{2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl}-2-(trifluoromethyl)benzamide, N-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide, 2-(2-{[6-(3-chloro-2-methylphenoxy)-5-fluoropyrimidin-4-yl]oxy}phenyl)-2-(methoxyimino)-N-methylacetamide , 1-[(4-methoxyphenoxy)methyl]-2,2-dimethylpropyl-1H-imidazole-1- carboxylic acid, O-[1-[(4-methoxyphenoxy)methyl]-2,2-dimethylpropyl]-1H-imidazole- 1- carbothioic acid.

The composition according to the invention comprising a mixture of a compound of formula (I) with a bactericide compound may also be particularly advantageous. Examples of suitable bactericide mixing partners may be selected in the following list : bronopol, dichlorophen, nitrapyrin, nickel dimethyldithiocarbamate, kasugamycin, octhilinone, furancarboxylic acid, oxytetracycline, probenazole, streptomycin, tecloftalam, copper sulphate and other copper preparations.

The compound of formula (I) and the fungicide composition according to the invention can be used to curatively or preventively control the phytopathogenic fungi of plants or crops. Thus, according to a further aspect of the invention, there is provided a method for curatively or preventively controlling the phytopathogenic fungi of plants or crops characterised in that a compound of formula (I) or a fungicide composition according to the invention is applied to the seed, the plant or to the fruit of the plant or to the soil wherein the plant is growing or wherein it is desired to grow.

In the same manner, the compound of formula (I) and the insecticide composition according to the invention can be used to curatively or preventively control damaging insects, notably of

plants or crops. Thus, according to a further aspect of the invention, there is provided a method for curatively or preventively controlling damaging insects, notably of plants or crops, characterised in that a compound of formula (I) or an insecticide composition according to the invention is applied to the seed, the plant or to the fruit of the plant or to the soil wherein the plant is growing or wherein it is desired to grow.

The methods of treatment according to the invention may also be useful to treat propagation material such as tubers or rhizomes, but also seeds, seedlings or seedlings pricking out and plants or plants pricking out. These methods of treatment can also be useful to treat roots. The methods of treatment according to the invention can also be useful to treat the overground parts of the plant such as trunks, stems or stalks, leaves, flowers and fruit of the concerned plant.

Among the plants that can be protected by the method according to the invention, mention may be made of cotton ; flax ; vine ; fruit or vegetable crops such as *Rosaceae sp.* (for instance pip fruit such as apples and pears, but also stone fruit such as apricots, almonds and peaches), *Ribesioidae sp.*, *Juglandaceae sp.*, *Betulaceae sp.*, *Anacardiaceae sp.*, *Fagaceae sp.*, *Moraceae sp.*, *Oleaceae sp.*, *Actinidaceae sp.*, *Lauraceae sp.*, *Musaceae sp.* (for instance banana trees and plantins), *Rubiaceae sp.*, *Theaceae sp.*, *Sterculiceae sp.*, *Rutaceae sp.* (for instance lemons, oranges and grapefruit) ; *Solanaceae sp.* (for instance tomatoes), *Liliaceae sp.*, *Asteraceae sp.* (for instance lettuces), *Umbelliferae sp.*, *Cruciferae sp.*, *Chenopodiaceae sp.*, *Cucurbitaceae sp.*, *Papilionaceae sp.* (for instance peas), *Rosaceae sp.* (for instance strawberries) ; major crops such as *Graminae sp.* (for instance maize, lawn or cereals such as wheat, rice, barley and triticale), *Asteraceae sp.* (for instance sunflower), *Cruciferae sp.* (for instance colza), *Fabacae sp.* (for instance peanuts), *Papilionaceae sp.* (for instance soybean), *Solanaceae sp.* (for instance potatoes), *Chenopodiaceae sp.* (for instance beetroots) ; horticultural and forest crops ; as well as genetically modified homologues of these crops.

Among the diseases of plants or crops that can be controlled by the method according to the invention, mention may be made of :

Powdery mildew diseases such as :

Blumeria diseases, caused for example by *Blumeria graminis* ;

Podosphaera diseases, caused for example by *Podosphaera leucotricha ;*

Sphaerotheca diseases, caused for example by *Sphaerotheca fuliginea* ;

Uncinula diseases, caused for example by *Uncinula necator* ;

Rust diseases such as :

Gymnosporangium diseases, caused for example by *Gymnosporangium sabinae ;*

Hemileia diseases, caused for example by *Hemileia vastatrix* ;

Phakopsora diseases, caused for example by *Phakopsora pachyrhizi* or *Phakopsora meibomiae ;*

Puccinia diseases, caused for example by *Puccinia recondita* ;

Uromyces diseases, caused for example by *Uromyces appendiculatus* ;

Oomycete diseases such as :

Bremia diseases, caused for example by *Bremia lactucae* ;

Peronospora diseases, caused for example by *Peronospora pisi* or *P. brassicae* ;

Phytophthora diseases, caused for example by *Phytophthora infestans* ;

Plasmopara diseases, caused for example by *Plasmopara viticola* ;

Pseudoperonospora diseases, caused for example by *Pseudoperonospora humuli* or *Pseudoperonospora cubensis* ;

Pythium diseases, caused for example by *Pythium ultimum* ;

Leafspot, leaf blotch and leaf blight diseases such as :

Alternaria diseases, caused for example by *Alternaria solani* ;

Cercospora diseases, caused for example by *Cercospora beticola* ;

Cladiosporum diseases, caused for example by *Cladiosporium cucumerinum* ;

Cochliobolus diseases, caused for example by *Cochliobolus sativus ;*

Colletotrichum diseases, caused for example by *Colletotrichum lindemuthanium* ;

Cycloconium diseases, caused for example by *Cycloconium oleaginum* ;

Diaporthe diseases, caused for example by *Diaporthe citri* ;

Elsinoe diseases, caused for example by *Elsinoe fawcettii* ;

Gloeosporium diseases, caused for example by *Gloeosporium laeticolor* ;

Glomerella diseases, caused for example by *Glomerella cingulata* ;

Guignardia diseases, caused for example by *Guignardia bidwelli* ;

Leptosphaeria diseases, caused for example by *Leptosphaeria maculans* ; *Leptosphaeria nodorum ;*

Magnaporthe diseases, caused for example by *Magnaporthe grisea* ;

Mycosphaerella diseases, caused for example by *Mycosphaerella graminicola* ; *Mycosphaerella arachidicola ; Mycosphaerella fijiensis ;*

Phaeosphaeria diseases, caused for example by *Phaeosphaeria nodorum* ;

Pyrenophora diseases, caused for example by *Pyrenophora teres* ;

Ramularia diseases, caused for example by *Ramularia collo-cygni* ;

Rhynchosporium diseases, caused for example by *Rhynchosporium secalis* ;

Septoria diseases, caused for example by *Septoria apii* or *Septoria lycopercisi* ;

Typhula diseases, caused for example by *Typhula incarnata* ;

Venturia diseases, caused for example by *Venturia inaequalis* ;

Root and stem diseases such as :

Corticium diseases, caused for example by *Corticium graminearum* ;

Fusarium diseases, caused for example by *Fusarium oxysporum* ;

Gaeumannomyces diseases, caused for example by *Gaeumannomyces graminis* ;

Rhizoctonia diseases, caused for example by *Rhizoctonia solani* ;

Tapesia diseases, caused for example by *Tapesia acuformis* ;

Thielaviopsis diseases, caused for example by *Thielaviopsis basicola* ;

Ear and panicle diseases such as :

Alternaria diseases, caused for example by *Alternaria spp.* ;

Aspergillus diseases, caused for example by *Aspergillus flavus* ;

Cladosporium diseases, caused for example by *Cladosporium spp.* ;

Claviceps diseases, caused for example by *Claviceps purpurea* ;

Fusarium diseases, caused for example by *Fusarium culmorum* ;

Gibberella diseases, caused for example by *Gibberella zeae* ;

Monographella diseases, caused for example by *Monographella nivalis* ;

Smut and bunt diseases such as :

Sphacelotheca diseases, caused for example by *Sphacelotheca reiliana* ;

Tilletia diseases, caused for example by *Tilletia caries* ;

Urocystis diseases, caused for example by *Urocystis occulta* ;

Ustilago diseases, caused for example by *Ustilago nuda* ;

Fruit rot and mould diseases such as :

Aspergillus diseases, caused for example by *Aspergillus flavus* ;

Botrytis diseases, caused for example by *Botrytis cinerea* ;

Penicillium diseases, caused for example by *Penicillium expansum* ;

Sclerotinia diseases, caused for example by *Sclerotinia sclerotiorum* ;

Verticilium diseases, caused for example by *Verticilium alboatrum* ;

Seed and soilborne decay, mould, wilt, rot and damping-off diseases :

Fusarium diseases, caused for example by *Fusarium culmorum* ;

Phytophthora diseases, caused for example by *Phytophthora cactorum* ;

Pythium diseases, caused for example by *Pythium ultimum* ;

Rhizoctonia diseases, caused for example by *Rhizoctonia solani* ;

Sclerotium diseases, caused for example by *Sclerotium rolfsii* ;

Microdochium diseases, caused for example by *Microdochium nivale ;*

Canker, broom and dieback diseases such as :

Nectria diseases, caused for example by *Nectria galligena* ;

Blight diseases such as :

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

Leaf blister or leaf curl diseases such as :

Taphrina diseases, caused for example by *Taphrina deformans* ;

Decline diseases of wooden plants such as :

Esca diseases, caused for example by *Phaemoniella clamydospora* ;

Eutypa dyeback, caused for example by *Eutypa lata* ;

Dutch elm disease, caused for example by *Ceratocystsc ulmi* ;

Diseases of flowers and Seeds such as :

Botrytis diseases, caused for example by *Botrytis cinerea* ;

Diseases of tubers such as :

Rhizoctonia diseases, caused for example by *Rhizoctonia solani*.

Among the damaging pests or insects that can be controlled at any development stage according to the insecticide method of the invention, mention may be made to :

- the order of the *Anoplura (Phthiraptera)*, for example, *Damalinia spp.*, *Haematopinus spp.*, *Linognathus spp.*, *Pediculus spp.*, *Trichodectes spp.;*
- the class of the *Arachnida*, for example, *Acarus siro*, *Aceria sheldoni*, *Aculops spp.*, *Aculus spp.*, *Amblyomma spp.*, *Argas spp.*, *Boophilus spp.*, *Brevipalpus spp.*, *Bryobia praetiosa*, *Chorioptes spp.*, *Dermanyssus gallinae*, *Eotetranychus spp.*, *Epitrimerus pyri*, *Eutetranychus spp.*, *Eriophyes spp.*, *Hemitarsonemus spp.*, *Hyalomma spp.*, *Ixodes spp.*, *Latrodectus mactans*, *Metatetranychus spp.*, *Oligonychus spp.*, *Ornithodoros spp.*, *Panonychus spp.*, *Phyllocoptruta oleivora*, *Polyphagotarsonemus latus*, *Psoroptes spp.*, *Rhipicephalus spp.*, *Rhizoglyphus spp.*, *Sarcoptes spp.*, *Scorpio maurus*, *Stenotarsonemus spp.*, *Tarsonemus spp.*, *Tetranychus spp.*, *Vasates lycopersici;*
- the class of the *Bivalva*, for example, *Dreissena spp.;*
- the order of the *Chilopoda*, for example, *Geophilus spp.*, *Scutigera spp.;*
- the order of the *Coleoptera*, for example, *Acanthoscelides obtectus*, *Adoretus spp.*, *Agelastica alni*, *Agriotes spp.*, *Amphimallon solstitialis*, *Anobium punctatum*, *Anoplophora spp.*, *Anthonomus spp.*, *Anthrenus spp.*, *Apogonia spp.*, *Atomaria spp.*, *Attagenus spp.*, *Bruchidius obtectus*, *Bruchus spp.*, *Ceuthorhynchus spp.*, *Cleonus mendicus*, *Conoderus spp.*, *Cosmopolites spp.*, *Costelytra zealandica*, *Curculio spp.*, *Cryptorhynchus lapathi*, *Dermestes spp.*, *Diabrotica spp.*, *Epilachna spp.*, *Faustinus cubae*, *Gibbium psylloides*, *Heteronychus arator*, *Hylamorpha elegans*, *Hylotrupes bajulus*, *Hypera postica*, *Hypothenemus spp.*, *Lachnosterna consanguinea*, *Leptinotarsa decemlineata*, *Lissorhoptrus oryzophilus*, *Lixus spp.*, *Lyctus spp.*, *Meligethes aeneus*, *Melolontha melolontha*, *Migdolus spp.*, *Monochamus spp.*, *Naupactus xanthographus*, *Niptus hololeucus*, *Oryctes rhinoceros*, *Oryzaephilus surinamensis*, *Otiorrhynchus sulcatus*, *Oxycetonia jucunda*, *Phaedon cochleariae*, *Phyllophaga spp.*, *Popillia japonica*, *Premnotrypes spp.*, *Psylliodes chrysocephala*, *Ptinus spp.*, *Rhizobius ventralis*, *Rhizopertha dominica*, *Sitophilus spp.*, *Sphenophorus spp.*, *Sternechus spp.*, *Symphyletes spp.*, *Tenebrio molitor*, *Tribolium spp.*, *Trogoderma spp.*, *Tychius spp.*, *Xylotrechus spp.*, *Zabrus spp.*.
- the order of the *Collembola*, for example, *Onychiurus armatus;*
- the order of the *Dermaptera*, for example, *Forficula auricularia;*
- the order of the *Diplopoda*, for example, *Blaniulus guttulatus;*

- the order of the *Diptera*, for example, *Aedes spp.*, *Anopheles spp.*, *Bibio hortulanus*, *Calliphora erythrocephala*, *Ceratitis capitata*, *Chrysomyia spp.*, *Cochliomyia spp.*, *Cordylobia anthropophaga*, *Culex spp.*, *Cuterebra spp.*, *Dacus oleae*, *Dermatobia hominis*, *Drosophila spp.*, *Fannia spp.*, *Gastrophilus spp.*, *Hylemyia spp.*, *Hyppobosca spp.*, *Hypoderma spp.*, *Liriomyza spp.*, *Lucilia spp.*, *Musca spp.*, *Nezara spp.*, *Oestrus spp.*, *Oscinella frit*, *Pegomyia hyoscyami*, *Phorbia spp.*, *Stomoxys spp.*, *Tabanus spp.*, *Tannia spp.*, *Tipula paludosa*, *Wohlfahrtia spp;*
- the class of the *Gastropoda*, for example, *Arion spp.*, *Biomphalaria spp.*, *Bulinus spp.*, *Deroceras spp.*, *Galba spp.*, *Lymnaea spp.*, *Oncomelania spp.*, *Succinea spp.;*
- the class of the *helminths*, for example, *Ancylostoma duodenale*, *Ancylostoma ceylanicum*, *Acylostoma braziliensis*, *Ancylostoma spp.*, *Ascaris lubricoides*, *Ascaris spp.*, *Brugia malayi*, *Brugia timori*, *Bunostomum spp.*, *Chabertia spp.*, *Clonorchis spp.*, *Cooperia spp.*, *Dicrocoelium spp*, *Dictyocaulus filaria*, *Diphyllobothrium latum*, *Dracunculus medinensis*, *Echinococcus granulosus*, *Echinococcus multilocularis*, *Enterobius vermicularis*, *Faciola spp.*, *Haemonchus spp.*, *Heterakis spp.*, *Hymenolepis nana*, *Hyostrongulus spp.*, *Loa Loa*, *Nematodirus spp.*, *Oesophagostomum spp.*, *Opisthorchis spp.*, *Onchocerca volvulus*, *Ostertagia spp.*, *Paragonimus spp.*, *Schistosomen spp*, *Strongyloides fuelleborni*, *Strongyloides stercoralis*, *Stronyloides spp.*, *Taenia saginata*, *Taenia solium*, *Trichinella spiralis*, *Trichinella nativa*, *Trichinella britovi*, *Trichinella nelsoni*, *Trichinella pseudopsiralis*, *Trichostrongulus spp.*, *Trichuris trichuria*, *Wuchereria bancrofti*;
- Protozoa, such as *Eimeria;*
- the order of the *Heteroptera*, for example, *Anasa tristis*, *Antestiopsis spp.*, *Blissus spp.*, *Calocoris spp.*, *Campylomma livida*, *Cavelerius spp.*, *Cimex spp.*, *Creontiades dilutus*, *Dasynus piperis*, *Dichelops furcatus*, *Diconocoris hewetti*, *Dysdercus spp.*, *Euschistus spp.*, *Eurygaster spp.*, *Heliopeltis spp.*, *Horcias nobilellus*, *Leptocorisa spp.*, *Leptoglossus phyllopus*, *Lygus spp.*, *Macropes excavatus*, *Miridae*, *Nezara spp.*, *Oebalus spp.*, *Pentomidae*, *Piesma quadrata*, *Piezodorus spp.*, *Psallus seriatus*, *Pseudacysta persea*, *Rhodnius spp.*, *Sahlbergella singularis*, *Scotinophora spp.*, *Stephanitis nashi*, *Tibraca spp.*, *Triatoma spp;*
- the order of the *Homoptera*, for example, *Acyrthosipon spp.*, *Aeneolamia spp.*, *Agonoscena spp.*, *Aleurodes spp.*, *Aleurolobus barodensis*, *Aleurothrixus spp.*, *Amrasca spp.*, *Anuraphis cardui*, *Aonidiella spp.*, *Aphanostigma piri*, *Aphis spp.*, *Arboridia apicalis*, *Aspidiella spp.*, *Aspidiotus spp.*, *Atanus spp.*, *Aulacorthum solani*, *Bemisia spp.*, *Brachycaudus helichrysii*, *Brachycolus spp.*, *Brevicoryne brassicae*, *Calligypona marginata*, *Carneocephala fulgida*, *Ceratovacuna lanigera*, *Cercopidae*, *Ceroplastes spp.*, *Chaetosiphon fragaefolii*, *Chionaspis tegalensis*, *Chlorita onukii*, *Chromaphis juglandicola*, *Chrysomphalus ficus*, *Cicadulina mbila*, *Coccomytilus halli*, *Coccus spp.*, *Cryptomyzus ribis*, *Dalbulus spp.*, *Dialeurodes spp.*, *Diaphorina spp.*,

Diaspis spp., *Doralis spp.*, *Drosicha spp.*, *Dysaphis spp.*, *Dysmicoccus spp.*, *Empoasca spp.*, *Eriosoma spp.*, *Erythroneura spp.*, *Euscelis bilobatus*, *Geococcus coffeae*, *Homalodisca coagulata*, *Hyalopterus arundinis*, *Icerya spp.*, *Idiocerus spp.*, *Idioscopus spp.*, *Laodelphax striatellus*, *Lecanium spp.*, *Lepidosaphes spp.*, *Lipaphis erysimi*, *Macrosiphum spp.*, *Mahanarva fimbriolata*, *Melanaphis sacchari*, *Metcalfiella spp.*, *Metopolophium dirhodum*, *Monellia costalis*, *Monelliopsis pecanis*, *Myzus spp.*, *Nasonovia ribisnigri*, *Nephotettix spp.*, *Nilaparvata lugens*, *Oncometopia spp.*, *Orthezia praelonga*, *Parabemisia myricae*, *Paratrioza spp.*, *Parlatoria spp.*, *Pemphigus spp.*, *Peregrinus maidis*, *Phenacoccus spp.*, *Phloeomyzus passerinii*, *Phorodon humuli*, *Phylloxera spp.*, *Pinnaspis aspidistrae*, *Planococcus spp.*, *Protopulvinaria pyriformis*, *Pseudaulacaspis pentagona*, *Pseudococcus spp.*, *Psylla spp.*, *Pteromalus spp.*, *Pyrilla spp.*, *Quadraspidiotus spp.*, *Quesada gigas*, *Rastrococcus spp.*, *Rhopalosiphum spp.*, *Saissetia spp.*, *Scaphoides titanus*, *Schizaphis graminum*, *Selenaspidus articulatus*, *Sogata spp.*, *Sogatella furcifera*, *Sogatodes spp.*, *Stictocephala festina*, *Tenalaphara malayensis*, *Tinocallis caryaefoliae*, *Tomaspis spp.*, *Toxoptera spp.*, *Trialeurodes vaporariorum*, *Trioza spp.*, *Typhlocyba spp.*, *Unaspis spp.*, *Viteus vitifolii;*

- the order of the *Hymenoptera*, for example, *Diprion spp.*, *Hoplocampa spp.*, *Lasius spp.*, *Monomorium pharaonis*, *Vespa spp.;*
- the order of the *Isopoda*, for example, *Armadillidium vulgare*, *Oniscus asellus*, *Porcellio scaber;*
- the order of the *Isoptera*, for example, *Reticulitermes spp.*, *Odontotermes spp.;*
- the order of the *Lepidoptera*, for example, *Acronicta major*, *Aedia leucomelas*, *Agrotis spp.*, *Alabama argillacea*, *Anticarsia spp.*, *Barathra brassicae*, *Bucculatrix thurberiella*, *Bupalus piniarius*, *Cacoecia podana*, *Capua reticulana*, *Carpocapsa pomonella*, *Cheimatobia brumata*, *Chilo spp.*, *Choristoneura fumiferana*, *Clysia ambiguella*, *Cnaphalocerus spp.*, *Earias insulana*, *Ephestia kuehniella*, *Euproctis chrysorrhoea*, *Euxoa spp.*, *Feltia spp.*, *Galleria mellonella*, *Helicoverpa spp.*, *Heliothis spp.*, *Hofmannophila pseudospretella*, *Homona magnanima*, *Hyponomeuta padella*, *Laphygma spp.*, *Lithocolletis blancardella*, *Lithophane antennata*, *Loxagrotis albicosta*, *Lymantria spp.*, *Malacosoma neustria*, *Mamestra brassicae*, *Mocis repanda*, *Mythimna separata*, *Oria spp.*, *Oulema oryzae*, *Panolis flammea*, *Pectinophora gossypiella*, *Phyllocnistis citrella*, *Pieris spp.*, *Plutella xylostella*, *Prodenia spp.*, *Pseudaletia spp.*, *Pseudoplusia includens*, *Pyrausta nubilalis*, *Spodoptera spp.*, *Thermesia gemmatalis*, *Tinea pellionella*, *Tineola bisselliella*, *Tortrix viridana*, *Trichoplusia spp.;*
- the order of the *Orthoptera*, for example, *Acheta domesticus*, *Blatta orientalis*, *Blattella germanica*, *Gryllotalpa spp.*, *Leucophaea maderae*, *Locusta spp.*, *Melanoplus spp.*, *Periplaneta americana*, *Schistocerca gregaria;*
- the order of the *Siphonaptera*, for example, *Ceratophyllus spp.*, *Xenopsylla cheopis.*
- the order of the *Symphyla*, for example, *Scutigerella immaculate;*

- the order of the *Thysanoptera*, for example, *Baliothrips biformis*, *Enneothrips flavens*, *Frankliniella spp.*, *Heliothrips spp.*, *Hercinothrips femoralis*, *Kakothrips spp.*, *Rhipiphorothrips cruentatus*, *Scirtothrips spp.*, *Taeniothrips cardamoni*, *Thrips spp.;*
- the order of the *Thysanura*, for example, *Lepisma saccharina;*
- the phytoparasitic nematodes including for example, *Anguina spp.*, *Aphelenchoides spp.*, *Belonoaimus spp.*, *Bursaphelenchus spp.*, *Ditylenchus dipsaci*, *Globodera spp.*, *Heliocotylenchus spp.*, *Heterodera spp.*, *Longidorus spp.*, *Meloidogyne spp.*, *Pratylenchus spp.*, *Radopholus similis*, *Rotylenchus spp.*, *Trichodorus spp.*, *Tylenchorhynchus spp.*, *Tylenchulus spp.*, *Tylenchulus semipenetrans*, *Xiphinema spp;*
- the beetles, such as *Hylotrupes bajulus*, *Chlorophorus pilosis*, *Anobium punctatum*, *Xestobium rufovillosum*, *Ptilinus pecticornis*, *Dendrobium pertinex*, *Ernobius mollis*, *Priobium carpini*, *Lyctus brunneus*, *Lyctus africanus*, *Lyctus planicollis*, *Lyctus linearis*, *Lyctus pubescens*, *Trogoxylon aequale*, *Minthes rugicollis*, *Xyleborus spec. Tryptodendron spec. Apate monachus*, *Bostrychus capucins*, *Heterobostrychus brunneus*, *Sinoxylon spec. Dinoderus minutus;*
- *Hymenopterons*, *such as Sirex juvencus*, *Urocerus gigas*, *Urocerus gigas taignus*, *Urocerus augur;*
- termites, such as *Kalotermes flavicollis*, *Cryptotermes brevis*, *Heterotermes indicola*, *Reticulitermes flavipes*, *Reticulitermes santonensis*, *Reticulitermes lucifugus*, *Mastotermes darwiniensis*, *Zootermopsis nevadensis*, *Coptotermes formosanus;*
- *Bristletails*, *such as Lepisma saccharina;*
- the order of the *Acarina*, for example, *Argas persicus*, *Argas reflexus*, *Bryobia ssp.*, *Dermanyssus gallinae*, *Glyciphagus domesticus*, *Ornithodorus moubat*, *Rhipicephalus sanguineus*, *Trombicula alfreddugesi*, *Neutrombicula autumnalis*, *Dermatophagoides pteronissimus*, *Dermatophagoides forinae;*
- the order of the *Araneae*, for example, *Avicullariidae*, *Araneidae;*
- the order of the *Opiliones*, for example, *Pseudoscorpiones chelifer*, *Pseudoscorpiones cheiridium*, *Opiliones phalangium;*
- the order of the *Isopoda*, for example, *Oniscus asellus*, *Porcellio scaber;*
- the order of the *Diplopoda*, for example, *Blaniulus guttulatus*, *Polydesmus spp.;*
- the order of the *Chilopoda*, for example, *Geophilus spp.;*
- the order of the *Zygentoma*, for example, *Ctenolepisma spp.*, *Lepisma saccharina*, *Lepismodes inquilinus;*
- the order of the *Blattaria*, for example, *Blatta orientalies*, *Blattella germanica*, *Blattella asahinai*, *Leucophaea maderae*, *Panchlora spp.*, *Parcoblatta spp.*, *Periplaneta australasiae*, *Periplaneta americana*, *Periplaneta brunnea*, *Periplaneta fuliginosa*, *Supella longipalpa;*
- the order of the *Saltatoria*, for example, *Acheta domesticus;*

- the order of the *Dermaptera*, for example, *Forficula auricularia;*
- the order of the *Isoptera*, for example, *Kalotermes spp.*, *Reticulitermes spp;*
- the order of the *Psocoptera*, for example, *Lepinatus spp.*, *Liposcelis spp;*
- the order of the *Coleoptera*, for example, *Anthrenus spp.*, *Attagenus spp.*, *Dermestes spp.*; *Latheticus oryzae*, *Necrobia spp.*, *Ptinus spp.*, *Rhizopertha dominica*, *Sitophilus granarius*, *Sitophilus oryzae*, *Sitophilus zeamais*, *Stegobium paniceum.*
- the order of the *Diptera*, for example, *Aedes aegypti*, *Aedes albopictus*, *Aedes taeniorhynchus*, *Anopheles spp.*, *Calliphora erythrocephala*, *Chrysozona pluvialis*, *Culex quinquefasciatus*, *Culex pipiens*, *Culex tarsalis*, *Drosophila spp.*, *Fannia canicularis*, *Musca domestica*, *Phlebotomus spp.*, *Sarcophaga carnaria*, *Simulium spp.*, *Stomoxys calcitrans*, *Tipula paludosa;*
- the order of the *Lepidoptera*, for example, *Achroia grisella*, *Galleria mellonella*, *Plodia interpunctella*, *Tinea cloacella*, *Tinea pellionella*, *Tineola bisselliella;*
- the order of the *Siphonaptera*, for example, *Ctenocephalides canis*, *Ctenocephalides felis*, *Pulex irritans*, *Tunga penetrans*, *Xenopsylla cheopis.*
- the order of the *Hymenoptera*, for example, *Camponotus herculeanus*, *Lasius fuliginosus*, *Lasius niger*, *Lasius umbratus*, *Monomorium pharaonis*, *Paravespula spp.*, *Tetramorium caespitum;*
- the order of the *Anoplura*, for example, *Pediculus humanus capitis*, *Pediculus humanus corporis*, *Pemphigus spp.*, *Phylloera vastatrix*, *Phthirus pubis;*
- the order of the *Heteroptera*, for example, *Cimex hemipterus*, *Cimex lectularius*, *Rhodinus prolixus*, *Triatoma infestans.*

The fungicide or insecticide composition according to the invention may also be used against fungal diseases or damaging insects liable to grow or attack 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 composition according to the invention ; this includes for example direct application, spraying, dipping, injection or any other suitable means.

The dose of active compound usually applied in the method of treatment according to the invention is generally and advantageously from 10 to 800 g/ha, preferably from 50 to 300 g/ha for applications in foliar treatment. The dose of active substance applied is generally and advantageously from 2 to 200 g per 100 kg of seed, preferably from 3 to 150 g per 100 kg of seed in the case of seed treatment.

It is clearly understood that the doses indicated herein are given as illustrative examples of the method according to the invention. A person skilled in the art will know how to adapt the application doses, notably according to the nature of the plant or crop to be treated.

The fungicide or insecticide composition according to the invention may also be used in the treatment of genetically modified organisms with the compounds according to the invention or the agrochemical compositions according to the invention. Genetically modified plants are plants into genome of which a heterologous gene encoding a protein of interest has been stably integrated. The expression "heterologous gene encoding a protein of interest" essentially means genes which give the transformed plant new agronomic properties, or genes for improving the agronomic quality of the modified plant.

The compounds or mixtures according to the invention may also be used for the preparation of composition useful to curatively or preventively treat human or animal fungal diseases such as, for example, mycoses, dermatoses, trichophyton diseases and candidiases or diseases caused by *Aspergillus spp.*, for example *Aspergillus fumigatus*.

The various aspects of the invention will now be illustrated with reference to the following tables of compounds examples. The following tables illustrate in a non-limiting manner examples of compounds according to the invention.

In the following examples, M+1 (or M-1) means the molecular ion peak, plus or minus 1 a.m.u. (atomic mass unit) respectively, as observed in mass spectroscopy and M (ApcI+) means the molecular ion peak as it was found via positive atmospheric pressure chemical ionisation in mass spectroscopy.

In the following examples, the logP values were determined in accordance with EEC Directive 79/831 Annex V.A8 by HPLC (High Performance Liquid Chromatography) on a reversed-phase column (C 18), using the method described below :
Temperature: 40°C ; Mobile phases : 0.1% aqueous formic acid and acetonitrile ; linear gradient from 10% acetonitrile to 90% acetonitrile.
Calibration was carried out using unbranched alkan-2-ones (comprising 3 to 16 carbon atoms) with known logP values (determination of the logP values by the retention times using linear interpolation between two successive alkanones).
The lambda max values were determined in the maxima of the chromatographic signals using the UV spectra from 190nm to 400nm.

Table 1 compounds according to formula (I):

No.	R1	R2	R3	R4	R5	X	R6	R7					log P
								ortho	meta	para	meta'	ortho'	
1	H	Me	Et	Me	Me	O	H			Cl			2,14
2	H	Me	Et	Me	Me	O	H			F			1,99
3	H	Me	Et	Me	Me	O	H	Cl				Cl	2,05
4	H	Me	Et	Me	Me	O	Me	Cl				Cl	2,52
5	H	Me	Et	Me	Me	O	H	Cl		-O-CH2-O-			2,05
6	H	Me	Et	Me	Me	O	Me			F			2,08
7	H	Me	Et	Me	Me	O	H		Cl				2,13
8	H	Me	Et	Me	Me	O	H			tBu			2,67
9	H	Me	Et	Me	Me	O	H		CF3				2,24
10	H	Me	Et	Me	Me	O	H			CN			1,7
11	H	Me	Et	Me	Me	O	H	F					1,94
12	H	Me	Et	Me	Me	O	H		C=NOMe				2,07
13	H	Me	Et	Me	Me	O	H		Cl	Cl			2,38
14	H	Me	Et	Me	Me	O	H			CF3			2,28
15	H	Me	Et	Me	Me	O	H		F	F			2,02
16	H	Me	Et	Me	Me	O	H	OCF3					2,28
17	H	Me	Et	Me	Me	O	H		OCF3				2,33
18	H	Me	Et	Me	Me	O	H	CF3		Cl			2,52
19	H	Me	Et	Me	Me	O	H		Cl		CF3		2,54
20	H	Me	Et	Me	Me	O	H	Cl			CF3		2,44
21	H	Me	Et	Me	Me	O	H		CF3		CF3		2,62
22	H	Me	Et	Me	Me	O	H		OMe	F			1,92
23	H	Me	Et	Me	Me	O	H			OCF3			2,38
24	H	Me	Et	Me	Me	O	H			OCF2			2,06
25	H	Me	Et	Me	Me	O	H	Cl		CF3			2,47
26	H	Me	Et	Me	Me	O	H	OCHF2					2,03
27	H	Me	Et	Me	Me	O	H		-N=S=N-				1,86
28	H	Me	Et	Me	Me	O	H		CF3	Cl			2,47
29	H	Me	Et	Me	Me	O	Me	Cl					2,24
30	H	Me	Et	Me	Me	O	Me		Cl				2,23
31	H	Me	Et	Me	Me	O	Me			Cl			2,26
32	H	Me	Et	Me	Me	O	H			Me			2,1
33	H	Me	Et	Me	Me	O	H	Cl					2,08
34	H	Me	Et	Me	Me	O	H	CF3					2,14
35	H	Me	Et	Me	Me	CH2	H		CF3		CF3		2,79
36	H	Me	Et	Me	Me	CH2	H		Cl				2,2
37	H	Me	Et	Me	Me	CH2	H	Cl					2,26
38	H	Me	Et	Me	Me	CH2	H	Me					2,38
39	H	Me	Et	Me	Me	CH2	H			OMe			2,04
40	H	Me	Et	Me	Me	CH2	H			Cl			2,27
41	H	Me	Et	Me	Me	CH2	H			Me			2,23

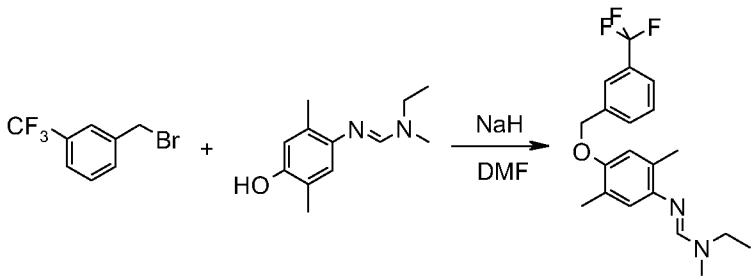
No.	R1	R2	R3	R4	R5	X	R6	R7					log P
								ortho	meta	para	meta'	ortho'	
42	H	Me	Et	Me	Me	CH2	H			F			2,05
43	H	Me	Et	Me	Me	CH2	H		CF3				2,41
44	H	Me	Et	Me	Me	CH2	H	F					2,23
45	H	Me	Et	Me	Me	CH2	H	CF3					2,42
46	H	Me	Et	Me	Me	CH2	H			CF3			2,45
47	H	Me	Et	Me	Me	O	H	Cl		Me	Me		2,42
48	H	Me	Et	Me	Me	O	H	F				F	1,94
49	H	Me	Et	Me	Me	O	H		OCH2CF3				2,21
50	H	Me	Et	Me	Me	O	H		CH=CH2				2,16
51	H	Me	Et	Me	Me	O	H	-N=S=N-					1,92
52	H	Me	Et	Me	Me	O	H			O-(p-F-Ph)			2,8
53	H	Me	Et	Me	Me	O	H			C(=O)OMe			1,9
54	H	Me	Et	Me	Me	O	H		C(=O)OtBu				2,42
55	H	Me	Et	Me	Me	O	H	Cl		Cl			2,33
56	H	Me	Et	Me	Me	O	H	Me			Me		2,23
57	H	Me	Et	Me	Me	O	H		Me				2,11
58	H	Me	Et	Me	Me	O	H	CN					1,78
59	H	Me	Et	Me	Me	O	H	F			F		1,99
60	H	Me	Et	Me	Me	O	H		Me		Me		2,26
61	H	Me	Et	Me	Me	O	H	Cl				F	2,09
62	H	Me	Et	Me	Me	O	H		-CH=CH-CH=CH-				2,29
63	H	Me	Et	Me	Me	O	H	Cl		OMe	OMe		1,99
64	H	Me	Et	Me	Me	O	H		Me	Me			2,23
65	H	Me	Et	Me	Me	O	H		Br				2,18
66	H	Me	Et	Me	Me	O	H	Me					2,06
67	H	Me	Et	Me	Me	O	H	Br					2,13
68	H	Me	Et	Me	Me	O	H	SCF3					2,36
69	H	Me	Et	Me	Me	O	H		SCF3				2,45
70	H	Me	Et	Me	Me	O	H			Br			2,21
71	H	Me	Et	Me	Me	O	H	Cl	Me				2,29
72	H	Me	Et	Me	Me	O	H			O-(p-SCH3-Ph)			2,74
73	H	Me	Et	Me	Me	O	H			O-(p-Cl-Ph)			2,8
74	H	Me	Et	Me	Me	O	H		CN				1,83
75	H	Me	Et	Me	Me	O	H		-CH2-CH2-CH2-CH2-				2,55
76	H	Me	Et	Me	Me	O	H	-CH=CH-CH=CH-					2,45
77	H	Me	Et	Me	Me	O	H	F	Me				2,16
78	H	Me	Et	Me	Me	O	H			OMe			1,92
79	H	Me	Et	Me	Me	O	H			-O-CH2-Ph			2,51
80	H	Me	Et	Me	Me	O	H		F				1,99
81	H	Me	Et	Me	Me	O	H		OMe				1,97
82	H	Me	Et	Me	Me	O	H			iPr			2,51
83	H	Me	Et	Me	Me	O	H			SCF3			2,61
84	H	Me	Et	Me	Me	O	H			SMe			2,16

No.	R1	R2	R3	R4	R5	X	R6	R7					log P
								ortho	meta	para	meta'	ortho'	
85	H	Me	Et	Me	Me	O	H		I				2,42
86	H	Me	Et	Me	Me	O	H	Me		Me		Me	2,42
87	H	Me	Et	Me	Me	O	H	I					2,29
88	H	Me	Et	Me	Me	O	H		Me		Me		2,26
89	H	Me	Et	Me	Me	O	H	Me	Me				2,29
90	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Cl		Cl		2,51
91	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Me			Me		2,33
92	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Cl		-O-CH2-O-			2,16
93	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	CH3			F			2,18
94	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Cl				2,21
95	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			tBu			2,64
96	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		CF3				2,29
97	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	F			F		2,09
98	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			CN			1,94
99	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Me		Me		2,42
100	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	F					2,09
101	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Cl				F	2,16
102	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Cl		OMe	OMe		2,09
103	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			C=N-OMe			2,21
104	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			F			2,09
105	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			Cl			2,26
106	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Cl					2,18
107	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Cl	Cl			2,45
108	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Me	Me			2,36
109	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			CF3			2,33
110	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		F	F			2,13
111	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	OCF3					2,33
112	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	SCF3					2,48
113	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		OCF3				2,39
114	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		SCF3				2,48
115	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			SCF3			2,55
116	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	CF3		Cl			2,55
117	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Cl	Me			2,39
118	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		Cl		CF3		2,61
119	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	Cl			CF3		2,58
120	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		CN				1,9
121	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		OMe	F			2,06
122	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			OCF3			2,42
123	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	CF3					2,29
124	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			Me			2,23
125	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			OCHF2			2,16
126	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H			CF3			2,58
127	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H	OCHF2					2,13

No.	R1	R2	R3	R4	R5	X	R6	R7					log P
								ortho	meta	para	meta'	ortho'	
128	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		-N=S=N-				1,99
129	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	H		CF3	Cl			2,51
130	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	Me	Cl					2,36
131	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	Me		Cl				2,36
132	H	-CH2-CH2-CH2-CH2-CH2-		Me	Me	O	Me			Cl			2,36

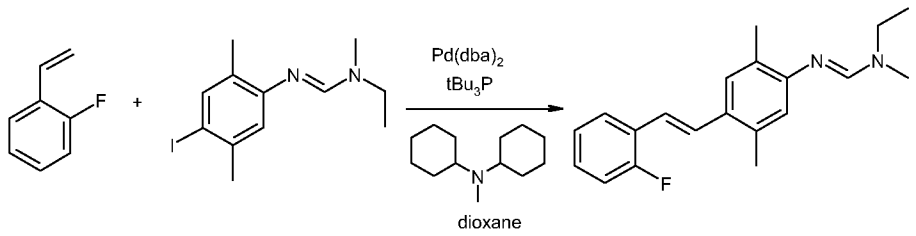
The following examples illustrate in a non-limiting manner the preparation and efficacy of the compounds of formula (I) according to the invention.

Preparation example 1 - Process (a) - compound (III) to compound (Ia): N'-(2,5-dimethyl-4-{[3-(trifluoromethyl)benzyl]oxy}phenyl)-N-ethyl-N-methylimidoformamide) – compound 9



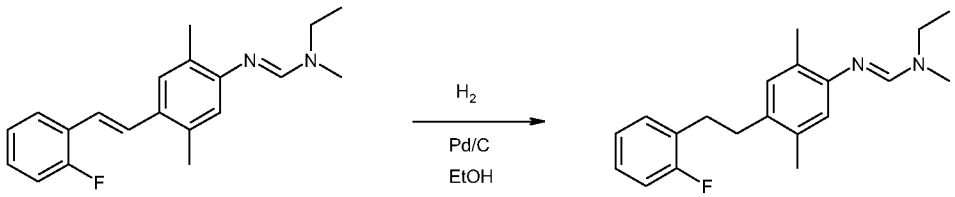
To a solution of 206 mg (1.00 mmol) of N-ethyl-N'-(4-hydroxy-2,5-dimethylphenyl)-N-methylimidoformamide in 5 mL N,N-dimethylformamide 26.4 mg (1.10 mmol) of sodium hydride were added at 0°C. After stirring at 0°C for 30 min 262 mg (1.10 mmol) 1-(bromomethyl)-3-(trifluoromethyl)benzene were added and the reaction mixture was allowed to warm to room temperature. After stirring for 16h the reaction mixture was concentrated in vacuo and and 10 mL of water and 10 mL of ethyl acetate were added. The organic layer was separated, dried over a cartridge filled with sodium sulfate and concentrated in vacuo. Without further purification 328 mg (0.90 mmol; 90%) of N'-(2,5-dimethyl-4-{[3-(trifluoromethyl)benzyl]oxy}phenyl)-N-ethyl-N-methylimidoformamide were obtained. log P (pH 2.3) = 2.24

Preparation example 2 - Process (b) - compound (VII) to compound (X) : N-ethyl-N'-2-(2-fluorophenyl)vinyl]-2,5-dimethylphenyl}-N-methylimidoformamide – intermediate (VII-1)



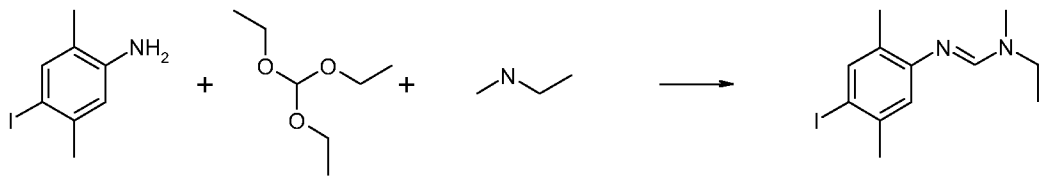
The reaction is carried out using inert conditions (argon or nitrogen atmosphere, dry solvents). A suspension of 474 mg (1.50 mmol) of N-ethyl-N'-(4-iodo-2,5-dimethylphenyl)-N-methylimidoformamide, 201 mg (1.65 mmol) of 1-fluoro-2-vinylbenzene, 321 mg (1.65 mmol) dicyclohexylmethylamine, 43 mg (0.075 mmol) of bis-(dibenzylidenaceton)-palladium and 30mg (0.15 mmol) of tri-tert-butylphosphine in 10 ml of dioxane was stirred for 16 hrs at 100°C. After filtration over a cartridge filled with sodium sulfate the mixture is concentrated *in vacuo*. Without further purification 400mg (1.29 mmol; 86%) of N-ethyl-N'-{4-[(Z)-2-(2-fluorophenyl)vinyl]-2,5-dimethylphenyl}-N-methylimidoformamide were obtained as a mixture of (E)- and (Z)-stereoisomers.; log P (pH 2.3) = 2.11.

Preparation example 3 - Process (c) - compound X) to compound (Ib) : N-ethyl-N'-{4-[2-(2-fluorophenyl)ethyl]-2,5-dimethylphenyl}-N-methylimidoformamide - compound 44



A suspension of 275 mg (0.88 mmol) of N-ethyl-N'-2-(2-fluorophenyl)vinyl]-2,5-dimethylphenyl}-N-methylimidoformamide and 94 mg (0.089 mmol) of palladium on charcoal (10%) in 10 mL of ethanol is stirred under an hydrogen atmosphere (atmospheric pressure) at room temperature for 24 hours. After filtration over a cartridge filled with sodium sulfate 228 mg (0.73 mmol; 83%) of N-ethyl-N'-{4-[2-(2-fluorophenyl)ethyl]-2,5-dimethylphenyl}-N-methylimidoformamide were obtained without purification.; log P (pH 2.3) = 2.23.

Preparation example 4 - Process (d3) - compound (V) to compound (VI) :N'-(4-iodo-2,5-dimethylphenyl)-N-ethyl-N-methylimidoformamide - intermediate (V-1)



To a mixture of 12.3 g (50 mmol) of 4-iodo-2,5-dimethylaniline and 83 ml (500 mmol) of triethoxymethane 0.48 g (2.50 mmol) of p-toluene sulfonic acid were added. The reaction

mixture was refluxed for 16 hrs and concentrated *in vacuo*. The crude product was dissolved in 100 ml of dichloromethane and 5.91 g (100 mmol) N-methylethanamine were added. The reaction mixture was stirred for 16 hrs at 40°C. The reaction mixture was concentrated *in vacuo*. Column chromatographie (cyclohexane/ethyl acetate 3:1) yielded 13.4 g (42.3 mmol) 85 % of N'-(4-iodo-2,5-dimethylphenyl)-N-ethyl-N-methylimidoformamide ; log P (pH 2.3) = 1.21.

Efficacy example A : *in vivo* preventive test on *Puccinia recondita f. Sp. tritici* (wheat brown rust).

Solvent: 50 parts by weight of n,n-dimethylacetamid
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 inoculated with a spore suspension of *Puccinia recondita* in a 0.1% strength aqueous agar solution. After the spray coating has dried on, the plants are sprayed with the preparation of active compound at the stated rate of application. The plants remain for 24 hours in an incubation cabinet at 20°C and a relative atmospheric humidity of 100%.

The plants are placed in a greenhouse at a temperature of approximately 20°C and a relative atmospheric humidity of approximately 80% to promote the development of rust pustules.

The test is evaluated 10 days after the inoculation. 0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no disease is observed.
In this test the following.compounds according to the invention showed an efficacy of 70% or even higher at a concentration of 1000ppm of active ingredient : 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 61, 62, 64, 65, 66, 70.

Efficacy example B : *in vivo* preventive test on *Erysiphe gramini* (Powdery mildew on Barley)

Solvent: 50 parts by weight of n,n-dimethylacetamid
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 dried on, the plants are dusted with spores of *Erysiphe graminis f.sp. hordei*.

The plants are placed in a greenhouse at a temperature of approximately 20°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 control, while an efficacy of 100% means that no disease is observed.

In this test the following.compounds according to the invention showed an efficacy of 70% or even higher at a concentration of 1000ppm of active ingredient : 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 61, 62, 64, 65, 66, 70.

Efficacy example C : *in vivo* protective test on *Alternaria solani* (Leaf spot of tomato)

Solvent:	49 parts by weight of N, N-dimethylformamide
Emulsifier:	1 part by weight of alkylarylpolyglycolether

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 protective 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 spore suspension of *Alternaria solani*. The plants remain for one day in an incubation cabinet at approximately 20°C and a relative atmospheric humidity of 100%. Then the plants are placed in an incubation cabinet at approximately 20°C and a relative atmospheric humidity of 96%.

The test is evaluated 7 days after the inoculation. 0% means an efficacy which corresponds to that of the control while an efficacy of 100% means that no disease is observed..

In this test, invention related compounds of the following formula revealed an efficacy of 70% or higher at a concentration of 500 ppm of active ingredient : 7, 8, 10, 11, 12, 13, 14, 18, 23, 31, 32, 33, 34, 35, 64, 88, 92, 100, 103, 105, 107, 109.

Efficacy example D : *in vivo* protective test on *Podosphaera leucotricha* (apples).

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 protective 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 spore suspension of the causal agent of apple mildew (*Podosphaera leucotricha*). The plants are then placed in a greenhouse at approximately 23°C and a relative atmospheric humidity of approximately 70%.

The test is evaluated 10 days after the inoculation. 0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no disease is observed.
In this test the compounds according to the invention of the following structures showed efficacy of 70% or even higher at a concentration of 100ppm of active ingredient : 3, 8, 14, 16, 17, 18, 23, 32, 25, 41, 43, 44.

Efficacy example E : *in vivo* protective test on *Sphaerotheca fuliginea* (cucumbers)

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 protect 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 spore suspension of *Sphaerotheca fuliginea*. The plants are then placed in a greenhouse at approximately 23°C and a relative atmospheric humidity of approximately 70 %.

The test is evaluated 7 days after the inoculation. 0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no disease is observed.
In this test the compounds according to the invention of the following structures showed efficacy of 70% or even higher at a concentration of 100ppm of active ingredient : 2, 3, 8, 12, 14, 16, 17, 18, 20, 23, 32, 33, 34, 35, 37, 41, 42, 43, 44, 64, 73.

Efficacy example F : *in vivo* protective test on *Botrytis cinerea* (beans)

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 protective activity, young plants are sprayed with the preparation of active compound. After the spray coating has dried on, 2 small pieces of agar covered with growth of *Botrytis cinerea* are placed on each leaf. The inoculated plants are placed in a darkened chamber at 20oC and a relative atmospheric humidity of 100%.

2 days after the inoculation, the size of the lesions on the leaves is evaluated. 0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no disease is observed.

In this test the compounds according to the invention of the following structures showed efficacy of 70% or even higher at a concentration of 500ppm of active ingredient: 12, 49, 54, 72, 73, 82, 86, 87, 88, 89, 90, 92, 93, 95, 96, 98, 99, 101, 103, 105, 107, 108, 111, 113, 119, 123, 124, 125, 126, 127, 131.

Efficacy example G : *in vivo* protective test on *Uromyces appendiculatus* (beans)

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 protective 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 spore suspension of the causal agent of bean rust (*Uromyces appendiculatus*) 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 control, while an efficacy of 100% means that no disease is observed.

In this test the compounds according to the invention of the following structures showed efficacy of 70% or even higher at a concentration of 10ppm of active ingredient : 129, 132, 133.

Efficacy example H : *in vivo* protective test on *Myzus persicae* (MYZUPE)

Solvent: 78 parts by weight acetone

1.5 parts by weight dimethylformamide

Dye: 0.5 parts by weight alkylarylpolyglcolether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

Chinese cabbage (*Brassica pekinesis*) leaf–disks infected with all instars of the green peach aphid (*Myzus persicae*), are sprayed with a preparation of the active ingredient at the desired concentration.

After the specified period of time, mortality in % is determined. 100% means that all aphids have been killed; 0% means that none of the aphids have been killed.

In this test for example, the following compounds from the preparation examples showed good activity: 3, 13, 16, 18, 19, 20, 25, 29, 30, 31, 35, 49, 52, 56, 61, 64, 65, 68, 69, 72, 73.

Efficacy example I : *in vivo* protective test on *Aedes Aegypti* (AEDSAE U)

Solvent: 1 % N-methylpyrrolidone (NMP)

1 % diacetonealcohol

Dye: brillantsulfoflavin for staining water

To produce a suitable preparation of the active compound, the active compound is mixed with the stated amount of solvent, and the concentrate is diluted with staining water to the desired concentration.

Aedes aegypti larvae are pipetted with a preparation of active ingredient of the desired concentration.

After the specified period of time, mortality in % is determined. 100% means that all larvae have been killed, a 0% means that none of the larvae have been killed.

In this test, the following compound from the preparation example show good activity: 1, 3, 4, 6, 7, 9, 13, 14, 18, 29.

Efficacy example J : *in vivo* protective test on *Heliothis virescens* (HELIVI)

Solvent: 78 parts by weight acetone

1.5 parts by weight dimethylformamide

Wetting agent: 0.5 parts by weight alkylarylpolyglcolether

To produce a suitable preparation of active compound, 1 part by weight of active compound is mixed with the stated amount of solvent and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration.

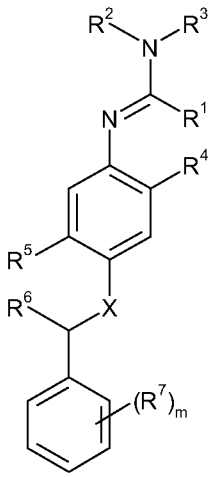
Soybean (*Glycine max*.) leaf sections are sprayed with a preparation of the active ingredient of the desired concentration. Once dry, the leaf sections are infested with eggs of cotton bollworm (*Heliotis virescens*).

After the specified period of time, mortality in % is determined. 100% means that all eggs have been killed and 0% means that none of the eggs have been killed.

In this test for example, the following compounds from the preparation examples showed good activity: 6, 7.

CLAIMS

1. An phenyl-amidine derivative of formula (I) :



(Ia): X = O - (Ib): X = CH_2

(I)

wherein

- X = O or CH_2 ;
- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2, R^1 and R^3 or R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle ;
- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl ;
- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7, which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy,

substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, $-S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, $-SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, $-CR^{10}$=N-O-R^{12} ;

- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- n represents 0, 1 or 2 ;
- R^8 and R^9, which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;
- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;

as well as salts, N-oxydes, metallic complexes, metalloidic complexes and optically active or geometric isomers thereof.

2. A compound of formula (I) according to claim 1 wherein

- R^1 represents H, C_1-C_{12}-alkyl or SH ; or
- R^2 represents methyl ; or
- R^3 represents C_2-C_{12}-alkyl, C_2-C_{12}-alkenyl; C_3-C_6-cycloalkyl ; or
- R^2 and R^3 can form together a substituted or non substituted 5- to 7-membered heterocycle ; or
- R^4 represents C_1-C_{12}-alkyl, a halogen atom or trifluoromethyl ; or
- R^5 represents H, C_1-C_{12}-alkyl, a halogen atom or trifluoromethyl or
- R^6 represents H or a non substituted C_1-C_6-alkyl ; or
- m represents 1, 2, 3 or 4 ; or
- R^7, which may be the same or different, represents H ; F, Cl, Br, I ; nitro ; cyano ; C_1-C_6-alkyl ; C_1-C_4-alkyl-phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; C_1-C_6-halogenoalkyl ; C_1-C_6-halogenalkoxy ; C_1-C_6-halogenoalkylthio ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; benzyloxy which may be non

substituted or substituted by halogen ; phenoxy which may be non substituted or substituted by a halogen atom or CF_3 ; NR^8R^9 ; C_1-C_4-alkyl-NR^8R^9 ; $S(O)_nR^{10}$; C_1-C_4-alkyl-$S(O)_nR^{10}$; OR^{11} ; C_1-C_4-alkyl-COR^{11} ; $-CR^{10}=N-O-R^{12}$; or

- R^8 and R^9, which may be the same or different, represent H or C_1-C_6 alkyl ; or
- R^8 and R^9 can form a heterocyclic ring comprising further heteroatoms selected in the list consisting of O, S, N ; or
- R^{10} represents H, methyl or ethyl ; or
- R^{11} represents H, C_1-C_4-alkyl, C_1-C_4-alkoxy or NR^8R^9 ; or
- R^{12} represents H ; C_1-C_4-alkyl ; C_1-C_4-halogenoalkyl ; C_1-C_4-alkyl-phenyl wherein phenyl may be substituted by F, Cl, Br, I, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl or C_1-C_4-halogenoalkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; phenoxy ; benzyloxy ; or
- R^{10} and R^{12} can form a 5- or 6-membered heterocyclic ring comprising a further heteroatom selected in the list consisting of O, S, N.

3. A compound of formula (I) according to claims 1 or 2 wherein

- R^1 represents C_1-C_{12}-alkyl ; or
- R^3 represents a non substituted C_2-C_4-alkyl, C_3-C_4-alkenyl or cyclopropyl ; or
- R^2 and R^3 can form together a 6-membered heterocycle ; or
- R^4 represents a non substituted C_1-C_{12}-alkyl, a fluorine or a chlorine atom ; or
- R^5 represents a non substituted C_1-C_{12}-alkyl, a fluorine or a chlorine atom ; or
- R^6 represents methyl or ethyl ; or
- m represents 1, 2 or 3.

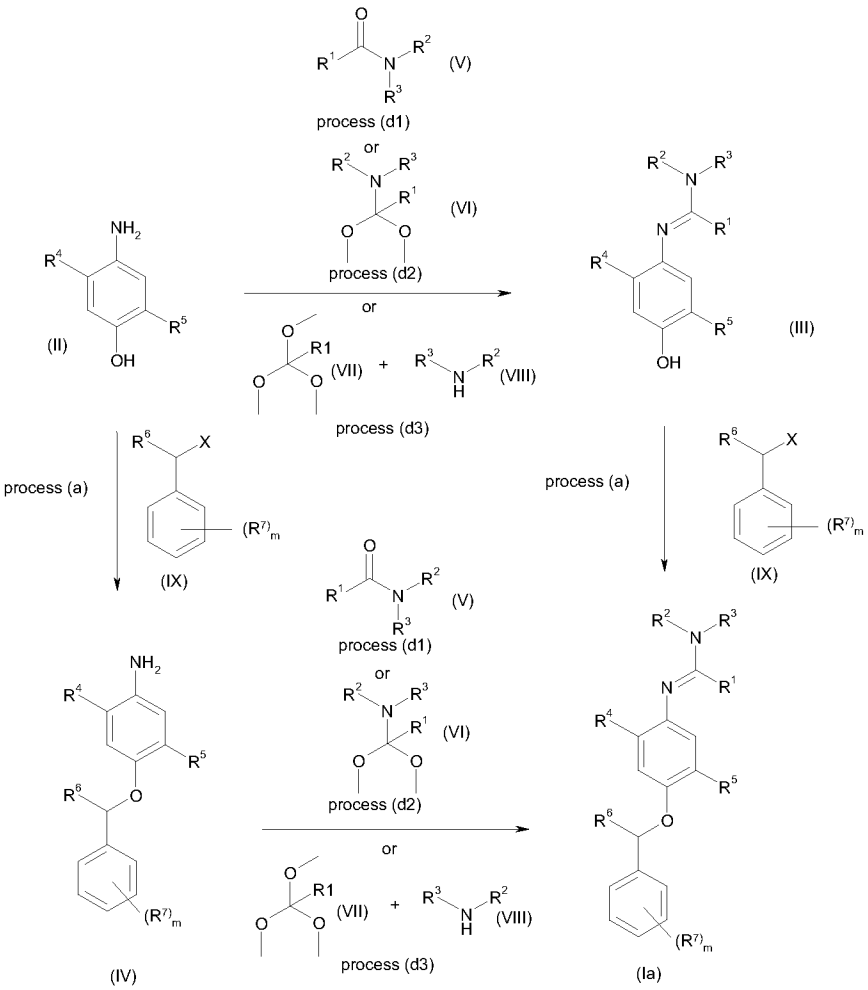
4. A compound of formula (I) according to claims 1 to 3 wherein

- R^1 represents methyl ; or
- R^3 represents ethyl, n-propyl, i-propyl, propenyl or allyl ; or
- R^2 and R^3 can form together a pipiridinyl or a pyrolidinyl ; or
- R^4 represents methyl and ethyl ; or
- R^5 represents methyl or ethyl.

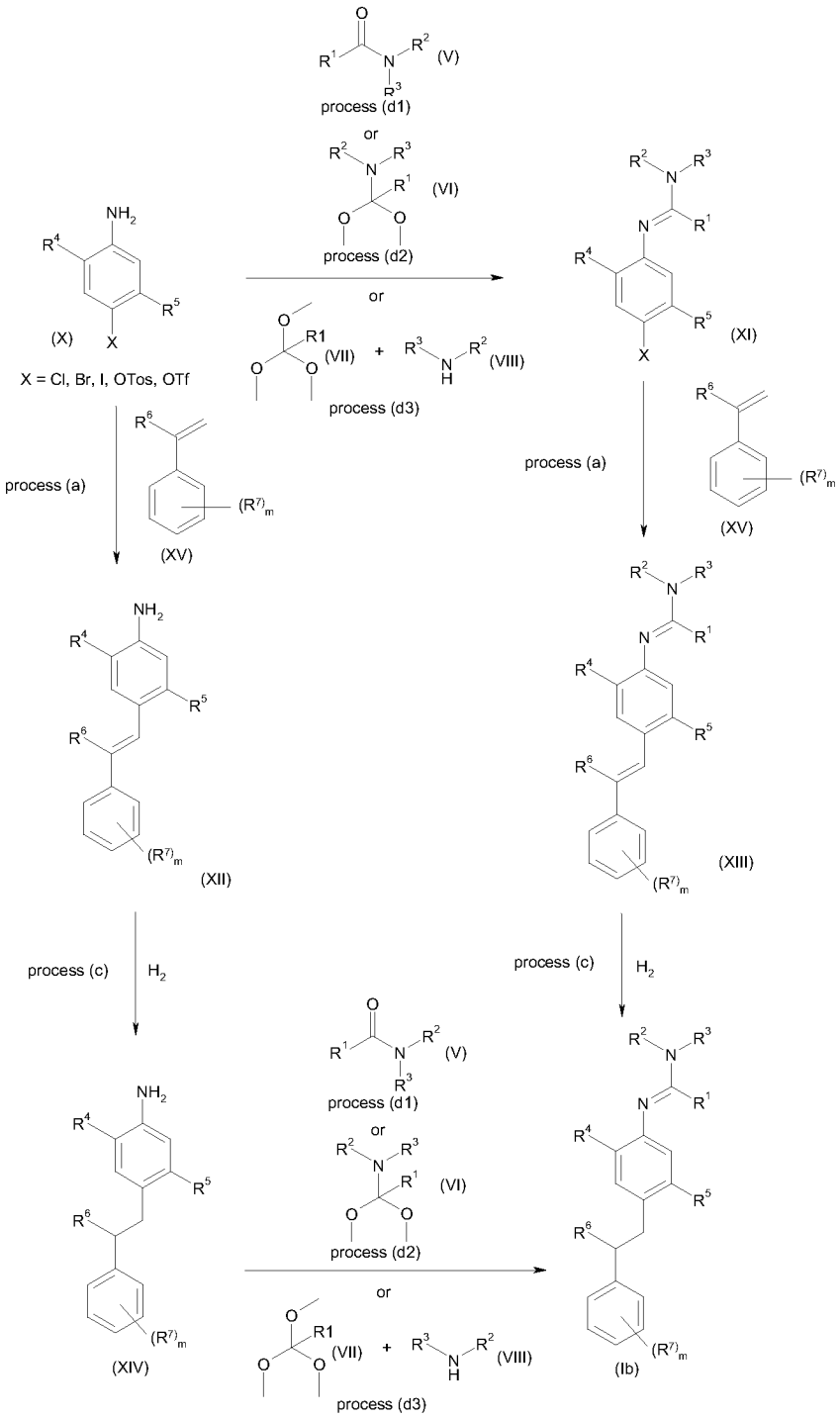
5. A compound of formula (I) according to claims 1 to 4 wherein R^2 and R^3 form together a 2-alkylated-pyrolidinyl.

6. A compound of formula (I) according to claim 5 wherein R^2 and R^3 form together a 2-methyl-pyrolidinyl.

7. A process for the preparation of a compound of formula (Ia) according to claims 1 to 6 comprising the following steps:



8. A process for the preparation of a compound of formula (Ib) according to claims 1 to 6 comprising the following steps:



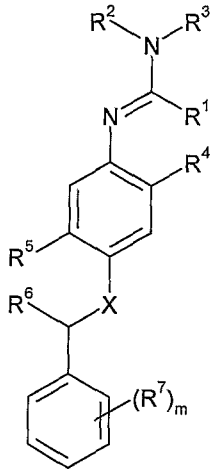
9. A method for controlling phytopathogenic fungi of crops, characterized in that an agronomically effective and substantially non-phytotoxic quantity of a compound according to claims 1 to 6 is applied to the soil where plants grow or are capable of growing, to the leaves or the fruit of plants or to the seeds of plants.

10. A method method for controlling damaging insects characterised in that a compound of formula (I) according to claims 1 to 6 is applied to the seed, the plant or to the fruit of the plant or to the soil wherein the plant is growing or wherein it is desired to grow.

5

AMENDED CLAIMS
received by the International Bureau on 08 january 2007 (08.01.07)

1. A phenyl-amidine derivative of formula (I) :



(Ia): X = O - (Ib): X = CH_2

(I)

wherein

- X represents O or CH_2 ;
- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2,
- R^1 and R^3 or
- R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle;
- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl

- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7 which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, $-S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, $-SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, $-CR^{10}$=N-O-R^{12} ;
  - two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- n represents 0, 1 or 2 ;
- R^8 and R^9 which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;
- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;

as well as salts, N-oxydes, metallic complexes, metalloidic complexes and optically active or geometric isomers thereof.

2. A compound of formula (I) according to claim 1 wherein

- R^1 represents H, C_1-C_{12}-alkyl or SH ; or
- R^2 represents methyl ; or
- R^3 represents C_2-C_{12}-alkyl, C_2-C_{12}-alkenyl; C_3-C_6-cycloalkyl ; or
- R^2 and R^3 can form together a substituted or non substituted 5- to 7-membered heterocycle ; or

- R^4 represents C_1-C_{12}-alkyl, a halogen atom or trifluoromethyl ; or
- R^5 represents H, C_1-C_{12}-alkyl, a halogen atom or trifluoromethyl or
- R^6 represents H or a non substituted C_1-C_6-alky ; or
- m represents 1, 2, 3 or 4 ; or
- R^7 which may be the same or different, represents H ; F, Cl, Br, I ; nitro ; cyano ; C_1-C_6-alkyl ; C_1-C_4-alkyl-phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; phenyl which may be non substituted or substituted by halogen, C_1-C_4-alkyl or C_1-C_4-halogenoalkyl ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; C_1-C_6-halogenoalkyl ; C_1-C_6-halogenalkoxy ; C_1-C_6-halogenoalkylthio ; C_1-C_6-alkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; C_1-C_6-alkylthio ; benzyloxy which may be non substituted or substituted by halogen ; phenoxy which may be non substituted or substituted by a halogen atom or CF_3 ; NR^8R^9 ; C_1-C_4-NR^8R^9 ; $S(O)_nR^{10}$; C_1-C_4-$S(O)_nR^{10}$; OR^{11} ; C_1-C_4-COR^{11} ; $-CR^{10}$=N-O-R^{12} ; or
- R^8 and R^9 which may be the same or different, represent H or C_1-C_6 alkyl ; or
- R^8 and R^9 can form a heterocyclic ring comprising further heteroatoms selected in the list consisting of O, S, N ; or
- R^{10} represents H, methyl or ethyl ; or
- R^{11} represents H, C_1-C_4-alkyl, C_1-C_4-alkoxy or NR^8R^9 ; or
- R^{12} represents H ; C_1-C_4-alkyl ; C_1-C_4-halogenoalkyl ; C_1-C_4-alkyl-phenyl wherein phenyl may be substituted by F, Cl, Br, I, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl or C_1-C_4-halogenoalkoxy ; C_1-C_4-alkoxy-C_1-C_4-alkyl ; phenoxy ; benzyloxy ; or
- R^{10} and R^{12} can form a 5- or 6-membered heterocyclic ring comprising a further heteroatoms selected in the list consisting of O, S, N.

3. A compound of formula (I) according to claims 1 or 2 wherein
   - R^1 represents C_1-C_{12}-alkyl ; or
   - R^3 represents a non substituted C_2-C_4-alkyl, C_3-C_4-alkenyl or cyclopropyl ; or
   - R^2 and R^3 can form together a 6-membered heterocycle ; or
   - R^4 represents a non substituted C_1-C_{12}-alkyl, a fluorine or a chlorine atom ; or
   - R^5 represents a non substituted C_1-C_{12}-alkyl, a fluorine or a chlorine atom ; or
   - R^6 represents methyl or ethyl ; or
   - m represents 1, 2 or 3.

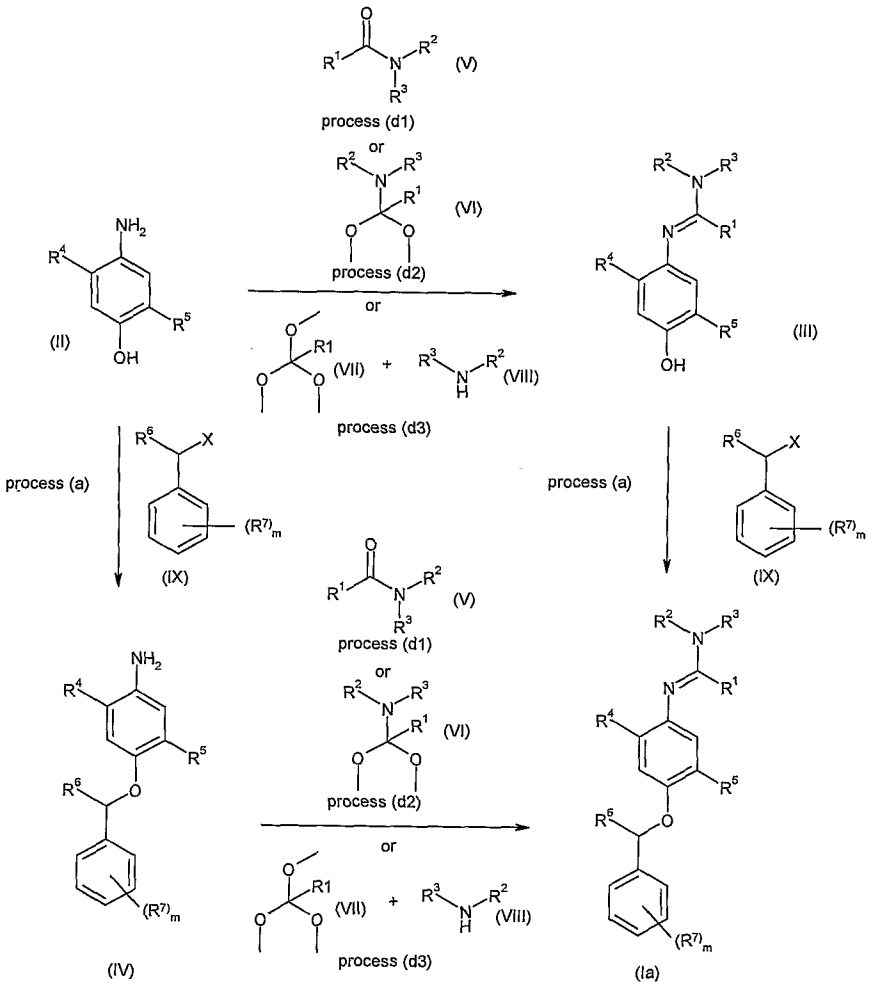
4. A compound of formula (I) according to claims 1 to 3 wherein

- R^1 represents methyl ; or
- R^3 represents ethyl, n-propyl, i-propyl, propenyl or allyl ; or
- R^2 and R^3 can form together a pipiridinyl or a pyrolidinyl ; or
- R^4 represents methyl and ethyl ; or
- R^5 represents methyl or ethyl.

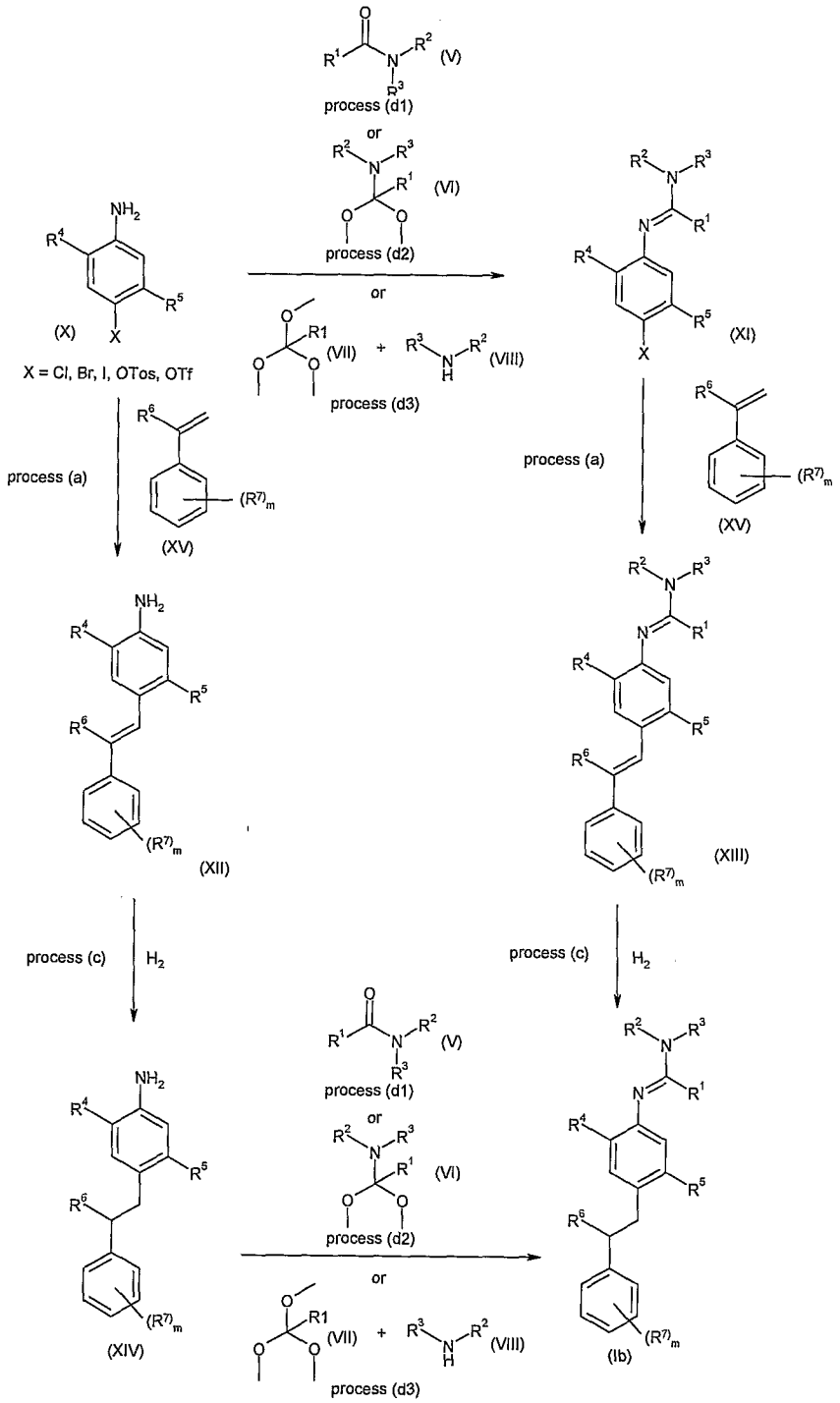
5. A compound of formula (I) according to claims 1 to 4 wherein R^2 and R^3 form together a 2-alkylated-pyrolidinyl.

6. A compound of formula (I) according to claim 5 wherein R^2 and R^3 form together a 2-methyl-pyrolidinyl.

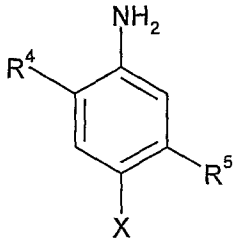
7. A process for the preparation of a compound of formula (Ia) according to claims 1 to 6 comprising at least one of the following steps:



8. A process for the preparation of a compound of formula (Ib) according to claims 1 to 6 comprising at least one of the following steps:



9. An aniline derivative of formula (X)

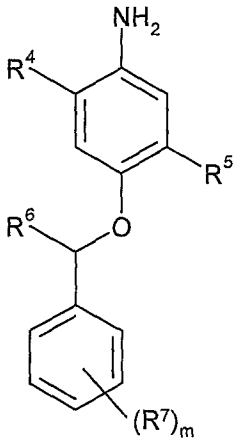


(X)

wherein

- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano; and
- X represents OH, Cl, Br, I, triflate, mesylate, SOMe or tosylate.

10. An aminophenylether derivative of formula (IV)



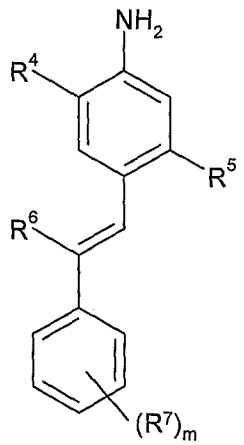
(IV)

wherein

- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl
- m represents 0, 1, 2, 3, 4 or 5 ;

- R^7 which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, $-S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, $-SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, $-CR^{10}$=N-O-R^{12} ;
- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S
- n represents 0, 1 or 2;
- R^8 and R^9 which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9;
- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S.

11. An aminophenyl derivative of formula (XII)

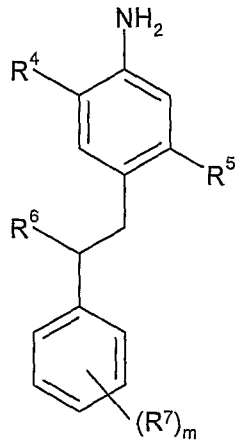


(XII)

wherein

- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl
- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7 which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, $-S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, $-SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, $-CR^{10}$=N-O-R^{12} ;
- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S; and
- n represents 0, 1 or 2 ;
- R^8 and R^9 which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;
- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S.

12. An aminophenyl derivative of formula (XIV)



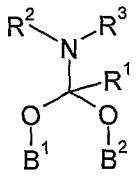
(XIV)

wherein

- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl;
- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7 which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, -$S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, -$SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, -CR^{10}=N-O-R^{12} ;
- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S;
- n represents 0, 1 or 2 ;
- R^8 and R^9 which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;

- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;
- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S.

13. An aminoacetal derivative of formula (VI)

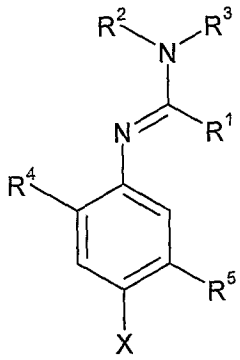


(VI)

wherein

- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2 ; R^1 and R^3 or R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle ;
- B^1 and B^2 represent each alkyl or together cycloalkyl.

14. An aniline derivative of formula (XI)

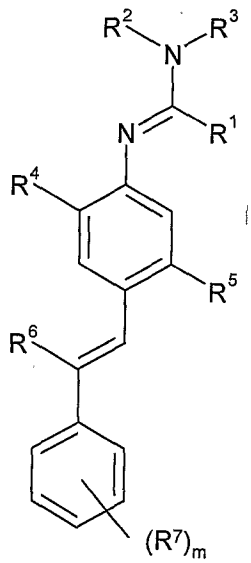


(XI)

wherein

- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2; R^1 and R^3 or R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle ;
- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- X represents OH, Cl, Br, I, triflate, mesylate, SOMe or tosylate.

15. An aniline derivative of formula (XII)



(XII)

wherein

- R^1 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a substituted or non substituted C_2-C_{12}-alkenyl, a substituted or non substituted C_2-C_{12}-alkynyl, SH or a substituted or non substituted S-C_1-C_{12}-alkyl ;
- R^2 represents a substituted or non substituted C_1-C_{12}-alkyl ;
- R^3 represents a substituted or non substituted C_2-C_{12}-alkyl, substituted or non substituted C_3-C_6-cycloalkyl, substituted or non substituted C_2-C_{12}-alkenyl, substituted or non substituted C_2-C_{12}-alkynyl, halogeno-C_1-C_{12}-alkyl ; or
- R^1 and R^2; R^1 and R^3 or R^2 and R^3 can form together a substituted or non substituted 5 to 7-membered heterocycle ;
- R^4 represents a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^5 represents H, a substituted or non substituted C_1-C_{12}-alkyl, a halogen atom, halogeno-C_1-C_{12}-alkyl, substituted or non substituted O-C_1-C_{12}-alkyl or cyano ;
- R^6 represents H, a substituted or non substituted C_1-C_6-alkyl, a halogen atom or halogeno-C_1-C_6-alkyl;
- m represents 0, 1, 2, 3, 4 or 5 ;
- R^7, which may the same or different, represents H, a halogen atom, nitro, cyano, trialkylsilyl, C_1-C_8-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl, C_1-C_4-alkoxy, C_1-C_4-alkoxy- C_1-C_4-alkyl, C_1-C_8-alkylthio, C_1-C_6-halogenoalkyl, C_1-C_6-halogenalkoxy or C_1-C_6-halogenoalkylthio, substituted or non substituted C_1-C_4-alkoxy-phenyl like benzyloxy, substituted or non substituted phenoxy, substituted, non substituted alkylamino-C_1-C_8-NR^8R^9, substituted or non substituted NR^8R^9, C_1-C_8-alkyl-$S(O)_nR^{10}$, -$S(O)_nR^{10}$, C_1-C_8-alkyl-$SO_2NR^8R^9$, -$SO_2NR^9R^{10}$, C_1-C_8-alkyl-$C(O)R^{11}$, -CR^{10}=N-O-R^{12} ;
- two substituents R^7 can form a carbocyclic or heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S;
- n represents 0, 1 or 2 ;
- R^8 and R^9 which may the same or different, represent H, substituted or non-substituted C_1-C_6-alkyl ;
- R^8 and R^9 can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S ;
- R^{10} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkenyl, C_1-C_8-alkinyl ;
- R^{11} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_8-alkoxy, NR^8R^9 ;

- R^{12} represents H, substituted or non-substituted, linear or branched C_1-C_8-alkyl, C_1-C_4-alkyl-phenyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, substituted or non-substituted C_1-C_4-alkyl-phenyl, substituted or non-substituted phenyl ;
- R^{10} and R^{12} can form a heterocyclic ring, which may comprise one or more heteroatoms selected in the list consisting of O, N, S.

16. A method for controlling phytopathogenic fungi of crops, characterized in that an agronomically effective and substantially non-phytotoxic quantity of a compound according to claims 1 to 6 is applied to the soil where plants grow or are capable of growing, to the leaves or the fruit of plants or to the seeds of plants.

17. A method method for controlling damaging insects characterised in that a compound of formula (I) according to claims 1 to 6 is applied to the seed, the plant or to the fruit of the plant or to the soil wherein the plant is growing or wherein it is desired to grow.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/066295

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07C257/12 C07D295/195 A01N37/52 A01N43/40

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07D C07C A01N

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, BEILSTEIN Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/46184 A (HOECHST SCHERING AGREVO GMBH) 10 August 2000 (2000-08-10) Table 1, compounds 10, 11, 16, 17, 49, 186, 267, 276, 279, 290, page 10, line 1 - page 13, line 34; claims	1-4,7,9
X	US 4 209 319 A (PISSIOTAS ET. AL.) 24 June 1980 (1980-06-24) column 3, line 60 - column 4, line 28; claims; examples 6-14	1-4
X	GB 1 397 322 A (CIBA-GEIGY) 11 June 1975 (1975-06-11) page 3, line 14 - line 16; claims; examples	1-4,10

-/--

[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 document 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
11 December 2006	27/12/2006

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, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Helps, Ian

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/066295

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 570 736 A (BAYER CROPSCIENCE) 7 September 2005 (2005-09-07) claims; examples	1-10
Y	EP 1 179 528 A (AVENTIS CROPSCIENCE) 13 February 2002 (2002-02-13) page 5, paragraph 33 - page 7, paragraph 50; claims; examples	1-10
Y	EP 1 178 038 A (AVENTIS CROPSCIENCE) 6 February 2002 (2002-02-06) page 5, paragraph 33 - page 7, paragraph 50; claims; examples	1-10
Y	EP 1 178 039 A (AVENTIS CROPSCIENCE) 6 February 2002 (2002-02-06) page 5, paragraph 20 - page 7, paragraph 40; claims; examples	1-10
A	US 5 064 846 A (BROADHURST) 12 November 1991 (1991-11-12) column 3, line 13 - line 35; claims; examples	1-10
A	US 3 898 277 A (DUERR ET. AL.) 5 August 1975 (1975-08-05) column 10, line 6 - column 11, line 60; claims; examples	1-10
A	J. W. LIEBESCHUETZ ET. AL.: "Rationally Designed Guanidine and Amidine Fungicides." PESTICIDAL SCIENCE, vol. 50, 1997, pages 258-274, XP002369932 whole document	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2006/066295

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0046184 A	10-08-2000	AT 247629 T	15-09-2003
		AU 768156 B2	04-12-2003
		AU 2308800 A	25-08-2000
		BR 0009314 A	13-02-2002
		CA 2360943 A1	10-08-2000
		CN 1342137 A	27-03-2002
		CZ 20012842 A3	13-03-2002
		DE 60004637 D1	25-09-2003
		DE 60004637 T2	15-04-2004
		DK 1150944 T3	15-12-2003
		EP 1150944 A1	07-11-2001
		ES 2200816 T3	16-03-2004
		HK 1043358 A1	06-05-2005
		HU 0105098 A2	29-04-2002
		JP 2002536354 T	29-10-2002
		PT 1150944 T	31-12-2003
		RU 2234504 C2	20-08-2004
		TR 200102237 T2	21-12-2001
		US 6893650 B1	17-05-2005
		ZA 200105845 A	16-10-2002
US 4209319 A	24-06-1980	NONE	
GB 1397322 A	11-06-1975	AT 320340 B	10-02-1975
		AU 4949372 A	30-05-1974
		BE 792407 A1	07-06-1973
		CA 1032963 A1	13-06-1978
		CH 563713 A5	15-07-1975
		CS 168016 B2	28-05-1976
		DD 102559 A5	20-12-1973
		DE 2259221 A1	20-06-1973
		FR 2162496 A1	20-07-1973
		HU 165321 B	28-08-1974
		IL 40934 A	31-08-1976
		IT 971646 B	10-05-1974
		JP 48062929 A	01-09-1973
		NL 7216555 A	12-06-1973
		ZA 7208642 A	29-08-1973
EP 1570736 A	07-09-2005	AR 048746 A1	24-05-2006
		AU 2005224034 A1	29-09-2005
		CA 2553255 A1	29-09-2005
		WO 2005089547 A1	29-09-2005
EP 1179528 A	13-02-2002	NONE	
EP 1178038 A	06-02-2002	AT 315550 T	15-02-2006
		DE 60116589 T2	09-11-2006
		DK 1179528 T3	20-02-2006
		ES 2254348 T3	16-06-2006
		JP 2002193909 A	10-07-2002
		US 2002082267 A1	27-06-2002
EP 1178039 A	06-02-2002	FR 2812633 A1	08-02-2002
		JP 2002114751 A	16-04-2002
		US 2003008884 A1	09-01-2003
US 5064846 A	12-11-1991	NONE	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2006/066295

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 3898277 A	05-08-1975	AR	193375 A1	23-04-1973
		AT	314899 B	25-04-1974
		AU	469337 B2	12-02-1976
		AU	3813472 A	26-07-1973
		BE	778383 A1	24-07-1972
		BG	19778 A3	10-10-1975
		CA	985297 A1	09-03-1976
		DD	108284 A5	12-09-1974
		DD	103788 A5	12-02-1974
		DE	2202034 A1	27-07-1972
		EG	10735 A	30-04-1976
		FR	2123001 A5	01-09-1972
		GB	1386301 A	05-03-1975
		NL	7200911 A	25-07-1972