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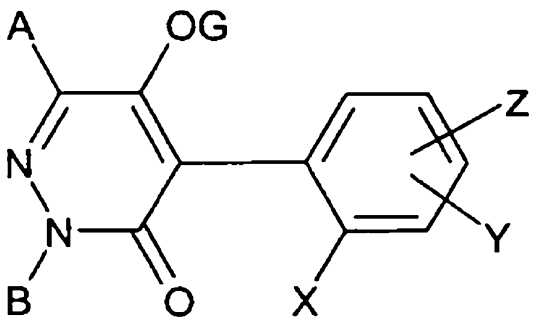
— *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

(54) **Title**: HERBICIDALLY AND INSECTICIDALLY EFFECTIVE 4-PHENYL-SUBSTITUED PYRIDAZINONES

(54) **Bezeichnung** : HERBIZID UND INSEKTIZID WIRKSAME 4-PHENYLSUBSTITUIERTE PYRIDAZINONE



(I)

(57) **Abstract**: The invention relates to the phenyl-substituted pyridazinones of formula (I) for use as herbicides and insecticides. In formula (I), A, B, G, X, Y and Z represent groups such as hydrogen, organic groups such as alkyl, and other groups such as halogen, nitro and cyano.

(57) **Zusammenfassung**: Es werden phenylsubstituierte Pyridazinone der Formel (I) als Herbizide und Insektizide beschrieben. In dieser Formel (I) stehen A, B, G, X, Y und Z für Reste wie Wasserstoff, organische Reste wie Alkyl, und andere Reste wie Halogen, Nitro und Cyano.

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Description

Herbicidally and insecticidally effective 4-phenyl-substituted pyridazinones

The invention relates to the technical field of the crop protection agents, in particular that of the herbicides for the selective control of broad-leaved weed and weed grasses in crops of useful plants.

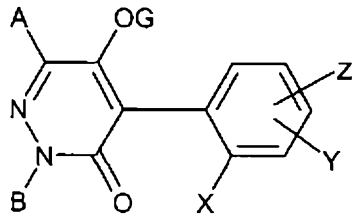
It specifically relates to 4-phenyl-substituted pyridazinones, processes for their preparation and their use as herbicides and insecticides.

Various publications describe substituted 4-phenylpyridazinones having herbicidal properties. 2-Methyl-4-phenylpyridazinones are known from *Stevenson et. al, J. Het. Chem., (2005), 427 ff.* WO2007/119434 A1 describes 4-phenylpyridazinones which carry an alkyl radical in the 2-position of the phenyl ring. WO2009/035150 A2 discloses 4-phenylpyridazinones which carry an alkyl or alkoxy radical in the 2-position of the phenyl ring and are optionally substituted at the other positions by halogen atoms or other radicals.

However, the compounds known from these publications frequently have insufficient herbicidal activity. Accordingly, it is an object of the present invention to provide alternative herbicidally active compounds.

It has been found that 4-phenylpyridazinones whose phenyl ring carries certain substituents are particularly suitable as herbicides.

The present invention provides 4-phenylpyridazinones of the formula (I) or salts thereof



(I)

in which

A is in each case independently of one another hydrogen, $(C_3$-$C_6)$-cycloalkyl or $(C_1$-$C_6)$-alkyl substituted by n radicals from the group consisting of halogen, $(C_3$-$C_6)$-cycloalkyl, phenyl and halophenyl,

B is independently of one another $(C_3$-$C_6)$-cycloalkyl or $(C_1$-$C_6)$-alkyl substituted by n radicals from the group consisting of halogen, $(C_3$-$C_6)$-cycloalkyl, phenyl and halophenyl;

m is 0,1, 2 or 3;

n is 0, 1, 2 or 3, with the proviso that m and n are not both 0;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, E or R^8;

E is a metal ion equivalent or an ammonium ion;

L is oxygen or sulfur;

M is oxygen or sulfur;

R^1 is $(C_1$-$C_6)$-alkyl, $(C_2$-$C_6)$-alkenyl, $(C_1$-$C_4)$-alkoxy-$(C_1$-$C_6)$-alkyl, di-$(C_1$-$C_4)$-alkoxy-$(C_1$-$C_6)$-alkyl or $(C_1$-$C_4)$-alkylthio-$(C_1$-$C_6)$-alkyl, each of which is substituted by n halogen atoms,
a fully saturated 3- to 6-membered ring consisting of 3 to 5 carbon atoms and 1 to 3 heteroatoms from the group consiting of oxygen, sulfur and nitrogen which is substituted by n radicals from the group consisting of halogen, $(C_1$-$C_4)$-alkyl and

(C_1-C_4)-alkoxy,
(C_3-C_6)-cycloalkyl, phenyl, phenyl-(C_1-C_4)-alkyl, heteroaryl, phenoxy-(C_1-C_4)-alkyl or heteroaryloxy-(C_1-C_4)-alkyl substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^2 is (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_1-C_4)-alkoxy-(C_1-C_6)-alkyl or di-(C_1-C_4)-alkoxy-(C_1-C_6)-alkyl, each of which is substituted by n halogen atoms,
or is (C_3-C_6)-cycloalkyl, phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^3, R^4 and R^5 are each independently of one another (C_1-C_6)-alkyl which is substituted by n halogen atoms, (C_1-C_4)-alkoxy, N-(C_1-C_6)-alkylamino, N,N-di-(C_1-C_6)-alkylamino, (C_1-C_4)-alkylthio, (C_2-C_4)-alkenyl or (C_3-C_6)-cycloalkylthio,
or phenyl, benzyl, phenoxy or phenylthio which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^6 and R^7 are each independently of one another hydrogen,
(C_1-C_6)-alkyl which is substituted by n halogen atoms, (C_3-C_6)-cycloalkyl, (C_2-C_6)-alkenyl, (C_1-C_6)-alkoxy or (C_1-C_4)-alkoxy-(C_1-C_6)-alkyl,
phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;
or R^6 and R^7 together with the nitrogen atom to which they are attached form a 3- to 6-membered ring which contains 2 to 5 carbon atoms and 0 or 1 oxygen or sulfur atoms;

and

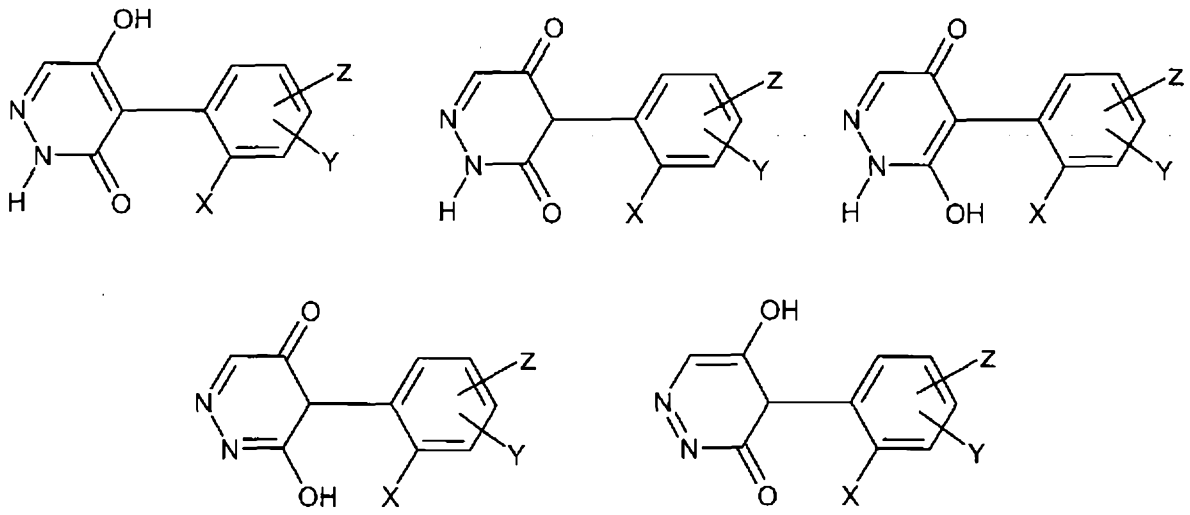
a) X is hydrogen, (C_1-C_6)-alkyl or (C_3-C_6)-cycloalkyl;
Y is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or is phenyl which is substituted by n halogen atoms,
Z is hydrogen, halogen, cyano, nitro, (C_1-C_6)-alkyl, halo-(C_1-C_6)-alkyl,

halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl or is phenyl which is substituted by n halogen atoms;

or

b) X is halogen, cyano, nitro or is (C_1-C_6)-alkyl, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms;
Y and Z are each independently of one another hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl or are (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms.

If G and/or B are hydrogen, the compounds of the formula (I) according to the invention can, depending on external conditions such as pH, solvent and temperature, be present in various tautomeric structures which are all embraced by the general formula (I):

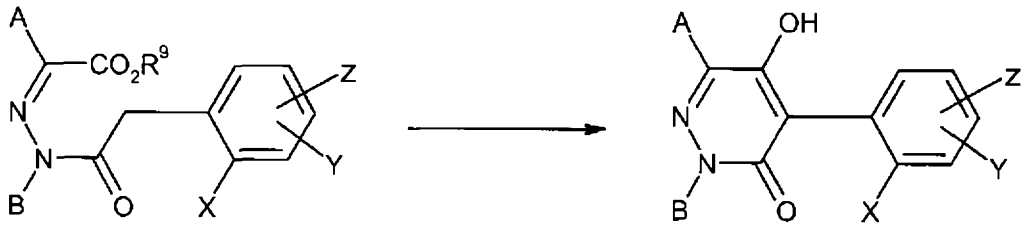


In all the stuctures below, the substituents have, unless defined otherwise, the same meaning as given above for the compounds of the formula (I).

Compounds of the formula (I) according to the invention in which G is hydrogen can be prepared, for example, according to the method given in Scheme 1 by a base-

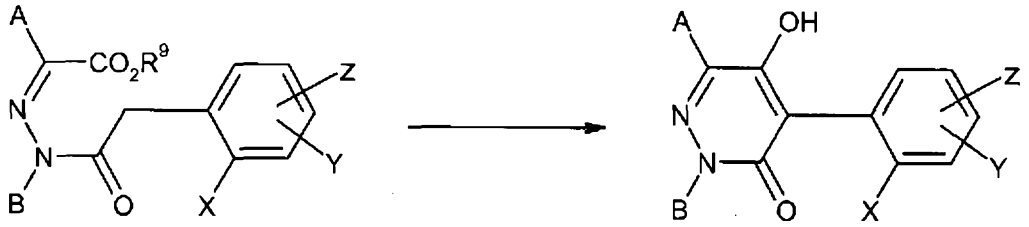
induced condensation reaction of compounds of the formula (II). Here, R^9 is (C_1-C_6)-alkyl, in particular methyl or ethyl.

Scheme 1



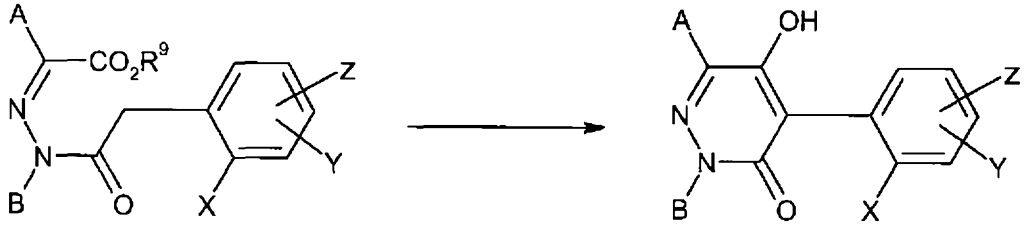
(II) (I)

Scheme 1



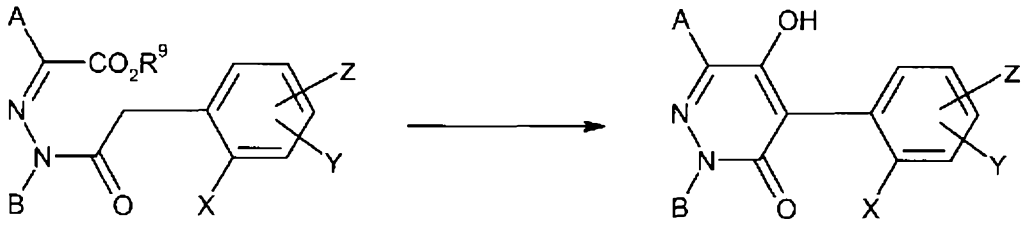
(II) (I)

Scheme 1



(II) (I)

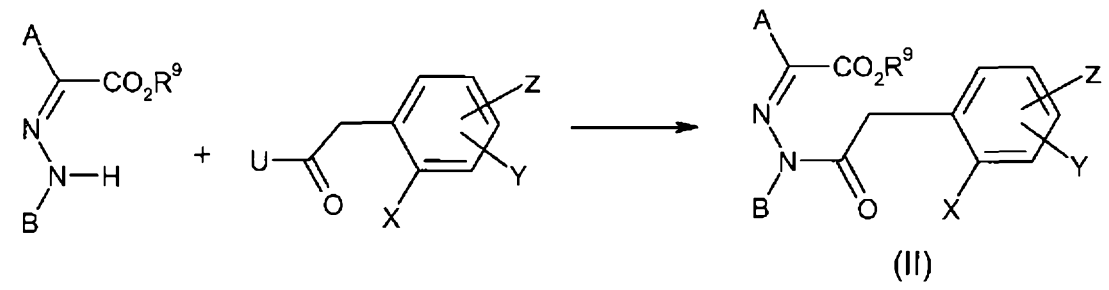
Scheme 1



(II) (I)

The compounds of the formula (II) are novel and also form part of the subject matter of the present invention. They can be prepared, for example, according to the method given in Scheme 1a by reaction of hydrazonocarboxylic acid derivatives with phenylacetic acid derivatives. Here, U is a leaving group introduced by reagents for activating carbonxylic acids, such as carbonyldiimidazole, carbonyldiimides (such as, for example, dicyclohexylcarbodiimide), phosphorylating agents (such as, for example, $POCl_3$, BOP-Cl), halogenating agents such as, for example, thionyl chloride, oxalyl chloride, phosgene or chloroformic esters. Such methods are also known to the person skilled in the art from WO2007/119434 and the documents cited therein.

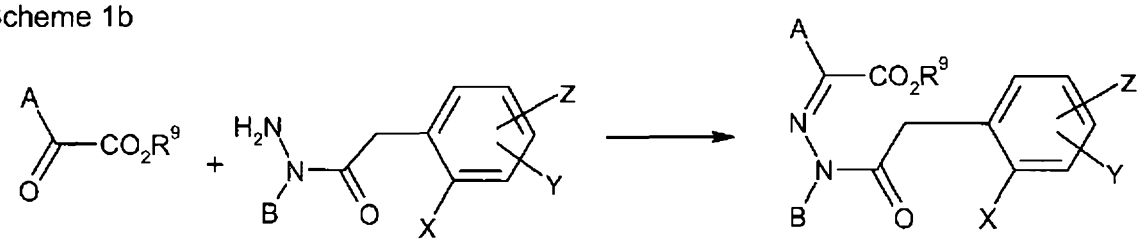
Scheme 1a



(II)

Compounds of the formula (II) can also be prepared, for example, according to the method shown in Scheme 1b, by the reaction, known to the person skilled in the art from Zh. Obs. Khim. 1992, 62, 2262, of hydrazides (IIa) with ketocarboxylic acids of the formula A-CO-CO_2R^9.

Scheme 1b



(IIa) (II)

The hydrazides of the formula (IIa) shown in Scheme 1b are novel and also form part of the subject matter of the present invention. They can be prepared, for example, by reacting hydrazines of the formula B-NH-NH_2 with the phenylacetic acid derivatives shown in Schema 1a according to the method described in J. Org. Chem. 1980, 45, 3673. The hydrazides shown in Scheme 1a can be prepared from the ketocarboxylic acids A-CO-CO_2R^9 shown in Scheme 1b, which are known per se, for example according to the methods described in J. Med. Chem. 1985 (28), 1436.

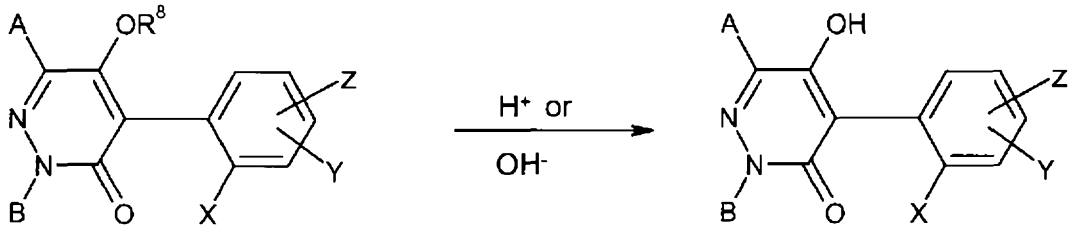
The free phenylacetic acids required for preparing the phenylacetic acid derivatives shown in Schema 1a, i.e. those in which U is hydroxyl, are known or can be prepared by processes which are known per se, for example from WO 2005/075401, WO 2001/96277, WO 1996/35664 and WO 1996/25395.

However, certain phenylacetic acid derivatives can also be prepared using acetic ester enolates in the presence of palladium catalysts, for example formed from a palladium source (for example $Pd_2(dba)_3$ or $Pd(OAc)_2$) and a ligand (for example (t-Bu)$_3$P, iMes*HCl or 2'-(N,N-dimethylamino)-2-(dicyclohexylphosphanyl)biphenyl) (WO 2005/048710, J. Am. Chem. Soc 2002. 124,. 12557, J. Am. Chem. Soc 2003. 125, 11176 or J. Am. Chem. Soc. 2001, 123, 799). In addition, certain substituted aryl halides can be converted under copper catalysis into the corresponding substituted malonic esters (for example described in Org. Lett. 2002, 2, 269, WO 2004/108727), which can be converted by known methods into phenylacetic acids.

Compounds of the formula (I) according to the invention in which G is hydrogen can

also be prepared, for example, according to the method given in Scheme 2 by reacting compounds of the formula (I) in which G is R^8 with strong mineral bases such as sodium hydroxide or potassium hydroxide, or in concentrated mineral acids such as hydrobromic acid.

Scheme 2



Compounds of the formula (I) according to the invention in which G is $C(=O)R^1$ can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with carbonyl halides of the formula Hal-CO-R^1 or with carboxylic anhydrides of the formula R^1-CO-O-CO-R^1

Compounds of the formula (I) according to the invention in which G is $C(=L)MR^2$ can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with a) chloroformic esters or chloroformic thioesters of the formula R^2-M-COOR^1 or b) with chloroformyl halides or chloroformyl thiohalides.

Compounds of the formula (I) according to the invention in which G is SO_2R^3 can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with sulfonyl chlorides of the formula R^3-SO_2-Cl.

Compounds of the formula (I) according to the invention in which G is $P(=L)R^4R^5$ can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with phosphoryl chlorides of the formula Hal-$P(=L)R^4R^5$.

Compounds of the formula (I) according to the invention in which G is E can also be

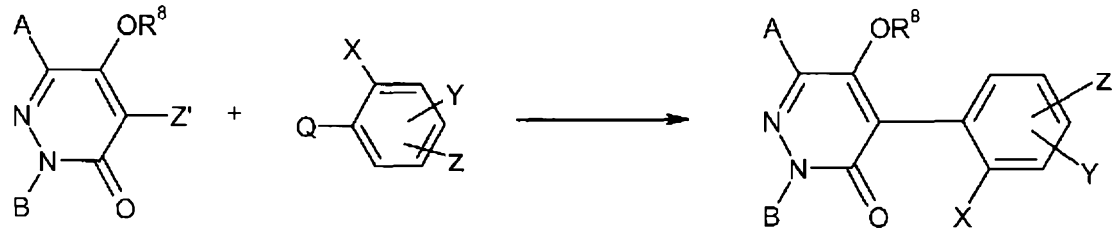
prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with metal compounds of the formula $Me(OR^{10})_t$ or with amines. Here, Me is a mono- or divalent metal ion, preferably an alkali or alakline earth metal such as lithium, sodium, potassium, magnesium or calcium. The index t is 1 or 2. An ammonium ion is the group NH_4^+ or $R^{13}R^{14}R^{15}R^{16}N^+$ in which R^{13}, R^{14}, R^{15} and R^{16} independently of one another are preferably (C_1-C_6)-alkyl or benzyl.

Compounds of the formula (I) according to the invention in which G is $C(=L)NR^6R^7$ can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with isocyanates or isothiocyanates of the formula R^6-N=C=L or with carbamoyl chlorides or thiocarbamoyl chlorides of the formula R^6R^7N-C(=L)Cl.

Compounds of the formula (I) according to the invention in which G is R^8 can also be prepared, for example, by reactions known to the person skilled in the art of compounds of the formula (I) in which G is hydrogen with compounds of the formula R^8-W in which W is chlorine, bromine, iodine or R^9-SO_2-O. R^9 is C_1-C_6-alkyl, phenyl, tolyl or halo-C_1-C_6-alkyl, preferably methyl, trifluoromethyl or tolyl.

Compounds of the formula (I) according to the invention in which G is R^8 can also be prepared, for example, according to Scheme 3 by reactions known to the person skilled in the art of compounds of the formula (III) with compounds of the formula (IV). Here, Z' is bromine or iodine and Q is a trialkyltin group, a magnesium halide group or, preferably, a boronic acid or an ester thereof. These reactions are usually carried out in the presence of a catalyst (for example a Pd salt or a Pd complex) and in the presence of a base (for example sodium carbonate, potassium phosphate).

Scheme 3



(III) (IV) (I)

Depending on the nature of the substituents defined above, the compounds of the formula (I) have acidic or basic properties and may be also to form salts, if appropriate also inner salts or adducts, with inorganic or organic acids or bases or with metal ions. If the compounds of the formula (I) carry amino groups, alkylamino groups or other groups which induced basic properties, these compounds may be reacted with acids to salts, or they are directly obtained as salts in the synthesis. Examples of inorganic acids are hydrohalic acids such as hydrofluoric acid, hydrochloric acid, hydrobromic acid and hydroiodic acid, sulfuric acid, phosphoric acid and nitric acid, and acidic salts such as $NaHSO_4$ and $KHSO_4$.
Suitable organic acids are, for example, formic acid, carbonic acid and alkanoic acids such as acetic acid, trifluoroacetic acid, trichloroacetic acid and propionic acid and also glycolic acid, thiocyanic acid, lactic acid, succinic acid, citric acid, benzoic acid, cinnamic acid, oxalic acid, alkylsulfonic acids (sulfonic acids having straight-chain or branched alkyl radicals of 1 to 20 carbon atoms), arylsulfonic acids or -disulfonic acids (aromatic radicals such as phenyl and naphthyl which carry one or two sulfonic acid groups), alkylphosphonic acids (phosphonic acids having straight-chain or branched alkyl radicals having 1 to 20 carbon atoms), arylphosphonic acids or – diphosphonic acids (aromatic radicals such as phenyl and naphthyl which carry one or two phosphonic acid radicals), where the alkyl or aryl radicals may carry further substituents, for example p-toluenesulfonic acid, salicylic acid, p-aminosalicylic acid, 2-phenoxybenzoic acid, 2-acetoxybenzoic acid, etc.
Suitable metal ions are in particular the ions of the elements of the second main group, in particular calcium and magnesium, the third and fourth main group, in

particular aluminum, tin and lead, and also of the first to eigth transition group, in particular chromium, manganese, iron, cobalt, nickel, copper, zinc and others. Particular preference is given to the metal ions of the elements of the fourth period. Here, the metals may be present in the different valencies that they can assume.

If the compounds of the formula (I) carry hydroxyl groups, carboxyl groups or other groups which induce acidic properties, these compounds can be reacted with bases to salts.

Suitable bases are, for example, hydroxides, carbonates, bicarbonates of the alkali and alkaline earth metals, in particular those of sodium, potassium, magnesium and calcium, furthermore ammonia, primary, secondary and tertiary amins having (C_1-C_4)-alkyl groups, mono-, di- and trialkanolamines of (C_1-C_4)-alkanols, choline and also chlorocholine.

Halogen is fluorine, chlorine, bromine and iodine.

A metal ion equivalent is a metal ion having a positive charge, such as Na^+, K^+, $(Mg^{2+})_{1/2}$, $(Ca^{2+})_{1/2}$, MgH^+, CaH^+, $(Al^{3+})_{1/3}$ $(Fe^{2+})_{1/2}$ or $(Fe^{3+})_{1/3}$.

Alkyl is a saturated straight-chain or branched hydrocarbon radical having 1 to 8 carbon atoms, for example C_1-C_6-alkyl such as methyl, ethyl, propyl, 1-methylethyl, butyl, 1-methylpropyl, 2-methylpropyl, 1,1-dimethylethyl, pentyl, 1-methylbutyl, 2-methylbutyl, 3-methylbutyl, 2,2-dimethylpropyl, 1-ethylpropyl, hexyl, 1,1-dimethylpropyl, 1,2-dimethylpropyl,1-methylpentyl, 2-methylpentyl, 3-methylpentyl, 4-methylpentyl, 1,1-dimethylbutyl, 1,2-dimethylbutyl, 1,3-dimethylbutyl, 2,2-dimethylbutyl, 2,3-dimethylbutyl, 3,3-dimethylbutyl, 1-ethylbutyl, 2-ethylbutyl, 1,1,2-trimethylpropyl, 1,2,2-trimethylpropyl, 1-ethyl-1-methylpropyl and 1-ethyl-2-methyl-propyl.

Haloalkyl is a straight-chain or branched alkyl group having 1 to 8 carbon atoms (as mentioned above), where some or all of the hydrogen atoms in this group may be replaced by halogen atoms, for example C_1-C_2-haloalkyl such as chloromethyl, bromomethyl, dichloromethyl, trichloromethyl, fluoromethyl, difluoromethyl, trifluoro-

methyl, chlorofluoromethyl, dichlorofluoromethyl, chlorodifluoromethyl, 1-chloroethyl, 1-bromoethyl, 1-fluoroethyl, 2-fluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, 2-chloro-2-fluoroethyl, 2-chloro-2,2-difluoroethyl, 2,2-dichloro-2-fluoroethyl, 2,2,2-trichloroethyl, pentafluoroethyl and 1,1,1-trifluoroprop-2-yl.

Alkenyl is an unsaturated straight-chain or branched hydrocarbon radical having 2 to 8 carbon atoms and a double bond in any position, for example C_2-C_6-alkenyl such as ethenyl, 1-propenyl, 2-propenyl, 1-methylethenyl, 1-butenyl, 2-butenyl, 3-butenyl, 1-methyl-1-propenyl, 2-methyl-1-propenyl, 1-methyl-2-propenyl, 2-methyl-2-propenyl, 1-pentenyl, 2-pentenyl, 3-pentenyl, 4-pentenyl, 1-methyl-1-butenyl, 2-methyl-1-butenyl, 3-methyl-1-butenyl, 1-methyl-2-butenyl, 2-methyl-2-butenyl, 3-methyl-2-butenyl, 1-methyl-3-butenyl, 2-methyl-3-butenyl, 3-methyl-3-butenyl, 1,1-dimethyl-2-propenyl, 1,2-dimethyl-1-propenyl, 1,2-dimethyl-2-propenyl, 1-ethyl-1-propenyl, 1-ethyl-2-propenyl, 1-hexenyl, 2-hexenyl, 3-hexenyl, 4-hexenyl, 5-hexenyl, 1-methyl-1-pentenyl, 2-methyl-1-pentenyl, 3-methyl-1-pentenyl, 4-methyl-1-pentenyl, 1-methyl-2-pentenyl, 2-methyl-2-pentenyl, 3-methyl-2-pentenyl, 4-methyl-2-pentenyl, 1-methyl-3-pentenyl, 2-methyl-3-pentenyl, 3-methyl-3-pentenyl, 4-methyl-3-pentenyl, 1-methyl-4-pentenyl, 2-methyl-4-pentenyl, 3-methyl-4-pentenyl, 4-methyl-4-pentenyl, 1,1-dimethyl-2-butenyl, 1,1-dimethyl-3-butenyl, 1,2-dimethyl-1-butenyl, 1,2-dimethyl-2-butenyl, 1,2-dimethyl-3-butenyl, 1,3-dimethyl-1-butenyl, 1,3-dimethyl-2-butenyl, 1,3-dimethyl-3-butenyl, 2,2-dimethyl-3-butenyl, 2,3-dimethyl-1-butenyl, 2,3-dimethyl-2-butenyl, 2,3-dimethyl-3-butenyl, 3,3-dimethyl-1-butenyl, 3,3-dimethyl-2-butenyl, 1-ethyl-1-butenyl, 1-ethyl-2-butenyl, 1-ethyl-3-butenyl, 2-ethyl-1-butenyl, 2-ethyl-2-butenyl, 2-ethyl-3-butenyl, 1,1,2-trimethyl-2-propenyl, 1-ethyl-1-methyl-2-propenyl, 1-ethyl-2-methyl-1-propenyl and 1-ethyl-2-methyl-2-propenyl.

Alkoxy is a saturated straight-chain or branched alkoxy radical having 1 to 8 carbon atoms, for example C_1-C_6-alkoxy such as methoxy, ethoxy, propoxy, 1-methylethoxy, butoxy, 1-methylpropoxy, 2-methylpropoxy, 1,1-dimethylethoxy, pentoxy, 1-methylbutoxy, 2-methylbutoxy, 3-methylbutoxy, 2,2-dimethylpropoxy, 1-ethylpropoxy, hexoxy, 1,1-dimethylpropoxy, 1,2-dimethylpropoxy,1-methylpentoxy, 2-methylpentoxy, 3-methylpentoxy, 4-methylpentoxy, 1,1-dimethylbutoxy, 1,2-

dimethylbutoxy, 1,3-dimethylbutoxy, 2,2-dimethylbutoxy, 2,3-dimethylbutoxy, 3,3-dimethylbutoxy, 1-ethylbutoxy, 2-ethylbutoxy, 1,1,2-trimethylpropoxy, 1,2,2-trimethylpropoxy, 1-ethyl-1-methylpropoxy and 1-ethyl-2-methylpropoxy;

Haloalkoxy is a straight-chain or branched alkoxy group having 1 to 8 carbon atoms (as mentioned above), where some or all of the hydrogen atoms in this group may be replaced by halogen atoms as mentioned above, for example C_1-C_2-haloalkoxy such as chloromethoxy, bromomethoxy, dichloromethoxy, trichloromethoxy, fluoromethoxy, difluoromethoxy, trifluoromethoxy, chlorofluoromethoxy, dichlorofluoromethoxy, chlorodifluoromethoxy, 1-chloroethoxy, 1-bromoethoxy, 1-fluoroethoxy, 2-fluoroethoxy, 2,2-difluoroethoxy, 2,2,2-trifluoroethoxy, 2-chloro-2-fluoroethoxy, 2-chlor-2,2-difluoroethoxy, 2,2-dichloro-2-fluoroethoxy, 2,2,2-trichloroethoxy, pentafluoroethoxy and 1,1,1-trifluoroprop-2-oxy.

Alkylthio is a saturated straight-chain or branched alkylthio radical having 1 to 8 carbon atoms, for example C_1-C_6-alkylthio such as methylthio, ethylthio, propylthio, 1-methylethylthio, butylthio, 1-methyl-propylthio, 2-methylpropylthio, 1,1-dimethylethylthio, pentylthio, 1-methylbutylthio, 2-methylbutylthio, 3-methylbutylthio, 2,2-di-methylpropylthio, 1-ethylpropylthio, hexylthio, 1,1-dimethylpropylthio, 1,2-di-methylpropylthio,1-methylpentylthio, 2-methylpentylthio, 3-methylpentylthio, 4-methylpentylthio, 1,1-dimethylbutylthio, 1,2-dimethylbutylthio, 1,3-dimethyl-butylthio, 2,2-dimethylbutylthio, 2,3-dimethylbutylthio, 3,3-dimethylbutylthio, 1-ethylbutylthio, 2-ethylbutylthio, 1,1,2-trimethylpropylthio, 1,2,2-trimethylpropylthio, 1-ethyl-1-methylpropylthio and 1-ethyl-2-methylpropylthio;

Haloalkylthio is a straight-chain or branched alkylthio group having 1 to 8 carbon atoms (as mentioned above), where some or all of the hydrogen atoms in this group may be replaced by halogen atoms as mentioned above, for example C_1-C_2-haloalkylthio such as chloromethylthio, bromomethylthio, dichloromethylthio, trichloromethylthio, fluoromethylthio, difluoromethylthio, trifluoromethylthio, chlorofluoromethylthio, dichlorofluoromethylthio, chlorodifluoromethylthio, 1-chloroethylthio, 1-bromoethylthio, 1-fluoroethylthio, 2-fluoroethylthio, 2,2-difluoroethylthio, 2,2,2-trifluoroethylthio, 2-chloro-2-fluoroethylthio, 2-chloro-2,2-di-

fluoroethylthio, 2,2-dichloro-2-fluoroethylthio, 2,2,2-trichloroethylthio, pentafluoroethylthio and 1,1,1-trifluoroprop-2-ylthio.

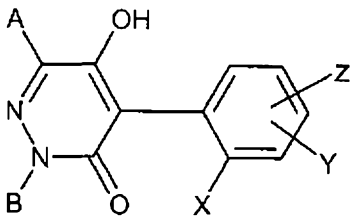
Heteroaryl is 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 1-pyrrolyl, 2-pyrrolyl, 3-pyrrolyl, 3-isoxazolyl, 4-isoxazolyl, 5-isoxazolyl, 3-isothiazolyl, 4-isothiazolyl, 5-isothiazolyl, 1-pyrazolyl, 3-pyrazolyl, 4-pyrazolyl, 5-pyrazolyl, 2-oxazolyl, 4-oxazolyl, 5-oxazolyl, 2-thiazolyl, 4-thiazolyl, 5-thiazolyl, 1-imidazolyl, 2-imidazolyl, 4-imidazolyl, 5-imidazolyl, 1,2,4-oxadiazol-3-yl, 1,2,4-oxadiazol-5-yl, 1,2,4-thiadiazol-3-yl, 1,2,4-thiadiazol-5-yl, 1,3,4-oxadiazol-2-yl, 1,3,4-thiadiazol-2-yl, 1,2,4-triazol-1-yl, 1,2,4-triazol-3-yl, 1,2,4-triazol-4-yl, 1,2,4-triazol-5-yl, 1,2,3-triazol-1-yl, 1,2,3-triazol-2-yl, 1,2,3-triazol-4-yl, tetrazol-1-yl, tetrazol-2-yl, tetrazol-5-yl, indol-1-yl, indol-2-yl, indol-3-yl, isoindol-1-yl, isoindol-2-yl, benzofur-2-yl, benzothiophen-2-yl, benzofur-3-yl, benzothiophen-3-yl, benzoxazol-2-yl, benzothiazol-2-yl, benzimidazol-2-yl, indazol-1-yl, indazol-2-yl, indazol-3-yl, 2-pyridinyl, 3-pyridinyl, 4-pyridinyl, 3-pyridazinyl, 4-pyridazinyl, 2-pyrimidinyl, 4-pyrimidinyl, 5-pyrimidinyl, 2-pyrazinyl, 1,3,5-triazin-2-yl, 1,2,4-triazin-3-yl, 1,2,4-triazin-5-yl or 1,2,4-triazin-6-yl. This heteroaryl is in each case unsubstituted or mono- or polysubstituted by identical or different radicals selected from the group consisting of fluorine, chlorine, bromine, iodine, cyano, hydroxyl, mercapto, amino, methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, sec-butyl, tert-butyl, cyclopropyl, 1-chlorocyclopropyl, vinyl, ethynyl, methoxy, ethoxy, isopropoxy, methylthio, ethylthio, trifluoromethylthio, chlorodifluoromethyl, dichlorofluoromethyl, chlorofluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, fluoromethyl, difluoromethyl, trifluoromethyl, 2,2,2-trifluorethyl, trifluoromethoxy, trifluoromethylthio, 2,2,2-trifluoroethoxy, 2,2-dichloro-2-fluoroethyl, 2,2-difluoro-2-chloroethyl, 2-chloro-2-fluoroethyl, 2,2,2-trichloroethyl, 2,2,2-trifluoroethyl, 2-fluoroethyl, 2,2-difluoroethyl, 2-methoxyethoxy, acetyl, propionyl, methoxycarbonyl, ethoxycarbonyl, N-methylamino, N,N-dimethylamino, N-ethylamino, N,N-diethylamino, aminocarbonyl, methylaminocarbonyl, dimethylaminocarbonyl, dimethylcarbamoylamino, methoxycarbonylamino, methoxycarbonyloxy, ethoxycarbonylamino, ethoxycarbonyloxy, methylsulfamoyl, dimethylsulfamoyl, phenyl or phenoxy.

Depending inter alia on the nature of the substituents, the compounds of the formula

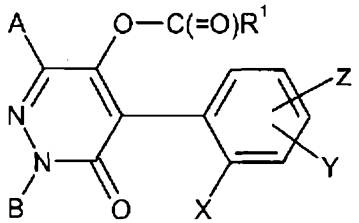
(I) can be present as geometrical and/or optical isomers or isomer mixtures of varying composition which, if appropriate, can be separated in a customary manner. The present invention provides both the pure isomers and the isomer mixtures, their preparation and use and compositions comprising them. However, hereinbelow, for the sake of simplicity, compounds of the formula (I) are always referred to, although this is meant to include both the pure compounds and, if appropriate, mixtures having varying proportions of isomeric compounds.

If a group is polysubstituted by radicals, this is to be understood as meaning that this group is substituted by one or more identical or different radicals from the radicals mentioned.

Preference is given to compounds of the general formulae (I-a), (I-b), (I-c), (I-d), (I-e), (I-f) and (I-g):



(I-a)



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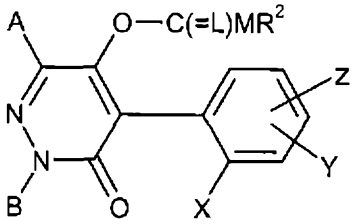
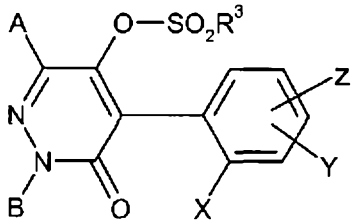
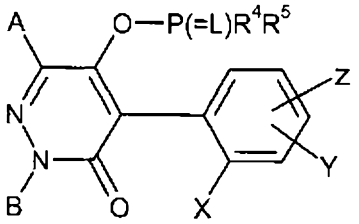


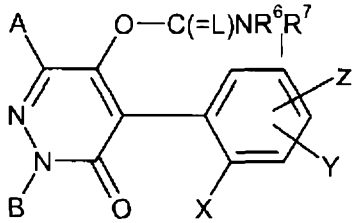
(I-c)



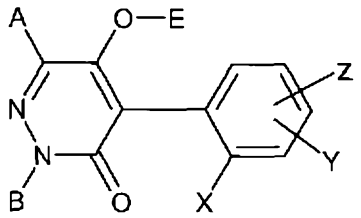
(I-d)



(I-e)



(I-f)



(I-g)

Preference is also given to compounds of the general formula (I) in which

A is (C_3-C_6)-cycloalkyl, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl, benzyl, halophenyl-(C_1-C_6)-alkyl or is (C_1-C_6)-alkyl which is substituted by n halogen atoms;

B is (C_3-C_6)-cycloalkyl, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl, benzyl, halophenyl-(C_1-C_6)-alkyl or is (C_1-C_6)-alkyl which is substituted by n halogen atoms;

m is 0, 1, 2 or 3;

n is 0, 1, 2 or 3, with the proviso that m and n are not both 0;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, or E;

E is Na^+, K^+, $(Mg^{2+})_{1/2}$, $(Ca^{2+})_{1/2}$, $R^{13}R^{14}R^{15}R^{16}N^+$ or NH_4^+;

R^{13}, R^{14}, R^{15} and R^{16} are independently of one another (C_1-C_6)-alkyl or benzyl;

L is oxygen;

M is oxygen;

R^1 is (C_1-C_6)-alkyl which is substituted by n halogen atoms or is (C_3-C_6)-cycloalkyl, phenyl or phenyl-(C_1-C_4)-alkyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^2 is (C_1-C_6)-alkyl which is substituted by n halogen atoms or is (C_3-C_6)-cycloalkyl, phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^3, R^4 and R^5 are each independently of one another (C_1-C_6)-alkyl which is substituted by n halogen atoms or are phenyl or benzyl which are substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^6 and R^7 are each independently of one another hydrogen, (C_1-C_6)-alkyl which is substituted by n halogen atoms or phenyl or benzyl which are substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

and

a) X is hydrogen, methyl, ethyl or cyclopropyl;
Y is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or phenyl which is substituted by n halogen atoms,
Z is hydrogen, halogen, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl or phenyl which is substituted by n halogen atoms,

or

b) X is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_1-C_6)-alkoxy or (C_3-C_6)-cycloalkyl;
Y is hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl, is (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms;
Z is hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl or is (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms.

Particular preference is given to compounds of the general formula (I) in which

A is cyclopropyl, cyclopropylmethyl, benzyl, 2-chlorophenylmethyl, 3-chlorophenylmethyl or 4-chlorophenylmethyl;

B is hydrogen, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, cyclopropyl, cyclopropylmethyl, benzyl, 2-chlorophenylmethyl, 3-chlorophenylmethyl or 4-chlorophenylmethyl;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, E or R^8;

E is Na^+, K^+, $(Mg^{2+})_{1/2}$, $(Ca^{2+})_{1/2}$, $(CH_3)_4N^+$ or NH_4^+;

L is oxygen;

M is oxygen;

R^1 is $(C_1\text{-}C_6)$-alkyl or $(C_3\text{-}C_6)$-cycloalkyl;

R^2 is $(C_1\text{-}C_6)$-alkyl, $(C_3\text{-}C_6)$-cycloalkyl or benzyl;

R^3, R^4 and R^5 are each independently of one another $(C_1\text{-}C_6)$-alkyl, phenyl or benzyl;

R^6 and R^7 are each independently of one another hydrogen, $(C_1\text{-}C_6)$-alkyl, phenyl or benzyl;

and

a) X is hydrogen, methyl or ethyl;
Y is fluorine, bromine, chlorine, iodine, cyano, nitro, cyclopropyl, methoxy, ethoxy, trifluoromethyl or trifluoromethoxy, phenyl or halophenyl;

Z is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl or cyclopropyl;

or

b) X is fluorine, bromine, chlorine, iodine, cyano, nitro, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy or cyclopropyl;

Y is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy or cyclopropyl;

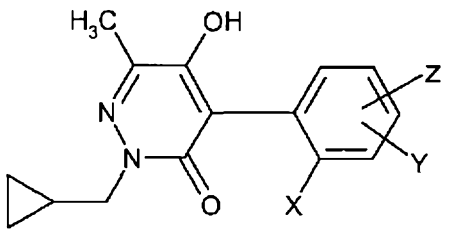
Z is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy, cyclopropyl, chlorophenyl or fluorophenyl.

Very particular preference is given to the compounds of the general formula (I) listed in Tables 1 to 94 which can be obtained analogously to the methods mentioned here.

The abbreviations used are defined below:

Bz	= benzyl	c-Pr	= cyclopropyl	Et	= ethyl
i-Bu	= isobutyl	t-Bu	= tertiary butyl	i-Pr	= isopropyl
Me	= methyl	Ph	= phenyl	c	= cyclo

Table 1: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is cyclopropylmethyl.



No.	X	Y	Z
1	F	H	H
2	Cl	H	H

No.	X	Y	Z
3	Br	H	H
4	I	H	H
5	OMe	H	H
6	EtO	H	H
7	CF_3	H	H
8	CN	H	H
9	NO_2	H	H
10	OCF_3	H	H
11	H	3-CF_3	H
12	H	3-Me	H
13	H	3-F	H
14	H	3-Cl	H
15	H	3-CN	H
16	H	3-Br	H
17	H	3-I	H
18	H	3-NO_2	H
19	H	3-OCF_3	H
20	H	3-OMe	H
21	H	3-EtO	H
22	H	4-CF_3	H
23	H	4-Me	H
24	H	4-F	H
25	H	4-Cl	H
26	H	4-CN	H
27	H	4-Br	H
28	H	4-I	H
29	H	4-NO_2	H
30	H	4-OCF_3	H
31	H	4-OMe	H
32	H	4-EtO	H
33	Cl	4-Cl	H
34	H	3-Cl	4-Cl
35	Br	4-Cl	H
36	Cl	H	6-Cl
37	Cl	H	6-F
38	F	H	6-F

No.	X	Y	Z
39	Me	4-Cl	H
40	Me	4-Br	H
41	Me	4-I	H
42	Cl	4-Cl	6-Cl
43	Cl	6-Me	4-Br
44	Cl	6-Me	4-Cl
45	Br	6-Me	4-Cl
46	Br	6-Me	4-Br
47	OMe	6-Me	4-Cl
48	EtO	6-Me	4-Cl
49	Cl	6-Me	4-Br
50	Cl	6-Et	4-Cl
51	Br	6-Et	4-Cl
52	Br	6-Et	4-Br
53	OMe	6-Et	4-Cl
54	EtO	6-Et	4-Cl
55	Br	4-Me	6-Br
56	Cl	4-Me	6-Cl
57	OMe	4-Me	6-Me
58	EtO	4-Me	6-Me
59	OMe	6-Et	4-Me
60	EtO	6-Et	4-Me
61	Cl	4-Me	6-Et
62	Et	6-Et	4-Cl
63	Et	6-Me	4-Br
64	Et	6-Et	4-Br
65	Et	6-Me	4-Cl
66	Et	6-Me	4-Br
67	OMe	4-Me	6-Cl
68	EtO	4-Me	6-Cl
69	I	H	4-Me
70	I	6-Me	H
71	I	6-Et	H
72	I	4-Me	6-Me
73	I	6-Et	4-Me
74	I	6-Me	4-Cl

No.	X	Y	Z
75	I	6-Et	6-Cl
76	I	6-Cl	4-Me
77	Me	4-I	H
78	Et	4-I	H
79	Et	4-I	6-Me
80	Et	4-I	6-Et
81	Cl	6-Me	4-I
82	Cl	6-Et	4-I
83	c-Pr	H	H
84	c-Pr	4-Me	H
85	c-Pr	H	6-Me
86	c-Pr	6-Et	H
87	c-Pr	4-Me	6-Me
88	c-Pr	6-Et	4-Me
89	c-Pr	4-Me	6-Cl
90	c-Pr	6-Et	4-Cl
91	c-Pr	4-Cl	6-Me
92	Me	4-c-Pr	H
93	Et	4-c-Pr	H
94	Me	4-c-Pr	6-Me
95	Et	4-c-Pr	6-Me
96	Et	4-c-Pr	6-Et
97	Cl	6-Me	4-c-Pr
98	Cl	6-Et	4-c-Pr
99	Et	6-Et	4-I
100	Cl	6-F	3-Me
101	F	6-F	3-F
102	EtO	6-F	3-F
103	F	6-F	3-EtO
104	F	H	5-Cl
105	H	3-CF_3	5-CF_3
106	Me	4-OCF_3	H
107	OCF_3	4-Me	H
108	OCF_3	5-Me	H
109	OCF_3	6-Me	H
110	OCF_3	6-Et	H

No.	X	Y	Z
111	Me	5-OCF_3	H
112	Me	3-OCF_3	6-Me
113	Br	4-OCF_3	6-Cl
114	Br	4-OCF_3	6-Br
115	OMe	4-OCF_3	6-Br
116	OMe	4-OCF_3	6-Cl
117	Cl	4-OCF_3	6-Cl
118	OMe	4-OCF_3	6-Cl
119	OMe	4-OCF_3	6-Br
120	Me	4-OCF_3	6-Me
121	Cl	4-OCF_3	6-Me
122	OCF_3	6-Cl	4-Br
123	OCF_3	6-Me	4-Me
124	OCF_3	6-OMe	4-Cl
125	OCF_3	6-Cl	4-Me
126	Cl	5-OCF_3	H
127	Br	5-OCF_3	H
128	OCF_3	6-Et	4-Cl
129	Br	4-Cl	6-Br
130	Br	4-Cl	6-Cl
131	Br	4-Me	6-Cl
132	Cl	3-Me	6-Cl
133	Cl	3-F	6-F
134	F	3-Me	6-F
135	F	4-OMe	6-F
136	F	3-OMe	6-F
137	Cl	3-Cl	6-F
138	Cl	4-Et	6-Cl
139	Cl	4-Et	6-Br
140	Cl	3-Br	6-Cl
141	Cl	4-CF_3	6-F
142	Cl	4-CF_3	6-Cl
143	Cl	3-Cl	6-Cl
144	Cl	3-CF_3	6-Cl
145	F	3-F	6-NO_2
146	F	4-NO_2	6-F

No.	X	Y	Z
147	Cl	4-CF_3	6-NO_2
148	Br	6-NO_2	H
149	F	4-CF_3	6-F
150	Br	6-Br	H
151	Cl	3-OMe	6-F
152	F	3-OMe	6-Cl
153	F	4-Cl	6-F
154	F	4-Br	6-F
155	F	4-Br	6-Br
156	Cl	4-Br	6-Cl
157	F	4-EtO	6-F
158	F	3-Cl	6-F
159	Cl	3-Cl	6-Br
160	F	3-F	6-Cl
161	F	3-F	6-Br
162	F	3-F	6-I
163	Cl	6-CF_3	H
164	Cl	3-Cl	6-CF_3
165	F	3-Cl	6-CF_3
166	Cl	3-CF_3	6-Cl
167	c-Pr	4-Cl	6-Cl

Table 2: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is cyclopropylmethyl and X, Y and Z have the meanings given in Table 1.

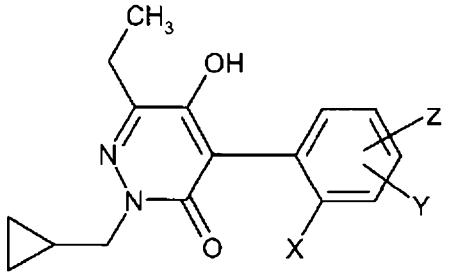


Table 3: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is cyclopropylmethyl and X, Y and Z have the meanings given in Table 1.

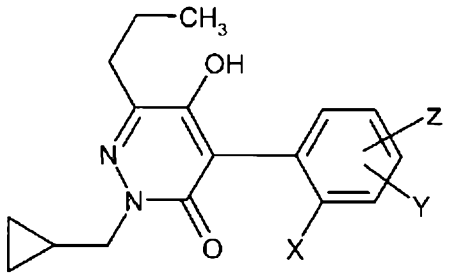


Table 4: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is cyclopropylmethyl and X, Y and Z have the meanings given in Table 1.

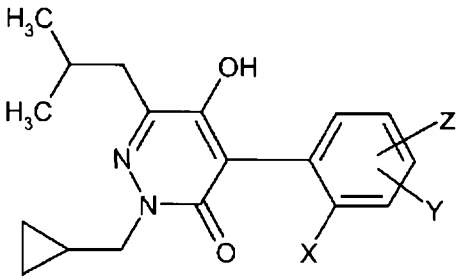


Table 5: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is cyclopropylmethyl and X,

Y and Z have the meanings given in Table 1.

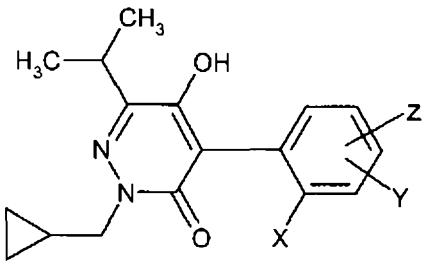


Table 6: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is cyclobutyl and X, Y and Z have the meanings given in Table 1.

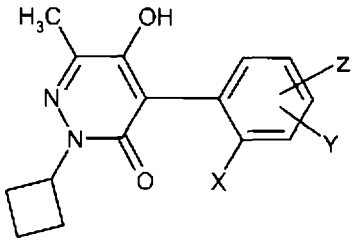


Table 7: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is cyclobutyl and X, Y and Z have the meanings given in Table 1.

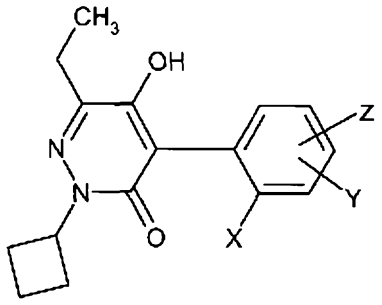


Table 8: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is cyclobutyl and X, Y and Z have the meanings given in Table 1.

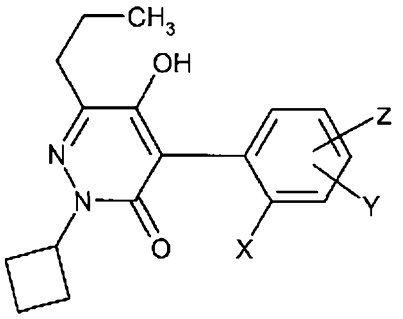


Table 9: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is cyclobutyl and X, Y and Z have the meanings given in Table 1.

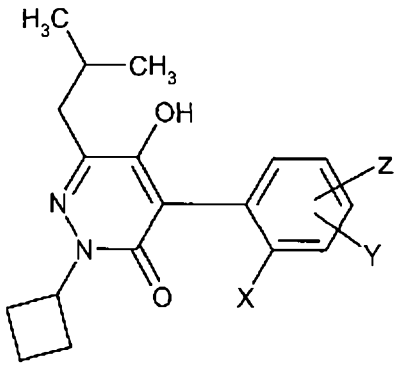


Table 10: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is cyclobutyl and X, Y and Z have the meanings given in Table 1.

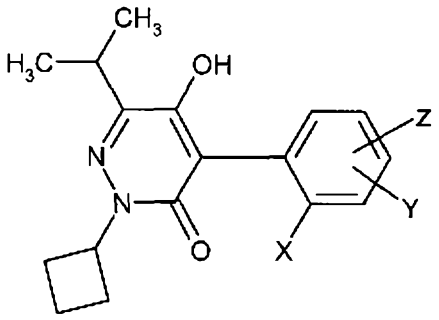


Table 11: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

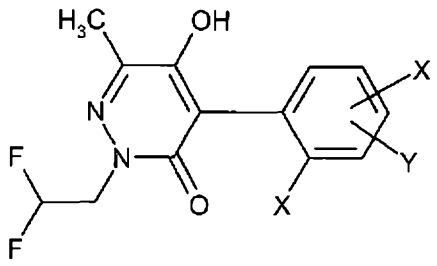


Table 12: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

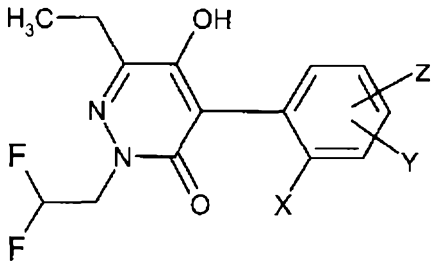


Table 13: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is B 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

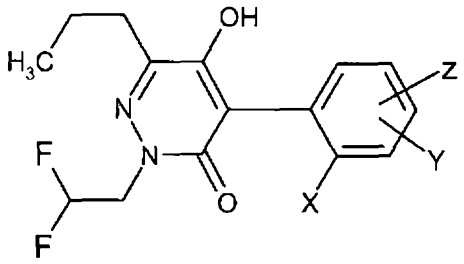


Table 14: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

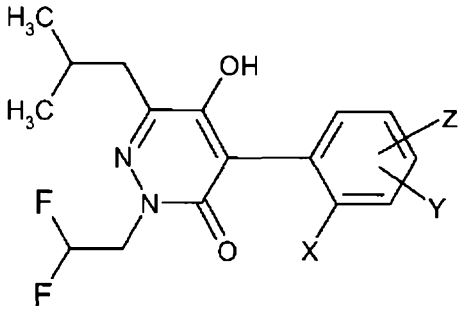


Table 15: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

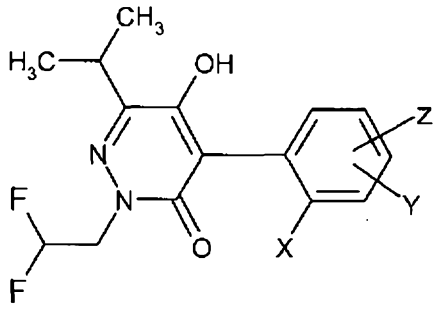


Table 16: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

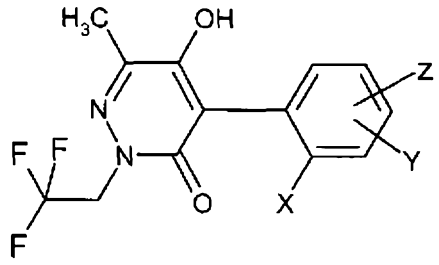


Table 17: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

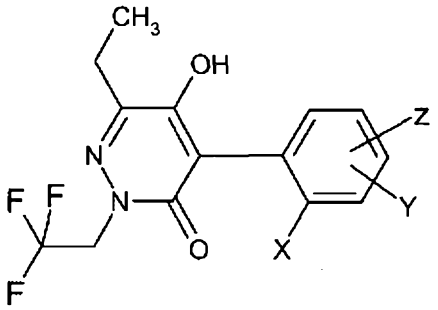


Table 18: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

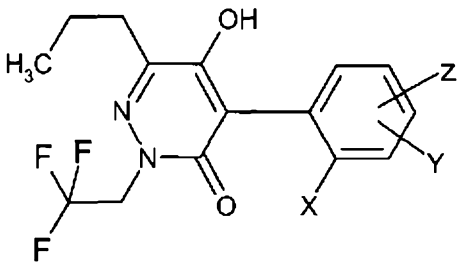


Table 19: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

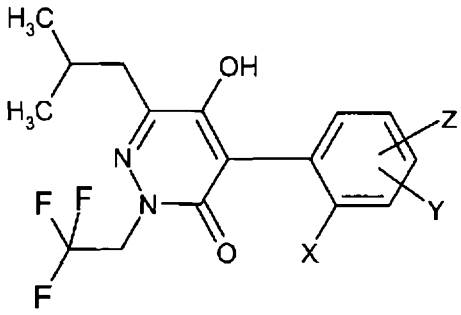


Table 20: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

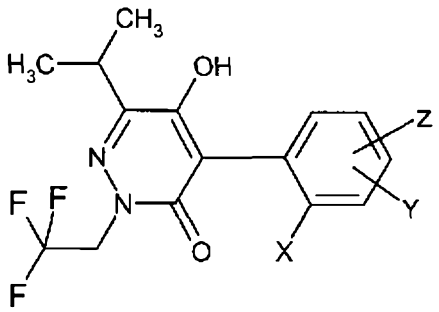


Table 21: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is benzyl and X, Y and Z have the meanings given in Table 1.

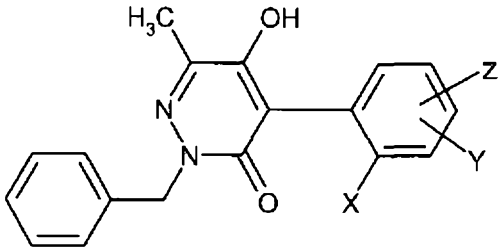


Table 22: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is benzyl and X, Y and Z have the meanings given in Table 1.

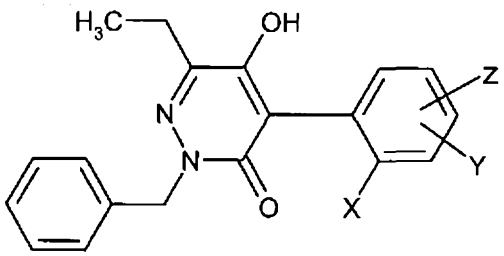


Table 23: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is benzyl and X, Y and Z have the meanings given in Table 1.

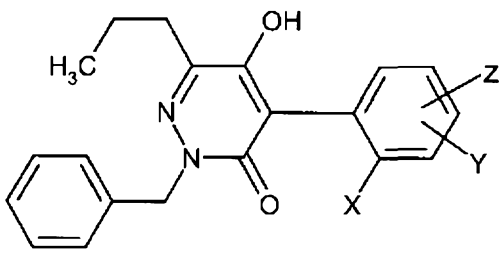


Table 24: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is benzyl and X, Y and Z have the meanings given in Table 1.

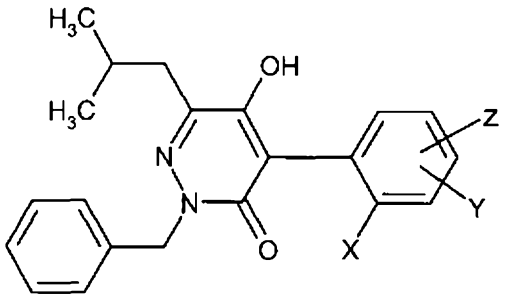


Table 25: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is benzyl and X, Y and Z have the meanings given in Table 1.

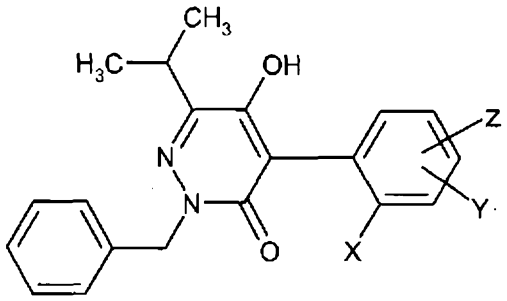


Table 26: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

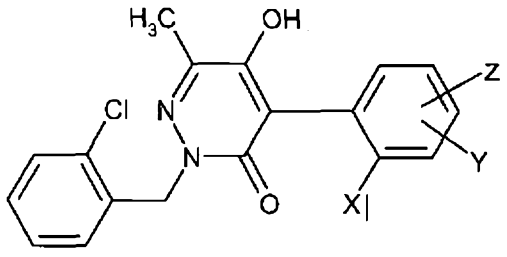


Table 27: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B 2-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

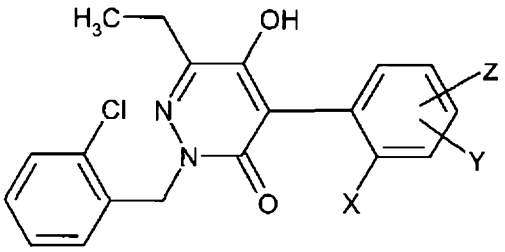


Table 28: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 2-chlorphenylmethyl and X, Y and Z have the meanings given in Table 1.

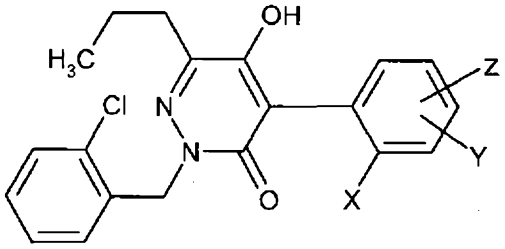


Table 29: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 2-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

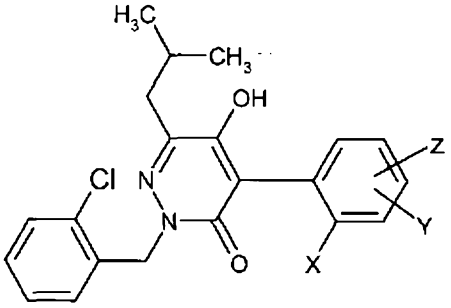


Table 30: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

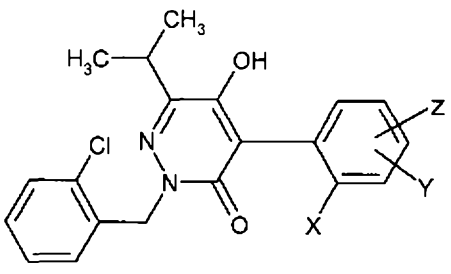


Table 31: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 3-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

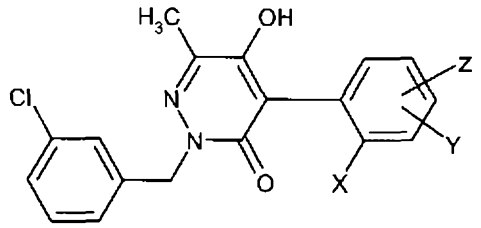


Table 32: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 3-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

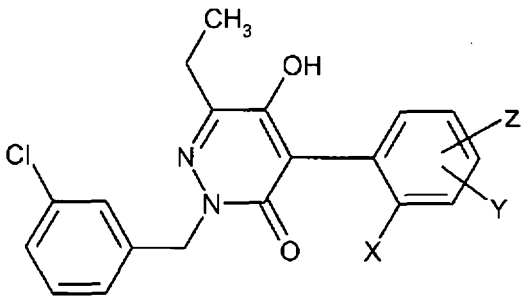


Table 33: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 3-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

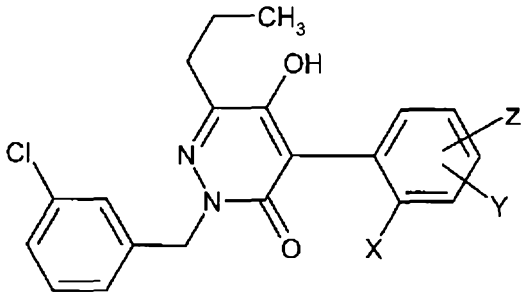


Table 34: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 3-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

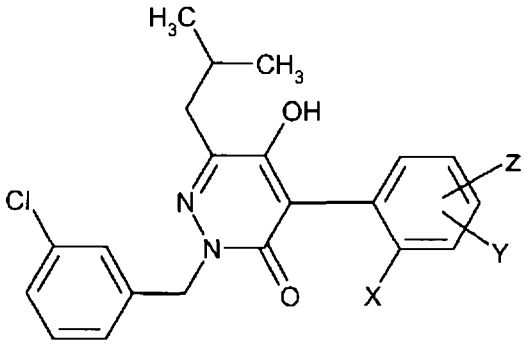


Table 35: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 3-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

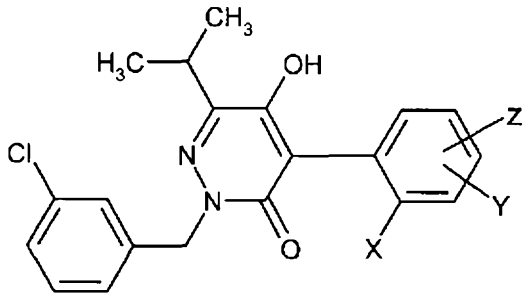


Table 36: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 4-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

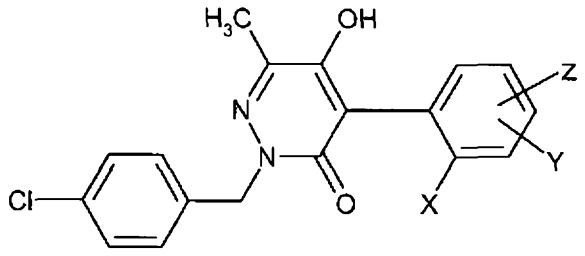


Table 37: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 4-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

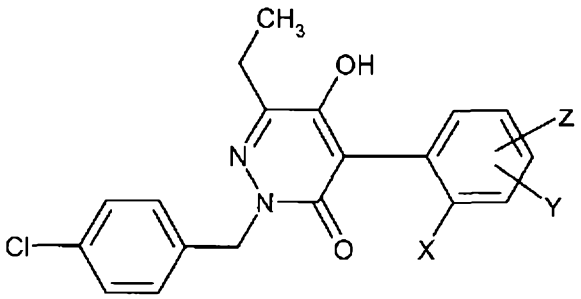


Table 38: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 4-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

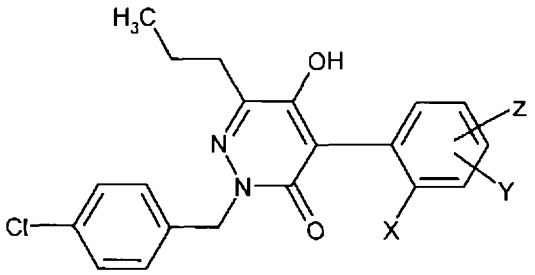


Table 39: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 4-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

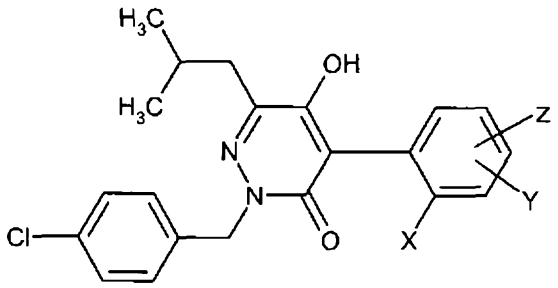


Table 40: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 4-chlorophenylmethyl and X, Y and Z have the meanings given in Table 1.

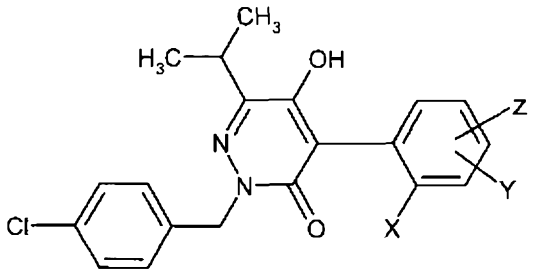


Table 41: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2-phenylethyl and X, Y and Z have the meanings given in Table 1.

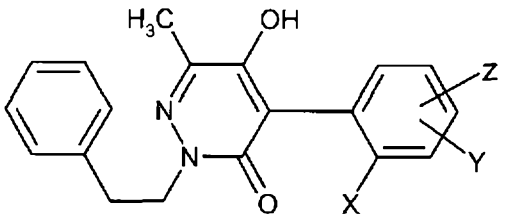


Table 42: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2-phenylethyl and X, Y and Z have the meanings given in Table 1.

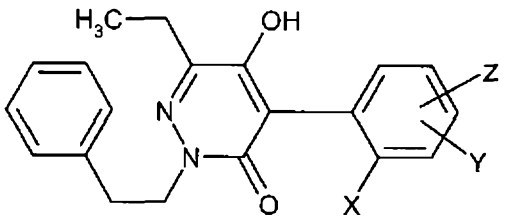


Table 43: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 2-phenylethyl and X, Y and Z have the meanings given in Table 1.

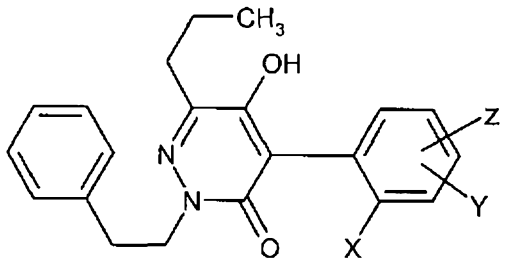


Table 44: Compounds of the general formula (I) according to the invention in

which G is hydrogen, A is isobutyl and B is 2-phenylethyl and X, Y and Z have the meanings given in Table 1.

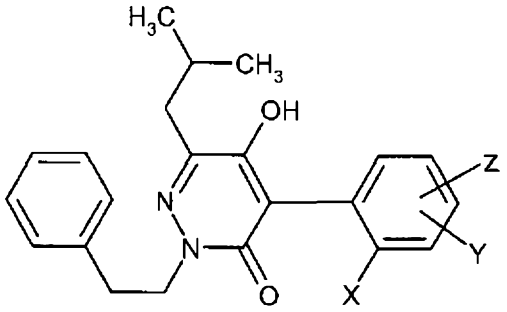


Table 45: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2-phenylethyl and X, Y and Z have the meanings given in Table 1.

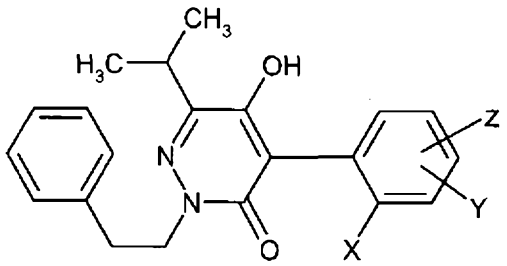


Table 46: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2-(2-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

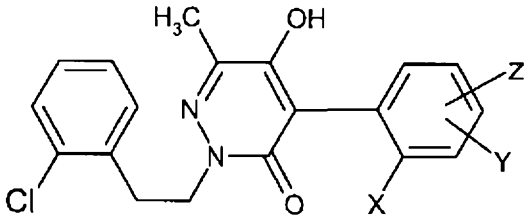


Table 47: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2-(2-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

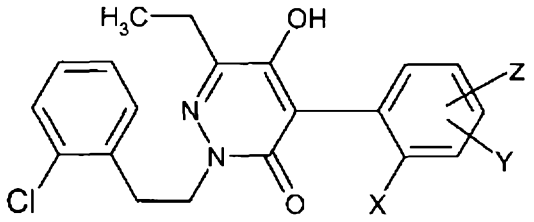


Table 48: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2-(2-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

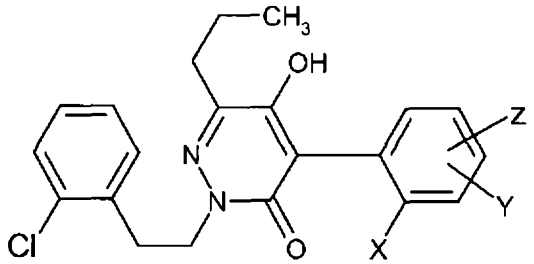


Table 49: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 2-(2-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

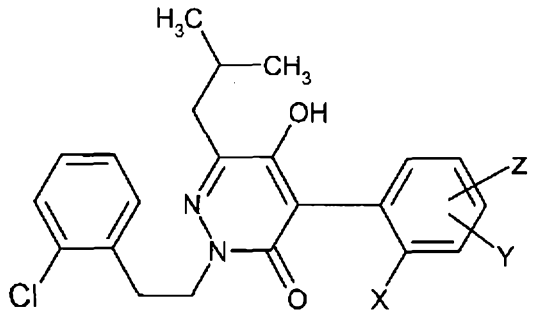


Table 50: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2-(2-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

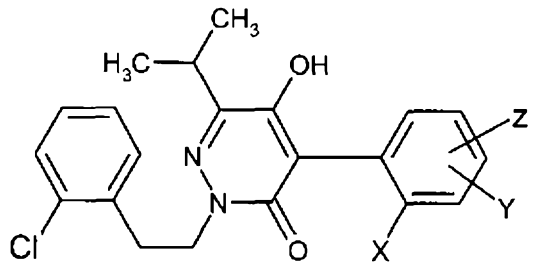


Table 51: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is methyl and B is 2-(4-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

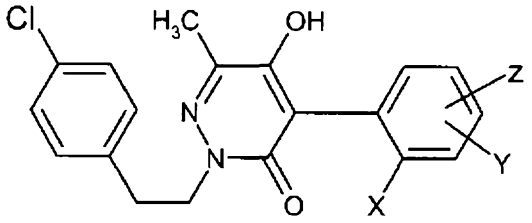


Table 52: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is ethyl and B is 2-(4-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

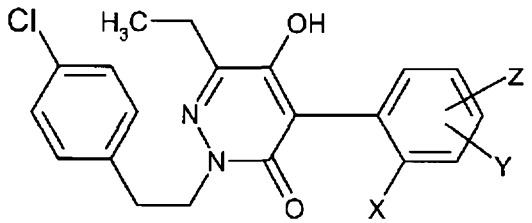


Table 53: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is propyl and B is 2-(4-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

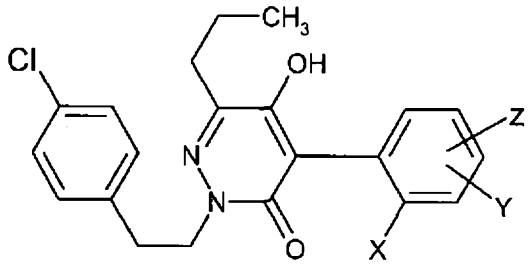


Table 54: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isobutyl and B is 2-(4-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

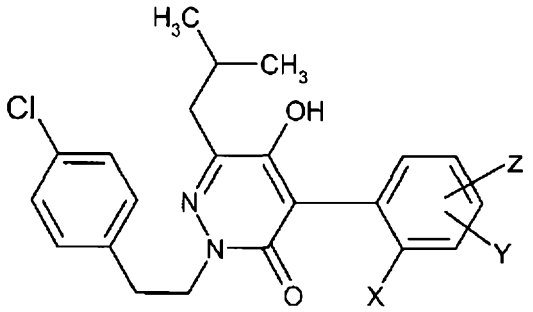


Table 55: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is isopropyl and B is 2-(4-chlorophenyl)ethyl and X, Y and Z have the meanings given in Table 1.

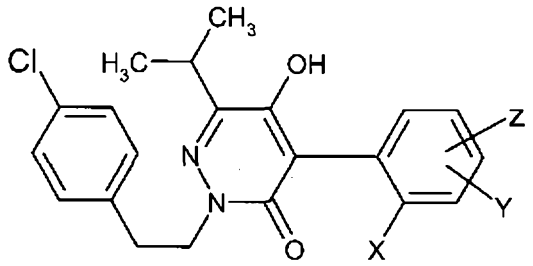


Table 56: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is 4-methyl and X, Y and Z have the meanings given in Table 1.

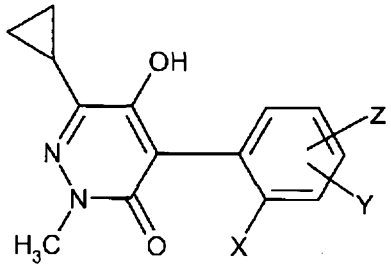


Table 57: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

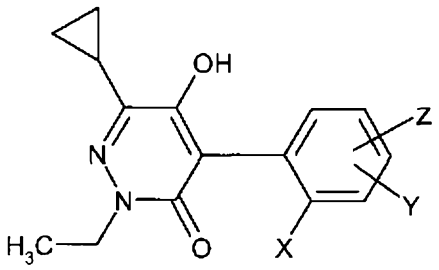


Table 58: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

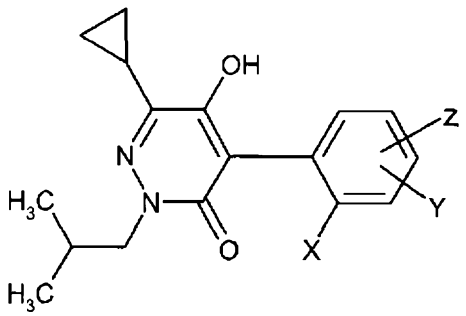


Table 59: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopentyl and B is methyl and X, Y and Z have the meanings given in Table 1.

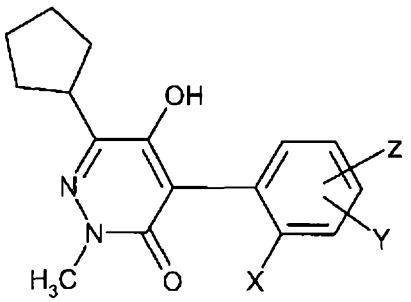


Table 60: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopentyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

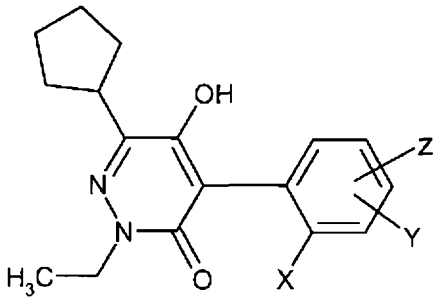


Table 61: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopentyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

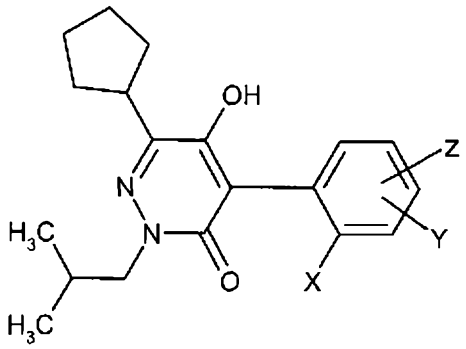


Table 62: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is benzyl and B is methyl and X, Y and Z have the meanings given in Table 1.

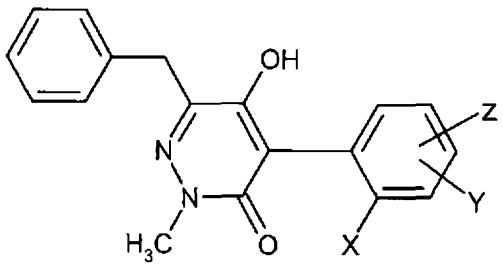


Table 63: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is benzyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

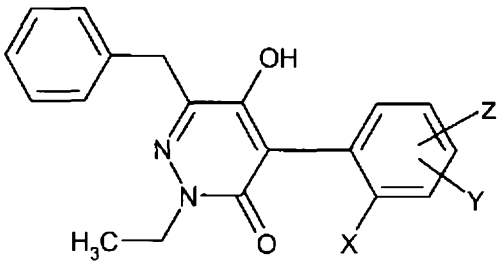


Table 64: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is benzyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

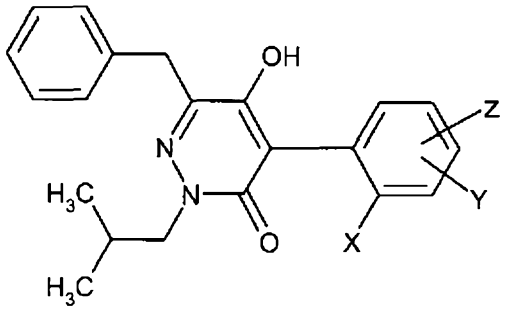


Table 65: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 4-fluorobenzyl and B is methyl and X, Y and Z have the meanings given in Table 1.

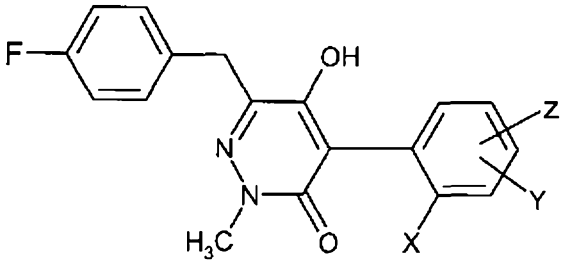


Table 66: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 4-fluorobenzyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

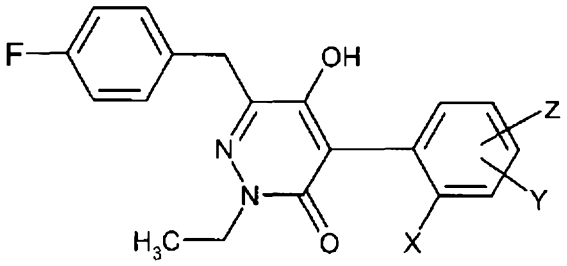


Table 67: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 4-fluorobenzyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

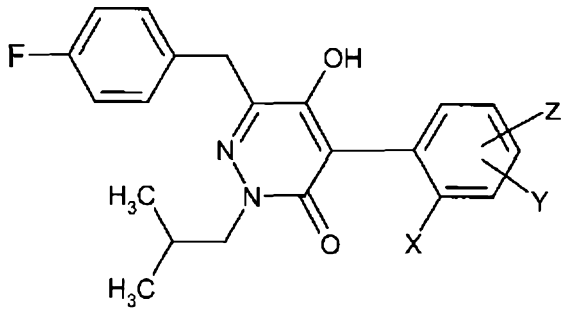


Table 68: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-fluorobenzyl and B is methyl and X, Y and Z have the meanings given in Table 1.

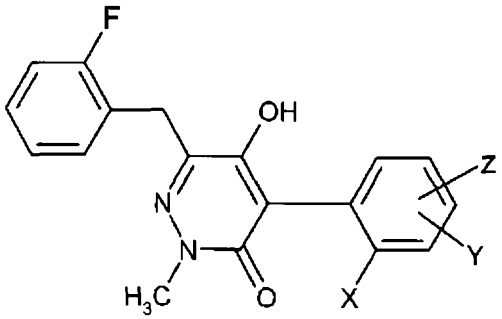


Table 69: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-fluorobenzyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

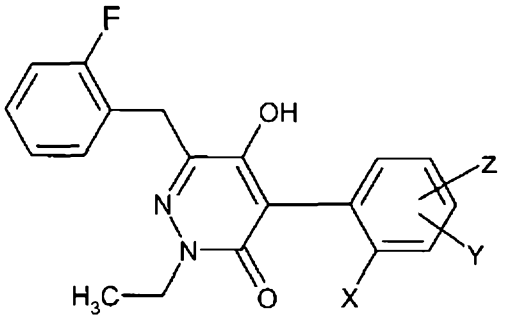


Table 70: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-fluorobenzyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

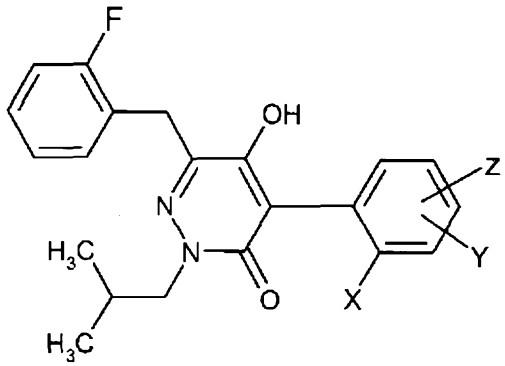


Table 71: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 3-fluorobenzyl and B is methyl and X, Y and Z have the meanings given in Table 1.

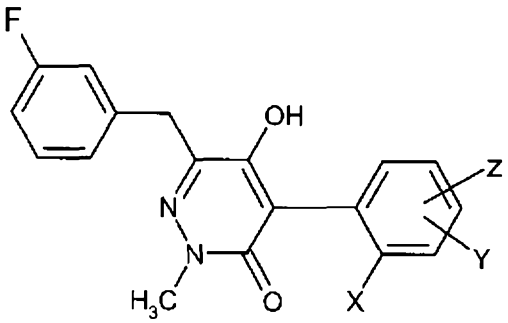


Table 72: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 3-fluorobenzyl and B is ethyl and X, Y and Z have the meanings given in Table 1.

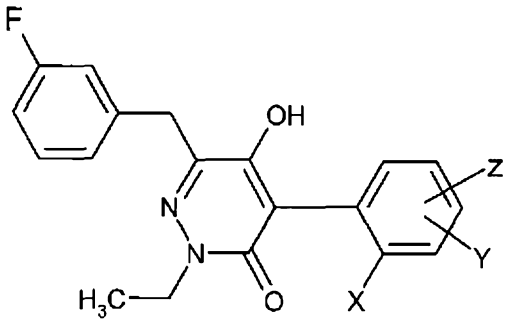


Table 73: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 3-fluorobenzyl and B is isobutyl and X, Y and Z have the meanings given in Table 1.

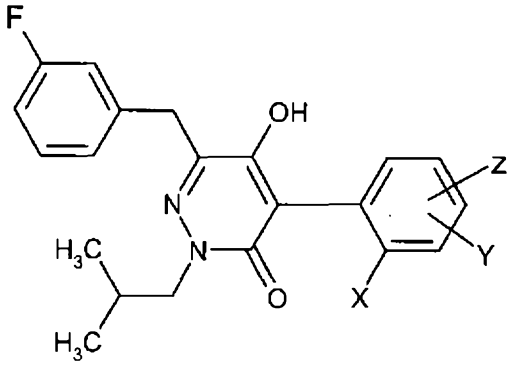


Table 74: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-phenylethyl and B is 4-methyl and X, Y and Z have the meanings given in Table 1.

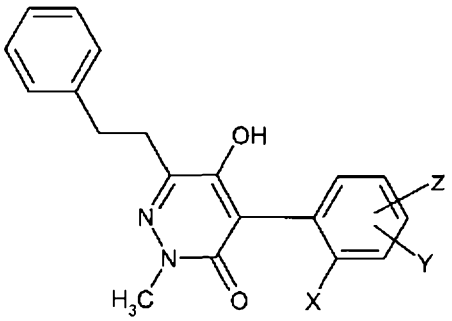


Table 75: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-phenylethyl and B is 4-ethyl and X, Y and Z have the meanings given in Table 1.

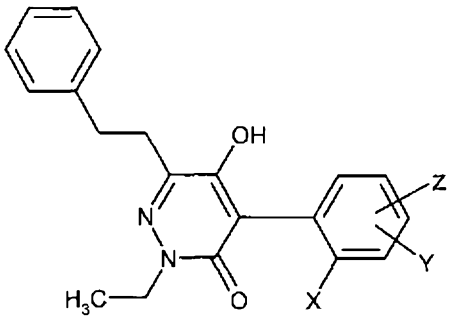


Table 76: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-phenylethyl and B is 4-isobutyl and X, Y and Z have the meanings given in Table 1.

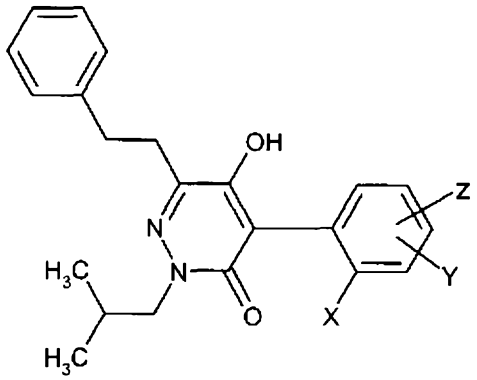


Table 77: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(4-chlorophenyl)ethyl and B is 4-methyl and X, Y and Z have the meanings given in Table 1.

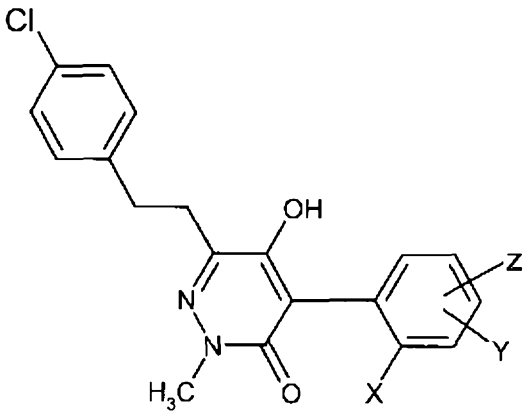


Table 78: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(4-chlorophenyl)ethyl and B is 4-ethyl and X, Y and Z have the meanings given in Table 1.

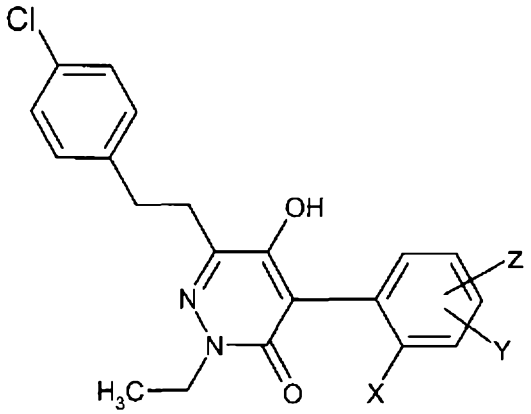


Table 79: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(4-chlorophenyl)ethyl and B is 4-isobutyl and X, Y and Z have the meanings given in Table 1.

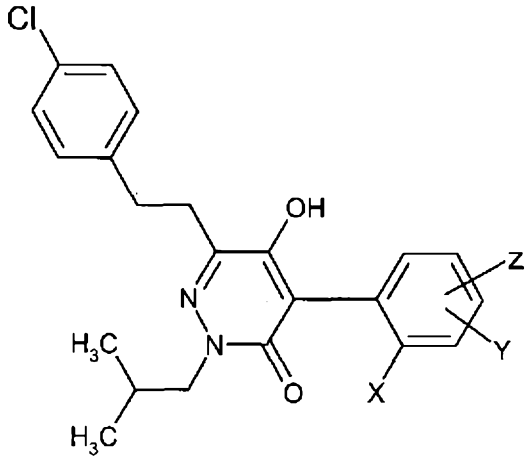


Table 80: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(2-chlorophenyl)ethyl and B is 4-methyl and X, Y and Z have the meanings given in Table 1.

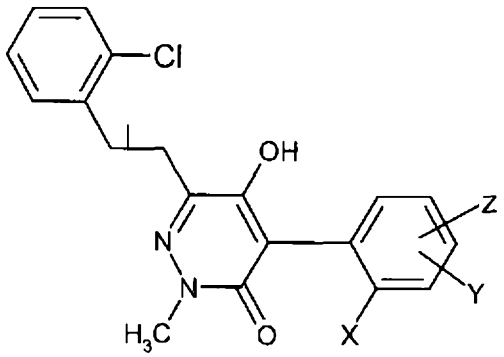


Table 81: Compounds of the general formula (I) according to the invention in

which G is hydrogen, A is 2-(2-chlorophenyl)ethyl and B is 4-ethyl and X, Y and Z have the meanings given in Table 1.

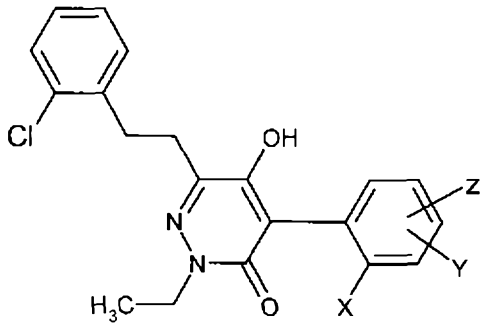


Table 82: Compounds of the general formula (I) according to the invention in which G is hydrogen, A 2-(4-chlorophenyl)ethyl and B is 4-isobutyl and X, Y and Z have the meanings given in Table 1.

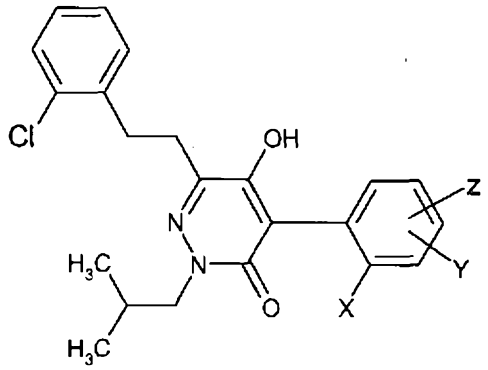


Table 83: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(3-chlorophenyl)ethyl and B is 4-methyl and X, Y and Z have the meanings given in Table 1.

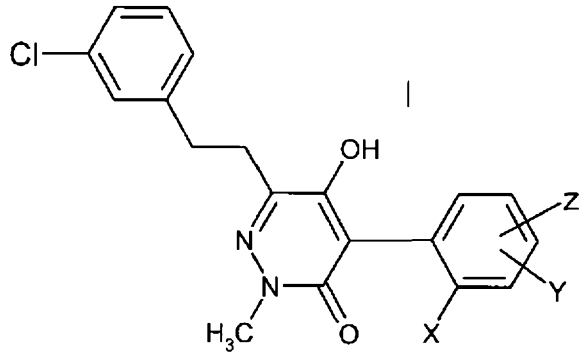


Table 84: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(3-chlorophenyl)ethyl and B is 4-ethyl and X, Y and Z have the meanings given in Table 1.

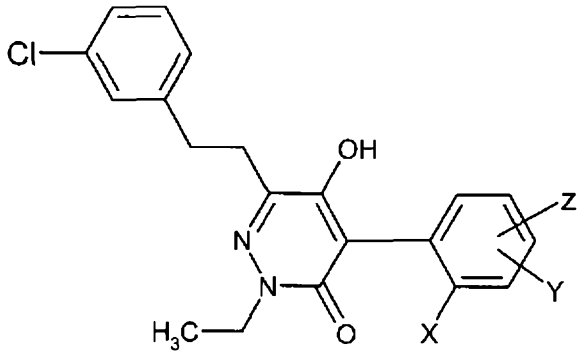


Table 85: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is 2-(3-chlorophenyl)ethyl and B is 4-isobutyl and X, Y and Z have the meanings given in Table 1.

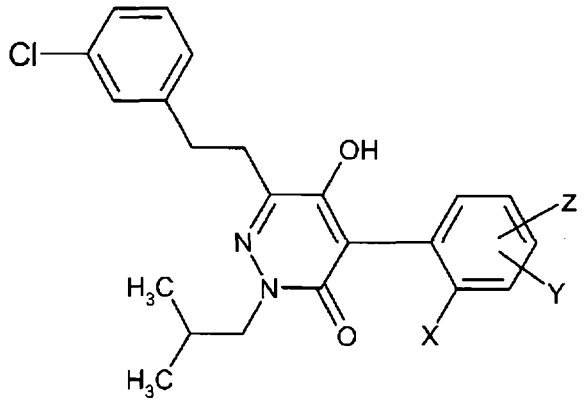


Table 86: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is cyclopropylmethyl and X, Y and Z have the meanings given in Table 1.

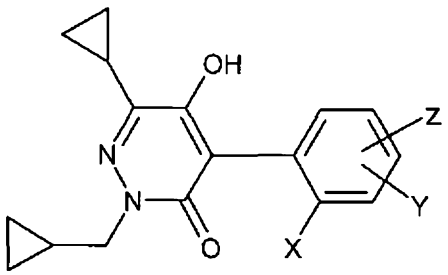


Table 87: Compounds of the general formula (I) according to the invention in

which G is hydrogen, A is cyclopropyl and B is 2,2-difluoroethyl and X, Y and Z have the meanings given in Table 1.

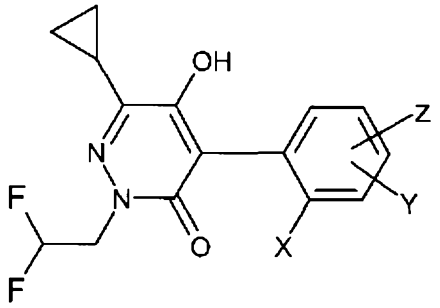


Table 88: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is 4-2,2,2-trifluoroethyl and X, Y and Z have the meanings given in Table 1.

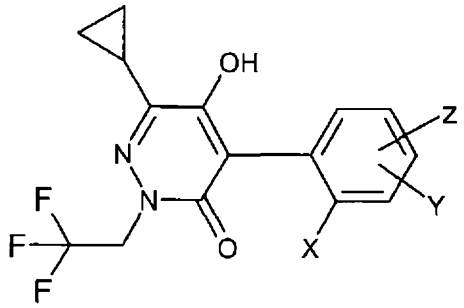


Table 89: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is methyl and X, Y and Z have the meanings given in Table 1.

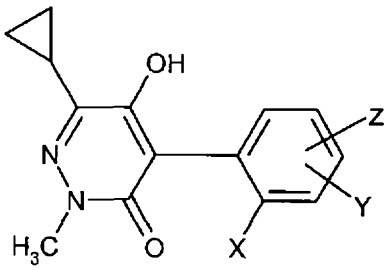
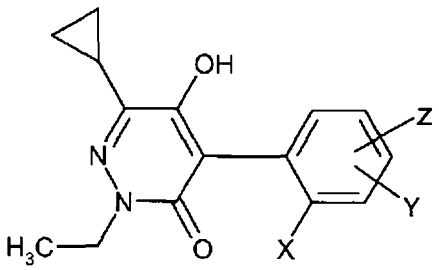


Table 90: Compounds of the general formula (I) according to the invention in which G is hydrogen, A is cyclopropyl and B is ethyl and X, Y and Z have the meanings given in Table 1.



Very particular preference is also given to compounds in Tables 1 to 32 listed above in which G is in each case $C(=O)R^1$, $C(=L)LR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, E or R^8.

Collections of compounds of the formula (I) and/or their salts which can be synthesized in accordance with the abovementioned reactions can also be prepared in a parallelized manner, which can be effected manually or in a partly or fully automated manner. Here, it is possible for example to automate the procedure of the reaction, the work-up or the purification of the products or intermediates. In total, this is understood as meaning a procedure as described for example by D. Tiebes in Combinatorial Chemistry – Synthesis, Analysis, Screening (Editor Günther Jung), Wiley 1999, on pages 1 to 34.

A number of commercially available apparatuses can be used for the parallelized reaction procedure and work-up, for example Calpyso reaction blocks from Barnstead International, Dubuque, Iowa 52004-0797, USA, or reaction stations from Radleys, Shirehill, Saffron Walden, Essex, CB 11 3AZ, England or MultiPROBE Automated Workstations from Perkin Elmar, Waltham, Massachusetts 02451, USA. Chromatographic apparatuses, for example from ISCO, Inc., 4700 Superior Street, Lincoln, NE 68504, USA, are available, inter alia, for the parallelized purification of compounds of the formula (I) and their salts or of intermediates generated in the course of the preparation.

The apparatuses listed lead to a modular procedure in which the individual passes are automated, but manual operations must be carried out between the passes. This

can be circumvented by the use of partly or fully integrated automation systems, where the relevant automation modules are operated by, for example, robots. Such automation systems can be obtained for example from Caliper, Hopkinton, MA 01748, USA.

The performance of individual, or a plurality of, synthesis steps can be aided by the use of polymer-supported reagents/scavenger resins. The specialist literature describes a series of experimental protocols, for example in ChemFiles, Vol. 4, No. 1, Polymer-Supported Scavengers and Reagents for Solution-Phase Synthesis (Sigma-Aldrich).

Besides the methods described herein, the preparation of compounds of the formula (I) and their salts can be effected fully or in part by solid-phase-supported methods. For this purpose, individual intermediates, or all intermediates, of the synthesis or of a synthesis adapted to the relevant procedure are bound to a synthesis resin. Solid-phase-supported synthesis methods are described sufficiently in the specialist literature, for example Barry A. Bunin in "The Combinatorial Index", Academic Press, 1998 and Combinatorial Chemistry – Synthesis, Analysis, Screening (Editor Günther Jung), Wiley, 1999. The use of solid-phase-supported synthesis methods permits a series of protocols known from the literature, which, again, can be carried out manually or in an automated manner. For example, the reactions can be carried out by means of IRORI technology in microreactors from Nexus Biosystems, 12140 Community Road, Poway, CA92064, USA.

Carrying out individual or a plurality of synthesis steps, both on a solid and in the liquid phase, can be aided by the use of microwave technology. A series of experimental protocols are described in the specialist literature, for example in Microwaves in Organic and Medicinal Chemistry (Editors C. O. Kappe and A. Stadler), Wiley, 2005.

The preparation in accordance with the processes described herein generates compounds of the formula (I) and their salts in the form of substance collections,

which are referred to as libraries. The present invention also relates to libraries which comprise at least two compounds of the formula (I) and their salts.

The compounds of the formula (I) according to the invention (and/or their salts), hereinbelow together referred to as "compounds according to the invention", have an outstanding herbicidal activity against a broad spectrum of economically important monocotyledonous and dicotyledonous annual harmful plants. The active substances also act efficiently on perennial harmful plants which produce shoots from rhizomes, rootstocks or other perennial organs and which are difficult to control.

The present invention therefore also relates to a method of controlling unwanted plants or for regulating the growth of plants, preferably in crops of plants, where one or more compound(s) according to the invention is/are applied to the plants (for example harmful plants such as monocotyledonous or dicotyledonous weeds or undesired crop plants), to the seeds (for example grains, seeds or vegetative propagules such as tubers or shoot parts with buds) or to the area on which the plants grow (for example the area under cultivation). In this context, the compounds according to the invention can be applied for example pre-planting (if appropriate also by incorporation into the soil), pre-emergence or post-emergence. Examples of individual representatives of the monocotyledonous and dicotyledonous weed flora which can be controlled by the compounds according to the invention shall be mentioned, without the mention being intended as a limitation to certain species.

Monocotyledonous harmful plants of the genera: Aegilops, Agropyron, Agrostis, Alopecurus, Apera, Avena, Brachiaria, Bromus, Cenchrus, Commelina, Cynodon, Cyperus, Dactyloctenium, Digitaria, Echinochloa, Eleocharis, Eleusine, Eragrostis, Eriochloa, Festuca, Fimbristylis, Heteranthera, Imperata, Ischaemum, Leptochloa, Lolium, Monochoria, Panicum, Paspalum, Phalaris, Phleum, Poa, Rottboellia, Sagittaria, Scirpus, Setaria, Sorghum.

Dicotyledonous weeds of the genera: Abutilon, Amaranthus, Ambrosia, Anoda, Anthemis, Aphanes, Artemisia, Atriplex, Bellis, Bidens, Capsella, Carduus, Cassia,

Centaurea, Chenopodium, Cirsium, Convolvulus, Datura, Desmodium, Emex, Erysimum, Euphorbia, Galeopsis, Galinsoga, Galium, Hibiscus, Ipomoea, Kochia, Lamium, Lepidium, Lindernia, Matricaria, Mentha, Mercurialis, Mullugo, Myosotis, Papaver, Pharbitis, Plantago, Polygonum, Portulaca, Ranunculus, Raphanus, Rorippa, Rotala, Rumex, Salsola, Senecio, Sesbania, Sida, Sinapis, Solanum, Sonchus, Sphenoclea, Stellaria, Taraxacum, Thlaspi, Trifolium, Urtica, Veronica, Viola, Xanthium.

If the compounds according to the invention are applied to the soil surface before germination, either the emergence of the weed seedlings is prevented completely or the weeds grow until they have reached the cotyledon stage, but then stop their growth and, finally, die completely after three to four weeks have elapsed.

When the active substances are applied post-emergence to the green plant parts, growth stops after the treatment, and the harmful plants remain in the growth stage of the time of application or die fully after a certain period of time, so that competition by weeds, which is harmful to the crop plants, is thus eliminated at an early point in time and in a sustained manner.

Although the compounds according to the invention display an outstanding herbicidal activity against monocotyledonous and dicotyledonous weeds, crop plants of economically important crops, for example dicotyledonous crops of the genera Arachis, Beta, Brassica, Cucumis, Cucurbita, Helianthus, Daucus, Glycine, Gossypium, Ipomoea, Lactuca, Linum, Lycopersicon, Nicotiana, Phaseolus, Pisum, Solanum, Vicia, or monocotyledonous crops of the genera Allium, Ananas, Asparagus, Avena, Hordeum, Oryza, Panicum, Saccharum, Secale, Sorghum, Triticale, Triticum, Zea, in particular Zea and Triticum, are damaged only to an insignificant extent, or not at all, depending on the structure of the respective compound according to the invention and its application rate. This is why the present compounds are highly suitable for the selective control of undesired plant growth in plant crops such as agriculturally useful plants or ornamentals.

Moreover, the compounds according to the invention (depending on their respective structure and the application rate applied) have outstanding growth-regulatory properties in crop plants. They engage in the plant metabolism in a regulatory fashion and can therefore be employed for the influencing, in a targeted manner, of plant constituents and for facilitating harvesting, such as, for example, by triggering desiccation and stunted growth. Moreover, they are also suitable for generally controlling and inhibiting undesired vegetative growth without destroying the plants in the process. Inhibiting the vegetative growth plays an important role in many monocotyledonous and dicotyledonous crops since for example lodging can be reduced, or prevented completely, hereby.

Owing to their herbicidal and plant-growth-regulatory properties, the active substances can also be employed for controlling harmful plants in crops of genetically modified plants or plants which have been modified by conventional mutagenesis. As a rule, the transgenic plants are distinguished by especially advantageous properties, for example by resistances to certain pesticides, mainly certain herbicides, resistances to plant diseases or causative organisms of plant diseases, such as certain insects or microorganisms such as fungi, bacteria or viruses. Other special properties relate for example to the harvested material with regard to quantity, quality, storability, composition and specific constituents. Thus, transgenic plants with an increased starch content or a modified starch quality or those with a different fatty acid composition of the harvested material are known.

It is preferred to use the compounds according to the invention or their salts in economically important transgenic crops of useful plants and ornamentals, for example of cereals such as wheat, barley, rye, oats, sorghum and millet, rice, cassava and corn or else crops of sugar beet, cotton, soybean, oil seed rape, potato, tomato, peas and other vegetables. It is preferred to employ the compounds according to the invention as herbicides in crops of useful plants which are resistant, or have been made resistant by recombinant means, to the phytotoxic effects of the herbicides.

Conventional ways of generating novel plants which, in comparison with existing plants, have modified properties are, for example, traditional breeding methods and the generation of mutants. Alternatively, novel plants with modified properties can be generated with the aid of recombinant methods (see, for example, EP-A-0221044, EP-A-0131624). For example, the following have been described in several cases:

- recombinant modifications of crop plants for the purposes of modifying the starch synthesized in the plants (for example WO 92/11376, WO 92/14827, WO 91/19806),
- transgenic crop plants which are resistant to certain herbicides of the glufosinate type (cf., for example, EP-A-0242236, EP-A-242246) or of the glyphosate type (WO 92/00377) or of the sulfonylurea type (EP-A-0257993, US-A-5013659),
- transgenic crop plants, for example cotton, which is capable of producing Bacillus thuringiensis toxins (Bt toxins), which make the plants resistant to certain pests (EP-A-0142924, EP-A-0193259),
- transgenic crop plants with a modified fatty acid composition (WO 91/13972),
- genetically modified crop plants with novel constituents or secondary metabolites, for example novel phytoalexins, which bring about an increased disease resistance (EPA 309862, EPA0464461),
- genetically modified plants with reduced photorespiration which feature higher yields and higher stress tolerance (EPA 0305398),
- transgenic crop plants which produce pharmaceutically or diagnostically important proteins ("molecular pharming"),
- transgenic crop plants which are distinguished by higher yields or better quality,
- transgenic crop plants which are distinguished by a combination, for example of the abovementioned novel properties ("gene stacking").

A large number of molecular-biological techniques by means of which novel transgenic plants with modified properties can be generated are known in principle; see, for example, I. Potrykus and G. Spangenberg (eds.) Gene Transfer to Plants, Springer Lab Manual (1995), Springer Verlag Berlin, Heidelberg. or Christou,

"Trends in Plant Science" 1 (1996) 423-431).

To carry out such recombinant manipulations, it is possible to introduce nucleic acid molecules into plasmids, which permit a mutagenesis or sequence modification by recombination of DNA sequences. For example, base substitutions can be carried out, part-sequences can be removed, or natural or synthetic sequences may be added with the aid of standard methods. To link the DNA fragments with one another, it is possible to add adapters or linkers to the fragments; see, for example, Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, 2nd ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY; or Winnacker "Gene and Klone", VCH Weinheim 2nd ed., 1996

The generation of plant cells with a reduced activity for a gene product can be achieved for example by the expression of at least one corresponding antisense RNA, a sense RNA for achieving a cosuppression effect or by the expression of at least one correspondingly constructed ribozyme, which specifically cleaves transcripts of the abovementioned gene product.
To this end, it is possible firstly to use DNA molecules which comprise all of the coding sequence of a gene product, including any flanking sequences which may be present, or else DNA molecules which only comprise parts of the coding sequence, it being necessary for these parts to be long enough to bring about an antisense effect in the cells. It is also possible to use DNA sequences which have a high degree of homology with the coding sequences of a gene product, but which are not entirely identical.

When expressing nucleic acid molecules in plants, the protein synthesized may be localized in any compartment of the plant cell. In order to achieve localization in a particular compartment, however, it is possible for example to link the coding region to DNA sequences which ensure the localization in a specific compartment. Such sequences are known to the skilled worker (see, for example, Braun et al., EMBO J. 11 (1992), 3219-3227; Wolter et al., Proc. Natl. Acad. Sci. USA 85 (1988), 846-850; Sonnewald et al., Plant J. 1 (1991), 95-106). The nucleic acid molecules can also be

expressed in the organelles of the plant cells.

The transgenic plant cells can be regenerated by known techniques to give intact plants. In principle, the transgenic plants may be plants of any plant species, that is to say both monocotyledonous and dicotyledonous plants.

Thus, transgenic plants can be obtained which feature modified properties as the result of overexpression, suppression or inhibition of homologous (= natural) genes or gene sequences or expression of heterologous (= foreign) genes or gene sequences.

It is preferred to employ the compounds according to the invention in transgenic crops which are resistant to growth regulators such as, for example, dicamba, or against herbicides which inhibit essential plant enzymes, for example acetolactate synthases (ALS), EPSP synthases, glutamine synthases (GS) or hydroxyphenylpyruvate dioxygenases (HPPD), or against herbicides from the group of the sulfonylureas, glyphosate, glufosinate or benzoylisoxazoles and analogous active substances.

When the active substances according to the invention are used in transgenic crops, effects are frequently observed - in addition to the effects on harmful plants which can be observed in other crops - which are specific for the application in the transgenic crop in question, for example a modified or specifically widened spectrum of weeds which can be controlled, modified application rates which may be employed for application, preferably good combinability with the herbicides to which the transgenic crop is resistant, and an effect on growth and yield of the transgenic crop plants.

The invention therefore also relates to the use of the compounds according to the invention as herbicides for controlling harmful plants in transgenic crop plants.

The compounds according to the invention can be used in the form of wettable

powders, emulsifiable concentrates, sprayable solutions, dusting products or granules in the customary formulations. The invention therefore also provides herbicidal and plant growth-regulating compositions which comprise the compounds according to the invention.

The compounds according to the invention can be formulated in various ways according to which biological and/or physicochemical parameters are required. Possible formulations include, for example: wettable powders (WP), water-soluble powders (SP), water-soluble concentrates, emulsifiable concentrates (EC), emulsions (EW) such as oil-in-water and water-in-oil emulsions, sprayable solutions, suspension concentrates (SC), oil- or water-based dispersions, oil-miscible solutions, capsule suspensions (CS), dusting products (DP), seed-dressing products, granules for scattering and soil application, granules (GR) in the form of microgranules, spray granules, coated granules and adsorption granules, water-dispersible granules (WG), water-soluble granules (SG), ULV formulations, microcapsules and waxes. These individual formulation types are known in principle and are described, for example, in: Winnacker-Küchler, "Chemische Technologie" [Chemical technology], Volume 7, C. Hanser Verlag Munich, 4th Ed. 1986, Wade van Valkenburg, "Pesticide Formulations", Marcel Dekker, N.Y., 1973; K. Martens, "Spray Drying" Handbook, 3rd Ed. 1979, G. Goodwin Ltd. London.

The necessary formulation assistants, such as inert materials, surfactants, solvents and further additives, are likewise known and are described, for example, in: Watkins, "Handbook of Insecticide Dust Diluents and Carriers", 2nd Ed., Darland Books, Caldwell N.J., H.v. Olphen, "Introduction to Clay Colloid Chemistry"; 2nd Ed., J. Wiley & Sons, N.Y.; C. Marsden, "Solvents Guide"; 2nd Ed., Interscience, N.Y. 1963; McCutcheon's "Detergents and Emulsifiers Annual", MC Publ. Corp., Ridgewood N.J.; Sisley and Wood, "Encyclopedia of Surface Active Agents", Chem. Publ. Co. Inc., N.Y. 1964; Schönfeldt, "Grenzflächenaktive Äthylenoxidaddukte" [Interface-active ethylene oxide adducts], Wiss. Verlagsgesell., Stuttgart 1976; Winnacker-Küchler, "Chemische Technologie", Volume 7, C. Hanser Verlag Munich, 4th Ed. 1986.

Wettable powders are preparations which can be dispersed uniformly in water and, as well as the active compound, apart from a diluent or inert substance, also comprise surfactants of the ionic and/or nonionic type (wetting agents, dispersants), for example polyoxyethylated alkylphenols, polyoxyethylated fatty alcohols, polyoxyethylated fatty amines, fatty alcohol polyglycol ether sulfates, alkanesulfonates, alkylbenzenesulfonates, sodium lignosulfonate, sodium 2,2'-dinaphthylmethane-6,6'-disulfonate, sodium dibutylnaphthalenesulfonate or else sodium oleylmethyltauride. To prepare the wettable powders, the active herbicidal ingredients are ground finely, for example in customary apparatus such as hammer mills, blower mills and air-jet mills and simultaneously or subsequently mixed with the formulation assistants.

Emulsifiable concentrates are prepared by dissolving the active compound in an organic solvent, for example butanol, cyclohexanone, dimethylformamide, xylene or else relatively high-boiling aromatics or hydrocarbons or mixtures of the organic solvents with addition of one or more surfactants of the ionic and/or nonionic type (emulsifiers). The emulsifiers used may, for example, be: calcium alkylarylsulfonates such as calcium dodecylbenzenesulfonate, or nonionic emulsifiers such as fatty acid polyglycol esters, alkylaryl polyglycol ethers, fatty alcohol polyglycol ethers, propylene oxide-ethylene oxide condensation products, alkyl polyethers, sorbitan esters, for example sorbitan fatty acid esters, or polyoxyethylene sorbitan esters, for example polyoxyethylene sorbitan fatty acid esters.

Dusting products are obtained by grinding the active compound with finely divided solid substances, for example talc, natural clays such as kaolin, bentonite and pyrophyllite, or diatomaceous earth.

Suspension concentrates may be water- or oil-based. They may be prepared, for example, by wet grinding by means of commercial bead mills and optional addition of surfactants as have, for example, already been listed above for the other formulation types.

Emulsions, for example oil-in-water emulsions (EW), can be prepared, for example, by means of stirrers, colloid mills and/or static mixers using aqueous organic solvents and optionally surfactants, as have, for example, already been listed above for the other formulation types.

Granules can be produced either by spraying the active compound onto adsorptive granulated inert material or by applying active compound concentrates by means of adhesives, for example polyvinyl alcohol, sodium polyacrylate or else mineral oils, onto the surface of carriers such as sand, kaolinites or of granulated inert material. It is also possible to granulate suitable active compounds in the manner customary for the production of fertilizer granules – if desired in a mixture with fertilizers.

Water-dispersible granules are prepared generally by the customary processes such as spray-drying, fluidized bed granulation, pan granulation, mixing with high-speed mixers and extrusion without solid inert material.
For the preparation of pan, fluidized bed, extruder and spray granules, see, for example, processes in "Spray-Drying Handbook" 3rd ed. 1979, G. Goodwin Ltd., London; J.E. Browning, "Agglomeration", Chemical and Engineering 1967, pages 147 ff; "Perry's Chemical Engineer's Handbook", 5th Ed., McGraw-Hill, New York 1973, p. 8-57.

For further details regarding the formulation of crop protection compositions, see, for example, G.C. Klingman, "Weed Control as a Science", John Wiley and Sons, Inc., New York, 1961, pages 81-96 and J.D. Freyer, S.A. Evans, "Weed Control Handbook", 5th Ed., Blackwell Scientific Publications, Oxford, 1968, pages 101-103.

The agrochemical formulations contain generally from 0.1 to 99% by weight, in particular from 0.1 to 95% by weight, of active compound of the formula (I).
In wettable powders, the active compound concentration is, for example, from about 10 to 90% by weight; the remainder to 100% by weight consists of customary formulation constituents. In the case of emulsifiable concentrates, the active compound concentration may be from about 1 to 90% by weight, preferably from 5 to

80% by weight. Dust-type formulations contain from 1 to 30% by weight of active compound, preferably usually from 5 to 20% by weight of active compound; sprayable solutions contain from about 0.05 to 80% by weight, preferably from 2 to 50% by weight of active compound. In water-dispersible granules, the active compound content depends partly on whether the active compound is present in solid or liquid form and which granulation assistants, fillers, etc. are used. In the granules dispersible in water, the content of active compound is, for example, between 1 and 95% by weight, preferably between 10 and 80% by weight.

In addition, the active compound formulations mentioned optionally comprise the respective customary adhesives, wetting agents, dispersants, emulsifiers, penetrants, preservatives, antifreeze agents and solvents, fillers, carriers and dyes, defoamers, evaporation inhibitors and agents which influence the pH and the viscosity.

Based on these formulations, it is also possible to prepare combinations with other pesticidally active compounds, such as, for example, insecticides, acaricides, herbicides, fungicides, and also with safeners, fertilizers and/or growth regulators, for example in the form of a finished formulation or as a tank mix. Suitable safeners are, for example, mefenpyr-diethyl, cyprosulfamide, isoxadifen-ethyl, cloquintocet-mexyl and dichlormid.

Active compounds which can be employed in combination with the compounds according to the invention in mixed formulations or in the tank mix are, for example, known active compounds which are based on the inhibition of, for example, acetolactate synthase, acetyl-CoA carboxylase, cellulose synthase, enolpyruvylshikimate-3-phosphate synthase, glutamine synthetase, p-hydroxyphenylpyruvate dioxygenase, phytoene desaturase, photosystem I, photosystem II, protoporphyrinogen oxidase, as are described in, for example, Weed Research 26 (1986) 441-445 or "The Pesticide Manual", 14th edition, The British Crop Protection Council and the Royal Soc. of Chemistry, 2003 and the literature cited therein. Known herbicides or plant growth regulators which can be combined

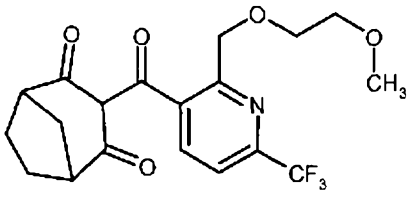
with the compounds according to the invention are, for example, the following active substances (the compounds are either designated by the common name according to the International Organization for Standardization (ISO) or by a chemical name, if appropriate together with the code number) and always comprise all use forms such as acids, salts, esters and isomers such as stereoisomers and optical isomers. In this context, one and in some cases also several use forms are mentioned by way of example:

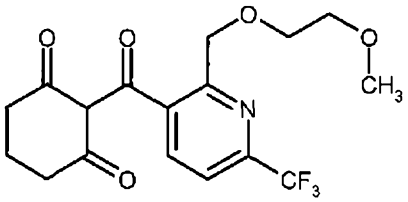
acetochlor, acibenzolar, acibenzolar-S-methyl, acifluorfen, acifluorfen-sodium, aclonifen, alachlor, allidochlor, alloxydim, alloxydim-sodium, ametryne, amicarbazone, amidochlor, amidosulfuron, aminocyclopyrachlor, aminopyralid, amitrole, ammonium sulfamate, ancymidol, anilofos, asulam, atrazine, azafenidin, azimsulfuron, aziprotryne, BAH-043, BAS-140H, BAS-693H, BAS-714H, BAS-762H, BAS-776H, BAS-800H, beflubutamid, benazolin, benazolin-ethyl, bencarbazone, benfluralin, benfuresate, bensulide, bensulfuron-methyl, bentazone, benzfendizone, benzobicyclon, benzofenap, benzofluor, benzoylprop, bifenox, bilanafos, bilanafos-sodium, bispyribac, bispyribac-sodium, bromacil, bromobutide, bromofenoxim, bromoxynil, bromuron, buminafos, busoxinone, butachlor, butafenacil, butamifos, butenachlor, butralin, butroxydim, butylate, cafenstrole, carbetamide, carfentrazone, carfentrazone-ethyl, chlomethoxyfen, chloramben, chlorazifop, chlorazifop-butyl, chlorbromuron, chlorbufam, chlorfenac, chlorfenac-sodium, chlorfenprop, chlorflurenol, chlorflurenol-methyl, chloridazon, chlorimuron, chlorimuron-ethyl, chlormequat-chloride, chlornitrofen, chlorophthalim, chlorthal-dimethyl, chlorotoluron, chlorsulfuron, cinidon, cinidon-ethyl, cinmethylin, cinosulfuron, clethodim, clodinafop, clodinafop-propargyl, clofencet, clomazone, clomeprop, cloprop, clopyralid, cloransulam, cloransulam-methyl, cumyluron, cyanamide, cyanazine, cyclanilide, cycloate, cyclosulfamuron, cycloxydim, cycluron, cyhalofop, cyhalofop-butyl, cyperquat, cyprazine, cyprazole, 2,4-D, 2,4-DB, daimuron/dymron, dalapon, daminozide, dazomet, n-decanol, desmedipham, desmetryn, detosyl-pyrazolate (DTP), diallate, dicamba, dichlobenil, dichlorprop, dichlorprop-P, diclofop, diclofop-methyl, diclofop-P-methyl, diclosulam, diethatyl, diethatyl-ethyl, difenoxuron, difenzoquat, diflufenican, diflufenzopyr, diflufenzopyr-sodium, dimefuron, dikegulac-

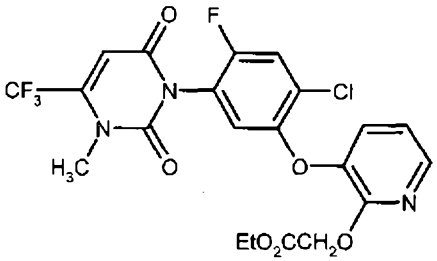
sodium, dimefuron, dimepiperate, dimethachlor, dimethametryn, dimethenamid, dimethenamid-P, dimethipin, dimetrasulfuron, dinitramine, dinoseb, dinoterb, diphenamid, dipropetryn, diquat, diquat-dibromide, dithiopyr, diuron, DNOC, eglinazine-ethyl, endothal, EPTC, esprocarb, ethalfluralin, ethametsulfuron-methyl, ethephon, ethidimuron, ethiozin, ethofumesate, ethoxyfen, ethoxyfen-ethyl, ethoxysulfuron, etobenzanid, F-5331, i.e. N-[2-chloro-4-fluoro-5-[4-(3-fluoropropyl)-4,5-dihydro-5-oxo-1H-tetrazol-1-yl]phenyl]ethanesulfonamide, fenoprop, fenoxaprop, fenoxaprop-P, fenoxaprop-ethyl, fenoxaprop-P-ethyl, fentrazamide, fenuron, flamprop, flamprop-M-isopropyl, flamprop-M-methyl, flazasulfuron, florasulam, fluazifop, fluazifop-P, fluazifop-butyl, fluazifop-P-butyl, fluazolate, flucarbazone, flucarbazone-sodium, flucetosulfuron, fluchloralin, flufenacet (thiafluamide), flufenpyr, flufenpyr-ethyl, flumetralin, flumetsulam, flumiclorac, flumiclorac-pentyl, flumioxazin, flumipropyn, fluometuron, fluorodifen, fluoroglycofen, fluoroglycofen-ethyl, flupoxam, flupropacil, flupropanate, flupyrsulfuron, flupyrsulfuron-methyl-sodium, flurenol, flurenol-butyl, fluridone, flurochloridone, fluroxypyr, fluroxypyr-meptyl, flurprimidol, flurtamone, fluthiacet, fluthiacet-methyl, fluthiamide, fomesafen, foramsulfuron, forchlorfenuron, fosamine, furyloxyfen, gibberellic acid, glufosinate, L-glufosinate, L-glufosinate-ammonium, glufosinate-ammonium, glyphosate, glyphosate-isopropylammonium, H-9201, halosafen, halosulfuron, halosulfuron-methyl, haloxyfop, haloxyfop-P, haloxyfop-ethoxyethyl, haloxyfop-P-ethoxyethyl, haloxyfop-methyl, haloxyfop-P-methyl, hexazinone, HNPC-9908, HOK-201, HW-02, imazamethabenz, imazamethabenz-methyl, imazamox, imazapic, imazapyr, imazaquin, imazethapyr, imazosulfuron, inabenfide, indanofan, indoleacetic acid (IAA), 4-indol-3-ylbutyric acid (IBA), iodosulfuron, iodosulfuron-methyl-sodium, ioxynil, isocarbamid, isopropalin, isoproturon, isouron, isoxaben, isoxachlortole, isoxaflutole, isoxapyrifop, KUH-043, KUH-071, karbutilate, ketospiradox, lactofen, lenacil, linuron, maleic hydrazide, MCPA, MCPB, MCPB-methyl, -ethyl and -sodium, mecoprop, mecoprop-sodium, mecoprop-butotyl, mecoprop-P-butotyl, mecoprop-P-dimethylammonium, mecoprop-P-2-ethylhexyl, mecoprop-P-potassium, mefenacet, mefluidide, mepiquat-chloride, mesosulfuron, mesosulfuron-methyl, mesotrione, methabenzthiazuron, metam, metamifop, metamitron, metazachlor, methazole, methoxyphenone, methyldymron, 1-methylcyclopropene, methyl isothiocyanate,

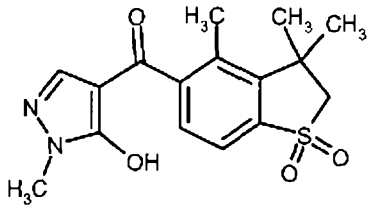
metobenzuron, metobenzuron, metobromuron, metolachlor, S-metolachlor, metosulam, metoxuron, metribuzin, metsulfuron, metsulfuron-methyl, molinate, monalide, monocarbamide, monocarbamide dihydrogen sulfate, monolinuron, monosulfuron, monuron, MT 128, MT-5950, i.e. N-[3-chloro-4-(1-methylethyl)phenyl]-2-methylpentanamide, NGGC-011, naproanilide, napropamide, naptalam, NC-310, i.e. 4-(2,4-dichlorobenzoyl)-1-methyl-5-benzyloxypyrazole, NC-620, neburon, nicosulfuron, nipyraclofen, nitralin, nitrofen, nitrophenolat-sodium (isomer mixture), nitrofluorfen, nonanoic acid, norflurazon, orbencarb, orthosulfamuron, oryzalin, oxadiargyl, oxadiazon, oxasulfuron, oxaziclomefone, oxyfluorfen, paclobutrazole, paraquat, paraquat dichloride, pelargonic acid (nonanoic acid), pendimethalin, pendralin, penoxsulam, pentanochlor, pentoxazone, perfluidone, pethoxamid, phenisopham, phenmedipham, phenmedipham-ethyl, picloram, picolinafen, pinoxaden, piperophos, pirifenop, pirifenop-butyl, pretilachlor, primisulfuron, primisulfuron-methyl, probenazole, profluazol, procyazine, prodiamine, prifluraline, profoxydim, prohexadione, prohexadione-calcium, prohydrojasmone, prometon, prometryn, propachlor, propanil, propaquizafop, propazine, propham, propisochlor, propoxycarbazone, propoxycarbazone-sodium, propyzamide, prosulfalin, prosulfocarb, prosulfuron, prynachlor, pyraclonil, pyraflufen, pyraflufen-ethyl, pyrasulfotole, pyrazolynate (pyrazolate), pyrazosulfuron-ethyl, pyrazoxyfen, pyribambenz, pyribambenz-isopropyl, pyribenzoxim, pyributicarb, pyridafol, pyridate, pyriftalid, pyriminobac, pyriminobac-methyl, pyrimisulfan, pyrithiobac, pyrithiobac-sodium, pyroxasulfone, pyroxsulam, quinclorac, quinmerac, quinoclamine, quizalofop, quizalofop-ethyl, quizalofop-P, quizalofop-P-ethyl, quizalofop-P-tefuryl, rimsulfuron, saflufenacil, secbumeton, sethoxydim, siduron, simazine, simetryn, SN-106279, sulcotrione, sulf-allate (CDEC), sulfentrazone, sulfometuron, sulfometuron-methyl, sulfosate (glyphosate-trimesium), sulfosulfuron, SYN-523, SYP-249, SYP-298, SYP-300, tebutam, tebuthiuron, tecnazene, tefuryltrione, tembotrione, tepraloxydim, terbacil, terbucarb, terbuchlor, terbumeton, terbuthylazine, terbutryne, TH-547, i.e. propyrisulfuron, thenylchlor, thiafluamide, thiazafluron, thiazopyr, thidiazimin, thidiazuron, thiencarbazone, thiencarbazone-methyl, thifensulfuron, thifensulfuron-methyl, thiobencarb, tiocarbazil, topramezone, tralkoxydim, triallate, triasulfuron, triaziflam, triazofenamide, tribenuron, tribenuron-methyl, trichloroacetic

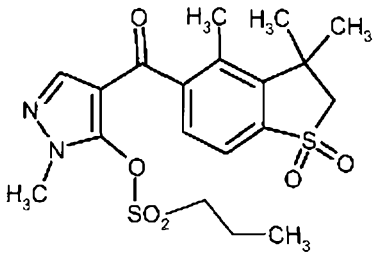
acid (TCA), triclopyr, tridiphane, trietazine, trifloxysulfuron, trifloxysulfuron-sodium, trifluralin, triflusulfuron, triflusulfuron-methyl, trimeturon, trinexapac, trinexapac-ethyl, tritosulfuron, tsitodef, uniconazole, uniconazole-P, vernolate, ZJ-0166, ZJ-0270, ZJ-0543, ZJ-0862 and also the following compounds:

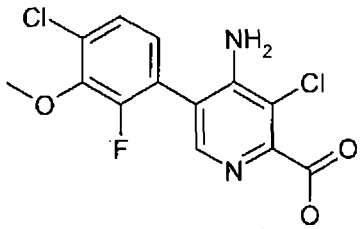


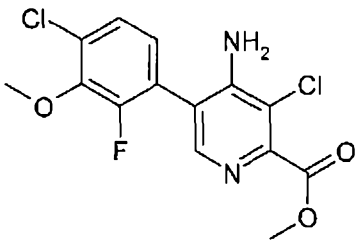












For use, the formulations in commercial form are, if appropriate, diluted in a customary manner, for example in the case of wettable powders, dispersions and water-dispersable granules with water. Preparations in the form of dusts, granules for soil application or granules for broadcasting and sprayable solutions are usually not diluted with other inert substances prior to application.

The application rate of the compounds of the formula (I) varies according to the external conditions such as, inter alia, temperature, humidity and the type of herbicide used. It may vary within wide limits, for example between 0.001 and 1.0 kg/ha or more of active substance; however, preferably is it between 0.005 and 750 g/ha.

In addition to the herbicidal action, the compounds according to the invention also have good insecticidal action. Accordingly, the invention also relates to their use as insecticides.

The examples below serve to illustrate the invention.

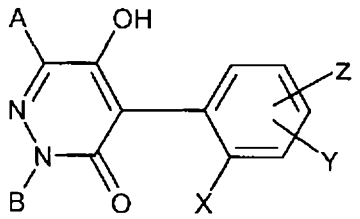
Chemical examples

1. Preparation of 2-cyclobutyl-4-(2,4-dichlorophenyl)-5-hydroxy-6-methyl-2H-pyridazin-3-one (No. 1 of Table 91)

At <0°, a solution of 10 ml of DMF and 0.53 g (2.0 mmol) of ethyl 2-cyclobutyl-{[2-(2, 4-dichlorophenyl)acetyl]hydrazono}propionate were added dropwise to 0.331 g (2 eq) of potassium t-butoxide in 10 ml of DMF over a period of 2 hours. The mixture was allowed to stirr at 0° for 90 min, and the reaction solution was then poured into 100 ml of cooled 0.5 N hydrochloric acid. The solution was concentrated under reduced pressure and taken up in water, concentrated once more and taken up in 50 ml of water. The mixture was extracted twice with in each case 50 ml of ethyl acetate, and the combined organic phases were dried with sodium sulfate, concentrated under reduced pressure and purified by column chromatography (silica gel, n-heptane/EtOAc gradient). This gave 0.1 g of pure product.

The following compounds were prepared analogously to Example 1 above:

Table 91: Compounds of the general formula (I) according to the invention in which G is hydrogen.



No.	X	Y	Z	A	B	Analytical data
I-1-a-1	Cl	4-Cl	H	Me	c-butyl	^{1}H-NMR, 400MHz, d6-DMSO, 7.68 (d, 1H); 7.45 (dd, 1H), 7.29 (d, 1H); 5.29 (qunitett, 1H); 2.40 (m, 2H), 2,28 (s, 3H), 2.19 (m ,2H), 1.75 (m, 2H)
I-1-a-2	Cl	4-Cl	6-Et	c-pentyl	Me	^{1}H-NMR, 400MHz, d6-DMSO, 7.51 (d, 1H); 7.37 (d, 1H); 3.57 (s, 3H); 3.28 (m, 1H), 2.30 (m, 2H), 1.92 (m, 2H), 1.55 – 1.80 (m ,6H), 1.00 (t, 3H)
I-1-a-3	Cl	4-Cl	6-Et	Me	benzyl	

No.	X	Y	Z	A	B	Analytical data
I-1-a-4	Cl	4-Me	6-Me	Me	c-Pr-CH_2	^{1}H-NMR, 400MHz, d6-DMSO, 7.08 (d, 1H); 6.93 (d, 1H); 3.72 (d, 2H); 2.25 (s, 3H), 2.15 (s, 3H), 2.02 (d, 3H), 1.00 (m ,1H), 0.40 (m, 2H), 0.22 (m, 2H)
I-1-a-5	Cl	6-Cl	H	c-pentyl	Me	^{1}H-NMR, 400MHz, d6-DMSO, 10.7 (bs, 1H), 7.52 (d, 2H); 7.44 (d, 1H); 3.56 (s, 3H); 3.30 (m, 1H), 2.30 (m, 2H), 1.94 (m, 2H), 1.55 – 1.80 (m ,6H)
I-1-a-6	Cl	4-Cl	6-Et	Me	c-Pr-CH_2	^{1}H-NMR, 400MHz, d6-DMSO, 10.5 (bs, 1H), 7.51 (d, 1H); 7.35 (d, 1H); 3.88 (d, 2H); 2.33 (m, 2H), 2.25 (s, 3H), 1.22 (m, 1H), 1.03 (t ,3H), 0.45 (m, 2H), 0.32 (m, 2H)
I-1-a-7	Cl	6-Cl	H	Me	2-phenylethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.8 (bs, 1H), 7.52 (d, 2H); 7.42 (t, 1H); 7.28-7.12 (m, 5H), 4.22 (t, 2H); 2.98 (t, 2H), 2.22 (s, 3H),
I-1-a-8	Cl	6-Cl	H	Me	2-(2'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.8 (bs, 1H), 7.52 (d, 2H); 7.42 (m, 3H); 7.20 (m, 2H), 4.25 (t, 2H); 3.11 (t, 2H), 2.15 (s, 3H),
I-1-a-9	I	H	H	Me	2-phenylethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.4 (bs, 1H), 7.91 (d, 1H), 7.43 (t, 1H); 7.27 (m, 2H); 7.23 - 7.10-(m, 5H), 4.18 (m, 2H); 2.98 (t, 2H), 2.21 (s, 3H),
I-1-a-10	I	H	H	Me	2-(2'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.4 (bs, 1H), 7.90 (d, 1H), 7.41 (m, 2H); 7.27 (m, 3H); 7.12 (m, 2H), 4.22 (m, 2H); 3.11 (m, 2H), 2.16 (s, 3H),
I-1-a-11	Cl	4-Cl	6-Et	c-hexyl-CH_2	Me	^{1}H-NMR, 400MHz, d6-DMSO, 7.53 (d, 1H); 7.37 (d, 1H); 3.58 (s, 3H); 2.50 (m, 2H, obscured by solvent), 2.30 (m, 2H), 1.70 (m, 6H), 1.30 – 0.90 (cluster of signals, 9H)
I-1-a-12	Cl	4-Cl	H	c-pentyl-CH_2	Me	^{1}H-NMR, 400MHz, d6-DMSO, 10.4 (bs, 1H), 7.70 (s, 1H), 7.41 (dd, 1H); 7.31 (d, 1H); 3.58 (s, 3H), 2.63 (d, 2H); 2.24 (m, 1H), 1.8 – 1.2 (cluster of signals, 8H),
I-1-a-13	Cl	6-Cl	4-Cl	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.65 (s, 2H); 7.22-7.34 (m, 5H); 5,18 (s, 2H); 2,21 (s, 3H)
I-1-a-14	Cl	6-F	3-Me	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.23-7.34 (m, 7H); 5,18 (s, 2H); 2,24 (s, 6H)
I-1-a-15	F	6-F	3-F	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.49 (ddd, 1H); 7.24-7.34 (m, 5H); 7.10-7.16 (m, 1H); 5,18 (s, 2H); 2,25 (s, 3H)
I-1-a-16	EtO	6-F	3-F	Me	Bz	^{1}H-NMR, 600MHz, d6-DMSO, 7.24-7.38 (m, 6H), 7.02 (ddd, 1H), 5.28 (d, 1H), 5.11 (d, 1H), 4.02 (qd, 1H), 3.94 (qd, 1H), 2,24 (s, 3H), 1.03 (t, 3H)

No.	X	Y	Z	A	B	Analytical data
I-1-a-17	F	6-F	3-EtO	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.15-7.34 (m, 6H), 6.97-7.02 (m, 1H), 5.17 (s, 2H), 4.11 (q, 2H), 2,24 (s, 3H), 1.34 (t, 3H)
I-1-a-18	F	H	5-Cl	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.41-7.45 (m, 1H), 7.24-7.37 (m, 7H), 5.16 (s, 2H), 2.23 (s, 3H)
I-1-a-19	Cl	6-Cl	H	c-hexyl-CH_2	Me	^{1}H-NMR, 400MHz, d6-DMSO, 7.52 (d, 2H); 7.42 (dd, 1H); 3.58 (s, 3H); 2.50 (m, 2H, obscured by solvent), 2.30 (m, 2H), 1.70 (m, 6H), 1.20 (m, 3H), 0.97 (m, 3H)
I-1-a-20	Cl	6-Cl	H	Me	2-(4'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.8 (bs, 1H), 7.52 (d, 2H), 7.44 (dd, 1H); 7.30 (m, 2H), 7.18 (d, 2H); 4.22 (t, 2H); 2.98 (t, 2H), 2.21 (s, 3H),
I-1-a-21	Cl	4-Cl	H	Me	2-(4'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.6 (bs, 1H), 7.70 (s, 1H), 7.47 (dd, 1H); 7.32 (m, 2H), 7.26 (d, 1H), 7.18 (d, 2H); 4.18 (m, 2H); 2.98 (t, 2H), 2.21 (s, 3H),
I-1-a-22	Cl	4-Cl	H	Me	2-(2'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, d6-DMSO, 10.6 (bs, 1H), 7.70 (s, 1H), 7.47 (dd, 1H); 7.40 (m, 1H), 7.22 (m, 4H); 4.22 (m, 2H); 3.11 (t, 2H), 2.17 (s, 3H),
I-1-a-23	F	6-F	H	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.43-7.51 (m, 1H); 7.23-7.33 (m, 6H); 7.06-7.12 (m, 1H); 5.18 (s, 2H); 2.25 (s, 3H)
I-1-a-24	Cl	6-F	4-F	Me	Bz	oil
I-1-a-25	Cl	6-F	H	Me	Bz	^{1}H-NMR, 400MHz, d6-DMSO, 7.15-7.48 (m, 8H) ; 5.24 (d, 1H) ; 5.18 (d, 1H) ; 2.25 (s, 3H)
I-1-a-26	Cl	6-CF_3	H	Me	2-phenylethyl	^{1}H-NMR, 400MHz, $CDCl_3$, 7.68 (d, 2H), 7.47 (t, 1H); 7.21 (m, 5H); 6.20 (bs, 1H),4.28 (m, 2H); 3.06 (t, 2H), 2.28 (s, 3H),
I-1-a-27	I	H	H	Me	2-(4'-chloro-phenyl)ethyl	^{1}H-NMR, 400MHz, $CDCl_3$, 7.99 (d, 2H), 7.47 (t, 1H); 7.20 (m, 6H); 5.60 (bs, 1H),4.32 (m, 2H); 3.08 (t, 2H), 2.32 (s, 3H),
I-1-a-28	Cl	4-Cl	6-Et	c-pentyl-CH_2I	Me	^{1}H-NMR, 400MHz, d6-DMSO, 10.4 (bs, 1H), 7.52 (d, 1H), 7.37 (d, 1H); 3.58 (s, 3H), 2.58 (d, 2H); 2.31 (m, 2H), 2.22 (m, 1H), 1.8 – 1.2 (cluster of signals, 8H), 1.03 (t, 3H)
I-1-a-29	Cl	6-Cl	H	c-pentyl-CH_2	Me	^{1}H-NMR, 400MHz, d6-DMSO, 10.7 (bs, 1H), 7.52 (d, 2H), 7.41 (dd, 1H); 3.58 (s, 3H), 2.63 (d, 2H); 2.23 (m, 1H), 1.8 – 1.2 (cluster of signals, 8H),
I-1-a-30	Cl	6-Cl	H	c-Pr	Me	^{1}H-NMR, 400MHz, $CDCl_3$, 7.45 (d, 2H), 7.33 (t, 1H); 5.80 (bs, 1H),3.72 (s, 3H); 2.05 (m, 1H), 0.95 (m, 4H),
I-1-a-31	H	3-CF_3	H	c-Pr-CH_2	Me	

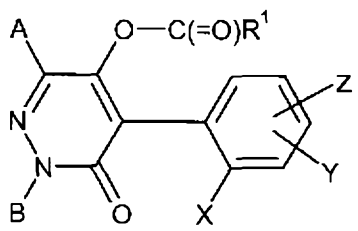
No.	X	Y	Z	A	B	Analytical data
I-1-a-32	Cl	6-Cl	H	c-Pr-CH_2	Me	
I-1-a-33	Cl	4-Cl	H	c-Pr-CH_2	Me	
I-1-a-34	H	3-CF_3	H	c-Pr-CH_2	i-Pr	
I-1-a-35	H	2-Cl	H	c-Pr-CH_2	i-Pr	
I-1-a-36	Cl	6-Cl	H	c-Pr-CH_2	i-Pr	
I-1-a-37	H	2-Cl	H	2-phenylethyl	Me	

3. Preparation of 5-acetoxy-6-cyclopentyl-4-(2,6-dichlorophenyl)-2-methyl-3(2H)-pyridazinone (No. 1 of Table 92)

0.25 g (0.74 mmol) of the compounds I-1-a-5 according to the invention of Table 91 and 0.12 g of diisopropylethylamine (1.3 eq) and a spatula tip of DMAP were initially charged in 15 ml of ethyl acetate and heated to the boil under reflux. 0.058 g (1.0 eq) of acetyl chloride was then dissolved in 2 ml of ethyl acetate and added dropwise over a period of 10 min. The mixture was allowed to stir for five hours, another 0.04 g of diisopropylamine and 0.02 g of acetyl chloride were added, and after a further 2 hours of reaction time the mixture was cooled and 20 ml of water and 50 ml of ethyl acetate were added. The organic phase was separated off and dried giving, after chromatographic purification (silica gel, gradient ethyl acetate/n-heptane), 0.04 g of pure product.

The compounds of Table 92 can be obtained analogously to the method mentioned above.

Table 92: Compounds of the general formula (I) according to the invention in which G is $C(=O)R^1$.



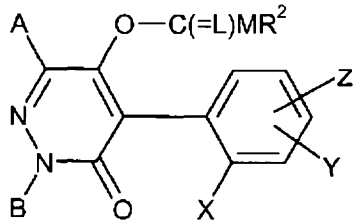
No.	X	Y	Z	R^1	A	B	Analytical data
I-1-b-1	Cl	6-Cl	H	Me	c-pentyl	Me	^{1}H-NMR, 400MHz, $CDCl_3$, 7.39 (d, 2H); 7.30 (d, 1H); 3.82 (s, 3H); 3.03 (m, 1H), 2.02 (s, 3H), 1.60 - 1.94 (cluster of signals, 8H)
I-1-b-2	Cl	4-Cl	6-Et	i-Pr	c-pentyl	Me	^{1}H-NMR, 400MHz, $CDCl_3$, 7.32 (d, 1H); 7.22 (d, 1H); 3.82 (s, 3H); 2.99 (m, 1H), 2.47 (m, 2H), 1.60 – 2.05 (cluster of signals, 8H), 1.16 (t, 3H), 0.95 (dd, 6H)

4. Preparation of 4-(2,4-dichlorophenyl)-5-ethoxycarbonyloxy-2-(2-phenyl)ethyl-3(2H)-pyridazinone (No. 1 of Table 93)

1.25 g (0.61 mmol) of the compound No. I-1-a-7 according to the invention of Table 91 were initially charged in 30ml of dichloromethane, and 0.438 g of triethylamine and 0.36 g of ethyl chloroformate were added. The mixture was stirred at RT overnight and then added to 30 ml of 5% strength sodium bicarbonate solution. The organic phase was separated off and then dried, concentrated and purified by column chromatography (silica gel, gradient ethyl acetate/n-heptane). Crystallisation from ethyl acetate/n-heptane gave 0.28 g of pure product.

The compounds of Table 93 can be obtained analogously to the method mentioned above.

Table 93: Compounds of the general formula (I) according to the invention in which G is $C(=L)MR^2$.



No.	X	Y	Z	A	B	L	M	R^2	Analytical data
I-1-c-1	Cl	6-Cl	H	Me	2-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3, 7.39 (d, 2H); 7.18 – 7.32 (cluster of signals, 6H); 4.42 (m, 2H); 4.17 (q, 2H), 3.15 (m, 2H), 2.31 (s, 3H), 1.22 (q, 3H)

No.	X	Y	Z	A	B	L	M	R^2	Analytical data
I-1-c-2	Cl	4-Cl	H	Me	2-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3, 7.52 (d, 1H); 7.15 – 7.35 (cluster of signals, 7H); 4.40 (m, 2H); 4.15 (q, 2H), 3.13 (m, 2H), 2.31 (s, 3H), 1.22 (q, 3H)
I-1-c-3	Cl	6-Cl	H	Me	2-(2'-Cl-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3, 7.10 – 7.40 (cluster of signals, 7H); 4.48 (m, 2H); 4.18 (m, 2H), 3.28 (m, 2H), 2.29 (s, 3H), 1.21 (q, 3H)
I-1-c-4	Cl	6-Et	4-Cl	Me	c-Pr-CH_2	O	O	Et	^{1}H-NMR, 400MHz, d6-DMSO, 7.60 (d, 1H); 7.43 (d, 1H); 4.13 (q, 2H), 3.99 (d, 2H); 2.35 (m, 2H), 2.28 (s, 3H), 1.22 (m, 1H), 1,08 (t, 3H), 1.03 (t ,3H), 0.48 (m, 2H), 0.36 (m, 2H)
I-1-c-5	Cl	6-Cl	H	c-pentyl	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.39 (d, 2H); 7.29 (d, 1H); 4.11 8q, 2H), 3.83 (s, 3H); 3.12 (m, 1H), 1.96 (m, 2H), 1.82 (m, 4H), 1.65 (m ,2H), 1.13 (t, 3H)
I-1-c-6	Cl	6-Et	4-Cl	c-pentyl	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3 7.32 (d, 1H); 7.22 (d, 1H); 4.08 (q, 2H), 3.83 (s, 3H); 3.08 (m, 1H), 2.47 (m, 2H), 1.98 (m, 2H), 1.80 (m, 4H), 1.65 (m ,2H), 1.15 (m, 6H)
I-1-c-7	Cl	6-Cl	H	Me	c-Pr-CH_2	O	O	Et	^{1}H-NMR, 400MHz, d6-DMSO, 7.62 (m, 2H); 7.52 (t, 1H); 4.36 (m, 1H), 4.13 (m, 2H), 3.99 (m, 1H); 2.28 (s, 3H), 1.30 - 1.00 (cluster of signals, 4H), 0.52 (m, 2H), 0.40 (m, 2H)
I-1-c-8	I	H	H	Me	2-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3 7.92 (d, 1H); 7.39 (t, 1H); 7.30 – 7.05 (cluster of signals, 7H), 4.40 (m, 2H), 4.13 (q, 2H), 3.13 (t, 2H), 2.30 (s, 3H), 1.18 (m, 6H)
I-1-c-9	I	H	H	Me	2-(2'-Cl-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3 7.92 (d, 1H); 7.35 (m, 2H); 7.27 8m, 1H), 7.15 (m, 3H), 7.08 (m, 1H), 4.48 (m, 2H), 4.13 (q, 2H), 3.31 (m, 2H), 2.28 (s, 3H), 1.17 (m, 6H)
I-1-c-10	Cl	6-Cl	H	$CF_3(CH_2)_2$	Me	O	O	Et	^{1}H-NMR, 400MHz, d6- $CDCl_3$, 7.42 (m, 2H); 7.32 (t, 1H); 4.36 (m, 1H), 4.13 (m, 2H), 3.85 (s, 3H); 2.88 (t, 2H), 2.62 (m, 2H), 1.18 (t, 3H)

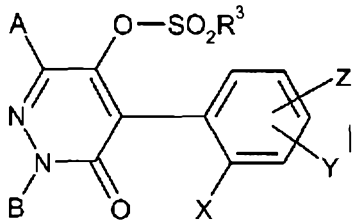
No.	X	Y	Z	A	B	L	M	R^2	Analytical data
I-1-c-11	Cl	6-Et	4-Cl	c-hexyl-CH_2	Me	O	O	Et	^{1}H-NMR, 400MHz, $CDCl_3$ 7.32 (d, 1H); 7.22 (d, 1H); 4.12 (q, 2H), 3.83 (s, 3H); 2.48 (d, 2H), 2.45 (m, 2H), 1.70 (m, 6H), 1.40 – 0.90 (cluster of signals, 9H),
I-1-c-12	Cl	6-Cl	H	c-Hexyl-CH_2	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.39 (d, 2H); 7.29 (d, 1H); 4.11 (q, 2H), 3.83 (s, 3H); 2.48 (d, 2H), 1.70 (m, 6H), 1.20 (m, 2H), 1.15 (t, 3H), 0.99 (m, 2H),
I-1-c-13	Cl	6-Cl	H	Me	2-(4'-Cl-phenyl)-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.40 (d, 2H); 7.28 (d, 1H); 4.41 (t, 2H), 4.16 (q, 2H), 3.11 (m, 2H), 2.32 (s, 3H), 1.22 (t, 3H)
I-1-c-14	Cl	4-Cl	H	Me	2-(4'Cl-phenyl)-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.51 (s, 1H); 7.32 (d, 1H); 7.27 (d, 2H), 7.18 (m, 3H), 4.38 (m, 2H), 4.18 (q, 2H), 3.13.(m, 2H), 2.30 (s, 3H), 1.24 (t, 3H)
I-1-c-15	Cl	4-Cl	H	Me	2-(2'-Cl-phenyl)-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.51 (s, 1H); 7.35 (m, 1H); 7.32 (d, 1H), 7.22 (m, 1H), 7.16 (m, 3H), 4.43 (m, 2H), 4.18 (q, 2H), 3.28.(m, 2H), 2.27 (s, 3H), 1.24 (t, 3H)
I-1-c-16	Cl	6-CF_3	H	Me	2-phenyl-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.68 (d, 2H); 7.51 (t, 1H); 7.25 (cluster of signals, 5H), 4.42 (m, 2H), 4.18 (q, 2H), 3.13.(m, 2H), 2.29 (s, 3H), 1.24 (t, 3H)
I-1-c-17	I	H	H	Me	2-(4'-Cl-phenyl)-ethyl	O	O	Et	^{1}H-NMR, 400MHz, CDCl3 7.92 (d, 1H); 7.39 (t, 1H); 7.20 (d, 2H), 7.12 (m, 2H), 4.38 (m, 2H), 4.16 (q, 2H), 3.12 (t, 2H), 2.31 (s, 3H), 1.18 (m, 3H)
I-1-c-18	Cl	6-Et	4-Cl	c-pentyl-CH_2	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3 7.32 (d, 1H); 7.21 (d, 1H); 4.12 (m, 2H), 3.82 (s, 3H); 2.62 (d, 2H), 2.45 (m, 2H), 2.28 (m, 1H), 1.70 (m, 4H), 1.40 – 1.10 (cluster of signals, 10H),
I-1-c-19	Cl	6-Cl	H	c-pentyl-CH_2 |	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.39 (d, 2H); 7.29 (d, 1H); 4.11 (q, 2H), 3.83 (s, 3H); 2.62 (d, 2H), 2.45 (m, 2H), 2.28 (m, 1H), 1.70 (m, 4H), 1.55 (m, 1H), 1.40 – 1.10 (cluster of signals, 5H),

No.	X	Y	Z	A	B	L	M	R^2	Analytical data
I-1-c-20	Cl	4-Cl	H	c-pentyl-CH_2	Me	O	O	Et	^{1}H-NMR, 400MHz, CDCl3), 7.49 (d, 1H); 7.32 (dd, 1H), 7.18 (d, 1H); 4.12 (q, 2H), 3.83 (s, 3H); 2.62 (d, 2H), 2.45 (m, 2H), 2.28 (m, 1H), 1.70 (m, 4H), 1.55 (m, 1H), 1.40 – 1.10 (cluster of signals, 5H),
I-1-c-21	I	H	H	Me	2-(4'-Cl-phenyl)-ethyl	O	O	Me	^{1}H-NMR, 400MHz, CDCl3 7.93 (d, 1H); 7.41 (t, 1H); 7.35 -7.20 (cluster of signals, 5 H), 7.16 (d, 2H), 7.10 (m, 2H), 4.42 (m, 2H), 3.75 (s, 3H), 3.14 (t, 2H), 2.31 (s, 3H)
I-1-c-22	Cl	6-Cl	H	c-Pr	Me	O	O	Et	^{1}H-NMR, 400MHz, $CDCl_3$, 7.39 (d, 2H), 7.28 (t, 1H); 4.17 (q, 2H),3.78 (s, 3H); 1.89 (m, 1H), 1.22 8t, 3H), 1.05 (m, 2H), 0.97 (m, 2H)

5. Preparation of 4-(2-iodophenyl)-5-methylsulfonyloxy-2-(2-(2'-chlorphenyl)ethyl-3(2H)-pyridazinone (No. 1 of Table 93)

0.14 g (0.3 mmol) of the compounds No. I-1-a-10 according to the invention of Table 91 were initially charged in 10 ml of dichloromethane, and 0.039 g of triethylamine and 0.034 g of methanesulfonyl chloride were added. The mixture was stirred overnight at RT and then added to 5 ml of water. The organic phase was separated off and then dried, concentrated and purified by column chromatography (silica gel, gradient ethyl acetate/n-heptane). Crystallisation from ethyl acetate/n-heptane gave 0.15 g of pure product.

Table 94: Compounds of the general formula (I) according to the invention

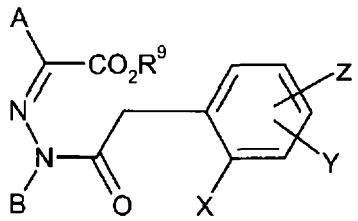


No.	X	Y	Z	R^3	A	B	Analytical data
I-1-b-1	I	H	H	Me	Me	2-(4'-Cl-phenyl)-ethyl	^{1}H-NMR, 400MHz, CDCl3 7.92 (d, 1H); 7.46 (m, 1H); 7.33 (m, 1H), 7.28 (m, 1H), 7.20 (m, 1H)7.15 (m, 3H), , 4.48 (m, 2H), 3.28 (m, 2H), 2.46 (s, 3H), 2.44 (s, 3H)

6. Examplary preparation of compounds of the formula (IIa):
3.22 g (26.4 mmol) of benzyl hydrazine together with 4.4 ml (1.2 eq) of triethylamine and 0.16 g of DMAP (0.05 eq) were initially charged in 50 ml of dichloromethane, and 5.5 g of 2,3,6-trifluorophenylacetyl chloride in 50 ml of dichloromethane were then slowly added dropwise at 0°C. The mixture was then stirred at room temperature overnight, and ammonium chloride solution was added. The organic phase was separated off, dried and concentrated. Purification by column chromatography gave 6.2 g of 2,3,6-trifluorophenylacetic acid 1-methylhydrazide.

Preparation of compounds of the formula (II)
Example 1: 395 mg of ethyl pyruvate were added to 1 g of 2,3,6-trifluorophenylacetic acid 1-methylhydrazide and dissolved in 10 ml of ethanol. The reaction mixture was heated under reflux for 6 h and then concentrated under reduced pressure and purified by column chromatographiy (silica gel, mobile phase cyclohexane/ethyl acetate 4:1). This gave 1.03 g of compoud 1 of Table 95.

Table 95: Compounds of the general formula (II) according to the invention



(II)

No.	X	Y	Z	A	B	R^9	Analytical data
II-a-1	F	3-F	6-F	Me	Bz	Et	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) : 7.62 (s, 2H); 7.24-7.36 (m, 5H); 5.09 (s, 2H); 4.20-4.25 (m, 4H); 2.05 (bs, 3H), 1.25(t, 3H)
II-a-2	Br	4-Br	6-Me	Me	c-Pr-CH_2	Me	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) : 7.68 (s, 1H); 7.46 (s, 1H); 3.97 (d, 2H); 3.82 (s, 3H); 3.75 (s, 2H), 2.28 (s, 3H), 2.30 and 1.92 (in each case s, together 3H), 1.05 (m, 1H), 0.60 – 0.10 (cluster of signals, 4H)
II-a-3	Cl	6-Cl	4-Cl	Me	Bzl	Et	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) :7.62 (s, 2H); 7.24-7.36 (m, 5H); 5.09 (s, 2H); 4.20-4.25 (m, 4H); 2.05 (bs, 3H), 1.25(t, 3H)

No.	X	Y	Z	A	B	R^9	Analytical data
II-a-4	Cl	3-Me	6-F	Me	Bz	Et	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) :7.17-7.36 (m, 7H); 5.09 (s, 2H); 4.22 (q, 2H); 4.08 (s, 2H); 2.21 (s, 3H), 2.02 (bs, 3H); 1.25(t, 3H)
II-a-5	Cl	6-Cl	H	Me	c-Pr-CH_2	Me	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) : 7.48 (d, 2H); 7.32 (t, 1H); 4.12 (d, 2H); 3.82 (s, 3H); 3.75 (s, 2H), 2.30 and 1.88 (in each case s, together 3H), 1.05 (m, 1H), 0.60 – 0.10 (cluster of signals, 4H)
II-a-6	Cl	4-Me	6-Me	Me	c-Pr-CH_2	Me	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) : 7.10 (s, 1H); 6.98 (s, 1H); 3.92 (d, 2H); 3.82 (s, 3H); 3.75 (s, 2H), 2.28 (s, 3H), 2.20 (s, 3H), 2.30 and 1.92 (in each case s, together 3H), 1.05 (m, 1H), 0.60 – 0.10 (cluster of signals, 4H)
II-a-7	Cl	4-Cl	6-Et	c-pentyl	Me	Et	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.27 (s, 1H); 7.10 (s, 1H); 4.32 (m, 2H); 4.12 (s, 2H), 3.32 (s, 3H); 2.98 (s, 1H), 2.58 (m, 2H), 1.92 (m, 2H), 1.85 -1.60 (cluster of signals, 6H), 1.37 (t, 3H), 1.18 (t, 3H)
II-a-8	Cl	6-Cl	H	c-pentyl	Me	Et	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.32 (d, 2H); 7.15 (t, 1H); 4.32 (m, 4H); 3.23 (s, 3H); 2.96 (s, 1H), 1.92 (m, 2H), 1.85 -1.60 (cluster of signals, 6H), 1.37 (t, 3H)
II-a-9	Cl	6-Cl	H	Me	2-phenyl-ethyl	Me	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.35 – 7.10 (cluster of signals, 8 H), 4.26 and 3.96 (in each case s, together 2H), 4.22 and 4.10 (in each case t, together 2H), 3.89 (s, 3H), 2.96 (m, 2H), 2.32 and 1.98 (in each case s, together 3H)
II-a-10	Cl	6-Cl	H	Me	2-(2'-Cl-phenyl)-ethyl	Me	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.35 – 7.10 (cluster of signals, 7 H), 4.22 and 3.98 (in each case s, together 2H), 4.22 and 4.10 (in each case m, together 2H), 3.89 (d, 3H), 3.12 (m, 2H), 2.32 and 1.93 (in each case s, together 3H)
II-a-11	I	H	H	Me	2-phenyl-ethyl	Me	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.82 (d, 1H), 7.35 – 7.10 (cluster of signals, 7 H), 6.93 (t, 1H), 4.06 and 3.71 (in each case m, together 4H), 3.89 (s, 3H), 2.92 (m, 2H), 2.25 and 1.95 (in each case s, together 3H)
II-a-12	I	H	H	Me	2-(2'-Cl-phenyl)-ethyl	Me	^{1}H NMR (400 MHz, $CDCl_3$, shift in ppm) : 7.82 (d, 1H), 7.35 – 7.10 (cluster of signals, 6 H), 6.93 (t, 1H), 4.08 and 3.76 (in each case m, together 4H), 3.89 (s, 3H), 3.09 (m, 2H), 2.27 and 1.98 (in each case s, together 3H)

No.	X	Y	Z	A	B	R^9	Analytical data
II-a-13	F	6-Cl	4-F	Me	Bz	Et	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) :7.22-7.36 (m, 7H); 5.07 (s, 2H); 4.22 (q, 2H); 4.04 (s, 2H); 2.02 (bs, 3H); 1.25 (t, 3H)
II-a-14	F	6-F	H	Me	Bzl	Et	^{1}H-NMR (400MHz, CD_3CN, shift in ppm): 7.21-7.38 (m, 7H); 6.91-6.98 (m, 1H); 5.18 (s, 2H); 4.24 (q, 2H); 3.98 (s, 2H); 2.08 (bs, 3H); 1.28 (t, 3H)
II-a-15	F	5-F	H	Me	Bz	Et	^{1}H NMR (400 MHz, d6-DMSO, shift in ppm) :7.16-7.44 (m, 8H), 5.06 (s, 1H), 4.23 (q, 2H), 3.99 (s, 2H), 2.00 (broad s, 3H), 1.25 (t, 3H)
II-a-16	Cl	6-Et	4-Cl	Me	Bz	Me	^{1}H-NMR (400MHz, d6-DMSO, shift in ppm): 7.50-7.10 (m, 6H); 7.08 (m, 1H); 5.12 (s, 2H); 4.13 (s, 2H); 3.78 8s, 3H), 2.56 (m, 2H), 2.13 and 1.85 (in each case s, together 3H) 1.14 and 1.02 (in each case m, together 3H)
II-a-17	Cl	6-Et	4-Cl	Me	c-Pr-CH_2	Me	^{1}H-NMR (400MHz, d6-DMSO, shift in ppm): 7.42 (s, 1H); 7.28 (s, 1H); 5.12 (s, 2H); 3.98 (d, 2H); 3.80 (s, 3H); 3.77 (s, 2H), 2.28 and 1.88 (in each case s, together 3H), 1.11 (t, 3H), 1.05 (m, 1H), 0.60 – 0.10 (cluster of signals, 4H)
II-a-18	Cl	4-Cl	H	Me	c-butyl	Me	^{1}H-NMR (400MHz, d6-DMSO, shift in ppm): 7.58 (s, 1H); 7.38 (s, 2H); 4,85 (s, 1H); 3.95 (s, 2H); 2,26 (m, 2H); 2.22 – 1.70 (cluster of signals, 5H), 1.65 (m, 2H)
II-a-19	Cl	6-Et	4-Cl	c-hexyl-CH_2	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.28 (s, 1H), 7.11 (s, 1H), 4.32 (q, 2H), 4.11 (s, 2H), 3.32 (s, 3H), 2.58 (d, 2H), 2.42 (q, 2H), 1.72 (m, 6H), 1.38 (t, 3H), 1.20 (m, 7H), 1.02 (m, 2H)
II-a-20	Cl	6-Cl	H	c-hexyl-CH_2	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.32 (dd, 2H); 7.14 (m, 1H); 4,32 (m, 4H); 3.40 and 3.21 (in each case s, together 3H); 2.58 and 2.42 (in each case d, together 2H); 1.90 – 1.60 (cluster of signals, 7H), 1.39 (m, 3H), 1.35 – 0.95 (cluster of signals, 4H)
II-a-21	Cl	6-Cl	H	Me	2-(4'-Cl-phenyl)-ethyl	Me	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.30 (m, 4H); 7.17 (m, 3H); 4,28 – 3.80 (cluster of signals 7H); 2.92 (m, 2H); 2.30 and 1.92 (in each case s, together 3H)
II-a-22	Cl	4-Cl	H	Me	2-(4'-Cl-phenyl)-ethyl	Me	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.38 (d, 1H); 7.26 (d, 2H), 7.19 (dd, 1H), 7.13 (m, 3H); 4.05 (m, 2H), 3.93 and 3.62 (in each case s, together 2H), 3.88 (s, 3H), 2.85 (m, 2H); 2.30 and 1.92 (in each case s, together 3H)

No.	X	Y	Z	A	B	R^9	Analytical data
II-a-23	Cl	4-Cl	H	Me	2-(2'-Cl-phenyl)-ethyl	Me	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.42 – 7.11 (cluster of signals, 7H); 4.12 (m, 2H), 3.98 and 3.62 (in each case s, together 2H), 3.88 (s, 3H), 3.08 (m, 2H); 2.28 and 1.92 (in each case s, together 3H)
II-a-24	Cl	6-CF_3	H	Me	2-phenyl-ethyl	Me	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.62 (m, 2H); 7.32 (m, 3H), 7.20 (m, 3H), 4.12 (m, 2H), 4.22 and 3.98 (in each case s, together 2H), 3.91 (s, 3H), 3.02 and 2.88 (in each case t, together 2H); 2.33 and 1.85 (in each case s, together 3H)
II-a-25	I	H	H	Me	2-(4'-Cl-phenyl)-ethyl	Me	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.82 (d, 1H); 7.30 (m, 3H), 7.15 (m, 3H), 6.96 (m, 1H); 4.01 (m, 2H), 3.98 and 3.62 (in each case s, together 2H), 3.90 (s, 3H), 2.88 (m, 2H); 2.24 and 1.96 (in each case s, together 3H)
II-a-26	Cl	4-Cl	6-Et	c-pentyl-CH_2	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.29 (d, 1H); 7.12 (d, 1H), 4.32 (m, 2H), 4.12 (d, 2H), 3.38 and 3.22 (in each case s, together 3H), 2.58 (m, 4H), 1.90 – 1.60 (cluster of signals, 6H), 1.37 and 1.22 (in each case m, together 9H)
II-a-27	Cl	6-Cl	H	c-pentyl-CH_2	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.33 (d, 2H); 7.15 (m, 1H), 4.32 (m, 4H), 3.40 and 3.22 (in each case s, together 3H), 2.80 and 2.55 (in each case d, together 2H), 1.90 – 1.60 (cluster of signals, 7H), 1.38 (m, 3H), and 1.20 (m, 2H)
II-a-28	Cl	4-Cl	H	c-pentyl-CH_2	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.38 (s, 1H); 7.22 (m, 2H), 4.32 (q, 2H), 4.08 (s, 2H), 3.38 (s, 3H), 2.72 (d, 2H), 2.00 (m, 1H),1.68 8m, 4H), 1.53 (m, 2H), 1.38 (t, 3H), and 1.10 (m, 2H)
II-a-29	Cl	6-Cl	H	c-Pr	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.31 (d, 2H); 7.12 (m, 1H), 4.31 (m, 2H), 4.22 (s, 2H), 3.48 (s, 3H), 1.90 (m, 1H), 1.36 (t, 3H), and 1.12 (m, 4H)
II-a-30	Cl	Cl	H	$CF_3(CH_2)_2$	Me	Et	^{1}H-NMR (400MHz, $CDCl_3$, shift in ppm): 7.33 (d, 2H); 7.15 (m, 1H), 4.32 (m, 4H), 3.50 and 3.28 (in each case s, together 3H), 3.15 and 3.02 (in each case m, together 2H), 2.82 and 2.55 (in each case d, together 2H), 1.38 (m, 3H)

B. Formulation examples

a) A dust is obtained by mixing 10 parts by weight of a compound of the formula (I) and/or a salt thereof and 90 parts by weight of talc as inert substance and comminuting the mixture in a hammer mill.

b) A wettable powder which is readily dispersible in water is obtained by mixing 25 parts by weight of a compound of the formula (I) and/or a salt thereof, 64 parts by weight of kaolin-containing quartz as inert substance, 10 parts by weight of potassium lignosulfonate and 1 part by weight of sodium oleoylmethyltaurate as wetting agent and dispersant, and grinding the mixture in a pinned-disk mill.

c) A readily water-dispersible dispersion concentrate is obtained by mixing 20 parts by weight of a compound of the formula (I) and/or a salt thereof with 6 parts by weight of alkylphenol polyglycol ether (®Triton X 207), 3 parts by weight of isotridecanol polyglycol ether (8 EO) and 71 parts by weight of paraffinic mineral oil (boiling range for example about 255 to above 277°C) and grinding the mixture in a ball mill to a fineness of below 5 microns.

d) An emulsifiable concentrate is obtained from 15 parts by weight of a compound of the formula (I) and/or a salt thereof, 75 parts by weight of cyclohexanone as solvent and 10 parts by weight of oxethylated nonylphenol as emulsifier.

e) Water-dispersible granules are obtained by mixing
75 parts by weight of a compound of the formula (I) and/or a salt thereof,
10 parts by weight of calcium lignosulfonate,
5 parts by weight of sodium lauryl sulfate,
3 parts by weight of polyvinyl alcohol and
7 parts by weight of kaolin,
grinding the mixture in a pinned-disk mill, and granulating the powder in a

fluidized bed by spraying on water as granulating liquid.

f) Water-dispersible granules are also obtained by homogenizing and precomminuting
25 parts by weight of a compound of the formula (I),
5 parts by weight of sodium 2,2'-dinaphthylmethane-6,6'-disulfonate,
2 parts by weight of sodium oleoylmethyltaurate,
1 parts by weight of polyvinyl alcohol,
17 parts by weight of calcium carbonate and
50 parts by weight of water
in a colloid mill, then grinding the mixture in a bead mill, and atomizing and drying the resulting suspension in a spray tower, using a single-fluid nozzle.

C. Biological examples

1. Herbicidal pre-emergence effect against harmful plants

Seeds of monocotyledonous or dicotyledonous weeds or crop plants are placed in sandy loam soil in wood-fiber pots and covered with soil. The compounds according to the invention, formulated in the form of wettable powders (WP) or emulsion concentrates (EC), are then applied to the surface of the soil cover in the form of an aqueous suspension or emulsion at a water application rate of 600 to 800 l/ha (converted), with addition of 0.2% wetting agent. After the treatment, the pots are placed in the greenhouse and kept under good growth conditions for the test plants. The damage to the test plants is scored visually in comparison with untreated controls after an experimental time of 3 weeks has elapsed (herbicidal activity in percent (%): 100% activity = plants have died, 0% activity = like control plants). Here, for example, the compounds Nos. I-1-c-4 and I I-1-c-7 show, at an application rate of 320 g/ha, each at least 90% activity against Echinochloa crus galli, Stellaria media and Veronica persica.

2. Herbicidal post-emergence activity against harmful plants

Seeds of monocotyledonous or dicotyledonous weeds or crop plants are placed in

sandy loam soil in wood-fiber pots, covered with soil and grown in the greenhouse under good growth conditions. 2 to 3 weeks after sowing, the test plants are treated in the one-leaf stage. The compounds according to the invention, formulated in the form of wettable powders (WP) or emulsion concentrates (EC), are then sprayed onto the green plant parts in the form of an aqueous suspension or emulsion at a water application rate of 600 to 800 l/ha (converted), with addition of 0.2% wetter. After the test plants have been left to stand under optimal growth conditions in the greenhouse for approximately 3 weeks, the activity of the preparations is scored visually in comparison with untreated controls (herbicidal activity in percent (%): 100% activity = plants have died, 0% activity = like control plants). Here, for example the compound No. I-1-c-4 shows, at an application rate of 80 g/ha, at least 80% activity against Abutilon theophrasti, Alopecurus myosuroides, Avena fatua, Echinochloa crus galli, Lolium multiflorum, Setaria viridis and Veronica persica.

3. Insecticidal activity

Example A

Myzus test (MYZUPE spray treatment)

Solvents: 78.0 parts by weight of acetone
1.5 parts by weight of dimethylformamide

Emulsifier: 0.5 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 solvents and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration. Discs of Chinese cabbage (Brassica pekinensis) which are infested by all stages of the green peach aphid (Myzus persicae) are sprayed with an active compound preparation of the desired concentration. After the desired period of time, the effect 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 compound No. I-1-a-4 shows, at an application rate of 500 g/ha, at least 80% activity.

Example B

Spodoptera frugiperda test (SPODFR spray treatment)

Solvents: 78.0 parts by weight of acetone
1.5 parts by weight of dimethylformamide
Emulsifier: 0.5 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 solvents and emulsifier, and the concentrate is diluted with emulsifier-containing water to the desired concentration. Discs of corn leaves (Zea mays) are sprayed with an active compound preparation of the desired concentration and, after drying, populated with caterpillars of the army worm (Spodoptera frugiperda). After the desired period of time, the effect in % is determined. 100% means that all the caterpillars have been killed; 0% means that none of the caterpillars have been killed. In this test, for example, the compound No. I-1-a-9 shows, at an application rate of 500 g/ha, at least 80% activity.

Example C

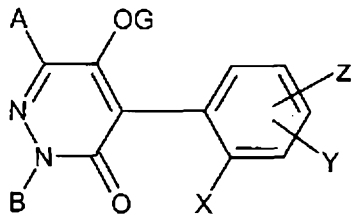
Meloidogyne incognita test (MELGIN)

Solvents: 78.0 parts by weight of acetone
1.5 parts by weight of dimethylformamide
Emulsifier: 0.5 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 solvents and emulsifier, and the concentrate is diluted with water to the desired concentration. Containers are filled with sand, solution of active compound, Meloidogyne incognita egg/larvae suspension and lettuce seeds. The lettuce seeds germinate and the plants develop. On the roots, galls are formed. After the desired period of time, the nematicidal activity is determined in % by the formation of galls. 100% means that no galls are formed; 0% means that the number of galls on the treated plants corresponds to that of the untreated control. In this test, for example, the compounds Nos. I-1-a-9 and I-1-a-10 show, at an application rate of 20 ppm, an efficacy of at least 80%.

Claims

1. A 4-phenylpyridazinone of the formula (I) or salts thereof



(I)

in which

A is in each case independently of one another hydrogen, (C_3-C_6)-cycloalkyl or (C_1-C_6)-alkyl substituted by n radicals from the group consisting of halogen, (C_3-C_6)-cycloalkyl, phenyl and halophenyl,

B is independently of one another (C_3-C_6)-cycloalkyl or (C_1-C_6)-alkyl substituted by n radicals from the group consisting of halogen, (C_3-C_6)-cycloalkyl, phenyl and halophenyl;

m is 0,1, 2 or 3;

n is 0, 1, 2 or 3, with the proviso that m and n are not both 0;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, E or R^8;

E is a metal ion equivalent or an ammonium ion;

L is oxygen or sulfur;

M is oxygen or sulfur;

R^1 is (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_1-C_4)-alkoxy-(C_1-C_6)-alkyl, di-(C_1-C_4)-

alkoxy-(C_1-C_6)-alkyl or (C_1-C_4)-alkylthio-(C_1-C_6)-alkyl, each of which is substituted by n halogen atoms,
a fully saturated 3- to 6-membered ring consisting of 3 to 5 carbon atoms and 1 to 3 heteroatoms from the group consiting of oxygen, sulfur and nitrogen which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy,
(C_3-C_6)-cycloalkyl, phenyl, phenyl-(C_1-C_4)-alkyl, heteroaryl, phenoxy-(C_1-C_4)-alkyl or heteroaryloxy-(C_1-C_4)-alkyl substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^2 is (C_1-C_6)-alkyl, (C_2-C_6)-alkenyl, (C_1-C_4)-alkoxy-(C_1-C_6)-alkyl or di-(C_1-C_4)-alkoxy-(C_1-C_6)-alkyl, each of which is substituted by n halogen atoms,
or is (C_3-C_6)-cycloalkyl, phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^3, R^4 and R^5 are each independently of one another (C_1-C_6)-alkyl which is substituted by n halogen atoms, (C_1-C_4)-alkoxy, N-(C_1-C_6)-alkylamino, N,N-di-(C_1-C_6)-alkylamino, (C_1-C_4)-alkylthio, (C_2-C_4)-alkenyl or (C_3-C_6)-cycloalkylthio,
or phenyl, benzyl, phenoxy or phenylthio which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^6 and R^7 are each independently of one another hydrogen,
(C_1-C_6)-alkyl which is substituted by n halogen atoms, (C_3-C_6)-cycloalkyl, (C_2-C_6)-alkenyl, (C_1-C_6)-alkoxy or (C_1-C_4)-alkoxy-(C_1-C_6)-alkyl,
phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;
or R^6 and R^7 together with the nitrogen atom to which they are attached form a 3- to 6-membered ring which contains 2 to 5 carbon atoms and 0 or 1 oxygen or sulfur atoms;

and

a) X is hydrogen, (C_1-C_6)-alkyl or (C_3-C_6)-cycloalkyl;
Y is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or is phenyl which is substituted by n halogen atoms,
Z is hydrogen, halogen, cyano, nitro, (C_1-C_6)-alkyl, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl or is phenyl which is substituted by n halogen atoms;

or

b) X is halogen, cyano, nitro or is (C_1-C_6)-alkyl, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms;
Y and Z are each independently of one another hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl or are (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms.

2. The 4-phenylpyridazinone as claimed in claim 1 in which

A is (C_3-C_6)-cycloalkyl, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl, benzyl, halophenyl-(C_1-C_6)-alkyl or is (C_1-C_6)-alkyl which is substituted by n halogen atoms;

B is (C_3-C_6)-cycloalkyl, (C_3-C_6)-cycloalkyl-(C_1-C_6)-alkyl, benzyl, halophenyl-(C_1-C_6)-alkyl or is (C_1-C_6)-alkyl which is substituted by n halogen atoms;

m is 0, 1, 2 or 3;

n is 0, 1, 2 or 3, with the proviso that m and n are not both 0;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, or E;

E is Na^+, K^+, $(Mg^{2+})_{1/2}$, $(Ca^{2+})_{1/2}$, $R^{13}R^{14}R^{15}R^{16}N^+$ or NH_4^+;

R^{13}, R^{14}, R^{15} and R^{16} are independently of one another (C_1-C_6)-alkyl or benzyl;

L is oxygen;

M is oxygen;

R^1 is (C_1-C_6)-alkyl which is substituted by n halogen atoms or is (C_3-C_6)-cycloalkyl, phenyl or phenyl-(C_1-C_4)-alkyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^2 is (C_1-C_6)-alkyl which is substituted by n halogen atoms or is (C_3-C_6)-cycloalkyl, phenyl or benzyl, each of which is substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^3, R^4 and R^5 are each independently of one another (C_1-C_6)-alkyl which is substituted by n halogen atoms or are phenyl or benzyl which are substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

R^6 and R^7 are each independently of one another hydrogen, (C_1-C_6)-alkyl which is substituted by n halogen atoms or phenyl or benzyl which are substituted by n radicals from the group consisting of halogen, (C_1-C_4)-alkyl and (C_1-C_4)-alkoxy;

and

a) X is hydrogen, methyl, ethyl or cyclopropyl;
Y is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl, (C_1-C_6)-alkoxy or phenyl which is substituted by n halogen atoms,
Z is hydrogen, halogen, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_3-C_6)-cycloalkyl or phenyl which is substituted by n halogen atoms,

or

b) X is halogen, cyano, nitro, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, (C_1-C_6)-alkoxy or (C_3-C_6)-cycloalkyl;

Y is hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl, is (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms;

Z is hydrogen, halogen, cyano, nitro, (C_3-C_6)-cycloalkyl or is (C_1-C_6)-alkyl, (C_1-C_6)-alkoxy or phenyl, each of which is substituted by n halogen atoms.

3. The 4-phenylpyridazinone as claimed in claim 1 or 2 in which

A is cyclopropyl, cyclopropylmethyl, benzyl, 2-chlorophenylmethyl, 3-chlorophenylmethyl or 4-chlorophenylmethyl;

B is hydrogen, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, cyclopropyl, cyclopropylmethyl, benzyl, 2-chlorophenylmethyl, 3-chlorophenylmethyl or 4-chloro-phenylmethyl;

G is hydrogen, $C(=O)R^1$, $C(=L)MR^2$, SO_2R^3, $P(=L)R^4R^5$, $C(=L)NR^6R^7$, E or R^8;

E is Na^+, K^+, $(Mg^{2+})_{1/2}$, $(Ca^{2+})_{1/2}$, $(CH_3)_4N^+$ or NH_4^+;

L is oxygen;

M is oxygen;

R^1 is (C_1-C_6)-alkyl or (C_3-C_6)-cycloalkyl;

R^2 is (C_1-C_6)-alkyl, (C_3-C_6)-cycloalkyl or benzyl;

R^3, R^4 and R^5 are each independently of one another (C_1-C_6)-alkyl, phenyl or benzyl;

R^6 and R^7 are each independently of one another hydrogen, (C_1-C_6)-alkyl, phenyl or benzyl;

and

a) X is hydrogen, methyl or ethyl;
Y is fluorine, bromine, chlorine, iodine, cyano, nitro, cyclopropyl, methoxy, ethoxy, trifluoromethyl or trifluoromethoxy, phenyl or halophenyl;
Z is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl or cyclopropyl;
or

b) X is fluorine, bromine, chlorine, iodine, cyano, nitro, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy or cyclopropyl;
Y is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy or cyclopropyl;
Z is hydrogen, fluorine, bromine, chlorine, iodine, methyl, ethyl, methoxy, ethoxy, trifluoromethyl, trifluoromethoxy, cyclopropyl, chlorophenyl or fluorophenyl.

4. A herbicidal composition which comprises an effective amount of at least one 4-phenylpyridazinone of the formula (I) as claimed in any of claims 1 to 3.

5. The herbicidal composition as claimed in claim 4 as a mixture with formulation auxiliaries.

6. The herbicidal composition as claimed in claim 4 or 5 which comprises at least one further pesticidally active compound from the group consiting of insecticides, acaricides, herbicides, fungicides, safeners and growth regulators.

7. The herbicidal composition as claimed in claim 6 which comprises a safener.

8. The herbicidal composition as claimed in claim 6 or 7 which comprises a further herbicide.

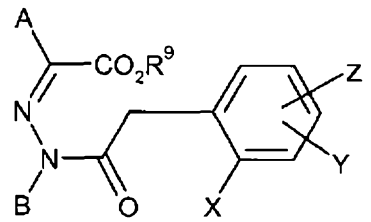
9. A method for controlling unwanted plants wherein an effective amount of at least one 4-phenylpyridazinone of the formula (I) as claimed in any of claims 1 to 3 or of a herbicidal composition as claimed in any of claims 4 to 8 is applied to the plants or to the site where the unwanted plants are growing.

10. The use of a 4-phenylpyridazinone of the formula (I) as claimed in any of claims 1 to 3 or of a herbicidal composition as claimed in any of claims 4 to 8 for controlling unwanted plants.

11. The use as claimed in claim 10 wherein the 4-phenylpyridazinone of the formula (I) is used for controlling unwanted plants in crops of useful plants.

12. The use as claimed in claim 11 wherein the useful plants are transgenic useful plants.

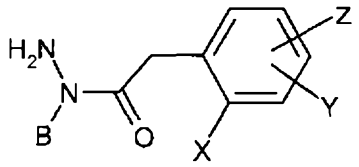
13. A compounds of the formula (II),



(II)

in which the substituents A, B, X, Y and Z are as defined in any of claims 1 to 3 and R^9 is (C_1-C_6)-alkyl.

14. A compounds of the formula (IIa)



(IIa)

in which the substituents B, X, Y and Z are as defined in any of claims 1 to 3.

15. The use of a 4-phenylpyridazinone of the formula (I) as claimed in any of claims 1 to 3 as insecticides.