

Novel pesticidal and/or growth-regulating compositions
comprising a specific nonionic surface-active agent

DESCRIPTION

The present invention relates to novel
5 pesticidal and/or growth-regulating compositions for
harmful plants and/or insects and/or animals employing
a specific nonionic surface-active agent; said
compositions are of use in particular in the fields of
agriculture and/or of public or domestic hygiene via
10 treatment or protection processes; said surface-active
agent as such also forming part of the present
invention; as well as said treatment or protection
processes.

A great many pesticidal and/or growth-
15 regulating active materials or substances for harmful
plants and/or insects and/or animals, of use in
particular in the fields of agriculture and/or of
public or domestic hygiene, are known, for example from
patents or patent applications EP-418 016,
20 US-5 304 566, US-3 716 600, WO/05050, EP-201 852,
US-3 845 172, and the like.

However, most of the time, said active
materials cannot be employed alone or pure, in
particular for obvious reasons of concentration, of
25 ease of handling or of applicational restrictions.

Said active materials are therefore generally
combined or mixed with other substances to form
formulations or compositions, that is to say that

various compounds, such as, for example, fillers, stabilizing agents, emulsifying agents or surface-active agents, or other adjuvants or additives, are generally added thereto.

5 In formulations or compositions of this type, said surface-active agents are generally chosen for their emulsifying and/or dispersing and/or stabilizing properties, for example to make possible improved behavior on storage.

10 One field in which said surface-active agents can play a predominant role, when employed in compositions, is that of the application, in particular by spraying, of these compositions.

 Nevertheless, and despite the use of surface-
15 active agents, the application of said compositions often comes up against the problem of the more or less wetting nature of the composition to be applied.

 Likewise, another problem frequently encountered during the application of compositions, for
20 example by spraying, is the tendency of the droplets of said compositions applied to rebound from or to ricochet off the application surface and thus to result in a waste of composition and in a dispersion of composition in the environment, a dispersion to be
25 avoided for easily understandable ecological reasons and for just as understandable economic reasons.

 Thus, one object of the present invention is to provide compositions which employ one or more

pesticidal and/or growth-regulating active materials for harmful plants and/or insects and/or animals and which have a high wetting nature.

Another object of the present invention is to
5 provide compositions which employ one or more
pesticidal and/or growth-regulating active materials
and which make possible an application, in particular
by spraying, of the most effective.

An additional object of the present invention
10 is to provide compositions which are of use in the
fields of agriculture and/or of public or domestic
hygiene and which have a reduced dynamic tension, which
notion will be expanded upon subsequently.

Another object of the present invention is to
15 provide compositions which are of use in the fields of
agriculture and/or of public or domestic hygiene and
which have a substantially improved bioavailability of
the pesticidal and/or growth-regulating active material
employed.

20 An additional object of the present invention
is to provide pesticidal and/or growth-regulating
compositions which employ a specific nonionic surface-
active agent, it being possible for said compositions
in particular to show good stability during long
25 periods of storage and, thus, to make it possible for
the active material employed to remain highly
effective.

Another object of the present invention is to

provide protection and/or treatment methods, in particular for the protection and/or treatment of crops and/or seeds, employing the compositions according to the invention.

5 An additional object of the present invention is to provide such methods with improved performances which make possible a reduction in the amount of active material applied, a particularly advantageous asset for easily understandable ecological reasons.

10 Another object of the present invention is to provide a specific nonionic surface-active agent comprising several chemical components, said surface-active agent having a particularly advantageous wettability.

15 Another object of the present invention is to provide a specific nonionic surface-active agent which exhibits a reduced dynamic tension.

 An additional object of the present invention is to provide a specific nonionic surface-active agent
20 which can, for example, be advantageously employed in the presence of ionic substances, either anionic or cationic substances.

 It has now been found that these objectives can be achieved in all or part by virtue of the various
25 aspects of the present invention, in particular by means of compositions according to the invention, or by means of a specific nonionic surface-active agent according to the invention, or via a process for

employing said compositions or said surface-active agent; likewise, other subject matters or advantages of the present invention may become apparent during the detailed description to come of the various aspects of said invention.

An essential and very particularly preferred aspect of the present invention relates to pesticidal and/or growth-regulating compositions for harmful plants and/or insects and/or animals, of use in particular in the fields of agriculture and/or of public or domestic hygiene, characterized in that they comprise

A) one or more pesticidal and/or growth-regulating active materials for harmful plants and/or insects and/or animals with the exception of diniconazole;

B) a specific nonionic surface-active agent comprising two different chemical components

B₁) the molecular mass of which is between 200 and 3 000 g/mol, preferably between 300 and 1 000 g/mol;

B₂) the dynamic tension of which, measured in water at a concentration of 0.4 g per liter and at a frequency of 10 Hz, is between 35 and 73 mN/m;

B₃) and each comprising

B₃(i) a hydrophobic part chosen from the following groups: C₁₃ oxo alcohols; α -isodecyl- ω -hydroxyisodecyl alcohol;

linear C₁₂-C₁₄ alcohols; linear C₁₆-C₁₈ alcohols; lauryl alcohol; myristyl alcohol; do- and/or tetradecanols; distyrylphenol-di(1-phenylethyl)phenols; nonylphenols; acetylenediols, in particular 2,4,7,9-tetramethyldeca-5-yne; tridecyl alcohols; and the molar mass of which is between 100 and 1 500 g/mol, preferably between 150 and 400 g/mol;

B3(ii) a hydrophilic part chosen from a poly(oxy-1,2-ethanediyl) radical and/or a poly(oxy-1,2-propanediyl) radical, the molar mass of which is between 80 and 2 000 g/mol, preferably between 100 and 900 g/mol; and such that

B₄) the difference in molar masses of the hydrophobic parts of these two chemical components is less than 140 g/mol; and that

B₅) the difference in molar masses of the hydrophilic parts of these two chemical components is less than 360 g/mol.

Preferably, the active material or materials employed in the compositions according to the invention are present in amounts generally of between 0.0001 and 99%, preferably between 0.5 and 70%, by weight of said compositions.

Other advantageous forms of compositions

according to the invention are the compositions in the dilute form; preferably, these dilute compositions comprise between 0.0001 and 10% of active material.

Other even more advantageous forms of
5 compositions according to the invention are the compositions in the concentrated forms; preferably, these concentrated compositions comprise between 15 and 99% of active material.

In a particularly advantageous way, the
10 specific nonionic surface-active agent employed in the compositions according to the invention is present in amounts generally of between 1 and 99.9999%, preferably between 5 and 80%, by weight of said compositions.

Very advantageously, the two chemical
15 components comprised by the specific nonionic surface-active agent employed within the compositions according to the invention are generally present in respective amounts such that the molar ratio of said amounts is between 1/99 and 99/1, preferably between 25/75 and
20 75/25.

However, a molar ratio of said amounts of between 40/60 and 60/40 is generally preferred.

Throughout the present text and unless
otherwise specified, the amounts of the various
25 constituents employed are expressed as percentage by weight.

For greater clarity of the present account, various terms or expressions employed will now be

defined.

Thus, within the meaning of the present text,
the following are generally understood

- by surface-active agent or compound, a
5 compound, a mixture of compounds, an association or a
combination of compounds which can have surface-active
and/or wettability properties of use in particular for
modifying, decreasing, increasing or controlling the
surface tension of a composition according to the
10 invention, as well as for modifying, decreasing,
increasing or controlling the wetting nature of such a
composition;

- by surface tension or static surface
tension of a composition according to the invention,
15 the tension which can exist between the liquid surface
of such a composition and the gas, generally air,
surrounding and/or surmounting said surface; thus, the
surface of said liquid acts as if it were a taut skin
or as if such a taut skin existed at the liquid/gas or
20 liquid/solid interface;

- by wetting nature or wettability property,
expressions employed without distinction to describe
the compositions according to the invention in the
continuation of the present text, the ability of a
25 droplet of composition, deposited on the surface of a
solid, to spread to a greater or lesser extent
according to whether said composition wets or does not
wet the solid;

- by dynamic tension or dynamic surface tension, the ability of a liquid composition, in particular of a composition according to the invention in combination with a liquid carrier, to make possible, in particular during the spraying of such a liquid composition, the faster or slower migration of said composition according to the invention to the water/air interface of the droplets formed; said dynamic tension or dynamic surface tension advantageously having a low value, a guarantee in particular of a reduction in the losses of liquid composition applied, for example by spraying, said losses being generally due to the rebound of the droplets from the application surface;

- by bioavailability of the active material employed in a composition according to the invention, the available nature of said active material which renders it as effective as possible in its pesticidal and/or growth-regulating role for harmful plants and/or insects or animals; thus, for a fixed amount of active material, the biological activity of the latter can vary very widely according to said bioavailability of this active material in the composition employed.

Generally, surface-active agents or compounds are chemical molecules, the structures of which generally comprise two parts with antagonistic properties with respect to the surrounding environment. Thus, said molecules generally comprise a part referred to as hydrophobic, as having little affinity for water,

and a part referred to as hydrophilic, thus described for its high affinity for water. As said hydrophilic part can sometimes carry an electric charge, the surface-active agent is then often described as anionic or cationic and, if appropriate, as nonionic surface-active agent when said hydrophilic part does not carry any ionic chemical group.

Preferably and according to requirements, the nature of the diseases to be treated, of the harmful insects and/or animals and/or plants to be combated, destroyed or eradicated, according to the degrees of infestation by these pests, the climatic and/or edaphic conditions, the compositions according to the invention can comprise several pesticidal and/or growth-regulating active materials for harmful plants and/or insects and/or animals in combination, in particular of the following types: fungicide and/or insecticide and/or acaricide and/or rodenticide and/or nematocide and/or repellent for harmful insects and/or animals and/or growth regulator for plants and/or insects, and/or one or more active materials of herbicide type.

Generally, the pesticidal and/or growth-regulating active material or materials which the compositions according to the invention can comprise are those cited in any general work on plant protection, for example L'Index Phytosanitaire (published by the technical department of the Association de Coordination Technique Agricole

[Agricultural Technical Coordination Association] or A.C.T.A.) or The Pesticide Manual (of the British Crop Protection Council, edited by Clive Tomlin) or alternatively The Electronic Pesticide Manual, version 5 1.0 (of the British Crop Protection Council, edited by Clive Tomlin).

Mention may be made, among the insecticidal, acaricidal or nematocidal active materials which can be employed, alone or in combination with other active 10 materials, in particular pesticides, in the compositions according to the invention, of Abamectin; Acephate; Acetamiprid; oleic acid; Acrinathrin; Aldicarb; Alanycarb; Allethrin [(1R)-isomers]; α -Cypermethrin; Amitraz; Azadirachtin, Azamethiphos; 15 Azinphos-ethyl; Azinphos-methyl; Bacillus thuringiensis; Bendiocarb; Benfuracarb; Bensultap; Beta-cyfluthrin; Beta-cypermethrin; Bifenthrin; Bioallethrin (S-cyclopentenyl isomer); Bioresmethrin; Borax; Buprofezin; Butocarboxim; 20 Butoxycarboxim; piperonyl butoxide; Cadusafos; Carbaryl; Carbofuran; Carbosulfan; Cartap; Cartap hydrochloride; Chlordane; Chorethoxyfos; Chlorfenapyr; Chlorfenvinphos; Chlorfluazuron; Chlormephos; Chloropicrin; Chlorpyrifos; Chlorpyrifos-methyl; 25 mercurous chloride; Coumaphos; Cryolite; Cryomazine; Cyanophos; calcium cyanide; sodium cyanide; Cycloprothrin; Cyfluthrin; Cyhalothrin; Cypermethrin; Cyphenothrin [(1R)-trans-isomers]; Dazomet; DDT;

- Deltamethrin; Demeton-S-methyl; Diafenthiuron;
 Diazinon; ethylene dibromide; ethylene dichloride,
 Dichlorvos; Dicrotophos; Diflubenzuron; Dimethoate;
 Dimethylvinphos; Diofenolan; Disulfoton; DNOC; DPX-
 5 JW062 and DP; Empenthrin [(EZ)-(1R)-isomers];
 Endosulfan; ENT 8184; EPN; Esfenvalerate; Ethiofencarb;
 Ethion; Ethiprole with the chemical name 5-amino-
 3-cyano-1-(2,6-dichloro-4-(trifluoromethyl)phenyl)-
 4-ethylsulfinylpyrazole; Ethoprophos; Etofenprox;
 10 Etrimfos; Famphur; Fenitrothion; Fenobucarb;
 Fenoxycarb; Fenpropathrin; Fenthion; Fenvalerate;
 Fipronil; Flucycloxuron; Flucythrinate; Flufenoxuron;
 Flufenprox; Flumethrin; Fluofenprox; sodium fluoride;
 sulfuryl fluoride; Fonofos; Formetanate; Formetanate
 15 hydrochloride; Formothion; Furathiocarb; Gamma-HCH;
 GY-81; Halofenozide; Heptachlor; Heptenophos;
 Hexaflumuron; sodium hexafluorosilicate; tar oils;
 petroleum oils; Hydramethylnon; hydrogen cyanide;
 Hydroprene; Imidacloprid; Imiprothrin; Isazofos;
 20 Isofenphos; Isoprocarb; methyl isothiocyanal;
 Isoxathion; lambda-Cyhalothrin; pentachlorophenyl
 laurate; Lufenuron; Malathion; MB-599; Mecarbam;
 Methacrifos; Methamidophos; Methidathion; Methiocarb;
 Methomyl; Methoprene; Methoxychlor; Metolcarb;
 25 Mevinphos; Milbemectin; Monocrotophos; Naled; nicotine;
 Nitenpyram; Nithiazine; Novaluron; Omethoate; Oxamyl;
 Oxydemeton-methyl; Paecilomyces fumosoroseus;
 Parathion; Parathion-methyl; pentachlorophenol; sodium

- pentachlorophenoxide; Permethrin; Phenothrin
 [(1R)-trans-isomer]; Phenthoate; Phorate; Phosalone;
 Phosmet; Phosphamidon; phosphine; aluminum phosphide;
 magnesium phosphide; zinc phosphide; Phoxim;
- 5 Pirimicarb; Pirimiphos-ethyl; Pirimiphos-methyl;
 calcium polysulfide; Prallethrin; Profenofos;
 Propaphos; Propetamphos; Propoxur; Prothiofos;
 Pyraclofos; Pyrethrins (chrysanthemates, pyrethrates,
 pyrethrum); Pyretrozine; Pyridaben; Pyridaphenthion;
- 10 Pyrimidifen; Pyriproxyfen; Quinalphos; Resmethrin;
 RH-2485; Rotenone; RU 15525; Silafluofen; Sulcofuron-
 sodium; Sulfotep; Sulfuramide; Sulprofos;
 Tafluvalinate; Tebufenozide; Tebupirimfos;
 Teflubenzuron; Tefluthrin; Temephos; Terbufos;
- 15 Tetrachlorvinphos; Tetramethrin; Tetramethrin
 [(1R)-isomers]; Theta-cypermethrin; Thiocyclam;
 Thiocyclam hydrogen oxalate; Thiodicarb; Thiofanox;
 Thiometon; Tralomethrin; Transfluthrin; Triazamate;
 Triazophos; Trichlorfon; Triflumuron; Trimethacarb;
- 20 Vamidothion; XDE-105; XMC; Xyllylcarb; Zeta-
 cypermethrin; ZXI 8901; the compound with the chemical
 name 3-acetyl-5-amino-1-[2,6-dichloro-
 4-(trifluoromethyl)phenyl]-4-methylsulfinylpyrazole.

Mention may be made, among the fungicidal

25 active materials which can be employed, alone or in
 combination with other active materials, in particular
 pesticides, in the compositions according to the
 invention, of Azaconazole; Azoxystrobin; Benalaxyl;

- Benomyl; Bromuconazole; Captafol; Captan; Chloroneb;
 Chlorotalonil; Cymoxanil; Cyproconazole;
 Difenconazole; Dimethomorph; Diniconazole; Dodemorph;
 Dodine; Epoxyconazole; Etaconazole; Famoxadone with the
 5 chemical name 5-methyl-5-(4-phenoxyphenyl)-
 3-(phenylamino-2,4-oxazolidinedione); Fenamidone with
 the chemical name 4-methyl-2-methylthio-4-phenyl-
 1-phenylamino-2-imidazoline-5-one and its 4-S
 enantiomer; Fenarimol; Fenbuconazole; Fenpropidin;
 10 Fenpropimorph; Fluazinam; Flucaconazole; Fludioxonil;
 Flusilazole; Flusulfamide; Flutolanil; Flutriafol;
 Flusilazole; Folpel; Fosetyl-Al; its salts and
 phosphorous acid and its salts; Guazatine;
 Hexaconazole; Ipconazole; Iprodione; Iprovalicarb;
 15 Kresoxim-methyl; Mancozeb; Maneb; Mepanipyrim;
 Metalaxyl; Metalaxyl-M; Metconazole; Metiram; Metiram-
 zinc; Oxadixyl; Penconazole; Pencycuron; Prochloraz;
 Procymidone; Propamocarb; Propiconazole; Pyrimethanil;
 Quinoxifen; Tebuconazole; Tetraconazole; Thiram;
 20 Triadimefon; Triadimenol; Tricyclazole; Tridemorph;
 Trifloxystrobin; Triticonazole; Zineb and Ziram; the
 compounds with the chemical name methyl (E,E)-
 2-(2-(1-(1-(2-pyridyl)propyloxyimino)-
 1-cyclopropylmethyloxymethyl)phenyl)-3-ethoxypropenate
 25 and 3-(3,5-dichlorophenyl)-4-chloropyrazole.

Mention may be made, among the herbicidal
 active materials which can be employed, alone or in
 combination with other active materials, in particular

pesticides, in the compositions according to the invention, of Acetochlor; Aclonifen; Acifluorfen; Alachlor; Asulam; Atrazine; Benfluralin; Bifenox; Bromoxynil; Carbetamide; Chlortoluron; Cinosulfuron; 5 Clodinafop; Diflufenican; Dimefuron; Dinoterb; Florasulam; Fluazolate; Flucarbazone; Flufenacet; Flupyrsulfuron; Flurtamone; Glufosinate; Glyphosphate; Imazamox; Imazaquin; Imazethapyr; Iodosulfuron; Ioxynil; Isoproturon; Isoxachlortole; Isoxaflutole; 10 MCPA; Metobromuron; Metolachlor; Metosulam; Oxadiargyl; Oxadiazon; Paraquat; Pendimethalin; Phosphonothrixin; Pretilachlor; Primisulfuron; Propaquizafop; Propazine; Pyribenzoxim; Pyridafol; Quizalofop; Sulfentrazone; Thenylchlor; Thiazopyr; Trifluralin.

15 In the compositions according to the invention, the active material or materials can exist in various physical forms, in particular in the solid form, as well as in the liquid or semi-liquid form.

In addition to the active material or 20 materials and the specific nonionic surface-active agent as described above, the compositions according to the invention can comprise an inorganic or organic carrier; preferably, this carrier is in the liquid form.

25 However, solid carriers can advantageously be employed in combination or in association with the compositions according to the invention; mention may particularly be made, among these said solid carriers,

of clays; natural or synthetic silicates; silicas; resins; waxes; or solid fertilizers.

For the account of the present invention, inorganic or organic liquid carrier is understood to mean both a solvent employed alone and a combination of several solvents. Such a combination then being composed of a solvent and of one or more cosolvents which are miscible or immiscible with one another.

Use may advantageously be made, as solvents employed in the compositions according to the invention, of water and/or organic solvents.

It should be noted that the compositions according to the invention which make use of water as a liquid carrier exhibit the advantage of substantially reducing the toxicity and/or flammability restrictions which compositions making use of organic liquid carriers may sometimes be subject to.

However, and depending upon the qualities desired for the compositions according to the invention, the latter can advantageously make use of organic solvents; thus, said organic solvents optionally employed for the compositions according to the invention can be protic or aprotic organic solvents, among which may be mentioned ketones; for example isobutyl ketone or cyclohexanone; amides, such as dimethylformamide or N,N-dimethylacetamine; cyclic solvents, such as N-methylpyrrolidone, N-octylpyrrolidone, N-dodecylpyrrolidone,

N-octylcaprolactone, N-dodecylcaprolactone or
γ-butyrolactone; or other solvents, such as dimethyl
sulfoxide; or aromatic hydrocarbons, such as xylene; or
esters, such as propylene glycol monomethyl ether
5 acetate, dibutyl adipate, hexyl acetate, heptyl
acetate, tri(n-butyl) citrate, diethyl phthalate, or
dimethyl esters of a fatty acid, in particular adipic
acid or succinic acid; or alcohols, including ethanol,
n-propanol, isopropanol, n-butanol, isobutanol, n-amyl
10 alcohol, isoamyl alcohol, benzyl alcohol or 1-methoxy-
2-propanol, and the like.

For the compositions according to the
invention making use thereof, the amount of solvent can
vary from 0.1 to 99.5%, preferably from 15 to 80%, by
15 weight of said compositions.

For the compositions according to the
invention which employ a solvent and one or more
cosolvents, the relative amounts of these said solvents
and cosolvents vary in proportions of the
20 solvent/cosolvent ratio ranging from 99/1 to 50/50.

The compositions according to the invention
advantageously adopt fairly numerous and varied forms;
mention may in particular be made, as liquid forms, of
solution concentrates; soluble concentrates;
25 emulsifiable concentrates; emulsion concentrates; or
suspension concentrates; or, as solid forms, of
granules; dispersible granules; powders; or wettable
powders.

In addition, and according to requirements or the nature of the disease to be treated, of the harmful plants, insects and/or animals to be combated, destroyed or eradicated, or according to the extents of
5 infestation by these pests, or according to the climatic and/or edaphic conditions, the compositions according to the invention can comprise any other standard substance for the formulation of compositions of use in the fields of agriculture and/or of public or
10 domestic hygiene.

Mention may be made, among these compounds, as examples, of adjuvants, anticaking agents, coloring agents, thickening agents, antifoaming compounds, detergent agents, such as salts of alkaline earth
15 metals, dispersing agents, basifying agents, such as bases, adhesion agents, emulsifying agents, stabilizing agents, oxidizing agents, such as free radical scavengers or catalytic destroyers of hydroperoxides, or else reducing agents, corrosion inhibitors,
20 antifreeze agents or other surface-active agents or alternatively any other substance specific to a particular use of the compositions according to the invention, in particular dispersing agents or suspending agents.

25 More generally, the compositions according to the invention can comprise any solid or liquid additive which corresponds to the usual techniques for formulating and which is acceptable, in particular, for

uses in the fields of agriculture and/or of public or domestic hygiene.

These additives can be present, in the compositions according to the invention, in amounts of
5 between 0 and 95% by weight of said compositions.

According to other advantageous forms of compositions according to the invention, the various compositions according to the invention which have just been described can also take the form of mixtures
10 prepared at the time of use, commonly described as *tank mixes*.

These compositions according to the invention in the form of *tank mixes* are usually in the form of dilute insecticidal compositions.

15 Generally, these compositions according to the invention referred to as *tank mixes* are mixed or prepared directly in the tank of the application device.

An additional aspect of the present invention lies in the use of the pesticidal and/or growth-regulating compositions for harmful plants and/or insects and/or animals according to the invention, as described and defined above, in treatment and/or protection methods or processes of use in particular in the field of agriculture, for example for the treatment or protection of crops, and/or in the field of public or domestic hygiene.

Thus, and in particular according to the pesticidal and/or growth-regulating active material or materials used, said compositions can be employed to protect, treat, combat, destroy or eradicate diseases or harmful fungi, plants, insects or animals.

An essential characteristic of said

protection and/or treatment methods, in particular for the protection and/or treatment of crops, is to employ an effective and non-phytotoxic amount of a composition according to the invention.

5 The expression effective and non-phytotoxic amount is understood to mean an amount of the composition according to the invention which is sufficient to make it possible to protect, treat, combat, destroy or eradicate diseases or harmful fungi,
10 plants, insects or animals present or capable of appearing on crops and which does not result, for the said crops, in any significant symptom of phytotoxicity.

Such an amount is capable of varying within
15 wide limits, in particular according to the disease or harmful fungi, plants, insects or animals to be combated, destroyed or eradicated, according to the type of crop to be treated or protected, or according to the climatic or edaphic conditions, or according to
20 the active material or materials present in the composition according to the invention used.

Nevertheless, when employed in such protection and/or treatment methods, the compositions according to the invention are generally applied, in
25 particular by spraying, in amounts of between 0.0001 and 20 kg, preferably between 0.002 and 2 kg, per hectare of crop to be treated and/or protected.

As regards the treatments of seeds, the

amounts of compositions according to the invention employed are usually between 0.01 and 250 kg/T of seeds; a person skilled in the art will know how to adapt said proportions, in particular according to the
5 type or the size of the seeds, or according to the type of treatment envisaged or of protection envisaged.

Advantageously, and as regards their use in the processes according to the invention which have just been described, the compositions according to the
10 invention can form the subject of quite a number of application techniques; in particular, said compositions can be applied by dipping, covering or coating, or by spraying or by fogging, and the like.

As regards the various ways of applying the
15 compositions according to the invention which can be envisaged, mention may in particular be made of simultaneous, separate, alternating or sequential applications; the methods of applications of the processes according to the invention then comprising
20 technical stages of the same nature as those which were described above.

Generally, the methods or processes for the protection and/or treatment of crops according to the invention which employ the compositions according to
25 the invention do so by application, particularly by spraying, to the aerial parts of said crops, it being possible for said aerial parts to be, without distinction, the leaves or the stems.

Nevertheless, many other application techniques can be employed for the application of said compositions according to the invention; there is in particular fogging but also application by dipping in
5 said compositions; or by coating or by covering by means of a composition according to the invention.

Due to the very large number of active materials capable of being employed in the compositions according to the invention, the latter can in fact be
10 employed in processes for the treatment or protection of numerous types of crops.

Mention may be made, as examples, and without implied limitation, of crops which can be protected and/or treated using compositions according to the
15 invention, of rice, cereals, in particular wheat, maize, rye, triticale or barley, fruit trees, the vine, oleaginous plants, including rape and sunflower, peas, market gardening crops, the Solanaceae, in particular potatoes, as well as cotton, flax, beetroot and
20 ornamental plants and forest trees.

The methods or processes for the treatment and/or protection of plant propagation products, and the resulting plants, against diseases or harmful fungi, plants, insects or animals also form part of the
25 present invention, said methods generally being characterized in that said products or plants to be treated and/or protected are coated, in all or part, with an effective and non-phytotoxic dose of a

composition according to the invention, or any other biological propagation material.

Mention may in particular be made, among said products for the propagation of the plants concerned,
5 of seeds, tubers or in-vitro plants.

Said methods for the treatment or protection of plant propagation products according to the invention give particularly satisfactory results when they are applied to seeds, in particular in that they
10 can make possible a substantial reduction in the amount of active material used.

Another characteristic of the treatment and/or protection methods according to the invention is to be able to be employed in the field of public or
15 domestic hygiene, particularly by application of an effective amount of a pesticidal and/or growth-regulating composition according to the invention.

It being possible for said application to give particularly satisfactory results when it employs
20 amounts of said compositions of between 0.00001 g and 500 g, preferably between 0.001 g and 200 g, of composition according to the invention per 100 m² of surface area to be treated and/or protected.

It goes without saying that, even if the various aspects of the present invention have been able, in some cases, to be described by specific characteristics or else according to advantageous or preferred forms, it should be noted that the account of said aspects by said specific characteristics or under advantageous or preferred forms is given only by way of example and that numerous alternative forms of the details of said aspects of the invention, in particular of preparation, of use or of combination, can be envisaged without departing either from the spirit or from the scope of said invention.

Examples making possible a better illustration of the various aspects of the present invention will form the subject of the final elaboration of the present description; said examples are under no circumstances to be regarded as limiting the scope of said invention.

The object of examples 1a to 1f is to illustrate various specific forms of pesticidal

compositions according to the invention, on the one hand in the form of specific compositions according to the invention which are in the liquid form and, on the other hand, of specific compositions which are in the solid form. Some of these specific compositions employ insecticidal active materials and others herbicidal active materials or fungicidal active materials.

Example 1a:

It is the intention of this example to illustrate an insecticidal composition according to the invention in the form of a soluble concentrate.

The procedure for the preparation of this specific insecticidal composition is as follows: 167 g of product sold under the trade name *Rhodasurf 870* [poly(oxy-1,2-ethanediyl) (α -isodecyl- ω -hydroxyisodecyl alcohol)] and 167 g of product sold under the name *Rhodasurf LA30* [poly(oxy-1,2-ethanediyl) (linear C₁₂-C₁₄ alcohol, such as lauryl alcohol, myristyl alcohol and do- and tetradecanol)] are mixed in 500 ml of N,N-dimethylacetamide and then 167 g of Acetamiprid, an insecticidal active material with the chemical name (E)-N¹-[(6-chloro-3-pyridyl)methyl]-N²-cyano-N¹-methylacetamine, are added.

Example 1b:

The intention of this example is to illustrate an insecticidal composition according to the invention in the form of a suspension concentrate. During a first stage and by means of an appropriate

disperser, 8 g of a wetting agent, in the form of a polyethoxylated fatty alcohol, 15 g of a salt of a polyethoxylated tristyrylphenol phosphate, as dispersing agent, with 50 g of propylene glycol, as
5 antifreeze agent, and 1 g of a silicone antifoaming agent, 400 g of an insecticidal compound with the chemical name 5-amino-3-cyano-1-(2,6-dichloro-4-trifluoromethylphenyl)-4-ethylsulfinylpyrazole, are mixed in 400 g of water.

10 During a second stage, the mixture obtained is milled for the purpose of reducing the particle size thereof to a mean diameter of approximately 2 μm .

Finally, during a third stage, 4 g of a silicone antifoaming agent, 60 g of a thickening and
15 biocidal compound in the form of a solution comprising 2% of xanthan and of a biocidal agent, and, finally, 168 g of a nonionic surface-active agent according to the invention comprising equimolar amounts of the products sold under the names *Rhodasurf B0/327*
20 [poly(oxy-1,2-ethanediyl)/poly(oxy-1,2-propanediyl) (linear $\text{C}_{12}\text{-C}_{14}$ $\text{C}_{12}\text{-C}_{14}$ alcohol, such as lauryl alcohol, myristyl alcohol and do- and tetradecanol)] and *Rhodasurf 860/P* [poly(oxy-1,2-ethanediyl) (C_{13} oxo alcohol, such as α -isodecyl- ω -
25 hydroxyisodecyl alcohol)] are added.

Example 1c:

The intention of this example is to illustrate an insecticidal composition according to the

invention which is colored, in particular for the treatment of seeds; said composition is in the form of a suspension concentrate.

The preparation is carried out as for
5 example 1b, the insecticidal compound being replaced by an identical amount of another insecticidal compound with the chemical name 3-acetyl-5-amino-1-[2,6-dichloro-4-(trifluoromethyl)phenyl]-4-(methylsulfinyl)pyrazole and, during the third stage,
10 20 g of a pigment powder based on Red 112 being added thereto.

Example 1d:

The intention of this example is to illustrate a liquid fungicidal composition according to
15 the invention in the form of a suspension concentrate, colored for seed treatment.

During a first stage, 2 g of a wetting agent, in the form of a polyethoxylated fatty alcohol, are mixed, in 381.7 g of water, with 70 g of a
20 polyethoxylated tristyrylphenol phosphate salt, as dispersing agent, with 80 g of propylene glycol, as antifreeze agent, and 1 g of a silicone antifoaming agent, 45 g of a fungicidal compound with the chemical name methyl (E,E)-2-(2-(1-(1-(2-pyridyl)-propyloxyimino)-1-cyclopropylmethyloxymethyl)phenyl)-
25 3-ethoxypropenoate.

During a second stage, the mixture obtained is milled for the purpose of reducing the particle size

thereof to a mean diameter of approximately 2 μm .

Finally, during a third stage, 300 g of water, 100 g of a pigment powder based on Red 112, 4 g of a silicone antifoaming agent, 125 g of a thickening and biocidal compound in the form of a solution comprising 2% of xanthan and of a biocidal agent, and, finally, 40 g of a nonionic surface-active agent according to the invention comprising equimolar amounts of the products sold under the names *Rhodasurf 870* [poly(oxy-1,2-ethanediyl)- C_{13} oxo alcohol and poly(oxy-1,2-ethanediyl)- α -isodecyl- ω -hydroxyisodecyl alcohol] and *Rhodasurf 860/P* [poly(oxy-1,2-ethanediyl)(C_{13} oxo alcohol and α -isodecyl- ω -hydroxyisodecyl alcohol)] are added.

15 Example 1e:

The intention of this example is to illustrate a colored liquid fungicidal composition according to the invention which is in the form of a soluble concentrate for seed treatment.

20 300 g of Guazatine, a fungicidal compound known as such and defined as a mixture of the reaction products of carbamionitrile and of polyamines mainly comprising octamethylenediamine, iminodi(octamethylenediamine) and octamethylenebis(iminooctamethylene)-
25 diamine, 300 g of propylene glycol, as antifreeze agent, 60 g of pigment powder based on Red 112, 1 g of a silicone antifoaming agent and 40 g of surface-active agent according to the invention, comprising equimolar

amounts of the product *Rhodasurf 860/P* [poly(oxy-1,2-ethanediyl)(C₁₃ oxo alcohol and α -isodecyl- ω -hydroxyisodecyl alcohol)] and of the product *Rhodasurf 870* [poly(oxy-1,2-ethanediyl)(C₁₃ oxo alcohol, such as α -isodecyl- ω -hydroxyisodecyl alcohol)], are mixed in 175 g of water.

Example 1f:

The intention of this example is to illustrate a solid insecticidal composition according to the invention which is in the form of a soluble powder.

350 g of surface-active agent according to the invention, in the form of 200 g of product *Rhodasurf 870* [poly(oxy-1,2-ethanediyl)(C₁₃ oxo alcohol and α -isodecyl- ω -hydroxyisodecyl alcohol)] and 150 g of product *Rhodasurf LA30* [poly(oxy-1,2-ethanediyl)(linear C₁₂-C₁₄ alcohol and lauryl alcohol, myristyl alcohol and do- and tetradecanol)], are adsorbed on 350 g of precipitated silica and then 100 g of sodium lignosulfonate, as solid carrier, and 200 g of Acetamripid, an insecticidal compound with the chemical name (E)-N¹-[(6-chloro-3-pyridyl)methyl]-N²-cyano-N¹-methylacetamidine, are added with mixing.

The object of examples 2a to 2i which will follow is to illustrate various specific processes for treatment or protection according to the invention by means of pesticidal compositions according to the invention.

Example 2a:

The intention of this example is to illustrate a specific process for application by foliar spraying of an insecticidal composition according to
5 the invention.

This example also makes possible a perfect illustration of the ability of the pesticidal compositions according to the invention to make possible effective and advantageous wetting of the
10 leaves of the treated plants.

This wetting nature of said compositions is evaluated by contact angle measurements.

The contact angle, expressed in degrees, is an important characteristic of a liquid which makes it
15 possible in particular to measure the wetting nature of said liquid applied to a solid surface, particularly in that the value of this contact angle, measured for a droplet of said liquid, decreases in proportion as the wetting power of the liquid increases. Said
20 measurements can be carried out by means of any apparatus known for such usages and under conditions which a person skilled in the art will know how to determine easily.

For the purpose of carrying out these contact
25 angle measurements, a liquid insecticidal composition according to the invention is prepared by mixing 1 g of a solid composition according to example 1f with one liter of water.

In the same way, a control insecticidal composition not comprising surface-active agent according to the invention is prepared.

The measurement proper of the contact angles
5 is carried out by depositing, by spraying, a droplet of
2 μ l of liquid composition to be characterized on a
leaf of wheat, of *Scypion* variety, grown in a climate-
controlled chamber for 14 days at 10°C and by then
measuring the contact angle which the droplet forms
10 with the solid surface of the leaf.

The control insecticidal composition has a
contact angle measured at 102°, whereas the
insecticidal composition according to the invention,
comprising the specific nonionic surface-active agent
15 according to the invention, has a contact angle of
50.3°, a value testifying in an exemplary way to the
particularly advantageous wetting nature of said
insecticidal composition according to the invention.

Example 2b:

20 The intention of this example is to
illustrate a specific process for application, by
foliar spraying, of a herbicidal composition according
to the invention, said herbicidal composition according
to the invention being prepared at the time of use.

25 This example also makes possible a perfect
illustration of the ability of this specific herbicidal
composition according to the invention to make possible
effective and advantageous wetting of the leaves of the

treated plants.

During a first stage, a herbicidal composition in the form of a soluble concentrate, and known per se, is prepared. For this, 8 g of a wetting agent in the form of a polyethoxylated fatty alcohol, 20 g of a salt of a polyethoxylated tristyrylphenol phosphate, as dispersing agent, 50 g of propylene glycol, as antifreeze agent, 1 g of a silicone antifoaming agent and 500 g of Diflufenican, with the chemical name 2',4'-difluoro-2-(α,α,α -trifluoro-m-tolyloxy)nicotinilide, as herbicidal compound, are mixed in 400 g of water.

A second stage consists in milling the mixture obtained above in order to reduce the particle size thereof in order to obtain a mean diameter of the particles of approximately 2 μm .

Finally, during a third stage, 4 g of a silicone antifoaming agent and 60 g of a thickening and biocidal compound, in the form of a solution comprising 2% of xanthan and of a biocidal agent, are added.

Finally, and at the time of use, a herbicidal composition according to the invention is prepared by mixing 1 g of the composition thus obtained with one liter of water and with 1 g of surface-active agent according to the invention comprising equimolar amounts of the products sold under the names *Rhodasurf 870* and *Rhodasurf 860/P* [poly(oxy-1,2-ethanediyl) (C_{13} oxo alcohol and α -isodecyl- ω -hydroxyisodecyl alcohol)].

The contact angle measurements are carried out as for example 2a by measuring the contact angle of droplets of the herbicidal composition according to the invention prepared at the time of use and of droplets of a control composition not comprising specific nonionic surface-active agent according to the invention.

The contact angle measurements are carried out on leaves of catchweed, also known as *Gallium aparine*.

The control herbicidal composition has a contact angle measured at 93.5° , whereas the herbicidal composition according to the invention, comprising the specific nonionic surface-active agent according to the invention, has a contact angle of 48.3° , a value testifying in an exemplary fashion to the particularly advantageous wetting nature of said insecticidal composition according to the invention.

Example 2c:

The intention of this example is to illustrate a specific process for insecticidal treatment by foliar spraying of an insecticidal composition according to the invention.

This example also makes possible a good illustration of the particularly satisfactory biological effectiveness of such a composition according to the invention, in particular for combating the pest *Rhopalosiphum padi*. Three plots of 30 m^2 are

prepared and seeded with wheat of the variety *Triticum aestivum*.

Furthermore, an insecticidal composition according to the invention is prepared by repeating
 5 example 1b and by using Cypermethrin as active material rather than Acetamiprid.

In the same way, a control insecticidal composition not comprising specific nonionic surface-active agent according to the invention and comprising
 10 Cypermethrin as active material rather than Acetamiprid is prepared.

21 days after emergence, composition according to the invention is applied to plot No. 1 and control composition is applied to plot No. 2, these
 15 applications being by foliar spraying and at 10 g of active material per hectare; plot No. 3 is not treated in order to act as reference.

The number of *Rhopalosiphum padi* insects still present on the wheat leaves three and eight days
 20 after treatment is then counted; the results are collated in table 1 below.

	Number of insects per leaf still present 3 days after treatment	Number of insects per leaf still present 8 days after treatment
Plot No. 1	2.4	1.9
Plot No. 2	4.6	4.3
Plot No. 3	5.4	4.9

Table 1

Example 2d:

The intention of this example is to illustrate another specific process for insecticidal treatment by foliar spraying of an insecticidal composition according to the invention.

This example itself also makes possible a good illustration of the particularly satisfactory biological effectiveness of such a composition according to the invention, in particular for combating the pest *Rhopalosiphum padi*.

The procedure for this example is as for example 2c but using a composition comprising Imidacloprid as insecticidal active material rather than Cypermethrin.

The results obtained are collated in table 2 below.

	Number of insects per leaf still present 3 days after treatment	Number of insects per leaf still present 8 days after treatment
Plot No. 1	1.05	1.3
Plot No. 2	4.6	3.8
Plot No. 3	5.4	4.9

Table 2Example 2e:

The intention of this example is to illustrate a specific process for application by foliar spraying of an insecticidal composition according to the invention.

This example also makes possible a perfect illustration of the ability of this specific insecticidal composition according to the invention to make possible effective and advantageous wetting of the
5 leaves of the treated plants.

For the preparation of the specific insecticidal composition according to the invention which has to be sprayed, 1 g of composition according to example 1f is mixed with one liter of water.

10 A control insecticidal composition not comprising specific nonionic surface-active agent according to the invention is prepared in the same way.

The contact angle measurements are carried out using the conditions of example 2a.

15 The control insecticidal composition has a contact angle measured at 110°, whereas the insecticidal composition comprising specific nonionic surface-active agent according to the invention has a contact angle measured at 51°, a value testifying in an
20 exemplary fashion to the particularly advantageous wetting nature of said insecticidal composition according to the invention.

Example 2f:

The intention of this example is to
25 illustrate a specific process for application by foliar spraying of a liquid insecticidal composition according to the invention.

This example illustrates the ability of an

insecticidal composition according to the invention to be advantageously retained at the surface of the leaf of the treated plant after spraying.

For the preparation of the specific liquid
5 and colored insecticidal composition according to the invention which has to be sprayed, 1 g of a composition according to example 1f is mixed in one liter of water while adding an additional coloring ingredient in the form of 0.5 g of carmoisine, a substance known for its
10 coloring properties.

A control liquid and colored insecticidal composition not comprising specific nonionic surface-active agent according to the invention is prepared in the same way.

15 After spraying, the amount of insecticidal composition according to the invention and of control insecticidal composition which is retained on the leaves of the treated plants is evaluated. Colorimetric quantitative determination is used for this and the
20 volume of each composition present per gram of treated plant then analyzed is measured.

These measurements produce the following results: the plants treated by means of the insecticidal composition according to the invention
25 retain 10.2 μ l of composition per gram of treated plant; whereas the plants treated by means of the control insecticidal composition retain only 4.4 μ l of composition per gram of treated plant.

These results therefore make possible an illustration of the advantage of using such an insecticidal composition according to the invention for making possible greater retention of said composition
5 on the surface of the treated plant leaf and thus making possible a higher productivity and a higher effectiveness of the insecticidal active material employed, as well as an advantageous reduction in the amount of composition needlessly spread or lost to the
10 surroundings, in particular by rebound from the surface of the leaf at the time of spraying.

Example 2g:

The intention of this example is to illustrate a specific process for application of an
15 insecticidal composition according to the invention for the coating of seeds.

This example also illustrates the advantageous ability of a specific insecticidal composition according to the invention to make possible
20 highly satisfactory coating of said seeds. For this, use is made of an insecticidal composition according to example 1c and of a control insecticidal composition not comprising specific nonionic surface-active agent according to the invention.

25 For the preparation of the composition according to the invention to be applied, 31 ml of a composition according to example 1c are mixed with 69 ml of water.

In the same way, 31 ml of a control insecticidal composition not comprising specific nonionic surface-active agent according to the invention are mixed with 69 ml of water.

5 After preparation of these two compositions, the latter form the subject of a comparison of their ability to make possible efficient coating by application to wheat seeds of the variety Rubeins. Thus, 8 ml of each insecticidal composition are applied
10 using a Hege bowl, a device known for making possible the treatment of seeds, to two batches of 1 kg of said seeds. The proportions thus employed correspond to the application of 2.5 l of composition according to example 1c per tonne of seeds to be treated or
15 protected. After application to the seeds, the statistical distribution of each of these two insecticidal compositions to be evaluated is studied by following the recommendations of the CIPAC MT175 standard described in the work CIPAC Handbook, vol. F:
20 Physico-chemical methods for technical and formulated pesticides, edited by W. Dobrat and A. Martijn.

The evaluation technique employed leads to a coefficient of variation which describes, for each of the two insecticidal composition employed, the
25 uniformity of the distribution over the seeds. Thus, the lower this coefficient, the better the distribution of the composition over all the treated seeds, making possible greater effectiveness of the amount of active

material employed in the composition used.

Thus, as regards the insecticidal composition according to the invention, said coefficient of variation is 30%, while it is 53% for the control insecticidal composition not comprising specific nonionic surface-active agent according to the invention.

Thus, the ability which the surface-active agent which is a subject matter of the invention has to make possible better wetting and better coating of the treated seeds is fully assessed.

Example 2h:

The intention of this example is to illustrate a specific process for application of a fungicidal composition according to the invention for the coating of seeds.

This example also illustrates the advantageous ability of a specific fungicidal composition according to the invention to make possible highly satisfactory coating of said seeds. For this, use is made of a fungicidal composition according to example 1d and of a control fungicidal composition not comprising specific nonionic surface-active agent according to the invention.

The procedure is as for example 2g as regards the application and measurement conditions.

The following results were obtained: with the fungicidal composition according to the invention, the

coefficient of variation is 28%, while it is 50% for the control fungicidal composition not comprising specific nonionic surface-active agent according to the invention.

5 Yet again, the ability which the surface-active agent which is a subject matter of the invention has to make possible better wetting and better coating of the treated seeds, in particular of part the uniformity of this coating, is thus fully assessed.

10 Example 2i:

The intention of this example is to illustrate another specific process for application of a fungicidal composition according to the invention for the coating of seeds.

15 This example also illustrates the advantageous ability of a specific fungicidal composition according to the invention to make possible highly satisfactory coating of said seeds. For this, use is made of a fungicidal composition according to
20 example 1d and of a control fungicidal composition not comprising specific nonionic surface-active agent according to the invention.

The procedure is as for example 2g as regards the application and measurement conditions.

25 The following results are obtained: with the fungicidal composition according to the invention, the coefficient of variation is 11%, while it is 25% for the control fungicidal composition not comprising

specific nonionic surface-active agent according to the invention.

Yet again, the ability which the surface-active agent which is a subject matter of the invention has to make possible better wetting and better coating of the treated seeds is thus fully assessed.

CLAIMS

1. A pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals, characterized in that it comprises

A) one or more pesticidal and/or growth-regulating active materials for harmful plants and/or insects and/or animals, with the exception of diniconazole;

10 B) a specific nonionic surface-active agent comprising two different chemical components

B₁) the molecular mass of which is between 200 and 3 000 g/mol, preferably between 300 and 1 000 g/mol;

15 B₂) the dynamic tension of which, measured in water at a concentration of 0.4 g per liter and at a frequency of 10 Hz, is between 35 and 73 mN/m;

B₃) and each comprising

20 B₃(i) a hydrophobic part chosen from the following groups: C₁₃ oxo alcohols; α -isodecyl- ω -hydroxyisodecyl alcohol; linear C₁₂-C₁₄ alcohols; linear C₁₆-C₁₈ alcohols; lauryl alcohol; myristyl alcohol; do- and/or tetradecanols;

25 distyrylphenol-di(1-phenylethyl)phenols; nonylphenols; acetylenediols, in

particular 2,4,7,9-tetramethyldeca-5-yne; tridecyl alcohols; and the molar mass of which is between 100 and 1 500 g/mol, preferably between 150 and 400 g/mol;

B3(ii) a hydrophilic part chosen from a poly(oxy-1,2-ethanediyl) radical and/or a poly(oxy-1,2-propanediyl) radical, the molar mass of which is between 80 and 2 000 g/mol, preferably between 100 and 900 g/mol; and such that

B₄) the difference in molar masses of the hydrophobic parts of these two chemical components is less than 140 g/mol; and that B₅) the difference in molar masses of the hydrophilic parts of these two chemical components is less than 360 g/mol.

2. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in claim 1, characterized in that the active material or materials are present in amounts of between 0.0001 and 99%, preferably between 0.5 and 70%, by weight.

3. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in either of claims 1 and 2, characterized in that the specific nonionic surface-

active agent is present in amounts of between 1 and 99.9999%, preferably between 5 and 80%, by weight.

4. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in one or other of claims 1 to 3, characterized in that the chemical components are present in respective amounts such that the molar ratio of said amounts is between 1/99 and 99/1, preferably between 25/75 and 75/25, more preferably still between 40/60 and 60/40.

5. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in one or other of claims 1 to 4, characterized in that it comprises an inorganic or organic carrier, preferably, in amounts of between 0.1 to 99.5%, preferably between 15 and 80%, by weight.

6. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in claim 6, characterized in that the carrier is in the liquid form.

7. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in either of claims 5 and 6, characterized in that the carrier is water.

8. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in either of claims 5 and 6,

characterized in that the carrier is an organic solvent chosen from ketones, such as isobutyl ketone or cyclohexanone; amides, such as dimethylformamide or N,N-dimethylacetamine; cyclic solvents, such as N-methylpyrrolidone, N-octylpyrrolidone, N-dodecylpyrrolidone, N-octylcaprolactone, N-dodecylcaprolactone or γ -butyrolactone; or other solvents, such as dimethyl sulfoxide; or aromatic hydrocarbons, such as xylene; or esters, such as propylene glycol monomethyl ether acetate, dibutyl adipate, hexyl acetate, heptyl acetate, tri(n-butyl) citrate, diethyl phthalate, or dimethyl esters of a fatty acid; or alcohols, including ethanol, n-propanol, isopropanol, n-butanol, isobutanol, n-amyl alcohol, isoamyl alcohol, benzyl alcohol or 1-methoxy-2-propanol.

9. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in claim 5, characterized in that the carrier is in the solid form.

10. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in either of claims 5 and 9, characterized in that the carrier is chosen from clays; natural or synthetic silicates; silicas; resins; waxes; or solid fertilizers.

11. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or

animals as claimed in one or other of claims 1 to 10, characterized in that it is in the dilute form and/or comprises between 0.0001 and 10% of active material.

12. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in one or other of claims 1 to 11, characterized in that it is in the concentrated form and/or comprises between 55 and 99% of active material.

13. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in one or other of claims 1 to 12, characterized in that it comprises one or more additives in amounts of between 0 and 60% by weight.

14. The pesticidal and/or growth regulating composition for harmful plants and/or insects and/or animals as claimed in claim 13, characterized in that the additives are chosen from adjuvants; anticaking agents; coloring agents; thickening agents; antifoaming agents; detergent agents, such as salts of alkaline earth metals; dispersing agents; basifying agents such as bases; adhesion agents; emulsifying agents; stabilizing agents; oxidizing agents such as free radical scavengers or catalytic destroyers of hydroperoxides; reducing agents; corrosion inhibitors; antifreeze agents; other surface-active agents; dispersing agents; or suspending agents.

15. A process for the treatment and/or

protection of crops, characterized in that it employs the composition as claimed in one or other of claims 1 to 14.

16. The process for the treatment and/or
5 protection of crops as claimed in claim 15, characterized in that the composition is applied by dipping or by covering or by coating or by spraying or by fogging.

17. The process for the treatment and/or
10 protection of crops as claimed in either of claims 15 and 16, characterized in that the composition is applied in amounts of between 0.0001 and 20 kg, preferably between 0.002 and 2 kg, per hectare.

18. The process for the treatment and/or
15 protection of seeds as claimed in either of claims 15 and 16, characterized in that the composition is applied in amounts of between 0.01 and 250 kg/T of seeds.

19. The process for the treatment and/or
20 protection of crops as claimed in one or other of claims 15 to 18, characterized in that the protected and/or treated crop is chosen from rice, cereals, such as wheat, maize, rye, triticale or barley, fruit trees, the vine, oleaginous crops, such as rape or sunflower,
25 peas, market gardening crops, the Solanaceae, such as potatoes, cotton, flax, beetroot, ornamental plants or forest trees.

20. The process for the treatment and/or protection of crops as claimed in one or other of claims 15 to 19, characterized in that the protected and/or treated crop is a product for the propagation of the plants concerned, such as seeds, tubers or in-vitro plants.

21. A process for treatment or protection in public or domestic hygiene, characterized in that it employs the composition as claimed in one or other of claims 1 to 14.

22. The process for treatment or protection in public or domestic hygiene as claimed in claim 21, characterized in that the amount of composition employed is between 0.0001 g and 500 g, preferably between 0.001 g and 200 g, of composition per 100 m² of surface area to be treated and/or protected.