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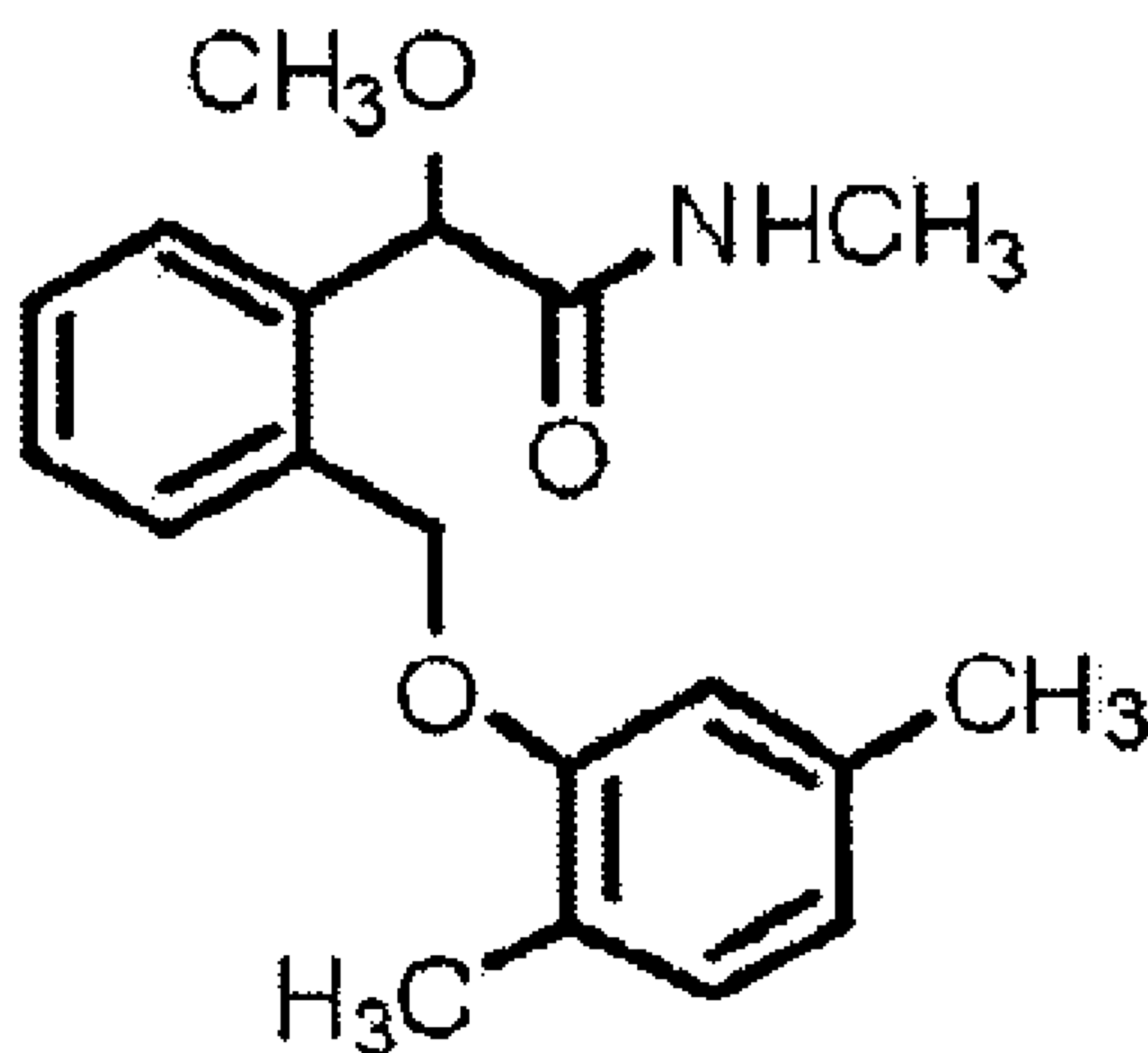
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(54) **Titre : COMPOSITION DE LUTTE CONTRE LES MALADIES FONGIQUES DES PLANTES COMPRENANT DE LA
MANDESTROBINE ET DE LA ZOAXAMIDE ET PROCEDE POUR LUTTER CONTRE LES MALADIES FONGIQUES DES PLANTES**
(54) **Title: PLANT FUNGAL DISEASE CONTROLLING COMPOSITION COMPRISING MANDESTROBIN AND ZOAXAMIDE AND
METHOD FOR CONTROLLING PLANT FUNGAL DISEASES**

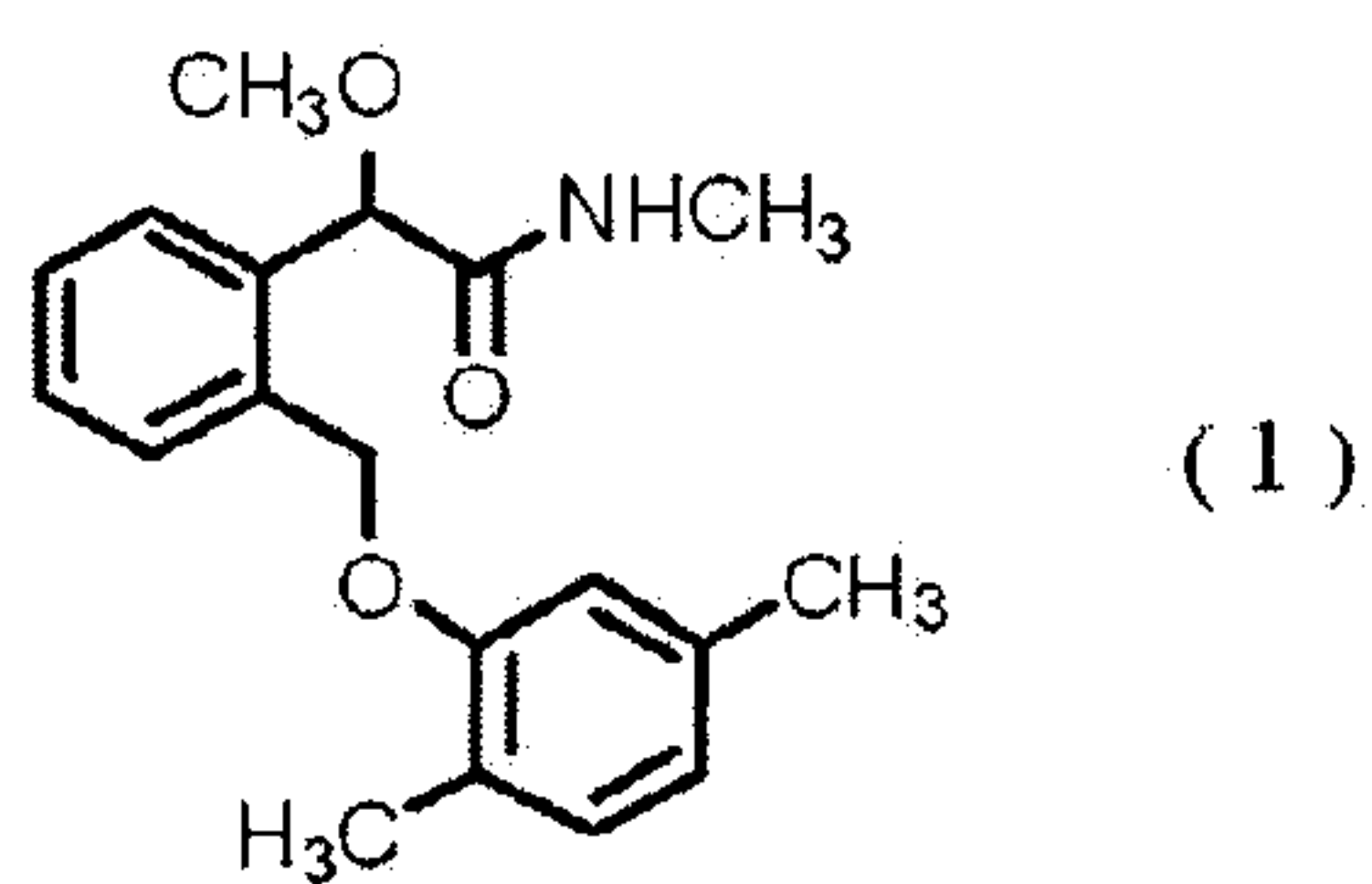


(57) **Abrégé/Abstract:**

The present invention provides a composition having an excellent controlling activity on plant disease. The composition comprising the compound represented by the formula (1) (see formula 1) and zoxamide shows an excellent controlling activity on a plant disease.

ABSTRACT

The present invention provides a composition having an excellent controlling activity on plant disease. The composition comprising the compound represented by the formula (1)



and zoxamide shows an excellent controlling activity on a plant disease.

PLANT FUNGAL DISEASE CONTROLLING COMPOSITION
COMPRISING MANDESTROBIN AND ZOXAMIDE AND
METHOD FOR CONTROLLING PLANT FUNGAL DISEASES

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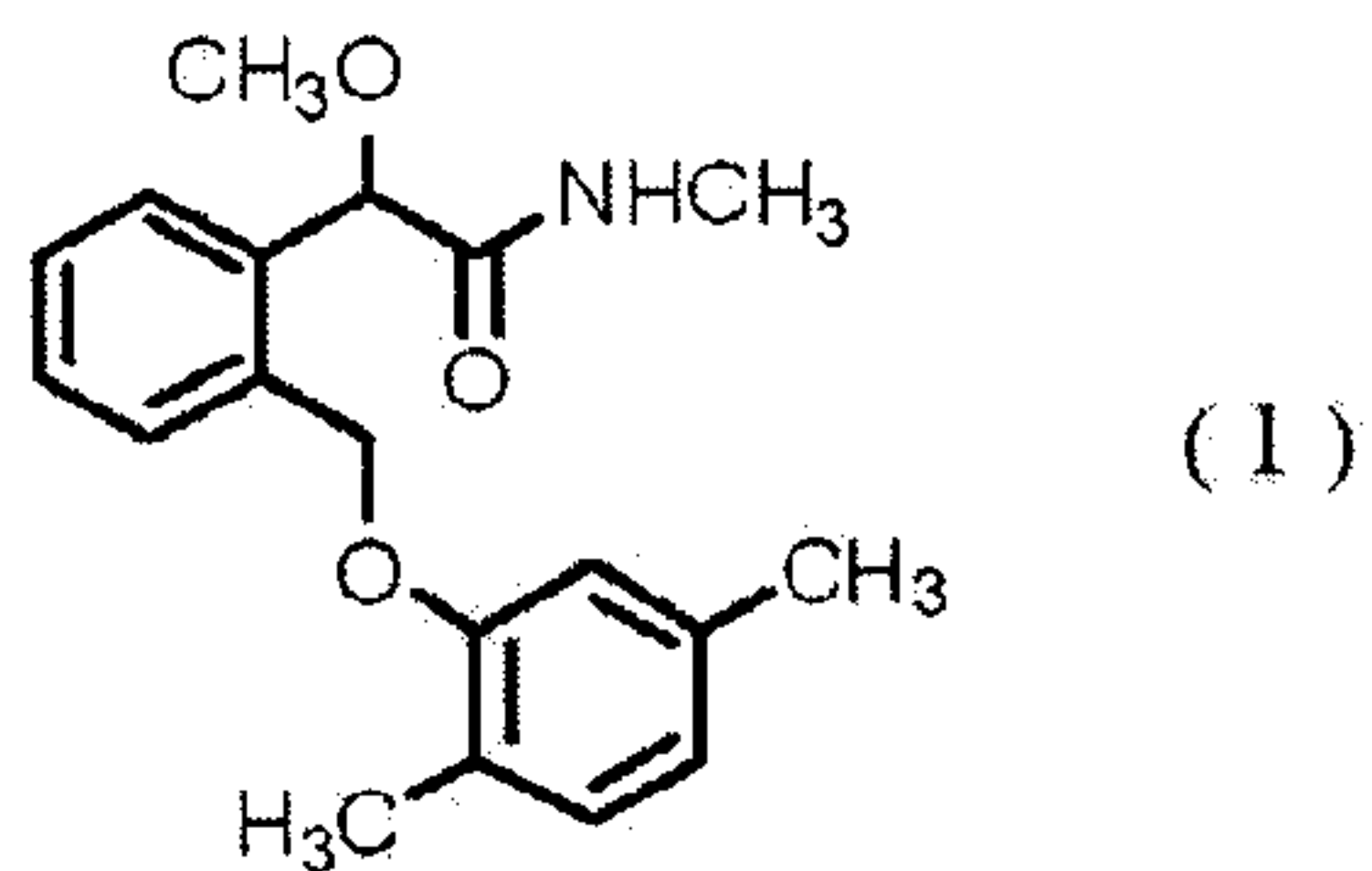
Technical Field

The present invention relates to a plant disease
controlling composition and a method for controlling a
10 plant disease.

Background Art

Hitherto, there have been provided compounds as an
active ingredient for a composition for controlling plant
15 disease (see e.g., The Pesticide Manual - 15th edition
(BCPC published) ISBN 1901396188).

Also, there has been provided a compound of the
formula (1):



20 (see e.g., WO 95/27693 pamphlet and WO 02/10101 pamphlet).

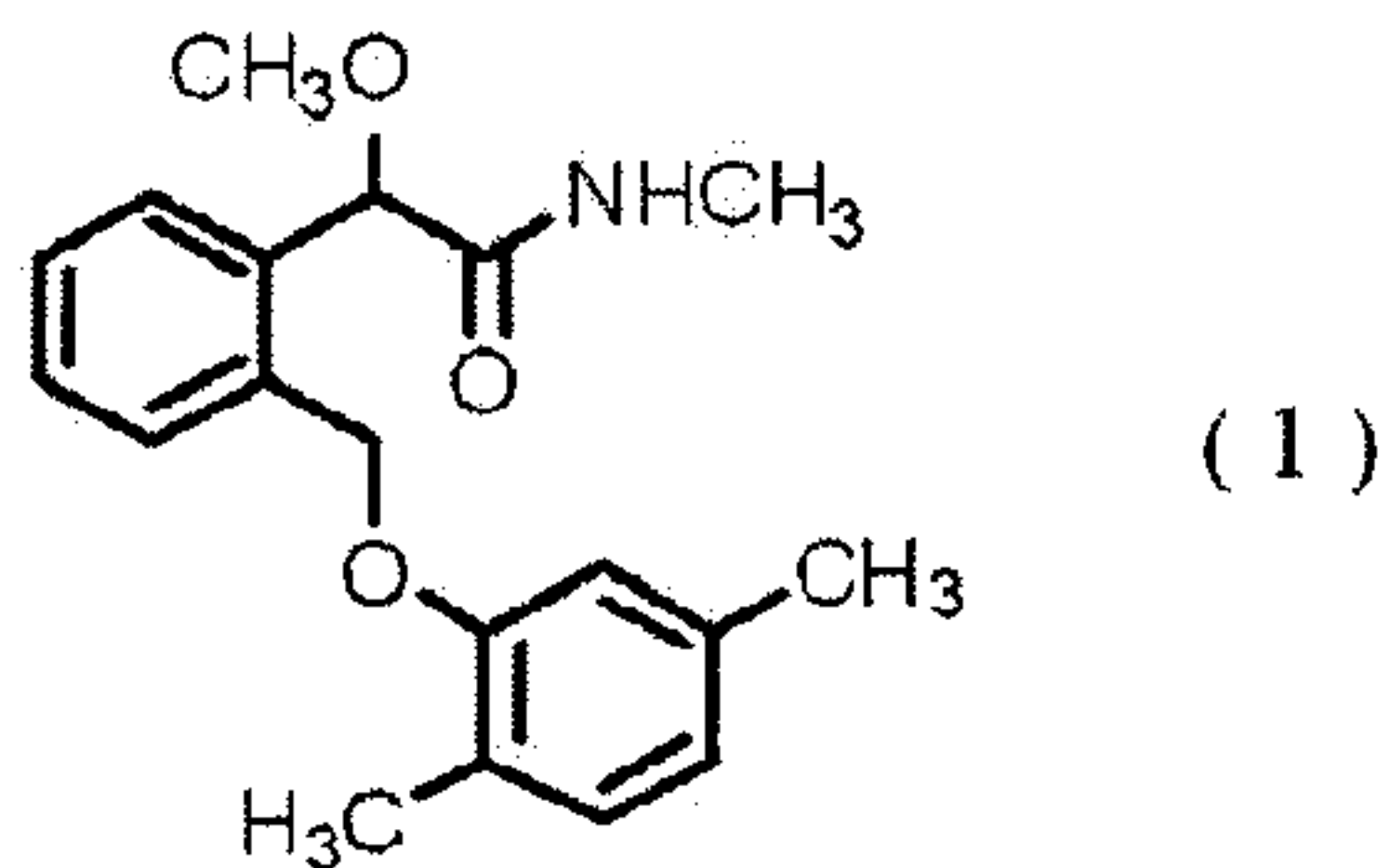
Disclosure of Invention

An object of the present invention is to provide a composition having an excellent control effect on a plant disease.

5 The present inventors have intensively studied to find a composition having an excellent control effect on a plant disease. As a result, they have found that a composition comprising a compound represented by the formula (1) and one or more benzamide fungicidal compound selected from the
10 following group (A) shows a synergistic activity, and thus has an excellent control effect on a plant disease, and therefore the present invention has been completed.

The present invention provides:

[1] A plant fungal disease controlling composition
15 comprising a compound represented by the formula (1):

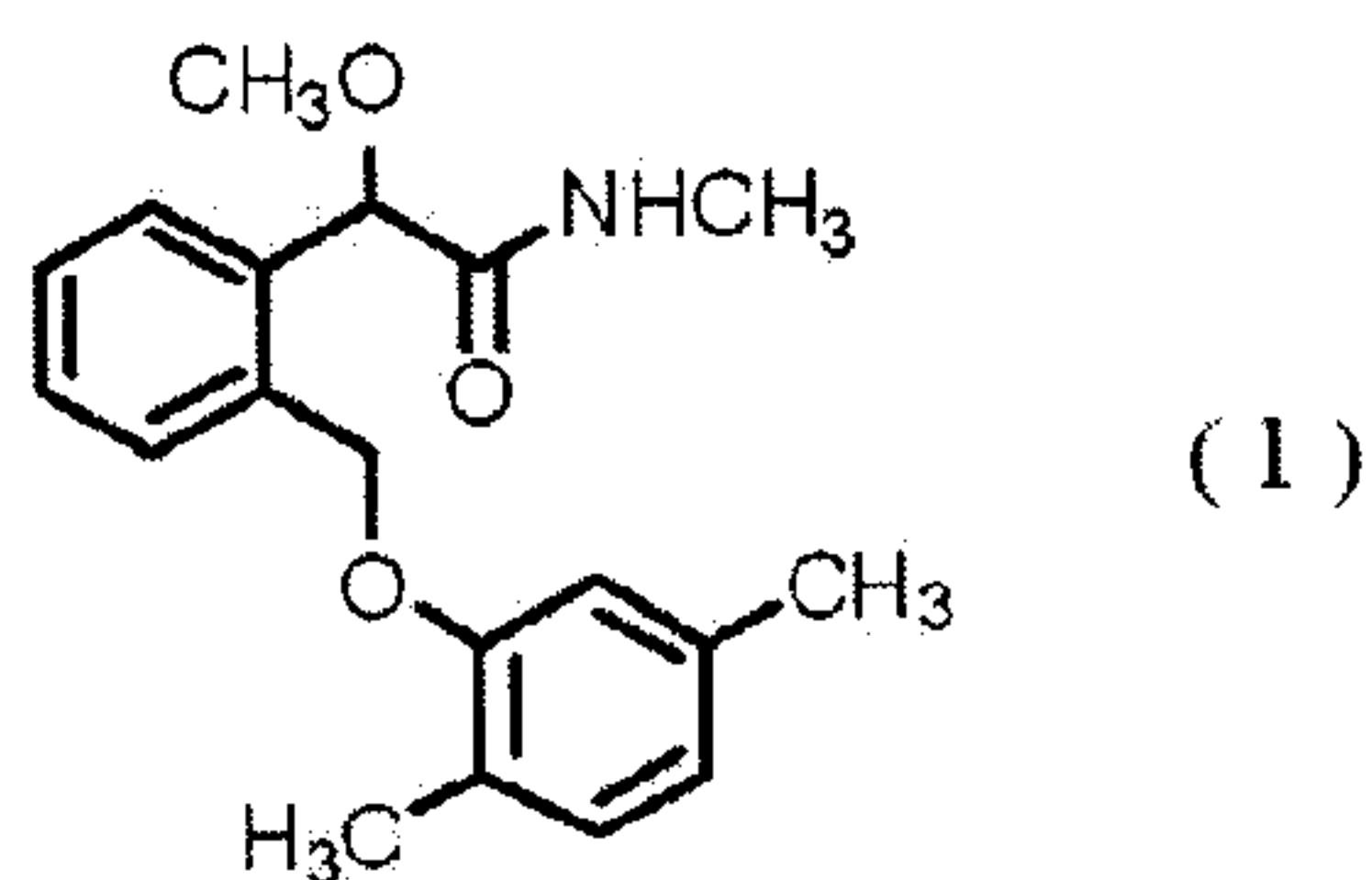


and zoxamide.

[2] The plant fungal disease controlling composition
20 according to the above [1], wherein a weight ratio of the compound represented by the formula (1) to zoxamide is that of the compound represented by the formula (1)/zoxamide = 0.0125/1 to 500/1.

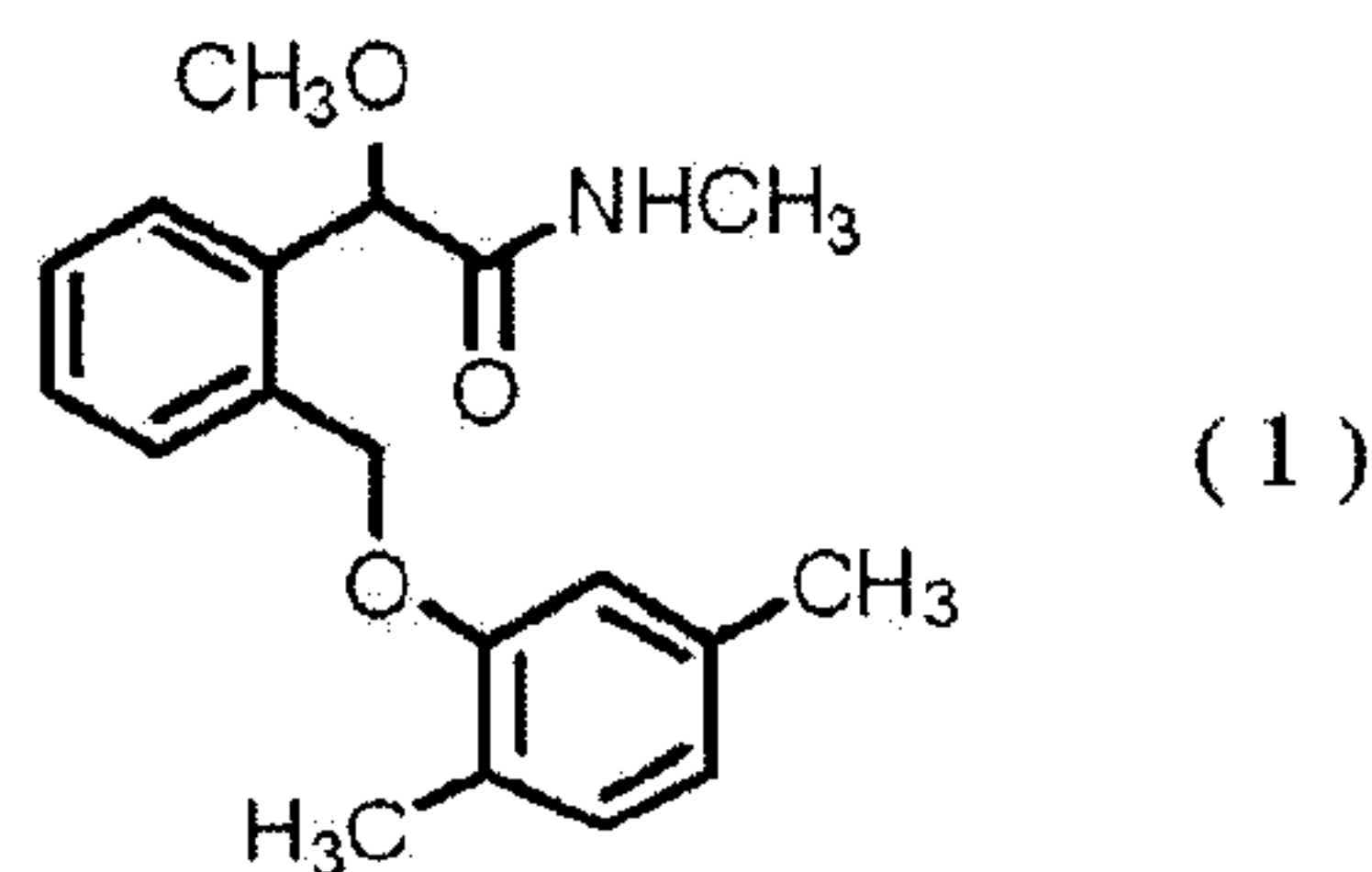
[3] The plant fungal disease controlling composition according to the above [1] or [2], wherein the compound represented by the formula (1) is that represented by the formula (1) having R- absolute configuration.

5 [4] A method for controlling a plant fungal disease which comprises applying the compound of the formula (1):



and zoxamide to a plant or a soil for cultivating the plant.

10 [5] A method for controlling a plant fungal disease which comprises applying the compound of formula (1):

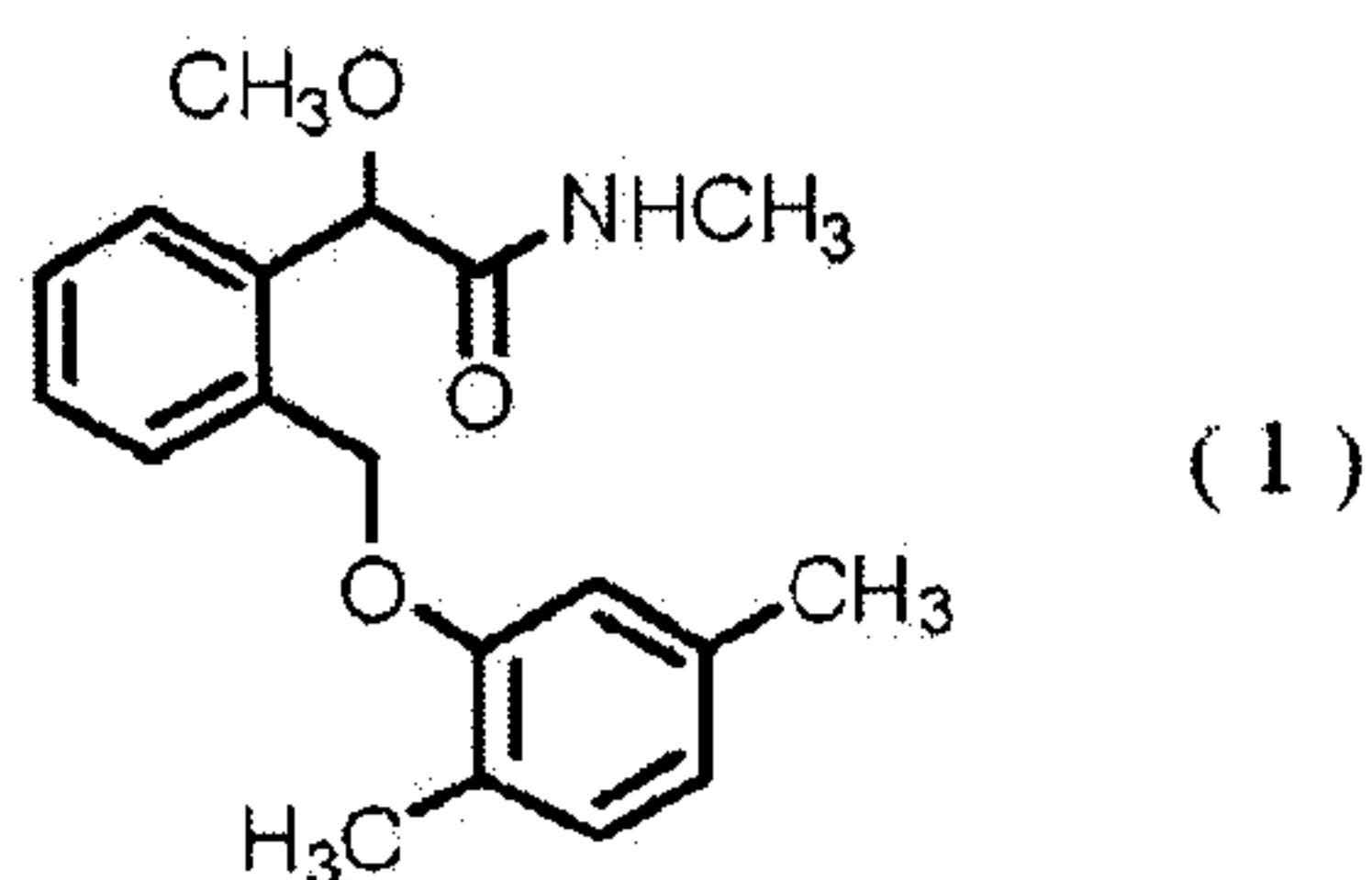


and zoxamide to a seed.

15 [6] The method for controlling a plant fungal disease according to the above [4] or [5], wherein a weight ratio of the compound represented by the formula (1) to zoxamide is that of the compound represented by the formula (1)/zoxamide = 0.0125/1 to 500/1.

[7] The method for controlling a plant fungal disease according to any one of the above [4] to [6], wherein the compound represented by the formula (1) is that represented by the formula (1) having R- absolute configuration.

5 [8] A use of a combination of the compound represented by the formula (1):

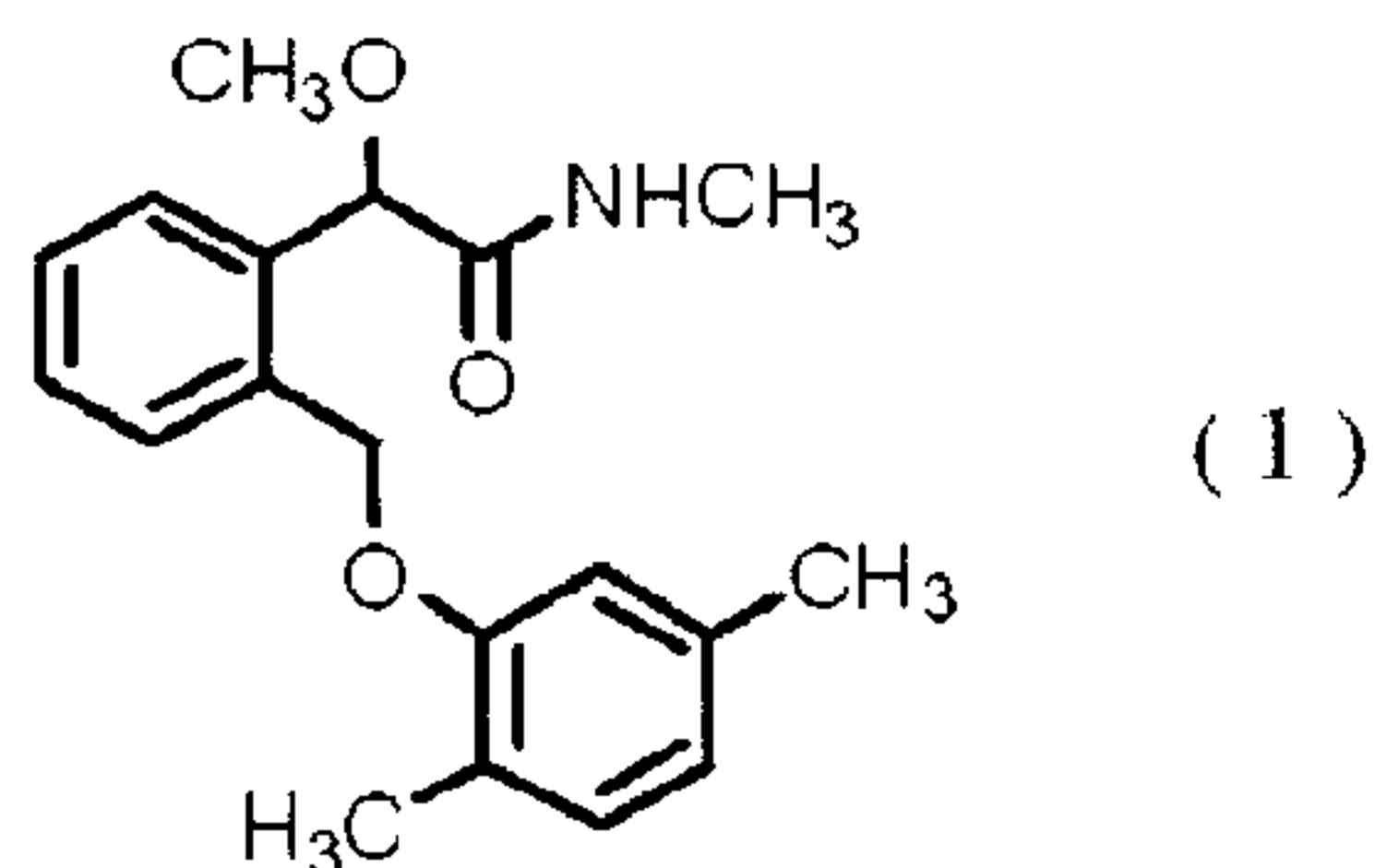


and zoxamide for controlling a plant fungal disease.

10 The present invention enables to control a plant disease.

Best Mode for Carrying Out the Invention

15 A plant disease controlling composition of the present invention (hereinafter, referred to as a composition of the present invention) comprises a compound represented by the formula (1):



(hereinafter, referred to as an amide compound of the present invention) and one or more benzamide compound selected from the following group (A) (hereinafter, referred to as a benzamide compound of the present invention),

group (A): a group consisting of flutolanil, mepronil, and zoxamide.

The present amide compounds are those described in, for example, WO 95/27693 pamphlet and WO 02/10101 pamphlet, and thus can be prepared according to the method described therein.

The present amide compound has one asymmetric carbon. Herein, a compound represented by the formula (1) enriched in wherein an enantiomer having R- absolute configuration is referred to as the amide compound having R- absolute configuration.

The present amide compound encompasses the following compounds:

a compound represented by the formula (1) which contains an enantiomer having R- absolute configuration in 70% and more;

a compound represented by the formula (1) which contains an enantiomer having R- absolute configuration in 90% and more;

5 a compound represented by the formula (1) which contains an enantiomer having R- absolute configuration in 95% and more.

Flutolanil, mepronil, and zoxamide used in the present invention are all known compounds, and are described in, 10 for example, "The PESTICIDE MANUAL - 15th EDITION (BCPC published) ISBN 1901396188", pages 559, 729 and 1198 respectively. These compounds are either commercially available, or can be prepared by a known method.

The weight ratio of the present amide compound to the 15 present benzamide compound in the composition of the present invention is usually that of the present compound/the present benzamide compound = 0.0125/1 to 500/1, preferably 0.025/1 to 100/1, and more preferably 0.1/1 to 10/1.

20 Although the composition of the present invention may be a mixture of only the present amide compound and the present benzamide compound, the composition of the present invention is usually prepared by mixing the present amide compound, the present benzamide compound and an inert 25 carrier, and if necessary, adding a surfactant or other

pharmaceutical additives, and then formulating into the form of oil solution, emulsifiable concentrate, flowable formulation, wettable powder, granulated wettable powder, dust formulation, granules and so on. Such formulations
5 can be used alone or with an addition of other inert components as an agent for controlling a plant disease.

Usually, the composition of the present invention can contain 0.1 to 99 % by weight, preferably 0.2 to 90 % by weight, and more preferably 1 to 80 % by weight of the
10 present amide compound and the present benzamide compound in total.

Examples of a solid carrier used for the formulation include finely-divided powder or particles of clay consisting of minerals (e.g., kaolin clay, attapulgite clay,
15 bentonite, montmorillonite, acid clay, pyrophyllite, talc, diatomaceous earth, or calcite), natural organic substances (e.g., corncob powder, or walnut shell powder), synthetic organic substances (e.g., urea), salts (e.g., calcium carbonate, or ammonium sulfate), synthetic inorganic
20 substances (e.g., synthetic hydrous silicon oxide) and so on. Examples of a liquid carrier include aromatic hydrocarbons (e.g., xylene, alkyl benzene, or methylnaphthalene), alcohols (e.g., 2-propanol, ethylene glycol, propylene glycol, or ethylene glycol monoethyl
25 ether), ketones (e.g., acetone, cyclohexanone, or

isophorone), vegetable oils (e.g., soybean oil, or cotton oils), petroleum-derived aliphatic hydrocarbons, esters, dimethylsulfoxide, acetonitrile and water.

Examples of the surfactant include anionic surfactants (e.g., alkyl sulfate salts, alkylaryl sulfate salts, dialkyl sulfosuccinate salts, polyoxyethylene alkylaryl ether phosphates, lignin sulfonate, or naphthalenesulfonate formaldehyde polycondensation), nonionic surfactants (e.g., polyoxyethylene alkylaryl ether, polyoxyethylene alkyl polyoxypropylene block copolymer, or sorbitan fatty acid ester) and cationic surfactants (e.g., alkyltrimethyl ammonium salts).

Examples of the other pharmaceutical additives include water-soluble polymers (e.g., polyvinyl alcohol, or polyvinyl pyrrolidone), polysaccharides (e.g. arabic gum, alginic acid and salts thereof, CMC (carboxymethyl-cellulose), or xanthan gum), inorganic substances (e.g., aluminum magnesium silicate, or alumina-sol), antiseptic agents, coloring agents, and PAP (isopropyl acid phosphate), and stabilizing agents (e.g., BHT).

The composition of the present invention can also be prepared by separately formulating the present amide compound and the present benzamide compound into different formulations by the above procedures, if necessary, further diluting each with water, thereafter, mixing the separately

prepared different formulations or the dilute solutions.

The composition of the present invention may further contain one or more other fungicide and/or insecticide.

The composition of the present invention is used to
5 control a plant disease by applying it to a plant or soil for cultivating the plant.

The plant diseases which can be controlled by the present invention are exemplified below:

Rice diseases: blast (*Magnaporthe oryzae*),
10 helminthosporium leaf spot (*Cochliobolus miyabeanus*), sheath blight (*Rhizoctonia solani*) and bakanae disease (*Gibberella fujikuroi*);

Diseases of barley, wheat, oats and rye: powdery mildew (*Erysiphe graminis*), Fusarium head blight (*Fusarium*
15 *graminearum*, *F. avenaceum*, *F. culmorum*, *F. asiaticum*, *Microdochium nivale*), rust (*Puccinia striiformis*, *P. graminis*, *P. recondite*, *P. hordei*), snow blight (*Typhula sp.*, *Micronectriella nivalis*), loose smut (*Ustilago tritici*, *U. nuda*), bunt (*Tilletia caries*),
20 eyespot (*Pseudocercosporella herpotrichoides*), scald (*Rhynchosporium secalis*), leaf blotch (*Septoria tritici*), glume blotch (*Leptosphaeria nodorum*) and net blotch (*Pyrenophora teres Drechsler*);

Citrus diseases: melanose (*Diaporthe citri*), scab
25 (*Elsinoe fawcetti*) and Penicillium rot (*Penicillium*

digitatum, *P. italicum*);

Apple diseases: blossom blight (*Monilinia mali*),
 canker (*Valsa ceratosperma*), powdery mildew (*Podosphaera*
leucotricha), Alternaria leaf spot (*Alternaria alternata*
 5 apple pathotype), scab (*Venturia inaequalis*), bitter rot
 (*Colletotrichum acutatum*) and late blight (*Phytophthora*
cactorum);

Pear diseases: scab (*Venturia nashicola*, *V. pirina*),
 black spot (*Alternaria alternate* Japanese pear pathotype),
 10 rust (*Gymnosporangium haraeaeum*) and late blight
 (*Phytophthora cactorum*);

Peach diseases: brown rot (*Monilinia fructicola*), scab
 (*Cladosporium carpophilum*) and Phomopsis rot (*Phomopsis*
sp.);

15 Grape diseases: anthracnose (*Elsinoe ampelina*), ripe
 rot (*Glomerella cingulata*), powdery mildew (*Uncinula*
necator), rust (*Phakopsora ampelopsidis*), black rot
 (*Guignardia bidwellii*), downy mildew (*Plasmopara viticola*)
 and Gray mold (*Botrytis cinerea*);

20 Diseases of Japanese persimmon: anthracnose
 (*Gloeosporiura kaki*) and leaf spot (*Cercospora kaki*,
Mycosphaerella nawae);

Diseases of gourd family: anthracnose (*Colletotrichum*
lagenarium), powdery mildew (*Sphaerotheca fuliginea*), gummy
 25 stem blight (*Mycosphaerella melonis*), Fusarium wilt

(*Fusarium oxysporum*), downy mildew (*Pseudoperonospora cubensis*), Phytophthora rot (*Phytophthora* sp.) and damping-off (*Pythium* sp.);

Tomato diseases: early blight (*Alternaria solani*),
5 leaf mold (*Cladosporium fulvum*) and late blight
(*Phytophthora infestans*);

Egg plant disease: brown spot (*Phomopsis vexans*) and
powdery mildew (*Erysiphe cichoracearum*);

Diseases of Cruciferous Vegetables: *Alternaria* leaf
10 spot (*Alternaria japonica*), white spot (*Cercospora*
brassicae), clubroot (*Plasmodiophora brassicae*), and downy
mildew (*Peronospora parasitica*);

Rapeseed diseases: *Sclerotinia* rot (*Sclerotinia*
sclerotiorum), black spot (*Alternaria brassicae*), powdery
15 mildew (*Erysiphe cichoracearum*), blackleg (*Leptosphaeria*
maculans);

Welsh onion diseases: rust (*Puccinia allii*);

Soybean diseases: purple seed stain (*Cercospora*
kikuchii), Sphaceloma scab (*Elsinoe glycines*), pod and stem
20 blight (*Diaporthe phaseolorum* var. *sojae*), rust (*Phakopsora*
pachyrhizi) and phytophthora stem rot (*Phytophthora sojae*);

Adzuki-bean diseases: Gray mold (*Botrytis cinerea*),
Sclerotinia rot (*Sclerotinia sclerotiorum*);

Kidney bean diseases: Gray mold (*Botrytis cinerea*),
25 *Sclerotinia* rot (*Sclerotinia sclerotiorum*), anthracnose

(*Colletotrichum lindemthianum*);

Peanut diseases: leaf spot (*Cercospora personata*),
brown leaf spot (*Cercospora arachidicola*) and southern
blight (*Sclerotium rolfsii*);

5 Garden pea diseases: powdery mildew (*Erysiphe pisi*);

Potato diseases: early blight (*Alternaria solani*) and
late blight (*Phytophthora infestans*);

Strawberry diseases: powdery mildew (*Sphaerotheca*
humuli);

10 Tea diseases: net blister blight (*Exobasidium*
reticulatum), white scab (*Elsinoe leucospila*), gray blight
(*Pestalotiopsis* sp.) and anthracnose (*Colletotrichum theae-*
sinensis);

Cotton diseases: fusarium wilt (*Fusarium oxysporum*),
15 damping-off (*Rhizoctonia solani*);

Tobacco diseases: brown spot (*Alternaria longipes*),
powdery mildew (*Erysiphe cichoracearum*), anthracnose
(*Colletotrichum tabacum*), downy mildew (*Peronospora*
tabacina) and late blight (*Phytophthora nicotianae*);

20 Sugar beet diseases: Cercospora leaf spot (*Cercospora*
beticola), leaf blight (*Thanatephorus cucumeris*), Root rot
(*Aphanidermatum cochlioides*);

Rose diseases: black spot (*Diplocarpon rosae*) and
powdery mildew (*Sphaerotheca pannosa*);

Chrysanthemum diseases: leaf blight (*Septoria chrysanthemi-indici*) and white rust (*Puccinia horiana*);

Various plant diseases: diseases caused by *Pythium* spp. (*Pythium aphanidermatum*, *Pythium debarianum*, *Pythium*
5 *graminicola*, *Pythium irregulare*, *Pythium ultimum*), Gray mold (*Botrytis cinerea*), Sclerotinia rot (*Sclerotinia sclerotiorum*),

Japanese radish diseases: *Alternaria* leaf spot (*Alternaria brassicicola*);

10 Turfgrass diseases: dollar spot (*Sclerotinia homeocarpa*), brown patch and large patch (*Rhizoctonia solani*); and

Banana diseases: Sigatoka disease (*Mycosphaerella fijiensis*, *Mycosphaerella musicola*, *Pseudocercospora musae*).

15 Examples of the plants to which the composition of the present invention can be applied are as follows:

Crops: corn, rice, wheat, barley, rye, oat, sorghum, cotton, soybean, adzuki-bean, kidney bean, peanut, buckwheat, beet, rapeseed, sunflower, sugar cane, and
20 tobacco, etc.;

Vegetables: solanaceous vegetables (eggplant, tomato, pimento, pepper, and potato, etc.), cucurbitaceous vegetables (cucumber, pumpkin, zucchini, watermelon, melon, and squash, etc.), cruciferous vegetables (Japanese radish,
25 white turnip, horseradish, kohlrabi, Chinese cabbage,

cabbage, leaf mustard, broccoli, and cauliflower, etc.),
 asteraceous vegetables (burdock, crown daisy, artichoke,
 and lettuce, etc.), liliaceous vegetables (green onion,
 onion, garlic, and asparagus), ammiaceous vegetables
 5 (carrot, parsley, celery, and parsnip, etc.),
 chenopodiaceous vegetables (spinach, and Swiss chard, etc.),
 lamiaceous vegetables (*Perilla frutescens*, mint, and basil,
 etc.), strawberry, sweet potato, *Dioscorea japonica*, and
colocasia, etc.;

10 Flowers;

 Foliage plants;

 Turfgrass;

 Fruits: pomaceous fruits (apple, pear, Japanese pear,
 Chinese quince, and quince, etc.), stone fleshy fruits
 15 (peach, plum, nectarine, *Prunus mume*, cherry fruit, apricot,
 and prune, etc.), citrus fruits (*Citrus unshiu*, orange,
 lemon, lime, and grapefruit, etc.), nuts (chestnut, walnuts,
 hazelnuts, almond, pistachio, cashew nuts, and macadamia
 nuts, etc.), berries (blueberry, cranberry, blackberry, and
 20 raspberry, etc.), grape, kaki fruit, olive, Japanese plum,
 banana, coffee, date palm, and coconuts, etc.; and

 Trees other than fruit trees: tea, mulberry, flowering
 plant, roadside trees (ash, birch, dogwood, *Eucalyptus*,
Ginkgo biloba, lilac, maple, *Quercus*, poplar, Judas tree,
 25 *Liquidambar formosana*, plane tree, zelkova, Japanese

arborvitae, fir wood, hemlock, juniper, Pinus, Picea, and Taxus cuspidate), etc.

The aforementioned "plants" include plants which resistance has been imparted by genetic recombination.

5 Exemplary embodiments of the composition of the present invention are as follows:

a composition comprising the present amide compound and flutolanil wherein a weight ratio thereof is that of the present amide compound/flutolanil = 0.0125/1 to 500/1;

10 a composition comprising the present amide compound and flutolanil wherein a weight ratio thereof is that of the present amide compound/flutolanil = 0.025/1 to 100/1;

a composition comprising the present amide compound and flutolanil wherein a weight ratio thereof is that of the present amide compound/flutolanil = 0.1/1 to 10/1;

15 a composition comprising the present amide compound and mepronil wherein a weight ratio thereof is that of the present amide compound/mepronil = 0.0125/1 to 500/1;

a composition comprising the present amide compound and mepronil wherein a weight ratio thereof is that of the present amide compound/mepronil = 0.025/1 to 100/1;

20 a composition comprising the present amide compound and mepronil wherein a weight ratio thereof is that of the present amide compound/mepronil = 0.1/1 to 10/1;

a composition comprising the present amide compound and zoxamide wherein a weight ratio thereof is that of the present amide compound/zoxamide = 0.0125/1 to 500/1;

5 a composition comprising the present amide compound and zoxamide wherein a weight ratio thereof is that of the present amide compound/zoxamide = 0.025/1 to 100/1; and

a composition comprising the present amide compound and zoxamide wherein a weight ratio thereof is that of the present amide compound/zoxamide = 0.1/1 to 10/1.

10 The method for controlling a plant disease of the present invention (hereinafter, referred to as the method for controlling of the present invention) is carried out by applying an effective amount of each of the present amide compound and the present benzamide compound to the plants
15 or the soil for cultivating the plant.

Such plants may be, for example, plant foliage, plant seeds, or plant bulbs. The bulbs herein are intended to mean bulb, corm, rootstock, tubera, tuberous root and rhizophore.

20 In the method for controlling of the present invention, the present amide compound and the present benzamide compound may be applied separately around the same time to the plant or the soil for cultivating the plant, but is usually applied as the composition of the present invention
25 in terms of application convenience.

In the method for controlling of the present invention, examples of the method of applying the present amide compound and the benzamide compound include foliage treatment, soil treatment, root treatment and seed
5 treatment.

Such foliage treatment includes, for example, a method of applying the composition of the present invention to a surface of the plant to be cultivated by a foliage application or a stem application.

10 Such root treatment includes, for example, a method of soaking a whole or a root of the plant in a medicinal solution comprising the present amide compound and the present benzamide compound, and a method of attaching a solid formulation comprising the present amide compound,
15 the present benzamide compound and the solid carrier to a root of the plant.

Such soil treatment includes, for example, soil broadcast, soil incorporation, and irrigation of the medicinal solution to a soil.

20 Such seed treatment includes, for example, an application of the composition of the present invention to a seed or a bulb of the plant to be prevented from the plant disease, specifically, for example, a spray treatment by spraying a suspension of the composition of the present
25 invention in a mist form to a surface of a seed or a

surface of a bulb, a smear treatment by smearing the wettable powder, the emulsifiable concentrate or the flowable formulation of the composition of the present invention with addition of small amounts of water or alone
5 to a seed or a bulb, an immersion treatment of a seed into a solution of the composition of the present invention for a given time, a film-coating treatment, and a pellet-coating treatment.

Each dose of the present amide compound and the
10 present benzamide compound in the method for controlling of the present invention may be varied depending on a kind of plant to be treated, a kind or a frequency of an occurrence of a plant disease as a control subject, a dosage form, a treatment period, a treatment method, a treatment site, a
15 climate condition, etc. In the case of an application to foliage of the plant or soil for cultivating the plant, a total amount of the present amide compound and the benzamide compound is usually 1 to 500 g, preferably 2 to 200 g, and more preferably 10 to 100 g, per 1000 m². Each
20 dose of the present amide compound and the present benzamide compound in the treatment for seed is usually 0.001 to 10 g, and preferably 0.01 to 1 g, per 1kg of seeds.

The emulsifiable concentrate, the wettable powder or the flowable formulation, etc., is usually applied by
25 diluting them with water, and then spreading them. In this

case, usually, each concentration of the present amide compound and the present benzamide compound contain 0.0005 to 2% by weight, and preferably 0.005 to 1% by weight of the present amide compound and the present benzamide compound in total. The dust formulation or the granular formulation, etc, is usually applied alone without dilution.

EXAMPLES

Next, the present invention is described in more detail below by the following examples including formulation examples and a test example, but the present invention should not be construed to be limited thereto.

The formulation examples are given below. It is to be noted that in the formulation examples, the term "part" indicates "part by weight".

Formulation 1

5 Parts of the present amide compound, 5 parts of flutolanil, 35 parts of a mixture of white carbon and polyoxyethylene alkylether sulfate ammonium salts (weight ratio 1:1), and 55 parts of water were mixed and the resulting solution was then subjected to fine grinding according to a wet grinding method, so as to obtain a flowable formulation. The same above operations were carried out with mepronil or zoxamide instead of flutolanil,

so as to obtain various types of flowable formulations.

Formulation 2

10 Parts of the present amide compound, 5 parts of
5 flutolanil and 1.5 parts of sorbitan trioleate were mixed
into 28 parts of an aqueous solution that contained 2 parts
of polyvinyl alcohol, and the mixed solution was then
subjected to fine grinding according to a wet grinding
method. Thereafter, 45.50 parts of an aqueous solution
10 that contained 0.05 parts of xanthan gum and 0.1 part of
aluminum magnesium silicate was added to the resultant
product, and 10 parts of propylene glycol was further added
thereto. The obtained mixture was blended by stirring, so
as to obtain the flowable formulation. The same above
15 operations were carried out with mepronil or zoxamide
instead of flutolanil, so as to obtain various types of
flowable formulations.

Formulation 3

20 10 Parts of the present amide compound, 40 parts of
flutolanil, 3 parts of calcium lignosulfonate, 2 parts of
sodium lauryl sulfate, and 45 parts of synthetic hydrous
silicon oxide were fully crushed and mixed, so as to obtain
wetable powders. The same above operations were carried
25 out with mepronil or zoxamide instead of flutolanil, so as

to obtain various types of wettable powders.

The test examples are given below.

Test Example 1

5 True leaf of cucumber is punched out with cork borer to 13mm in diameter to prepare a leaf disk. In 24 well microwell plate that is dispensed with 1ml 0.8% water agar, the leaf disk is placed such that the upper side of the leaf is in an upward direction. Thereto is added 20 micro
10 liter a testing solution prepared by mixing a dimethyl sulfoxide solution of the present compound (racemate) and a dimethyl sulfoxide solution of flutolanil to a predetermined concentration to treat the leaf disk.

After confirming that the testing medical solution is
15 dried, conidium of gray mold fungus (*Botrytis cinerea*) is suspended into potato dextrose broth (DIFCO) in a density of about 10^5 conidium/mL and is then subjected to a spray inoculation. After leaving the leaf disk to stand in a growth chamber set up at 15°C for four days, an onset area
20 on the leaf is measured and then calculated an onset area rate (hereinafter, referred to as an onset area rate of treated group).

The same operation is carried out with 20 micro liter water instead of 20 micro liter a testing medicine solution
25 to calculate an onset area rate (hereinafter, referred to

an onset area rate of non-treated group).

A preventive value is calculated from the above onset area rate of treated group and the onset area rate of non-treated group by the following equation:

$$5 \quad \text{Preventive value (\%)} = 100 \times (A-B)/A$$

wherein

A: an onset area rate of treated group

B: an onset area rate of non-treated group

The results are shown in Table 1.

10 Table 1

	treatment concentration (ppm)		preventive value (%)
	the present amide compound	flutolanil	
1	2.5	0.5	97
2	1.0	5.0	92

Test Example 2

The same operations as described in Test Example 1 are carried out with zoxamide instead of flutolanil, so as to calculate a preventive value.

Also for comparison, the same operations as described in Test Example 1 are carried out with the exception that the testing medicine solution is substituted with a predetermined concentration of each dimethyl sulfoxide solution of the present compound (racemate) or zoxamide, so as to calculate respective preventive values.

The results are shown in Table 2.

Table 2

	treatment concentration (ppm)		preventive value (%)
	the present amide compound	zoxamide	
1	2.5	0.5	100
2	1.0	5.0	100
	2.5	-	56
	1.0	-	46
	-	0.5	10
	-	5.0	15

Next, the Reference Example is given below.

5 Reference Example

For comparison, the same operations as described in Test Example 1 are carried out with the exception that the testing medicine solution is substituted with a predetermined concentration of a dimethyl sulfoxide solution of flutolanil, so as to calculate a preventive value.

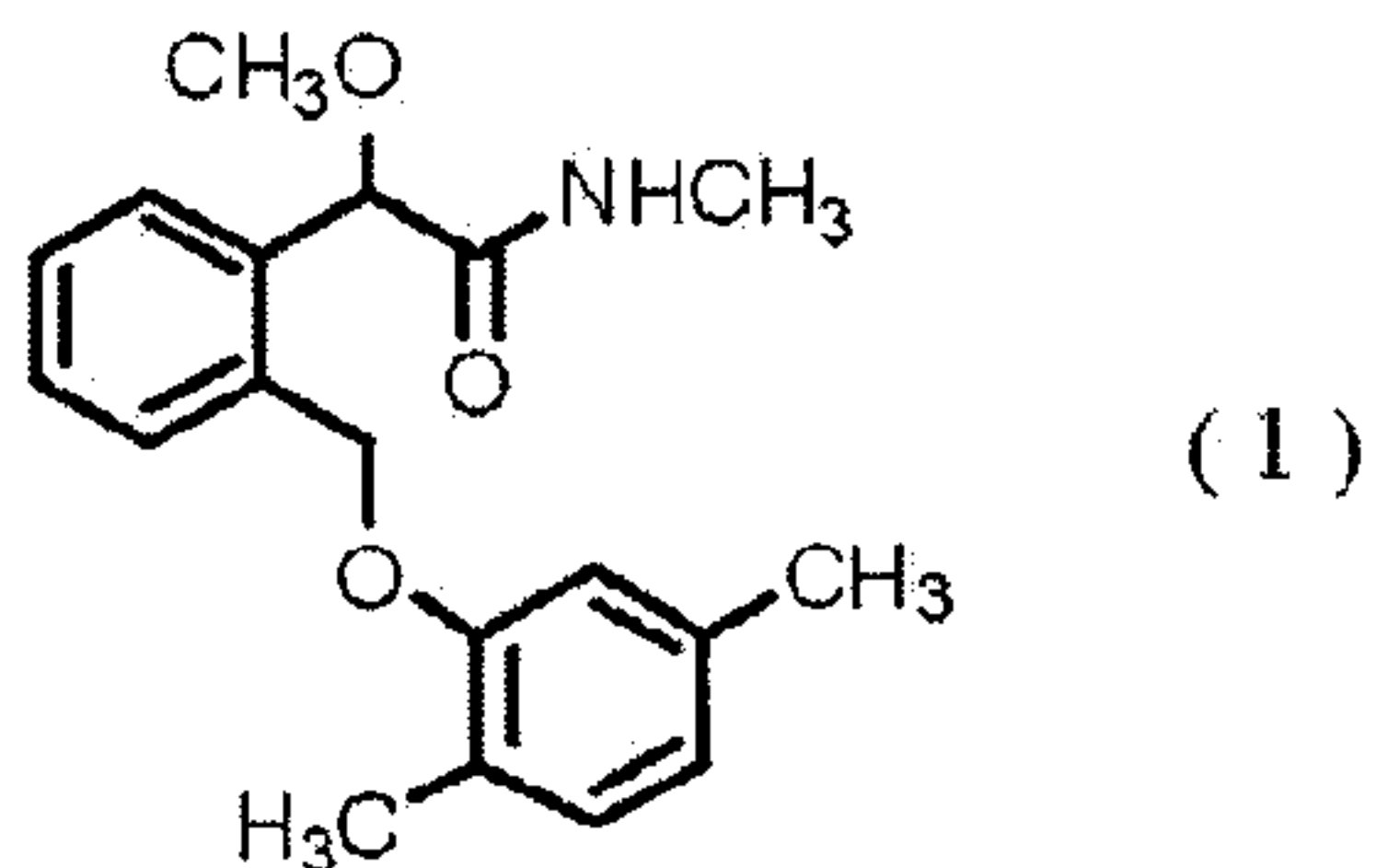
The results are shown in Table 3.

Table 3

	treatment concentration (ppm)	preventive value (%)
	flutolanil	
	0.5	10
	5.0	15

CLAIMS

1. A plant fungal disease controlling composition comprising a compound represented by the formula (1):



5

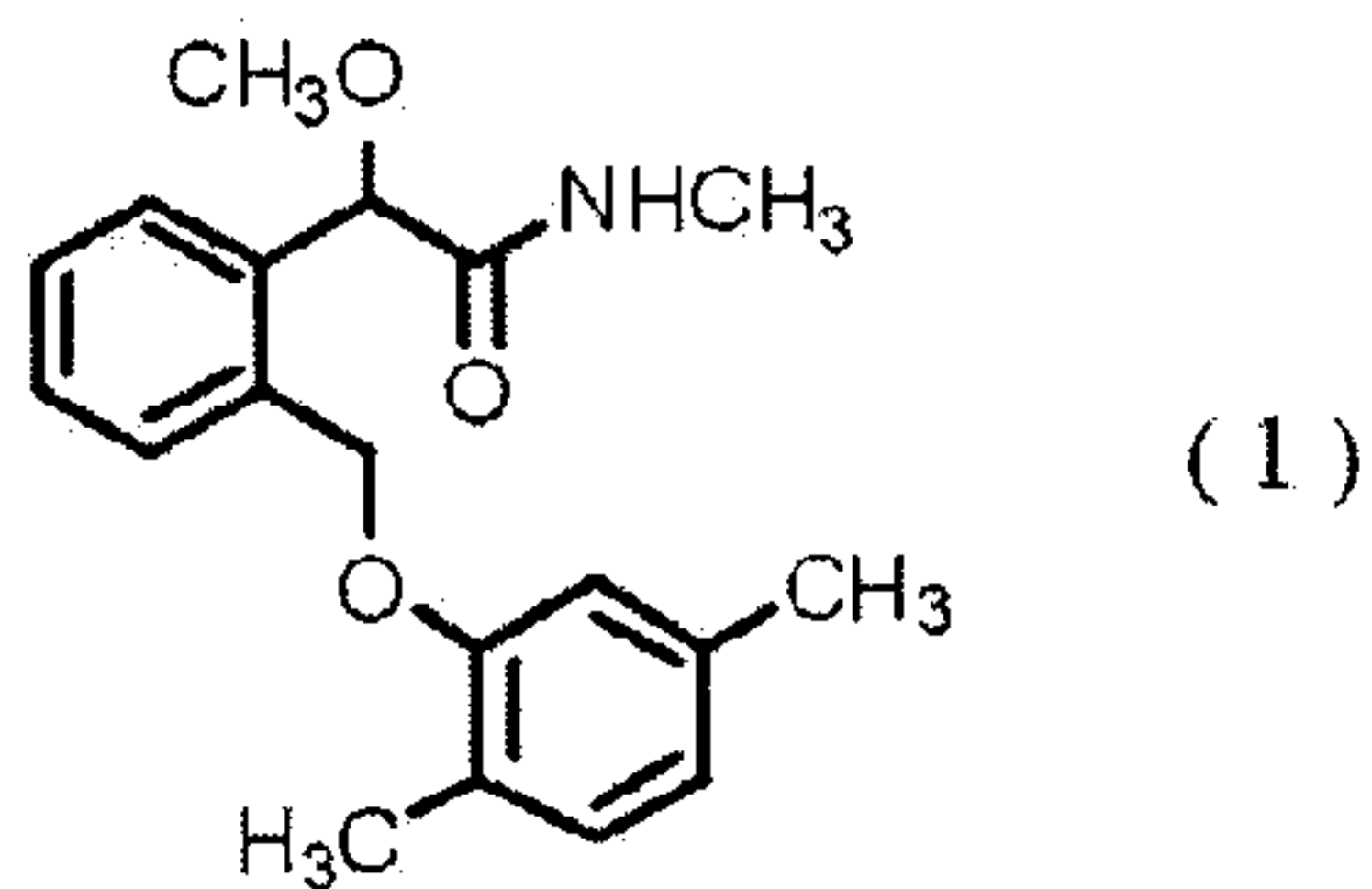
and zoxamide.

2. The plant fungal disease controlling composition according to claim 1, wherein a weight ratio of the compound represented by the formula (1) to zoxamide is that of the compound represented by the formula (1)/zoxamide = 0.0125/1 to 500/1.

3. The plant fungal disease controlling composition according to claim 1 or 2, wherein the compound represented by the formula (1) is that represented by the formula (1) having R- absolute configuration.

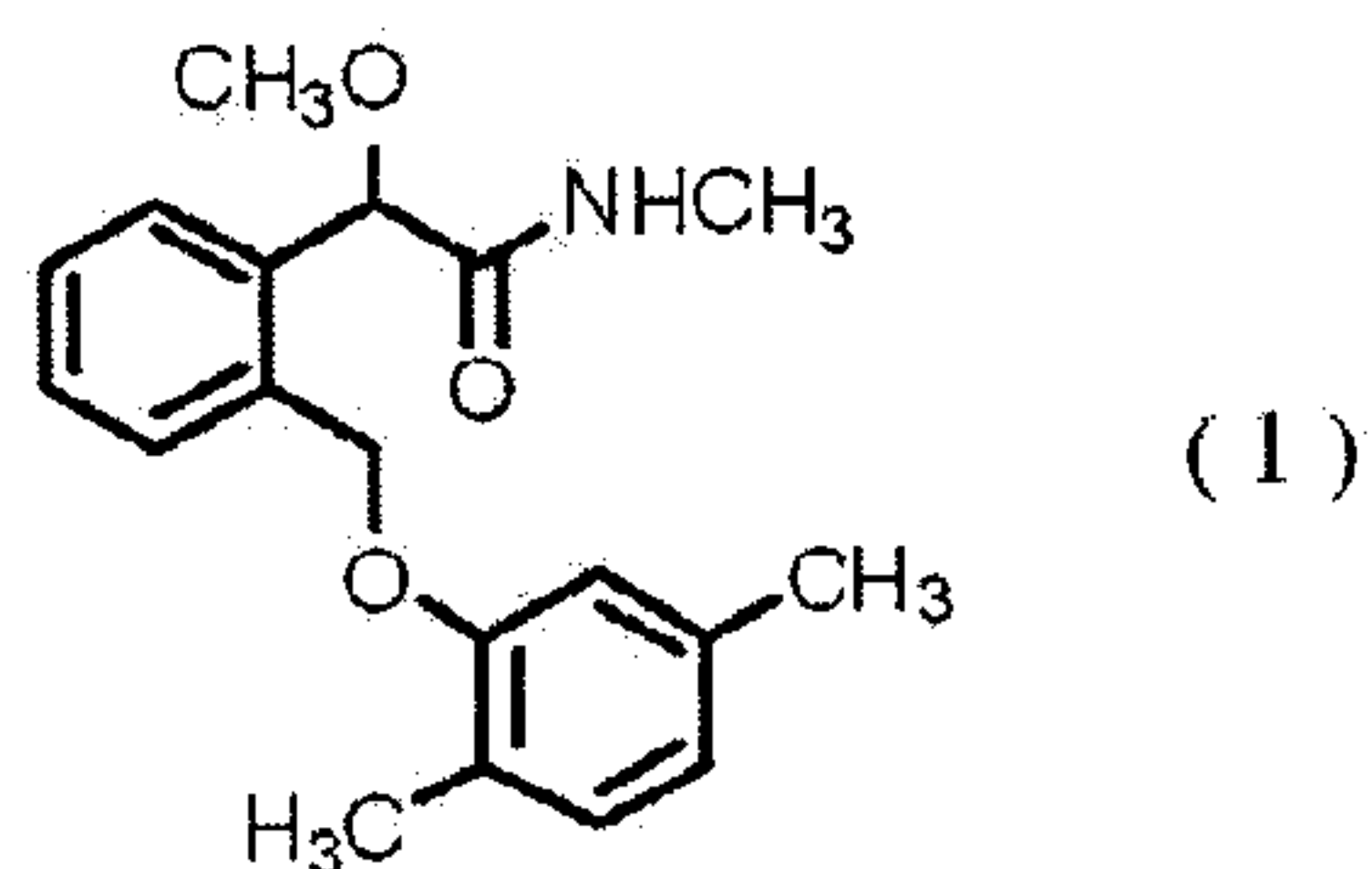
15

4. A method for controlling a plant fungal disease which comprises applying the compound of the formula (1):



and zoxamide to a plant or a soil for cultivating the plant.

5. A method for controlling a plant fungal disease which comprises applying the compound of formula (1):

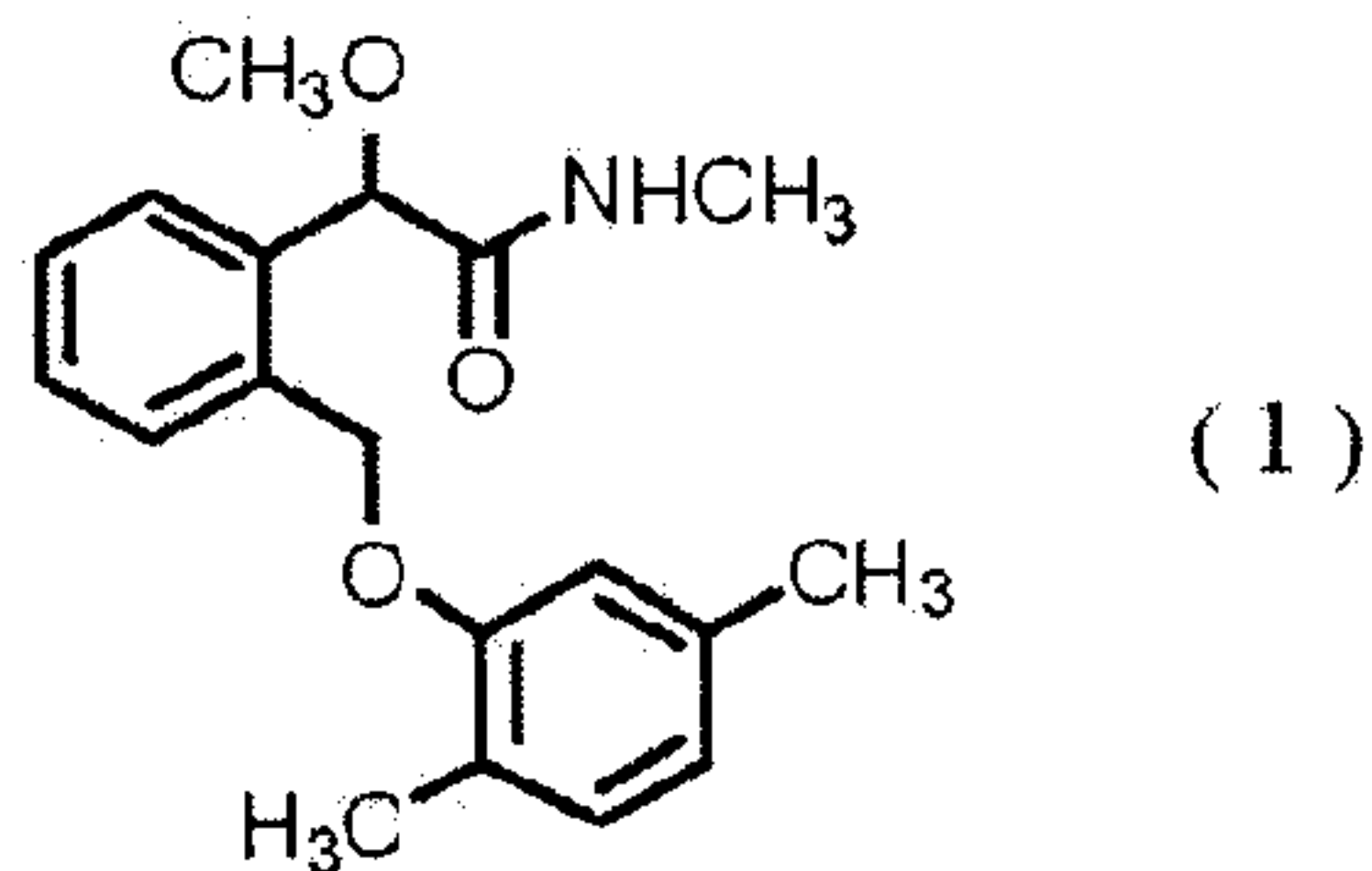


and zoxamide to a seed.

5 6. The method for controlling a plant fungal disease according to claim 4 or 5, wherein a weight ratio of the compound represented by the formula (1) to zoxamide is that of the compound represented by the formula (1)/zoxamide = 0.0125/1 to 500/1.

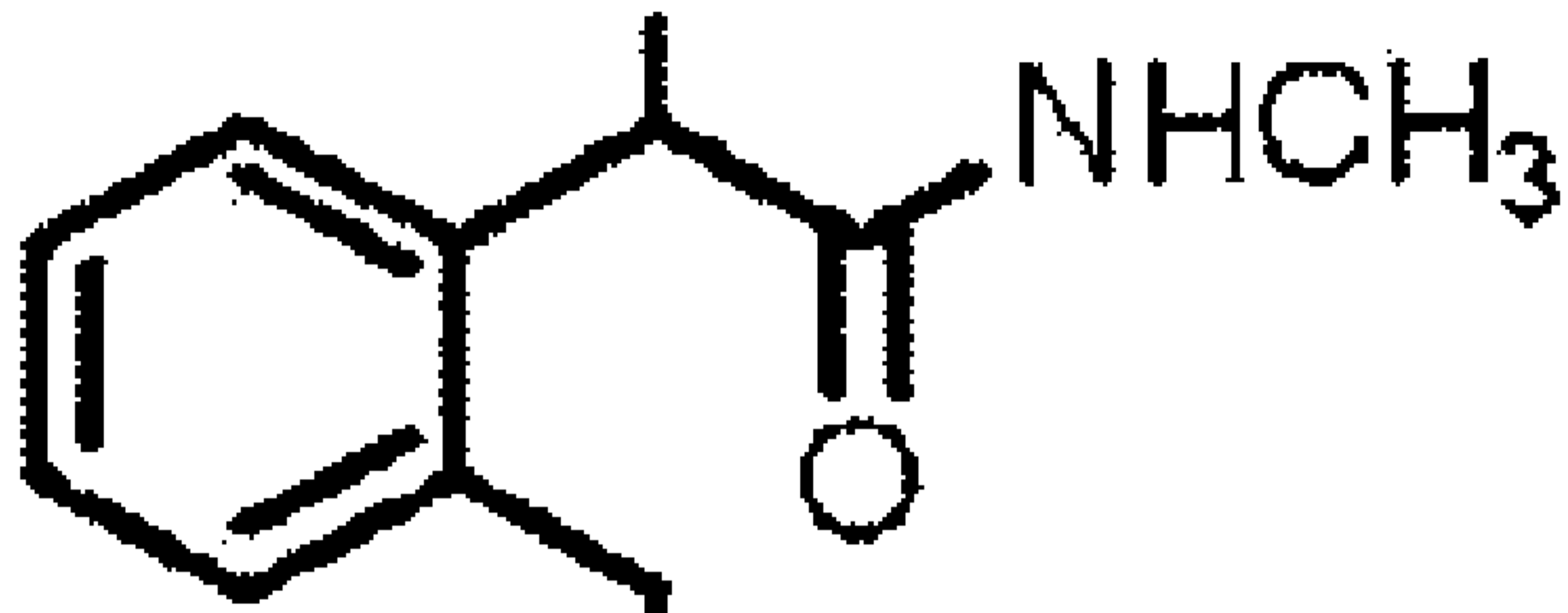
10 7. The method for controlling a plant fungal disease according to any one of claims 4 to 6, wherein the compound represented by the formula (1) is that represented by the formula (1) having R- absolute configuration.

15 8. A use of a combination of the compound represented by the formula (1):



and zoxamide for controlling a plant fungal disease.

CH₃O



(1)

