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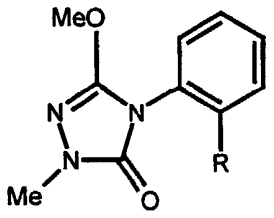
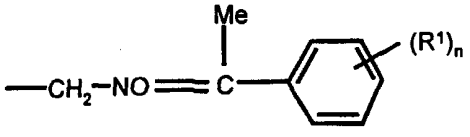
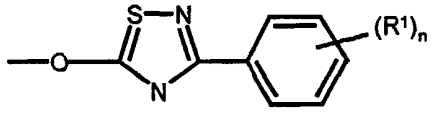
(54) Title: WOOD TREATMENT



(I)



(a)



(b)

(57) Abstract: The use for combating wood damaging fungi of compounds of formula (I), where R is (a) or (b), where each R^1, which may be the same or different, is C_{1-4}-alkyl, C_{1-4}-alkoxy, trifluoromethyl or halogen and n is 0 to 3.

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Title: Wood treatment

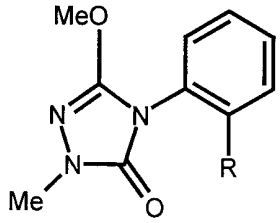
Field of the Invention

This invention relates to wood preservation.

In WO 96/36615 and 97/00612, are disclosed various cyclic ureas as fungicides for combating plants diseases.

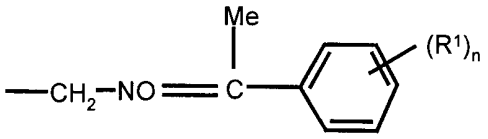
We have now found that a specific group of compounds are very effective in controlling wood damaging fungi and particularly basidiomycete fungi, which cause rot, as well as sapstain fungi which spoil the appearance of the wood.

The invention thus provides the use for combating wood damaging fungi of compounds of formula I



(I)

where R is

a) 

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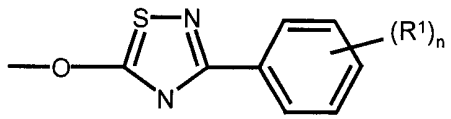
b) 

where each R^1, which may be the same or different, is C_{1-4}-alkyl, C_{1-4}-alkoxy, trifluoromethyl or halogen and n is 0 to 3.

Examples of fungi that can be controlled using the compounds of formula I include *Coriolus versicolor*, *Poria placenta*, *Lentinus lepideus*, *Trametes versicolor*, *Serpula lacrymans*, *Coniophora puteana* and *Gloeophyllum trabeum*.

In general the wood rotting fungi appear as a complex of two or more of these species.

We have also found that the compound of formula I is particularly effective when used in combination with other wood fungicides, such as fluquinconazole, tebuconazole, dichlone, carbendazim, prochloraz, sipconazole and cyproconazole.

The compound of formula I can be applied in a suitable, usually liquid formulation usually containing surfactants and other conventional additives and usually after dilution with water. The concentration may vary over a wide range, e.g. from 0.001 to 10%, preferably from 0.1.to 1%, by weight.

The invention is illustrated in the following examples.

Example 1

In vivo test of activity against wood destroying fungi.

10 cm feather edge boards of fresh cut pine were cut into 20 cm lengths. Each replicate consisted of 6 boards stacked alternately to form a block 6 boards high. 3 replicates were used per treatment.

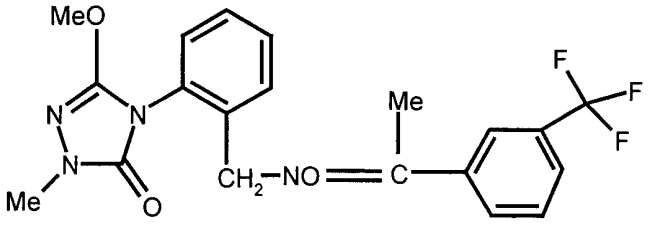
Each replicate was treated separately but with the same treatment solution of a compound to be tested. The complete bundle of 6 boards was immersed in the test solution with a 1 cm longitudinal strip being kept clear. Boards were separated slightly to allow free movement of the treatment solution between them. Treatment time was approx. 10 seconds after which the boards were removed from the treatment solution, excess liquid allowed to drain off and the boards put in a polythene bag. This bag had a small hole in the underside to allow excess moisture to drain away, while allowing a high humidity to be maintained.

Bagged boards were kept in a glasshouse at 18^{0}C with natural daylight. Bundles were kept as a single layer and not stacked. Bundles were turned periodically to ensure as consistent a moisture content within the bundle as possible.

Assessment was made 5 weeks after treatment. For each replicate, the adjacent faces of neighbouring boards were visually assessed for % infection by sapstain, % of board

surface covered by basidiomycete colonisation, and % surface colonised by sooty moulds. As there were 6 boards in a bundle, this gave 5 readings per replicate. % control values were calculated based on infection levels on untreated boards.

The treatment consisted of 10 EC of compound A (Example 59 of WO 9636615), diluted to the desired concentration.



(A)

For comparison a commercial product Evotek (a 23% suspoemulsion of prochloraz and carbendazim) was used.

The results are as follows.

Treatment	Rate	% control of		
		Sapstain	**Basidiomycetes**	**Sooty moulds**
Compound A	2%	100	100	98
	1%	93	97	93
	0.50%	93	96	65
Evotek	2%	100	0	97
	1%	99	0	99
	0.50%	98	0	100

It will be seen that the compound gives excellent control of sapstain and sooty mould, comparable with Evotek, but it also controls Basidiomycetes unlike Evotek. It is unusual to observe such activity against the complete range of wood pathogenic fungi.

Example 2

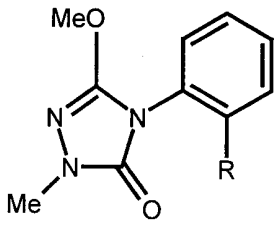
In vitro test of activity against wood destroying fungi.

Compound A was incorporated into malt agar at various rates and the agar placed into Petri dishes. Into the centre of each plate was implanted a 4 mm plug of the mycelium of a wood rotting fungus. The plates were kept at 20°C in a darkened room for 7 days when the control of the fungus by Compound A was assessed. The results are shown below.

Rate ppm	% Control based on colony diameter			
	Coniophora puteana	**Coriolus versicolor**	**Gloeophyllum trabeum**	**Poria placenta**
100	100	100.0	100.0	100
25	100	93	92	93
10	100	76	56	70
1	100	42	38	54

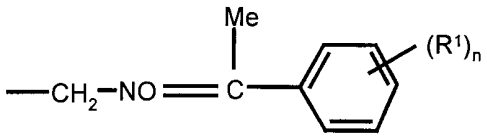
Claims

1. The use for combating wood damaging fungi of compounds of formula I



(I)

where R is

a) 

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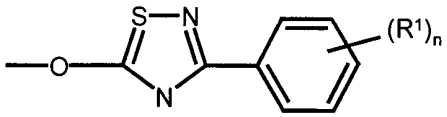
b) 

where each R^1, which may be the same or different, is C_{1-4}-alkyl, C_{1-4}-alkoxy, trifluoromethyl or halogen and n is 0 to 3.

INTERNATIONAL SEARCH REPORT

Int. ional Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A01N43/653 A01N43/836 B27K3/34

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 96 36615 A (DU PONT ;BROWN RICHARD JAMES (US); SUN KING MO (US); FRASIER DEBOR) 21 November 1996 (1996-11-21) cited in the application page 2, line 10 -page 5, line 11 page 58, line 11 - line 17 page 65; example 59 ---	1
Y	DE 197 32 846 A (BASF AG) 4 February 1999 (1999-02-04) page 2, line 1 - line 41 page 28, line 42 - line 43 --- -/--	1

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

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
9 February 2001	20/02/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Lamers, W

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Int[illegible]ional Application No
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Information on patent family members

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