



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁵: C12N 15/82, 15/55, A01H 5/00, 5/10	A3	(11) International Publication Number: WO 94/18335 (43) International Publication Date: 18 August 1994 (18.08.94)
(21) International Application Number: PCT/US94/00844 (22) International Filing Date: 24 January 1994 (24.01.94) (30) Priority Data: 010,403 29 January 1993 (29.01.93) US 166,172 16 December 1993 (16.12.93) US (71) Applicant: MONSANTO COMPANY [US/US]; 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US). (72) Inventors: HIRONAKA, Catherine, Michiko; 660 Ashmont Drive, Olivette, MO 63132 (US). HUYNH, Quang, Khai; 1905 Powderhorn Pass Court, Ballwin, MO 63011 (US). SHAH, Dilipkumar, Maganlal; 14800 Lupine Court, Chesterfield, MO 63017 (US). (74) Agent: BOLDING, James, Clifton; Monsanto Company, 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US).		(81) Designated States: AU, BB, BG, BR, BY, CA, CN, CZ, FI, HU, JP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, UZ, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 12 January 1995 (12.01.95)
(54) Title: METHOD OF CONTROLLING PLANT PATHOGENIC FUNGI (57) Abstract Ribonucleases from plants or microorganisms control fungal and nematode damage to plants. Genes encoding these proteins may be cloned into vectors for transformation of plant-colonizing microorganisms or plants, thereby providing a method of inhibiting fungal or nematode damage to plants.		

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 94/00844

A. CLASSIFICATION OF SUBJECT MATTER

IPC 5 C12N15/82 C12N15/55 A01H5/00 A01H5/10

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)

IPC 5 C12N C07K

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP,A,0 344 029 (PLANT GENETIC SYSTEMS, N.V.) 29 November 1989 see Examples 9-13 and Claims. ---	8, 10, 14
A	PHYTOPATHOLOGY, vol.78, 1988 pages 270 - 272 R.C.GERGERICH AND H.A. SCOTT; 'The enzymatic function of ribonuclease determines plant virus transmission by leaf-feeding beetles' see abstract. --- -/--	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

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- "E" earlier document but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 July 1994

Date of mailing of the international search report

06.12.94

Name and mailing address of the ISA

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Yeats, S

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 94/00844

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ACTA BOTAN. IND., vol.17, 1989 pages 248 - 251 J.P. SHARMA AND H.S. CHAWLA; 'Ribonucleases and soluble proteins during leaf rust pathogenesis in wheat' see abstract. ---	1
A	EUR. J. BIOCHEM., vol.198, 1991 W. JOST ET AL.; 'Amino acid sequence of an extracellular, phosphate-starvation- induced ribonuclease from cultured tomato (Lycopersicon esculentum) cells' see abstract and Figures 2 and 3. ---	1
A	SCIENCE, vol.254, 1991 pages 1194 - 1197 K. BROGLIE ET AL.; 'Transgenic plants with enhanced resistance to the fungal pathogen Rhizoctonia solani' cited in the application see pages 1194 and 1195. ---	1
A	EP,A,0 502 718 (PIONEER HI-BRED INTERNATIONAL, INC.) 9 September 1992 see claims. -----	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/00844

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see annex

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Claims: 1-18

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

(a) Claims 1-18: a method of controlling fungal damage to plants comprising providing these with an RNase which inhibits fungal growth, the RNase gene used for this purpose, vectors containing the gene, transformed plant cells and plants and methods for preparing these.

(b) Claim 19: a method of producing genetically transformed plants resistant to nematode damage comprising inserting into the plant genome an RNase gene under the control of a promoter which functions in plant cells to produce plants which express enough RNase to prevent the formation of nematode feeding sites.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 94/00844

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0344029	29-11-89	AU-B- 621113	05-03-92
		AU-A- 3537189	24-11-89
		WO-A- 8910396	02-11-89
		JP-T- 2503988	22-11-90

EP-A-0502718	09-09-92	AU-A- 1139992	10-09-92
		JP-A- 6228190	16-08-94
