

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 September 2002 (19.09.2002)

PCT

(10) International Publication Number
WO 02/072849 A3

- (51) **International Patent Classification⁷:** **C12N 15/82,** (74) **Agents:** **BIRD, William, E.** et al.; Bird Goën & Co, Vilvoordsebaan 92, B-3020 Winksele (BE).
A01H 5/00
- (21) **International Application Number:** PCT/EP02/00818 (81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (22) **International Filing Date:** 3 January 2002 (03.01.2002)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
0100105.6 4 January 2001 (04.01.2001) GB
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- (84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:**
— of inventorship (Rule 4.17(iv)) for US only
- Published:**
— with international search report
- (88) **Date of publication of the international search report:**
6 February 2003
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) **Title:** STRESS RESISTANCE AS A SELECTABLE MARKER FOR TRANSGENIC PLANTS

(57) **Abstract:** Transgenic plants or transgenic plant cells having increased stress resistance under environmental or artificial stress conditions are produced by a method comprising the steps of: a) transforming part of a plant or part of a plant cell population with a nucleotide sequence comprising (i) a first nucleotide sequence coding for a eukaryotic environmental or artificial stress resistance protein, or an allele or a homologue thereof, or a catalytically active part of the said protein, the said sequence being operably linked to a promoter, and (ii) one or more restriction sites comprising a second nucleotide sequence, b) applying environmental or artificial stress conditions to the transformed plant or plant cell population obtained in step (a), or its progeny, and c) selecting, from the transformed plant or plant cell population placed under the environmental or artificial stress conditions of step (b), that part of the transformed plant or plant cell population which exhibits an increased stress resistance under environmental or artificial stress conditions.

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INTERNATIONAL SEARCH REPORT

In **national Application No**
PCT/EP 02/00818

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/82 A01H5/00

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 7 C12N

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, EPO-Internal, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 00789 A (ALKO GROUP LTD ;TUNNELA OUTI (FI); LONDESBOROUGH JOHN (FI); MANDAL) 11 January 1996 (1996-01-11) the whole document	1-3, 5-10, 19-34, 41-48, 51-57, 64-66, 68-74, 81-83
X	WO 95 06126 A (MOGEN INT ;HOEKEMA ANDREAS (NL); PEN JAN (NL); DOES MIRJAM PETRONE) 2 March 1995 (1995-03-02) the whole document	1-3, 5-10, 21-34, 43-48, 51-57, 66, 68-74,83

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"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

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"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

21 August 2002

Date of mailing of the international search report

14.11.02

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 54489 A (VERBRUGGEN NATHALIE ;INZE DIRK (BE); BEECKMAN TOM (BE); BURSSSENS S) 28 October 1999 (1999-10-28) page 33, line 14-26 ---	
A	WO 99 14337 A (RHONE POULENC AGRICULTURE ;CUMMINS IAN (GB); COLE DAVID J (GB); ED) 25 March 1999 (1999-03-25) page 10, line 22-25 ---	
A	WO 00 60061 A (NOVARTIS ERFIND VERWALT GMBH ;NOVARTIS AG (CH); HOHN THOMAS M (US)) 12 October 2000 (2000-10-12) page 26, paragraph 1 -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 02/00818

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 additional sheet

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.:

see PCT/ISA/210

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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 8-10,33,34,56,57,73,74,85-87 (complete), 1-7,12-32, 36-55,59-72,76-84 (part.)

Invention 1:

Method of producing transgenic plant having increased stress resistance comprising the step of transforming a plant with a trehalose-6-phosphate synthase; Transgenic plants having integrated into its genome a trehalose-6-phosphate synthase; a vector comprising a nucleotide sequence coding for a trehalose-6-phosphate synthase; a kit for the production of a transgenic plant comprising a trehalose-6-phosphate synthase; use of trehalose-6-phosphate synthase as a selectable marker

2. Claims: 1-7,11-32,35-55,58-72,75-84 (part.)

Inventions 2 to 15:

Method of producing transgenic plant having increased stress resistance comprising the step of transforming a plant with a gene encoding a stress-resistance protein; Transgenic plants having integrated into its genome a gene encoding a stress-resistance protein; a vector comprising a nucleotide sequence coding for a stress resistance protein; a kit for the production of a transgenic plant comprising a gene encoding a stress resistance protein; wherein the stress-resistance protein is NHX1 protein (INVENTION 2), heat-shock proteins (INVENTION 3), AVP1 protein (INVENTION 4), NCED protein (INVENTION 5), APX1 or APX3 protein (INVENTION 6), BiP protein (INVENTION 7), OASTL protein (INVENTION 8), DREB1 protein (INVENTION 9), SCOF1 protein (INVENTION 10), GST/GPX protein (INVENTION 11), GS2 protein (INVENTION 12), HAL1 protein (INVENTION 13), PRP2 protein (INVENTIONn 14), SAT protein (INVENTION 15).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 02/00818

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