

REVISED VERSION

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
6 August 2009 (06.08.2009)

PCT

(10) International Publication Number  
**WO 2009/095922 A9**

(51) International Patent Classification:  
C12N 15/82 (2006.01) A01H 5/00 (2006.01)

(21) International Application Number:  
PCT/IL2009/000120

(22) International Filing Date:  
1 February 2009 (01.02.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
61/024,930 31 January 2008 (31.01.2008) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- with sequence listing part of description (Rule 5.2(a))

(88) Date of publication of the revised international search report:

16 September 2010

(15) Information about Correction:  
see Notice of 16 September 2010

(54) Title: METHOD FOR PROTECTING PLANTS FROM STRESS AND SENESCENCE

(57) Abstract: The present invention relates to regulation of ureide levels for optimal plant survival during nutrient remobilization such as occurs during normal growth, dark stress and senescence. Plants can be genetically engineered or selected using a suitable gene marker to have enhanced ureide accumulation. The present invention further provides methods of protecting plants, or extending the shelf life of fresh plant produce by application of exogenous ureides.



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**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/IL2009/000120

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. C12N15/82 A01H5/00  
 ADD.

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)  
 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)  
 EPO-Internal, BIOSIS, COMPENDEX, EMBASE, Sequence Search, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NAKAGAWA AYAMI ET AL: "The RNAi-Mediated Silencing of Xanthine Dehydrogenase Impairs Growth and Fertility and Accelerates Leaf Senescence in Transgenic Arabidopsis Plants" PLANT AND CELL PHYSIOLOGY, vol. 48, no. 10, 2007, pages 1484-1495, XP002592641 * abstract page 1485, right-hand column, line 12 - line 30 page 1492, left-hand column, line 1 - line 47  ----- -/--	13,15, 17-21,24

Further documents are listed in the continuation of Box C.       See patent family annex.

\* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" 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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search  20 July 2010	Date of mailing of the international search report  30/07/2010
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Mundel, Christophe
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## INTERNATIONAL SEARCH REPORT

International application No

PCT/IL2009/000120

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ZDUNEK-ZASTOCKA EDYTA ET AL: "Plant molybdoenzymes and their response to stress." ACTA PHYSIOLOGIAE PLANTARUM, vol. 25, no. 4, 2003, pages 437-452, XP009115766 ISSN: 0137-5881 * abstract page 438, left-hand column, line 42 - line 47 page 441, left-hand column, line 39 - line 42 page 443, right-hand column, line 1 - line 15	13, 15, 17-21, 24
X	WO 02/16655 A (SCRIPPS RESEARCH INST [US]; SYNGENTA PARTICIPATIONS AG [CH]; HARPER JE) 28 February 2002 (2002-02-28) * abstract page 4, line 12 page 5, line 9 - line 28 page 125; table 1 table 21 page 531	13, 15, 17-21, 24
X	DATABASE EPO PROTEINS Rice stress-related protein #32 7 October 2004 (2004-10-07), XP002525116 retrieved from EBI Database accession no. ADQ15655 * abstract & WO 2004/061080 A (SYNGENTA PARTICIPATIONS AG [CH]; COOPER BRET [US]) 22 July 2004 (2004-07-22)	13, 15, 17-21, 24
A	HESBERG C ET AL: "Tandem orientation of duplicated xanthine dehydrogenase genes from Arabidopsis thaliana: Differential gene expression and enzyme activities" JOURNAL OF BIOLOGICAL CHEMISTRY 20040402 AMERICAN SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY INC. US, vol. 279, no. 14, 2 April 2004 (2004-04-02), pages 13547-13554, XP002525113 * abstract	1-24

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International application No  
PCT/IL2009/000120

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>ALAMILLO J M ET AL: "Effects of urate, a natural inhibitor of peroxynitrite-mediated toxicity, in the response of Arabidopsis thaliana to the bacterial pathogen Pseudomonas syringae" PLANT JOURNAL MARCH 2001 BLACKWELL PUBLISHING LTD. GB, vol. 25, no. 5, March 2001 (2001-03), pages 529-540, XP002525114 * abstract page 530, left-hand column, line 10 - line 42 figures 1,2 page 538, paragraph 3 -----</p>	1-3,5,7,9
X,P	<p>BRYCHKOVA GALINA ET AL: "A critical role for ureides in dark and senescence-induced purine remobilization is unmasked in the Atxdh1 Arabidopsis mutant" PLANT JOURNAL, vol. 54, no. 3, May 2008 (2008-05), pages 496-509, XP002525115 ISSN: 0960-7412 the whole document -----</p>	1-24

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2009/000120

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0216655	A	28-02-2002	AU	8681101 A	04-03-2002
			CA	2420555 A1	28-02-2002
			EP	1313867 A2	28-05-2003

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