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(54) Title: ENERGY SAVING BREWING METHOD

(57) Abstract: Barley based beverages are produced in large quantities, employing highly energy consuming methods, for example in the malting and brewhouse facilities for kiln drying and wort boiling operations, respectively. The present invention relates to energy saving methods for preparing barley based beverages, as well as to barley plants useful in such methods. In particular, the invention describes barley plants with combined traits of null-lipoxygenase-1 (null-LOX-1), null-lipoxygenase-2 (null-LOX-2) and null-S-adenosylmethionine:methionine S-methyltransferase in one plant, which is particularly useful for energy saving methods to prepare barley based beverages, such as beer.



INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER					
INV.	A01H5/10	C12C1/18	C12C7/00	C12C12/00	C12N9/10
	C12N15/82	C12N9/02	A23L1/105	A23L1/186	A23L2/38
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) A01H C12C C12N A23L

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, FSTA, 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	WO 2004/011591 A1 (NOVOZYMES AS [DK]; BISGAARD-FRANTZEN HENRIK [DK]; HANNEMANN WOLFGANG []) 5 February 2004 (2004-02-05) page 4, lines 6-15 page 5, lines 21-32 page 9, line 34 - page 10, line 8; claims 16-17; examples 3-4; tables 4,7 -----	50-57
X	US 2009/041890 A1 (FESTERSEN RIKKE MONICA [DK] ET AL) 12 February 2009 (2009-02-12) paragraphs [0005], [0015] ----- -/--	50-57

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document but published on or after the international filing date	"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
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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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 Baminger, Ursula
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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.
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A	----- US 2005/204437 A1 (BREDDAM KLAUS [DK] ET AL BREDDAM KLAUS [DK] ET AL) 15 September 2005 (2005-09-15) cited in the application paragraph [0190]; claims	1-57
A	----- HIROTA N ET AL: "Brewing performance of malted lipoxygenase-1 null barley and effect on the flavor stability of beer", CEREAL CHEMISTRY, AMERICAN ASSOCIATION OF CEREAL CHEMISTS. MINNEAPOLIS, US, vol. 83, no. 3, 1 May 2006 (2006-05-01), pages 250-254, XP009124704, ISSN: 0009-0352, DOI: DOI:10.1094/CC-83-0250 the whole document	1-57
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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