

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
12 February 2004 (12.02.2004)

PCT

(10) International Publication Number
WO 2004/013322 A3

(51) International Patent Classification⁷: **C12N 9/24**, 9/02,
9/00, 9/48, 9/20, 9/80, 9/06, 9/42, C12S 9/00

(74) Agent: **BROOKES BATCHELLOR LLP**; 102-108
Clerkenwell Road, London EC1M 5SA (GB).

(21) International Application Number:
PCT/GB2003/003384

(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, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0218001.6 2 August 2002 (02.08.2002) GB

(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, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **KLEN-
ZYME, LTD.** [GB/GB]; University Of Westminster, 309
Regent Street, London W19 2UW (GB).

Published:

— with international search report

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **COVINGTON, An-
thony, Dale** [GB/GB]; British School of Leather Technol-
ogy, Boughton Green Road, Northampton NN2 7AL (GB).
EVANS, Christine, Stella [GB/GB]; University of West-
minster, 115 New Cavendish Street, London W1M 8JS
(GB). **ULLAH, Millie** [GB/GB]; University of Westmin-
ster, 115 New Cavendish Street, London W1M 8JS (GB).

(88) Date of publication of the international search report:
29 July 2004

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: DEGRADING LIGNOCELLULOSIC MATERIALS

(57) Abstract: A method for the degradation of lignocellulosic material by applying to the material an enzyme composition which is a mixture comprising at least a cellulase, xylanase and ligninase, and optionally other enzymes, such as a protease, lipase, urease, uricase, and/or pectinase, to solubilise or decompose the material at least partially. The method may be used for removing a biological deposit from a surface or location on or in which it is undesirably deposited. Typical deposits include human or animal faeces, bird droppings, and leaves. The cellulase, xylanase and ligninase component may be obtained as a mixture by cultivating a White Rot fungus, preferably using cattle dung, or a liquid extract, as an inducer.



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A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7	C12N9/24 C12N9/80	C12N9/02 C12N9/06
	C12N9/00 C12N9/42	C12N9/48 C12S9/00
		C12N9/20
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)		
EPO-Internal, WPI Data, MEDLINE, EMBASE, BIOSIS		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 325 241 A (NENE COLLEGE OF HIGHER EDUCATI ;UNIV WESTMINSTER (GB)) 18 November 1998 (1998-11-18) cited in the application page 3, line 23 -page 4, line 10; claims 1-8; examples 1-4 page 4, line 4 - line 10 --- -/--	1-3, 7-10, 14-19, 23,24
☒ 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 *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) *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		Date of mailing of the international search report
11 March 2004		19.04.04
Name and mailing address of the ISA 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		Authorized officer Loubradou, G

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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.
X	GHOSH M ET AL: "PRODUCTION OF EXTRACELLULAR ENZYMES BY TWO PLEUROTUS SPECIES USING BANANA PSEUDOSTEM BIOMASS" ACTA BIOTECHNOLOGICA, AKADEMIE VERLAG, BERLIN, DE, vol. 18, no. 3, 1998, pages 243-254, XP009010790 ISSN: 0138-4988 page 245, paragraph 2 page 248, paragraph 2 -page 251, paragraph 2; figures 2-4	1,2,10, 14-19, 23,24
X	SETHURAMAN A ET AL: "PLANT-CELL-WALL-DEGRADING ENZYMES PRODUCED BY THE WHITE-ROT FUNGUS CERIPORIOPSIS SUBVERMISPORA" BIOTECHNOLOGY AND APPLIED BIOCHEMISTRY, ACADEMIC PRESS, US, vol. 27, no. 1, 1998, pages 37-47, XP009010791 ISSN: 0885-4513 tables 1-3	1,2,10, 14-17, 23,24
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X	US 6 046 045 A (WETZSTEIN HEINZ-GEORG ET AL) 4 April 2000 (2000-04-04) example 3	10, 14-16, 20-22
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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	PAVLUKOVA E B ET AL: "Extracellular proteolytic enzymes of filamentous fungi" BIOCHEMISTRY (MOSCOW), vol. 63, no. 8, August 1998 (1998-08), pages 899-928, XP009021330 ISSN: 0006-2979 pages 921 and 922, the paragraphs entitled "Effect of external factors on protease secretion"	
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X	PUNIYA ANIL K ET AL: "Determination of enzyme activities of lignocellulolytic strains in solid substrate fermented products" INDIAN JOURNAL OF ANIMAL NUTRITION, vol. 12, no. 4, 1995, pages 205-212, XP001179864 ISSN: 0970-3209	1,2
Y	abstract; tables 1,2	10,12, 14-16, 20-24
Y	TONON F ET AL: "NITROGEN AND CARBON REGULATION OF LIGNIN PEROXIDASE AND ENZYMES OF NITROGEN METABOLISM IN PHANEROCHAETE-CHRYSPORIUM" EXPERIMENTAL MYCOLOGY, vol. 14, no. 3, 1990, pages 243-254, XP009026654 ISSN: 0147-5975 abstract; table 3	10,12, 14-16, 20-24
A	US 4 566 985 A (BRUNO LEONARD C ET AL) 28 January 1986 (1986-01-28) page 1, left-hand column, paragraph 1 page 1, right-hand column, line 4 - line 38	
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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	NOUR EL-DEIN MAHMOUD ET AL: "Screening of some fungi for uricolytic activity" QATAR UNIVERSITY SCIENCE JOURNAL, vol. 16, no. 1, 1996, pages 71-76, XP001179728 ISSN: 1023-8948 paragraph bridging pages 74 and 75 page 8; table 1 -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/03384

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.:
1-3 (parially), 4-5 (completely), 7-10 (partially), 11-12 (completely),
14-24 (partially)
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.:

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: 1-3, 7-10, 14-24 (partially), 4 and 11 (completely)

Compositions comprising a xylanase, a cellulase, a ligninase and a protease and methods using said compositions.

2. Claims: 1-3, 7-10, 14-24 (partially)

Compositions comprising a xylanase, a cellulase, a ligninase and a lipase and methods using said compositions.

3. Claims: 1-3, 7-10, 14-24 (partially)

Compositions comprising a xylanase, a cellulase, a ligninase and a urease and methods using said compositions.

4. Claims: 1-3, 7-10, 14-24 (partially), 5 and 12 (completely)

Compositions comprising a xylanase, a cellulase, a ligninase and a uricase and methods using said compositions.

5. Claims: 1-3, 7-10, 14-24 (partially), 6 and 13 (completely)

Compositions comprising a xylanase, a cellulase, a ligninase and a pectinase and methods using said compositions.

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