

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 January 2007 (04.01.2007)

PCT

(10) International Publication Number
WO 2007/002192 A3

(51) International Patent Classification:
C12Q 1/42 (2006.01)

(21) International Application Number:
PCT/US2006/024137

(22) International Filing Date: 21 June 2006 (21.06.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/692,474 21 June 2005 (21.06.2005) US

(71) Applicant (*for all designated States except US*): **SYNGENTA PARTICIPATIONS AG** [CH/CH]; Schwarzwaldallee 215, CH-4058 Basel (CH).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **BASU, Shib, Sankar** [IN/US]; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US). **WINSLOW, Stephanie** [US/US]; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US). **NELSON, Andrea** [US/US]; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US). **ONO, Makoto** [JP/US]; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US). **BETTS, Scott** [US/US]; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US).

(74) Common Representative: **SYNGENTA PARTICIPATIONS AG**; 3054 Cornwallis Road, Research Triangle Park, NC 27709 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, 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, HU, IE, IS, IT, LT, LU, LV, MC, NL, 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*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
13 December 2007

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: IMPROVED EXTRACTION METHODS AND ASSAYS FOR FEED ENZYMES

(57) Abstract: This invention relates to methods of the detection of enzymatically active enzymes in feed added in the pre-pelletting stage. Further, this invention relates to the field of detecting thermotolerant enzymes added to feed in the pre-pelletting stage. In particular, the invention relates to the detection of a phytase enzyme, in particular an *E. coli* phytase or an *E. coli* derived phytase in feed, such as Quantum™ Phytase.



WO 2007/002192 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/24137

A. CLASSIFICATION OF SUBJECT MATTER

IPC: C12Q 1/42(2006.01)

USPC: 435/21

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)
U.S. : 435/21

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 practicable, search terms used)
PubMed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Walsh, G. Quantification of Supplemental Enzymes in Animal Feedingstuffs by radial enzyme diffusion Appl Microbiol Biotechnol. December 2004, Vol 67, pages 70-74.	



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	"I" 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 application or patent 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
"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)	"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
"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	

Date of the actual completion of the international search

04 April 2007 (04.04.2007)

Date of mailing of the international search report

03 OCT 2007

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Jon Weber

Telephone No. 571-272-0522