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(54) Title: NOVEL PROCESS FOR ENZYMATIC BLEACHING OF FOOD PRODUCTS

(57) Abstract: The present invention relates to a process for the production of a food product whereby an intermediate form of said food product comprises a pigment, which process comprises adding at least one enzyme that is effective in directly converting said pigment into a form which results in increasing the whiteness of at least part of the food product compared to the food product for which said enzyme is not added during its production. The invention also relates to food products obtained from the process of the invention.



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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP2005/000442

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A23L1/27 A21D8/04 A23C19/032

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 A23L A21D A23C

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, FSTA, PAJ, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE WPI Section Ch, Week 197828 Derwent Publications Ltd., London, GB; Class D11, AN 1978-50606A XP002286712 & JP 53 062846 A (SUGIYAMA SANGYO KAGAKU KENKYUSHO) 5 June 1978 (1978-06-05) abstract</p> <p>-----</p>	1-9
A	<p>US 6 120 820 A (BRODY ERNEST P ET AL) 19 September 2000 (2000-09-19) claims</p> <p>-----</p> <p style="text-align: center;">-/--</p>	1-9



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 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

23 March 2005

Date of mailing of the international search report

14. 07. 2005

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2005/000442

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ZORN H ET AL: "Cleavage of beta,beta-carotene to flavor compounds by fungi." APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, vol. 62, no. 4, September 2003 (2003-09), pages 331-336, XP002286711 ISSN: 0175-7598 the whole document	1-9
A	EP 1 031 627 A (HOFFMANN LA ROCHE) 30 August 2000 (2000-08-30) paragraphs '0022! - '0025!; examples	1-9
A	GELINAS P ET AL: "Oxido-reductases and lipases as dough-bleaching agents" CEREAL CHEMISTRY, AMERICAN ASSOCIATION OF CEREAL CHEMISTS, MINNEAPOLIS, US, vol. 75, no. 6, November 1998 (1998-11), pages 810-814, XP002230174 ISSN: 0009-0352 cited in the application the whole document	1-9
A	EP 0 282 663 A (EXPRESS FOODS GROUP LTD) 21 September 1988 (1988-09-21) claims	1-9
A	US 6 465 410 B1 (BETTIOL JEAN-LUC PHILIPPE ET AL) 15 October 2002 (2002-10-15) column 7	1-9
A	WO 02/20755 A (GASTEL FRANCISCUS J C VAN ; TOPPOZADA AMR (US); AEHLE WOLFGANG (US); G) 14 March 2002 (2002-03-14) page 1, lines 15-24 page 8, lines 16-23,30-35 page 22, lines 7-12 page 23, lines 9-18; example 11	1-9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2005/000442

Box II Observations where certain claims were found unsearchable (Continuation of Item 2 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 III Observations where unity of invention is lacking (Continuation of Item 3 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.:

1-9

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: 1-9

A process for the production of a food product comprising the addition of at least one enzyme to convert a pigment (pref. a carotenoid) into a form that increases whiteness of at least a part of the food product. A food product obtainable by such a process and the use of an enzyme that is capable of directly converting pigments into a form that increases the whiteness of at least a part of the food product.

2. claim: 10

Use of enzymes capable of directly converting pigments for household detergents or in enzymatic stone bleaching processes.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/000442

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