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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,
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*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: BIOLOGICAL COMPOSITIONS FOR SOLID WASTE TREATMENT

(57) Abstract: The present invention relates to biological compositions useful for the treatment of solid waste. The biological compositions of the invention comprises a plurality of yeast cells which is capable of suppression of growth of pathogenic microor-
ganisms, breakdown of undesirable chemicals, such as antibiotics, insecticides and waste chemicals, and reducing the odor of organic
waste matters. The yeast cells of the invention are produced by culturing the plurality of yeast cells under activation conditions in the
presence of a series of electromagnetic fields. The invention also relates to methods for manufacturing the treatment composition.



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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N13/00 C12N1/16 C12N1/04 C12P1/02 A62D3/00
 B09B3/00 //(C12P1/02, C12R1:645)

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 C12P C12R

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, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | "Saccharomyces cerevisiae Meyen ex Hansen" CHINA CATALOGUE OF CULTURES/CHINA COMMITTEE OF CULTURE COLLECTION FOR MICROORGANISMS (CCCCM), 'Online! 24 April 1996 (1996-04-24), XP002223046 Retrieved from the Internet: <URL:http://www.im.ac.cn/database/YEAST/y122.htm> 'retrieved on 2002-12-02! the whole document --- | 14-19 |
| X | WO 87 02705 A (SWEENEY GEORGE WILLIAM JR) 7 May 1987 (1987-05-07) the whole document --- -/-- | 1-13 |



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

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International Application No

PCT/GB 02/00915

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|--|-----------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | PICHKO V B ET AL: "Electromagnetic stimulation of productivity of microorganisms and its mechanisms." PRIKLADNAYA BIOKHIMIYA I MIKROBIOLOGIYA, vol. 32, no. 4, 1996, pages 468-472, XP009001867 ISSN: 0555-1099 abstract --- | 1-13 |
| X | BINNINGER DAVID M ET AL: "Effects of 60Hz AC magnetic fields on gene expression following exposure over multiple cell generations using Saccharomyces cerevisiae." BIOELECTROCHEMISTRY AND BIOENERGETICS, vol. 43, no. 1, 1997, pages 83-89, XP002223047 ISSN: 0302-4598 the whole document especially abstract; discussion --- | 1-13 |
| X | FR 2 222 433 A (GIANESSY MATILDE) 18 October 1974 (1974-10-18) the whole document --- | 1-13 |
| X | WO 95 04814 A (INT TLB RES INST INC) 16 February 1995 (1995-02-16) page 11, line 25 - line 38 page 16, line 1 - line 10 --- | 1-13 |
| X | US 3 870 599 A (AZAROWICZ EDWARD N) 11 March 1975 (1975-03-11) the whole document --- | 15,19 |
| X | DATABASE WPI Week 198439 Derwent Publications Ltd., London, GB; AN 1984-242742 '39! XP002223049 "Yeast strain Exophiala Nigrum R-11 - removes phenol(s) and lignin from aq. effluent(s) " & SU 1 071 637 A (NII BIOLOG PRI IR G UNIV IM A), 7 February 1984 (1984-02-07) abstract --- | 15 |
| E | WO 02 20431 A (ULTRA BIOTECH LTD) 14 March 2002 (2002-03-14) page 8, line 1 -page 13, line 15; claims 1-51 --- -/-- | 1-19 |

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. |
|------------|---|-----------------------|
| A | <p>PONNE C T ET AL: "Interaction of electromagnetic energy with biological material--relation to food processing" RADIATION PHYSICS AND CHEMISTRY, ELSEVIER SCIENCE PUBLISHERS BV., AMSTERDAM, NL, vol. 45, no. 4, 1 April 1995 (1995-04-01), pages 591-607, XP004051598 ISSN: 0969-806X page 591, column 2, paragraph 3 -page 601, column 2, paragraph 3 -----</p> | 1-19 |

INTERNATIONAL SEARCH REPORT

International application No.
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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.:
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, 14 (complete) and 8-13, 18,19 (partial)

a method for treatment of solid waste comprising antibiotics, comprising adding to the solid waste yeast cells cultured in an electromagnetic field of specific frequency and field strength; a composition comprising such yeasts.

2. Claims: 2, 3, 4, 5, 15 (complete) and 8-13, 18, 19 (partial)

a method for treatment of solid waste comprising chemicals including herbicides, pesticides and fertilizer-related pollutants, comprising adding to the solid waste yeast cells cultured in an electromagnetic field of specific frequency and field strength; a composition comprising such yeasts.

3. Claims: 6, 16 (complete) and 8-13, 18, 19 (partial)

a method for reducing the odor of solid waste, comprising adding to the solid waste yeast cells cultured in an electromagnetic field of specific frequency and field strength; a composition comprising such yeasts.

4. Claims: 7,17 (complete) and 8-13, 18, 19 (partial)

a method of treatment of solid waste comprising pathogenic bacteria, comprising adding to the solid waste yeast cells cultured in an electromagnetic field of specific frequency and field strength; a composition comprising such yeasts.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 02/00915

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
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