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(54) Title: METHOD FOR DECONTAMINATING YEAST

(57) Abstract: An improved method for reducing colony forming units bacteria in yeast is disclosed. The method involves contacting the yeast with a hop acid in an amount sufficient to give a final concentration of the hop acid of at least about 40 ppm.

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# INTERNATIONAL SEARCH REPORT

International Application No  
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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C12N1/16 C12C11/00

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 C12C 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, PAJ, FSTA, BIOSIS, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 166 449 A (TODD JR PAUL H ET AL) 24 November 1992 (1992-11-24)  column 1, line 33 - line 38; example 6 column 2, line 21 - line 26 column 3, line 7 - line 22 column 3, line 43 - line 52 ---	1,4,5,9, 12,13, 15-19
X	US 5 082 975 A (TODD JR PAUL H ET AL) 21 January 1992 (1992-01-21)  column 2, line 20 -column 3, line 19; example 6  ---  -/--	1,4,5,9, 12,13, 15-19

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

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"&" document member of the same patent family

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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.
E	<p>WO 00 52212 A (BEDDIE DAVID ;HAAS HOP PRODUCTS INC (US); MAYE JOHN PAUL (US)) 8 September 2000 (2000-09-08) page 1, line 9 - line 12; claims 1,5-7,10,14,15,18; example 5 page 2, line 11 - line 21 page 3, line 2 - line 20 page 4, line 16 - line 22 page 6, line 29 -page 7, line 8 page 7, line 24 - line 26 page 8, line 3 - line 13 page 8, line 29 -page 9, line 3</p>	1,2,4,5, 8,9, 12-15
A	<p>US 5 286 506 A (MILLIS JAMES R ET AL) 15 February 1994 (1994-02-15) column 1, line 21 - line 44; claim 1 column 2, line 55 -column 3, line 7</p>	1,4,12
A	<p>WO 97 33971 A (KALAMAZOO HOLDINGS INC) 18 September 1997 (1997-09-18) page 1, line 4 - line 14; example 9 page 4, line 12 - line 20</p>	1,2,9,12
A	<p>SCHMALRECK, ARNO F. ET AL: "Structural features determining the antibiotic potencies of natural and synthetic hop bitter resins, their precursors, and derivatives" CAN. J. MICROBIOL. (1975), 21(2), 205-12 , XP000570038 page 205, column 1, paragraph 1 page 211, column 1, paragraph 2</p>	1,12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/10773

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5166449 A	24-11-1992	US 4918240 A US 5082975 A AU 619143 B AU 3958889 A BE 1004239 A CA 1315804 A DE 3926332 A GB 2222160 A,B NL 8902050 A,B ZA 8906186 A	17-04-1990 21-01-1992 16-01-1992 15-02-1990 20-10-1992 06-04-1993 22-02-1990 28-02-1990 01-03-1990 24-04-1991
US 5082975 A	21-01-1992	US 4918240 A US 5166449 A AU 619143 B AU 3958889 A BE 1004239 A CA 1315804 A DE 3926332 A GB 2222160 A,B NL 8902050 A,B ZA 8906186 A	17-04-1990 24-11-1992 16-01-1992 15-02-1990 20-10-1992 06-04-1993 22-02-1990 28-02-1990 01-03-1990 24-04-1991
WO 0052212 A	08-09-2000	NONE	
US 5286506 A	15-02-1994	AU 5411194 A CA 2147646 A,C EP 0668756 A JP 2731632 B JP 8502887 T KR 153063 B NZ 257479 A WO 9409759 A	24-05-1994 11-05-1994 30-08-1995 25-03-1998 02-04-1996 01-10-1998 21-12-1995 11-05-1994
WO 9733971 A	18-09-1997	AU 2212397 A	01-10-1997