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(71) Applicant: **DOW GLOBAL TECHNOLOGIES LLC** [US/US]; 2040 Dow Center, Midland, Michigan 48674 (US).

(72) Inventors: **HONG, Liang**; 2812 Walden Woods Drive, Midland, MI 48640 (US). **MADDURI, Krishna**; 14159 Nicholas Drive, Carmel, Indiana 46074 (US). **PRESSLER, Kelsey**; 642 S. Homer Road, Midland, MI 48640 (US). **TUCKER, Christopher J.**; 5406 Wanetah, Midland, MI 48640 (US). **WOELFLE-GUPTA, Carolline**; 5203 Hollyberry Drive, Midland, MI 48642 (US).

(74) Agent: **BODNER, Marcella**; The Dow Chemical Company, Intellectual Property, P.O. Box 1967, Midland, Michigan 48641-1967 (US).

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(54) Title: PROBIOTIC CONTAINING COMPOSITION HAVING IMPROVED PROBIOTIC STABILITY WHEN IN AQUEOUS FORMULATIONS

(57) Abstract: Probiotic-containing compositions are provided which comprise a probiotic, an oxygen carrying compound, and a bio-compatible binder. The probiotic-containing compositions have stable probiotic viability and are suitable for incorporation in aqueous personal care formulations, such as cosmetic and non-cosmetic lotions, soaps, creams, shampoos, body washes, and the like.

INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/045577

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K8/31 A61K8/73 A61K8/99 A61K35/74
 ADD.

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)
 A61K

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)

EPO-Internal, WPI Data, 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.
Y	WO 2012/027758 A2 (DOW GLOBAL TECHNOLOGIES LLC [US]; HONG LIANG [US]; LICHTENWALD KATHY L) 1 March 2012 (2012-03-01) page 2, line 3 - page 5, line 26; claims; examples 1-3 -----	1-8
Y	WO 01/37804 A2 (UNIVERSAL PRESERVATION TECHNOL [US]; BRONSHTEIN VICTOR [US]) 31 May 2001 (2001-05-31) page 3, line 2 - line 27 page 7, line 12 - line 22 page 14, line 12 - page 15, line 16 page 17, line 11 - line 20 ----- -/--	1-8

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Loloiu, Teodora
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INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/045577

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 2007/137108 A2 (AQUA DYNAMIC SOLUTIONS LLC [US]; DITURO JOHN [US]) 29 November 2007 (2007-11-29) page 12, line 17 - page 13, line 14; examples page 16, line 3 - line 21 -----</p>	1-3
X	<p>G.E. MCCREATH ET AL: "Applications of Perfluorocarbon Affinity Emulsions for the Rapid Isolation of Staphylococcus aureus", BIOTECHNOLOGY PROGRESS, vol. 12, no. 1, 5 February 1996 (1996-02-05), pages 77-83, XP055123837, ISSN: 8756-7938, DOI: 10.1021/bp950055i Materials and methods; page 77 - page 78 -----</p>	1,3,7
A	<p>DE 21 33 710 A1 (KRISP KG KUKIROL) 25 January 1973 (1973-01-25) page 3, line 29 - line 30; claims -----</p>	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012027758 A2	01-03-2012	CN 103167807 A EP 2608679 A2 JP 2013537037 A US 2013142907 A1 WO 2012027758 A2	19-06-2013 03-07-2013 30-09-2013 06-06-2013 01-03-2012
WO 0137804 A2	31-05-2001	AU 2046101 A WO 0137804 A2	04-06-2001 31-05-2001
WO 2007137108 A2	29-11-2007	US 2009111694 A1 WO 2007137108 A2	30-04-2009 29-11-2007
DE 2133710 A1	25-01-1973	NONE	