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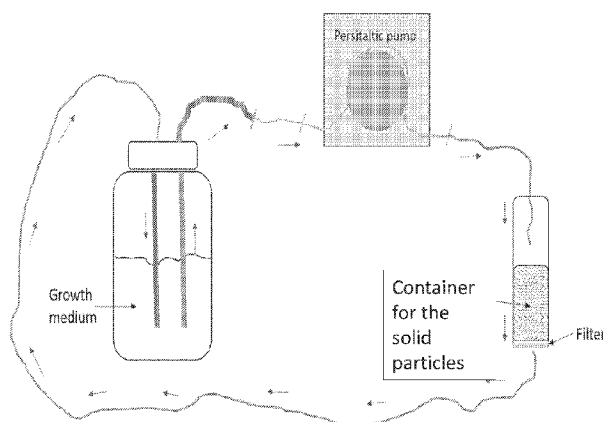


Figure 1

(57) Abstract: The present invention provides a method, wherein the method forms a biofilm, wherein the biofilm comprises a population of at least one bacterial strain attached to particles, wherein the biofilm is configured to colonize a gut of a subject in need thereof for at least five days, when ingested by the subject, the method comprising: a. obtaining a population comprising at least one strain of bacteria; b. inoculating a growth medium containing particles with the population comprising at least one strain of bacteria; c. incubating the particles with the population comprising at least one bacterial strain for a time sufficient for the population of at least one strain of bacteria to attach to the particles; and d. culturing the population comprising at least one strain of bacteria attached to the particles in a growth medium, for a time sufficient to form a biofilm.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A23L 33/125; C12N 11/04 (2016.01)

CPC - A23L 33/125; C12N 11/04; C12R 1/25 (2016.08)

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 - A01C 1/06; A23L 33/135; C12N 11/04; C12N 11/12; C12R 1/02; C12R 1/135; C12R 1/25

CPC - A01C 1/06; A23L 33/135; A23Y 2220/67; C12N 11/04; C12N 11/12; C12R 1/25; Y10S 435/857

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 424/551; 424/93.45; 435/177; 435/180; 435/182 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Orbit, Google Patents, Google Scholar, PubMed

Search terms used: Biofilm; Encapsulate; Bacteria; Lactobacillus; Acetobacter; Particle; Seed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2012/0129693 A1 (ANO) 24 May 2012 (24.05.2012) entire document	1-12
Y	JONES et al. "Probiotic Lactobacillus reuteri biofilms produce antimicrobial and anti-inflammatory factors," BMC Microbiology, 11 February 2009 (11.02.2009), Vol. 9, Pgs. 35-43. entire document	1-12
Y	RAMAGE et al. "A seed and feed model for the formation of Candida albicans biofilms under flow conditions using an improved modified Robbins device," Revista Iberoamericana de Micología, 31 March 2008 (31.03.2008), Vol. 25, No. 1, Pgs. 37-40. entire document	4
Y	CLEENWERCK et al. "Re-examination of the genus Acetobacter, with descriptions of Acetobacter cerevisiae sp. nov. and Acetobacter malorum sp. nov." International Journal of Systematic and Evolutionary Microbiology, 18 January 2002 (18.01.2002), Vol. 52, Pt. 5, Pgs. 1551-1558. entire document	6
Y	ADLERBERTH et al. "A mannose-specific adherence mechanism in Lactobacillus plantarum conferring binding to the human colonic cell line HT-29," Applied and Environmental Microbiology, 31 July 1996 (31.07.1996), Vol. 62, No. 7, Pgs. 2244-2251. entire document	9
Y	SHIN et al. "Drosophila microbiome modulates host developmental and metabolic homeostasis via insulin signaling," Science, 04 November 2011 (04.11.2011), Vol. 334, No. 6056, Pgs. 670-674. entire document	10
Y	CHEOW et al. "Controlled release of Lactobacillus rhamnosus biofilm probiotics from alginate-locust bean gum microcapsules," Carbohydrate Polymers, 15 March 2014 (15.03.2014), Vol. 103, Pgs. 587-595. entire document	11



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* Special categories of cited documents:

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