

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 August 2023 (24.08.2023)



(10) International Publication Number
WO 2023/156945 A1

(51) International Patent Classification:

A23L 33/135 (2016.01) A61K 9/107 (2006.01)
A61P 25/24 (2006.01)

LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI,
SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(21) International Application Number:

PCT/IB2023/051434

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(22) International Filing Date:

17 February 2023 (17.02.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

22157612.7 18 February 2022 (18.02.2022) EP

(71) Applicant: **FONTERRA CO-OPERATIVE GROUP LIMITED** [NZ/NZ]; 109 Fanshawe Street, Auckland, 1010 (NZ).

(72) Inventors: **FANNING, Aaron Calvin**; c/o Fonterra Co-operative Group Limited, 109 Fanshawe Street, Auckland, 1010 (NZ). **DEKKER, James William**; c/o Fonterra Co-operative Group Limited, 109 Fanshawe Street, Auckland, 1010 (NZ). **SALTINI, Rolando**; c/o Fonterra Co-operative Group Limited, 109 Fanshawe Street, Auckland, 1010 (NZ). **ZE, Xiaolei**; c/o Fonterra Co-operative Group Limited, 109 Fanshawe Street, Auckland, 1010 (NZ). **ZHANG, Xuguang**; c/o Fonterra Co-operative Group Limited, 109 Fanshawe Street, Auckland, 1010 (NZ).

(74) Agent: **AJ PARK**; Level 22, Aon Centre, 1 Willis Street, Wellington, 6011 (NZ).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

(54) Title: FOOD SUPPLEMENT

(57) Abstract: This invention relates to the use of probiotics for any one or more of (i) the prevention or reduction of stress; (ii) the reduction or prevention of anxiety; (iii) the prevention or reduction of one or more symptoms of depression; (iv) decreasing or reversing certain changes caused by stress, anxiety or depression; (v) improving mood; (vi) increasing relaxation; (vii) increasing energy, particularly to the use of *Lactacaseibacillus rhamnosus* strain HN001 (HN001) and/or *Bifidobacterium animalis* subsp. *lactis* strain HN019 (HN019).

WO 2023/156945 A1