

CLAIMS

1. A composition comprising a mixture M comprising, or alternatively, consisting of at least one bacterial strain selected from the group A comprising, or alternatively, consisting of:

- a bacterial strain belonging to the species *Bifidobacterium breve* identified as *Bifidobacterium breve* BbIBS01 and having deposit number DSM 33231,
- a bacterial strain belonging to the species *Bifidobacterium breve* identified as *Bifidobacterium breve* BbIBS02 and having deposit number DSM 33232,
- a bacterial strain belonging to the species *Bifidobacterium animalis* identified as *Bifidobacterium animalis* subsp. *lactis* BbIBS01 and having deposit number DSM 33233,
- a bacterial strain belonging to the species *Lactobacillus plantarum* identified as *Lactobacillus plantarum* LpIBS01 and having deposit number DSM 33234, and mixtures thereof,

wherein all said bacterial strains were deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) on 31 July 2019 by SOFAR S.p.A.;

and wherein, optionally, said composition comprises at least one food or pharmaceutical grade additive and/or excipient.

2. The composition according to claim 1, wherein said mixture M comprises or, alternatively consists of bacterial strains:

- *Bifidobacterium breve* BbIBS01 DSM 33231,
- *Bifidobacterium breve* BbIBS02 DSM 33232,
- *Bifidobacterium animalis* subsp. *lactis* BbIBS01 DSM 33233, and
- *Lactobacillus plantarum* LpIBS01 DSM 33234.

3. The composition according to claim 1 or 2, wherein said mixture M further comprises at least one further bacterial strain selected from the group B comprising or, alternatively, consisting of: a bacterial strain identified as *Lactobacillus casei* DG® deposited at the National Collection of Cultures of Microorganisms Pasteur Institute in Paris under accession number CNCM I-1572 on 05 May 1995 by SOFAR S.p.A., a bacterial strain identified as *Lactobacillus paracasei* LPC-S01™ deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under accession number DSM 26760 on 15 May 2017 by SOFAR S.p.A. and a mixture thereof.

4. The composition according to claim 3, wherein said mixture M comprises or, alternatively consists of bacterial strains:

- *Bifidobacterium breve* BbIBS01 DSM 33231,

- *Bifidobacterium breve* BbIBS02 DSM 33232,
- *Bifidobacterium animalis subsp. lactis* BbIBS01 DSM 33233,
- *Lactobacillus plantarum* LpIBS01 DSM 33234, and
- *Lactobacillus casei* DG® CNCM I-1572.

5. The composition according to claim 3, wherein said mixture M comprises or, alternatively consists of bacterial strains:

- *Bifidobacterium breve* BbIBS01 DSM 33231,
- *Bifidobacterium breve* BbIBS02 DSM 33232,
- *Bifidobacterium animalis subsp. lactis* BbIBS01 DSM 33233,
- *Lactobacillus plantarum* LpIBS01 DSM 33234, and
- *Lactobacillus paracasei* LPC-S01™ DSM 26760.

6. The composition according to any one of claims 1 to 5, wherein said composition is formulated for oral, sublingual or buccal, transmucosal, topical, rectal, topical cutaneous or topical vaginal use; preferably said composition is formulated for oral use.

7. The composition according to any one of claims 1 to 6 for use as a medicament.

8. The composition according to any one of claims 1 a 6 for use in a method for the preventive and/or curative treatment of functional gastrointestinal diseases, disorders and/or symptoms.

9. The composition according to claim 8, wherein said composition is for use in a method for the preventive and/or curative treatment of functional gastrointestinal diseases, disorders and/or symptoms selected from the group comprising or, alternatively, consisting of: irritable bowel syndrome (IBS), dyspepsia, pyrosis, esophageal disorders, stomach disorders and duodenum disorders, small intestinal bacterial overgrowth (SIBO), gastrointestinal disorders with sub-inflammatory conditions; preferably the irritable bowel syndrome (IBS) constipated bowel or irritable bowel syndrome (IBS) diarrhoeic bowel or irritable bowel syndrome (IBS) with alternating constipation and diarrhoea.

10. The composition according to any one of claims 1 to 6 for use in a method for preventive and/or curative treatment of inflammatory gastrointestinal diseases, disorders and/or symptoms.

11. The composition according to claim 10, wherein said composition is for use in a method for the preventive or curative treatment of inflammatory gastrointestinal disorders selected from the group

comprising or, alternatively, consisting of: chronic inflammatory bowel diseases (IBD), Crohn's disease, ulcerative colitis, microscopic colitis, diverticular disease, diverticulitis, *Helicobacter pylori*, peptic or gastric ulcer, and duodenal ulcers; preferably selected from chronic inflammatory bowel diseases (IBD), Crohn's disease, ulcerative colitis, microscopic colitis, diverticular disease, and diverticulitis.

12. A bacterial strain belonging to the species *Bifidobacterium breve* species identified as *Bifidobacterium breve* BbIBS01, wherein said bacterial strain was deposited, according to the Budapest Treaty, at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 33231 on 31 July 2019 by SOFAR S.p.A.

13. A bacterial strain belonging to the species *Bifidobacterium breve* identified as *Bifidobacterium breve* BbIBS02, wherein said bacterial strain was deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 33232 on 31 July 2019 by Sofar S.p.A.

14. A bacterial strain belonging to the species *Bifidobacterium animalis* identified as *Bifidobacterium animalis subsp. lactis* BbIBS01, wherein said bacterial strain was deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 33233 on 31 July 2019 by SOFAR S.p.A.

15. A bacterial strain belonging to the species *Lactobacillus plantarum* identified as *Lactobacillus plantarum* LpIBS01, wherein said bacterial strain was deposited at Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH (DSMZ) under deposit number DSM 33234 on 31 July 2019 by SOFAR S.p.A.