products, and which contains a significant amount of probiotic. The food product is preferably a bakery product, in particular a rye-containing bread, rusk, biscuit or the like. This reference deals with the generally known aspects of use of probiotics.

The need of a baked product suitable for subjects affected by celiac dis-- ease, which can be obtained with an easy, reproducible process of manufacture and with materials reliable, safe and commercially available is still felt in this field.

The present invention meets these needs by providing a baked product for subjects affected by celiac disease. However, the baked product finds a general usefulness in human diet because of its higher digestibility.

Summary of the invention

It has now been found that certain specific mixtures of lactic acid bacteria and Bifidobacteria, of human and milk origin are endowed with the surprising property of being capable of hydrolyzing gliadin and glutenin fractions which are responsible for celiac disease.

These specific mixtures are very useful in the manufacturing of sourdough and provide well-defined bacterial species.

In one embodiment, there is provided the use of a mixture comprising Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus delbrueckii subsp. bulgaricus, Lactobacillus helveticus, Lactobacillus plantarum, Bifidobacterium breve, Bifidobacterium infantis, Bifidobacterium longum, Streptococcus thermophilus, Bifidobacterium lactis, for hydrolyzing gliadin and glutenin fractions in starch-containing flours.

Therefore, it is an object of the present invention the use of specific mixtures of lactic acid bacteria and Bifidobacteria for the manufacture of sourdough.

Another object of the present invention is represented by cereal-based food, in particular baked goods which are generally more digestible and in particular can be tolerated by CS patients.

Another object of the present invention is a method for manufacturing cereal-based food, in particular baked goods suitable for subjects af-

CLAIMS

1. Use of a mixture of at least 6 species of lactic acid bacteria and Bifidobacteria selected from the group consisting of *Lactobacillus acidophilus, Lactobacillus buchneri, Lactobacillus casei, Lactobacillus catenaforme, Lactobacillus cellobiosus, Lactobacillus crispatus, Lactobacillus curvatus, Lactobacillus delbrueckii, Lactobacillus delbrueckii subsp. bulgaricus, Lactobacillus delbrueckii subsp. lactis, Lactobacillus helveticus, Lactobacillus jensenii, Lactobacillus leichmannii, Lactobacillus minutus, Lactobacillus paracasei, Lactobacillus plantarum, Lactobacillus rogosae, Lactobacillus salivarius, Lactobacillus brevis, Lactobacillus gasseri, Lactobacillus fermentum, Bifidobacterium adolescentis, Bifidobacterium angulatum, Bifidobacterium bifidum, Bifidobacterium breve, Bifidobacterium catenulatum, Bifidobacterium dentium, Bifidobacterium eriksonii, Bifidobacterium infantis, Bifidobacterium longum, Bifidobacterium plantarum, Bifidobacterium pseudo-catenulatum, Bifidobacterium pseudolongum, Streptococcus lactis, Streptococcus raffinolactis, Acidaminococcus fermenta, Cytophaga fermentans, Rhodoferax fermentans, Cellulomonas fermentans, Zymomonas mobilis, Streptococcus thermophilus*, for hydrolyzing gliadine and glutenine fractions contained in starch-containing flours.

2. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for the integration of the diet of a subject suffering from celiac disease.

3. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for maintaining gluten tolerance in a subject suffering from celiac disease.

4. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for inducing gluten tolerance in a subject suffering from celiac disease.

5. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for decreasing the risk of allergies due to wheat flour albumins and globulins

6. The use according to claim 1 for the preparation of a gluten-free dietetic good useful for the treatment of schizophrenic symptoms.

7. The use according to claim 6, wherein said symptoms affect a celiac patient.

8. The use according to claim 6, wherein said symptoms affect a non-celiac patient.

9. The use according to any one of claim 1 for the preparation of a product for reducing Platelet Aggregating Factor (PAF) and/or inflammatory cytokines in gastro-intestinal diseases.

10. The use according to claim 9, wherein said disease is an inflammatory disease.

11. The use according to claim 10, wherein said disease is selected from the group consisting of ischemic bowel necrosis, gastric ulcer, hemorrhagic rectocolitis, necrotizing enterocolitis, neonatal necrotizing enterocolitis, inflammatory bowel disease and pouchitis.

12. The use according to claim 1 in the preparation of a product for oral administration for improving digestion of gluten and gluten-related substances.

13. The use according to any one of claims 1-12, wherein said mixture of lactic acid bacteria and Bifidobacteria comprises *Streptococcus thermophilus, Bifidobacterium infantis, Bifidobacterium longum, Bifidobacterium breve, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus casei, Lactobacillus delbrueckii subsp. Bulgaricus or said mixture comprises Streptococcus thermophilus, Bifidobacterium lactis, Bifidobacterium breve, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus casei, Lactobacillus helveticus.*

CLAIMS

1. Use of a mixture comprising *Lactobacillus acidophilus, Lactobacillus casei, Lactobacillus delbrueckii* subsp. *bulgaricus, Lactobacillus helveticus, Lactobacillus plantarum, Bifidobacterium breve, Bifidobacterium infantis, Bifidobacterium longum, Streptococcus thermophilus, Bifidobacterium lactis*, for hydrolyzing gliadin and glutenin fractions in starch-containing flours.

2. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for the integration of the diet of a subject suffering from celiac disease.

3. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for maintaining gluten tolerance in a subject suffering from celiac disease.

4. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for inducing gluten tolerance in a subject suffering from celiac disease.

5. The use according to claim 1 for the manufacture of a food, in particular a cooked or baked good for decreasing the risk of allergies due to wheat flour albumins and globulins

6. The use according to claim 1 for the preparation of a gluten-free dietetic good useful for the treatment of schizophrenic symptoms.

7. The use according to claim 6, wherein said symptoms affect a celiac patient.

8. The use according to claim 6, wherein said symptoms affect a non-celiac patient.

9. The use according to any one of claim 1 for the preparation of a product for reducing Platelet Aggregating Factor (PAF) and/or inflammatory cytokines in gastro-intestinal diseases.

10. The use according to claim 9, wherein said disease is an inflammatory disease.

11. The use according to claim 10, wherein said disease is selected from the group consisting of ischemic bowel necrosis, gastric ulcer, hemorrhagic rectocolitis, necrotizing enterocolitis, neonatal necrotizing enterocolitis, inflammatory bowel disease and pouchitis.

12. The use according to claim 1 in the preparation of a product for oral administration for improving digestion of gluten and gluten-related substances.

13. The use according to any one of claims 1-12, wherein said mixture of lactic acid bacteria and Bifidobacteria comprises *Streptococcus thermophilus, Bifidobacterium infantis, Bifidobacterium longum, Bifidobacterium breve, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus casei, Lactobacillus delbrueckii subsp. Bulgaricus or said mixture comprises Streptococcus thermophilus, Bifidobacterium lactis, Bifidobacterium breve, Lactobacillus acidophilus, Lactobacillus plantarum, Lactobacillus casei, Lactobacillus helveticus.*