CLAIMS

1. A composition for use in promoting the production of butyric acid by *Bifidobacterium lactis* HN019, comprising galactooligosaccharide, lactulose and *Bifidobacterium lactis* HN019, wherein the weight ratio of galactooligosaccharide to lactulose is 1:1- 4:1;

the composition comprises 10^6 Cfu/100g - 10^{12} Cfu/100g of *Bifidobacterium lactis* HN019; and

in the composition, galactooligosaccharide and lactulose together comprise at least 50% by weight of the composition;

preferably, the composition further comprises an excipient or dispersant;

preferably, the composition consists of galactooligosaccharide, lactulose and *Bifidobacterium lactis* HN019.

2. A food comprising the composition according to claim 1;

preferably, the food is a liquid food, semi-liquid food, solid food or semi-solid food;

preferably, the food is a formula, such as an infant formula or infant food supplement;

preferably, the food is a dairy product, chocolate or chocolate product or grain product.

3. Non-therapeutic use of the food according to claim 2 for promoting the production of butyric acid by *Bifidobacterium lactis* HN019 in the intestine.

4. The composition of claim 1 for use as a medicament.

5. Use of the composition of claim 1 in the manufacture of a medicament for preventing or treating a disease or a discomfort associated with an insufficiency of butyric acid in the intestine, or an insufficiency of butyric acid-producing microorganisms in the intestine, wherein the medicament is used to promote the production of butyric acid by *Bifidobacterium lactis* HN019 in the intestine.

6. The use of claim 4, wherein the medicament is to be administered as a dietary supplement.

7. The use of claim 6, wherein the dietary supplement is selected from the group consisting of pill, capsule, tablet, granule and liquid preparation.

8. The use of claim 6 or 7, wherein the dietary supplement further comprises a nutritional ingredient selected from the group consisting of protein, carbohydrate, lipid, mineral, vitamin, amino acid, unsaturated fatty acid, polyphenol, phytosterol, and a mixture thereof.

9. A dietary supplement comprising the composition according to claim 1;

preferably, the dosage of the dietary supplement is selected from the group consisting of pill, capsule, tablet, granule and liquid preparation;

preferably, the dietary supplement further comprises a nutritional ingredient selected from the group consisting of protein, carbohydrate, lipid, mineral, vitamin, amino acid, unsaturated fatty acid, polyphenol, phytosterol, and a mixture thereof.

10. A method of promoting the production of butyric acid by *Bifidobacterium*

lactis HN019 comprising using galactooligosaccharide and lactulose as a carbon source for culturing *Bifidobacterium lactis* HN019, wherein the weight ratio of galactooligosaccharide to lactulose is 1:1-4:1;

preferably, the method is used to promote the production of butyric acid by *Bifidobacterium lactis* HN019 *in vitro*.

11. The method according to claim 10, wherein the method is performed *in vitro* and comprising the following steps:

step 1: providing a medium suitable for the growth of *Bifidobacterium lactis* HN019, and the medium comprises galactooligosaccharide and lactulose as a carbon source; and

step 2: inoculating *Bifidobacterium lactis* HN019 into the medium of step 1 and cultivating under anaerobic conditions suitable for the growth of *Bifidobacterium lactis* HN019.