Increasing evidence suggests that gut microbiota is associated with gut health and general well-being. Some ingredients can modulate the colonic flora: it is

NUTRIOSE® is a dextrin containing about 85% soluble fibres. Animal and humans studies have demonstrated that deep changes occur in the colonic environ-

The aim of this review is to focus on the effects of NUTRIOSE® on the modulation of the gut microbiota in humans.

MATERIAL & METHODS

Study design #1

- Placebo-controlled, double blind, randomized, parallel design
- Groups: 4 parallel groups – 12 volunteer/group
- Subjects: Males and females – Age 18 to 45 years
- Duration: 14-day study
- Placebo group: 22.5g maltodextrin (GLUCIDEX®6), n=13
- Treatment group: 30 or 45g NUTRIOSE®, n=14 or n=16 respectively
- Fecal samples analysis: Counting colonies (plates method)

Study design #2

- Placebo-controlled, double blind, randomized, parallel design
- Groups: 2 parallel groups – 20 volunteer/group
- Subjects: Females - Age 25 to 58 years
- Duration: 14-day study
- Placebo group: 8g/day glucose
- Treatment group: 15g/day NUTRIOSE®
- Fecal samples analysis: Biomolecular method (Real-time PCR)

Study design #3

- Placebo-controlled, double blind, randomized, parallel design
- Groups: 3 parallel groups
- Subjects: Males – Age 20 to 45 years
- Duration: 25-day study
- Placebo group: 22.5g/day maltodextrin (GLUCIDEX®6), n=13
- Treatment group: 30 or 45g/day NUTRIOSE®, n=14 or n=16 respectively
- Fecal samples analysis: Counting colonies (plates method)

RESULTS

A significant increase in the saccharolytic flora Bacteroides (beneficial bacteria) in the feces of human volunteers

- after a 14-d consumption of 10g NUTRIOSE® (STUDY#1) – figure 1
- after a 14-d consumption of 8g NUTRIOSE® (STUDY#2) – figure 2

A significant increase in the mean lactobacilli number (beneficial bacteria) in the feces of human volunteers

- after a 35-d consumption of 45g NUTRIOSE® (STUDY#3) – figure 2

A significant decrease in the genus Clostridium perfringens (potentially harmful bacteria) in the feces of human volunteers

- after a 14-d consumption of 15g NUTRIOSE® (STUDY#1) – figure 4
- after a 14-d consumption of 8g NUTRIOSE® (STUDY#2) – figure 5
- confirmed in study #3

CONCLUSION

NUTRIOSE® has positive effects because it stimulates the proliferation of Bacteroides (a colonic bacteria able to adapt to non-digestible carbohydrates) and the

These changes in the gut microflora following NUTRIOSE® consumption are associated with the production of SCFAs, a decrease in the colonic pH and an

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Soluble dietary fibers induce selective fermentations in the colon, altering favorably the composition of the colonic microbiota.

That's how NUTRIOSE® has been demonstrated to induce deep changes such as the production of Short Chain Fatty Acids (SCFAs) or a decrease in the colonic pH, thanks to modification of the microflora, described in a review of three clinical studies.

These double blind, placebo-controlled trials were conducted and randomized in a parallel design. In each study, lasting 14 or 35 days, the feces of the groups receiving NUTRIOSE® (8 to 45 g/day depending on the studies) or PLACEBO (8 or 20 g/day of glucose or 22.5 g/day of maltodextrin) were sampled and analyzed either by plates or biomolecular method.

An increase in beneficial Bacteroides (from 8g/day NUTRIOSE®, 14 days, p<0.05) and Lactobacilli (45g/day NUTRIOSE®, 35 days, p<0.05) and a decrease in pathogenic Clostridium perfringens (from 8g/day NUTRIOSE®, 14 days, p<0.05) were observed.

Consumption of NUTRIOSE® induces prebiotic effects in the colonic environment, in line with the FAO's definition (2007): “a non-viable food component that confers a health benefit on the host associated with modulation of the microbiota”.

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