BENEO-Institute

A brief summary of our nutrition related educational activities
Together we contribute to better nutrition and health
Matching today’s expectations

What do consumers expect from nutrition today?

- To be **safe**
- To be **healthy**
- To be **tasty**
- To be **convenient**
- To be **functional**
Discovering our range of nutrients and benefits

**Products**
- Functional fibres
- Functional carbohydrates
- Specialty rice ingredients
- Functional proteins

**Natural sources**
- Chicory root
- Sugar beet
- Rice
- Wheat

**Benefits**
- Digestive health
- Fibre enrichment
- Better calcium absorption
- Weight management
- Fat & sugar replacement
- Low glycaemic effect
- Prolonged energy
- Toothfriendly
- Weight management
- Sugar replacement
- Clean label
- Creaminess, crispiness
- Enhanced viscosity
- Tasty dairy substitution
- Vegetable protein source
- Improved performance
- Better texture stability
- High and reliable quality
- Non-GMO
- Neutral taste
New scientific research, presented at: 48th ESPGHAN-Congress, Amsterdam, May 2015

New research on:

Palatinose™
Orafti® inulin type fructans
New scientific research, presented at: 48th ESPGHAN-Congress, Amsterdam, May 2015

Effects of a follow-on formula with a low-glycaemic index: double blind randomized trial

"AMELIE" – Acceptance and Metabolism of Isomaltulose
@ LMU, Munich, Germany (PI: Prof. Dr. Berthold Koletzko)
The Use Of Inulin-type Fructans Improves Stool Consistency In Constipated Children. A Pilot Study.

Introduction

Functional constipation is one of the most common gastrointestinal complaints in children (1-2). The treatment is long lasting and more than 50% of the problems beyond puberty probably because most of the therapeutic approaches are not clearly effective (3). Moreover there are few studies on a particular intervention, especially in the age range 2-5 years. Prebiotics are considered as a new option to treat constipation in children (4). Our aim was testing the beneficial effects of a daily dose of Orafti Inulin - type fructans supplementation on 2 - 5 years old constipated children in a Pilot study.

Table 1: Baseline characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Placebo</th>
<th>INULIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, f/m (N)</td>
<td>11/11</td>
<td>6/7</td>
</tr>
<tr>
<td>Age at start (years)</td>
<td>4.03</td>
<td>3.72</td>
</tr>
<tr>
<td>Weight at start (kg)</td>
<td>15.96</td>
<td>15.67</td>
</tr>
<tr>
<td>Stool frequency (stools/week)</td>
<td>2.07</td>
<td>2.46</td>
</tr>
<tr>
<td>Stool consistency (adapted Bristol scale, from 1 to 7)</td>
<td>4.34</td>
<td>3.15</td>
</tr>
<tr>
<td>Pain during defecation (from 0 to 10)</td>
<td>3.92</td>
<td>6.00</td>
</tr>
<tr>
<td>Meet the inclusion criteria: Low Frequency (≤3 stools/week, N (%)</td>
<td>6 (67)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Pancreatic history of stools retention, N (%)</td>
<td>9 (100)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Family history of constipation</td>
<td>2 (22)</td>
<td>2 (22)</td>
</tr>
</tbody>
</table>

Results

Eleven children in each study group were recruited (n=22). From these, 17 completed the study protocol without any exclusion criteria. Results showed that Orafti Inulin - type fructans supplemented children showed softer stools compared to control group (p=0.003). The longitudinal analysis showed that whereas no significant changes were induced in controls, treated children softened their stool consistency after the intervention (p=0.04). Pain during defecation was reduced during intervention irrespectively of the study group.

Methods

Double - blind, randomized, placebo - controlled parallel group trial, where 2 - 5 y old constipated children according to Rome III Criteria received 2 daily doses of 2g/day Orafti Inulin - type fructans or the same amount of placebo (multiset) during 6 weeks. Primary outcome was stool consistency assessed by a continuous daily bowel symptoms diary. Secondary outcomes were: stool frequency and gastrointestinal symptoms. Dietary intake as well as use of drugs or other products affecting gastrointestinal was controlled.

Conclusions

Prebiotic inulin - type fructans improves the stool consistency in functionally constipated 2-5 y old children.

References

The effect of chicory inulin consumption on fecal metabolite profiles in a randomized, placebo controlled cross-over human intervention study

Vicky de Preter¹, Manuela Sailer¹, Stephan Theis¹, Kristin Verbeke¹

¹Translational Research Center for Constipation and Diarrhoea (TRCAD), Laboratory of Digestion and Absorption, KU Leuven, Belgium

Background & Objective
The beneficial prebiotic effect of chicory inulin consumption and its activity that are positively associated with health and well-being. Inulin and its related fructooligosaccharides such as chicory-derived inulin leads to a shift to more saccharolytic fermentation, back-saccharolytic fermentation generated in particular short-chain fatty acids (SCFA) and is considered as more beneficial compared to propranolectic fermentation. This has been demonstrated by various in vitro and in vivo studies.

Study design
The study was conducted as a randomized, placebo controlled, cross-over trial and included four study periods (2 test phases, 2 observation periods). Subjects in phase 1 (age between 21 and 75 years) collected 4 fecal samples during the last 7 days of the four study periods.

Test products used:
- Inulin 5.1 g + inulin 4.9 g per day
- Placebo 12.5 g maltodextrin per day

Fecal sample analysis:
Vaillant organic compounds (VOC) of the fecal samples were analyzed using a GC-MS approach and metabolomics statistical analysis was performed.

Results: Inulin intake leads to a more pronounced saccharolytic fermentation

Results: Descriptive statistics

Conclusion
This study demonstrates a starvation mimicking approach that the consumption of chicory could exhibit a positive prebiotic effect (indirect and direct) and SCFA were the drivers towards a more pronounced saccharolytic profile. It is generally accepted that saccharolytic fermentation results in beneficial effects for the host. Therefore, the metabolomics analysis suggests that intake of chicory-derived inulin could contribute to a more beneficial colonic environment for the host.

References

Abbreviations
SCFA, short-chain fatty acids; CS, CS, gas chromatography/mass spectrometry; HPLC, high-performance liquid chromatography; GC, gas chromatography; MS, mass spectrometry; PLE, pressure liquid extraction; LDA, linear discriminant analysis; RDA, regression analysis.
Events & Speeches

ASIA
Promoting Child Nutrition....

Slowly available carbohydrates and natural dietary fibres for a better metabolic set up – be prepared for the future!

30th Scientific Conference of the Nutrition Society of Malaysia

Anke Sentko
Vice President Regulatory Affairs & Nutrition Communication
BENEÖ GmbH / BENEÖ Institute
New insights in functional carbohydrates in science and legislation

Anke Senftke
Vice President Regulatory Affairs &Nutrition Communication
BENEÖ GmbH / BENEÖ Institute, Germany
“Better Nutrition, Healthier Malaysians”

Eat smart – Steer your metabolic and digestive health with science-based ingredients

Goh Peen Ern
Manager Nutrition Communication, BENEVO Institute, BENEVO Asia-Pacific
EVENTS:
S. AMERICA & MEXICO
BENEO Symposium:
“Digestive Health: more important than ever”
Chaired by: Prof. Angela Zuleta (University of Buenos Aires)
Monica Montani (BENEO Latin America, Brazil):
Introduction to BENEO Institute & “BENEO Orafti chicory root fibres: origin, production, application”
Prof. Closa Monasterolo (Hospital Universitari Joan XXIII, Tarragona):
“Prebiotic inulin type fructans as bioactive components in paediatrics: benefits for digestive health and function”
Christiaan Kalk (BENEO-Institute):
“Chicory fibre and support of bowel regularity”

Symposium by Prof. Angela Zuleta
“Carbohydrates: A nutritional look, strategies for incorporation into a healthy diet”
Christiaan Kalk:
“Isomaltulose: nutritional and metabolic effects”
EVENTS:
USA & CANADA
FRIDAY, JUNE 12TH
8:30-10:20  PREBIOTICS AND NOVEL CARBOHYDRATE INGREDIENTS IN DIABETES
Chairs: Angela Rivellese & Dario Rahelic
8:30-8:50 Slowly and rapidly absorbed carbohydrates on postprandial metabolism in type 2 diabetes
(Thomas Linn, Germany)
8:50-9:10 Metabolic benefits of prebiotic fibre intake
(Raylene Reimer, Canada)
9:10-9:30 Achieving low glycaemic response diets within food-based approaches to healthy eating
(Geoffrey Livesey, United Kingdom)
9:30-9:40 Oral Abstract 11 - Lowering Glucose and Insulin Responses to a Starchy Staple: From Formulation to Flux (David Mela, Netherlands)
9:40-10:00 Panel Discussion
(Thomas Linn, Raylene Reimer, Geoffrey Livesey, David Mela)
Sponsored speech by Prof. Bob Rastall, University of Reading, UK on:

“Prebiotic manipulation of the gut microbiome and metabolome: is this a health benefit”
EVENTS: EUROPE
What’s new on prebiotic fibres – some snapshots

Stephan Thies
Beneo, DE
Email: Stephan.Thies@beneo.com

The role of dietary fibre in health maintenance is well acknowledged and attributed to several physiological effects such as blood lipids reduction, attenuation of postprandial blood glucose and insulin response, bowel regularity and colonic fermentation. Inulin-type fructans are established dietary fibres that contribute to these fibre effects and help to fill the gap between daily intake and dietary recommendations. Apart from their fibre function they have been shown to be effective prebiotics, i.e. they are “selectively fermented ingredients that result in specific changes in the composition and/or activity of the gastrointestinal microbiota, thus conferring benefits upon host health”. The prebiotic effect is now a well-established scientific fact. Inulin-type fructans are amongst the best studied prebiotics, and are amongst the very few that are accepted as “proven” prebiotic fibers. Since the concept was first defined it has been subject of intensive research, and prebiotic research has continued at a rapid pace with more than 1000 research articles published over the past 5 years. Recent health-related research beyond the effects of prebiotic fibers on the gut ecosystem and digestive health includes the effects on energy intake and body weight management, metabolic benefits and improvements in obesity related disorders. This presentation will highlight the latest evidence from novel systematic reviews, human intervention studies as well as mechanistic investigations that continue to support the benefits of inulin-type fructans as fermentable prebiotic fibers.

Keywords: Inulin-type fructans, Fermentation, Prebiotic, Dietary fibre.
Sponsored speech given by Dr. Kieran Tuohy, Edmund Mach Foundation, Italy:

“Mode of delivery, route of delivery and diet – all regulate infant microbiota and metabolome”
Effect of prebiotic inulin-type fructans on health parameters and intestinal microbiota composition in children aged 3 to 6 years: a randomized, double-blind, placebo-controlled explorative study

Szimonetta Lohner¹, Nóra Szili¹, Viktória Jakobik¹, Dorottya Soltész¹, Sara Soldí², Sotirios Vasileiadis², Stephan Theis³, Carolin Sieland³, Günther Boehm⁴, Tamás Decsi¹

¹University of Pécs, Department of Paediatrics, Pécs, Hungary  
²Advanced Analytical Technologies Srl, Fiorenzuola D’arda, Italy  
³Beneo-Institute, Obrigheim, Germany  
⁴Nutritional Science Consulting, Leipzig, Germany

Prof. Dr. T. Decsi, University of Pécs, Hungary presented the results of a study supported by BENEØ
Bob Rastall - chair, Professor of Food Biotechnology in the Department of Food Biosciences, University of Reading, UK:

"Prebiotic Manipulation of the Human Gut Microbiome for Health"

Manuela Sailer, BENEÖ-Institute:
"Snapshots on Recent Prebiotic Fiber Research"
Geoffrey Livesey, PhD (UK)
“Markers of carbohydrate quality”

Prof. Dr. Andreas Pfeiffer (Germany)
Art. 13(5) EU dossier on inulin and normal bowel function: acceptance by EFSA

SCIENTIFIC OPINION

Scientific Opinion on the substantiation of a health claim related to “native chicory inulin” and maintenance of normal defecation by increasing stool frequency pursuant to Article 13.5 of Regulation (EC) No 1924/2006

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

Following an application from BENEÖ-Orafti S.A., submitted pursuant to Article 13.5 of Regulation (EC) No
Orafti® inulin & normal bowel function – approved claim

“Chicory inulin contributes to normal bowel function by increasing stool frequency.”

Legal Disclaimer: This information is presented in good faith and believed to be correct; nevertheless no responsibility/warranties as to the completeness or
EU Register on nutrition and health claims

Health claims for which protection of proprietary data has been granted

<table>
<thead>
<tr>
<th>Claim type</th>
<th>Nutrient, substance, food or food category</th>
<th>Claim</th>
<th>Conditions of use of the claim / Restrictions of use / Reasons for non-authorisation</th>
<th>EFSA opinion reference</th>
<th>Commission regulation</th>
<th>Status</th>
<th>Restriction of use for the benefit of</th>
<th>Expiry date of the restriction of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art.13(5)</td>
<td>Native chicory inulin</td>
<td>Chicory inulin contributes to normal bowel function by increasing stool frequency</td>
<td>Information shall be provided to the consumer that the beneficial effect is obtained with a daily intake of 12 g chicory inulin. The claim can be used only for food which provides at least a daily intake of 12 g of native chicory inulin, a non-fractionated mixture of monosaccharides (&lt; 10 %), disaccharides, inulin-type fructans and inulin extracted from chicory, with a mean degree of polymerisation ≥ 5 or ≥ 9.</td>
<td>Q-2014-00403</td>
<td>Commission Regulation (EU) 2015/2314 of 07/12/2015</td>
<td>Authorised</td>
<td>BENE-Orafti S.A. Rue L. Marichal 1, Oreye 4585 BELGIUM</td>
<td>01/01/2021</td>
</tr>
</tbody>
</table>

Footnotes:

(1) By letter of 31 December 2013, the Commission has been informed that GlaxoSmithKline Services Unlimited (58K House, 980 Great West Road, Brentford TW8 9QS, UNITED KINGDOM) has agreed to transfer all rights it has to use (and to permit others to use) the health claim to Lucozade Ribena Sunbury Limited (2 Longwalk Road, Stockley Park, Uxbridge UB11 1BA, UNITED KINGDOM), and, from the date of that letter, consents to and authorises the use by Lucozade Ribena Sunbury Limited and its affiliates of the health claim based on the proprietary data filed by GlaxoSmithKline Services Unlimited.

Report Notes:

Health claims for which protection of proprietary data is granted, are authorised for the restricted use of the applicant for a period of five years after the entry into force of the relevant legal act. At the expiry of the five-year period, this restriction should be removed so that the health claim may be used, in conformity with the conditions applying to it, by any food business operator. Such authorisations of claims for the restricted use of the applicant, do not exclude the authorisation of the same claims in case they are based on data and studies other than those for which protection of proprietary data has been granted in accordance with Article 21 of Regulation (EC) No 1924/2006.

Ref. EU Register on nutrition and health claims; available at: http://ec.europa.eu/nuhclaims/
Reduced blood glucose response
Positive EFSA Opinion

SCIENTIFIC OPINION

Scientific Opinion on the substantiation of a health claim related to non-digestible carbohydrates and a reduction of post-prandial glycaemic responses pursuant to Article 13(5) of Regulation (EC) No 1924/2006¹

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)²³

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

Following an application from Beneo-Orafti SA, Sensus BV and Cosucra-Groupe Warcoing SA, submitted for authorisation of a health claim pursuant to Article 13(5) of Regulation (EC) No 1924/2006 via the Competent Bodies.

The food that is the subject of the health claim is fructo-oligosaccharides (FOS, oligofructose) obtained from chicory (Cichorium intybus L.) inulin, which should replace sugars in foods or beverages in order to obtain the claimed effect (i.e. reduction of post-prandial glycaemic responses).
Positive EFSA claims opinion on Oligofructose and Inulin & Lower Blood Glucose Rise

• The original Art. 13(5) application was only related to “oligofructose from chicory inulin” whereas EFSA has broadened in its opinion the scope to all “non-digestible carbohydrates”, thus the opinion is also relevant for Orafti®inulin.

• Suggested claims wording by EFSA (ON 3513):

  “Consumption of foods/drinks containing non-digestible carbohydrates instead of sugars induces a lower blood glucose rise after meals compared to sugar-containing foods/drinks”

• The claim could be used on food products of all food categories of the general food supply

• Suggested conditions of use by EFSA:

  “At least 30% of the sugars in a food product have to be replaced by Orafti®oligofructose or Orafti®inulin.”

Legal Disclaimer: This information is presented in good faith and believed to be correct; nevertheless no responsibility/warranties as to the completeness or accuracy of this information are taken. This information is supplied upon the condition that the persons receiving the same will make their own determination as to its suitability for their purposes prior to use. Confidential business information.
Reducing the blood glucose response of sugar-containing foods with inulin and oligofructose