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**Research confirms BENEО's Palatinose™
is the better sugar for people with diabetes**

The latest scientific research carried out by Professor Dr. Andreas F.H. Pfeiffer¹ and his team at the German Institute of Human Nutrition, Potsdam-Rehbrücke, Germany, shows that the type of sugar used makes a significant difference to the blood glucose management of people with type 2 diabetes. It becomes clear that not all sugars are alike in their metabolic profile. Consequently it is physiology and hormone response that matter more than carbohydrate chemistry.

The study results provide new scientific evidence that the favourable metabolic profile of BENEО's Palatinose™ (isomaltulose) results from the opposite effect it has, compared to sucrose on the incretin hormones GIP (Gastric Inhibitory Polypeptide) and GLP-1 (Glucagon-like peptide-1). The benefits of Palatinose™, observed in direct comparison with sucrose in this study, suggest that the hormone (incretin) response plays a key role for the effects in metabolism and health.

The human intervention study used a randomised, double-blind cross-over design with 10 type-2 diabetics who consumed 50g Palatinose™ or sucrose dissolved in water after overnight fast. The results show that Palatinose™ reduces insulin secretion and lowers blood glucose fluctuations in people with type 2 diabetes mellitus: With Palatinose™, the blood glucose response was lower (with approximately 20% lower peak concentrations), the insulin release was 55% lower, the GIP release was very low and delayed (overall 40% less vs sucrose) and the GLP-1 secretion was higher and sustained (overall 6.3 fold higher vs sucrose).

The reason for the significantly different incretin response of Palatinose™ compared to sucrose is explained by its unique molecular bond and related slow release properties. As a result of its slower digestion, Palatinose™ bypasses the K-cells in the upper intestine (which produce GIP) and reaches GLP-1 producing L-cells in the lower intestine. These incretin hormones play an important role in blood glucose regulation, insulin release and related long-term effects in development of insulin resistance and type 2 diabetes.

Pfeiffer and his team also demonstrated long-term benefits of the different incretin hormone response of Palatinose™ in blood sugar management and diabetes prevention. Within an earlier long-term feeding study with mice, the same research group showed that a diet with Palatinose™ (vs sucrose) resulted in less liver fat accumulation and better glucose tolerance. While these results indicated that the lower effects of Palatinose™ (vs sucrose) on GIP release were relevant benefits in the prevention of a fatty liver and type 2 diabetes, they may also imply further potential for Palatinose™ in weight management and body fat. A clear link of these benefits with the different incretin response, and here in particular the lower GIP release, was established with animals who did not have GIP receptors.

Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at BENEО commented: "We are very pleased with these independent study results. It shows the strong potential for Palatinose™ in blood sugar management and diabetes prevention. With the number of people suffering diabetes mellitus set to rise even further, the findings of this study are of great relevance to a large proportion of the population. Though our understanding of the full potential of the different hormone (incretin) response of Palatinose™ in supporting health and preventing disease is still in the early stages, this new research again underlines the fact that 'not all sugars are alike!'"

BENEО's Palatinose™ is a fully digestible disaccharide-type carbohydrate composed of glucose and fructose. Due to its unique molecular linkage, it is a slow release carbohydrate and is derived from beet sugar. It is fully yet slowly digested and absorbed, providing balanced and sustained energy, with a lower blood glucose rise and less insulin release. Palatinose™ creates an improved metabolic profile with more stable blood glucose levels and a higher contribution of fat utilisation in energy metabolism. It can be used as a sugar alternative, replacing sucrose or other high glycaemic carbohydrates on a gram-to-gram basis.

Editor's Note:

This independent academic research was published in the March 2016 issue of Diabetes Care and BENEО was not involved in any way, other than providing the test carbohydrate.

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The BENEO-Institute is an organisation which brings together BENEO's expertise from Nutrition Science, Nutrition Communication and Regulatory Affairs teams. It acts as an advisory body for customers and partners reaching from ingredient approval, physiological effects and nutritional composition to communication and labelling. The key nutritional topics that form the basis of the **BENEO-Institute's** work include weight management, digestive health, bone health, physical and mental performance, the effects of a low glycaemic diet in the context of healthy eating and disease prevention, as well as dental health.

The **BENEO-Institute** facilitates access to the latest scientific research and knowledge throughout all nutritional and regulatory topics related to BENEO ingredients. It provides BENEO customers and partners with substantiated guidance for some of the most critical questions in the food industry. BENEO is a division of the Südzucker Group, employs almost 900 people and has production units in Belgium, Chile, Germany and Italy.

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For further press information, please contact:

Jo Kent at Publicasity

Tel: +44 20 3757 6800

Email: BENEEO@publicasity.co.uk

For further information or interview requests, please contact:

Claudia Meissner, Head of Corporate Communication BENEEO

Tel +49 621 421148

Email: Claudia.Meissner@beneo.com

ⁱ Source: The study was presented by Prof. Pfeiffer at the 12th Europe Nutrition Conference (FENS) in Berlin, Germany, October 20-23 2015, as part of the BENEEO Symposium. Reference: Pfeiffer AFH (2015) Metabolic benefits of Palatinose™ are related to gut hormone induced metabolic responses. Ann Nutr Metab 67 (suppl 1) p. 85.