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### Prebiotic effect of fructans with different structure and polymerization degree

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Due to their beneficial effect on health fructans as prebiotics become more and more important in the Functional Food industry. Fructose polymers are accumulated by a great variety of plants including chicory, Jerusalem artichoke or agaves. The influence of structure and polymerization degree of fructans on the prebiotic potential is not fully elucidated yet. Thus, we compared the prebiotic effect of fructans from different plant sources including chicory, Jerusalem artichoke and agave with different polymerization degree and diverse structures such as inulin-type (only  $\beta$ 2-1 linkages) and mixed-type (combined  $\beta$ 2-1 and  $\beta$ 2-6 linkages with branching). The influence of the fructan samples on the growth curve of seven probiotic strains was determined based on a turbidity measurement and confirmed by conventional culturing. All fructans showed a significant prebiotic effect with differences depending on the probiotic strain, the fructan type and the polymerization degree. Fructan samples with lower polymerization degree induced the growth of the probiotics faster than those with higher polymerization degree. Interestingly, fructan samples with branching had a higher and faster effect. The degradation process of the oligosaccharides by probiotics was a continuous cleavage of the oligosaccharides to disaccharides and monosaccharide. The growth is dependent on the degradation process. This study contributes to elucidate the influence of molecular structure and polymerization degree of the fructans on the prebiotic effect and the dependency of the prebiotic effect and degradation of prebiotics on different probiotic strains; both are of high importance for the Functional Food industry and pharmaceutical applications.

#### Biography

M Mueller has completed her PhD in Biotechnology from University of Natural Resources and Life Sciences, Vienna. She completed her Postdoctoral studies at Bioprocessing Technology Institute in Singapore from 2009 to 2012. Since 2012, she is working as a University Assistant at PTB at the University of Vienna. She has published more than 25 papers in reputed journals and made oral presentations at several international conferences. Her current research focuses on prebiotics including fructans, bioactivity of traditionally used plants and stability of phytochemicals.

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