

## ARABINOXYLANS AND INULIN AFFECT THE MUCOSA ASSOCIATED BACTERIAL COMMUNITY

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Intestinal bacteria of the mucosa associated bacterial community make much closer contact with the host than luminal ones, therefore having a greater potential to influence host health. We evaluated *in vitro* and *in vivo* whether prebiotic inulin and potentially prebiotic arabinoxylans (AX) modulate the luminal-mucosal microbial community in terms of **metabolic activity** and **composition**. In order to enhance the relevancy of this *in vitro* - *in vivo* comparison, the setup of both systems was similar regarding length of stabilization and treatment period and inoculation with the human fecal microbiota.

The observed prebiotic effects of inulin and AX corresponded between the SHIME and gnotobiotic rats. AX and inulin increased absolute SCFA concentrations and induced a proportional shift from acetate to propionate and butyrate, respectively. Molecular analysis (DGGE) showed that both carbohydrates support growth of different bifidobacterial species. Overall selective effects towards positive commensalistic bacteria were summarized by calculating a Prebiotic Index (PI) for the luminal and an Adhesion Related Prebiotic Index (AR-PI) for the mucosal bacterial community. The new AR-PI was more sensitive for prebiotic effects than the existing PI. Inulin exerted prebiotic effects on the composition of luminal and mucosal bacterial community. In contrast, prebiotic effects of AX were only observed in the SHIME because the lactobacilli stimulated in the SHIME, were not able to colonize the rats intestinal tract. More detailed investigation of the mucosa with FISH revealed that AX increased the mucosal bifidobacteria count.