MICROBIOTA AND SCFA PROFILE OF WOMEN WITH FUNCTIONAL CONSTIPATION

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Background. Functional constipation is caused by various factors, one of them was luminal factor (dysbiosis of microbiota). The gut microbiota and also short chain fatty acid plays a fundamental role in several aspects of host health and diseases.

Methods. A randomized, double-blind, placebo-controlled clinical trial was conducted to evaluate supplementation of fermented milk containing probiotic *Lactobacillus plantarum* IS-10506 (1.2x10^{10} cfu/day) and placebo on gut microbiota and SCFA profile of 28 women with functional constipation after 21 days supplementation compare to 8 women (non constipation group). Profile of fecal microbiota and fecal SCFA (acetate, propionate, and butyrate) was assessed by *next generation sequencing* (NGS) and GC-MS, respectively.

Results. Baseline data showed that there was unbalancing (dysbiosis) of microbiota composition in terms of Firmicutes:Bacteroidetes ratio: a higher ratio was found in constipated subjects. Also, SCFA concentrations were significantly lower in constipated subjects. After 21 days supplementation there was Increasing of taxa *Lactobacillus* sp. strongly correlate with the increasing of Lanchospiraceae.other after probiotic intervention. Lachnospiraceae.other seemed to suppress *Roseburia sp*, Ruminococcaceae.g, and *Bilophila sp*. Suppresion of *Roseburia sp*, relative abundance strongly correlated with increased SCFA. Based on the Spearman-rho correlation test, *Roseburia sp* has a correlation with all SCFA parameters (acetate rho=0,46, propionate rho=0,49 and butyrate rho=0,43) besides other strong correlations are Christensenellaceae.g_ and Lachnospiraceae.g_ with acetate (rho=0,62).

Conclusion. Supplementation of fermented milk containing *Lactobacillus plantarum* IS-10506 at a dose of 1.2x10^{10} cfu/day for 21 days improved the balance of microbiota towards eubiosis, increased SCFA (acetate, propionate and butyrate) concentration as an underlying molecular mechanisms of the women with functional constipation.

Key words: *Lactobacillus plantarum* IS-10506, functional constipation in women, microbiota profile, SCFA.

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