

TITLE: EFFECT OF CONSUMPTION OF *Lactobacillus plantarum* LP115 ON THE METABOLITES FROM FECAL SAMPLES HUMANS

AUTHORS: NUNES, A.L.S.¹; DOMINGUES, A.F.¹; OLIVEIRA, L.G.S.¹; DE MACEDO JR, F.C.²; COSTA, G.N.¹

INSTITUTION: ¹ PROGRAM OF MASTER IN DAIRY SCIENCE AND TECHNOLOGY, UNIVERSITY OF NORTH PARANÁ-UNOPAR, LONDRINA, PARANÁ, BRASIL. ² DEPARTMENT OF CHEMISTRY, UNIVERSITY OF LONDRINA, LONDRINA, PARANÁ, BRASIL

ABSTRACT

Many studies have been conducted in order to evaluate the effects that certain probiotic microorganisms have on human health. The most recent advances *in vivo* studies, using diets containing probiotics in animals and humans are based on the capturing of large amounts of DNA sequences for genomic studies or identifying metabolites derived from blood, urine or feces for metabolome studies or specific metabolites. *Lactobacillus plantarum* is a microorganism widely used in fermented products and its features and beneficial effects on the human health have been studied. In this sense, the metabolomic approach focuses on identifying compounds resulting from cellular metabolism, in order to understand the relationship between microbiota and host are interesting targets. In this study, we used the ¹H NMR to assess the variation in the metabolite profile in fecal samples from 15 healthy individuals whose diets were supplemented by daily ingestion of a fermented milk with *L. plantarum* - LP115 during 90 days. For analysis of metabolites profile, individual samples from 15 volunteers related to zero time (baseline, T0), 90 days and 15 days after of consumption were also evaluated. Besides the individual subject samples, composite samples of the faecal mixture of all individuals were also analyzed in the same evaluation periods.. The profile of metabolites does not appear to vary when using individual or composite samples. ¹H NMR spectra of the pooled samples and the average individual spectra showed the occurrence of more than 20 metabolites identified in the times T0 and T90. Among these, the levels of ethanol and α -aminoisobutyrate are clearly reduced during probiotic ingestion, which suggests an important relationship of the *L. plantarum* - LP115 which play a role in liver-related diseases by decreasing endogenous ethanol in the stool. Already, α -aminoisobutyrate the also plays a key metabolic role in increasing adipose tissue oxidation preventing body fat gain and steatosis by increasing fat oxidation levels in the liver.

Key-words: *Lactobacillus plantarum*, Metabolome, Gastrointestinal Tract, Probiotic, Nuclear Magnetic Resonance.

Development Agency: Prosup/Capes