



Effects of probiotic *Lactobacillus paracasei* HII01 in type 2 diabetic patient: A preliminary report

Chaiyavat Chaiyasut^{1*}, Parichart Toejing^{1,2}, Narissara Lailerd^{1,2}, Sasithorn Sirilun¹, Bhagavathi Sundaram Sivamaruthi¹, Nanticha Kampitam¹, Jutharat Krikhajornkitti³, Borwornpat Lailerd⁴, Phakharawat Sittiprapaporn⁵

¹Innovation Center for Holistic Health, Nutraceuticals and Cosmeceuticals, Faculty of Pharmacy, Chiang Mai University, Chiang Mai, 50200, Thailand

²Department of Physiology, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand

³Public Health Unit, Phare Hospital

⁴Phare Provincial Public Health Office

⁵Brain Science and Engineering Innovation Research Group, School of Anti-Aging and Regenerative Medicine and Department of Anti-Aging Science, School of Anti-Aging and Regenerative Medicine, Mae Fah Luang University, Bangkok, Thailand

*Corresponding author, E-mail: chaiyavat@gmail.com

Abstract

Alteration in the composition of gut microbiota is associated with the development of diabetes and obesity, and interventions that alter the gut microbiota are considered as a novel therapeutic approach for these diseases. This preliminary study was carried out to assess the effects of the supplementation of *Lactobacillus paracasei* HII01 in type-2 diabetes mellitus (T2DM) patients, focusing on glycemic control and inflammatory markers. Ten T2DM patients had consumed daily *L. paracasei* HII01 50×10^9 CFU for 12 weeks. At the baseline and the end of the experiment, a blood sample was collected from each patient after overnight fasting for measuring the plasma glucose, HbA1c, and LPS levels. Results showed that changes recorded in fasting blood glucose and HbA1c levels were not significantly altered as compared to the baseline. However, the supplementation of *L. paracasei* HII01 significantly reduced plasma LPS (28.75%) ($p < 0.05$) at the end of the study, comparing to the baseline. These results also suggested that *L. paracasei* HII01 effectively attenuated the systemic inflammation in T2DM patients. The present study demonstrated the potential of *L. paracasei* HII01 to be used as an adjunct therapy in T2DM patients. Nonetheless, further elaborative detailed clinical studies are required to prove this claim.

Keywords: Probiotic, type 2 diabetic, *Lactobacillus paracasei*, Lipopolysaccharide, Hemoglobin A1C
