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Lipid-lowering ability of *Lactobacillus plantarum* IBT16 isolated from Vietnamese fermented shrimp in diet-induced obese mice

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Lactic acid bacteria (LAB) is widely distributed in nature. These bacteria have been used in traditional fermented food long time. Accumulated recent evidence indicates that, LAB, representing a major part of the microbial flora in the human gastrointestinal tract, participate to nutrient metabolism, generate essential amino acids, synthesize vitamins, and inhibit pathogenic bacteria to help maintain the balance of the host's health. In our research, by using chemical and molecular biology methods, we isolated and identified successfully three *Lactobacillus plantarum* strains comprising L.p-IBT5, L.p-IBT16, and L.p-IBT27 from Vietnamese traditional fermented products i.e. shrimp paste, sour shrimp and duachua (pickles) respectively. Analysis of 16S rDNA gene sequence indicated that the L.p-IBT5 and L.p-IBT16 showed 99% homology with *L. plantarum* ST-III, *L. plantarum* K-46, respectively while the L.p-IBT27 showed 100% homology to *L. plantarum* P8. Cholesterol assimilation of these bacteria was examined. Results showed that all of them could assimilate cholesterol from cultured media almost on the same level. Although the effect of bile salt on viability of these strains was unremarkable but the L.p-IBT16 had a highest tolerance to low pH. The L.p-IBT16 was therefore selected to feed diet-induced obese C57BL/6 mice with a daily dosage of 10^7 CFU. After 9 weeks, L.p-IBT16 have been found in the caecum of obese mice. Furthermore, some bacteria species which were reduced in obese mice have been recovered with the presence of L.p-IBT16. Although the L.p-IBT16 did not reduce serum cholesterol level significantly but this strain of bacteria decreased significantly serum triglyceride level in obese mice. The collecting results suggest that the L.p-IBT16 hold potential features as probiotics for obese people.