



EVALUATION OF TWO MECHANISMS FOR REDUCE CHOLESTEROL *IN VITRO* OF LACTIC ACID BACTERIA WITH PROBIOTIC POTENCIAL

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Introduction. Hypercholesterolemia is a risk factor for developing cardiovascular disease and a major cause of death in several countries (1). For years, foods with lactic acid bacteria have been known for their variety of beneficial effects over consumer's health and its capacity to reduce serum cholesterol (2).

Methods. The ability to decrease cholesterol by the enzyme activity of the bile salt hydrolase (BSH) was evaluated *in vitro* (3). The ability to adsorb (4) cholesterol and BSH by the amount of glycine or taurine released into the medium in five strains *L. fermentum* with probiotic potential assessed in previous studies and a strain isolated of "suero costeño" (similar food of sour cream), *L. fermentum* S7-2b. BSH, was determined by the amount of glycine or taurine released into the medium, which indicates that the strains assessed hydrolyzed conjugated salts with taurine and glycine. Molecular study was executed designing specific primers for *bsh* gene in *L. fermentum* and it was evaluated by RT-PCR under anaerobic conditions and the presence / absence of substrate at the beginning of the gene expression.

Results. These results showed that the strains with higher cholesterol adsorption, 75,8% and 62,4% were *L. fermentum* K73 and *L. fermentum* S7-2b respectively and they deconjugate the 3 bile salts. On the other hand, 3 of the 5 remaining strains did not showed enzymatic activity or presence of the gene; however, all strain assessed adsorbed cholesterol. The BSH gene in *L. fermentum* strains expresses at the second hour of bacterial growth (Figure 1).

host, as it would be intervened by two complementary mechanisms. In the future, the evaluation of the strain *in vivo* and its incorporation into different food matrices for industrial use is expected.

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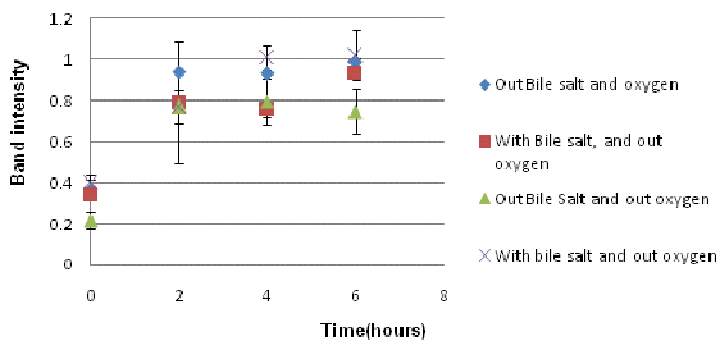


Fig 1. Enzyme gene expression BSH for *L. fermentum* ATCC 9338

Conclusions. Microorganisms with the two capacities (BSH enzyme production and adsorption of cholesterol) would have a greater effect on cholesterol levels of the