

SURVIVAL OF COMMERCIAL PROBIOTIC STRAINS TO LOW PH AND BILE

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ABSTRACT

Lactic acid bacteria that selected as dietary adjuncts to promote beneficial health effects to consumers must be able to tolerate various biological stresses after entering the host's gastrointestinal tract. Survival of probiotics to these stresses has become one of the screening factors in selecting appropriate probiotic strains. In this study, the two most important factors, which are acid and bile tolerance of commercial probiotics were investigated *in vitro* using conventional plate counting method. *Lactobacillus acidophilus* strain of a commercial product (sample brand S) was sequentially subjected to acidic PBS (pH 1.5 and 3.0) followed by MRS broth supplemented with different bile salt concentrations (0.3%, 1.0% and 2.0%). Viable plate counts were done on lactobacilli MRS agar. The survival of sample culture in acid treatment was compared with control solution (pH 7.2) while the survival in bile treatment was compared with control broth (0% bile salt). The viable cell counts of *L. acidophilus* of sample brand S decreased by 3.83 log₁₀ cfu/ml after 1.5 hours at pH 1.5, 0.61 and 1.32 log₁₀ cfu/ml after 1.5 and 3 hours respectively at pH 3.0. Therefore, the sample culture was tolerance to pH 3.0 with 25.41% reduction in viable cell count after 3-hour incubation but sensitive to pH 1.5 with 74.64% reduction in viable cell count after 1.5-hour incubation. However, the sample culture grew back in the bile tolerance test after 24-hour incubation. All the viable cell counts increased to about 5.24 to 7.51 log₁₀ cfu/ml after 24 hours. There were no significant differences in bacteria counts of different bile concentrations and the sample culture was considered as a bile resistant strain. All the sample culture had more than 80% survival to all bile concentrations. In conclusion, *L. acidophilus* strain of the selected commercial product was less tolerance to low pH but was resistant to different concentrations of bile salts.