

PROBIOTIC PROPERTIES OF *Lactobacillus mucosae* STRAINS ISOLATED FROM BRAZILIAN GOAT MILK

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Firstly characterized in 2000, *Lactobacillus mucosae* is a species presenting properties related to probiotic potential, such as the ability to adhere to mucosal surfaces and activity against pathogenic bacteria. Probiotic characteristics of three *L. mucosae* strains isolated from goat milk produced in Brazilian semiarid area were investigated. Resistance to simulated gastrointestinal tract (GIT) conditions, bile salt hydrolase (BSH) activity, and β -galactosidase activity of *L. mucosae* CNPC006, CNPC007, and CNPC009 were studied *in vitro*. To evaluate the strains tolerance to GIT, overnight cultures of each strain in MRS broth were centrifuged and the pellet was resuspended in sodium chloride solution (0.85% w/v). Bacterial suspensions were added to simulated gastric juice containing pepsin (3.0 g/l) and lipase (0.9 mg/l), and the pH was adjusted to 2.3 with hydrochloric acid. After 2h of incubation at 37 ° C with agitation (150 rpm), the enteric conditions were simulated with an artificial intestinal fluid containing pancreatin (1.0 g/l) and bile salts (10.0 g/l) and adjusted to pH 5.0 to simulate the upper intestinal conditions, and to pH 6.5 in the last 2 hours of incubation as above. Aliquots were taken for the enumeration of viable cells at 0, 2, 4, and 6 h. The ability to perform bile salts deconjugation was screened by streaking 10 μ l of overnight cultures on MRS agar plates containing either 0.5% (w/v) of the sodium salts of taurocholic acid (TC), taurodeoxycholic acid (TDC), glycocholic acid (GC), or glycodeoxycholic acid (GDC). After anaerobic incubation at 37 ° C for 72 h, the presence of precipitated bile acid around colonies (opaque halo) was considered a positive result. β -galactosidase activity was assessed qualitatively employing sterile filter paper disks impregnated with o-nitrophenyl-D-galactopyranose. Overnight cultures were streaked on MRS agar plates, and incubated anaerobically at 37 ° C for 48 h. A colony of each strain was emulsified with 0.1 ml of sterile 0.85% (w/v) sodium chloride solution in a tube containing an ONPG disk. The tubes were incubated at 35 ° C, and observed for up to 6 hours. The release of a yellow chromogenic compound, o-nitrophenol, indicates a positive result. All the tests were performed two times for each strain, in duplicates. The three *L. mucosae* strains showed good survival rates when exposed to the conditions simulating the GIT, higher than 50%. The cumulative survival rates obtained for strains CNPC006, CNPC007, and CNPC009 after 6 h were 58.25, 51.03 and 62.83 %, respectively. All the three *L. mucosae* strains showed β -galactosidase activity, were able to grow in presence of TDCA, TCA, GDCA or GCA, and to deconjugate GDC. *L. mucosae* CNPC007 was able to deconjugate all the tested bile salts. According to the results, the three *L. mucosae* strains are promising candidates to be further studied as probiotics due to their tolerance to GIT conditions, and BSH and β -galactosidase activity, as well as for the development of novel dairy products. Acknowledgment: EMBRAPA and FAPESP for financial support.