

Potential beneficial properties of lactic acid bacteria isolated from water-buffalo mozzarella cheese

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Is recued for probiotic microorganisms that need to resist to specific conditions in the gastro-intestinal tract (GIT), such as the presence of gastric acidity of the stomach and toxicity of bile in order to confer health benefits to the host. Other criteria for selection of lactic acid bacteria (LAB) as potentially probiotic is the production of β -galactosidase and the presence of adhesion genes to mucus of the intestinal epithelial cells (*MapA*, *Mub* e *EF-Tu*). In this research, the viability and resistance to simulated GIT conditions in different matrices (MRS, whole milk and skim milk), the β -galactosidase production and the presence of adhesion genes (*MapA*, *Mub* e *EF-Tu*) were investigated in four strains of LAB, isolated from water-buffalo mozzarella cheese produced in São Jose do Rio Preto region (SP, Brazil), identified based on morphological, physiological, biochemical and genetic test (including 16S rRNA sequencing) as *Lactobacillus delbrueckii* subsp. *bulgaricus* (SJRP7521), *Lactobacillus casei* (SJRP6564), *Leuconostoc citreum* (SJRP6542) and *Leuconostoc mesenteroides* subsp. *mesenteroides* (SJRP6562). *Lactobacillus delbrueckii* subsp. *bulgaricus* SJRP7521, *Lactobacillus casei* SJRP6564, *Leuconostoc citreum* SJRP6542 and *Leuconostoc mesenteroides* subsp. *mesenteroides* SJRP6562 survived in the model GIT conditions when been incubated in MRS, whole and skim milk, although reduction on their population was observed (at least 3 log cycles). It is important for potential probiotic LAB to survive in GIT and to reach the intestine in order to promote the therapeutical effects to the consumers. *Lactobacillus delbrueckii* subsp. *bulgaricus* SJRP7521, *Lactobacillus casei* SJRP6564 and *Leuconostoc mesenteroides* subsp. *mesenteroides* SJRP6562 produced β -galactosidase enzyme, and the strains SJRP7521 and SJRP6562 generated positive results for presence of EF-Tu gene. Considering simultaneously all tests, the strains *Lactobacillus delbrueckii* subsp. *bulgaricus* SJRP7521 and *Leuconostoc mesenteroides* subsp. *mesenteroides* SJRP6562 showed the best results, being recognized as potential probiotic strains.

Biography

Ana Beatriz Jeronymo-Ceneviva graduated from University Center Barao de Maua University and completed her M.Sc. in Microbiology in 2013 at São Paulo State University, Sao Jose do Rio Preto, SP and Brazil. She presented her research at several national and international conferences, including oral presentation at the 16th IUFOST World Congress of Food Science and Technology.

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