

TITLE: POST ACIDIFICATION, VIABILITY AND SURVIVAL OF THE *IN VITRO* GASTROINTESTINAL STRESS SIMULATION OF PROBIOTIC *LACTOBACILLUS ACIDOPHILUS* IN DAIRY BEVERAGES MADE WITH BUFFALO MILK

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ABSTRACT:

Dairy beverages are increasingly present in the market for probiotic products, known to have in their composition live microorganisms, whose consumption in adequate quantities, provides benefits to the health of the host. The technology of elaboration of the probiotic dairy beverages is based mixture of a dairy base fermented with whey, that provides greater fluidity and improves the cost-benefit of the product. The use of buffalo milk can result in products with distinct quality since it has high levels of fat and protein when compared from bovine milk. However, the viability of the probiotic bacteria present in dairy beverages can be affected by different factors such as the food matrix, its acidity and the interaction between probiotic and starter culture. For this reason, this work evaluated and compared the behavior of the probiotic *Lactobacillus acidophilus* in dairy beverages made from buffalo milk and cow's milk. For this, probiotic dairy beverages made from buffalo and bovine milk with different levels of whey (0, 25 and 50%) were evaluated for protein and fat contents, post-acidification profile, viability of the probiotic shelf life and gastrointestinal stress resistance *in vitro* at the end of 21 days of refrigerated storage of the *L. acidophilus*. The fat and protein content was between 27% and 43% lower in the products containing serum in its composition. The pH of the dairy products decreased during the refrigerated storage, this acidification was less expressive in products containing whey. *Lactobacillus acidophilus* presented viable cells between 10⁶ and 10⁸ cfu/mL at the end of cold storage and was found in higher amounts in dairy products made from buffalo milk, ranging from 6.93 to 7.98 log cfu/mL in these products. The buffalo dairy products presented better viability of *L. acidophilus* throughout the *in vitro* gastrointestinal stress simulation analysis, demonstrating a beneficial protective effect of fat present in buffalo milk on the probiotic.

KEYWORDS: probiotic, gastrointestinal stress *in vitro*, buffalo milk, dairy beverage.

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