Title: WHEY ADDITION IN DAIRY PRODUCTS BENEFICIALLY AFFECTS THE VIABILITY of *Lactobacillus acidophilus*

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Abstract:

Dairy beverage is the product obtained by mixing milk with whey. Yogurt is a food produced by fermentation of pasteurized milk thought specific lactic acid bacteria, *Streptococcus thermophilus* and *Lactobacillus bulgaricus*. Such dairy products when called probiotics, present in addition one or more microorganisms which are capable of providing beneficial effects to the health of the consumer when consumed in an appropriate amount. The addition of whey to milk beverages as yogurt, represents a nutritional and technological characteristics are increased, but its addition could interfere with the viability of the probiotic culture in the product. This study aims to compare the influence of addition of whey in the viability of the bacteria *Lactobacillus acidophilus* on dairy products containing different pulps of red fruits – strawberry, raspberry and "pitanga". The simplex-centroid experimental design for mixture modelling was used to prepare the yogurts and dairy beverages. Three samples were supplemented with each type of fruit pulp used, three samples of the binary mixtures and one to the ternary one. A dairy beverage without pulp addition was used as control. To prepare the probiotic yogurts, skimmed milk was fermented at 42°C until reach pH 4.7 using *S. thermophilus* (TA040), *L. bulgaricus* (LB340) and *L. acidophilus* (LA140), the red fruit pulp and the whey were added to yogurts as mixture modelling table. The viability analysis of *L. acidophilus* was performed using the MRS agar with clindamycin through incubation at 37°C for 72 hours in anaerobic jar and enumerated in 36 h and 21 days of cold storage. The analyses were conducted in duplicate and statistical analysed were considered significant with $p<0.05$. The yogurts had higher variations of *L. acidophilus* viability between the periods analyzed had shown a decrease of 2.35 log CFU/mL in yogurt added "pitanga" pulp. The *L. acidophilus* showed a small variation of viability in dairy beverages, remaining throughout the product storage period, showing an increase of up to 0.4 log CFU/mL in dairy beverages with added raspberry pulp. With these results it was concluded that the addition of whey affect beneficially the viability of probiotic bacteria *L. acidophilus* in the studied dairy products.

Keywords: whey, dairy products, probiotic, Lactobacillus acidophiplus

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