

**TITLE:** L-TRYPTOPHANE SUPPLEMENTATION IMPROVES *Lactobacillus acidophilus* VIABILITY IN PROBIOTIC DAIRY BEVERAGES

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**ABSTRACT:**

Probiotic dairy beverages promote recognized human health benefits. Enrichment of milk with amino acids favors the fermentation of some bacteria, but there are no studies in amino acid supplementation after fermentation. In this work, the influence of tryptophan addition on viability and post acidification of *L. acidophilus* in milk beverages was evaluated. The milk was fermented at 42°C until it reached a pH of 4,7 in a co-cultivation of *Streptococcus thermophilus*, *Lactobacillus bulgaricus* and *Lactobacillus acidophilus*. Milk beverages were prepared by mixing the fermented milk whey and the prepared fruit pulp containing different combinations of strawberry, raspberry and “pitanga” in the presence or absence of tryptophan. Quantification of the lactic bacteria *S. thermophilus*, *L. bulgaricus* and *L. acidophilus* was carried out in M17 agar, MRS agar with modified at pH 5.4 and MRS agar, with addition of clindamycin, respectively, under 37°C for 72 hours. The post acidification was determined by the pH values measured in a digital potentiometer duly calibrated with buffer solutions of pH 7.0 and 4.0. All analyzes were performed in triplicate after two days of fermentation (d2) and after 21 days of refrigerated storage. The probiotic bacteria *L. acidophilus* showed better viability in tryptophan presence on dairy beverages, which showed a significant post acidification increase in the number of viable cells ranging from 10<sup>6</sup> to 10<sup>8</sup> CFU / mL between d2 and d21. There were significant differences in the post acidification profile between the dairy beverages with the addition of fruit pulp (pH 4.13±0.04) and the control samples (pH 4.38±0.05) after 21 days of refrigeration. Tryptophan addition in dairy beverages had higher pH decrease between d2 and d21 when compared to beverages without this amino acid. From the results obtained, it was observed that the addition of L-tryptophan in milk beverages contributed beneficially to improve the viability of the probiotic bacterium *L. acidophilus* at the end of refrigerated storage.

**Keywords:** dairy beverages, tryptophan, probiotics, *Lactobacillus acidophilus*

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