TITLE: FERMENTATION CHARACTERISTICS AND VIABILITY OF *Lactobacillus plantarum* AND *Lactobacillus casei* IN MIXED DRINK DURING STORAGE

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ABSTRACT:

Lactic acid bacteria (LAB) have biotechnological potential because of their presence in many food fermentation processes for human consumption. Some LAB, including *Lactobacillus spp* are beneficial to health, and are considered to be probiotic. There is a increasing interest in the development of fermented milk and soymilk, as they are a good vehicle for probiotic microorganisms. For this purpose, the fermentation characteristics and viability of two strains, *Lactobacillus plantarum* BG112 and *Lactobacillus casei* BGP93, were evaluated in a mixed beverage of soymilk and quinoa extract with skim milk during refrigerated storage. The mixed drinks (1: 2; soymilk: quinoa extract, with 5% skim milk powder) fermented by both lactobacillus were evaluated for viable cell, pH, acidity and color change (coloring loss – ΔE), during refrigerated storage at 4 ± 2 ºC for up to 28 days. *L. plantarum* showed significantly higher viability than *L. casei*, but both maintained the initial viability in the mixed drink throughout the storage (day 0: 9.30 ± 0.05 and 8.99 ± 0.08 log CFU/ mL; 28: 9.39 ± 0.03 and 8.93 ± 0.04 log CFU/ mL, *L. plantarum* and *L. casei*, respectively). The levels of pH and percent of lactic acid varied between the products fermented by *L. plantarum* and *L. casei*, both on day zero (4.30 ± 0.01; 1.42 ± 0.07% and 5.25 ± 0.06; 0.64 ± 0.12%, respectively), as well as after 28 days (4.35 ± 0.03; 1.43 ± 0.07% and 5.21 ± 0.03; 0.91 ± 0.01%, respectively). It did not vary between storage days, except for the % of acidity in the *L. casei* drink, which had a significant increase after the 28th day. The drink fermented by *L. casei* presented a ΔE, after storage end, higher than the drink fermented by *L. plantarum*, 8.40 ± 4.28 and 2.22 ± 0.62, respectively. The study indicated that the mixed drink of soymilk and quinoa extract is a good substrate for the fermentation of *L. plantarum* BG112 and *L. casei* BGP93. However *L. plantarum* was better adapted to the conditions of the mixed drink, providing a fermented with higher viable cells, low pH and maintenance of the initial characteristics of the product during storage.

Keywords: functional food, quinoa extract, soymilk, probiotic

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