

378/139. SURVIVAL OF PROBIOTIC STRAINS IN A REFRIGERATED NON-FERMENTED BLENDED JUICE USING A STATIC IN VITRO DIGESTION MODEL

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Introduction

There has been an increasingly consumer demand for foods with probiotic properties in the market. Considering the beneficial effects of probiotics and the functionality of fruit juices, their association to develop non-dairy probiotic beverages appears as an alternative for people who suffer from allergies or intolerances to milk products. Refrigeration is a technique that has long been used for food preservation and controlling the fermentation process in foods and beverages. In probiotic products, the use of low temperatures for a long storage time can affect the viability of microorganisms.

Objective

The aim of this study was evaluate the viability and the survival of four lactic acid bacteria (*Lactobacillus acidophilus*, *Lactobacillus casei* BGP93, *Lactobacillus plantarum* CNPC003 and *Bifidobacterium animalis* subsp *Lactis*) in a strawberry banana and jussara blended juice after storage at 4°C for 90 days, using a static in vitro digestion model.

Methodology

The strains were subjected to a model digestive system comprising sequential incubation in gastric and duodenal juices, in a 2-step digestion assay at 37°C, simulating the human upper gastrointestinal tract with gastric juices at pH 2.5 and duodenal juices at pH 7

Main findings

Bifidobacterium animalis presented the lowest viability in 30 days of storage (< 4.8 log UFC). *Lactobacillus casei* and *Lactobacillus plantarum* presented viable cell counts higher than 7 and 5 log UFC, after 90 days, respectively. However, *Lactobacillus plantarum* showed the highest survival rate in the model digestive system. A minor reduction of 1.5 log UFC was observed after 30 days of storage at the enteric phase. The beverage stored for 90 days showed a population reduction higher than 6 log UFC.

Conclusion

The results showed that *L. plantarum* better adapted to the vegetal matrix used for the beverage development and better resisted to the intestinal tract conditions when compared to the other evaluated strains.

Key words

Digestion, *Lactobacillus*, probiotic's survival, probiotic juice, probiotic beverages