

**TITLE:** SHELF LIFE OF A POTENTIALLY SYMBIOTIC BEVERAGE MADE WITH TANGERINE JUICE FERMENTED BY *Lactobacillus plantarum* BG 112 AND GALACTOOLIGOSACCHARIDES

**AUTHORS:** VALENTE, L.J.<sup>1</sup>; MAURO, C.S.I<sup>1\*</sup>, FERNANDES, M.T.C. <sup>1</sup>; FARINAZZO, F.S.<sup>1</sup>; TOMAL, A. A. B.<sup>1</sup>; GARCIA, S. <sup>1</sup>

**INSTITUTION:** <sup>1</sup>UNIVERSIDADE ESTADUAL DE LONDRINA, LONDRINA, PR (CELSO GARCIA CID HIGHWAY, PR ROUTE 445, KM 380, CEP 86057-970, LONDRINA - PR, BRAZIL).

**ABSTRACT:**

The most common form of probiotic consumption is dairy products, however fermented products of vegetable origin, such as fruit juices, have been widely considered as an excellent vehicle for the incorporation of these microorganisms. Probiotic microorganisms are able to improve the intestinal microbial balance and produce beneficial effects on the consumer's health. In addition, prebiotics such as galactooligosaccharides (GOS), promote better growth of probiotics by activating bacterial metabolism in the intestinal tract, once they are fermented by beneficial bacteria of the colon. In this context, the objective of this work was to monitor the shelf life of tangerine juice fermented by *Lactobacillus plantarum* BG 112 with addition of GOS, to perform color analysis, pH, Brix, titratable acidity and viability, these parameters were analyzed on days 0, 1, 15 and 30 of storage. The inoculum was prepared with 20% (v/v) glycerol, 20% (v/v) reconstituted whey (40% w/v), 60% (v/v) tangerine juice and 1% (w/v) of probiotic. Two activations were made to promote microorganism adaptation to the medium. The tangerine juice and reconstituted whey (40% w/v) were pasteurized separately at 80 ° C for 20 minutes in a water bath. After pasteurization, 10 % of the reconstituted whey, 20 % of GOS (v/v), reconstituted too, and 1% (v/v) of inoculum were added to the tangerine juice. After 48 hours of fermentation, the juice was stored under refrigeration at approximately 10 °C. The titratable acidity, color and °Brix did not show significative difference during the storage period. The pH values were 4.08 ± 0.03 for day 0 and 3.99 ± 0.015 for day 30, showing a decrease. The viability was 8.86 ± 0.28 log CFU/mL for day 0 and 8.18 ± 0.04 log CFU/mL at day 30. The fermented juice viability decreased on the first day and then did not show significative difference until the end of the storage. These results suggests a stability of *L. plantarum* in tangerine juice and that this may be a vehicle for the supply of probiotics through a new beverage, with viability above 8 log UFC/mL. In conclusion, the juice remained stable during the 30 days of shelf-life and proved to be a viable alternative of a symbiotic nondairy beverage.

**Keywords:** GOS, prebiotic, probiotic, storage, viability

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