

VII Simpósio de Microbiologia Agrícola

Inovação e Sustentabilidade para transformar o campo

18 a 21 de maio de 2026



ESALQ
USP



Feasibility of incorporating *Saccharomyces cerevisiae* into guava paste for the development of a probiotic product

**Chiara Cancellero Vitti¹, Liandra Spironello Ferraz¹, Alana Guerreiro Uchôa¹, Ellen Caires Souza¹,
Lavínia Nicolosi Rodrigues¹, Antonio Sampaio Batista¹**

¹ Escola Superior de Agricultura «Luiz de Queiroz» - Universidade de São Paulo

**chiara.vitti@usp.br*

Against a backdrop of growing demand for functional foods, the use of surplus yeast from the sugar and ethanol industry has emerged as a promising alternative for the production of probiotic foods. This is due to its ability to survive adverse conditions and osmotic stress, such as media with high sugar concentrations, like guava paste. The objective of this study was to incorporate *Saccharomyces cerevisiae* yeast into guava paste and evaluate cellular viability during storage, with a view to its application in products with probiotic potential. Thus, the dry yeast was reactivated in distilled water autoclaved for 15 minutes to obtain wet biomass, and subsequently incorporated into guava paste previously autoclaved with soluble solids contents of 60 and 70 °Brix. Two formulations were prepared in a yeast-to-paste ratio of 1:3 (m m⁻¹). The samples were then stored in sealed bottles in a cool, dark place, and cell viability was monitored by plating using YEPD (*yeast extract, peptone, and dextrose*) culture medium over a three-week period. The results showed that, in the first week, the 1:3 (60 °Brix) and 1:3 (70 °Brix) treatments had counts of 2.94×10^9 and 5.22×10^9 CFU mL⁻¹, respectively. After two weeks, a reduction in cell viability was observed, with values of 4.00×10^7 CFU mL⁻¹ (60 °Brix) and 1.50×10^8 CFU mL⁻¹ (70 °Brix). At the end of the third week, no apparent yeast growth was observed in any of the evaluated treatments. Thus, it is concluded that the 1:3 ratio showed initial potential for the development of a probiotic product, with the 70 °Brix treatment standing out for exhibiting higher cell viability throughout storage. However, the significant reduction in cell population at the end of the experimental period indicates limitations in maintaining viability, possibly associated with osmotic stress conditions.

KEYWORDS: Functional foods, Osmotic stress, Sugars, Yeast.