

CHARACTERIZATION OF CLEAN LABEL PAN BREADS MADE WITH NATURAL PRESERVATIVES FROM TAHITI LIME

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The use of essential oils to replace synthetic preservatives in bakery products is an alternative for the current market. Tahiti lime (*Citrus latifolia* Tanaka) essential oil (LEO) has antimicrobial compounds in its composition, especially limonene. Furthermore, supercritical fractionation using CO₂ (SCF) can be used to concentrate these compounds. However, one of the main challenges for using natural preservatives in fermented bakery products such as pan bread is their interference in yeast (*Saccharomyces cerevisiae*) fermentation and product quality. Therefore, the objective of this study was to evaluate the technological characteristics of pan bread made without preservatives, with a synthetic preservative (calcium propionate), and with the natural preservatives LEO and fractionated LEO (FLEO). For this, eight pan bread formulations were elaborated: CONTROL (C), without preservatives; STANDARD (S), with 0.35% calcium propionate; three with LEO and three with FLEO, each at concentrations of 0.30%, 0.60% and 1.20%. The pan breads were evaluated on day 1 for pH, acidity, firmness, specific volume, radial expansion and instrumental color (crumb and crust). Data were submitted to Analysis of Variance (ANOVA), followed by the Tukey test for comparison of means, adopting a significant level of $p < 0.05$. Pearson's correlation test was also applied to verify the relationship of LEO and FLEO concentrations with the parameters pH, acidity, specific volume and bread expansion. Both LEO and FLEO natural preservatives, at the highest concentration (1.20%), increased the pH of breads, and reduced the acidity, specific volume and radial expansion, when compared to the CONTROL and the STANDARD ($p < 0.05$), resulting in greater firmness. It was also verified that there was a positive correlation (> 0.9) of LEO and FLEO with pH, and a negative correlation (< -0.46) with acidity, specific volume, and expansion, suggesting interference in yeast fermentation, as the concentration of LEO and FLEO increased. It can be concluded that the use of essential oils to replace synthetic preservatives in bakery products tends to inhibit yeast fermentation and modify the quality of the end product, requiring the use of other techniques, such as microencapsulation, to avoid this negative interference.