



Effect of high-pressure processing combined with propolis extract on the quality and microbiological safety of apple puree

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Abstract. The aim of this study was to evaluate the influence of high-pressure processing (HPP) combined with natural extract on physical-chemical (Total soluble solids (TSS), moisture, pH, water activity (aw), color parameters) and microbiological characteristics (Total mesophilic aerobic microorganisms count at 30 °C, molds and yeast count at 37°C) of apple puree, during 90 days under refrigerated conditions. Three processes were applied: HPP (600 MPa, 3 min) with and without the addition of propolis extract (2.5%); and conventional pasteurization (75 °C, 10 min), as a reference method in the industry.

The results showed that immediately after the application of the three processes, the load of aerobic microorganisms decreased from 3.40 to <1 Log CFU/g. At the end of the shelf-life study, in all treatments, the count of aerobic microorganisms and of molds and yeasts was less than 2 and 1 Log CFU/g, respectively. Likewise, in the evaluation of TSS, moisture and aw no significant differences were found between processes. In the color analysis, HPP increased the stability over the shelf-life but promoted a higher initial change. The addition of extract enhanced color and pH stability, being the only treatment in which the product's color did not change significantly during shelf-life.

In conclusion, HPP is a good alternative to conventional pasteurization in the production of apple puree. The addition of propolis enhances the quality of puree while providing differentiation to the product.

Keywords: High Hydrostatic Pressure, Propolis Extract, Development of Food Products, Food Safety.

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