

Effect of High-Pressure Homogenization on rheology, sedimentation and colour of Tropical Blended Fruit Juice along the shelf life

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High pressure homogenization (HPH) is a non-thermal technology that has been widely studied as a partial or total substitute for thermal food processing. HPH is able of inactivating enzymes and microorganisms that are responsible for food spoilage, as well as preserving sensory and nutritional characteristics, ensuring quality food production. This study aimed to evaluate the effects of high-pressure homogenization on bioactive compounds, antioxidant capacity and on the physicochemical, physical, and rheological properties of a mixed tropical fruit juice, composed by Cashew, Acerola and Melon. The work was carried out at Embrapa Agroindústria de Alimentos (Rio de Janeiro, RJ, Brazil). The juice was homogenized at pressure levels of 50 MPa and 100 MPa and then compared to the product subjected to pasteurization at 90 ° C / 1 minute, to the juice processed at high hydrostatic pressure at 500 MPa for 10 min. and to juice without treatment. Physicochemical (pH, acidity, soluble solids), total phenolic content, vitamin C, antioxidant capacity and physical stability (particle size distribution, optical microscopy, pulp sedimentation and instrumental color). The juice was kept refrigerated at 4 ° C for a period of 42 days, being the analyzes performed at 0, 14, 28 and 42 days. There was no significant negative effect on pH, phenolic content and antioxidant capacity compared to the control sample, but HPH had negative effect on vitamin C. HPH significantly affected physical stability, causing reduction in particle size, sedimentation stability. and color maintenance in relation to the control. The results obtained in the rheological analysis showed that the juices fit the Herschel-Bulkley model and there was a reduction in juice viscosity with increasing shear stress, as expected. The study indicates that HPH could be a promising technology for improving the quality of the tropical fruit juice along the shelf-life, but further research is necessary mainly regarding microbiological and sensory aspects

Keywords: non-thermal process, cashew, acerola, melon, color.