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Concentration of acerola (*Malpighia emarginata* DC.) juice by integrated membrane separation process

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ABSTRACT

Acerola is a tropical fruit with a high antioxidant activity which may be attributed to its high vitamin C and anthocyanins content. The aim of this work was to produce a high quality concentrated acerola juice by an integrated membrane process, alternative to thermal evaporation. Acerola juice was clarified by the microfiltration process. The clarified juice was pre-concentrated by reverse osmosis process up to a total soluble solid content (TSS) of 28° Brix and after that the osmotic evaporation process (OE) was used to reach a TSS up to 55° Brix, corresponding to a concentration factor of 1.93. The vitamin C, anthocyanins content and antioxidant activity increased, respectively, 2.21, 1.41 and 2.28 folds in relation to the pre-concentrated juice when the OE was performed. The results showed that there was no change on the vitamin C content and antioxidant activity of the juice after its processing. However, it was verified a reduction on the anthocyanins content, probably due to the great instability on this pigment. The obtained results showed that the integrated membrane process may be used as an alternative to obtain high quality concentrated juice, as the final product still showed a very high antioxidant activity and a very high amount of vitamin C.

Keywords: Osmotic evaporation; Tropical fruit; Vitamin C; Anthocyanins; Reverse osmosis; Antioxidant activity

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