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Evaluation of nanofiltration membranes for the retention of anthocyanins of açai (*Euterpe oleracea Mart.*) juice

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ABSTRACT

The açai juice is an Amazonian product that has been exported to various countries around the world. Its main characteristic is the presence of antioxidant compounds especially anthocyanins. Nanofiltration is a membrane separation process that has the ability to separate compounds of low molar weight. Açai juice clarified by microfiltration was used as feed to evaluate nanofiltration membranes of different manufacturers regarding the permeate flux and the retention of anthocyanins. All the evaluated membranes were efficient in retaining the anthocyanins from the açai juice. NF 270 membrane, a composite membrane composed by a polyamide top layer and a polysulphone microporous support, presented the highest water permeability before and after the nanofiltration of açai juice. In addition, this membrane also presented the highest value of permeate flux in the nanofiltration process of açai juice as well as the anthocyanins retention above 99%. The effect of fouling for this membrane was approximately 28%. The observed results showed the potential of nanofiltration on the recovery of anthocyanins from açai fruit.

Keywords: Membrane separation; Microfiltration; Nanofiltration; Phenolic compounds; Açai pulp; Amazonian fruit

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