



Monday, June 25 – Thursday, June 28, 2012

233-08. Concentration of Blackberry (*Rubus* sp.) Juice Using Membrane Processes

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Blackberry is considered a rich source of anthocyanins and flavonoids, which besides conferring to the juice an attractive color also results in high antioxidant activity values. However, these compounds are very sensitive to processing and the application of membrane technology can represent an alternative to thermal processing, since they are conducted under mild conditions. The aim of the present work was to evaluate the concentration of centrifuged and clarified blackberry juice by reverse osmosis on bioactive compounds such as anthocyanins and on the antioxidant capacity of the juice. Blackberry fruits were depulped, and the pulp was centrifuged and clarified by microfiltration with 0.15 micron pore size fluorinated membranes at 35 °C and 5 bar transmembrane pressure. Centrifuged and clarified juice were then concentrated by reverse osmosis. The processes were conducted in a plate and frame module (LAB UNIT M20 - DSS, Denmark) with a permeation area of 0.65 m², using composite membranes of polyamide (HR98PP, 98% rejection to sodium chloride) at 60 bar transmembrane pressure and 35 °C. Samples from all the experiments were analysed with regards to the anthocyanin content and the antioxidant activity, determined by the pH differential method and TEAC assay, respectively. For both process, it was obtained a concentrated product having 28.4 °Brix. The average permeate flux was 30.7 L/hm² when centrifuged juice was used and 38.9 L/hm² when the clarified juice was the feed juice. The volumetric concentration factor of centrifuged and microfiltrated juice was 3.9 and 4.9, respectively. Retentate fraction presented 3.2 and 4.2 more anthocyanin content and 3.5 and 4.3 antioxidant activity than the feed juice for centrifuged and clarified juice, respectively. However, microfiltration partially decreased anthocyanins (32%) and antioxidant activity (52%) of the centrifuged juice. The process coupling membrane technologies seems to be adequate to clarify and concentrate the blackberry juice.