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233-03. Anthocyanins Concentration in Blackberry Juice by Ultrafiltration

Lourdes Maria Cabral¹, Flavia Monteiro² and Luiz Antônio Viotto²

¹Embrapa, Rio de Janeiro, Brazil; ²Unicamp, Campinas, Brazil

The blackberry is a rich source of phenolic compounds with antioxidant properties, especially anthocyanins and flavonoids. Anthocyanins give attractive color to the juice, but become unstable at the severe heat treatments that result in products darkened and altered taste. The membrane separation processes are an alternative for the processing of fruit juices, whose main result is related to obtaining a differentiated product (for instance, a juice with nutritional, sensorial, and functional characteristics improved through the use of unconventional technology). In this context, this study aimed to verify the efficiency of ultrafiltration (UF) in the maintenance of anthocyanins in blackberry juice previously clarified. The process of clarification of the juice was performed in a system with microfiltration polyamide membrane plane showing 0.15 μm in pore size. The UF was performed with plane membranes of polysulfone and cut off 20 kDa, packaged in a square module and plates with total permeation area of 0.36 m². The process was conducted in batch with recirculation of the current retained and continuous collection of the permeate at 35 °C and pressure applied to the membrane of 10 bar. The content of anthocyanins in blackberry juice was the main outcome variable and was determined by pH differential method. The average permeate flux in ultrafiltration of blackberry juice clarified was 16 L/hm² and the volumetric concentration factor was 5.7. The content of anthocyanins in blackberry juice previously clarified (food process UF), ultrafiltrated juice and retained juice was about 44, 28, and 108 mg/100 g, respectively. It is thus clear that the UF process partly takes the anthocyanins of blackberry juice, and may be considered an alternative concentration of these important bioactive molecules.