



Concentration of grape juice (*Vitis labrusca*) by reverse osmosis process

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ABSTRACT

The objective of this work was to evaluate the concentration of grape juice by reverse osmosis (RO). The experiments were carried out in two steps. First, three transmembrane pressures (40, 50 and 60 bar) and four temperatures (20, 30, 40 and 50°C) were evaluated without juice concentration. The following parameters were analyzed: acidity and pH, soluble solids content, concentration of phenolic compounds and concentration of monomeric and total anthocyanins, color index, color density, as well as the permeate flux. Under the evaluated conditions, the process conducted at 50°C and 60 bar presented the higher permeate flux and the maintenance of all the physical and chemical parameters of the product. In the second step, the grape juice was concentrated at three temperatures, 20, 30 and 50°C, always at 60 bar of transmembrane pressure. The temperature of 30°C resulted in an adequate value for the permeate flux besides maintaining the physical-chemical and nutritional characteristics of the concentrated product when compared to the single strength juice. Moreover, in relation to the durability of the membranes, this condition corresponds to the Wagner Index equal to 1800, appropriate to maintain the integrity of the reverse osmosis membranes.

Keywords: Reverse osmosis; Grape juice, Membrane processes; Concentration of fruit juices; Physico-chemical characteristics; Wagner Index; Permeate flux

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