

Abstract

Osmotic evaporation is a membrane concentration process in which two solutions with different concentration, are separated by a hydrophobic porous membrane. This process can be carried out at friendly temperature and pressure, presenting a great potential to be applied in fruit juice concentration. This process allows the selective water vapour extraction from a dilute aqueous solution (fruit juice) to a concentrate solution (brine), concentrating it and preventing its thermal degradation. In this work the concentration of pineapple juice by osmotic evaporation was evaluated. The experiments were carried out in a laboratory unit composed of two independent circuits, pineapple juice and briar. Calcium chloride solution is used as brine. Concentration of the single strength and clarified pineapple juices was studied. For the concentration of the single strength juice, the evaporatory flux ranged from 8.5 kg/hm² to 5.5 kg/hm² allowing the concentration of the juice up to 55°Brix. The concentration of the clarified juice reached 53°Brix after the osmotic evaporation. In this case, the evaporatory flux ranged from 6.6 kg/hm² to 99 kg/hm².