

# Implementation of osmotic membrane distillation with various hydrophobic porous membranes for concentration of sugars solutions and preservation of the quality of cactus pear juice

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Description

Hydrophobic polymeric (0.45 and 0.20  $\mu\text{m}$  polytetrafluoroethylene (PTFE) and 0.10  $\mu\text{m}$  polypropylene (PP)) membranes were efficiently applied for cactus pear juice and sugars solutions concentration using Osmotic Membrane Distillation (OMD) process. It is reported that the PTFE membranes gave higher permeate fluxes and higher final juice concentrations. Furthermore, the filtration of raw juice prior to OMD process, the extension of the process time and the increase of processing temperature resulted in the increase of the final juice concentration. Using 0.45  $\mu\text{m}$  PTFE membrane, the final concentration of the filtered juice (FJ) was  $16.4^\circ\text{Brix} \pm 0.1$  (at  $20^\circ\text{C}$ , after 5 h) and  $23.4^\circ\text{Brix} \pm 0.2$  (at  $35^\circ\text{C}$ , after 18 h). The juice quality was assessed by determining the juice viscosity, the total phenolic content, total flavonoids content, antioxidant activity and phenolic acids content. It was revealed that the ...

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