



Synthesis, characterization and performance of membranes for clarification of lemon juice

Patricia M. Chornomaz^a, N. Ariel Ochoa^{a,*}, Cecilia Pagliero^b, José Marchese^b

^aLaboratorio de Membranas-INEAP-CONICET-FONCYT-Universidad Nacional de San Luis, Chacabuco 917, 5700 San Luis, Argentina
Tel. +54 2652 424689, ext. (116); email: aochoa@unsl.edu.ar

^bDepartamento de Tecnología Química, Universidad Nacional de Río IV, CONICET, Ruta 36, Km. 601, 5800 Río IV, Córdoba, Argentina

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ABSTRACT

Two membranes named M1 and M2 from polysulfone (PSF) and polyvinylidene fluoride (PVDF), respectively, were prepared in our laboratory in order to determine their structural characteristics and to evaluate their efficiency in lemon juice clarification. Both membranes were characterized by scanning electron microscopy (SEM), liquid–liquid displacement, contact angle measurements, and the water permeability (L_p). Asymmetric membranes with a sponge-like and finger-like substructure for M1 and M2, respectively, were obtained. M1 PSF membrane had a smaller pore size and a higher porosity than PVDF but it had a higher value of permeate flux and lower fouling. The quality of clarified juice was evaluated in terms of: total soluble solids (TSS), suspended solids (TS), pH, citric acid content (% citric ac.). The resulting clarified lemon juice was highly similar to the initial juice but the reduction of the hesperidin (HSP) was lower for M2 (34%) when is compared to M1 (41%).

Keywords: Lemon juice; Ultrafiltration; Permeate flux; Quality control

*Corresponding author.