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Sequential Pressure-Driven Membrane Operations to Recover and Fractionate Polyphenols and Polysaccharides from Second Racking Wine

Lees

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Abstract

Wine lees from red wine production are important sources for the recovery of antioxidant compounds, namely polyphenols and polysaccharides. In this work a set of ultrafiltration and nanofiltration membranes was investigated aiming the fractionation of polyphenols and polysaccharides present in wine lees. Permeation fluxes and solute rejection coefficients were evaluated in terms of transmembrane pressure variation. In all the evaluated pressure range (3-15 bar), NF membrane presented a linear increase in permeation fluxes such that the ratio between permeabilities (feed solution/water) stayed constant at 0.72. In contrast, for the UF membranes this ratio decreases by increasing the pressure and the membrane's MWCO. For membranes with MWCO of 1000 and 10,000 Da, the permeabilities' ratio is reduced from 0.34 to 0.23 and from 0.29 to 0.17, respectively, as the pressure is increased from 5 to 15 bar. Ultrafiltration

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