

High-performance removal of acids and furans from wheat straw pretreatment liquid by diananofiltration

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ABSTRACT

Two model solutions and a real stream from the hydrothermal pretreatment of wheat straw were subjected to nanofiltration, and permeate flux, retention and resistance to fouling were evaluated. Three commercial NF membranes were tested, and a pressure of 4 bars (range: 1–20 bars) and a temperature of 20°C (range: 20–50°C) were found to provide the best results in terms of retention. A subsequent nanodiafiltration consisting of five cycles enabled one to recover 90% of the monosaccharides (purity >99%). This result showed that diananofiltration could be a promising strategy for the recovery of high-purity streams of monosaccharides from pretreatment liquids.

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