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Electric fields applied in the ultrafiltration process

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Abstract

Concentration polarisation is one of the main limitations of permeate flux through membranes. A conventional crossflow ultrafiltration apparatus was modified by the inclusion of electrodes which permitted an electric field to be produced across the ultrafiltration membrane. This study examined the impact of operating parameters on fouling including flux, velocity, transmembrane pressure and electric field. Studies of the EF-UR process with bovine serum albumin (BSA) in the range of 1–5 g/l demonstrated a 25–50% increase of the flux permeate compared to the case of 0 electric field.

Keywords: Ultrafiltration; Electro-ultrafiltration; Fouling electric field; Bovine serum albumin

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