

Comparison between stirred and vibrated UF modules

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ABSTRACT

Whey is used a nutritious protein source. The process of whey concentration was important historically, as the application of ultrafiltration (UF) in the dairy industry started with the separation and concentration of whey proteins from whey. In order to improve the performance of UF, it is beneficial to limit the extent of fouling of the membranes. In this study, the performances of a vibratory shear-enhanced filtration process and a batch-stirred dead-end ultrafiltration process for the concentration of cheese whey were investigated with UF, C-30F regenerated cellulose and polysulfone 30 kDa nominal molecular weight limit membranes. The separations of protein and dry matter were examined by means of an IR technique and the Kjeldahl method. The turbidity and the chemical oxygen demand were also measured during concentration experiments. The volume of the pretreated (pasteurized) feed whey was decreased to 50% and 17.6% in the stirred and vibrated membrane processes, respectively.

Keywords: Whey; Ultrafiltration; Regenerated cellulose membrane; Polysulfone membrane; VSEP; Membrane resistance

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