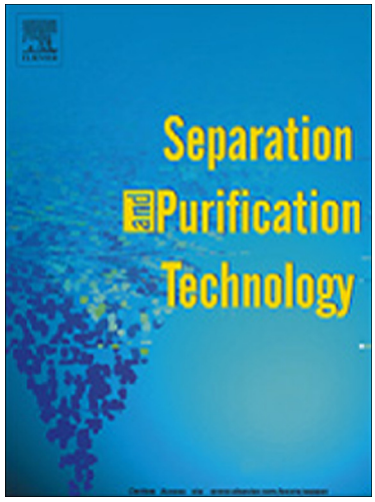

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Separation of an inulin mixture using cascaded nanofiltration

Nirmal V. Patil[1 2], Xiaoxia Feng[2], Jos J.W. Sewalt[2], Remko M. Boom[2] and Anja E.M. Janssen[2*]

[1] Institute for Sustainable Process Technology, P.O. Box 247, 3800 AE Amersfoort, The Netherlands

[2]Wageningen University, Food Process Engineering, P.O. Box 17, 6700 AA Wageningen, The Netherlands

*Corresponding author: Tel.: +31 317 482231.

e-mail: anja.janssen@wur.nl

Abstract

This paper examines the use of a pilot-scale spiral wound nanofiltration cascade with regard to separation of mono- and disaccharides from a mixture of inulin of different polymer sizes. The choices of the membrane and operational conditions were based on single stage experiments. Two 3-stage cascade configurations with GE membranes were tested, a counter-current product recycle cascade (configuration 1) and an adapted cascade (configuration 2). The results show that the performance of the cascaded systems is significantly improved as compared to conventional single stage concentration and diafiltration. The yield increased from 77% in a conventional single stage system, to 89% in a single stage diafiltration system, to 99% in the cascaded systems. The yield is improved without any loss in purity. The purity of the inulin mixture was in the range of 94-96%.