*Desalination and Water Treatment*
www.deswater.com

27 (2011) 18–24
March

1944-3994/1944-3986 
doi: 10/5004/dwt.2011.2038

# Selection of membranes for purification of fructooligosaccharides

Raquel Cristine Kuhn[a], Laura Palacio[b], Pedro Prádanos[b,*], Antonio Hernández[b], Francisco Maugeri Filho[a]

[a]*Food Engineering Department, Faculty of Food Engineering, University of Campinas -UNICAMP, P.O. Box 6121, Campinas, SP, Brazil*
[b]*Grupo de Superficies y Materiales Porosos (SMAP), Departamento de Física Aplicada, Universidad de Valladolid, Real de Burgos s/n, Valladolid 47071, Spain*
*Tel. +34 983423739; email: pradanos@termo.uva.es*

Received 26 May 2010; Accepted 30 July 2010

**ABSTRACT**

The aim of this study was to purify fructooligosaccharides (FOS) present in a mixture of sugars, containing also glucose, fructose and sucrose through, nanofiltration membranes. Four membranes were used: NP010 and NP030 (Microdyn Nadir, Germany), Desal–5 DL and Desal–5 HL (GE Water & Process Technologies). Experimental assays were performed in a dead-end cell and tangential cell filtration to select the most appropriate membrane. Then, with the membrane selected performed diafiltration in tangential cell filtration up to a concentration about 80% FOS. In the dead-end filtration cell experiments the NP010, NP030, HL and DL membranes were selected, since they performed the highest retentions of FOS, and lowest retention of glucose. The results showed that NP030 membrane performed the highest differences between the retention of FOS and sucrose, where the retentions of the different saccharides were: fructooligosaccharides ($R_{obs}$ = 0.66), glucose ($R_{obs}$ = 0.18), fructose ($R_{obs}$ = 0.15) and sucrose ($R_{obs}$ = 0.24). The results clearly demonstrate the potential of diafiltration using the NP030 membrane in the purification of FOS from mixtures containing mono and disaccharides.

*Keywords:* Nanofiltration; Fructooligosaccharides; Separation; Selection of membranes

*Corresponding author.

*Presented at the VII Ibero-American Conference on Membrane Science and Technology (CITEM 2010), April 11–14, 2010, Sintra, Portugal*