Journal of Food Processing and Preservation / Volume 45, Issue 4 / e15293

ORIGINAL ARTICLE

Ultrafiltration of *Opuntia ficus-indica* mucilage obtained by solvent-free mechanical extraction

Violeta Carpintero-Tepole, María Soledad Córdova-Aguilar, Lucio Abel Vázquez-León, Citlali Guzmán-Huerta, Abel Blancas-Cabrera, Gabriel Ascanio

First published: 19 January 2021

https://doi.org/10.1111/jfpp.15293

Funding information:

This work was supported by Secretaría de Ciencia, Tecnología e Innovación de la Ciudad de México, (Project SECITI/097/2017 CDMX). V. Carpintero-Tepole held a scholarship from SECITI/097/2017 CDMX. L.A. Vázquez-León acknowledges Instituto de Ciencias Aplicadas y Tecnología -UNAM for the posdoctoral fellowship provided

Abstract

The ultrafiltration (UF) of cactus juices has been carried out for the purpose of clarification from an enzymatically pre-treated fruit. Concentration of mucilage (*Opuntia ficus-indica*) by cross-flow ultrafiltration, obtained by solvent-free mechanical extraction, using 1, 10, and 30 kDa membranes has been carried out. The η_E was 39.49% and the energy consumption was 247 times less than the evaporation one. The 1 kDa concentrated mucilage had the highest η_{UF} and total soluble solids although the fastest process was with the 30 kDa membrane which also extends its shelf life up to 60 days at 4°C, preserving its viscous and viscoelastic properties and high contents of galacturonic acid, features desired to be applied as a dispersing agent. Chromatographic analysis shown that the passage of the monosaccharides during the ultrafiltration was in function of their position in the structure of mucilage molecule. Sugars such as galacturonic acid and galactose were conserved after