CONCENTRATION AND PURIFICATION OF YACON (*SMALLANTHUS SONCHIFOLIUS*) ROOTS FRUCTOOLIGOSACCHARIDES USING MEMBRANE TECHNOLOGY

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Yacon is a perennial plant originated from the Andean region which roots have been receiving increased attention due to their high content in prebiotic fructooligosaccharides (FOS). Apart from many health benefits, specially related to improved gastrointestinal functions due to a more balanced composition of intestinal microbiota, FOS present interesting characteristics as food ingredient, being used as sugar substitute, and their extraction from yacon roots may be an alternative to the FOS actually commercially available. This work evaluated membrane technology for concentrating and purifying FOS from an yacon roots extract, combining a first ultrafiltration (UF) clarifying step with nanofiltration (NF). The objective of the NF step, which was evaluated with and without association with discontinuous diafiltration (DF), was removing monosaccharides at the permeate while concentrating FOS at the retentate. After UF, 63.75 % of the saccharides from the initial feed were recovered in total permeate. DF did not largely influenced FOS retention in NF (it increased from 68.78 % without DF to 70.48 % with DF), but decreased glucose and fructose retentions, from 40.63 to 31.61 % and 25.64 to 18.69 %, respectively, what was desirable, allowing a greater purification of FOS at the retentate. Saccharides yields in the NF final retentate through the combined UF-NF process were calculated as 50.89 % for total saccharides and as 51.85 % for FOS, with 19.75 % purity. The results indicate that the combined UF-NF is promising for concentrating yacon saccharides, but more diafiltration steps are required for improving FOS purity.

Acknowledgments

The authors thank the CNPq (National Counsel of Technological and Scientific Development) and the Research Foundation of the State of Rio Grande do Sul (FAPERGS) for financial support.