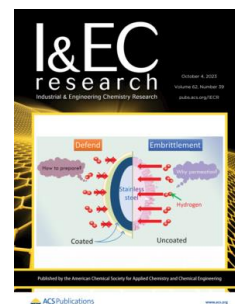


# Toward Valorization of the Effluent from Xylanase Prebleaching of Eucalypt Kraft Pulp Using a Nanofiltration Purification Step

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## Abstract

Loss of pulp yield and increased chemical oxygen demand (COD) of the effluent are the main constraints to the wider application of xylanase-assisted bleaching of hardwood kraft pulps. The commercial utilization of released pulp xylan could, in turn, increase the attractiveness of the enzymatic technology. This study thus aimed to evaluate the products derived from xylan in the effluent from the treatment of oxygen-delignified eucalypt kraft pulp with a commercial endoxylanase using nanofiltration as a purification step. Pulp enzymatic treatments resulted in the release of xylo-oligosaccharides (XOS), the most abundant being xylotriose and xylotetraose. The obtained xylan-derived solutions were purified by a two-step membrane nanofiltration aiming to purify and concentrate XOS possessing commercial value as prebiotics. Although the effluent from the xylanase treatment of pulp appears to have potential as a source of XOS with prebiotic activity, the future implementation of a membrane filtration system to obtain these high-purity products will require further refinements.