

# Production of Prebiotics from Pulp and Paper Industry Biomass

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During a pandemic when a healthy immune system is more significant than ever, prebiotics gain extra importance. These non-digestible food ingredients that stimulate the growth and/or function of beneficial intestinal microorganisms, protect against cancer and prevent cardiovascular and metabolic issues, are also known to play an important role in the improvement of the immune system [1].

In this work, a synergy is established between prebiotics increasing demand and pulp and paper industry, as xylooligosaccharides (XOS), emerging prebiotics obtained from xylan, are produced using bleached kraft pulp from *Eucalyptus globulus* from The Navigator Company.

Two different approaches for producing these prebiotics are studied and compared: enzymatic and acid hydrolysis. Higher yields of XOS, lower degrees of polymerization (strongest prebiotic activity [2]) and less production of unwanted by-products are obtained for the enzymatic approach. Additionally, the softer operating conditions and greener character of this process makes it the most promising choice for XOS production. In conclusion, the production of these high-value products from this hardly explored raw material represents an excellent alternative for the pulp and paper industry to diversify/innovate the pulp use and improve its competitiveness, also with excellent repercussions on the food and pharmaceutical industry.

## Scientific Area

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