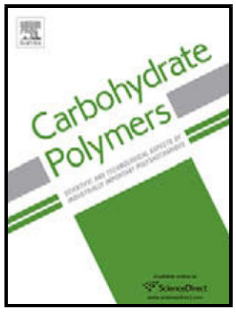

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Birch wood pre-hydrolysis vs pulp post-hydrolysis for the production of xylan-based compounds and cellulose for viscose application

Marc Borrega[a,b*], Per Tomas Larsson[c], Patrik Ahvenainen[d], Sara Ceccherini[a], Thaddeus Maloney[a], Lauri Rautkari[a], Herbert Sixta[a]

[a] *Department of Bioproducts and Biosystems, Aalto University, PO BOX 16300, 00076 Aalto, Finland*

[b] *VTT Technical Research Centre of Finland Ltd, PO BOX 1000, 02044 VTT, Finland*

[c] *RISE Bioeconomy, PO Box 5604, 11486 Stockholm, Sweden*

[d] *Department of Physics, University of Helsinki, PO Box 64, 00014 Helsinki, Finland*

[*]Corresponding author

Present address:

Marc Borrega

VTT Technical Research Centre of Finland Ltd.

PO Box 1000, FI-02044 VTT, Finland

+358 40482 0837

marc.borrega@vtt.fi

Highlights

- Pulp post-hydrolysis results in higher cellulose yield than wood pre-hydrolysis
- Elevated temperatures during post-hydrolysis promote supramolecular re-arrangements
- Higher accessibility of -OH groups in pre-hydrolyzed pulps
- High purity and molar mass xylan extracted in high yield by water post-hydrolysis

Abstract

Hydrothermal treatments of birch wood and kraft pulp were compared for their ability to extract the xylan and produce viscose-grade pulp. Water post-hydrolysis of kraft pulp produced a high-purity cellulosic pulp with lower viscosity but higher cellulose yield than traditional pre-hydrolysis kraft pulping of wood. Post-hydrolysis of pulp also increased the crystallite dimensions and degree of crystallinity in cellulose, and promoted a higher extent of