

Biorefinery in a cellulosic fiber

production mill

Optimization of the wood hydrolysis process for the joint production of cellulosic fibers and bio-ethanol

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1st
year

Chemical Processes

In Kraft paper mills, only 40% of wood is processed into cellulosic fibers. The 60% left, composed mainly of degraded lignin and hemicelluloses, are burnt in the recovery boiler, providing energy to the mill. In most cases pulp mill are even net producers of electricity. Without upsetting the mill energy balance and degrading fibers quality, it is conceivable to give more value to a part of the biomass by extracting hemicelluloses prior to Kraft pulping. Thus, in France, about 500 000 tons of hemicelluloses are potentially retrievable each year. Extracted softwood hemicelluloses would be used predominantly for bio-ethanol production as their hemicelluloses are mainly composed of hexose units.

The objective of this thesis is to set up an extraction process of hemicelluloses which does not degrade cellulose and to study the feasibility of the transformation of extracted sugars into ethanol.