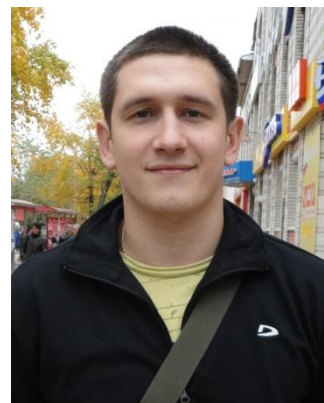
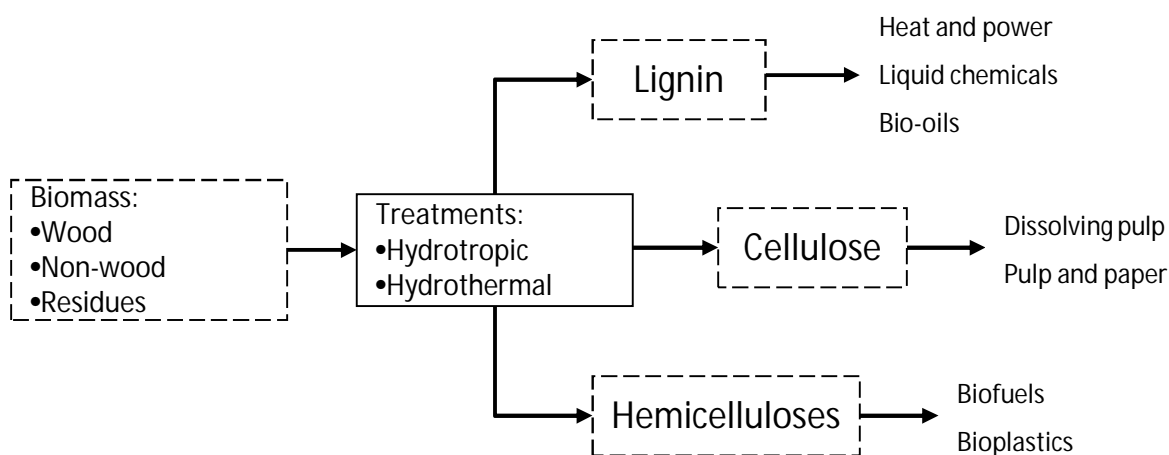


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Feasibility of Finnish and Brazilian biomasses in advanced biorefineries



The purpose of the study is to design treatment methods to separate biomass into hemicelluloses, lignin and cellulose.

The project covers Finnish and Brazilian raw materials. The former includes birch, pine (wood materials) and reed (non-wood); the latter contains eucalyptus and bagasse – a waste generated during sugarcane processing. Residues (for instance, a reject fraction from the chip screening stage or sawdust) will be also used for the research.

Hydrotropic and hydrothermal treatments will be studied in the project. The hydrotropic treatment is done by hydrotropic salts, which have both polar and non-polar groups in their structure; and enhance the solubility of water-insoluble biopolymers. Such treatment can be used to remove lignin from biomass. Several studies have shown that lignin isolated by this method is pure and is well suitable for further processing (e.g. thermal conversion). The hydrothermal treatment is carried out with water or steam. It mainly removes hemicelluloses; in addition, different changes of wood constituents (lignin, hemicelluloses and cellulose) take place. The rest after the removal of lignin and hemicelluloses is cellulose that can be used as dissolving pulp or in pulp and paper applications.