



Converting Softwood Bark to Fuel Precursors



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PROJECT PURPOSE AND APPROACH

- To develop innovative, chemical processing technologies to convert softwood bark to a unique biofuel resource
- Chemical characterization of softwood barks
- Establish bark liquefaction technologies
- Establish bark pyrolysis technologies



KEY ACCOMPLISHMENTS

- ^{13}C NMR, GPC and GC/MS Identified the compositions and component structure of barks and liquefaction and pyrolysis products
- Binary solvent-acid-catalyst system can effectively liquefy barks
- Split tube furnace can pyrolyze barks to get higher energy content bio-oils



TECHNICAL DETAILS

- Recovery of bark extractives and tannins
- Chemically separate lignin and sugars
- Atmospheric pressure and low temperature liquefy barks
- Moderate pyrolysis temperature for bark nitrogen

SIGNIFICANCE OF RESULTS

- A typical pulp mill will generate ~230 - 180 ton of bark/day, the bark and forest tree cutting material would be a future biofuel resource once the technologies proposed in this program are developed.
- Broaden the understanding of converting other kind of biomass to biofuels



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