



Showcasing research by Great Lakes Bioenergy Research Center research teams: Sener, Karlen, Donohue and Noguera *et al.* from the University of Wisconsin-Madison, and Maravelias *et al.* from Princeton University.

Integrating catalytic fractionation and microbial funneling to produce 2-pyrone-4,6-dicarboxylic acid and ethanol

A biomass-to-bioproduct processing chain was developed with the key step being reductive catalytic fractionation of the biomass into a lignin oil and pulp. The lignin oil was microbially funneled into 2-pyrone-4,6-dicarboxylic acid by an engineered microbe. The pulp was enzymatically digested, and the glucose and xylose were funneled to ethanol by an engineered yeast. Techno-economic and life cycle analyses of the RCF-based biomass-to-bioproduct processing chain were performed.

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