

Session 3

Bioprocessing Research

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Bioprocessing research integrates microbiology, biochemistry, chemistry and engineering with a focus on conversion of renewable resources into value added products. Biocatalysis, and the processing of biological derived streams are typical research areas. Another important research area is the integration of biocatalysis and processing unit operations with the objective of producing a pure product.

The papers presented in the Bioprocessing Research session at the Nineteenth Symposium on Biotechnology for Fuels and Chemicals address important bioprocessing topics. Products specifically addressed in this session included bioplastics, lactic acid and ethanol. Processing technologies including mass transfer and separations were also addressed in the session.

The conversion of food processing streams to monomeric intermediates such as lactic acid and subsequent conversion to bioplastics was covered in this session. Conversion of starch to lactic acid via an integrated bioprocessing system was investigated. Process configurations for the enzymatic production of ethanol were reviewed and compared. The continuous roller bottle reactor for oxygen mass transfer in bioreactions was explored in one presentation. A patented process for the recycle and separation of acid and biomass derived sugars was reviewed. Finally, the characteristics of fouling and protein adsorption to plasma treated membranes was discussed.