



Wolfson Department of Chemical Engineering Seminar

Monday, November 15th, 2022 at 11:30

Meeting Room

SUSTAINABLE CHEMICAL TECHNOLOGY IN BIOMASS VALORIZATION

Prof. Dmitry Yu. Murzin

Åbo Akademi University, Turku, Finland

Biomass as a source of renewable energy and chemicals is attracting more and more attention. Utilization of woody biomass can lead, besides such biobased products as pulp and paper or furniture, also to chemicals and fuels.

Technological approaches to chemical treatment of lignocellulosic biomass are different depending on the target. One option is delignification giving cellulose and some residual hemicelluloses, which are further applied in production of paper or board, or the derivatives of cellulose. Thermal and catalytic treatment of biomass, e.g. thermal or catalytic pyrolysis, is viewed as the route to bio-based synthesis gas and bio-oil. Mild depolymerization of wood components (cellulose, hemicelluloses and lignin) results in formation of low-molecular-mass components such as sugars or various aromatic hydrocarbons, which serve as building blocks for further chemical synthesis (Figure 1). Moreover, wood biomass contains many valuable raw materials for producing fine and specialty chemicals.

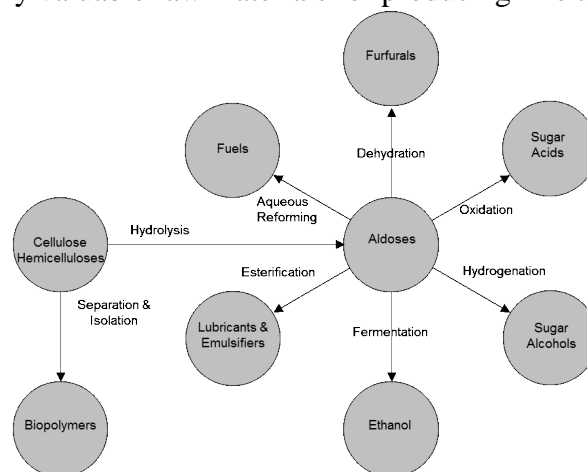


Figure 1. Chemicals from cellulose/hemicelluloses.

The current status of chemical technology for biomass valorization aiming at bio-fuels and chemicals will be reviewed in the lecture.