UNIVERSITÄT HOHENHEIM

INSTITUT FÜR AGRARTECHNIK

Fachgebiet für Konversionstechnologien nachwachsender Rohstoffe

Fachgebietsleiterin: Prof. Dr. Andrea Kruse

Production of platform chemicals from biomass

Motivation:

Because of diminishing fossil resources, the development of new technologies to exploit versatile and renewable biomasses as an alternative feedstock for platform chemicals is an issue that has received much attention recently.

Biomasses have great potential for platform chemicals production in biorefineries. The main advantage of biomass is that it can be considered a renewable resource because they can be replenished over a relatively short timescale and they are virtually limitless in supply.

Bio-based chemicals can help to replace a significant fraction of industrial chemicals and materials from fossil resources. Biomass-derived chemicals, such as hydroxymethylfurfural (HMF), levulinic acid, furfurals, sugar alcohols, lactic acid, succinic acid, and phenols, are considered platform chemicals. These platform chemicals can be further used for the production of a variety of essential chemicals on an industrial scale. However, production of chemicals is still a challenge due to the lack of efficient and cost-effective technologies.

Main objectives:

- Literature review about the production of platform chemicals (e.g. HMF, furfural, levulinic acid).
- Which biomasses have potential to produce those chemicals?
- What is the production chain (process conditions, types of reactor, separation technologies)?
- What are the advantages and disadvantages of production of chemicals from biomass?

Number of students:

1

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