Thesis/Master thesis/Internship

Hydrothermal synthesis (HTS) of platform chemicals: Assessing the extraction of 5-hydroxymethylfurfural from liquid products

BACKGROUND:

Embark on an engaging research journey into the field of biomass conversion, focusing on the efficient separation of 5-hydroxymethylfurfural (HMF) from process water obtained in hydrothermal processes.

HMF, a versatile biobased platform chemical derived from renewable lignocellulosic biomass, serves as a vital precursor to a wide range of materials such as biofuels, resins and plastics. It is poised to revolutionize the bioeconomy and contribute to a more sustainable future. However, the challenge lies in its efficient production and purification underlining the significance of this project.

YOUR TASKS:

- Undertake a comprehensive literature review and matrix evaluation to justify the preference of HMF-extraction over other separation methods.
- Perform experiments on hydrothermal synthesis (HTS) using a 0.5-L high-pressure reactor for furans production from lignocellulosic biomass.
- Investigate and select the most efficient but safe extraction agents for HMF separation (screening in lab-scale).
- Gain hands-on experience with diverse extraction and analytical techniques.
- Develop a comprehensive plan outlining resource needs for a 15 L extraction column operation, integrating screening findings and an economic assessment. Optional: Carry out experiments using the 15-L extraction column.

YOU HAVE:

- Currently studying or holding a degree in chemical engineering, environmental engineering, chemistry, or a related field
- A passion for exploring scientific concepts and academic literature.
- An organized, self-directed and meticulous approach to your work.
- Proficiency in both English and German.

WE OFFER:

- A good introduction to the topic as well as competent and motivated support in processing the tasks.
- A family-friendly, modern working environment in a collegial working atmosphere.
- Good public transport connections.

BEGINNING:

01.11.2023 or later

DURATION:

24 weeks (variable)

LOCATION:

Deutsches Biomasseforschungszentrum, Torgauer Straße 116, 04347 Leipzig

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APPLICATION DOCUMENTS:

Please submit your compelling application (only in a single attachment, preferably as pdf, max. 5 MB)
e-Mail: bewerbung@dbfz.de

For an encrypted transmission of your application you can use the upload form Cryptshare.
www.dbfz.de/stellen