

Thesis/Master thesis/Internship

Biphasic hydrothermal processing of biomass for enhanced yields of furanic aldehydes: investigating the role of catalysts and fractionation strategies



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.

Furanic aldehydes, are versatile bio-based platform chemicals derived from renewable lignocellulosic biomass that serves as a vital precursor to a wide range of materials such as biofuels, resins and plastics. It is poised to revolutionise 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:

- Conduct a comprehensive literature review on cellulose hydrolysis using homogeneous and heterogeneous catalysts.
- Gain hands-on experience in hydrothermal synthesis (HTS) by performing experiments for furans production from lignocellulosic biomass using high-pressure screening systems and vessel reactors (mini autoclaves, 0.5-L and 10-L reactor systems).
- Develop strong research skills through experimental design, execution of experiments, sample handling and data analysis.

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:

2026 or later

Deadline: Permanently opened

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