JÜLICH
Forschungszentrum

Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

Would you like to contribute to solutions to climate change and resource scarcity? Work with us at the Institute of Bio- and Geosciences, Plant Sciences (IBG-2) on innovative use, production and technology concepts related to "plants", "sustainability" and "bioeconomy". Conduct interdisciplinary research in international or regional teams using state-of-the-art sensors and measurement concepts - in the laboratory, greenhouse, field or airborne. Contribute to over 10 years of experience in plant phenotyping and knowledge-based bioeconomy research.

We are currently offering an exciting challenge for a

Master Thesis - Optimization of Alkaline Fractionation of Hemp for Fiber Extraction Using Response Surface Methodology

Your Job:
Biomass fractionation is a key step in biorefinery processes enabling the efficient utilization of lignocellulosic biomass by separating it into its main components - cellulose, hemicellulose and lignin - for various applications. Alkaline fractionation, especially using sodium hydroxide, is a well-established method for non-wood biomass due to its strong delignification capability and its ability to swell cellulose.
In this thesis, you will work on the low energy alkaline fractionation of hemp to extract fibers. The goal is to optimize this process using Design of Experiments (DoE), in combination with Response Surface Methodology (RSM). The focus will be on detailed characterization of the extracted pulps as response variables for statistical evaluation

Your tasks in detail:

- Conduct alkaline-organosolv fractionation of hemp under various conditions
- Characterize raw hemp and extracted pulps using established analytical protocols
- Apply RSM and perform statistical analysis (ANOVA) to optimize the process

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our **Online-Recruitment-System!**

Questions about the vacancy?
Get in touch with us by using **our contact form.**
Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

- Use and compare different analytical techniques for evaluating pulp quality characteristics
- Document experimental data and present results in a structured and clear way

Your Profile:

- Interest in biomass processing
- Enrolled in a Master`s program in Biotechnology, Chemistry, Chemical Engineering, or a related field
- Solid laboratory skills and hands-on experience with analytical instruments (e.g., HPLC, UV/Vis etc.)
- Basic understanding of statistical methods and experimental design for data analysis

Our Offer:

We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We support you in your work with:

- SCIENTIFIC ENVIRONMENT: You can expect excellent scientific facilities, modern technologies and qualified support from experienced colleagues
- PERSONAL RESPONSIBILITY: You will organize your tasks independently – from preparation to implementation
- FLEXIBILITY: Flexible working hours make it easier for you to balance work and study
- CAMPUS-EXPERIENCE: Our research campus in the countryside provides ideal conditions for collegial exchange and sporting activities right on site
- MEANINGFUL RESEARCH: Your thesis deals with a future-oriented, socially relevant topic with direct practical relevance
- PERSPECTIVE: The position is initially limited to 6 months. With appropriate qualifications and funding, there is the possibility of pursuing a PhD at the institute following your master`s thesis

In addition to exciting tasks and a collaborative working atmosphere in Jülich, we have a lot more to offer: https://go.fzj.de/benefits

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: https://go.fzj.de/equality