Professorship of Bioprocess Engineering
Campus Straubing for Biotechnology and Sustainability
Technical University of Munich

Master thesis

Topic: Conceptual design study for the industrial production of Lactic acid from sugar beet pulp

To support the transition from an unsustainable fossil-based economy to a sustainable bio-based economy in Germany, it is necessary to produce basic chemical building blocks (platform chemicals) such as lactic acid from bio-based non-foods or food wastes such as sugar beet pulp. The process is an attractive example because of the availability of sugar beet pulp in Germany, the suitability of the hydrolysate for lactic acid fermentation and the flexibility of lactic acid as product.

Details of the thesis

In this thesis, you will draw up a set of process flow sheets in SuperPro Designer software using processing data inputs as found from your continuous literature research. You will also conduct Monte-Carlo simulations using @Risk software to determine the major cost drivers and variability of key parameters in the process. Iterative optimization steps will be required.

An interim presentation and report will be required where you will present a comparison of your flow sheets and defend your choice of an optimal process. In this interim report, you should also include a techno-economic analysis of the simulated processes. The final presentation and report will include improvements and optimization of the chosen process flow sheet based on robust and up to date data sources suitable for publication.

Requirements

- Clear communication
- Attention to detail
- Housekeeping and organization skills
- Independent and proactive work ethic
- Computer skills and analytic skills will serve in your favor.

Are you interested?

Please send a short CV to estelle.van-der-walt@tum.de and let me know when you are free for a quick chat.