Technische Universität München – TUM School of Engineering – Bioseparation Engineering Group

Bachelor thesis/Master thesis:

Quantification of activity and concentration of enzymes immobilised to magnetic nanoparticles

Keywords: Process Intensification – Magnetic nanoparticles – Enzymes
Potential start: 01.07.2023 or later

Project Description

In this research project, genetically optimized *E. coli* strains expressing different extracellular high-value proteins will be used to establish different concepts of process intensification. Process intensification in the biopharmaceutical industry aims for the improvement of productivity and flexibility while simultaneously decreasing cost and process footprint. This can realized through establishing and applying innovative equipment, methods, and modes during the development of integrated upstream and downstream processes.

The focus of this work will be the development of different methods for the quantification of an enzyme produced in *E. coli*. Subsequently, the effect of immobilization on magnetic particles with regard to enzymatic activity needs to be examined.

Your Tasks

- Cultivation of *E. coli* in different systems
- Assay development for quantification of enzymatic activity and concentration
- Immobilisation of enzymes to magnetic nanoparticles
- Different analytical methods (SDS-Page, HPLC, BCA,…)

Your Profile

- Independent and structured way of working
- Experience with laboratory work
- Student in the field of biotechnology, biochemical engineering chemistry or similiar

Contact

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