



Bachelor-/ Master-/ Semesterarbeit:

Microbial Process Intensification

Keywords: Process Intensification - Upstream - Bioreactor –
Magnetic Nanoparticles – Process Development

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 be realized through establishing and applying innovative equipment, methods, and modes during the development of integrated upstream and downstream processes.

Possible topics for this work can be the **intensification** and **comparison** of different *E. coli* strains expressing an **extracellular recombinant protein**. Additionally, the influence of different **additives** on expression levels can be evaluated. To design an **integrated process**, the immobilization of these proteins on magnetic nanoparticles from fermentation broth and its scale-up is of high interest.

Your Tasks

- Cultivation of *E. coli* in shake flasks and bioreactors
- Analytics of cultivations
 - SDS Page
 - Assays
 - HPLC
- Process development
- Immobilization of proteins to magnetic nanoparticles

Your Profile

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

Contact

Start: From now

Language: German/English

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