Chair of Bioseparation Engineering
TUM School of Engineering and Design
Technical University of Munich

BioSE

Bachelor's / Master's / Semester Thesis

Optimizing Key Parameters of Dynamic Crossflow Filtration Using DOE

Keywords: Biotechnology, DOE, Downstream Processing

Project Description

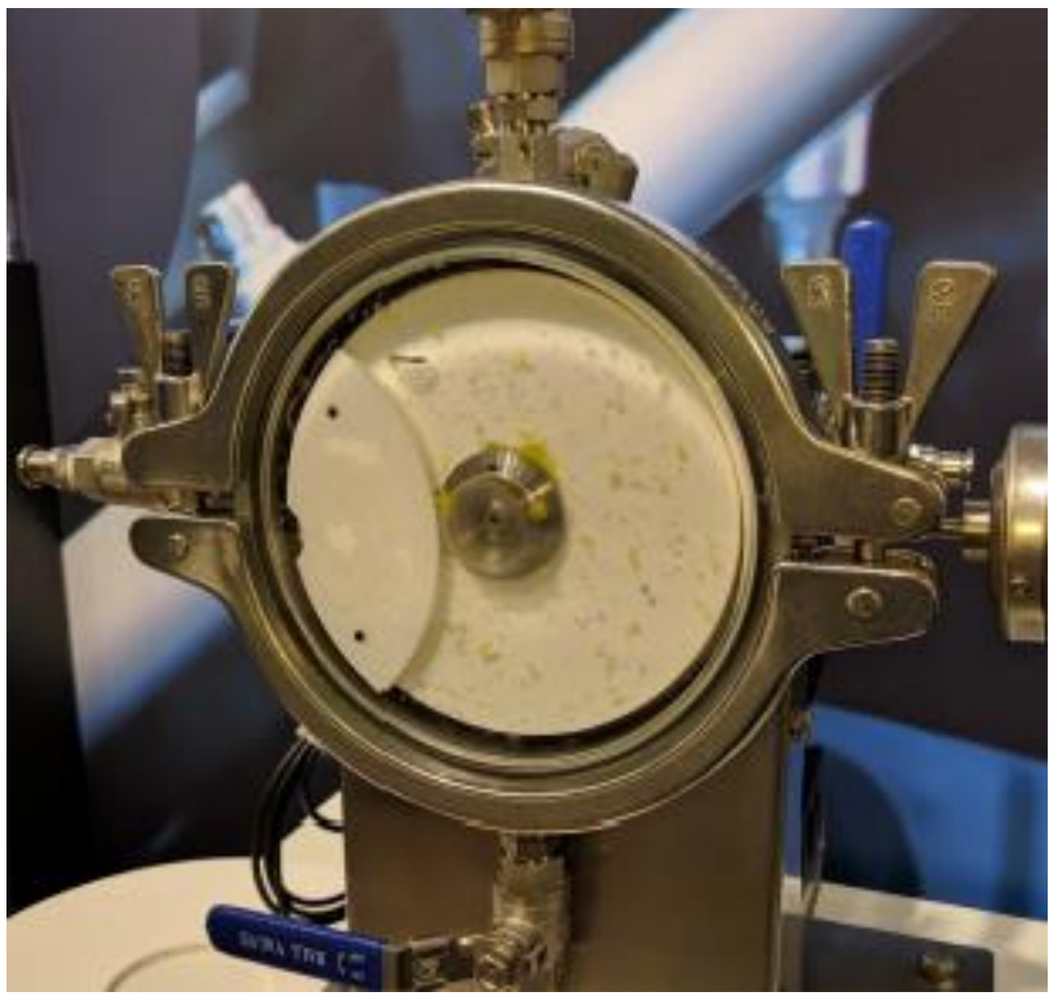
This thesis focuses on optimizing a Dynamic Crossflow Filter (DCF), a novel technology with a rotating membrane that minimizes filter cake and handles high viscosities.

The DCF forms an integral part of a comprehensive downstream process focused on continuously producing vegan mycoproteins from side products of the food industry. Specifically, the DCF will be utilized to separate fungal cells from the cell broth, playing a vital role in the purification process.

This project aims to lay the foundation for unlocking the full potential of the DCF within the final process. The outcomes of this thesis will serve as the basis for developing a digital twin capable of performing online optimizations in subsequent process runs.

Research objectives

1. Investigate key parameters
2. Design and execute a DOE matrix to study parameter interactions
3. Identify optimal conditions for efficiency and sustainability



Profile

- Motivated, organized, and detail-oriented
- Strong interest in experimental design and lab work
- Passion for innovative technologies and process optimization

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