Professur für Cellular Agriculture
TUM School of Life Sciences
Technische Universität München

Master's Thesis Opportunity starting 15.04.2024

Master Thesis in **Mathematical Modeling for Sustainability in Cell-Based Food Production**

Background

As the demand for sustainable food production systems increases, there is a significant need to develop alternative sources of nutrition that can supplement or replace traditional agriculture. The development of cell-based food technologies offers a promising avenue toward more sustainable food systems. To optimize these technologies, sophisticated mathematical models are needed to predict and enhance their sustainability and economic feasibility. This project is part of the ***FEASTS*** (Fostering European Cellular Agriculture for Sustainable Transition Solutions) program.

Objectives

- To develop a detailed mathematical model using SuperPro Designer or an equivalent software to simulate the platform processes of cell-based food production.
- To perform sensitivity analysis and case-scenario testing to identify key parameters that can decrease costs and improve sustainability.
- To contribute findings to ongoing research initiatives aimed at enhancing the efficiency and circularity of cell-based food systems.

Tasks

- Utilize outcomes from previous research to construct and validate a mathematical model.
- Analyze the model's predictions to suggest improvements in the platform process, focusing on cost reduction and environmental impact minimization.
- Engage with the academic community to share findings and integrate feedback into the modeling approach.

.

Needed Qualifications

- Enrollment in a Master's program with a concentration in mathematical modeling, and/or related to bioprocess engineering, chemical engineering, environmental science, or a comparable field.
- Above-average academic grades, demonstrating a strong understanding of engineering principles and scientific research methods.
- Proficiency in or desire to learn SuperPro Designer.
- A keen interest in the intersection of technology, sustainability, and food production.

We look forward to receiving your comprehensive application documents (grades, short motivation and preferred starting date). Please send them via email to katharina.brenner@tum.de.

Technical University Munich
Katharina Brenner (PhD Student) | Professorship für Cellular Agriculture | TUM School of Life Sciences
Gregor-Mendel-Str. 4, 85354 Freising | Tel. +49 178 178 5072 | katharina.brenner@tum.de