Establishing a perfusion bioprocess for itaconic acid production

The incessant growth of the world population leads to an increasing demand for food, energy, fuels, and chemicals. With the finiteness of fossil resources as main feed stocks, a change from petroleum-derived to sustainable, economically bio-based production processes are indispensable to accomplish the global needs.

One of these processes is the production of itaconic acid ranked as one of the top 12 value added chemicals from biomass and an established platform chemical, e.g. for biofuels (biofuels (3-methyl THF, 2-methyl-1,4-BDO). Nowadays, industrial biotechnological production is performed by using the filamentous fungus Aspergillus terreus. To circumvent the challenges going along with such a filamentous production host, alternatives are searched. In this context, the Ustilaginaceae family including Ustilago maydis attracted special attention.

The objective of this work will be the implementation of an external cross flow ceramic membrane to establish a perfusion bioprocess for the biotechnological production of itaconic acid.

Your tasks will be:

1) Fermentation experiments (Eppendorf Bioflo® system)
2) Characterization via HPLC analysis
3) Implementation of an external ceramic membrane

Profile:

An intrinsic motivated student preferably with bio(techno)logy, or process engineering background. Interests in the following fields are desired: (bio)process engineering, fermentation, microbiology and analytical methods.

Starting date: May 2020 or later

Study level: Master

We offer:

An opportunity to work at cutting edge research topics and gain experience in an interdisciplinary environment. Close and intensive support is given due to the significant value of your work.

Are you Interested or want more information? Don’t hesitate, give me a call or send an e-mail!

Information to FSC: https://www.fuelcenter.rwth-aachen.de/cms/~siul/Fuelcenter/