

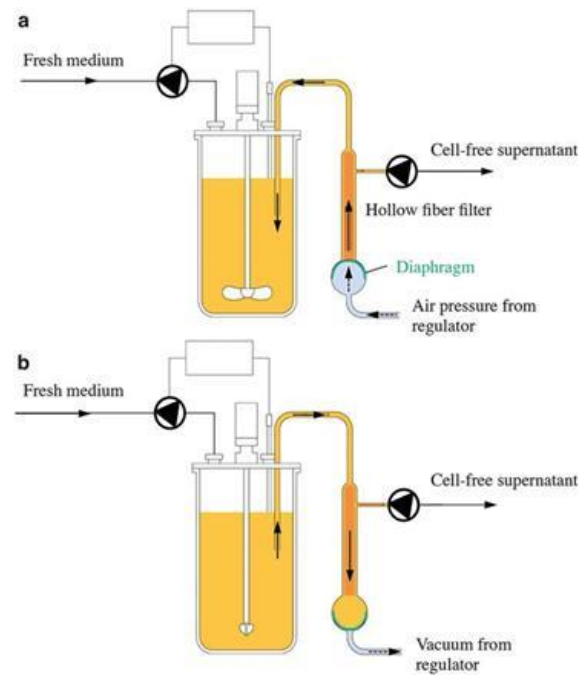
Master thesis

Modelling of a perfusion reactor

Background

Perfusion reactors are used to host microbial cells, which are able to produce **antibiotics**, potent drugs substances for **cancer therapy** or other active pharmaceutical ingredients. During the reactor's operation, the produced drug molecules have to be extracted continuously. This is currently done via **alternating tangential flow filtration (ATF)**.

A part of the solution in the reactor is sucked through a **fiber filter element** with a diaphragm pump. The concentrated cell solution is pumped back in the reactor by the diaphragm and the cell-free filtrate is pumped to the next stage to **extract the active pharmaceutical ingredient**.



Task

- Literature study on the topic of perfusion reactors
- Modelling of the fluid flow through the filter fiber and the filter process
- Study on the influence of the microbial cells and rheological properties of the solution on the filtration process
- Development of suggestions for improvements for the filtration process

We offer

- Opportunity to work on an industrially relevant task
- Contact to a leading pharmaceutical company
- Paid master thesis
- Start of a future career in modelling and simulation

Contact

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