

Introduction

Membrane Cleaning in the enzyme producing industry

- Optimising the cleaning of membranes with enzymes
- Challenges in resource utilisation and environmental impact

Study Objective

- A profound understanding of membrane fouling and cleaning kinetics
- Develop a set of experiments and tools to assess changes and performance of the fouled membranes (FM)
- A potentially greener and more sustainable approach in terms of long-term use of membranes

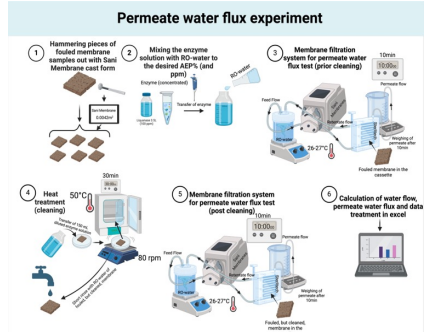
Methods

Ultrafiltration (UF)

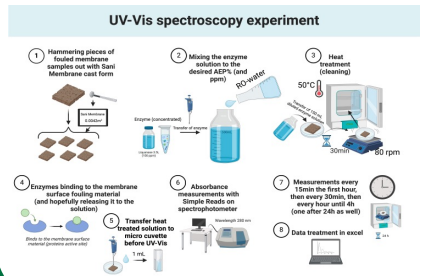
- Membranes: 10 kDa (and a single 5 kDa)
- Examine different process parameters through trials

Experimental setup

- Physical tests with flux



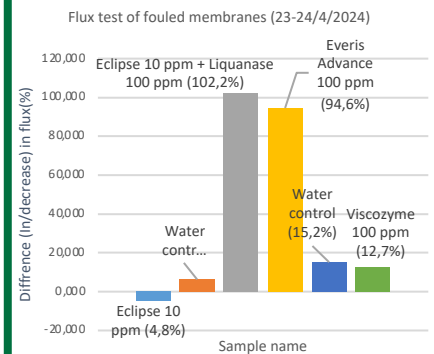
- Analytical tests with UV-Vis



Outcome

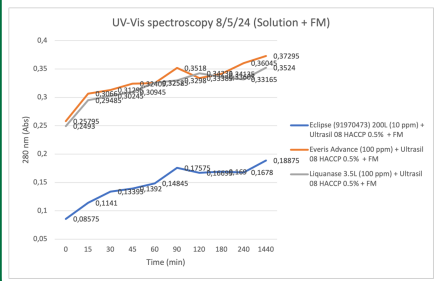
Results from flux trials

- Increase in flux post treatment for the Liqueanase containing samples



Results from UV-Vis

- Higher absorbance for non-Eclipse-containing samples



Conclusions

- Implementing enzymes in the cleaning step enhanced the efficacy in terms of flux
- Protease-containing solutions showed the most noteworthy results in most trials

Perspectives

- Optimising the operating parameters of the process
- Further research to be conducted on a larger industrial scale (e.g. Novo)

Being a Helix Lab Fellow has been:



- A chance of networking – with fellows and the industry
- A great opportunity to delve into your MSc. project in the Helix lab
- Full of adventures and good times with other fellows and Helix Lab administration as well

