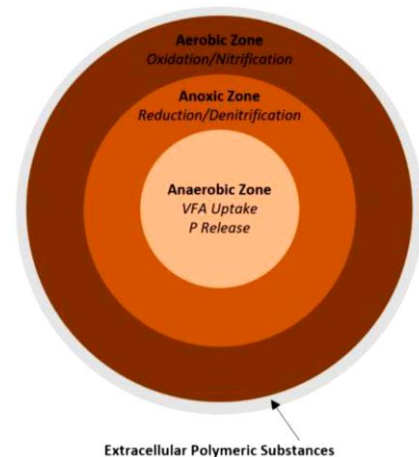


Industrial wastewater treatment with Aerobic Granular Sludge

Are you passionate about science? Do you want to expand your knowledge in the field of wastewater treatment and biotechnology? Then this project might be for you!

Background

Aerobic Granular Sludge Technology (AGST) is widely applied for the treatment of domestic wastewater. What distinguishes AGST from other biological wastewater treatment technologies is the compact granular structure of the biomass that enables rapid settling and a polymeric matrix that gives structural stability to the granules that also acts as a protective layer against external stress. However, industrial wastewaters often contain high concentrations of organics and inorganics with unknown effects on the biology of these systems. For instance, presence of an alternative carbon source such as glycerol, can induce a shift in the microbial population of the granules and thus, alter the processes these systems can carry out.



Research aim

The aim of this research is to investigate the effect of glycerol on Aerobic Granular Sludge by:

- Following the fate of glycerol in an A/O SBR configuration: identifying the fermentation byproducts of glycerol and the metabolic pathways involved
- Evaluating the carbon and the nutrient removal capability of the system
- Recording the shift in the microbial community of the reactor
- Identify the type of storage polymers (possibly)
- Characterize the EPS composition (possibly)

Your tasks

- Data analysis and scientific reporting
- Conducting laboratory experiments such as running a bubble column reactor, performing HPLC, water quality analysis, microscopy, etc.
- You will be spending large portion of your time in the lab

Who you are and what you will get

- You have a background in environmental science/engineering, biotechnology, microbiology, water technology, chemistry or similar.
- You have some laboratory experience.
- You study in the Netherlands.
- You will get the chance to work in an international environment with the group that developed the Nereda® technology.
- You will be able to conduct a research for writing your thesis/internship report.

If you think this project interests you, you can contact me through a.elahinik@tudelft.nl ☺