

Anaerobic Extracellular Polymeric Substances (EPS) Production & Recovery & Characterization

Field: Environmental and/or chemical engineering/biotechnology

Type of project: Internship / Thesis

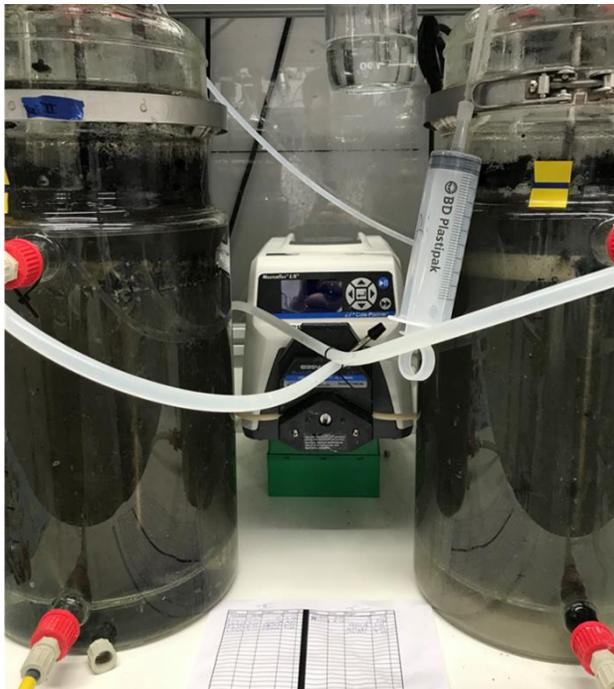
Duration: 4-6 months, starting in May/June 2019

Location: Wetsus, European Centre of Excellence for Sustainable Water Technology, Leeuwarden (The Netherlands)

Allowance: 350 €/month

1. Project description

Production of extracellular polymeric substances (EPS) using mixed culture is a cheap source for microbial polymer production. The EPS are a complex mixture of biological polymers like polysaccharides and proteins that are excreted by the microorganisms as secondary metabolite. They can be found in the bioreactor in two forms: as bound-EPS (B-EPS) and as soluble-EPS (S-EPS). The B-EPS are attached to the microbial cells and cell aggregates and help to form (settleable) flocs or granules. The S-EPS is dispersed in the bulk liquid as soluble or colloidal clusters of biopolymers. Several factors like the type of wastewater, sludge loading rate, sludge age, MLSS concentration, mechanical stress, and microbial growth phase are known to influence the concentration and chemical composition of EPS present in the bioreactor in one way or another. In our work we want to achieve a stable production of EPS using anaerobic mixed culture reactor to further apply EPS in different biotechnology applications.



2. Your tasks

- Operation of anaerobic reactor;
- Monitoring and evaluation of EPS production & recovery process performance
- Characterization of the produced EPS

3. Your profile

- Specializing in chemical/environmental engineering, water bio/technology or related fields
- Actively enrolled in undergraduate (BSc) or graduate (MSc) studies
- Highly preferably, EU citizen or international student registered at a Dutch university
- An aptitude and interest for practical laboratory experience and analytical work
- Fluent in English language (speaking, writing and communication skills)
- Highly motivated, enthusiastic and independent thinker

4. How to apply

- Interested students are invited to send a motivation letter (max. 1 page) and a CV (max. 2 pages) to Emanuel Dinis (Emanuel.dinis@wetsus.nl). In the email, please indicate when and how long you are available.