

STUDENT INTERN PROJECT

Characterisation of bacteria producing extracellular polymeric substances (EPS) under nitrogen-limited conditions

Field: (Environmental) microbiology

Duration: 3-4 months (start date: September 2019)

Location: Wetsus, Leeuwarden, the Netherlands

Allowance: 350 € / month

Background

Microorganisms (majorly bacteria) responsible for biological wastewater treatment excrete biopolymers, commonly referred to as extracellular polymeric substances (EPS – typically polysaccharides and proteins). Our recent work showed the importance of nitrogen limitation in stimulating EPS secretion by these microorganisms.¹ However, it is still not clear under this condition (N limitation) which microbial species are the key players in the EPS production.

At the *Natural Flocculant* theme of Wetsus, we want to investigate the important microbial species responsible for EPS production under N-limited condition and different substrates.

Your tasks

- A short literature review on the above topic.
- DNA/RNA extraction.
- Microscopic techniques: FISH, CLSM, etc.
- Produced EPS characterisation.
- Some flocculation experiments using produced EPS as the flocculant.
- Write a short report.

Your profile

- Only open to EU citizens or foreigners studying in the Netherlands.
- Background (MSc/BSc in view) in microbiology (preferably environmental microbiology). Relevant lab experience is vital.
- Knowledge and experience in molecular biology is an advantage.
- Highly motivated, enthusiastic, and can work independently.
- Can bring new ideas and initiatives into the project.
- Good experimental and analytical skills.
- Fluent in English language (speaking and writing) and able to work in an international environment.

Application

You feel excited about this project or still have questions? Just contact me! Interested students are invited to hand in CV (max. 2 pages) to Victor Ajao (victor.ajao@wetsus.nl).

1. Ajao, V. *et al.* Valorization of glycerol/ethanol-rich wastewater to bioflocculants: recovery, properties, and performance. *J. Hazard. Mater.* **375**, 273–280 (2019).