Toulouse Biotechnology Institute
Bio & Chemical Engineering

Djazia ZOUICHE

PhD student

Project: Quorum quenching using new bio-sourced materials to mitigate fouling in membrane bioreactors for a sustainable process.

Supervisor(s): Chrsitelle Guigui, Johanne Teychené, Valérie Sartor

Funding: EUR Bio Eco

Key words: waste water treatment, Quorum quenching, core-shell, silica, mesopores

Background

Currently a doctoral researcher at Toulouse Biotechnology Institute (TBI), I completed a Master's degree in Materials Science and Engineering with a specialization in aeronautics at Université de Toulouse in 2024. During my studies, I developed a strong interest in academic research and teaching through several tutoring activities and internships on diverse topics, ranging from materials for energy and aeronautics to biomedical materials. This multidisciplinary background led me to join TBI to work at the interface of materials science, biotechnology and process engineering for environmental applications.

My research focuses on the design and characterization of new quorum quenching materials to inhibit membrane biofouling in membrane bioreactors, with the aim of enabling more sustainable wastewater treatment processes. In parallel with my research activities, I am actively involved in undergraduate teaching and tutoring, contributing to training the next generation of engineers and scientists.

Currently working on

✓ Development of quorum quenching materials to limit biofilm formation in membrane bioreactors for wastewater treatment.

✓Designing and characterizing core-shell materials to link structure with performance in environmental processes.

✓ Involvement in undergraduate teaching and tutoring in biotechnology and materials science.

Scientific communications

- Oral presentation for EUR BioEco
- Poster for TBI's PhD day

Contact me

zouiche@insa-toulouse.fr