Lehrstuhl für Siedlungswasserwirtschaft
Department of Civil and Environmental Engineering
TUM School of Engineering and Design
Technische Universität München

Opportunities for Talents

Study Project

"Testing fungal substrates for a near-natural advanced wastewater treatment"

About us

Our group Urban Microbiology focuses on the investigation of microbial processes in aquatic and technical systems ranging from biological wastewater treatment to surface water ecosystems. Microorganisms are tiny, yet crucial organism that cycle our planets resources and keep our biosphere balanced, and thus provide vital ecosystem services. We are interested in the microbiomes of engineered and natural water treatment. Therefore, our overall aim is to develop tools that specifically measure and qualitatively assess microbes and their functions in water systems. We perform hypothesis driven and descriptive research that allows to link microbes to ecosystem services. Of particular interest are the largely unexplored aquatic fungi and their diverse functions in the environment. Further research is concerned with the characterization of the taxonomic and functional diversity of microbial communities with specific functions, e.g. with regard to microbial degradation or antibiotic resistance genes in the water cycle.

Topic

In this project, we want to test how fungi can be used in a fixed-bed reactor to oxidize trace organic chemicals. We want to investigate whether and to what extent fungi can maintain their activity in a competitive environment.

Tasks

For this project, we are specifically looking for a hands-on workshop person who enjoys experimenting with small, home-built trickling filter systems. The candidate will build the reactors and run them continuously for two months with real wastewater effluent. The aim is to establish a continuous and stable running reactor system with a stable fungal biomass and activity.

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Time period / Additional infos
The design and construction of the reactors can start asap. In the case of a successful study project, this work may be continued as a master thesis.

Contact
Chair of Urban Water Systems Engineering
Christian Wurzbacher
Am Coulombwall 3
85748 Garching
Tel. +49 89 289 13797
c.wurzbacher@tum.de
www.cee.ed.tum.de/sww
www.tum.de