

Enzymatic degradation of microalgal biomass

PostDoc position (m/f/d), (100% TV-L E13)

Project description

The project is part of a new research network "Active Carbon Capture for Sustainable Synthesis (ACCeSS)", funded by the Ministry of Culture and Science of the State of North Rhine-Westphalia (MKW NRW) (www.access.hhu.de) in the field of enzyme-mediated degradation of algal/microbial biomass. The work is interdisciplinary and will allow the candidate to broaden her/his/their knowledge in multiple biochemical and biotechnological disciplines (protein engineering, biomass production and analytics)

Tasks

Microalgae such as cyanobacteria and cyanidiales are potent candidates for sustainable production of feedstocks. However, the composition of the biomass of microalgae as well as the enzymes capable of its effective degradation remain unidentified.

The project combines the study of the biomass composition of microalgae with the identification and production of enzymes for effective biomass degradation. Heterologous expression of the identified enzymes in microbial hosts like *E. coli* and *P. pastoris* has to be established, and their biochemical and catalytic properties should be characterized. Interactive computational and experimental optimization approach will be conducted to improve the enzymatic activity by protein engineering. Finally, the conditions of biomass degradation will be varied and optimized.

Requirements

- PhD in biochemistry, biotechnology, molecular biology or related science
- In-depth knowledge in molecular biology
- Knowledge in heterologous protein production and protein engineering
- Experience in various analytical techniques (e.g. HPLC, GC, mass spectrometry)
- Proficient English in written and spoken form
- Interest in interdisciplinary work
- Communication skills and team spirit

Please submit your application documents (curriculum vitae with a list of publications, if applicable, doctoral degree certificate as well as an overview of achievements, letter of motivation (max. 1 page), contact details of two possible reviewers) in a single PDF by email to: vlada.urlacher@hhu.de