



Determination of growth parameters of selected methanogenic archaea assessed under anaerobic conditions

Background:

The working group [Geobiotechnology and Chemodynamics](#) (Andreas P. Loibner) at IFA-Tulln is currently looking for a motivated and curious student of biotechnology or a related field of study, who is willing to join the group to accomplish her/his master thesis.

Our main research is concerned with developing storage technologies for renewable energy. One of these technologies is called **geomethanation**, a biocatalytic process carried out by methanogenic archaea in depleted underground gas storages, which allows the conversion of hydrogen (generated by electrolysis of water) and carbon dioxide to methane. Our ongoing project **BioPore** investigates the implications of biomass accumulation within the pore space on the geomethanation process.

Research topic:

The main focus of this master thesis lies on the development of a robust and adaptable **method to determine growth parameters** (e.g. growth rate dependence of various substrates) of selected methanogens. Such organisms grow exclusively in an **anaerobic environment**, which has to be sustained throughout the cultivation. To achieve this goal, we aim to conduct both anaerobic bottle and plate reader experiments, for the latter a **novel approach will be implemented**.

Furthermore, analytic methods such as gas and high performance liquid chromatography will be used to characterise the metabolic activities of the respective pure cultures upon alterations of the experimental parameters.

We offer:

Besides a pleasant and welcoming work environment, we can offer access to current research topics of environmental biotechnology such as renewable energy storage and bioremediation technologies for contaminated soils. Furthermore, we will successively offer job opportunities for upcoming Ph.D. positions and/or part-time employments at our group.

Duration: 6 months (start possible from March 2021)

Employment: 8 h/week as a student research assistant ('geringfügige Anstellung')

Information and Contact:

In case of interest, please send a single pdf file with a letter of motivation, a transcription of records and your CV to one of the following e-mail addresses:

✉ Prof. Dr. Andreas P. Loibner, IFA-Tulln (andreas.loibner@boku.ac.at)

✉ Dipl.-Ing. Hannes Konegger, IFA-Tulln (hannes.konegger@boku.ac.at)