

Chemical ecology in the Agroecology Context

Carbon and nitrogen cycling in legume rhizospheres – elucidating the importance of small scale processes for soil fertility and carbon storage.

Department of Agroecology, Team Natural Product Chemistry and Environmental Chemistry
Aarhus University, DK-4200 Slagelse, Denmark

Application Deadline: Feb 1st, 2020

Start date: May 1st or later

Website: <https://phd.scitech.au.dk/for-applicants/apply-here/february-2020/carbon-and-nitrogen-cycling-in-legume-rhizospheres-elucidating-the-importance-of-small-scale-processes-for-soil-fertility-and-carbon-storage/>

Qualifications

A Master's degree, and preferably a background in one or more of the following topic areas: analytical chemistry applied in biological systems, mass spectrometry, environmental chemistry, or agronomy/biology with a focus on plant-soil-microbial interactions. Personal qualifications: Enthusiastic, ambitious, international mind-set, fluent in English as the working language.

Description

In this fully funded PhD project, a novel method for rhizosphere carbon and nitrogen cycling studies in the legume rhizosphere will be developed. The project will combine small-scale sampling with advanced use of stable isotopes and mass spectrometry based profiling to study the patterns and pathways of plant primary and secondary metabolites in the legume rhizosphere. The successful candidate will obtain extensive knowledge of state-of-the-art mass spectrometry identification and quantification, natural product chemistry, plant-soil chemical ecology, and metabolomics.

The successful candidate will join Inge S. Fomsgaards Natural Product Chemistry and Environmental Chemistry team, which is part of the Crop Health section at the Department of Agroecology. Inge S. Fomsgaards team deals with structure, effects and mechanisms of action of natural chemicals from agricultural crops and use state-of-the-art mass spectrometry (LC-MSMS, LC-MSQTRAP, LC-TOF, GC-TOF and LC-MS-DAD). Research stays at the labs of Oliver Fiehn at University of California and Jim Rasmussen in the Climate and Water section at the Department of Agroecology are included.

Besides having an excellent reputation that enables our PhD graduates to find outstanding employment prospects, Aarhus University offers attractive working conditions, research support and resources.

Application Materials

Please go to <https://phd.scitech.au.dk/for-applicants/apply-here/february-2020/carbon-and-nitrogen-cycling-in-legume-rhizospheres-elucidating-the-importance-of-small-scale-processes-for-soil-fertility-and-carbon-storage/>

Follow description under "Application procedures"

Further questions to:

Main supervisor: Associate professor Inge S. Fomsgaard, phone +45 8715 8212; mail: Inge.Fomsgaard@agro.au.dk
Co-supervisor and project leader: Senior Researcher Jim Rasmussen, e-mail: jim.rasmussen@agro.au.dk; phone +4587157418.