Microbiology of peat ecosystems

PhD position at Microbiology, IWWR

Peatlands are important ecosystems with respect to the global methane and nitrogen cycle. They can be both sources and sinks for methane and nitrogen. About 5 years ago, we discovered in a collaborative effort with biogeochemists of the IWWR, that Sphagnum mosses in peatlands live in symbiosis with endophytic methane oxidizing bacteria (Raghoebarsing et al., Nature 2005). This discovery was followed by the development of dedicated cultivation and molecular approaches that resulted in the isolation and identification of the responsible methane-oxidizing bacteria (MOB). Recently, the environmental occurrence of the MOB was demonstrated by micro-array and amplicon sequencing in many wetland ecosystems around the world leading to the realization that these MOB may play a significant role in the global carbon cycle (Kip et al., Nature Geoscience 2010).

The PhD project will investigate the diversity of micro-organisms that are key players in the methane and nitrogen cycle in several (oxygen-limited) peat land ecosystems by molecular and metagenomic methods. Selected samples will be used to enrich new micro-organisms in dedicated bioreactors. The ecophysiology of the new enrichment cultures will be investigated by $^{15}$N and $^{13}$C experiments, and related to their ecological functioning in peat land systems. The expression of important genes and proteins will be studied by metagenomic approaches. The candidate will closely collaborate with the Department of Aquatic Ecology & Environmental Biology.

The Department of Microbiology of the Radboud University (www.ru.nl/microbiology) is located in the Huygens Building with about 800 m$^2$ laboratory equipped with state-of-the-art bioreactors, electron microscopy, next generation sequencing and proteomics facilities. Microbiology is one of the priority areas of the Institute of Water and Wetland Research (IWWR) and the Radboud University, and the research group of prof. Mike Jetten currently includes 12 PhD students and 8 post-docs. The ERC advanced grant and Spinoza award of prof. Mike Jetten enable the continuation of the research on methane and nitrogen cycle in peat land ecosystems with the aim to obtain a fundamental understanding of the microbiology and diversity of the micro-organisms inhabiting these ecosystems.

Expected qualifications of the Anammox PhD Student

- M.Sc. degree in (micro)biology, microbial ecology or biogeochemistry;
- Experience with (anaerobic) microbiology, biogeochemistry and metagenomics is preferred; willingness to perform fieldwork;
- Enthusiasm, perseverance, creativity, patience and courage;
- Excellent communication skills, team spirit;
- Excellent computer and software skills;
- Fluency in English.

The salary will be between EURO 2.042 and 2.612 gross per month on a full-time basis, depending on qualifications and experience. PhD positions a 1.5 + 2.5 year contract is available. Applications should include a cover letter with motivation and a curriculum vitae with experimental expertise, and 2 outstanding reference letters.

You can apply for the job (mention the vacancy number 62.94.12) before 15 February 2013 by sending your application by email to:
pz@science.ru.nl, Mrs. M. van Oostveen, P&O, FNWI, Radboud University

More information:
For more information on the vacancy you can contact:
Prof. dr. Mike Jetten Tel: +31 24 3652941, e-mail: m.jetten@science.ru.nl
Dr. Katharina Ettwig Tel: +31 24 3652557 e mail k.ettwig@science.ru.nl