



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Soil and Environment

Independent project/degree project

Title: Microbial consortia in rewetted peatlands

Credits: 30

Level: Master

Subject: Soil Science /Environmental Science/Biology

Background

Peatlands have a critical role in regulating the global carbon and nitrogen cycles. The desired restoration goal with rewetting of peatlands drained for peat extraction is a re-establishment of the peatland's ecosystem functions. How successfully this goal can be achieved depends on the existing environmental conditions, such as the used peat extraction method, the residual peat depth and peat type, the topography of the remaining peat surface together with its landscape situation, nutrient content and the availability and quality of water resources. Suitable conditions for peat-forming plants need to be restored, and C storage functions and biodiversity need be recovered. This requires a biotic system consisting of peat mosses and a complex microbiota including bacteria, archaea, protists and fungi, whose taxonomic and functional complexity is incomplete understood.

Issues

To understand the taxonomic and functional complexity of microbiota including bacteria, archaea, protists and fungi in peatlands.

Performance

Within the 30-credit degree project corresponding to 20 weeks of education, the microbial community of peatland samples will be analysed. The methodological approach includes techniques such as DNA purification, qPCR (<https://www.youtube.com/watch?v=1kvy17ugl4w>) and Illumina metabarcoding (<https://www.youtube.com/watch?v=fCd6B5HRaZ8>) of 16S /18S rRNA gene, ITS (internal transcribed spacers) and fhs (formyltetrahydrofolate synthetase amplicons). The candidate student will acquire fundamental understanding of experimental design in soil science and biology and obtain competence in laboratory work, data handling, data analysis and manuscript preparation. The candidate is expected to write and present the thesis in English.

Contact

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