

Master Thesis Project (Masterarbeit)

“Comparison and optimization of root exudation sampling approaches”

Are you interested in sustainable agriculture, plant carbon–nutrient dynamics, and field-ready method development? In collaboration with partners at the Leibniz Centre for Agricultural Landscape Research (ZALF), we offer a Master’s thesis on non-destructive, in-situ root exudation sampling in crops. While root exudates are key to rhizosphere processes and nutrient cycling, existing methods are often inconsistent. This project will adapt and validate two minimally invasive approaches—a soil–hydroponic hybrid approach and a cuvette based method—for greenhouse and/or field conditions.

Your tasks:

- setting up a rhizobox experiment with barley plants
- setting up and adapting soil hydroponic hybrid and cuvette-based sampling techniques
- sampling and analysis of root exudates
- evaluation & processing of the analysis results

Your qualifications:

- background in geoecology, plant science, agronomy, environmental science, or related fields.
- interest in experimental work with plants and soils.
- motivation to develop and test new methods.
- basic lab skills; experience with plant physiology is a plus but not required.
- careful, organized, and motivated to work in the greenhouse and in the lab.

We offer:

- close supervision and training in in-situ root exudation sampling approaches.
- an interdisciplinary working environment that encourages independence and self-reliance
- a collegial and open-minded working atmosphere

If you have any questions, please do not hesitate to contact us:

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