

PhD position (UNIVERSITÄT TURKU)

Bewerbungsfrist: 30.09.2023

Open position: PhD researcher (up to 4 years)

Title: Chemical ecology in agricultural ecosystems

Background: Our lab at University of Turku is seeking a PhD researcher interested in species interactions in agricultural ecosystems. We are a multidisciplinary group working on smart and sustainable ways of improving productivity and pest control on agricultural land with a focus on insect biodiversity. The candidate should express interest in investigating the consequences of persistent environmental pollution on species interactions (plant-microbe, plant-herbivore, plant-pollinator, herbivore-predator) in agricultural ecosystems. Research combines fungal plant symbionts (incl. endophytic fungi, mycorrhizal fungi), their targeted use in agriculture and insect biodiversity friendly farming approaches. Our research aims to provide a mechanistic understanding of multi-species interactions, how ubiquitous agrochemical residues impact ecosystem services, such as natural pest control and pollination. The goal is to identify measures improving agroecosystems for the transition to a resilient, sustainable and insect biodiversity-friendly agriculture. We are collaborating with a network of farms across Finland, where we test several alternative approaches to agrochemical use on trial plots. Interest in conducting field work in collaboration with farmers can be part of the PhD work. More information about our research can be found on our lab webpages <https://sites.utu.fi/helandersaikkonenlab/> and <https://fuchsben.wixsite.com/agricultural-biodive> or via contacting the project PI: benjamin.fuchs@utu.fi

Requirements: The ideal candidate has experience in ecological field work, including common-garden and greenhouse studies, has good statistical skills in R, is interested in chemical ecology and related methodologies (LC-MS, GC-MS, metabolomics), basic knowledge of agricultural entomology, good English skills (spoken and written), high motivation to learn new methods and collaborate within a network of research groups. Finnish and Swedish language skills are of advantage to communicate to farmers.

Position: The position is a full-time up to 4-year PhD position funded by the Research Council of Finland. Trial period of 6 months. Send application **until 30.09.23** containing Motivation Letter (max. 1 page), CV (max. 2 pages), relevant certificates and names and contact information of 2-3 referees to Dr. Benjamin Fuchs by e-mail (benjamin.fuchs@utu.fi). Start date is negotiable.

Selected literature: Fuchs B., Saikkonen K., Damerou A., Yang B., Helander M., (2023) Herbicide residues in soil decrease microbemediated plant protection. *Plant Biology* <https://doi.org/10.1111/plb.13517>
Fuchs, B., Saikkonen, K., Helander, M., Tian, Y., Yang, B., Salminen, J-P., Muola, A. (2022) Legacy of agrochemicals in the circular food economy: GBHs introduced via manure fertilizer affect the yield and biochemistry of perennial crop plants during the following year. *Chemosphere*, 136366. <https://doi.org/10.1016/j.chemosphere.2022.136366>
Fuchs, B., Saikkonen, K., Helander M. (2021) Glyphosate-modulated biosynthesis driving plant defense and species interactions. *Trends in Plant Science* 26(4): 312-321. <https://doi.org/10.1016/j.tplants.2020.11.004>