

PhD Position in Chemical or Microbial Ecology (University of Würzburg)

“Dependence of endophytic fungus - grass symbioses on land-use intensity”

Rationale

Endophytic fungi occur in grass species and can affect ecosystem functioning and ecosystem services by producing alkaloids toxic for pest insects and livestock. Within the Biodiversity Exploratories (<http://www.biodiversity-exploratories.de/startseite>), we will detect grass endophytes of the *Epichloë* group in Poaceae with different methods. We will further detect pathway alkaloids and will quantify the temporal dynamics of the alkaloid concentrations. We also aim to detect other foliar fungal assemblages using barcoding techniques. We want to know if alkaloids of *Epichloë* endophytes vary with land-use intensity and if *Epichloë* occurrence changes the assemblages of other foliar endophytes. Finally we want to give advice to grassland farmers about the toxicity for livestock. The field work will be sampling surveys on 150 grassland sites in three regions in Germany (Swabian Alb, Hainich, Schorfheide-Chorin). Chemical analyses will be conducted afterwards with cooperation partners, e.g. with the lab of Prof. Dr. Martin Müller in the Pharmaceutical Biology of the University of Würzburg, Germany (<http://www.metabolomics.biozentrum.uni-wuerzburg.de/>) and with the lab of Prof. Dr. Carolyn Young (<https://www.noble.org/staff/research/carolyn-young/>) in Oklahoma (USA). The PhD position will be supervised by PD Dr. Jochen Krauss and is located at the Department of Animal Ecology and Tropical Biology in Würzburg, Germany (<http://www.zoo3.biozentrum.uni-wuerzburg.de/team/krauss/>).

Requirements

Applicants should have a MSc degree (or equivalent) in ecology, biology, agricultural sciences or related disciplines. A background in chemical or microbial ecology is preferred. Skills in HPLC, RT-PCR, and barcoding are of advantage and the capability to identify grass species is helpful. The knowledge of ecological concepts, advanced statistics (preferably in R) and very good English speaking and writing skills are expected. Some German skills are helpful, but not necessary. A driving license valid in Germany is compulsory to reach the study sites in three different regions in Germany.

Salary and conditions

Salaries will be according to the wages-agreement (TV-L) in pay group E13 – 65% (per month is ca. 1300 €). The University of Würzburg is an equal opportunity employer. Female scientists are particularly encouraged to apply. Disabled applicants will be preferentially considered in case of equivalent qualification. Start date: **1st April 2017** (negotiable). The position is for three years. The doctoral thesis will be done as a series of English manuscripts. We offer the membership in a friendly, enthusiastic and ambitious young research team, modern facilities and the participation in the framework of the Biodiversity Exploratories. The position will be placed in the attractive student city of Würzburg in southern Germany. The student can also join the Graduate School of Life Sciences of the university with many activities (http://www.graduateschools.uni-wuerzburg.de/life_sciences).

Applications

Please send your application attached as a single pdf file per-email to j.krauss@uni-wuerzburg.de latest until **31 January 2017**. Applications should include a cover letter, a short summary of research interests, CV, complete certificates (A-level, BSc, MSc), and the names (with email addresses and phone number) of two potential referees. Interviews of invited candidates will be held on **15th of February 2017**.

For further information, please contact: PD Dr. Jochen Krauss. Department of Animal Ecology and Tropical Biology, Biocentre, University of Würzburg, Germany (j.krauss@uni-wuerzburg.de)

References: Müller, C. B., Krauss, J. (2005) Symbiosis between grasses and asexual fungal endophytes. *Current Opinion in Plant Biology* 8: 450-456.

Börschig, C., Klein, A.M., Krauss, J. (2014) Effects of grassland Management, endophytic fungi and predators on aphid abundance in two distinct regions. *Journal of Plant Ecology* 7: 490-498.

Fuchs, B., Kruschke, M., Mueller, M.J., Krauss, J. (2016) Herbivore-specific induction of defence metabolites in a grass-endophyte association. *Functional Ecology* (online first).