

Freie Universität Berlin
Fachbereich Biologie, Chemie, Pharmazie
Institut für Biologie
AG Angewandte Zoologie / Ökologie der Tiere

2 PhD positions – Molecular and Chemical Ecology of Plant – Insect Interactions
(Wiss. Mitarbeiterin / Wiss. Mitarbeiter, 65% E13 TV-L, for 3 years)

Keyword: Pine 2021

Deadline: July 19, 2021

A DFG-funded project entitled “**Priming of Pine Defence against Insect Infestation**“ is seeking two highly motivated PhD students with strong interest and experience in **molecular and chemical ecology of plant – insect interactions**. Applicants with a MSc or Diploma degree in Biology, Molecular Biology, Genetics, Biochemistry and/or Ecology are highly welcome.

Background: The project addresses the question how pine trees can prepare (prime) their defensive responses to insect infestation. Previous studies showed that pine can take (a) insect sex pheromones as "warning" of impending insect egg depositions and (b) insect eggs as warning of impending larval herbivory. Pine trees responding to sex pheromones prepare (prime) their defence against eggs. Insect eggs laid on pheromone-exposed trees have reduced survival rates. Pine trees responding to insect eggs prepare (prime) their defence against hatching larvae, which suffer enhanced mortality on previously egg-laden pine. The project aims to understand how these priming processes are regulated on the transcriptional, phytohormonal and chemical (metabolite) level of pine. A further goal of the project is to elucidate ecological consequences of these priming processes.

One PhD student will focus on the first mentioned aim, the other one on the ecological questions. Both PhD students are expected to enthusiastically collaborate. The research will be done in the lab of Applied Zoology/Animal Ecology at Freie Universität Berlin. We offer a vivid research environment, which trains PhD students in combining molecular/biochemical life sciences with ecology and promotes integrative collaborations. Information about our lab is available at:

https://www.bcp.fu-berlin.de/biologie/arbeitsgruppen/zoologie/ag_hilker/index.html

Tasks

The tasks of the PhD students are:

- Research in the project “Priming of Pine Defence against Insect Infestation“
- Organising, preparing and conducting experiments
- Molecular analyses of differently treated pine (RNAseq, qRT-PCR)
- Chemical analyses of differently treated pine (LC-MS, GC-MS)
- Behavioural bioassays with egg parasitoids and pine sawflies
- Evaluation of experimental data (multivariate statistics)
- Writing scientific manuscripts / publications

Requirements

For the positions, it is required to hold a MSc or Diploma degree in Biology or related disciplines and to have experience in methods necessary to fulfill the above-mentioned tasks.

Applicants with

- knowledge in the research field of plant responses to environmental cues
- plant molecular biology expertise

- insect ecology expertise

- expertise in the analyses of volatile and non-volatile plant metabolites (HPLC, LC-MS, GC-MS)
- sound biostatistical know-how
- excellent knowledge of the English language (spoken and written)
- enthusiasm for biological research and ability to work independently
- team spirit and flexibility

are most welcome.

For further information on the project please contact Prof. Dr. Monika Hilker, email: monika.hilker@fu-berlin.de; for questions regarding formal aspects of the application, please contact Urte Kohlhoff; email: ag-hilker@bcp.fu-berlin.de

Applications should be sent by e-mail, together with significant documents, indicating the **reference code**, in PDF format (preferably as one document) to Urte Kohlhoff; email: ag-hilker@bcp.fu-berlin.de

On the given occasion and for the duration of the essential on-site operations by Freie Universität Berlin, we kindly ask you to apply electronically by e-mail. The processing of a postal application cannot be guaranteed.

Freie Universität Berlin

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AG Angewandte Zoologie / Ökologie der Tiere
Frau Prof. Dr. Monika Hilker**

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