Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PLG0026 Analytical Methods in Chemical Ecology, 4.5 credits

Syllabus approved

2010-10-06

Subjects

Biology

Education cycle

Third cycle

Grading scale

Pass / Failed
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

The course is intended for PhD students in chemical ecology, analytical chemistry, ecology, biology or a related field, but it is also possible for postdocs and M.Sc. students with relevant training to take part.

Objective, including learning outcomes

After completion of the course, the student should:
- have a good knowledge and practical experience of methods for sampling organic

compounds
- understand chromatography; both gas cromatography and liquid cromatography
- know how to choose an analytica column, and why
- good knowledge of different methods for identification of organic compounds
- know different methods for quantification, and how to perform reliability of quantitative analysis.

Content

Morning sessions are lectures, and afternoon sessions are laboratory practice. The lecture series follow the "Silverstein principle for rigorous identification of bioactive compounds", with the protocol "observe" (i.e. bioassay); "isolate" (i.e. collection of bioactive compounds); "separate" (i.e. chromatography); "identifying" (i.e. chemical analysis), and all steps confirmed with repeated bioassays.

The lectures will describe different methods of collection or organic compounds, as aeration, SPE, SPME etc. General properties of chromatography and the specificity of different chromatograpic methods will be highlighted. Modern identification methods in chemical ecology, and other organic analysis, will be described. This course will also give an introduction to interpretation of mass spectral.

During the afternoons, the course will include a practical part: volatile collection, sample preparation, GC-MS analysis, and evaluation, using the analytical instrumentation at Chemical Ecology, Plant Protection Biology, Swedish University of Agricultural Sciences (SLU), Alnarp.

Requirements for examination

The laboratory practice will be reported by each lab group (pair) the last day of the course, and the results and experiences will be discussed by the participants. The course will be evaluated anonymously by the participants.

Additional information

The laboratory practice will run during several days and the evaluation results should be reported both as a lab report and as a PowerPoint (etc) presentation. Parallell with the laboratory practice, other electrophysiological methods used in Chemical Ecology will be introduced to the participants.

Coursetime: 7–25 February 2011.
Latest day for application: 15th of January 2011

Responsible department

Faculty of Landscape Architecture, Horticulture and Crop Production Science