



2011 PhD Summer School

Tuesday 14 June – Friday 24 June, 2011

Aarhus University, Flakkebjerg, DK-4200 Slagelse, Denmark

Hands-on LC-MSMS analytical chemistry of phytochemicals

Short description

Knowledge of advanced chemical analysis is a necessary tool in the research on bioactive natural compounds from plants both when the focus is on the the health effects of the compounds and their defence properties against insects, weeds and diseases. Analytical chemistry can of course be studied in books, but with practical laboratory work you will learn much more. The course will take place in a well-equipped laboratory at Aarhus University, Research Centre Flakkebjerg, DK-4200 Slagelse, Denmark. Three LC-MSMS apparatuses will be available for the students during the course and our experienced technicians will provide instruction on the use of the equipment as well as practical techniques for the preparation of natural samples.

Programme

The course is constructed as follows:

- ◆ Preparatory reading of selected chapters in an LC-MSMS textbook
- ◆ Approximately three days of practical exercises on the creation of batches and quantitation methods, optimization of parameters for selected phytochemicals, preparation of samples and validation of the quantitative method (recovery)
- ◆ Approximately three days of practical exercises chosen on the basis of each student's on-going PhD project
- ◆ Theoretical lessons on
 - ◆ Optimization of extraction methods
 - ◆ Method validation: LOD, LOQ, recovery, matrix interferences
 - ◆ ESI and APCI inlet systems
 - ◆ Use of an ion trap for analysis of phytochemicals
 - ◆ HPLC method development and optimization
 - ◆ LC-MS versus GC-MS: advantages and disadvantages
 - ◆ Interpretation of mass spectra
 - ◆ Representative sampling: plants, soil and water
 - ◆ Good Laboratory Practice
 - ◆ New developments in mass spectrometry
- ◆ Subsequent elaboration of a 30- to 40-page report on the practical exercises.

Course weight

8 ECTS points (European Credit Transfer System).

Course assessment

The report is assessed as "passed" or "not passed". Presence at a minimum of 90% of theoretical and practical lessons is required to obtain the course diploma.



Lecturers from Aarhus University

Senior Scientist Inge S. Fomsgaard (course coordinator)

<http://www.agrsci.org/content/view/full/1557>

Senior Scientist Niels Henrik Hyttel Spliid, Laboratory Technician Anne G. Mortensen, Laboratory Technician Bente Laursen, Laboratory Technician Kirsten Heinrichson, PhD student Hans A. Pedersen.

Visiting lecturers

Applications chemist from AB Sciex, applications chemist from Phenomenex, lecturers from the University of Copenhagen. Details to be announced later.

Course venue

The course venue is Research Centre Flakkebjerg, situated in Southwest Zealand, 10 km south of Slagelse (100 km west of Copenhagen). Complete address:

Department of Integrated Pest Management, Research Centre Flakkebjerg, Forsøgsvej 1, DK-4200 Slagelse, Denmark, Tel: +45 89991900

Direct telephone number to Inge S. Fomsgaard (+45 89993610 or +45 22283399).

Inge.Fomsgaard@agrsci.dk.

Accommodation

Accommodation will be at Danhostel in Slagelse, Bjergbygade 78, DK-4200 Slagelse.

Fee

The fee includes teaching materials, laboratory consumables, access to instruments, technical assistance, textbook, lodging 14-24 June, transport Slagelse-Flakkebjerg and meals on all workdays.

Total price in single room with private bathroom and toilet: 1300 EUR

Total price in single room with bathroom and toilet in corridor: 1225 EUR

Total price in shared room with bathroom and toilet in corridor: 1050 EUR (option only valid if other participants of same sex require the same).

Deadlines

Deadline for registration and payment: 15 April, 2011. Maximum number of participants: 12. First come, first served. Please register at <https://webshop.dpu.dk/default.aspx?id=3615>.

For further information please contact Sonja Graugaard - Sonja.Graugaard@agrsci.dk.

Comments from participants in our 2010 course

"Technicians were exceptionally patient with the right sense of "trial and error" teaching"

"Very rewarding that the course was hands-on LC-MSMS. That was a very good idea."

"Very rewarding to learn sample preparation in different ways"

"Good mixture of theoretical lessons and practical work"

"The shift from easily comprehensible tutorials and the opportunity to go through the different steps in your own pace suited me very much".

SAFE (PhD School of Agriculture, Food and Environment)

Aarhus University

