



RECETO PhD Summer School 26-31 July 2009

Bioactive Natural Compounds in Soil: Analysis, Fate and Effects

University of Copenhagen and Aarhus University, Denmark

Short description

Bioactive natural compounds from plants have been in research focus for decades, firstly due to their pharmacological effects, and with that their health effects when present in edible parts of plants, and secondly due to their defence properties against arthropods, nematodes, plants and diseases. The effects of bioactive natural compounds will depend on the mobility and fate of the compounds in soil. During transport of the compounds from the donor plant to target organisms the plant allelochemicals get in contact with soil microorganisms and metabolites will be formed. This was seldom considered in earlier allelopathy studies. When bioactive natural compounds are leached or exuded from plants into the soil, there is a risk that the compounds or their metabolites can affect non-target organisms or they can leach into surface water or groundwater and thus affect both the environment and human health.

This course will cover the chemistry of selected groups of bioactive natural compounds from agricultural crops and wild plants, their sorption, degradation and leaching in soils, chemical analytical techniques and their suppressive effects on plants and arthropods.

Preliminary programme

The course is arranged as follows:

1. Preparatory reading of course literature (made available no later than 2 months before the start of the course).
2. Participation in a 5-day on-site course at Aarhus University, Campus Flakkebjerg from Sunday evening 26 July to Friday 31 July – both days included.
3. Handing-in of a report within one week after the on-site course.

The 5-day on-site course programme is as follows (lecturers in brackets):

	26 July	27 July	28 July	29 July	30 July	31 July
18.30-21.30	Welcome, info, dinner					
8.30-10.00		Overview I (Guest lecturer SDU)	Degradation (IFO)	Sorption/leaching (HCBH, BWS)	Effects – plants (PK)	Analysis/separation. (BWS)
		Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
10.30-12.30		Overview II (Guest lect SDU)	Degradation (IFO)	Sorption/leaching (HCBH, BWS)	Project group work	Analysis/separation (BWS)
		Lunch	Lunch	Lunch	Lunch	Lunch
13.00-15.00		Students presentation*	Project group work	Project group work	QSAR (Guest lect. EBO)	Project presentations
15.00-17.00		Students presentation*	Project group work	Project group work	QSAR (Guest lecturer EBO)	Project presentations
		Dinner	Dinner	Dinner	Dinner	
19.30-21.00		Bioact. compounds and GMO (Guest lecturer)	Case Sorgoleone (Guest lecturers SDU, ALG)	Social activity	Project group work	Farewell Dinner

* (projects, interests, competences, aims)



Course credits

6 ECTS credit points (European Credit Transfer System)

Course assessment

The report is assessed as "passed"/"not passed". Presence at minimum 90% of lectures/exercises is required to obtain the course diploma.

Lecturers

Senior Scientist Inge S. Fomsgaard ([IFO](#)) (course coordinator), AU-DJF

Professor Hans Christian Bruun Hansen ([HCBH](#)), KU-LIFE

Associate Professor Bjarne W. Strobel ([BWS](#)), KU-LIFE

Head of Research Group Per Kudsk ([PK](#)), AU-DJF

Guest Lecturers

Dr. Steve Duke ([SDU](#)), National Center for Natural Products Research, USDA

Phd student Elena Boriani ([EBO](#)), Istituto di Ricerche Farmacologiche "Mario Negri"

Dr. Anne Louise Gimsing ([ALG](#)), CLEANFIELD

Course venue

The course venue is Campus Flakkebjerg, located in Zealand, 100 km south-west of Copenhagen. Complete address of the course venue is: Department of Integrated Pest Management, Campus Flakkebjerg, Forsoegsvej 1, DK-4200 Slagelse, Denmark, Tel: +45 89993610 or +45 22283399. Inge.Fomsgaard@agrsci.dk

Accommodation

Accommodation will be at Flakkebjerg Efterskole, 500 metres from Campus Flakkebjerg. The accommodation will be in shared double rooms.

Fee

PhD students: 250 € (includes costs of lodging and meals)

Deadline

Deadline for registration and payment: 15 June, 2009. Registration by filling in the attached form and e-mail it to: Sonja.Graugaard@agrsci.dk

Research School of Environmental Chemistry and Ecotoxicology (RECETO)

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Aarhus University

RECETO

