



Italian Society of Soil Science
School of Soil Biodiversity and Bioindication
XI cycle

**Biodiversity and bioindicators in monitoring
and management of contaminated soils**

4–7 giugno 2019

Department of Agricultural Sciences
University of Naples Federico II, Portici, Italy

FIRST ANNOUNCEMENT

SCHOOL TOPIC AND AIMS

The incoming edition of the School of **Soil Biodiversity and Bioindication** organized by the Italian Society of Soil Science will focus on the relationships between biodiversity and soil contamination.

In the recent World's Soil Resources Report (SWRS), pollution has been identified as one of the main processes of degradation that threaten the soil and its ecosystem services. Soil pollution reduces food security by either reducing crop yields due to toxic contaminant levels or by producing foods that are unfit for human and animal consumption. Many contaminants are transported from the soil to the air and to surface and groundwater, causing environmental damage and direct human health problems. Moreover, the pollutants directly damage the micro and macro soil organisms and therefore influence the biodiversity of the soil and the services provided by the living organisms involved. The risk assessment approaches aim at identifying and assessing whether natural or man-made substances are responsible for soil pollution and

the extent to which such pollution poses a risk to the environment and to human health. In this perspective, a need to move from measuring concentrations to measuring effects exists as well as to standardize terms, indicators and methodologies.

The school will involve a combination of lectures and laboratory/field activities. Appropriate study tools will be presented to highlight the role played by edaphic organisms and plants in monitoring and recovery of soil quality. The reclamation of polluted soils is essential and the use of biological remediation methods based on microbial degradation of organic contaminants or on the use of plants for phytomanagement purposes will be proposed.

Introductory lectures on the concept of soil contamination and bioremediation, biodiversity and soil quality bioindicators will follow other specifications for the different aspects that link soil biodiversity to contamination. The main objective is to make all participants familiar with the key aspects of soil contamination and its effects on soil biodiversity.

PROVISIONAL PROGRAM

Tuesday, 4th June (afternoon)

Welcome and Introduction to the School and Presentation of participants

Lectures on soil contamination, bioremediation and bioindicators suitable for soil quality monitoring and risk assessment

Wednesday, 5th June (full day)

Lectures on soil microbioma and advanced techniques to investigate and isolate soil micro-organisms useful for pollutants degradation

Lectures on soil arthropod and collembolan biodiversity

Laboratory activities (isolation techniques of microorganisms; optical microscope observation of microbial morphologies; soil extraction of microbial DNA; PCR, DGGE and NGS for assessment of soil microbial biodiversity; Soil Biological Quality index - QBS-ar)

Thursday, 6th June (full day)

Lectures on plants as monitors and remedial of soil contamination

Lectures on advanced techniques to investigate pollutants bioavailability and bioaccessibility

Introduction to the field excursion

Student feedbacks

Friday, 7th June (morning)

Field excursion to polluted rural and industrial sites under remediation. The purpose of the trip will be to examine the pollution that had occurred on the sites, and discuss the remediation strategies being employed.

Requirements

The course is a training opportunity for graduating, post-graduated and Ph.D. students, researchers and any professional interested to develop skills on soil biodiversity and bioindicators issues for pollution assessment and remediation. Basic knowledge on soil science, biology and ecology is a requirement.

Application

Candidate participants have to communicate their intention to take part at the course sending an email to Prof. Paola Adamo (paola.adamo@unina.it) at any time and not later than 15th March 2019.

Maximum number of accepted participants is 30. Upon the ascertainment of the requirements, candidate will be accepted on the basis of the first arrived first served rule.

Fees

Participation in the school is **free** of charge. To attend the field excursion, it will cost 20 EURO per person. Details about the payment will be provided by the 2nd circular.

Location

The Department of Agricultural Sciences of the University of Naples Federico II is at Portici, a town close to Naples. The Department is located in the Royal Palace and is close to the Archeological Site of Herculaneum.

<http://www.visitercolano.com/en/main-attractions/royal-palace-portici-and-museumherculaneum>.

Accommodation

More information about accommodation will be provided by the 2nd circular.

Local Organizing Committee

Paola Adamo (coordinator), Antonio Giandonato Caporale, Massimo Fagnano, Nunzio Fiorentino, Olimpia Pepe, Maria A. Rao, Valeria Ventorino, Simona Vingiani