



SOCIETA' ITALIANA DI CHIMICA AGRARIA

PhD Winter School

Rhizosphere at work: soil-plant-microbes interactions, from plant nutrition to soil remediation

17-20 February 2014, Piacenza, Italy

Organizing committee: Tanja Mimmo, Gian Maria Beone, Luciano Cavani, Edoardo Puglisi, Nicola Tomasi, Roberto Terzano, Marco Trevisan, Stefano Cesco, Claudio Ciavatta

The aim of the school is to give an insight into the complex processes occurring at the soil-root interface and how these processes can be exploited to improve plant nutrition and to remediate polluted soils. In particular, lectures will focus on new innovative methodologies applied in rhizosphere research.

Preliminary scientific program

17 February 2014

afternoon: arrival and registration

15.00-15.30: Introduction of the School

afternoon session: ***RHIZOSPHERE AND ROOT EXUDATION***

Chair: Edoardo Puglisi (Università Cattolica del Sacro Cuore of Piacenza, Italy)

15.30-16.15 Tanja Mimmo (FaST, Free University of Bolzano, Italy) The rhizosphere - "the underground information superhighway"

16.15-17.00 Nicola Tomasi (DiSA, University of Udine, Italy) How are exudates released from roots?

17.00-17.15 Break

17.15-18.00 Gianpiero Vigani (DiSAA, University of Milano, Italy) Where do root exudates come from? Metabolic reprogramming under nutrient deficiency: Fe nutrition as a case study

18:00-18:30 Team work and discussion*: Experimental approaches to assess roots exudation and address the complexity of tripartite soil-plant-microbiota interactions in the rhizosphere* (*under supervision of the chair*)

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18 February 2014

morning session SOIL MANAGEMENT AND PLANT NUTRITION

Chair: **Matteo Spagnuolo** (DiSSPA, University of Bari, Italy)

9.00-9.45 **Luciano Cavani** (DiSA, University of Bologna, Italy) Organic Fertilizers: impact on soil fertility

9.45-10.30 **Anita Zamboni** (DiBiotec, University of Verona, Italy) Regulation of mineral nutrition uptake in the context of root-rhizosphere relationship

10.30-11.00 **Break**

11.00-11.45 **Stefania Astolfi** (DAFNE, University of Tuscia, Italy) Sulphur in nutrient interactions

11.45-12.30 **Daniele del Buono** (DiSAA, University of Perugia, Italy) Agrochemicals: plant detoxification and interferences on vegetal nutrition

12.30-13.00 **Team work and discussion***: Plant nutrition research: challenges to meet the need for food with a sustainable approach* (*under supervision of the chair*)

afternoon session: PRACTICAL SESSIONS

14.30-17.30 **Tanja Mimmo, Markus Puschenreiter, Ilenia Cattani** Methods in Rhizosphere Research: Rhizoboxes and Rhizotest - limitations and implications

17.30-18.30 **Nicola Tomasi** How to approach a plant study in a plant-soil experimental system?

19 February 2014

morning session SOIL MICROBES AND THEIR INTERACTIONS WITH PLANTS

Chair: **Vito Armando Laudicina** (University of Palermo, Italy)

9.00-9.45 **Youri Pii** (FaST, Free University of Bolzano, Italy) Interactions between plants and microorganisms: towards a better nutrient efficiency?

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9.45-10.30 Edoardo Puglisi (Università Cattolica del Sacro Cuore of Piacenza, Italy)

Structure and activity of soil microbes as revealed by genomics and metagenomics approaches

10.30-11.00 Break

11.00-11.45 Davide Bulgarelli (College of Life Science, University of Dundee, UK)

Underground: structure, functions and host control of the microbiota thriving at the root-soil interface

11.45-12.15 Team work and discussion*: Molecular vs. biochemical methods to study the soil microbial community* (*under supervision of the chair*)

12.15-13.00 Selected presentations by PhD students

afternoon session: PRACTICAL SESSIONS

14.30-16.30 Edoardo Puglisi, Davide Bulgarelli Digging into the numbers: from Data Count Matrix to (almost) PQ pictures using R

16.30-18.30 Roberto Terzano, Maria Chiara Fontanella X-ray and mass analytical methods to study micronutrients and trace element pollutants in soil and plants

20 February 2014

morning session: SOIL POLLUTION AND DECONTAMINATION

Chair: Gian Maria Beone (ICAA, Università Cattolica del Sacro Cuore of Piacenza, Italy)

9.00-9.45 Ilenia Cattani (ICAA, Università Cattolica del Sacro Cuore of Piacenza, Italy)
Soil contamination and bioavailability concept

9.45-10.30 Roberto Terzano (DiSSPA, University of Bari, Italy) Soil remediation: an overview

10.30-11.00 Break

11.00-11.45 Giancarlo Renella (DiPSA, University of Firenze, Italy) Restoration of functionality of polluted soils and sediments: evidences from the GREENLAND and CLEANSED projects

11.45-12.30 Markus Puschenreiter (Institute of Soil Research, BOKU University, Wien, Austria) Rhizosphere processes involved in phytoremediation of trace element-contaminated soils

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12.30-13.00 Team work and discussion*: Strategies and novel technologies for elemental speciation in soil solution rhizosphere* (*under supervision of the chair*)

13.00-13.30 Conclusions

lunch and departure

Each speaker will give a 40 min lecture + 5 min discussion. Program could be subject to changes.

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Location

Summer School will be held at the Università Cattolica del Sacro Cuore di Piacenza

For the web site: <http://www.unicatt.it>.

How to reach Campus of Piacenza

by CAR

- Motorway A1 (Milano-Bologna): Exit "Piacenza Sud".
- Motorway A21 (Torino-Brescia): Exit "Piacenza Sud".

Follow for Piacenza centre. Turn left at round-about, after the overpass go straight ahead for 500 meters, the University is on the right.

by TRAIN

For train visit <http://www.ferroviedellostato.it/>. The railway station Piacenza (Piazza Marconi), which is an important railway hub for the entire northern Italy, is reachable by train railway lines:

- Milan - Bologna
- Turin - Piacenza

by BUS from the railstation (Piazza Marconi)

- Bus n.2 direction "S.Lazzaro Università", with stop in via E. Parmense
- Bus n. 3 or 7 direction "Capitolo", with stop in via E. Parmense

by AIRPLANE

- from Milan: Airports "Linate" or "Malpensa" (www.sea-aeroportoimilano.it)
- from Bergamo: Airport "Orio al Serio" (www.sacbo.it) At the terminals are available shuttle bus connecting the airport to the train station in Milan.
- from Parma: Airport "Giuseppe Verdi" (www.aeroportoiparma.it)
- from Bologna: Airport "Guglielmo Marconi" (www.bologna-airport.it)
- from Brescia: Airport "Gabriele D'Annunzio" in Montichiari (www.aeroportobrescia.it)
- from Verona: Airport "Valerio Catullo" in Villafranca (www.aeroportoverona.it)

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Registration Fee

Number of School participants is limited to 30 PhD students/post docs.

School fee: **60 Euro**, which cover the lunch costs from 18 February to 20 February.

PhD students are requested to send a document attesting their status (mail gian.beone@unicatt.it; fax 0523-599217)

Accommodation

For the accommodation during the school, the participants must provide their own for the reservation of the rooms.

You can book the Gasparini Residence with the special rate of **40 Euro** per night in BB (<http://educatt.unicatt.it/educatt-residenza-gasparini-il-collegio> +39 0523-621111).

An alternative close to the University is the hotel City (www.hotelcitypc.it; +39 0523-579752; during the reservation specify that you are going to the University to have a special deal)

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Registration procedure

Registration deadline: **15 December 2013**.

For registration please, follow this three-steps procedure:

1) payment of **60 Euro**, by bank transfer, to:

Account holder: Società Italiana di Chimica Agraria

Account number: 1000/12263

Bank: Banca Prossima, via Manzoni ang. Via Verdi, 20121 Milano

IBAN: IT64 V 03359 01600100000012263

All banking costs must be paid by the participant.

The name and address of the participant as well as the details of the payment should be clearly indicated when completing the bank transfer.

2) **send a scanned copy** of your payment (JPG or PDF format), by e-mail at gian.beone@unicatt.it

3) **send your registration form** to gian.beone@unicatt.it

Once you have completed this three-steps procedure, we will confirm your registration by e-mail.

Poster presentation

You are welcome to prepare a poster (max size: 80 x 100 cm) of your current work, in which case we kindly request you to submit an abstract before **15 December 2013**. Four abstract selected by the Organizing Committee will be presented by their applicants (10 min presentation + 2 min of discussion). Applicants will be informed about the selection one week before the starting of the school.

Abstract format: abstract should not exceed 250 words, (courier 12 pt) and all the authors names and affiliations should be indicated. Abstract should be sent as word file to roberto.terzano@uniba.it.

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General information

Contacts

For any questions or doubts regarding School organization, please contact organizers at

gian.beone@unicatt.it

roberto.terzano@uniba.it

nicola.tomasi@uniud.it

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Registration form

Please complete the form and send it to gian.beone@unicatt.it

First name	
Family name	
e-mail address	
Name of your current Research Institute	
Address of your current Research Institute	
If PhD student, please specify name of your tutor	
Did you send scanned copy of your bank payment to ?	
Do you intend to present a poster? Y/N	

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Tanja Mimmo - UniBZ
Gian Maria Beone - UniPC
Luciano Cavani - UniBO
Edoardo Puglisi - UniPC
Nicola Tomasi - UniUD
Roberto Terzano - UniBA
Marco Trevisan - UniPC
Stefano Cesco - UniBZ
Claudio Ciavatta - UniBO

Speakers:

Tanja Mimmo - UniBZ
Nicola Tomasi - UniUD
Gianpiero Vigani - UniMI
Luciano Cavani - UniBO
Anita Zamboni - UniVR
Stefania Astolfi - UniVT
Daniele Del Buono - UniPG
Markus Puschenreiter - UniBoku (A)
Ilenia Cattani - UniPC
Maria Chiara Fontanella - UniPC
Youri Pii - UniBZ
Davide Bulgarelli - UniDundee (UK)
Eduardo Puglisi - UniPC
Roberto Terzano - UniBA
Giancarlo Renella - UniFI

Chairman and organizer of the Team work and discussion:

Edoardo Puglisi UniPC
Matteo Spagnuolo UniBA
Vito Armando Laudicina UniPA
Gian Maria Beone UniPC

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