

NOVEL APPROACHES AND TECHNOLOGIES FOR CURRENT AND FUTURE CHALLENGES IN AGRICULTURAL CHEMISTRY



14 – 17 February 2022 – Udine, Italy



School aims

Technological improvements, along with innovative approaches are needed to decipher the responses of agroecosystems to environmental stimuli and anthropogenic inputs. A transformative process towards 'holistic' approaches that integrate data from nano to macro scale are needed. Through multidisciplinary approaches, singular specific responses of biota communities (plant and microbes) should be evaluated looking at their interaction with the soil and with the environmental factors. The use of new technologies with high resolution and sensibility is needed to deeply characterize the system. More than big data generation, the ability to integrate the information obtained by -omic studies (genomics, transcriptomics, metabolomics, ionomics,...) is a crucial aspect to reach a realistic description of plant-soil-microbe interactions and their functioning. In this context, understanding of crosstalk occurring in the agroecosystem is a key point to overcome the challenges that agricultural chemistry will face over the coming years.

This edition of the Agricultural Chemistry Winter School will focus on these issues and promote the importance of agricultural chemistry among young scientists in an international, friendly and casual environment. The Winter School, organized by the Italian Society of Agricultural Chemistry (SICA) and the Dept. of Agricultural, Food, Environmental and Animal Sciences, University of Udine, is offered to doctoral students, post-docs and early-stage researchers, and aims at providing an opportunity to: (i) exchange and extend understanding of the theoretical, conceptual and applicative aspects regarding soil, plant and environmental sciences; (ii) provide useful insights into novel methodological and analytical approaches; (iii) build and sustain research networks; and (iv) consolidate scientific communication skills. The programme will therefore provide a series of activities including keynote lectures, seminars, workshops, as well as oral and poster presentations by the participants.

School venue

All the activities related to the school will take place at the:

Dipartimento di Scienze AgroAlimentari, Ambientali e Animali*
via delle Scienze, 206 - 33100 Udine, Italy.

* In the eventuality that restrictions to mobility due to the global COVID-19 pandemic persist, the school will be entirely converted into an on-line format.



School details and contact

All details regarding the school, can be found at www.acws.uniuo.it.

For any information related to the school please contact:

Laura Zanin, writing an e-mail at acws@uniud.it

Dept. of Agricultural, Food, Environmental and Animal Sciences,
University of Udine.

Programme

Monday, 14 February 2022

13:30 – 14:00	Registration
14:00 – 14:10	Opening Session
<i>Session 1: Introduction to agroecosystem</i>	
<i>Moderators: Gianpiero VIGANI</i>	
14:10 – 14:50	Innovative analytical approaches in soil science: What benefits from x-ray analyses? <i>Concetta Eliana GATTULLO, University of Bari, Italy</i>
14:50 – 15:30	Introduction to metabolomics and its potential uses in plant ecophysiology <i>Fabrizio ARANITI, University of Milan, Italy</i>
<i>Coffee break</i>	
15:45 – 16:45	Structure, function and host control of the crop microbiota <i>Davide BULGARELLI, University of Dundee, Scotland, UK</i>
<i>Workshop: Presenting your research</i>	
<i>Moderator: Fabrizio ARANITI</i>	
16:45 – 18:00	Participants' presentations (oral)
19:00	Get together

Wednesday, 16 February 2022

<i>Session 3: Soil session</i>	
<i>Moderators: Daniela PEZZOLLA, Daniel SAID PULLICINO</i>	
09:00 – 10:00	Plant- or microbial-derived? Sources of soil organic matter and their relevance to carbon dynamics <i>Gerrit ANGST, Biology Centre CAS, Czech Republic</i>
10:00 – 10:40	Developing novel Lunar and Martian regolith-based substrates for pedogenesis and space farming studies <i>Antonio CAPOREALE, University of Naples</i>
<i>Coffee break</i>	
11:00 – 11:40	Microsensor technology to quantify acclimation traits in rice roots against soil anoxia <i>Elisa PELLEGRINI, University of Udine</i>
11:40 – 12:20	Methodological seminar <i>Dr Craig STURROCK, University of Nottingham, UK</i>
<i>Lunch break / Poster session</i>	
14:00 – 15:00	Assessing the sources and stability of soil organic matter using biomarkers and isotopes <i>Gerrit ANGST, Biology Centre CAS, Czech Republic</i>
<i>Coffee break</i>	
<i>Workshop: Presenting your research</i>	
<i>Moderator: Antonio CAPOREALE</i>	
15:20 – 17:00	Participants' presentations (oral)

Tuesday, 15 February 2022

<i>Session 2: Plant session</i>	
<i>Moderators: Anita ZAMBONI, Laura ZANIN</i>	
09:00 – 10:00	Nitrogen Signaling interactions in plants <i>Gabriel KROUK, SupAgro Montpellier, France</i>
10:00 – 10:40	Effect of microbial communities on gene expression in plants <i>Fabio MARRONI, University of Udine</i>
<i>Coffee break</i>	
11:00 – 11:40	The potential of MS-based untargeted metabolomics in plant science <i>Maria Begona MIRAS MORENO, University of Piacenza</i>
11:40 – 12:20	Photomodulation in plant biology: applications, perspectives and opportunities <i>Marco LANDI, University of Pisa</i>
<i>Lunch break / Poster session</i>	
14:00 – 15:00	Machine learning to get insights into (plant) biology: from Gene Regulatory Networks to Microscopy Enhancement <i>Gabriel KROUK, SupAgro Montpellier, France</i>
<i>Coffee break</i>	
<i>Workshop: Presenting your research</i>	
<i>Moderator: Sara BUOSO</i>	
15:20 – 16:20	Improving dissemination of scientific results
16:20–18:00	Participants' presentations (poster)

Thursday, 17 February 2022

<i>Session 4: Microorganism session</i>	
<i>Moderators: Youry PII, Nicola TOMASI</i>	
09:00 – 09:40	Omics approaches to study soil functionality <i>Laura GIAGNONI, University of Brescia, Italy</i>
09:40 – 10:20	The hidden role of soil biodiversity in plant and animal health: Making the invisible visible <i>Luigimaria BORRUSO, University of Bozen</i>
<i>Coffee break</i>	
<i>Workshop: Presenting your research</i>	
10:40 – 12:30	Roundtable group Discussion
12:30–13:00	Closing session



Application

Enrolment for the Winter School will be open from the **1st October 2021**, by using the online form available on the school's website www.acws.unito.it.

Deadline for application is the **1st December 2021** (not extendable deadline).

Applicants will be asked to provide a brief description of their research, and a short abstract of the work they would like to present. Doctoral students will also be required to provide proof of their status from their supervisor. The school will be limited to 30 participants. Preference will be given to doctoral students carrying out research in topics related to the theme of the school, and with a strong motivation to attend. Selected applicants will be informed by email and invited to complete their registration by payment of the participation fee, payable by bank transfer. The registration fee of €80 will include participation to the sessions, course materials, as well as coffee and lunch breaks. Applicants that are not selected will be nonetheless granted access to follow the seminars that will be streamed online. You will find useful information for getting to and staying in Udine on the website, although we are always available to help you make your stay a pleasant one.

Organizing committee

Laura Zanin	University of Udine	Daniela Pezzolla	University of Perugia
Daniel Said Pullicino	University of Turin	Gianpiero Vigani	University of Turin
Michela Schiavon	University of Turin	Sara Buoso	University of Udine
Youry Pii	Free University of Bolzano	Laura Giagnoni	University of Brescia
Antonio Caporale	University of Naples	Arianna Lodovici	University of Udine

Thanks to



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