Agricultural Chemistry Winter School

THE SUSTAINABLE DEVELOPMENT GOALS:

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CIVILE E AMBIENTALE

DIPARTIMENTO DI INGEGNERIA The Role of Agricultural Chemistry in a Circular Economy Perspective

05-08 February 2024, Perugia







School aims

Rapid population growth and industrial progress have led to the accumulation of greenhouse gases (GHGs) in the atmosphere, resulting in global warming increase of 1.5°C compared to the pre-industrial period. Climate change represents an urgent issue to be faced in order to prevent harmful impacts on both environment and communities. The Paris Agreement on Climate Change and the 2030 Agenda for Sustainable Development are the most important global policies for mitigating the effect of climate change aimed at achieving net-zero global emissions by 2050. Agricultural chemistry may play an important role in achieving the Sustainable Development Goals (SDGs) by adopting policies aimed at optimizing the use of natural resources and protecting the soil-plant system from a circular economy perspective. These measures can contribute to improve soil health and crop production, reduce pollution (heavy metals, pesticides, antibiotics, microplastics) and promote the use of renewable energy sources. In addition, because of the many chemical qualities, the reuse of agricultural by-products can have significant implications in a variety of industrial sectors, including the food industry (food additives and supplements), agriculture (biofertilizers and biostimulants) and green energy (biogas). All these actions pave the way for sustainable development of the agricultural sector in agreement with SDGs, contributing to lowering the C footprint and reaching climate neutrality.

This edition of the Agricultural Chemistry Winter School will focus on the aforementioned concerns while also promoting the importance of research in agricultural chemistry among young scientists in an international, multidisciplinary, and friendly environment. The Winter School, organized by the Italian Society of Agricultural Chemistry (SICA) and hosted at the Dept. of Civil and Environmental Engineering of the University of Perugia, is offered to doctoral students, post-docs and early-stage researchers, and aims at providing an opportunity to: (i) exchange and extend their understanding of the theoretical, conceptual and applicative aspects regarding soil, plant and environmental sciences; (ii) provide insights into novel methodological and analytical approaches; (iii) build and nurture research networks; and (iv) consolidate scientific writing and communication skills. The program will therefore provide a series of activities including keynote lectures, seminars, workshops, as well as oral and poster presentations by the participants.

School venue

Department of Civil and Environmental Engineering University of Perugia (Room C) Via G. Duranti, 93 - 06125, Perugia, Italy

Monday, 5 February 2024		Tuesday, 6 February 2024		Wednesday, 7 February 2024		Thursday, 8 February 2024		
14:00 - 14:30	:00 - 14:30 Registration		Session 2: Environmental pollution assessment		Session 3: Valorization of agricultural by-products		Session 4: Sustainable crop production	
14:30 - 15:00	Opening Session	I	Moderator: Youry Pii, Free University of Bolzano, Italy	Mod	erator: Daniel Said Pullicino, University of Torino, Italy		Moderator: Laura Zanin, University of Udine, Italy	
Session 1: Soil health restoration for a sustainable agriculture Moderator: Martina Mazzon, University of Bologna, Italy		09:00 - 10:00	Plastic pollution in the environment Roberto Rosal, University of Alcalá, Spain Bioaccessibility and geochemistry of potentially		Anaerobic digestion and digestate in the context of circular economy Fulvia Tambone, University of Milano, Italy	9:00 - 10:00	Revolutioning agriculture: harnessing the power of biofertilizers for sustainable crop production	
15:00 - 16:00	Innovative mulching films for a sustainable agriculture Vito Armando Laudicina, University of Palermo, Italy	10:00 - 10:45	toxic elements in contaminated soil Antonio Caporale, University of Napoli, Italy	10:00 - 10:45	Composted biomasses and by-products: a source of bioactive compounds with anti-oxidant, antibacterial and anti-inflammatory activities Maria Vittoria Verrillo, University of Napoli, Italy		Silvia Celletti, University of Torino, Italy	
	Coffee break 🖕		Laboratory X-ray based techniques to assess the bioavailability of PTE in		Coffee break	10:00 - 10:45	Andrea Ertani, University of Torino, Italy	
	Effects of amendments on SOM under climate change scenarios Beatrice Giannetta, University of Foggia, Italy	11:15 - 12:00	contaminated soil: opportunities and challenges Carlo Porfido, University of Bari, Italy	11:15 - 13:00	" Design" experiment Roland Bol, Forschungszentrum Jülich, Germany		Coffee break	
	From the lab to the field: use of organic amendments for the functionality restoration of degraded soils Matteo Garau, University of Sassari, Italy	12:00 - 13:00	Participant's presentations		Group work discussion Roland Bol, Forschungszentrum Jülich, Germany	11:15 - 12:00	The sustainable side of nutraceuticals Costanza Ceccanti, University of Pisa, Italy	
18:00	Get together	e L	unch break/Poster session/AGRITECH researchers meet PhD students Moderator: Eliana Gattullo, University of Bari, Italy	М	Lunch break /Poster session Dederator: Laura Giagnoni, University of Brescia, Italy	12:00	Closing session	
		14:30 - 15:15	2D-imaging approaches to visualise and quantify processes in the rhizosphere Elisa Pellegrini, University of Udine, Italy	14:30 - 15:15	Organic polymeric nanomaterial from waste and biogenic nanoparticles: potential uses in agriculture Daniele Del Buono, University of Perugia, Italy		-	
			Coffee break 🐣		Coffee break 🎍	•		
		15:45 - 16:30	Microplastic analysis: an analytical challenge Federico Sacco, SRA INSTRUMENTS, Milano, Italy	15:45 - 16:30	Analysis and traceability of GHG through the determination of CO ,CH and N O stable isotopes 2 4 2 Pasquale Carlino, ELEMENTAR Italia Srl, Como, Italy			
		16:30 - 17:30	16:30 - 17:30 Participant's presentations	16:30 - 17:30	Participant's presentations			
				20:00	Social dinner			

Organizing committee

Daniela Pezzolla Antonio Caporale Silvia Celletti Matteo Garau Eliana Gattullo Laura Giagnoni Beatrice Giannetta Martina Mazzon Youry Pii Daniel Said Pullicino Laura Zanin University of Perugia University of Napoli University of Torino University of Sassari University of Bari University of Brescia University of Foggia University of Bologna University of Bolzano University of Torino University of Udine





Thanks to







