

119° Congresso della Società Botanica Italiana

X INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

TERAMO, 11 - 13 SEPTEMBER 2024



ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

Scientific Committee

Antonella Canini (Università di Roma Tor Vergata)
(Presidente)
Barbara Baldan (Università di Padova)
Chiara Barletta (Segreteria SBI)
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Giuseppe Venturella (Università di Palermo)

Local Committee

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119° Congresso della Società Botanica Italiana onlus

X INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

Aula Magna dell'Università di Teramo Campus "Aurelio Saliceti", Teramo

11th - 13th September 2024

Programme

Wednesday 11th September 2024

- 9:30-12:30 Administrative Meetings of the Working Groups & Registration
- 10:30-12:30 Simposio in memoria di Vito Saccomandi
- 12:30-13:00 Light lunch
- 13:00-13:45 **Opening ceremony and institutional greetings**
- 13:45-14:15 Plenary opening lecture: **Simon Hiscock**, Oxford Botanic Garden (25 + 5 min)
"Natural hybridization in plants and its consequences"

Symposium 1

MOLECULAR AND CELL BIOLOGY

(Chairpersons: M. Lenucci and L. Navazio)

Key words: 1.1. Algae; 1.2. Bryophytes; 1.3. Functional and integrative biology; 1.4. Fungi; 1.5. Lichens; 1.6. Stresses

- 14:30-15:00 • Invited lecture: **Katerina Schwarzerova**, Charles University in Prague (25 + 5 min)
"ARP2/3 complex - how to make it visible"

15:00-16:30 **Communications**

- **Claudio Varotto**, Paolo Sonogo, Daniela Bertoldi et al. (12 + 3 min)
"RNA-Seq based functional screening for arsenic-tolerance genes from the liverwort *Marchantia polymorpha* in *Arabidopsis thaliana*"
- **Riccardo Lorrai**, Özer Erguvan, Sara Raggi et al. (12 + 3 min)
"Cell wall integrity modulates a gibberellin dependent signalling module controlling apical hook formation in *Arabidopsis thaliana*"
- Martina Cerri, Eleonore Cinti, **Lara Reale** et al. (12 + 3 min)
"Petunia flower colour and cell shape as result of carotenoids and anthocyanins deposition"
- **Simone Graziosi**, Mélanie Januario, Philippe Rech et al. (12 + 3 min)
"FISH technique approach to investigate endophytic colonization by white truffle (*Tuber magnatum*) in herbaceous plants"
- **Monica Ruffini Castiglione**, Lucia Giorgetti, Stefania Bottega et al. (12 + 3 min)
"Titanium dioxide nanoparticles worsen the harmful effects of polystyrene nanoplastics on *Vicia lens* (L.) Coss. & Germ. seedlings"
- Rocco Placi, Antonella Albano, **Marcello Salvatore Lenucci** et al (12 + 3 min)
"Investigating Plant-Insect Acoustic Interactions: Modeling *Arabidopsis thaliana*'s Vibrational Response"

- 16:30-17:00 Coffee Break

Symposium 2

TAXONOMY, SYSTEMATICS AND EVOLUTION

(Chairpersons: S. Tosi e G. Venturella)

Key words: 2.1. Algae; 2.2. Bryophytes; 2.3. Fungi; 2.4. Lichens; 2.5. Tropical plants; 2.6. Vascular plants

17:00-18:15

Communications

- **Fabio Rindi**, Marika Ubaldi, Stefano Accoroni et al (12 + 3 min)
“Diversity of the genus *Ulva* (Ulvophyceae, Chlorophyta) on the Conero Riviera: an assessment based on DNA sequence data”
- **Carolina Elena Girometta**, Simone Buratti, Ewa Zaporu et al. (12 + 3 min)
“Intraspecific variability in *Fomes fomentarius*: can culture imaging successfully integrate growth profiles?”
- **Jacopo Franzoni**, Gianluigi Bacchetta, Giulio Barone et al. (12 + 3 min)
“Morphometry does not support current taxonomic diversity of central Mediterranean carnations (*Dianthus virgineus* complex)”
- **Antonio Giacò**, Mario Pentassuglia, Ludovica Fittipaldi et al. (12 + 3 min)
“Population genetics and morphometry suggest a lower number of taxa in *Centaurea* sect. *Centaurea* (Asteraceae) from central-northern Italy”
- **Giulio Zangari**, Fabrizio Bartolucci, Romeo Di Pietro et al. (12 + 3 min)
“Integrated taxonomic approach to critical plant groups: *Acer opalus* (Sapindaceae) and *Luzula sylvatica* (Juncaceae)”

18:30-21:00

Folk concert and welcome cocktail

Thursday 12th September 2024

Symposium 3

BIODIVERSITY

(Chairpersons: L. Peruzzi and L. Sadori)

Key words: 3.1. Archaeobotany; 3.2. Biodiversity informatics; 3.3. Diversity in reproductive strategies; 3.4. Field and remote monitoring; 3.5. Floristics; 3.6. Palynology; 3.7. Plant conservation; 3.8. Research in Botanical Gardens

8:30-9:00

- Invited lecture: **Stefano Martellos**, University of Trieste (25 + 5 min)
“The National Biodiversity Future Center: new opportunities (and challenges) for Italian botanists”

9:00-10:45

Communications

- **Claudia Moricca**, Eleonora Cerafoli, Lucrezia Masci et al (12 + 3 min)
“Databases as an instrument to investigate human-plant interactions in central Italy: a close look at the plant assemblage of Medieval pits from Viterbo”
- **Matteo Conti**, Lorenzo Cecchi, Alessandro Chiarucci et al. (12 + 3 min)
“Improving reach of digitized herbaria: aggregation of data from the *Herbarium Centrale Italicum* of Florence in FlorItaly, the portal of the flora of Italy”
- **Michele Innangi**, Federica Pontieri, Mirko Di Febbraro et al. (12 + 3 min)
“High-Resolution Remote Sensing Data and Plant Functional Traits Reveal Eco-Functional Diversity in Coastal Dune Ecosystems”
- **Lorenzo Pinzani**, Emanuele Pelella, Dario Di Lernia et al. (12 + 3 min)
“Towards an updated inventory of vascular flora of Italian volcanic lakes”
- **Cristina Ricucci**, Assunta Florenzano, Jordan Palli et al. (12 + 3 min)
“Palynology in Italian natural areas – What are past plant biodiversity dynamics in a mixed silver fir-beech forest? Results from STAPE site (Pollino National Park, southern Italy)”
- **Chiara Bonifazio**, Maria Guerrina, Filippo Armanino et al. (12 + 3 min)
“Relationships among reproductive biology, climate and vegetation changes on the distribution of a narrow-ranged species: the case of *Santolina ligustica* Arrigoni”
- **Lorenzo Peruzzi** (12 + 3 min)
“Some claim for the end of Botany... but what is Botany today?”

10:45-11:15

Coffee Break

Symposium 4

ENVIRONMENTAL MONITORING AND POLICIES

(Chairpersons: G. Spampinato e R. Venanzoni)

Key words: 4.1. Bioindicators; 4.2. Biological invasions; 4.3. CITES; 4.4. Conservation policies; 4.5. Forestry; 4.6. Monumental trees; 4.7. Phytoremediation; 4.8. Plants and environment; 4.9. EEC 42/93 HABITAT DIRECTIVE

11:15-11:45 • Invited lecture: **Daniela Gigante**, University of Perugia (25 + 5 min)
“The long and winding road towards an effective, standardized, reliable protocol for Annex I Habitat monitoring”

11:45-13:15 **Communications**

- **Giulio Barone**, Giannantonio Domina, Giuseppe Venturella (12 + 3 min)
“Preliminary analysis of the impact of freshwater alien plants along major Sicilian rivers”
- **Emanuele Pelella**, Lorenzo Pinzani, Dario Di Lernia et al. (12 + 3 min)
“Is the conservation of the native *Ludwigia palustris* threatened by the invasion of the alien *Ludwigia* species in Italy?”
- **Elisa Benà**, Michele Melis, Pierluigi Giacò et al. (12 + 3 min)
“Outdoor cultivation of an autochthonous *Chlorella*-strain during spring season for urban wastewater phytoremediation and subsequent biostimulation tests in agriculture”
- Giovanni Spampinato, **Carmelo Maria Musarella**, Giuseppe Caruso et al. (12 + 3 min)
“Recent vegetation changes on the small Mediterranean Dino Island (Southern Italy)”
- **Giulia Santunione**, Federico Zanardi, Giuseppe Montevocchi et al. (12 + 3 min)
“The experimental project “Climate-friendly Parks”: evaluation of ecosystem services in urban micro-forests at Reggio Emilia (Italy)”
- **Michele Di Musciano**, Lorenzo Ricci, Francesco Maria Sabatini et al. (12 + 3 min)
“Habitats or not Habitats that’s the question: what European report provides (or not) to assess conservation gaps in European Habitats?”

13:15-14:15 Lunch

PARALLEL SESSIONS OF ORAL POSTER PRESENTATIONS 1

14:15-15:45 oral poster presentations (3 minutes) in 3 parallel sessions

Parallel session A1 (Chairperson: F. Poli): 5.3. Bioactivities; 5.6. Food plants; 5.7. Medicinal plants; 5.8. Phytochemistry; 6.5 Specialized metabolites

Parallel session B1 (Chairperson: M.S. Lenucci): 1.3. Functional and integrative biology; 1.6. Stresses; 4.8. Plants and environment

Parallel session C1 (Chairperson: R. Venanzoni): 2.6. Vascular plants; 3.1. Archaeobotany; 3.2. Biodiversity informatics; 3.5. Floristics; 3.6. Palynology; 4.9. EEC 42/93 HABITAT DIRECTIVE

15:45-16:15 Coffee Break

PARALLEL SESSIONS OF ORAL POSTER PRESENTATIONS 2

16:15-17:45 oral poster presentations (3 minutes) in 3 parallel sessions

Parallel session A2 (Chairperson: G. Sacchetti): 1.2. Bryophytes; 5.1. Agrobiodiversity; 5.5. Cultural heritage; 6.1. Climate change; 6.2. Ecosystems and communities; 6.3. Functional traits

Parallel session B2 (Chairpersons: B. Baldan): 1.4. Fungi; 3.4. Field and remote monitoring; 3.7. Plant conservation; 3.8. Research in Botanical Gardens; 4.2. Biological invasions; 4.4. Conservation policies; 4.5. Forestry; 6.6. Vegetation

Parallel session C2 (Chairpersons: A.M. Mercuri): 3.3. Diversity in reproductive strategies; 4.1. Bioindicators; 4.7. Phytoremediation; 5.2. Applied symbiotic interactions; 5.4. Biotechnologies; 6.4. Life strategies

18:00-19:00 **General Meeting of the Italian Botanical Society (members only)**

20:30-23:30 **Congress social dinner**

Friday 13th September 2024

Symposium 5

BIOTECHNOLOGY AND APPLIED BOTANY

(Chairpersons: F. Guzzo and F. Maggi)

Key words: 5.1. Agrobiodiversity; 5.2. Applied symbiotic interactions; 5.3. Bioactivities; 5.4. Biotechnologies; 5.5. Cultural heritage; 5.6. Food plants; 5.7. Medicinal plants; 5.8. Phytochemistry

8:30-10:30

Communications

- **Adriano Sofo**, Mario De Tullio, Carmine Crecchio et al (12 + 3 min)
“Soil microalgae and cyanobacteria extracted from soils of an olive orchard managed sustainably or conventionally for 22 years”
- **Fabio Stagnari**, E. Daninese (12 + 3 min)
“Agronomic approaches and valorization of agrobiodiversity”
- **Nubia Guzmán**, Lara Quaglino, Sarah Caronni et al. (12 + 3 min)
“Diversity and structure of bacterial microbial communities associated to the roots of *Alnus acuminata* growing in a conserved native forest and in a degraded area of Ecuador”
- **Eleonora Spinozzi**, Marta Ferrati, Cecilia Baldassarri et al. (12 + 3 min)
“*Commiphora myrrha* (T.Nees) Engl. essential oil and its furanosesquiterpenoids: a breakthrough in mosquito vector management”
- **Maria Maisto**, Daniela Zuzolo, Maria Tartaglia et al. (12 + 3 min)
“Advances in *Pleurotus ostreatus* and *Agaricus bisporus* plastic mycoremediation: focus on the isoenzymes of the lignin degradation complex”
- **Vittorio Carlucci**, Immacolata Faraone, Daniela Russo et al. (12 + 3 min)
“Phytochemical profile and Antioxidant Activity of Four Varieties of *Solanum lycopersicum* L. as tools preserving biodiversity”
- **Anna Cacciola**, Valeria D’Angelo, Maria Paola Germanò et al. (12 + 3 min)
“Polyphenolic characterization, antioxidant and antidiabetic activities of *Crataegus* spp. fruit extracts”
- **Iliaria Chiocchio**, Manuela Mandrone, Simona Trincia et al. (12 + 3 min)
“Phytochemical study of *C. monspeliensis* roots and aerial parts, two organs endowed with antioxidant and anti-inflammatory properties”

10:30-11:00

Coffee Break

Symposium 6

ECOLOGY

(Chairpersons: R. Acquaviva and A. Chiarucci)

Key words: 6.1. Climate change; 6.2. Ecosystems and communities; 6.3. Functional traits; 6.4. Life strategies; 6.5. Specialized metabolites; 6.6. Vegetation

11:00-13:00

Communications

- **Luca Giupponi**, Davide Pedrali, Annamaria Giorgi (12 + 3 min)
“Species distribution models reveal that mountain areas will be the most suitable for saffron (*Crocus sativus* L.) cultivation in Italy”
- **Chiara Casiraghi**, Francesco Malfasi, Nicoletta Cannone (12 + 3 min)
“Different sensitivity of alpine Plant Species' Responses to Climate Change: An Analysis of Quantum Yield along an Elevation Transect”
- **Marta Pianta**, Mariasole Calbi, Enrica Roccotiello (12 + 3 min)
“Substrate-dependent plant functional diversity of unmanaged Mediterranean green roofs (MGRs) over time”
- **Marco Varricchione**, Maria Carla de Francesco, Dario Ciaramella et al. (12 + 3 min)
“Dynamics of Dune Vegetation: A Revisitation Study on the Central-Southern Adriatic Coast”
- **Rosario Rummo**, Edy Fantinato, Giovanna Aronne (12 + 3 min)
“Identifying plant traits for sustainable green infrastructure in compact urban environments: a case study of Portici, Italy”

- **Luca Quaranta**, Piera Di Marzio, Paola Fortini (12 + 3 min)
“Assessment of the health status in natural and urban mixed oak forests through plant functional traits analysis”
- **Antonella Smeriglio**, Laura Cornara, Paola Malaspina et al. (12 + 3 min)
“Pharmacognostic study of *Dysoxylum fraserianum*, a rare tree of the subtropic rainforests of Australia”
- Alessandra Pollo, Giorgio Buffa, **Ludovica Oddi** et al. (12 + 3 min)
“Monitoring of vulnerable habitats to climate change in the Western Alps: the *Sphagnum*-dominated mires”

13:00-14:00 Lunch

14:00-16:30 **TAVOLA ROTONDA – NUOVE FRONTIERE DELLA BOTANICA**
(Moderatore: A. Canini)

- **P. Lancione, F.M. Raimondo, E. Dainese**
“Dall’idea di giardino botanico comunale al progetto di orto accademico nella cittadina di Bellante (Teramo)”
- **F. Stagnari, E. Dainese**
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- **P. Bonfante**
“Piante, noi e l’intelligenza”
- **A. Chiarucci**
“Le Arche della Biodiversità” (presentazione del libro)
- **C. Blasi**
“Restoration law e monitoraggio nazionale della misura del PNRR per la forestazione urbana, periurbana ed extraurbana”

16:30-17:00 **Congress Closure**

Saturday 14th September 2024

Evento Post-Congress

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9:00-13:00 Visit to Bellante

9:00-13:00 Visit to Teramo

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Soil microalgae and cyanobacteria extracted from soils of an olive orchard managed sustainably or conventionally for 22 years

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Soil microalgae and cyanobacteria (SM&C) show potential benefits for sustainable agriculture. They participate to the biogeochemical processes, enriching the soil in organic matter and biomass, providing nutrients (such as N) essential for plant growth, creating a hospitable microenvironment for plants through bioactive compounds production (plant-growth promotion action), and settling synergic interaction with other soil microorganisms. The research aim was to characterize SM&C communities in a Mediterranean olive orchard located in a semi-arid climate (Ferrandina, Basilicata region, Italy), subjected to a sustainable (S_{mng}) or conventional (C_{mng}) land use for 22 years (Fig. 1). The SM&C were cultivated in two selective liquid media containing N (for all) and without N (for isolating nitrogen-fixer cyanobacteria). The S_{mng} soils had significantly higher microalgae ($2.210 \cdot 10^4 \text{ g}^{-1}$ soil in the S_{mng} and $0.872 \cdot 10^4 \text{ g}^{-1}$ soil in the C_{mng}), and equally for cyanobacteria ($0.408 \cdot 10^2 \text{ g}^{-1}$ soil in the S_{mng} and $0.240 \cdot 10^2 \text{ g}^{-1}$ soil in the C_{mng}). Dominant species were detected by light microscopy and 16S/18S/ITS rDNA metagenomics. *Trebouxia*, *Euglena* and *Chaetophora* green algae genera, and the diatom *Cymbella* were predominant in the C_{mng} soils. On the other hand, *Anabaena* cyanobacterial genus, *Oedogonium* and *Scenedesmus* green algae, and the diatoms *Navicula* and *Pinnularia* were more abundant in the S_{mng} soils. Soil management type caused a different profile of the intra- and extracellular metabolites produced by SM&C, with an evident up-modulation in the S_{mng} soils of the biosynthetic pathways of secondary metabolites, hormones, fatty acids and lipid. The SM&C extracted from the S_{mng} soils showed a more pronounced plant-growth promoting effect in terms of fresh weight (up to +41%, compared to the C_{mng} soils), as assessed in experiments done on seedlings of faba bean (*Vicia faba* L.) and durum wheat (*Triticum durum* Desf.) We demonstrated that, besides their several essential ecological functions, SM&C could be applied in sustainable agricultural practices for maintaining healthy soil and promoting plant growth.

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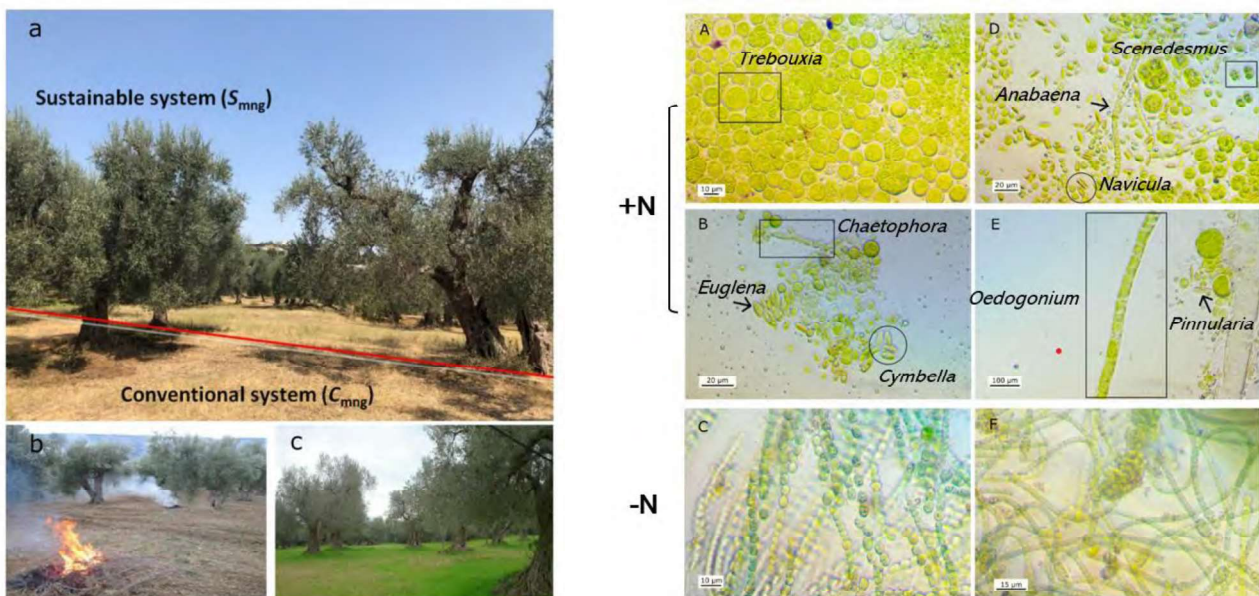


Fig. 1. The experimental orchard (a) divided in the sustainable treatment (b) and in the conventional one (c).

Fig. 2. The most abundant microalgae (a,b,d,e) and cyanobacteria (c,e) detected in the conventional (a,b,c) and sustainable (d,e,f) treatments.