



SOCIETÀ ITALIANA di
BIOLOGIA VEGETALE



XII CONGRESSO NAZIONALE SIBV

BARI, 11-14 SETTEMBRE 2023



SEDE DEL CONGRESSO:

Campus Universitario «Ernesto Quagliariello» Bari, Via Orabona 4
DIPARTIMENTO DI BIOSCIENZE BIOTECNOLOGIE E AMBIENTE



Committees

Scientific Committee:

Laura De Gara, Campus Bio-Medico University of Rome
Fiorella Lo Schiavo, University of Padua
Matteo Ballottari, University of Verona
Sara Cimini, Campus Bio-Medico University of Rome
Alex Costa, University of Milan
Maria Concetta de Pinto, University of Bari
Giuseppe Forlani, University of Ferrara
Andrea Nardini, University of
Maria Manuela Rigano, University of Naples Federico II
Mirko Zaffagnini, University of Bologna

Organising Committee:

Maria Concetta de Pinto, University of Bari
Franca Tommasi, University of Bari
Costantino Paciolla, University of Bari
Nunzio Di Pierro, University of Bari
De Leonardis Silvana, University of Bari
Federico Vita, University of Bari
Stefania Fortunato, University of Bari
Benedetta Bottiglione, University of Bari
Isidora Gjata, University of Bari
Cecilia Lasorella, University of Bari
Sara Cimini, Campus Bio-Medico University of Rome

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VITO LORUSSO
L I F E S C I E N C E S A L E S

PICCIN



XII National Conference of the Italian Society of Plant Biology

Dipartimento di Bioscienze, Biotecnologie e Ambiente
Università degli Studi di Bari Aldo Moro

11-14 September 2023

PROGRAMME

11 September 2023

12:30-14:00 Registration and poster installation

14:00-14:30 **Opening ceremony**

Laura De Gara, President of SIBV

Chiara Tonelli, President of FISV

Symposium 1

PLANT IMMUNITY AND PLANT-MICROBE INTERACTION

Chairs: **Michela Zottini, University of Padua**
Roberto De Michele, CNR-IBBR of Palermo

14:30-15:10 **Tina Romeis**
Leibniz Institute of Plant Biochemistry
Calcium signalling in plant immunity: how to vaccinate a plant?

15:10-15:40 **Giulia De Lorenzo**
Sapienza University of Rome
The evolution of plant immunity at the crossroad between defense and development: the role of damage-associated molecular patterns (DAMPs) in tissue injury

15:40-15:55 **Manuel Benedetti, University of L'Aquila**
Identification of a novel cellodextrin-dependent degrading activity against plant polyphenols

15:55-16:10 **Valentina Bigini, University of Tuscia**
Engineering danger sensing and signaling in plant immunity: use of oligosaccharins to enhance durum wheat resistance to fusariosis

16:10-16:25 **Sara Paola Nastasi, University of Milan**
Enhancing drought tolerance in *Arabidopsis thaliana* plants through beneficial grapevine endophytes: preliminary findings

16:25-17:00 **COFFEE BREAK**

17:00-17:15 **Chiara Pucciariello, Scuola Superiore Sant'Anna of Pisa**
Barley germination tolerance to submergence stress: a genetic and a microbiome approach

17:15-17:30 **Raffaella Balestrini, CNR, IPSP, Turin**
Combination of arbuscular mycorrhizal fungi and natural compounds for improving tomato resilience to environmental stresses

17:30-17:45 **Michele Perazzoli, University of Trento**
Psychrotolerant endophytic bacteria of wild alpine plants can improve cold tolerance in crops

17:45-19:00 **Round Table on “The state of the art of innovation in Agriculture”**
Moderator: **Giovanni Matera** Journalist for RAI3
Prof. Chiara Tonelli President of Italian Federation of Life Sciences
Prof. Piero Morandini, University of Milan
On. Paolo De Castro, Member of the Committee on Agriculture and Rural Development of the European Parliament
Dott.ssa Elena Sgaravatti, VicePresident of Assobiotech and President of Planta Rei Biotech Srl
Deborah Piovan, Agricultural Entrepreneur and Scientific Popularizer

19:00-20:30 **WELCOME PARTY**

12 September 2023

Symposium 2

FROM SIGNALLING TO DEVELOPMENT

Chairs: **Francesca Secchi**, *University of Turin*
Alex Costa, *University of Milan*

09:00-09:40 **Lieven De Veylder**
Ghent University
Restoring a damaged root stem cell niche

09:40-10:10 **Andrea Schubert**
University of Turin
Strigolactone signaling at the interface of plant development and a changing environment

10:10-10:25 **Iliara Fraudentali**, **Roma Tre University**
Distinct roles of AtCuAO β and RBOHD in wound-induced local and systemic leaf-to-leaf and root-to-leaf stomatal closure in *Arabidopsis*

10:25-10:40 **Riccardo Lorrai**, **Sapienza University of Rome**
Turgor-sensitive responses link cell wall integrity to a signalling module promoting apical hook formation in *Arabidopsis thaliana*

10:40-10:55 **Vladimir Valkov Totev**, **Institute of Bioscience and BioResources, CNR, Naples**
The *Lotus japonicus* NPF4.6 is a KNO3 and ABA transporter involved in the lateral root elongation process

10:55-11:30 **COFFEE BREAK**

11:30-11:45 **Matteo Pivato**, **University of Verona**
Compartment-specific Ca²⁺ imaging in the green alga *Chlamydomonas reinhardtii* reveals high light-induced chloroplast Ca²⁺ signatures

11:45-12:00 **Alberto Tamborrino**, **Università of Padua**
Unveiling the mitochondrial unfolded protein response (UPRmt) in *Arabidopsis thaliana*

12:00-12:15 **Nicolaj Jeran**, **University of Milan**
Study of three putative Plastid Peptide Transporters mediating chloroplast-to-nucleus signalling in response to folding stress in *Arabidopsis thaliana* chloroplasts

12:15-13:30 **POSTER SESSION A**

13:30-14:30 **LUNCH**

Symposium 3

BIOTECHNOLOGICAL APPROACHES FOR CIRCULAR BIO-ECONOMY AND SUSTAINABILITY

- Chairs: **Maria Manuela Rigano**, *University of Naples Federico II*
Giuseppe Forlani, *University of Ferrara*
- 14:30-15:10 **Vassilis Fotopoulos**
Cyprus University of Technology
Next generation chemical priming as a green strategy for sustainable agriculture
- 15:10-15:40 **Tomas Morosinotto**
University of Padua
Genetic engineering approaches to produce proteins, lipids and bioplastics from algae.
- 15:40-15:55 **Daniel Savatin, University of Tuscia – DAFNE**
Re-Waste: a green, sustainable and circular strategy for crop resilience
- 15:55-16:10 **Stefano Cazzaniga, University of Verona**
Enhancing biomass productivity and mitigating photoinhibition under high light through biotechnological engineering of astaxanthin accumulation in *Chlamydomonas reinhardtii*
- 16:10-16:25 **Ilaria Colzi, University of Florence**
Improving chromium removal from wastewater: the use of natural biostimulants towards circular economy
- 16:25-17:00 **COFFEE BREAK**
- 17:00-17:15 **Marta Del Bianco, Italian Space Agency, Science and Research Directorate of Rome**
Space missions as a circular economy: plant production for a sustainable future
- 17:15-17:30 **Enrico Doria, University of Pavia**
A sustainable biotech system to extract bioactive compounds from vegetable waste and by-products
- 17:30-17:45 **Moira Giovannoni, University of L'Aquila**
Investigating the potential of microalgae-microbe interactions for efficient extraction of algal metabolites
- 17:45-19:00 **ELEVATOR PITCHES**

13 September 2023

Symposium 4

PLANT ADAPTATION TO ENVIRONMENTAL CONDITIONS

- Chairs: **Fiorella Lo Schiavo**, *University of Padua*
Matteo Ballottari, *University of Verona*
- 09:00-09:40 **Frank Van Breusegem**
Ghent University
Hydrogen peroxide signalling in plants
- 09:40-10:10 **Maria Concetta de Pinto**
University of Bari
Redox signalling in plant heat stress response

- 10:10-10:25 **Ambra Selene Parmagnani, University of Turin**
The geomagnetic field (GMF) modulates *Arabidopsis thaliana* ROS metabolomics and transcriptomics
- 10:25-10:40 **Marco Dainelli, University of Florence**
Disturbance of nitrogen-fixing symbiotic interactions by PET micro/nanoplastics: the case of *Azolla filiculoides* Lam. and *Anabaena azollae*
- 10:40-10:55 **Sara Cimini, Campus Bio-Medico University of Rome**
New insights into durum wheat salt stress tolerance
- 10:55-11:30 **COFFEE BREAK**
- 11:30-11:45 **Gianpiero Vigani, University of Turin**
Exploring durum wheat germplasm to minimize drought impact on the nutritional status of plants
- 11:45-12:00 **Francesca Silvana, University of Naples "Federico II"**
Dissection of heat and drought tolerance traits in a *Solanum pennellii* introgression tomato line
- 12:00-12:15 **Yuri Telara, Sant'Anna School of Advanced Studies**
Plant responses to complex environmental stresses: investigation of molecular crosstalk between low oxygen and iron deficiency
- 12:15-12:30 **Guido Domingo, University of Insubria**
Phosphorylation-mediated regulation of alternative splicing in plant heat stress response with a focus on the role of cAMP
- 12:30-13:30 **POSTER SESSION B**
- 13:30-14:30 **LUNCH**

Symposium 5

IMPROVING CARBON ASSIMILATION FOR PLANT PRODUCTION

- Chairs: **Mirko Zaffagnini, University of Bologna**
Andrea Nardini, University of Trieste
- 14:30-15:10 **Johannes Kromdijk**
University of Cambridge
Genetic determinants of photosynthetic variation in field-grown MAGIC maize
- 15:10-15:40 **Paolo Trost**
University of Bologna
Shedding light on dark complexes of the Calvin-Benson cycle
- 15:40-15:55 **Emily Rose Palm, University of University of Milan-Bicocca**
Constitutive sodium compartmentalization patterns differentially affect biomass production of two salt-treated edible halophytes
- 15:55-16:10 **Claudia Beraldo, University of Padua**
Physcomitrium patens flavodiiron proteins for the adaptation to changing environmental conditions
- 16:10-16:25 **Simone Barera, University of Ferrara**
Evidence from an *Arabidopsis thaliana* p5cdh mutant strengthening the occurrence of a proline-P5C cycle in plants
- 16:25-17:00 **COFFEE BREAK**

- 17:00-17:15 **Manuel Bellucci, Campus Bio-Medico University of Rome**
Novel function of isoprene in root physiology and salt stress tolerance
- 17:15-17:30 **Libero Gurrieri, University of Bologna**
Increasing phosphoribulokinase affinity to improve CO₂ flux: testing the approach and first results
- 17:30-17:45 **Sara Gargiulo, University of Udine**
Krebs cycle substrates starvation explains the decrease of O₂ consumption induced by hexanoic acid in pea roots
- 17:45-19:00 **General Assembly of the Italian Society of Plant Biology**
- 20:30-23:30 **Social Dinner**

14 September 2023

Symposium 6

NOVEL TECHNOLOGIES FOR MULTISCALE LEVELS OF INVESTIGATION IN PLANT PHYSIOLOGY

- Chairs: **Laura De Gara, University of Rome Campus Bio-Medico**
Anca Macovei, University of Pavia
- 09:00-09:40 **Manuel Rodriguez-Concepcion**
Spanish National Research Council
Coloring games: new ways of making and storing health-promoting carotenoid pigments in plant cells
- 09:40-10:10 **Francesco Loreto**
University of Naples Federico II
Plant phenotyping: past achievements, state of the art and future perspectives
- 10:10-10:25 **Claudio Lovisolo, University of Turin**
Effects of light quality on carbon assimilation/emission and growth of lettuce: use of an upgraded prototype-platform to unravel mechanisms of photosynthesis/respiration control
- 10:25-10:40 **Gjata Isidora, University of Bari**
Physiological response of *Lens culinaris* Medik. to cerium and neodymium chlorides exposure
- 10:40-10:55 **Brunetti Cecilia, National Research Council, Institute for Sustainable Plant Protection, Sesto Fiorentino**
Investigating holm oak forest dieback through a multiscale approach: physiological measurements and visual assessment data with remote sensing
- 10:55-11:30 **COFFEE BREAK**
- 11:30-11:45 **Tricerri Niccolò, University of Turin**
Does slow and fast wilting rates affect the recovery from embolism in poplar seedlings? New insights from micro-CT analysis
- 11:45-12:00 **Francesca Resentini, University of Milan**
New tools to study in vivo the dynamics of Ca²⁺ in plant mitochondria
- 12:00-12:15 **Antony Surano, National Research Council, Institute for Sustainable Plant Protection, Bari**
Exploring different phenotypic and molecular approaches to unravel early events in olive–Xylella interactions
- 12:15-13:00 **CONGRESS CLOSURE**

Elevator Pitches

Plant Immunity and Plant Microbe Interaction

German Dario Ahumada, Scuola Superiore Sant'Anna, Pisa

Bacterial endophytes contribute to rice seedling establishment under submergence

Andrea Tonanzi, Sapienza University of Rome

Elicitor-Induced Transgenerational Priming of Defense Responses in *Arabidopsis thaliana*

From signaling to development

Laila Moubayidin, John Innes Centre, Norwich, United Kingdom

Post-translational modification of SPATULA by SECRET AGENT and SPINDLY promotes organ symmetry transition at the gynoecium apex

Sri Amarnadh Gupta Tondepu, University of Pavia

Evidence of miRNA regulation on the DNA damage response during germination of the irradiated wheat seeds

Paolo Maria Triozzi, Scuola Superiore Sant'Anna

Spatiotemporal internal oxygen dynamics define cyclic hypoxia in plants

Biotechnological Approaches for Circular BIO-Economy

Rachele Ingrisano, University of Bologna

Effect of the trophic regime on the growth of microalgae

Antonella Gori, University of Florence

Nutritional and nutraceutical composition of italian wild pear (*Pyrus communis* var. zingaro) at different maturation stages: a comparative analysis of peel and pulp

Plant adaptation to climate changes

Lucia Biruk, University of Trieste

Better safe than sorry: the surprising drought tolerance of a wetland sedge (*Cyperus alternifolius*)

Ilva Licaj, University of Sannio

Digging up through Artificial intelligence how two wheat cultivars response to Polyethylene Glycol-Simulated Drought Stress by analyzing root morpho-anatomical traits

Cristina Pagliano, University of Piemonte Orientale

Physiological responses to salt stress in wild and domesticated rice

Chiara Pagliarani, National Research Council (CNR) of Turin, IPSP

Exploiting somaclonal variability to increase drought stress tolerance in grapevine

Improving carbon assimilation for plant production

Sara Natale, University of Padua

Biodiversity of photosynthetic response in various bryophyte accessions

Erika Bellini, Sapienza University of Rome

Efficient utilization of monosaccharides from agri-food by-products supports *Chlorella vulgaris* biomass production

Novel Technology for multiscale level of investigation in plant physiology

Bianca Maria Orlando Marchesano, University of Milan

New state-of-the-art imaging tools to study how crops adapt to environmental changes: *Lycopersicon esculentum* key study

Teodora Chiara Tonto, Campus Bio-Medico University of Rome

Methodological pipeline for monitoring post-harvest quality of leafy vegetables