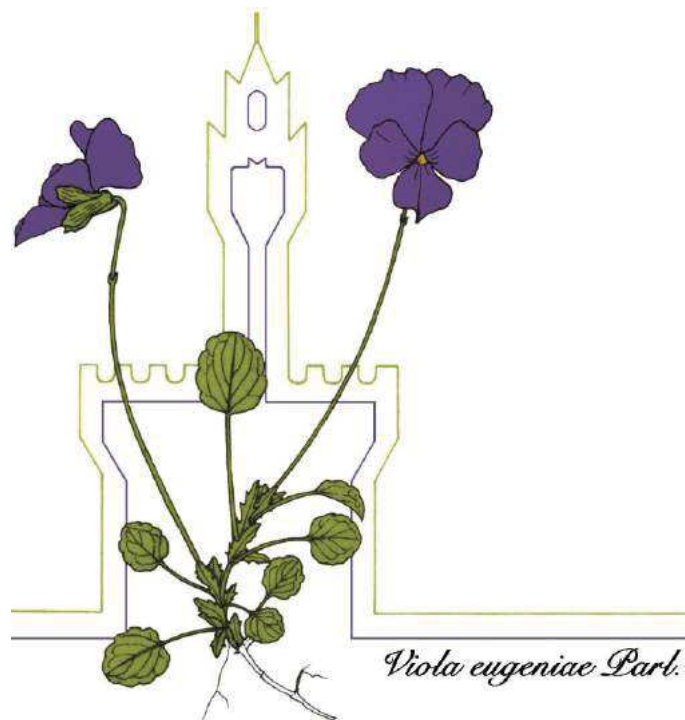


114° Congresso della Società Botanica Italiana

VI INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

Padova, 4 - 7 September 2019



ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

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114° Congresso della Società Botanica Italiana onlus

VI INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

XI CONGRESSO DELLA SOCIETÀ ITALIANA DI BIOLOGIA VEGETALE

Padova, Orto Botanico, 4 - 7 September 2019

Programme

Wednesday 4 September 2019

12.00-13.30 Registration

12.30-13.30 Welcome lunch

13.30-14.00 Opening ceremony

Symposium 1

JOINT SESSION SBI - SIBV

“PLANTS IN AND FOR THE FUTURE”

(Chairpersons: B. Baldan and T. Morosinotto)

Key words: cell biology, signal transduction, plant development, stress responses, biotechnology

14.00-14.40 **Christine Raines** University of Essex, Colchester, United Kingdom (SIBV)
“Improving future plant productivity through manipulation of photosynthesis”

Four communications SIBV

16.00-16.30 Coffee Break

16.30-17.10 **Christian Hardtke**, University of Lausanne Switzerland
“Developing phloem - orchestrating plant organ formation”

Communications SBI

- **Gian Pietro Di Sansebastiano**, Fabrizio Barozzi
“Plant cell downstream control of conventional and unconventional membrane traffic contribution to the tonoplast”
- **Cristina Votta**, Valentina Fiorilli, Jorge Gómez-Ariza, Fabio Fornara, Luisa Lanfranco
“The heterologous expression of the *Rhizophagus irregularis* RiPEIP1 gene in rice plants leads to enhanced growth and mycorrhizal colonization”
- **Antonella Muto**, Ernesto Picardi, Leonardo Bruno, Hilary J. Rogers, Antonio Ferrante, Adriana Ada Ceverista Chiappetta, Maria Beatrice Bitonti, Natasha Damiana Spadafora
“Comparative transcriptomic profiling of peach and nectarine cultivars to elucidate chilling injury mechanisms”
- **Claudio Varotto**, Mingai Li, Luca Stragliati, Erika Bellini, Ada Ricci, Luigi Sanità di Toppi
“Evolution and functional differentiation of recently diverged phytochelatin synthase genes from *Arundo donax* L.”

18.30-20.30 Drinks and appetizers (possibility of visiting the Botanical Garden)

Thursday 5 September 2019

Symposium 2 SBI

“FOREST BIODIVERSITY AND FUNCTIONING IN A CHANGING WORLD: CHALLENGES AND OPPORTUNITIES”

(Chairpersons: S. Casavecchia and G. Filibeck)

Key words: global change, rewilding, conservation, functional responses, vegetation dynamics, vegetation classification

9.00-9.35 **Jean-Luc Dupouey**, INRA – France
“Forest ecological history for the future”

9.35-10.35 **Communications**

- **Gabriele Casazza**, Michele Brunetti, Fabio Malfatti, Valentina Simonetti, Andrew S. Mathews
“Combining historical ecology, species distribution modelling and instrumental climate reconstruction to infer causes of change in forest distribution: the case of Monte Pisano”
- **Andrea Coppi**, Lorenzo Lazzaro, Evy Ampoorter, Lander Baeten, Kris Verheyen, Federico Selvi
“Tree species diversity versus identity effects on understorey phylogenetic diversity in thermophilous deciduous forests”
- **Chiara Lelli**, Juri Nascimbene, Davide Alberti, Nevio Agostini, Alessandro Chiarucci
“Signs from the past: long-term changes in Italian mountain forests under changing management”

10.35-11.00 Coffee Break

11.00-11.35 **Tommaso Anfodillo**, University of Padova
“The simple structure of forests: an allometric approach for assessing the degree of old-growthness”

11.35-12.35 **Communications**

- **Claudia Angiolini**, Bruno Foggi, Antonio Gabellini, Matilde Gennai, Paolo Castagnini, Michele Mugnai, Simona Sarmati, Daniele Viciani, Simona Maccherini
“Are the effects of the overstorey on herb and shrub layers important in forest habitat monitoring? The case of *Quercus suber* woodlands”
- Daniela Gigante, Selvaggi A., Acosta A.T.R., Adorni M., Allegrezza M., Angiolini C., Armiraglio S., **Silvia Assini**, Attorre F., Bagella S., Barcella M., Bazan G., Bertacchi A., Bolpagni R., Bonari G., Buffa G., Caccianiga M., Cacciatori C., Caria M.C., Casavecchia S., Casella L., Cerabolini B.E.L., Ciaschetti G., Ciccarelli D., Cogoni A., Cutini M., De Sanctis M., De Simone W., Del Vecchio S., Di Cecco V., Di Martino L., Di Musciano M., Fantinato E., Filesi L., Foggi B., Forte L., Frattaroli A.R., Galdenzi D., Gangale C., Gianguzzi L., Giusso Del Galdo G., Grignetti A., Guarino R., Lasen C., Maneli F., Marcenò C., Mariotti M.G., Oriolo G., Paura B., Perrino E., Pesaresi S., Pezzi G., Pisanu S., Poponessi S., Prisco I., Puglisi M., Riveccio G., Sciandrello S., Spampinato G., Stinca A., Strumia S., Taffetani F., Tesei G., Tomaselli V., Venanzoni R., Viciani D., Villani M., Wagensommer R., Zanatta K., Angelini P.
“An overview of the Italian forest biodiversity and its conservation level, based on the first outcomes of the 4th Habitat Report ex-Art. 17”
- **Simone Pesaresi**, Adriano Mancini
“NDVI temporal pattern as functional responses of Mediterranean forest plant associations”

12.35-14.00 Lunch and posters

Symposium 3 SBI

“HERBARIA: STILL RELEVANT IN THE 21TH CENTURY?”

(Chairpersons: L. Peruzzi and S. Martellos)

Key words: biogeography, herbarium collections, herbarium digitization, nomenclatural types, systematics

14.00-14.35 **Alexey P. Seregin**, M.V. Lomonosov Moscow State University, Russia

“Moscow Digital Herbarium: global approach through regional actions”

14.35-15.35

Communications

- **Maria Zardini**, Raffaella Trabucco, Juri Nascimbene, Stefano Martellos
“Digitization of the *Lichenotheca Veneta*”
- **Simone Orsenigo**, Graziano Rossi, Thomas Abeli
“Plant de-extinction: the importance of herbaria for recovering genetic diversity back to the wild”
- **Moreno Clementi**, Antonella Miola
“A cross-disciplinary study of the work and collections by Roberto de Visiani (1800-1878)”

15.35-16.10 **Charles Davis**, University of Harvard, USA

“Leveraging a global online herbarium to understand plant phenological response to climate”

16.10-17.10

Communications

- Marco D’Antraccoli, **David Dolci**, Francesco Roma-Marzio, Lorenzo Peruzzi
“‘Back to the future’: assessing the effectiveness of Species Distribution Models temporal projection through herbarium data”
- **Niccolò Forin**, Sebastiano Nigris, Samuele Voyron, Mariangela Girlanda, Alfredo Vizzini, Giorgio Casadoro, Barbara Baldan
“Importance of molecular studies involving nomenclatural types: the case of the Saccardo mycological collection”
- Isabella Bettarini, **Ilaria Colzi**, Cristina Gonnelli, Federico Selvi
“Assessing metal hyperaccumulation using herbarium specimens: the case of *Odontarrhena sibirica* (Brassicaceae)”

17.10-18.00 Poster session

18.00-19.30 General Meeting of the Italian Botanical Society (members only)

During the General Meeting an agreement with Azerbaijan Botanists Society and the “Code of Conduct - Life ASAP” will be signed

20.30-23.30 Congress social dinner (SBI+SIBV)

Friday 6 September 2019

Symposium 4 SBI

“PLANT-ANIMAL INTERACTIONS: FROM MOLECULES TO LANDSCAPE”

(Chairpersons: M. Galloni and G. Aronne)

Key words: pollination, seed dispersal, plant defensive signals, plant-animal communication, plant-herbivore interaction, VOCs and chemical signalling

9.00-9.35 **Lilach Hadany**, University of Tel Aviv

“Can plants hear their pollinators?”

9.35-11.05

Communications

- **Massimo Nepi**, Gherardo Bogo, Massimo Guarnieri, Simona Sagona, Antonio Felicioli, Laura Bortolotti, Marta Galloni
“Effects of non-protein amino acids of floral nectar on survival and locomotion of pollinators”
- **Luca Pegoraro**, Ellen C Baker, Manica Balant, Sarah Barlow, Lin Fu, Oriane Hidalgo, Andrew R Leitch, Ilia J. Leitch, Luis Palazzesi, Daniele Sommaggio, Jaume Pellicer
“Pollinator monitoring in a mixed-ploidy population of *Senecio doronicum* in Alpes maritimes”
- **Angela Etcheverry**, Trinidad Figueroa, Antonella Ducci, María Alemán, Carlos Gómez, Carolina Yáñez, Diego López, Andrea, González Reyes
“Asymmetrical flowers of Papilionoideae: functional morphology, morphometrics, and interactions with its pollinators”
- **Edy Fantinato**, Gabriella Buffa
“Using pollination networks to detect tourism sustainability”
- **Roberto Silvestro**, Luigi Gennaro Izzo, **Giovanna Aronne**
“Aerial seed bank benefits *Primula palinuri* Petagna in avoiding seed predation and run-off”
- **Stefano Vitti**, Francesco Boscutti, Valentino Casolo, Stefano Sponza
“Seagrass - waterbirds interactions in a lagoon ecosystem of the northern Adriatic Sea”

11.05-11.25 Coffee Break

Symposium 5 SBI

“PLANT SPECIALIZED METABOLISM: CHEMISTRY AND BIOLOGICAL FUNCTIONS”
(Chairpersons: R. Caniato and L. Pistelli)

Key words: specialized metabolites, biotic and abiotic stress, plant-organism interactions

11.25-12.00 **Oliver Kayser**, TU Dortmund University, Germany

“Understanding cannabinoid biosynthesis by learning lessons from *Cannabis sativa*, *Helichrysum umbraculigerum* and *Radula marginata*”

12.00-13.30

Communications

- **Mandrone Manuela**
“NMR-based metabolomics approach to detect frauds and adulterations of oregano samples”
- **Laura De Martino**, Luigi Aliberti, Lucia Caputo, Vincenzo De Feo, Filomena Nazzaro, Lucéia Fátima Souza
“Chemical composition and biological activities of the essential oils of two different cultivars of *Citrus medica* L.”
- **Daniela De Vita**, Chiara Toniolo, Claudio Frezza, Anastasia Orekhova, Giovanna Simonetti, Luigi Scipione, Roberto Di Santo, Roberta Costi
“Antifungal activity of amaranth seed extract in combination with known antifungal drugs”
- **Giuseppe Malfa**, Barbara Tomasello, Alfonsina La Mantia, Francesco Pappalardo, Claudia Di Giacomo, Marcella Renis, Salvatore Ragusa, Rosaria Acquaviva
“Anti-adipogenic and anti-oxidant effects of a standardized extract of *Citrus sinensis* (L.) Osbeck ‘Moro’ (Rutaceae) during adipocyte differentiation of 3T3-L1 pre-adipocytes”
- **Giuseppina Chianese**, Annalisa Lopatriello, Silvia Parapini, Annette Habluetzel, Donatella Taramelli, Harouna Sore, Alain R. Tenoh, Orazio Tagliatela-Scafati
“Discovery of a selective and potent gametocytocidal antimalarial agent from *Lophira lanceolata*”
- **Roberta Ascrizzi**, Laura Pistelli, Enrica Attuoni, Arianna Pelletti, Matteo Mancino, Guido Flamini, Luisa Pistelli
“Phytochemical and physiological evaluations of four *Citrus* species from the *horti simplicium* of the Charterhouse of Pisa over one year of analyses”

13.30-14.00 Congress Closure

Simposio Post Congresso SBI
(Orto botanico di Padova)

“GLI ORTI BOTANICI UNIVERSITARI: NUOVE OPPORTUNITÀ DI COORDINAMENTO E INDIRIZZO”
(a cura del Gruppo di Lavoro per gli Orti Botanici e i Giardini Storici)

"THE UNIVERSITY BOTANICAL GARDENS: NEW OPPORTUNITIES FOR COORDINATION AND COMMON OBJECTIVES"
(Symposium organized by The Working Group on Botanical and Historical Gardens)
(Moderatore: F. Pedrotti)

15.00 Apertura dei lavori e indirizzi di saluto del presidente della Società Botanica Italiana, del coordinatore del Gruppo di Lavoro per gli Orti Botanici e i Giardini Storici, del prefetto dell'Orto Botanico di Padova

15.05 **A. Cogoni**, Università di Cagliari
“Le piante aliene invasive e il riscatto degli Orti Botanici: da siti di introduzione e acclimatazione a promotori di buone pratiche. Gli Orti Botanici Italiani aderiscono al Codice di Condotta - Life ASAP”

Comunicazioni, parte prima: Gli Orti botanici in una prospettiva internazionale

15.15 **G. van Uffelen**, Hortus botanicus Leiden NL
“Hortus botanicus Leiden: 429 years of stability and change”

15.45 **B. Lainoff**, Botanic Gardens Conservation International, Kew UK
“The Largest Global Network of Botanic Gardens and Setting International Standards for Botanic Gardens through Accreditation”

Comunicazioni, parte seconda: Esperienze italiane

16.15 **B. Baldan**, Università di Padova
“L'Orto Botanico di Padova: dal 1545 al future”

16.25 **G. Bacchetta**, A. Caddeo, G. Iriti, F. Meloni, M. Porceddu, Università di Cagliari
“Hortus Botanicus Karalitanus: un Orto Botanico universitario in cammino verso la sostenibilità sociale e ambientale”

16.35 **A. Chiarucci**, U. Mossetti, Università di Bologna
“Il rinnovamento dell'Orto Botanico di Bologna, dalla gestazione dell'idea alla gestione”

16.45 **L. Peruzzi**, Università di Pisa
“La sottile linea tra divulgazione e snaturamento, ovvero dell'importanza che degli Orti Botanici si occupino i Botanici. Evoluzione recente dell'Orto e Museo Botanico di Pisa”

16.55 **C. Siniscalco**, Università di Torino
“Gli Orti Botanici oggi tra priorità di comunicare la conoscenza delle piante e... mille altre richieste e necessità. Una Rete per condividere le scelte”

17.05 **M. Mariotti**, L. Minuto, Università di Genova
“I Giardini Botanici Hanbury: un orto botanico di frontiera con ruolo transdisciplinare nella formazione, nella ricerca scientifica e nella gestione del territorio”

17.15 Discussione e conclusioni

Saturday 7 September 2019

8.00-17.00 Escursione sociale al Bosco del Cansiglio e al Giardino Botanico Alpino G. Lorenzoni
(Social excursion to the Cansiglio Wood and Orto Botanico G. Lorenzoni)

Effects of non-protein amino acids of floral nectar on survival and locomotion of pollinators

Massimo Nepi¹, Gherardo Bogo^{2,3}, Massimo Guarnieri¹, Simona Sagona⁴, Antonio Felicioli⁴, Laura Bortolotti³, Marta Galloni²

¹Department of Life Sciences, University of Siena, Via P.A. Mattioli 4, 53100 Siena, Italy; ²Department of Biological, Geological and Environmental Sciences, University of Bologna, Via Irnerio 42, 40126 Bologna, Italy; ³Council for Agricultural Research and Economics, Research Centre for Agriculture and Environment (CREA-AA), Via di Saliceto 80, 40128 Bologna, Italy; ⁴Department of Veterinary Sciences, University of Pisa, Viale delle Piagge 2, 56124 Pisa, Italy

A wide array of animals, from arthropods to birds and mammals, use floral nectar as a source of carbon and energy (1) and are engaged for pollination in a mutualistic relationship. The main solutes of floral nectar are simple sugars and its alimentary importance is complemented by the presence of all the 20 proteinogenic amino acids (2). Recently several secondary metabolites have been found in nectar and some affect the foraging behaviour of animals and potentially increase the benefits to the plant (3, 4). One class of such substances is the non-protein amino acids, i.e. amino acids that are not used for protein synthesis. GABA (γ -aminobutyric acid) and β -alanine are among the more abundant and frequently found in floral nectar (5) and they are important neurotransmitters in the insect nervous system. In this study we analyzed the effect of these substances on mason bees (*Osmia bicornis*), bumble bees (*Bombus terrestris*), and honey bees (*Apis mellifera*). Insects fed artificial diet enriched with the two non-protein amino acids at low (naturally occurring in nectar) and high concentration (twenty-fold more concentrated) and their survival and behavioral parameters (flying, walking, feeding, staying) have been assessed by scan sampling. GABA had a positive (bumble bees) or neutral effect on insect's survival (mason bees and honey bees) whereas β -alanine had a negative (bumble bees and mason bees) or neutral effect (honey bees). The enriched diets affects the behavioral parameters according to species and concentration. Bumble bees increased their walking activity when fed the β -alanine diet at high concentration, while they increased their flying activity with the same solution at low concentration. Mason bees were sensitive to high-concentration GABA diet that increased their walking activity. Behavioural parameters of honey bees were less significantly affected by both diets. The ability of affecting survival and locomotion of pollinators through nectar composition may have important ecological consequences for the plants since their reproductive output is largely dependent on pollination that is in its turn affected by insects movements among flowers.

1) S.W. Nicolson (2007) Nectar consumers. In: Nectaries and nectar, Springer, 289–342

2) S.W. Nicolson, R.W. Thornburg (2007) Nectar chemistry. In: Nectaries and nectar, Springer, 215–264

3) M. Nepi (2017) Acta Agrobot., 70, 1704

4) M. Nepi, D.A. Grasso, S. Mancuso (2018) Front. Plant. Sci., 9, 1063

5) M. Nepi (2014) J. Ecol., 102, 108-115