



111° Congresso della Società Botanica Italiana
III international Plant Science Conference

Roma 21-23 settembre 2016

BOOK OF ABSTRACT

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS



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111° Congresso della Società Botanica Italiana onlus

III INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

Roma, Tor Vergata, 21 - 23 September 2016

Programme

Wednesday 21 September 2016

8:30-09:30 Registration and welcome coffee

9:30-11:00 Opening Ceremony

General Session

(chairpersons A. Canini and C. Siniscalco)

11:00-11:45 • **Federica Brandizzi**, Michigan State University, USA (40 + 5 min)
Dynamic of secretory membrane traffic in plant cells

11:45-12:30 • **Carl Beierkuhnlein**, Bayreuth University, Germany (40 + 5 min)
Plant responses to climatic changes - The role of extreme events

12:30-14:00 Lunch

Symposium 1

FILLING GAPS IN SYSTEMATICS AND CONSERVATION OF THE MEDITERRANEAN FLORA: RECENT OUTCOMES AND FUTURE CHALLENGES

(chairpersons D. Gargano and L. Peruzzi)

Key words: adaptation, DNA barcoding, evolution, evolutionary ecology, floristics, phylogeny, phylogeography, plant conservation, pollination ecology, Red Lists, systematics, taxonomy

14:00-17:30

- **Juan Arroyo**, University of Sevilla, Spain (30 + 5 min)
Using systematics for conservation of biodiversity and underlying ecological and evolutionary processes
- **Félix Forest**, Royal Botanic Gardens, Kew, UK (30 + 5 min)
Integrating evolutionary patterns in biodiversity science and conservation

Communications

- **E. Sulis**, G. Bacchetta, D. Cogoni, G. Fenu (12 + 3 min)
Global and local demographic analysis of *Helianthemum caput-felis* populations along the western Mediterranean basin
- **G. Astuti**, L. Peruzzi (12 + 3 min)
Providing identification tools for a proper conservation of European bladderworts (*Utricularia* L.)
- **S. Orsenigo**, D. Gargano, C. Montagnani, L. Peruzzi, T. Abeli, A. Alessandrini, N.M.G. Ardenghi, G. Astuti, G. Bacchetta, F. Bartolucci, L. Bernardo, M. Bovio, S. Brullo, A. Carta, M. Castello, D. Cogoni, F. Conti, G. Domina, G. Fenu, B. Foggi, M. Gennai, R. Gentili, M. Iberite, S. Magrini, G. Nicolella, L. Poggio, F. Prosser, A. Santangelo, A. Selvaggi, I. Vagge, M. Villani, R.P. Wagensommer, T. Wilhelm, C. Blasi, G. Rossi (12 + 3 min)
New Red List of the Italian vascular flora: nearing the end
- **B. Marazzi**, M. Moretti, N. Schönenberger (12 + 3 min)

What about facultative ant-plant interactions mediated by extrafloral nectaries in temperate zones? New insights from the southern Alps

- **G. Pellegrino**, F. Bellusci, A.M. Palermo (12 + 3 min)
Effect on population structure of pollen flow, clonality rates and reproductive success in fragmented *Serapias lingua* populations
- **A. Trinco**, A. Carta, D. Ciccarelli, M. Ruffini Castiglione, L. Peruzzi, G. Astuti (12 + 3 min)
Adaptive responses to human impacts in the threatened Webb's hyacinth (*Bellevalia webbiana* Parl., Asparagaceae)
- **T. Abeli**, S. Orsenigo (12 + 3 min)
Recognizing the role of ecological studies in plant translocation: review and perspectives
- L. Rosati, E. Farris, S. Fascetti, A. Coppi, **F. Selvi** (12 + 3 min)
Phylogenetic affinity and systematic position of the Italian populations of *Gymnospermium* (Berberidaceae)

17:30-18:00 Presentation of the book "Orti botanici, eccellenze italiane", Ed. Associazione Nuove Direzioni Cittadino e Viaggiatore, Firenze, (M. Clauser, P. Pavone)

18:00-19:30 Poster session (Botanic Gardens Tor Vergata University)

19:30- 22:00 Welcome Cocktail (Botanic Gardens Tor Vergata University)

Thursday 22 September 2016

Symposium 2

PLANT CELL PLASTICITY IN GROWTH AND STRESS RESPONSES

(chairpersons G. Falasca and L. Sanità di Toppi)

Key words: cell plasticity, stress responses, plant growth, morphogenesis, cell signaling

09:30-13:00

- **Aart van Bel**, University of Giessen, Germany (30 + 5 min)
Phloem as a communication network between locations of emerging stress and sites of response
- **Michael Riemann**, Karlsruhe Institute of Technology, Germany (30 + 5 min)
Jasmonate - a versatile phytohormone and its functions in the abiotic stress response of rice

Communications

- **M.C. Sorrentino**, F. Capozzi, S. Giordano, V. Spagnuolo (12 + 3 min)
Genotoxic effects of cadmium and lead in the moss *Sphagnum palustre* L.
- **C. Fagliarone**, C. Mosca, C. Verseux, D. Billi (12 + 3 min)
Oxidative stress response in *Chroococciopsis* sp.
- L. Lombardi, E. De Vita, **A. Andreucci** (12 + 3 min)
The Universal Stress Protein of *Populus alba* "Villafranca" clone: preliminary characterization
- **L. Bruno**, I. Forgione, M. Pacenza, A. Muto, M. Greco, F. Araniti, A. Chiappetta, M. R. Abenavoli, M. Van Lijsbettens, M.B. Bitonti (12 + 3 min)
An omics approach to unravel the relationship between methylation status and plant growth plasticity in the *drm1drm2cmt3* mutant of *Arabidopsis thaliana*
- I. Aloisi, **G. Cai**, L. Navazio, S. Del Duca (12 + 3 min)
The effects of polyamines during polarized cell growth of pollen tubes
- **A. Ceci**, F. Russo, O. Maggi, C. Riccardi, L. Pierro, M. Pietrangeli Papini, M. Cernik, A.M. Persiani (12 + 3 min)

Stress response and tolerance to hexachlorocyclohexane: soil fungal species isolated from contaminated areas of Italy and Czech Republic and their potential in fungal bioremediation

- **S. Novelli**, A. Gismondi, L. Canuti, G. Di Marco, A. Canini (12 + 3 min)
Interactions between host plants and pathogens: the case of *Xylella fastidiosa*
- **M. Chialva**, A. Salvioli, S. Daghino, P. Bagnaresi, F. Neri, M. Novero, D. Spadaro, S. Perotto, P. Bonfante (12 + 3 min)
A next generation approach reveals the impact of soil microbiota on gene and protein profile of tomato
- **L. Fattorini**, A. Ricci, E. Rolli, F. Brunoni, L. Dramis, E. Sacco, B. Ruffoni, C. Díaz-Sala, M. M. Altamura (12 + 3 min)
Roles of 1,3-di(benzo[d]oxazol-5-yl)urea, an urea derivative, in carob and pine cuttings: adventitious rooting versus xylogenesis

13:00-14:30 Lunch

Symposium 3

PLANT BIODIVERSITY AND ECOSYSTEM SERVICES WITHIN URBAN AREAS

(chairpersons C. Blasi and M. Marchetti)

Key words: urban areas, urban infrastructure, services of the nature, flora and vegetation in the cities, urban forest, mitigation of the pollution, well-being, health, urban pilot project

14:30-18:00

- **Francisco Diaz Pineda**, Complutense University of Madrid (30 + 5 min)
Relationship current vegetation and soil uses-socioeconomy around a big metropolis
- **Stefan Zerbe**, Free University of Bozen-Bolzano (30 + 5 min)
Flora and vegetation in urban ecosystems: services and disservices with particular regard to human health

Communications

- **F. Manes**, F. Marando, E. Salvatori, L. Fusaro, G. Capotorti, C. Blasi (12 + 3 min)
Nature-based solutions to improve air quality in metropolitan areas
- **E. Roccoliello**, K. Perini, L. Cannatà, M.G. Mariotti (12 + 3 min)
Air pollution mitigation via urban green interactions with particulate matter
- **L. Gratani**, M.F. Crescente, L. Varone, F. Tarquini, G. Puglielli, R. Catoni, F. Lucchetta, S. Sangiorgio (12 + 3 min)
Ecosystem services: the role of plants in urban parks
- **G. Capotorti**, L. Zavattoni, B. Mollo, M.M. Alòs Ortì, C. Blasi (12 + 3 min)
Proposal for an urban green infrastructure in the metropolitan city of Rome
- **M. D'Arco**, L. Ferroni, M. Speranza (12 + 3 min)
How important is the choice of plant species for the green roof's cooling effect?
Comparison of the behavior of two CAM-facultative species and two C3 species under drought conditions
- **M. Salinitro**, A. Alessandrini, A. Tassoni (12 + 3 min)
The spontaneous vascular flora of the city of Bologna and its changes over 120 years
- **S. Ciccarello**, F. Scafidi, E. Di Gristina, G. Domina (12 + 3 min)
Study of the alien flora of the urban area of Palermo (Sicily)
- **F. Bartoli**, L. Traversetti, G. Caneva (12 + 3 min)
Ecological context of *Hedera helix* L. in Roman archaeological sites

- 18:30 Assembly of the Italian Botanical Society (members only)
 20:30 Congress social dinner

Friday, 23 September 2016

Symposium 4

PLANTS: A RICH SOURCE OF HEALTHY COMPOUNDS
 (chairpersons N. De Tommasi and C. Bicchi)

Key words: medicinal plants, plant secondary metabolites, phytochemistry, chemotaxonomy, plant occurring compounds, food plants

09:00-12:30

- **Hernman Stuppner**, University of Innsbruck, Austria (30 + 5 min)
Identification of novel hit and lead compounds inspired by nature
- **Orazio Tagliatalata-Scafati**, University Federico II, Naples, Italy (30 + 5 min)
Malaria and plant metabolites: present and future of a long-standing relationship

Communications

- **L. Milella**, D. Russo, I. Faraone, L. Vignola, P.B. Andrade, E.C. Fernandez, N. De Tommasi (12 + 3 min)
Biological activity and phytochemical profile of genetically different yacon genotypes
- **C. Villano**, A. Rinaldi, C. Lanzillo, D. Carputo, R. Garramone, R. Aversano (12 + 3 min)
Metabolic and transcript profiling of phenolics accumulation in Aglianico grape berries
- **A. Marengo**, A. Maccioni, A. Maxia, C. Berteà, C. Cagliero, C. Sanna, P. Rubiolo (12 + 3 min)
Phytochemical and biomolecular analyses of four wild edible *Carduus* species from Sardinia
- **C. Frezza**, A. Venditti, F. Maggi, S. Foddai, M. Nicoletti, A. Bianco, M. Serafini (12 + 3 min)
Study on the evolution of some Lamiaceae based upon phytochemistry
- **C. Sanna**, M. Scognamiglio, E. Tramontano, M. Mandrone, M. Ballero, A. Maxia, A. Maccioni, A. Marengo, L. D'Aiello, F. Antognoni, F. Poli, A. Fiorentino, F. Esposito (12 + 3 min)
Hypericum scruglii, a species endemic to Sardinia as a source of potential HIV-1 integrase inhibitors
- **F. Conforti**, M. Marrelli, M. Nicoletti, F. Menichini (12 + 3 min)
Capsicum annuum L.: a new source of antioxidant compounds and inhibitors of pancreatic lipase
- G. Certo, D. Forestieri, **M.P. Germanò**, N. Malafronte, T.M. Bauab, B.V. Bonifácio, K.M. Silveira Negri, L. Perez de Souza, W. Vilegas, A. Rapisarda, N. De Tommasi (12 + 3 min)
Effects on vivo angiogenesis of extracts from *Astronium fraxinifolium* Schott and *A. urundeuva* (Fr. All.) Engl. (Anacardiaceae)
- **M. De Leo**, D. Dolci, A. Braca, N. De Tommasi, G. Flamini, P.L. Cioni, L. Peruzzi (12 + 3 min)
A systematic and chemical study of *Polygala flavescens* (Polygalaceae), endemic to Italy

12:30-13:30 Closure Ceremony

13:30-14:30 Lunch

Post Congress, open conferences (in parallel)

Sessione speciale

“COMUNICAZIONE E ORTI BOTANICI”

- 14:30-15:00 R. Braglia, F. Scuderi, E.L. Redi, L. Zanella, F. Imperi, P. Palermo, A. Montoro, A. Canini. (25 + 5 min)
Orti Botanici e Comunicazione nell'epoca 4.0
- 15:00-15:30 G. Rinaldi, F. Zonca (25 + 5 min)
Dall'Osmunda alla sicurezza alimentare esercizi di comunicazione da Orto Botanico.
- 15:30-16:00 P. Menegoni, S. Pignatti, R. Guarino, F. Colucci, M. D'Andrea, V. Inanilli, F. Lecce, A. Paolini, L. Pietrelli, M. Sighicelli, C. Trotta, A. Marotta, E. Redondi, F. Genovese. (25 + 5 min)
Comunicare la scienza per conservare la natura: storie da un percorso di ricerca botanica e di comunicazione scientifica.
- 16:00-16:30 Comunicazione (FAI) (25 + 5 min)

Simposio satellite

LE PIANTE MEDICINALI FRA BOTANICA FARMACEUTICA, AGRONOMIA E GENETICA: LE INTERAZIONI NECESSARIE

- 14:40-15:00 Introduzione: le piante medicinali, fra fitochimica, agronomia e genetica
- 15:00-15:20 Il progetto di filiera sulle piante officinali (MIPAAF)
- 15:20-15:40 Le principali esperienze agronomiche italiane sulle piante officinali (SOI)
- 15:40-16:00 Le principali esperienze genetiche italiane sulle piante officinali (SIGA)
- 16:00-16:20 Le principali esperienze italiane sulle piante officinali (SBI)
- 16:20-16:35 Comunicazione breve (12 + 3 m) (SOI)
- 16:35-16:50 Comunicazione breve (12 + 3 m) (SIGA)
- 16:50-17:05 Comunicazione breve (12 + 3 m) (SBI)
- 17:05-17:30 Tavola rotonda: Prospettive di collaborazione scientifiche nel settore delle piante officinali (MIPAAF, SBI, SOI, SIGA)

Timetable may be modified

INDEX

Key Lecture

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General Session

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| 1. | DYNAMIC OF SECRETORY MEMBRANE TRAFFIC IN PLANT CELLS | Brandizzi Federica |
| 2. | PLANT RESPONSES TO CLIMATIC CHANGES - THE ROLE OF EXTREME EVENTS | Beierkuhnlein Carl |

I Simposio

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| 3. | USING SYSTEMATICS FOR CONSERVATION OF BIODIVERSITY AND UNDERLYING ECOLOGICAL AND EVOLUTIONARY PROCESSES | Arroyo Marin Juan |
| 4. | INTEGRATING EVOLUTIONARY PATTERNS IN BIODIVERSITY SCIENCE AND CONSERVATION | Forest Félix |

II Simposio

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| 5. | PHLOEM AS A COMMUNICATION NETWORK BETWEEN LOCATIONS OF EMERGING STRESS AND SITES OF RESPONSE | van Bel Aart |
| 6. | JASMONATE - A VERSATILE PHYTOHORMONE AND ITS FUNCTIONS IN THE ABIOTIC STRESS RESPONSE OF RICE | Riemann Michael, Dhakarey Rohit, Peethambaran Preshobha Kodackattumanni, Raorane Manish, Treumann Achim, Singh Rakesh Kumar, Kohli Ajay, Nick Peter |

III Simposio

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| 7. | RELATIONSHIP CURRENT VEGETATION AND SOIL USES-SOCIOECONOMY AROUND A BIG METROPOLIS | Pineda Francisco Diaz |
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8. FLORA AND VEGETATION IN URBAN ECOSYSTEMS: SERVICES AND DISSERVICES WITH PARTICULAR REGARD TO HUMAN HEALTH Zerbe Stefan

IV Simposio

9. IDENTIFICATION OF NOVEL HIT AND LEAD COMPOUNDS INSPIRED BY NATURE Stuppner Hernman
10. MALARIA AND PLANT METABOLITES: PRESENT AND FUTURE OF A LONG-STANDING RELATIONSHIP Taglialatela-Scafati Orazio

Communications

I Simposio

11. GLOBAL AND LOCAL DEMOGRAPHIC ANALYSIS OF *HELIANTHEMUM CAPUT-FELIS* POPULATIONS ALONG THE WESTERN MEDITERRANEAN BASIN Sulis Elena, Bacchetta Gianluigi, Cogoni Donatella, Fenu Giuseppe
12. PROVIDING IDENTIFICATION TOOLS FOR A PROPER CONSERVATION OF EUROPEAN BLADDERWORTS (*UTRICULARIA* L.) Astuti Giovanni, Peruzzi Lorenzo
13. NEW RED LIST OF THE ITALIAN VASCULAR FLORA: NEARING THE END Orsenigo Simone, Gargano Domenico, Montagnani Chiara, Peruzzi Lorenzo, Abeli Thomas, Alessandrini Alessandro, Ardenghi Nicola M.G., Astuti Giovanni, Bacchetta Gianluigi, Bartolucci Fabrizio, Bernardo Liliana, Bovio Maurizio, Brullo Salvatore, Carta Angelino, Castello Miris, Cogoni Donatella, Conti Fabio, Domina Giannantonio, Fenu Giuseppe, Foggi Bruno, Gennai Matilde, Gentili Rodolfo, Iberite Mauro, Magrini Sara, Nicoletta Gianluca, Poggio Laura, Prosser Filippo, Santangelo Annalisa, Selvaggi Alberto, Vagge Ilda, Villani Mariacristina, Wagensommer Robert P., Wilhelm Thomas, Blasi Carlo, Rossi Graziano
14. WHAT ABOUT FACULTATIVE ANT-PLANT INTERACTIONS MEDIATED BY EXTRAFLORAL NECTARIES IN TEMPERATE ZONES? NEW INSIGHTS FROM THE SOUTHERN ALPS Marazzi Brigitte, Moretti Marco, Schönenberger Nicola
15. EFFECTS OF POPULATION STRUCTURE ON POLLEN FLOW, CLONALITY RATES AND REPRODUCTIVE SUCCESS IN FRAGMENTED *SERAPIAS LINGUA* POPULATIONS Pellegrino Giuseppe, Bellusci Francesca, Palermo Anna Maria
16. ADAPTIVE RESPONSES TO HUMAN IMPACTS IN THE THREATENED WEBB'S Trinco Alberto, Carta Angelino, Ciccarelli Daniela, Ruffini Castiglione Monica, Peruzzi

- HYACINTH (BELLEVALIA WEBBIANA PARL., ASPARAGACEAE) Lorenzo, Astuti Giovanni
17. RECOGNIZING THE ROLE OF ECOLOGICAL STUDIES IN PLANT TRASLOCATION: REVIEW AND PERSPECTIVES Abeli Thomas, Orsenigo Simone
18. PHYLOGENETIC AFFINITIES AND SYSTEMATIC POSITION OF THE ITALIAN POPULATIONS OF GYMNOSPERMIUM (BERBERIDACEAE) Rosati Leonardo, Farris Emmanuele, Fascetti Simonetta, Coppi Andrea, Selvi Federico

Il simposio

19. GENOTOXIC EFFECTS OF CADMIUM AND LEAD IN THE MOSS *SPHAGNUM PALUSTRE* L. Sorrentino Maria Cristina, Capozzi Fiore, Giordano Simonetta, Spagnuolo Valeria
20. OXIDATIVE STRESS RESPONSE IN *CHROOCOCCIDIOPSIS* SP. Fagliarone Claudia, Mosca Claudia, Verseux Cyprien, Billi Daniela
21. THE UNIVERSAL STRESS PROTEIN OF *POPULUS ALBA* "VILLAFRANCA" CLONE: PRELIMINARY CHARACTERIZATION Lombardi Lara, De Vita Elisa, Andreucci Andrea
22. AN OMICS APPROACH TO UNRAVEL THE RELATIONSHIP BETWEEN METHYLATION STATUS AND PLANT GROWTH PLASTICITY IN THE DRM1 DRM2 CMT3 MUTANT OF *ARABIDOPSIS THALIANA*. Bruno Leonardo, Forgione Ivano, Pacenza Marianna, Muto Antonella, Greco Maria, Araniti Fabrizio, Chiappetta Adriana, Abenavoli Maria Rosa, Van Lijsbettens Mieke, Bitonti Maria Beatrice
23. THE EFFECTS OF POLYAMINES DURING POLARIZED CELL GROWTH OF POLLEN TUBES Aloisi Iris, Cai Giampiero, Navazio Lorella, Del Duca Stefano
24. STRESS RESPONSE AND TOLERANCE TO HEXACHLOROCYCLOHEXANE: SOIL FUNGAL SPECIES ISOLATED FROM CONTAMINATED AREAS OF ITALY AND CZECH REPUBLIC AND THEIR POTENTIAL IN FUNGAL BIOREMEDIATION Ceci Andrea, Russo Fabiana, Maggi Oriana, Riccardi Carmela, Pierro Lucia, Petrangeli Marco Papini, Cernik Miroslav, Persiani Anna Maria
25. INTERACTIONS BETWEEN HOST PLANTS AND PATHOGENS: THE CASE OF *XYLELLA FASTIDIOSA* Novelli Silvia, Gismondi Angelo, Canuti Lorena, Di Marco Gabriele, Canini Antonella
26. A NEXT GENERATION APPROACH REVEALS THE IMPACT OF SOIL MICROBIOTA ON GENE AND PROTEIN PROFILE OF TOMATO Chialva Matteo, Salvioli Alessandra, Daghino Stefania, Bagnaresi Paolo, Neri Francesco, Novero Mara, Spadaro Davide, Perotto Silvia, Bonfante Paola
27. ROLES OF 1,3-DI(BENZO[D]OXAZOL-5-YL)UREA, AN UREA DERIVATIVE, IN CAROB AND PINE CUTTINGS: ADVENTITIOUS ROOTING *VERSUS* XYLOGENESIS Fattorini Laura, Ricci Ada, Rolli Enrico, Brunoni Federica, Dramis Lucia, Sacco Ermanno, Ruffoni Barbara, Díaz-Sala Carmen, Altamura Maria Maddalena

Il simposio

28. NATURE-BASED SOLUTIONS TO IMPROVE AIR QUALITY IN METROPOLITAN AREAS
Manes Fausto, Marando Federica, Salvatori Elisabetta, Fusaro Lina, Capotorti Giulia, Blasi Carlo
29. AIR POLLUTION MITIGATION VIA URBAN GREEN INTERACTIONS WITH PARTICULATE MATTER
Roccotiello Enrica, Perini Katia, Cannatà Laura, Mariotti Mauro G.
30. ECOSYSTEM SERVICES: THE ROLE OF PLANTS IN URBAN PARKS
Gratani Loretta, Crescente Maria Fiore, Varone Laura, Tarquini Flavio, Puglielli Giacomo, Catoni Rosangela, Lucchetta Francesca, Sangiorgio Silvia
31. PROPOSAL FOR AN URBAN GREEN INFRASTRUCTURE IN THE METROPOLITAN CITY OF ROME
Capotorti Giulia, Zavattero Laura, Mollo Barbara, Alòs Ortì Marta Maria, Blasi Carlo
32. HOW IMPORTANT IS THE CHOICE OF PLANT SPECIES FOR THE GREEN ROOF'S COOLING EFFECT? COMPARISON OF THE BEHAVIOUR OF TWO CAM-FACULTATIVE SPECIES AND TWO C3 SPECIES UNDER DROUGHT CONDITION
D'Arco Matteo, Ferroni Lucia, Speranza Maria
33. THE SPONTANEOUS VASCULAR FLORA OF THE CITY OF BOLOGNA AND ITS CHANGE OVER 120 YEARS
Salinitro Mirko, Alessandrini Alessandro, Tassoni Annalisa
34. STUDY OF THE ALIEN FLORA OF THE URBAN AREA OF PALERMO (SICILY)
Ciccarello Sebastiano, Scafidi Filippo, Di Gristina Emilio, Domina Gianniantonio
35. ECOLOGICAL CONTEXT OF HEDERA HELIX L. IN ROMAN ARCHAEOLOGICAL SITES
Bartoli Flavia, Traversetti Lorenzo, Caneva Giulia

IV simposio

36. BIOLOGICAL ACTIVITY AND PHYTOCHEMICAL PROFILE OF GENETICALLY DIFFERENT YACON GENOTYPES
Milella Luigi, Russo Daniela, Faraone Immacolata, Vignola Lisiana, Andrade Paula B., Fernandez Eloy C., De Tommasi Nunziatina
37. METABOLIC AND TRANSCRIPT PROFILING OF PHENOLICS ACCUMULATION IN AGLIANICO GRAPE BERRIES
Villano Clizia, Rinaldi Alessandra, Lanzillo Carmine, Carputo Domenico, Garramone Raffaele, Aversano Riccardo
38. PHYTOCHEMICAL AND BIOMOLECULAR ANALYSES OF FOUR WILD EDIBLE *CARDUUS* SPECIES FROM SARDINIA
Marengo Arianna, Maccioni Alfredo, Maxia Andrea, Bertea Cinzia, Cagliari Cecilia, Sanna Cinzia, Rubiolo Patrizia
39. STUDY ON THE EVOLUTION OF SOME LAMIACEAE BASED UPON PHYTOCHEMISTRY
Frezza Claudio, Venditti Alessandro, Maggi Filippo, Foddai Sebastiano, Nicoletti Marcello, Bianco Armandodoriano, Serafini Mauro
40. *HYPERICUM SCRUGLII*, A SPECIES ENDEMIC TO SARDINIA AS A SOURCE OF POTENTIAL HIV-1 INTEGRASE INHIBITORS
Sanna Cinzia, Scognamiglio Monica, Tramontano Enzo, Mandrone Manuela, Ballero Mauro, Maxia Andrea, Maccioni Alfredo, Marengo Arianna, D'Aiello Lidia, Antognoni Fabiana, Poli Ferruccio, Fiorentino Antonio, Esposito Francesca
41. *CAPSICUM ANNUUM* L.: A NEW SOURCE OF ANTIOXIDANT COMPOUNDS AND INHIBITORS OF PANCREATIC LIPASE
Conforti Filomena, Marrelli Mariangela, Nicoletti Marcello, Menichini Francesco

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| 42. | EFFECTS ON <i>IN VIVO</i> ANGIOGENESIS OF EXTRACTS FROM <i>ASTRONIUM FRAXINIFOLIUM</i> SCHOTT AND <i>A. URUNDEUYA</i> (FR.ALL.) ENGL. (ANACARDIACEAE) | Certo Giovanna, Forestieri Debora, Germanò Maria Paola, Malafronte Nicola, Bauab Taís Maria, Vidal Bonifácio Bruna, Silveira Negri Kamila Maria, Perez De Souza Leonardo, Vilegas Wagner, Rapisarda Antonio, De Tommasi Nunziatina |
| 43. | A SYSTEMATIC AND CHEMICAL STUDY OF <i>POLYGALA FLAVESCENS</i> (POLYGALACEAE), ENDEMIC TO ITALY | De Leo Marinella, Dolci David, Braca Alessandra, De Tommasi Nunziatina, Flamini Guido, Cioni Pier Luigi, Peruzzi Lorenzo |

Poster

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| 44. | GENETIC AND EPIGENETIC STUDY OF <i>ARUNDO</i> SPECIES | Guarino Francesco, Cicatelli Angela, Brundu Giuseppe, Castiglione Stefano |
| 45. | STUDY ON <i>POSIDONIA OCEANICA</i> (L.) DELILE ROOTS GROWING ON DIFFERENT SUBSTRATA BY ISTO-ANATOMICAL AND MICRO-MORPHOLOGICAL ANALYSIS | Tomasello Agostino, Perrone Rosaria, Colombo Paolo, Sulli Attilio, Pirrotta Maria, Calvo Sebastiano |

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| 46. | EFFECTS OF ABANDONMENT OF LAND TRADITIONAL MANAGEMENT ON SPECIES AND PHYLOGENETIC DIVERSITY. A CASE STUDY FROM THE NORTHERN APENNINE OF EASTERN TUSCANY | Coppi Andrea, Lastrucci Lorenzo, Lazzaro Lorenzo, Benesperi Renato, Gonnelli Vincenzo, Viciani Daniele |
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1.8. = ENDEMIC VASCULAR FLORA OF MT. ETNA (SICILY): ELEVATION GRADIENT AND CONSERVATION PERSPECTIVES

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Mount Etna is a huge polygenic basaltic volcano covering a broad sub-rounded surface of 1,178 Km² from sea level, along the Ionian coast of Sicily, up to a height of 3,328 m. It is characterized by an almost continuous eruptive activity from its summit craters and fairly frequent lava flows from lateral fissures. Despite its recent origin (late Quaternary), Mt. Etna is the highest peak of Sicily and the highest active volcano of Europe.

Our research allowed to perform an in-depth survey on the distribution patterns of vascular plant species richness and endemism along the elevation gradient. We used all available data (literature, dried collections and field data) on distribution of the Etna plant species to interpolate their presence between minimum and maximum elevations in 100 m elevational intervals. Overall, against a flora of about 1050 taxa (roughly corresponding to one third of the Sicilian flora), 112 taxa are endemic to Sicily (ca. 11%, ES), 30 of which are exclusive of Mt. Etna (i.e. narrow endemic species, NES). Area is a crucial factor influencing species richness, and it generally declines with increasing elevation. However, the area available for plants on high mountains is not constant through time. This is particularly true for an active volcano whose lava flows or tephra falls may suddenly cover huge surfaces (e.g. up to 40 km² during the 1669 eruption) or catastrophic natural events may reduce available area as a consequence of huge collapses as happened 15,000 years ago. In addition, such variations may evenly affect areas at low, mid or high elevation and, subsequently, cause variations in total plant species richness, degree of isolation and thereby the extent of endemism.

Floristic richness has its maximum between 600 m and 900 m a.s.l., and hence there is a steep decrease towards the highest peak of Mt. Etna. This would agree with the hard boundaries theory which predicts that total species richness will have a peak close to the mid-elevation, rather than to the Steven's theory which extends the Rapoport's latitudinal rule to altitude. The highest endemic richness is recorded between 800 m and 1000 m a.s.l. and, except for a plateau between 1200 and 1600 m a.s.l. it progressively decreases towards the top of the volcano, while the highest narrow endemic richness (NES) is recorded between 1500 and 1900 m a.s.l, well above the interval of maximum total floristic richness.

Species richness is decreasing from about 900 m a.s.l. and upwards; this confirms the rule of reduced species number with higher elevation. This is likely caused by eco-physiological constraints (e.g. reduced growing season, low temperatures, strong winds, etc.), by the lack of ruderal, (sub)nitrophilous and alien species mostly linked to anthropogenic environments, as well as by the absence of weedy species linked to the different local crops.

As regards the conservation issues, apart the well documented extinction of *Limoniun catanense* (Tineo ex Lojac.) Brullo, a halophyte described at the beginning of the XX century from the rocky coast of Catania (E Sicily), most of the NES are located within a protected area and, most relevant, at higher altitudes (above 1500 m). Actually, since 1987 Mt. Etna has been established as regional park ("Parco Regionale dell'Etna"), 13 Sites of Community Importance (SCIs) are within the regional park and are managed by the park authority, and lastly since 2013 the highest part of the volcano (about 192 km²) has been included in the UNESCO World Heritage List. Despite this, some endemic species, such as *Sisymbrella dentata* (L.) O.E.Schulz, *Crassula basaltica* Brullo & Siracusa, *Asparagus aetnensis* Tornab., *Celtis tournefortii* Lam. subsp. *aetnensis* (Tornab.) Raimondo & Schicchi, *Kali basalticum* C.Brullo, Brullo, Gaskin, Giusso, Hrusa & Salmeri, occur on very restricted areas, more or less severely affected by agriculture or grazing animals and, likely most worrying, at lower altitudes. In addition, some endemic species may result particularly sensitive to human-induced climatic variations which may cause not only highest yearly mean temperatures, but also reduced precipitations or reduced snow cover. This phenomenon could be further exacerbated by the altitudinal rising of trivial or invasive alien species, such as *Ailanthus altissima* (Mill.) Swingle which is moving from the coastal and hilly stands of Mt. Etna towards the higher altitudes.

Concluding, scientifically based monitoring plans should be implemented both for the most endangered species (endemic or not), but also for assessing the conservation status of the habitats where they are found. Concrete in-situ actions, including population translocations or reinforcement, pest control, passive protections, etc. are equally necessary.