



International Meeting on Plant Reproduction

Dept. BiGeA, Alma Mater Studiorum-Università di Bologna, 16 September 2014



SECOND CIRCULAR

Dear colleagues,

this is the second circular for the International Meeting on Plant Reproduction, to be held on 16 September 2014 at the Department of Biological, Geological and Environmental Sciences of Bologna University (Italy). The conference will encompass different aspects of plant reproduction, including flower biology, sexual and asexual reproduction, pollination ecology, fertilization and seed formation, genetics and genomics. The meeting will bring together international scientists and will provide a forum for sharing ideas, presentation of research findings, and discussion of issues relevant to plant reproduction.

This event is organized by BiGeA, Department of Biological, Geological and Environmental Sciences, University of Bologna (<u>http://www.bigea.unibo.it/</u>), in collaboration with CRA - Unita' di Ricerca di Apicoltura e Bachicoltura (<u>http://api.entecra.it/</u>), and Department of Life Sciences, University of Siena (<u>http://www.dsv.unisi.it/</u>), and DAFNAE, Department of Agronomy Food Natural resources Animals and Environment, University of Padova (<u>http://www.dafnae.unipd.it/</u>).

On September 15th, Moday, participants are invited to the pre-conference workshop "Biodiversity conservation: the plant and pollinator perspectives to enhance ecosystem services", organized in the framework of EU Life+ project "PP-ICON" (<u>http:///www.pp-icon.eu</u>) at the Botanic Garden.

Conference topics:

Reproductive barriers in plants: male-sterility and self-incompatibility

Along with male-sterility, self-incompatibility is one of the most effective reproductive barriers operating in angiosperms. Male-sterility refers to either absence of pollen grains or presence of non-functional ones: it prevents self-pollination and allows cross-pollination, finding applied utility for breeding hybrid varieties. It is known that male-sterility can be caused either by mitochondrial genes with coupled nuclear genes or by nuclear genes alone. Models of male sterility and fertility restoration have been discussed also in terms of evolutionary significance of reproductive systems. Self-incompatibility is adopted by many flowering plants to prevent inbreeding, thus maintaining diversity within species, being considered one of the most important causes for the spread and success of angiosperms on the earth. The self-incompatibility response is genetically controlled by one or more multi-allelic loci in both sporophytic and gametophytic systems, and relies on a series of cellular interactions between pollen and pistil. Although selfincompatibility functions ultimately to prevent self-fertilization, flowering plants have evolved several unique mechanisms for rejecting the self-incompatible pollen, some still unexplored at the molecular level.

Reproductive modes in plants: sexuality vs. apomixis

Seed is one of the key factors for the perpetuation of angiosperm species. Therefore, a comprehension of the mechanisms underlying seed formation in crop and model plants is crucial for the quantitative and qualitative progress of agricultural production. In angiosperms, two pathways of reproduction through seed exist: sexual or amphimictic, and asexual or apomictic; the former is largely exploited by seed companies for breeding new varieties, whereas the latter is receiving continuously increasing attention from both scientific and industrial sectors in basic research projects. If apomixis is engineered into sexual crops in a controlled manner, its impact on agriculture will be broad and profound. In fact, apomixis will allow clonal seed production and thus enable efficient and consistent yields of high- quality seeds, fruits, and vegetables at lower costs. The development of apomixis technology is expected to have a revolutionary impact on agricultural and food production by reducing cost and breeding time, and avoiding the complications that are typical of sexual reproduction (e.g., incompatibility barriers) and vegetative propagation (e.g., viral transfer).

Nectar: plant interface for interactions with biotic environment

Angiosperm floral and extra-floral nectar is undoubtedly recognized as a valuable energetic food resource for a large variety of animals. According to recent studies, nectar mediates interactions that are much more complex than previously thought establishing a network of relationships between plants, animals and microorganisms too. The complex dynamics of these interactions and their consequences for plant reproduction are almost unknown.

Plant mating and animal pollination: a complex natural system

Pollination is a key mutualism between plants and animals: the plant gains reproductive success and the pollinator obtains -usually- some kind of reward. The functioning of ecosystems strictly depends on these complex interactions, that are also essential for agro-ecosystems and humans. Plant mating systems and biotic pollen transfer have been the focus of attention for natural scientists during the last centuries: they are still actively debated by biologists, naturalists and ecologists, providing insights into evolution and adaptation processes, in a changing natural world subject to an increasing biodiversity loss.

Schedule

September 15 th , 2014	September 16 th, 2014
Botanic Garden - Dent, BiGeA	International Meeting on Plant Reproduction
15:00-17:30 pre-congress workshop:	<u>Aula F – Via Belmeloro</u>
Biodiversity Conservation: the plant and pollinator perspectives to enhance ecosystem services	8:30 -9:00 Opening 9:00 -10:40 1st and 2nd Symposia Reproductive barriers in plants: male-sterility and self-incompatibility -
Results and good practices of the project Life+ PP-ICON - M. Galloni (Dept. BiGeA, University of Bologna), L. Bortolotti (CRA-API, Bologna)	Reproductive modes in plants: sexuality vs. apomixis Chairmans: G. Galla (DAFNAE, University of Padua), S. Del Duca (BiGeA, University of Bologna).
Measuring pollinator performance in Papilionoideae from Argentina – A.V. Etcheverry (Universidad Nacional de Salta, Argentina)	<i>The Self-incompatibility Fertilization System in Rosaceae.</i> <i>Genetic and Agricultural Aspects</i> – Martin Goldway (Tel- Hai College, Israel)
Habitat management for realising multiple agroecosystem services - M. Balzan (MCAST, Malta)	10:40-11:00 coffee break
SHARP species based approach for sustainable conservation of rare endangered plants - G. Aronne (University of Naples Federico II)	11:00-13:00 3rd Symposium Nectar: plant interface for interactions with biotic environment
DISCUSSION	Chairman: M. Nepi (DSV, University of Siena)
17:30 Guided tour of the Botanic Garden	Guest lectures:
20:30 DINNER (reservation required)	Sipping from a poisoned chalice: plant drugs, toxins, and pesticides in nectar and their influence on bee behavior - Geraldine Wright (Institute of Neuroscience, University of Newcastle, UK)
	Interactions among plants, pollinators and nectar microbial communities: patterns and effects - Clara de Vega (Estación Biológica de Doñana, CSIC, Sevilla, Spain)
	Dip. BiGeA, Via Selmi 3 13:00-15:00 Lunch Break and Poster Session
	Aula F – Via Belmeloro 15:00-18:10 4th Symposium Plant mating and animal pollination: a complex natural system
	Chairmans : M. Galloni (BiGeA, University of Bologna), L. Bortolotti (CRA-API, Bologna)
	Guest lectures:
	Pollinators and pollination challenge: the Mediterranean case - Teodora Petanidou (University of the Aegean, Mytilene, Greece)
	<i>Is main sugar composition of floral nectar determined by</i> <i>pollinators in Scrophularia species?</i> – Tomás Rodriguez- Riaño (Universidad de Extremadura, Spain)

The detailed program of the meeting will be soon available at the conference web-page: http://www.pp-icon.eu/zmeeting/programme.html

Registration fees

Permanent	€ 220,00 (vat included)
Non-permanent	€ 160,00 (vat included)

Online registration is available on conference website at http://webplatform.planning.it/plr2014/register, until September 9th.

On-site registration will be possible during the conference, by cash payment only.

Registration includes:

- Attendance to conference presentations, poster sessions
- Book of Abstracts
- Coffee breaks within session, Lunch break

Guidelines for poster presentations

Posters must be designed to fit a 1 meter (width) by 1.5 meter (high) poster board.

Posters session will take place at the 1st floor of the Zoological Museum, Department BiGeA, Via Selmi 3. The poster presenter shall be present at the time indicated in the Programme.

Material for mounting posters will be available onsite since September 15th (from 9am to 10am, and from 1pm to 3pm). On September 16th the posters must be delivered to the reception desk of the congress. Please contact the scientific secretariat for additional information (marta.galloni@unibo.it).

Guidelines for oral communications

The time for oral presentation is 15 minutes, plus 5 minutes for questions. PowerPoint presentation will be used.

General Information

The cost for social dinner of September, 15^{th} is $30 \notin$, reservation is required. Online reservation and pre-payment is available until September, 5^{th} at registration link: http://webplatform.planning.it/plr2014/register. Cash payment to organizers will be possible onsite. Please contact the congress secretary (r.cantelli@planing.it) for additional information.

Finally, we recommend authors to consider the possibility of submitting their contributions to the Journal of Pollination Ecology (<u>http://www.pollinationecology.org</u>) for publication.

We look forward to meeting you in Bologna!

The Organizing Committee:

Davide Pettener, Committee President, Director of Dept. BiGeA, University of Bologna Marta Galloni, Committee Vice-president Dept. BiGeA, University of Bologna Laura Bortolotti, CRA - Unità di Ricerca di Apicoltura e Bachicoltura Alessandro Chiarucci, Dept. of Life Sciences, University of Siena Giovanni Cristofolini, Herbarium and Botanic Garden, University of Bologna Stefano Del Duca, Dept. BiGeA, University of Bologna Carlo Ferrari, Dept. BiGeA, University of Bologna Gianni Barcaccia, Dept. DAFNAE, University of Padova Giulio Galla, Dept. DAFNAE, University of Padova Massimo Nepi, Dept. of Life Sciences, University of Siena Giovanna Puppi, Dept. BiGeA, University of Bologna