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3<sup>rd</sup> Global Summit on

# Plant Science

August 07-09, 2017 Rome, Italy



Olimpica 1

conferenceseries.com 08:30-09:00

# Opening Ceremony

## Keynote Forum

09:00-09:10 Introduction

Title: Rapid development of a castor cultivar with increased oil content

09:10-09:40

Grace Chen, U.S. Department of Agriculture, USA

Title: Natural products from Brazilian biodiversity, a source of new templates for medicinal chemistry

09:40-10:10

Vanderlan da S. Bolzani, Sao Paulo State University, Brazil

Title: Plant phenolics: New remedies for old disease

10:10-10:40

Djebbar Atmani, University of Bejaia, Algeria

## Group Photo 10:40-10:50

## Network & Refreshment Break 10:50-11:05 @ Foyer

Sessions: Plant Science and Natural Products | Plant Physiology and Biochemistry | Medicinal and Aromatic Plant Sciences | Arabidopsis | Seed Science and Technology | Photosynthesis

Session Chair: Grace Chen, U.S. Department of Agriculture, USA

Session Co-chair: Petronia Carillo, University of Campania, Italy

## Session Introduction

Title: Enhancing NGS performance through improvements in template preparation procedure

11:05-11:30

Caroline Janitz, Western Sydney University, Australia

Title: Physiological impacts on coffee plants submitted to water deficiency

11:30-11:55

Fernando Broetto, Sao Paulo State University, Brazil

Title: What is the best possible response of plants to combined stresses? Indeed the simplest one

11:55-12:20

Petronia Carillo, University of Campania, Italy

## Workshop on

Title: Next-Generation sequencing—basics & applications: Tools and technologies

12:20-13:00

Caroline Janitz, Western Sydney University, Australia

## Lunch Break: 13:00-14:00 @ Hotel Restaurant

Title: Polyamines and flavonoids of bee pollen with anti-tyrosinase and antioxidant activity

14:00-14:25

Mi Kyeong Lee, Chungbuk National University, South Korea

Title: Cytotoxic, antidiabetic and anti-inflammatory activities of selected Algerian medicinal plants: From traditional use to scientific validation

14:25-14:50

Djebbar Atmani, University of Bejaia, Algeria

Title: Anti-ulcer activities of a local plant from Algeria, *Clematis flammul*

14:50-15:15

Dina Atmani-Kilani, University of Bejaia, Algeria

Title: Breadfruit (*Artocarpus altilis*) gibberellin metabolic genes: Stem elongation and abiotic stress response

15:15-15:40

Yuchan Zhou, University of the Sunshine Coast, Australia

## Network & Refreshment Break 15:40-16:00 @ Foyer

- 16:00-16:25** Title: **Arabidopsis root formation is altered by cadmium and arsenic**  
**Laura Fattorini**, Sapienza University of Rome, Italy
- 16:25-16:50** Title: **Genetic engineering of PPV resistance in plum rootstock 'Elita' ((*Prunus pumila* L. x *P. salicina* Lindl.) x (*P. cerasifera* Ehrh.))**  
**Sergey Dolgov**, Nikita Botanical Gardens, Russia
- 16:50-17:15** Title: **Determination of polyphenol composition in *Hevea brasiliensis* and rubber-processing effluent via spectrophotometry and spectroscopy analysis**  
**Aidilla Mubarak**, Universiti Malaysia Terengganu, Malaysia
- 17:15-17:40** Title: **Differential localization of ethylene receptor OsERS1 and OsETR2 in rice and the expression of OsETR2 during submergence**  
**Wing Kin Yip**, University of Hong Kong, Hong Kong

Panel Discussion

Day 2 August 08, 2017

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Keynote Forum

- 09:00-09:30** Title: **Inferring salt and water distribution in an irrigated crop field using electromagnetic induction techniques**  
**Leon D van Rensburg**, University of the Free State, South Africa
- 09:30-10:00** Title: **Production of marker-free transgenic tomato and apple plants using inducible site-specific recombinase and a bifunctional selectable gene**  
**Sergey Dolgov**, Nikita Botanical Gardens, Russia

Workshop on

- 10:00-10:40** Title: **Salt management of irrigated soils**  
**Leon D van Rensburg**, University of the Free State, South Africa

Network & Refreshment Break 10:40-11:00 @ Foyer

Sessions: Plant Pathology and Plant-Micro-Biology | Plant Morphology and Plant Metabolism | Soil Science and Soil-Plant Nutrition | Plant Breeding and Molecular Breeding | Plant Biotechnology and Plant Tissue Culture | Agricultural Science

Session Chair: Vanderlan da S. Bolzani, Sao Paulo State University, Brazil

Session Co-chair: Minkyun Kim, Seoul National University, South Korea

Session Introduction

- 11:00-11:25** Title: **Effects of acute ozone exposure on the release of stress volatiles, and the expression of a monoterpene synthase gene in *Nicotiana tabacum* leaves through recovery**  
**Arooran Kanagendran**, Estonian University of Life Sciences, Estonia
- 11:25-11:50** Title: **Study of the mechanisms underlying tomato innate immunity mediated by two Bwr12 genes**  
**Chiu-Ping Cheng**, National Taiwan University, Taiwan
- 11:50-12:15** Title: **Indole-3-butyric acid promotes adventitious rooting in *Arabidopsis* thin cell layers**  
**Federica Della Rovere**, University of Rome, Italy
- 12:15-12:40** Title: **Complementary interaction of two starch biosynthesis genes confers a mild sugary endosperm in rice**  
**Hee-Jong Koh**, Seoul National University, South Korea
- 12:40-13:05** Title: **Regulation of floral terpenoid emission and biosynthesis in sweet basil (*Ocimum basilicum*)**  
**Jiayan Ye**, Estonian University of Life Sciences, Estonia

Lunch Break 13:05-14:05 @ Restaurant

Poster Presentations 14:05-14:35 @ Foyer

Poster Judge: Vanderlan da S. Bolzani, Sao Paulo State University, Brazil

Title: **Influence of plant height on chrysanthemum transformed with SHI (Short Internodes related genes)**

**EunJung Suh**, National Institute of Agricultural Science, South Korea

## Oral Session: 1

Day 1 August 07, 2017

**Plant Science and Natural Products | Plant Physiology and Biochemistry | Medicinal and Aromatic Plant Sciences | Arabidopsis | Seed Science and Technology | Photosynthesis**

**Session Chair**

**Grace Chen**

U.S. Department of Agriculture, USA

**Session Co-chair**

**Petronia Carillo**

University of Campania, Italy

### Session Introduction

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**Carillo P**, University of Campania, Italy
- Title: Polyamines and flavonoids of bee pollen with anti-tyrosinase and antioxidant activity**  
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# Plant Science

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## *Arabidopsis* root formation is altered by cadmium and arsenic

Laura Fattorini<sup>1</sup>, Marilena Ronzan<sup>1</sup>, Diego Piacentini<sup>1</sup>, Federica Della Rovere<sup>1</sup>, Ilaria Buran<sup>1</sup>, Adriano Sofo<sup>2</sup>, Maria Maddalena Altamura<sup>1</sup> and Giuseppina Falasca<sup>1</sup><sup>1</sup>Sapienza University of Rome, Italy<sup>2</sup>University of Basilicata, Italy

The semimetal arsenic (As) and the heavy metal cadmium (Cd) are highly toxic for plants and animals, evoking enormous concern due to their widespread and persistent presence in polluted ecosystems. Both elements are not essential for plants but easily absorbed by their roots using the same membrane transporters of essential nutrients. The exposure to Cd or As causes inhibition of plant growth, especially in sensitive plants as *Arabidopsis thaliana*, the model species used in this research. It was reported that Cd and As mainly localize in root meristems. The correct organization and functionality of primary (PR), lateral (LR) and adventitious roots (AR) depends on the integrity of their apical meristem, on the correct activity and maintenance over time of a small group of cells which rarely divide, i.e. the quiescent centre (QC) cells. The QC inhibits the differentiation of the surrounding stem cells, allowing the apical root growth and the correct root differentiation. In *A. thaliana* LR and AR originate from pericycle founder cells in the PR and hypocotyl, respectively, their QC is established in a precise stage of primordium development. It was demonstrated that the positioning and maintenance of the QC in these roots is strictly related to a correct transport and biosynthesis of indole-3-acetic acid (IAA), the main plant auxin. To the aim to investigate the effect of Cd and As on auxin-mediated LR and AR development and QC maintenance, the expression of the IAA-sensitive *DR5: GUS*, of *QC25: GUS* (QC-marker), of the auxin biosynthetic gene *YUCCA6*, of the IAA carriers *GUS*-lines *PIN1: GUS* and *LAX3: GUS* and IAA levels in seedlings exposed to  $\text{Na}_2\text{HAsO}_4 \cdot \text{H}_2\text{O}$  and/or  $\text{CdSO}_4$  were evaluated. Results indicate that Cd and As alter auxin biosynthesis and transport during root formation, with consequent negative effects on their growth.

### Biography

Laura Fattorini investigated the effects of toxic elements, such as cadmium (Cd) and arsenic (As), on root development in some plants, in order to study the damages caused at cytological/histological level, as in *Arabidopsis thaliana*, and to find natural methods to limit Cd and As absorption in the commercially important species *Nicotiana tabacum*. Her experiences in the hormonal and genetic control of root development have enabled her to verify that some damages are related to an imbalance in the auxin production and transport in these organs. She also studied the effects of a co-exposure to these pollutants even in the As hyperaccumulator *Pteris vittata*, in order to study the possibility of using this fern for the purification of soils containing more (semi)metal contaminants.

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Notes: