

**ICS 2015**

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*International*



*Cadmium Symposium 2015*

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# **ICS 2015**

## **Congress Proceedings**

**Sassari | June 25-27, 2015**

## Table of Contents

<i>Letter of the Chairman</i>	<i>p 4</i>
<i>Committees</i>	<i>p 5</i>
<i>Patronage and Sponsor</i>	<i>p 6</i>
<i>Program</i>	<i>p 7</i>
<i>Oral Communications</i>	<i>p 12</i>
<i>Poster Session</i>	<i>p 45</i>
<i>Index of Author</i>	<i>p 76</i>



**Dear Friend and Colleague,**

*It's a great pleasure to welcome you to the "II Cadmium Symposium 2015".*

*Cadmium is a heavy metal with a high toxicity, even at very low dose, showing acute and chronic effects on human health and high impact on environment.*

*With a wide spectrum of presentations about the main aspects of Cadmium biology as well as its clinical implications, the meeting counts four key sessions:*

**Cadmium and Environment**

**Cadmium and Cell Biology**

**Cadmium and Diseases**

**Cadmium and Agronomics, Botany and Veterinary**

*Participants have the opportunity to exchange ideas with worldwide experts in the field and highly distinguished international speakers from different scientific areas related to biological and medical aspects.*

*The University of Sassari is a small but prestigious University which in 2012 celebrated 450 years since its foundation. The University was founded by Alessio Fontana in 1558, a distinguished gentleman of the town of Sassari and member of the Imperial Chancellery of Emperor Charles V. The official opening dates back to month of May 1562.*

*Sassari is located in the northwest of Sardinia, a region rich in natural and cultural attractions, with old traditions, beautiful sceneries and excellent cuisine. The area offers many itineraries to people interested in archeology, art, history, wine and food. The weather in late spring is usually very pleasant climate, an ideal time to visit one of the most beautiful location in the Mediterranean.*

*We hope that you will enjoy the Symposium and have a good time in Sardinia.*

Yours sincerely,

**Roberto Madeddu**

Chairman



## **P-30 \_ CADMIUM AFFECTS ROOT FORMATION AND DEVELOPMENT BY ALTERING AUXIN TRANSPORT AND ACCUMULATION**

Fattorini L<sup>1</sup>, Piacentini D<sup>1</sup>, Buran I<sup>1</sup>, Zanella L<sup>1</sup>, Della Rovere F<sup>1</sup>, Ronzan M<sup>1</sup>, Sanità di Toppi L<sup>2</sup>, Sofo A<sup>3</sup>, Altamura MM<sup>1</sup>, Falasca G<sup>1</sup>

*1Department of Environmental Biology, Sapienza University of Rome, Rome, Italy*

*2Department of Life Sciences, University of Parma, Parma, Italy*

*3School of Agricultural, Forestry, Food and Environmental Sciences (SAFE), University of Basilicata, Potenza, Italy*

Cadmium (Cd) is a very toxic element for plants and animals, easily absorbed through the root system and accumulated in plant tissues. This pollutant causes serious damages to the root apparatus of numerous plants, by altering the quiescent center (QC) and the surrounding apical meristem of the primary root (PR) and the differentiation of its tissues. The QC controls apical meristem definition and activities in the PR, and post-embryonic roots (lateral roots, LRs, and adventitious roots, ARs). The QC identity and maintenance are controlled by auxin levels. In this work we investigated Cd effects on *Arabidopsis thaliana* root apparatus investigating QC maintenance

and functioning, and analyzing auxin levels and distribution in LRs and ARs, in particular. To the aim, seeds of the wild type and QC25::GUS, DR5::GUS, PIN1::GUS, LAX3::GUS transgenic lines were sown in the presence and absence of different Cd concentrations. The results show that Cd significantly inhibited the PR and hypocotyl growth, but significantly increased LR and AR formation. Moreover, Cd compromised the regular QC definition and functioning in LRs and ARs, and disturbed the expression patterns of auxin transport genes, and auxin accumulation.