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RESEARCH

Conference

XLIII ANNUAL MEETING OF THE EUROPEAN SOCIETY FOR NEW METHODS IN AGRICULTURAL RESEARCH

Date and Location

3.–6.9.2014
BOLZANO, ITALY
—
FREE UNIVERSITY OF BOZEN - BOLZANO
Faculty of Science and Technology

Conference Focus

"Feeding the world: the importance of sustainable Agriculture and innovative methods"

LE UNIVERSITÀ PER EXPO 2015
L'EXPO DELLE IDEE
DEL COMUNE DI MILANO

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Fakultät für Naturwissenschaften und Technik
Facoltà di Scienze e Tecnologie
Faculty of Science and Technology

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The XLIII Annual Meeting
of the European Society
for New Methods in Agricultural Research

Book of Abstracts

3rd- 6th September 2014

Free University of Bolzano

Faculty of Science and Technology Bolzano, Italy

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Stefano Grego – *Università degli Studi della Tuscia*
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The **European Society for New Methods in Agricultural Research (ESNA)** is an international society originally established in Wageningen (The Netherlands) in 1969 with the aims of exchanging ideas and techniques to promote the advancement of agricultural sciences. The original scope - the co-ordination of research in the application of nuclear techniques in agriculture - has gradually changed and now the Society also covers aspects of environmental protection and the application of new methods and biotechnology in agricultural research. The Society organizes annual meetings in various European countries and the scientific programme is devoted to fundamental and applied issues from the above-mentioned areas. For more detailed information (Presidency, Committee, Working groups, Historical Overview, etc.) visit http://mendelu.cz/esna/.

Analytical Index

Conference Program

Wednesday 3rd September 2014

18.00 – 21.00 *Registration and welcome reception*
Free University of Bolzano, Building "F", top floor & terrace

Thursday, 4th September 2014

Morning session: "Introduction to the conference" Room D1.02

9.00 – 10.00 *Registration and coffee break*

10.00 – 10.30 *Welcome by the organizers*

10.30 – 11.20 *Keynote*
Ecological soil function: Retention Properties influenced by Soil Development, Land-use and Management
Martin Gerzabek
University of Natural Resources and Applied Life Sciences, Vienna, Austria

11.20 – 12.10 *Keynote*
Classical and novel approaches for cereal quality improvement
Domenico Lafiandra
Department of Agriculture, Forests, Nature and Energy, Università della Tuscia, Viterbo, Italy

12.10 – 13.00 *Keynote*
Effect of climate changes on sustainability of animal production
Umberto Bernabucci
Department of Agriculture, Forests, Nature and Energy, Università della Tuscia, Viterbo, Italy.

13.00 – 14.30 Lunch

Afternoon session: "From Plant to Soil: innovative methods regarding the plant-soil system" Room D1.02
Chairmen: Athanasios Gertsis, Stefania Astolfi

14.30 – 14.50 TEM tomography reveals a three-dimensional reconstruction of the ultrastructural modifications occurring in *Cucumis sativus* mitochondria under Fe deficiency.
Gianpiero Vigani
Università degli Studi di Milano

14.50 – 15.10 Innovative applications of nanoparticles in agriculture
Stefano Grego
Università della Tuscia

15.10 – 16.00 ESNA Committee Meeting

16.00 – 17.00 Coffee Break and Poster Session

17.00 – 17.20 Italian ryegrass for the phytoremediation of aqueous solutions polluted with terbuthylazine
Maria Luce Bartucca
Dipartimento di Scienze Agrarie, Alimentari e Ambientali
Università degli Studi di Perugia

17.20 – 17.40 A specific approach in rehabilitation of heavy metals polluted coal mine overburden by growing vines (*Vitis vinifera* L.)
Vlado Licina
University of Belgrade

Friday, 5th September 2014

Morning session: "From Soil to Plant: innovative methods regarding the soil-plant system" Room D1.02
Chairmen: Vlado Licina, Stefano Grego

9.30 – 9.50 Small scale floating-disk vegetable production: a solution for urban citizens
Athanasios Gertsis
American Farm School

9.50 – 10.10 Synchrotron X-ray analytical techniques for iron (Fe) investigations in plant samples
Roberto Terzano
Università degli Studi di Bari

10.10 – 10.30 Simulation of the evolution of the soil mobile potassium content in different soil and fertilizing conditions
Gheorghe Budoi
University of Agronomic Sciences and Veterinary Medicine of Bucharest

10.30 –12.05 *Coffee Break and Poster Session*

12.05 –12.25 Use of *Trichoderma harzian*um T-22 as an effective antiviral agent against Cucumber mosaic virus (CMV)
Adriano Sofo
Università degli Studi della Basilicata

12.25-12.45 Phytochemical profile and antioxidant properties of different Aloe Species
Luigi Lucini
Università Cattolica del Sacro Cuore

12.45- 14.00 Lunch

Afternoon session: "Round Table"

14.00-15.00 Poster Session

15.00- 16.30 Round Table
Chair: Stefano Grego
Speakers: Vlado Licina, Luigi Lucini, Malgorzata Szczawinska, Anita Zamboni

20.30 Social Dinner at:
Parkhotel Laurin
Via Laurin Straße 4, I - 39100 Bolzano Bozen
www.laurin.it

Saturday, 6th September 2014

Morning session: "Food and animal science: innovative methods regarding food products from the soil-plant and plant-soil system" Room D1.02

Chairmen: Matteo Scampicchio, Christian Huck

9.30 – 9.50 Comparison of dipping treatments and pulsed light on fresh cut apples by microcalorimetry
Marco Mason
Facuty of Science and Technology
Free University of Bolzano

9.50 – 10.10 Alps Food Authentication, Typicality, Traceability and Intrinsic Quality by a Novel Analytical Technologies Platform – Introduction of the EU-Project "ORIGINALP"
Christian Huck
Institute of Analytical Chemistry and Radiochemistry CCB—Centre of Chemistry and Biomedicine
Leopold-Franzens University Innsbruck

10.10 –11.45 *Coffee Break and Poster Session*

11.45 –12.05 In vitro effects of TCDD and PCB126 on iodothyronine secretion by chicken thyroid gland
Andrzej Sechman
University of Agriculture in Krakow

12.05– 12.25 Is ^{137}Cs radioactivity in forest berries a health hazard to humans?
Michael Pöschl
Mendel University in Brno

12.25– 12.45 The effect of temperature on survival rate of Listeria monocytogenes in yogurt
Malgorzata Szczawinska
Warsaw University of Life Sciences

12.45– 13.00 Closing remarks

12.45– 14.00 Lunch

14.00– 17.00 Excursions to: Schloss Runkelstein
Bolzano City tour and Ötzi Museum

Effects of terbuthylazine on iron-deficient barley: interferences on phytosiderophores release and on sulfur metabolism

Bartucca Maria Luce[1], Celletti Silvia[2], Del Buono Daniele[1], Astolfi Stefania[2], Mimmo Tanja[3], Ciaffi Mario[2], Cesco Stefano[3]

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Herbicides are very diffused agrochemicals in agriculture for weed control; some of them, due to their persistence, can damage non-target plants and interfere with their ability to acquire some nutrients.

This work was aimed to assess the effect of terbuthylazine (TBA), which is a triazine herbicide widely used for weeding and highly persistent in the environment, on Fe-deficient barley plants. Results showed that TBA generally reduces chlorophyll content, length and fresh weight of the plants, although such disturbances have been observed at a sub-lethal level. In plants treated with TBA, the release of phytosiderophores (PS) has been significantly reduced starting from the first hours after the treatment, and this effect was associated with the decrease of the levels of transcripts of genes involved in the synthesis and transport of PS. Due to the importance of these molecules in iron (Fe) mobilization and acquisition and their dependency on sulfur (S) metabolism, the activity of ATPS and of OASTL, two key-enzymes in sulphate assimilation, was analyzed, and the contents of cysteine and glutathione were determined. The TBA treatments strongly reduced the ability of plants to assimilate sulphate. A confirmation was found in the decrease of cysteine and glutathione content observed in treated plants. The results of this study clearly highlight that an herbicide can strongly and negatively interfere with the sulfur assimilation and release of phytosiderophores of barley, a very important crop at global level.

The research was financed by MIUR-FIRB 2012 Futuro in Ricerca.