



EUROPEAN

SOCIETY

XLIII FOR

NEW METHODS

IN AGRICULTURAL 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"



**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

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 – 15.30 Possibilities for International and National collaboration with International Atomic Energy Agency (IAEA) at the field of Plant Biology and Genetics and Soil Science: the First IAEA Regional Project RER/5/013 for the Central and Eastern Europe: "Evaluation of Natural and Mutant Genetic Diversity in Cereals Using Nuclear and Molecular Techniques" as the example

Anastasiya Zlatska

National Technical University of Ukraine

15.30 – 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 Peculiarities of the interaction between soybean and *Bradyrhizobium japonicum* under drought stress
Viktorija Melnyk
 NAS of Ukraine
- 17.40 – 18.00 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 Budoï
 University of Agronomic Sciences and Veterinary Medicine of Bucharest
- 10.30 – 11.45 *Coffee Break and Poster Session*
- 11.45 – 12.05 Use of *Trichoderma harzianum* T-22 as an effective antiviral agent against Cucumber mosaic virus (CMV)
Adriano Sofo
 Università degli Studi della Basilicata
- 12.05-12.25 Identification and diagnostics of plant pathogenic bacteria
Nataliya Punina
 INBI RAS
- 12.25-12.45 Impact of microbial preparations and sodding on the dynamics of agronomical benefit groups of microorganisms in the grapes rhizosphere
Nina Klymenko
 Institute of Agroecology and Environmental Management
- 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
 Faculty 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 – 10.30 Evaluation of fruit quality and environmental biosafety of transgenic pear trees
Vadim Lebedev
 Russian Academy of Sciences
- 10.30 – 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 ¹³⁷Cs 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

Use of *Trichoderma harzianum* T-22 as an effective antiviral agent against Cucumber mosaic virus (CMV)

Sofo Adriano¹, Vitti Antonella¹, La Monaca Esther², Scopa Antonio¹, Cuypers Ann², Nuzzaci Maria¹

¹ Scuola di Scienze Agrarie, Forestali, Alimentari ed Ambientali SAFE - Università della Basilicata, Potenza, Italy

² Environmental Biology, Hasselt University, Diepenbeek, Belgium

The study of the biochemical and molecular mechanisms involved in the host-pathogen-antagonist interaction is essential to understand the dynamics of the infectious processes and can be useful for the development of new strategies to control phytopathogens, particularly viruses, against which chemical treatments have no effect. In this work, we demonstrate for the first time the antiviral activity of the rizospheric fungus *Trichoderma harzianum* strain T-22 (T22) against Cucumber mosaic virus (CMV) strain Fny. The molecular and biochemical aspects of the interaction between strain T22 and the tomato plant against CMV are discussed. A particular emphasis has been given on the substances and genes implicated in the plant defense pathways, such as reactive oxygen species (ROS), genes encoding antioxidant enzymes (Cu/Zn-SOD, Mn-SOD, CAT1, CAT2 and APX), and phytohormones responsible for mediating defense responses (salicylic and jasmonic acids). Interestingly, histochemical and morphological analysis revealed an increase in $O_2^{\bullet-}$ and H_2O_2 levels in all the leaf of the plants infected by CMV, indicating the involvement of ROS in plant defense responses. Gene expression analysis (q-PCR) pointed out a clear increase of the oxidative stress in all the plants treated with T22 after the inoculation with CMV. Finally, gene expression analysis of the Coi-1 gene seems to show the activation of a defense response similar to the systemic acquired resistance. The analysis of the results obtained suggests the possible use of T22 as a treatment rather than as a preventive measure.