

VISCEA

Vienna International Science
Conferences and Events Association

International Conference

**Plant Abiotic Stress
Tolerance V**

Programme and Abstracts

Vienna, Austria

July 5-6, 2018

Poster №11: Phenolic Profile of Two Crop Species Treated with Polysaccharide Coated CeO₂ Nanoparticles

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Cerium oxide nanoparticles (nCeO₂) are interesting due to redox property - transition between Ce³⁺ and Ce⁴⁺ ions. Increased usage of nCeO₂ may raise its content in the environment, i.e. accumulation in water, air and soil. In many studies nCeO₂ was coated with different polymers, but data on the effects of coated nCeO₂ on crop species are scarce.

In this study, wheat and pea seeds were exposed to 5 day treatment with 200 mg/L uncoated and glucose, levan- and pullulan-coated nCeO₂ during germination. After three weeks of seedlings growth in hydroponics, phenolic profile in shoots was examined.

HPLC profiles showed unchanged qualitative composition (type and number of phenolics) in both tested plants. Among 5 identified phenolics, changes in peak areas were observed only in the most dominant phenolic-vicenin 1 in wheat, and in 3 phenolic compounds in pea. Results indicate minor changes of plants' phenolic metabolism.

Poster №12: Silicon Effect on Iron Deficiency in Rice Plants

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Iron is abundant over the Earth surface, but its deficiency is a common issue in alkaline soils conditions where iron is held in its insoluble state and it is unavailable for most crop plants, causing severe yield losses. Previous studies have demonstrated a beneficial effect of silicon on plants alleviating multiple environmental stresses, with a role at the level of the antioxidant system (Song et al. 2011). In cucumber plants grown under micronutrient (Fe, Mn and Cu) deficiency silicon has been proved to delay the onset of chlorosis symptoms at acidic pH conditions (Bityutskii et al. 2014). In rice, a Si-accumulating species, silicon is especially important for a high production (Ma and Takahashi 2002). In this study, we assay the effect of silicon in rice plants suffering iron deficiency in hydroponics at alkaline pH conditions concluding that Si has an effect on apoplast Fe pools, dry weight and iron concentration, alleviating the iron deficiency symptoms.

Bityutskii et al 2014. *Plant Physiol. Biochem.* 74: 205-211

Ma and Takahashi 2002. Elsevier Science, Amsterdam

Song et al. 2011. *Plant Soil.* 344: 319-333

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Plant Abiotic Stress Tolerance V

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... Certificate of Attendance ...

THIS IS TO CERTIFY THAT

Ivana Milenkovic

has participated in the congress

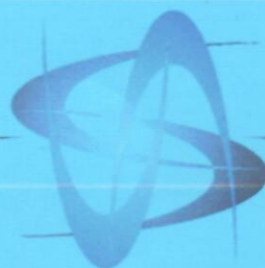
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Plant Abiotic Stress Tolerance V

with a presentation entitled

*Phenolic Profile of Two Crop Species Treated
with Polysaccharide Coated CeO₂ Nanoparticles*

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Dr. Alisher Touraev
Organizing Committee

