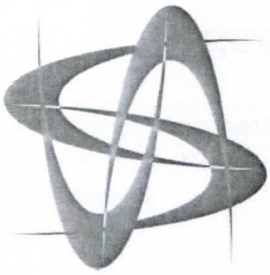

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Programme and Abstracts

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