Serbian Plant Physiology Society

Institute for Biological Research „Siniša Stanković", University of Belgrade

2nd International Conference on Plant Biology

21th Symposium of the Serbian Plant Physiology Society

COST ACTION FA1106 QUALITYFRUIT Workshop

Petnica Science Center, June 17-20, 2015

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PETNICA SCIENCE CENTER 17-20 JUNE, 2015

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SELECTED TALKS

Centaurium erythraea extract improves redox-status and antioxidant enzyme activity of STZ-treated pancreatic β-cells and diabetic rat liver and kidney

OP3-1

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Centaurium erythraea Rafn (CE) has long been used in traditional medicine in diabetes treatment. Since oxidative stress plays a major role in development of diabetes and its complications, the main goal of This study was to evaluate antioxidative properties of CE extract and its ameliorating effects in streptozotocin (STZ)-induced diabetes. CE extract displayed strong hydrogen peroxide- and nitric oxide-scavenging activities, as well as high reducing power *in vitro*. Treatment with CE extract improved redox-status of STZ-treated rat pancreatic beta cells (Rin5F) by reducing DNA damage, lipid peroxidation and protein oxidation. This was accompanied by repaired activity of antioxidative enzymes in STZ-treated Rin5F cells. CE-treatment lowered STZ-induced increase in glutathione peroxidase (GPx) and manganese superoxide dismutase (MnSOD) activities and partially restored decrease in catalase (CAT) activity. Improvement of redox-status was accompanied by the increase of Rin5F cell viability and insulin expression. Administration of CE extract (100 mg kg-1 orally, two weeks before and four weeks after diabetes induction) to STZ-induced diabetic rats exerted antioxidant effects in liver and kidney. CE-treatment reduced DNA, lipid and protein damage and restored activity of CAT, Mn/CuZnSOD and GPx that were disturbed in diabetic liver and kidney. This improvement is reflected by the preserved functional integrity of diabetic liver and kidney. CE-treatment reduced the level of blood urea nitrogen and activity of liver transaminases (ALT and AST). According to these results, CE extract has great potential in preventing diabetes and its complications, but additional experiments are needed in order to reveal underlying mechanisms.

Keywords: *Centaurium erythraea*, diabetes mellitus, oxidative stress, antioxidant activity

Effects of cucumber extracts on cytokine production in encephalitogenic cells

OP3-2

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Cucumber (*Cucumis sativus*) is a source of anti-inflammatory and anti-oxidative compounds that are of potential interest as immunomodulatory agents. Experimental autoimmune encephalomyelitis (EAE) is an an-