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SFRR - Europe 2011 Meeting

Poster Session-1

September 8 / Thursday

- [P1-001] Regulation of redox-dependent gene expression under development of drug resistance of cancer cells
Elena V Kalinina, Nikolya N Chemov, Temir T Berozov, Aleksandr A Shtil, Victoriya A Glasunova, Mariya D Novichkova, Nurmurad K Nurmuradov, Viktor A Sukhanov, Anatoly N Saprin
- [P1-002] Effects of 8-oxo-dGuo on S-nitrosation of cysteine and N-nitrosation of tryptophan
Toshinori Suzuki, Yoshiko Ninomiya, Michiyo Inukai
- [P1-003] Effects of Phytosterol Supplementation on Plasma and Tissue Melondialdehyde in Rats Exposed to Carbon Tetrachloride
Isa Naina Mohamed, Ahmad Nazrun Shuid, Nur Azlina M. Fahmi, Norazlina Mohamed, Kamisah Yusof, Qodriyah Mohd. Saad, Azma Azlimaton Yahya, Alini Marzuki
- [P1-004] Effect of consumption of repeatedly heated palm and soy oils on blood pressure and aortic morphometric alterations in rats
Kamsiah Jaarin, Chun Yi Ng, Leong Xin Fang, Kamisah Yusof
- [P1-005] Total antioxidants in traditional preparation of some wild Macedonian fruits
Tatjana Ruskovska, Darinka Gjorgieva, Marija Crcoroska, Valentina Kukovska
- [P1-006] Heavy metals induced DNA damage and total antioxidant status in *Urtica dioica* (Urticaceae)
Darinka Gjorgieva, Tatjana Kadifkova-Panovska, Tatjana Ruskovska
- [P1-007] Protective effects of walnut extract against amyloid beta peptide-induced cell death and oxidative stress in PC12 cells
Abha Chauhan, Balu Muthaiyah, Musthafa M Essa, Ved Chauhan
- [P1-008] Pro-antioxidant (im)balance in pediatric patients after renal transplantation
Barbara Finckh, Ingrid Wiswedel, Nara Melikyan, Nikki Rink, Markus Kemper
- [P1-009] Oxidative stress up-regulates gelsolin expression by activating protein kinase C: Anti-amyloidogenic and anti-oxidant role of gelsolin in Alzheimer's disease
Ved Chauhan, Lina Ji, Abha Chauhan
- [P1-010] Validation of reference genes for real time- qPCR analysis in cadmium intoxicated proximal tubular cells
Ambily Ravindran Nair, Karen Smeets, Els Keunen, Wing Kee Lee, Frank Thévenod, Emmy Van Kerkhove, Ann Cuypers
- [P1-011] The effect of modification of ROS generation during myogenesis
Aphrodite Vasilaki, Anne McArdle, Malcolm J Jackson
- [P1-012] Curcumin ameliorates oxidative stress and aortic stiffness in nitric oxide-deficient hypertensive rats
Upa Kukongviriyapan, Orachorn Boonla, Poungrat Pakdechote, Parichat Prachaney, Veerapol Kukongviriyapan, Bunkerd Kongyingyoes, Saowanee Nakmareong, Chada Phisalaphong
- [P1-013] Lipofuscin and Aging: Iron-mediated Cytotoxicity and the Mechanism of Proteasomal Inhibition
Annika Höhn, Tobias Jung, Stefanie Grimm, Tilman Grune



[P1-005]

Total antioxidants in traditional preparation of some wild Macedonian fruits

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Fruits are a significant source of natural antioxidants with major health benefits. The aim of our study was to determine the content of total antioxidants in kompots (different from "compote") prepared from wild fruits: *Rubus fruticosus* (blackberry), *Vaccinium myrtillus* (bilberry), *Cornus mas* (European cornel) and *Prunus spinosa* (blackthorn; sloe) that grow in the ecologically clean environment of Malesevo Mountains in the eastern part of Republic of Macedonia and that are widely used by the local population. Their values of total antioxidants were compared with those obtained for red wine and green tea, which are known as products with very high content of total antioxidants. The kompots were prepared from 100g of fruits and 200mL of water and were kept at room temperature in the dark for 2 months. The content of total antioxidants was measured in the liquid part of the preparation by the FRAP method. Green tea was prepared as an infusion of 0,5g dry herb with 50mL boiled water for 10 minutes. The content of total antioxidants was expressed as mmol/L FeSO₄. The total antioxidants levels for red wine and green tea were 32,6 and 28,4mmol/L FeSO₄ respectively. From analyzed fruit kompots the lowest level of total antioxidants had *Vaccinium myrtillus* (15,4mmol/L FeSO₄), while *Rubus fruticosus* (25,3mmol/L FeSO₄) and *Cornus mas* (27,3mmol/L FeSO₄) had values close to that of green tea. The highest content of total antioxidants was measured for *Prunus spinosa*: 43,0mmol/L FeSO₄, which was 32% more than red wine and 51% more than green tea. There is a very high content of total antioxidants in the studied traditional preparation of analyzed wild fruits, that could, at least in part, contribute in its overall positive effect on human health. Further research about individual antioxidants present in the tested samples, their bioavailability and metabolism is needed.

[P1-006]

Heavy metals induced DNA damage and total antioxidant status in *Urtica dioica* (Urticaceae)

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Heavy metals exposure in all living organisms often results in the production of reactive oxygen species (ROS), which are more reactive compared to the molecular oxygen and thus potentially harmful. Heavy metals also induce several cellular stress responses and damage to different cellular components such as membranes, proteins and DNA. The objective of the present study was to investigate whether the exposure of a selected plant, *Urtica dioica* (Urticaceae) to heavy metals can induce direct DNA damage and significant changes in endogenous total antioxidants level of the plant. Samples from *Urtica dioica* were collected from two different areas, (1) region with high industrial activity (city of Veles, around the lead-zinc plant) and (2) ecologically clean area, mountain Plačkovica. Leaves and stems from the plants were analyzed for total antioxidants levels by ferric reducing/antioxidant power (FRAP) assay. A DNA based technique, Random Amplified Polymorphic DNA (RAPD) was used to evaluate the variation of the DNA sequence by comparing DNA fingerprints from exposed and unexposed samples to heavy metals. DNA damage induced by heavy metals was observed in obtained RAPD profiles as disappearance and/or appearance of bands compared with plants from unpolluted area. Metals also induced oxidative stress in *Urtica dioica* plants, as evidenced from the decreased values of total antioxidants (expressed in $\mu\text{mol FeSO}_4 \text{ L}^{-1}$) in samples collected from Veles area: *U. dioica* leaves - 1847; *U. dioica* stems - 639, compared to samples collected from Plačkovica mountain: *U. dioica* leaves - 4849 and *U. dioica* stems - 961. In summary, this study has shown that heavy metals can induce oxidative stress and DNA damage in *Urtica dioica*. Oxidative stress characterized by increased production of ROS could be an important mechanism of heavy metal toxicity.