

Chabrović

# ABSTRACT BOOK

## “RISK FACTORS AND HEALTH: FROM MOLECULE TO THE SCIENTIFIC BASIS OF PREVENTION”

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## EFFECTS OF ACUTE Cd-TREATMENT ON ANTIOXIDANT DEFENSE SYSTEM IN THE BLOOD OF RATS: PROTECTIVE ROLE OF VITAMIN E

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Cadmium (Cd) is an ubiquitous toxic metal that is involved in a variety of pathological conditions. The present study investigated the possible protective role of vitamin E (Vit E) in cadmium induced oxidative stress in the blood of rats. Male, *Wistar albino* rats 3 months old (weighing  $280 \pm 30$  g) were used in our experiments. Rats were injected with a single dose (1) of CdCl<sub>2</sub> (0,4 mg Cd/kg b.m., i.p., 24<sup>h</sup> before the sacrificing), (2) Vit E + Cd (20 UI Vit E/kg b.m., i.m., 48<sup>h</sup> +0,4 mg Cd/kg b.m., i.p., 24<sup>h</sup> before the sacrificing). The group of animals without treatment was control. The activities of enzymatic components of AOS: copper zinc containing superoxide-dismutase (CuZn SOD), catalase (CAT), glutathione-peroxidase (GSH-Px), glutathione-reductase (GR) and glutathione-S-transferase (GST) were analyzed in erythrocytes and concentrations of non-enzymatic components of AOS: reduced glutathione (GSH), ascorbic acid (AsA) and vitamin E (Vit E), as well as lipid peroxide (LP) concentration were determined in the blood of rats. Acute intoxication of rats with Cd were followed by significantly increased LP and increased activities of enzymatic, as well as concentrations of non-enzymatic components of AOS in blood. The pretreatment with vitamin E after acute intoxication of rats with Cd partially improved components of AOS. Our results indicate that liposoluble antioxidant (Vit E) resulted as suitable and potent antioxidant action, probably as consequence of quenching of reactive oxygen species, inhibition of lipid peroxidation and prevention of free-radical mediated injuries. The results of this study suggested that vitamin E functions as antioxygenic nutrients.