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ALTERATIONS OF ANTIOXIDANT ENZYME ACTIVITIES IN TISSUES OF RATS TREATED WITH COENZYME Q10

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The aim of our study was to investigate the effects of coenzyme Q10 (CoQ10) administration on the activities of superoxide dismutases: total (Tot SOD), copper zinc containing (CuZn SOD) and manganese containing (Mn SOD), catalase (CAT), glutathione peroxidase (GSH-Px), glutathione-S-transferase (GST) and glutathione reductase (GR) in liver, kidneys, heart and testes of male two months old Wistar albino rats. The animals were divided in two experimental groups: (1) control rats (C) and (2) rats treated with 20 mg/kg/dose of coenzyme Q10 by i.m. injections, every fifth day during 30 days (CoQ10).

An average intake of CoQ10 was 16 mg/kg/dose. All obtained results were compared in respect to the control animals.

The obtained data shows that Tot SOD activity was significantly increased in the heart of CoQ10 treated animals. At the same time, the activity of CuZn SOD was also increased in the heart, as well as in testes of CoQ10 treated rats. Mn SOD activity was markedly decreased in kidneys and testes, while in heart was significantly increased. The activity of CAT was significantly decreased in liver, kidneys and heart, whereas GSH-Px activity was decreased only in the kidneys of CoQ10 treated animals. At the same time, GSH-Px activity was markedly elevated in heart and testes. Finally, the activity of GR was significantly decreased in the heart of animals received CoQ10.

The obtained results show that CoQ10 in the dosage administered influenced antioxidant enzyme activities in examined tissues of rats. It is also shown that various tissues exhibit different response to CoQ10 depending of their metabolic activity.