

The effects of cadmium and coenzyme Q₁₀ on antioxidant defense enzyme activities in the blood of rats

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The purpose of our study was to investigate the effects of cadmium (Cd) and coenzyme Q₁₀ (CoQ₁₀) on the activities of copper, zinc-containing superoxide dismutase (CuZn SOD), catalase (CAT) and glutathione peroxidase (GSH-Px) in red blood cells (RBC) as well as glutathione-S-transferase (GST) in the plasma of male two months old *Wistar albin* rats. The animals were divided in five experimental groups as follows: (1) control (C), (2) Cd (17 mg/day/kg body mass + 100 µl olive oil, every fifth day), (3) CoQ₁₀ (16/mg/kg body mass, dissolved in olive oil, every fifth day), (4) Cd+CoQ₁₀ (in the above mentioned amounts) and (5) olive oil (o. oil, 100 µl i.m., every fifth day) and treated in the course of 30 days. After the treatment, the animals were sacrificed and blood samples were prepared for the analysis. Our results show that Cd administered with olive oil did not exhibit toxic effects on CuZn SOD, CAT and GSH-Px activities in RBC as well as GST activity in the plasma of rats. At the same time, CoQ₁₀ by quenching the free oxygen radicals and by inhibiting lipid peroxidation may improve the antioxidant defense enzyme activities in the blood of rats. Our investigations also show that olive oil exhibit some protective effects on CuZn SOD, CAT and GSH-Px activities in RBC and GST activity in the plasma of rats treated with Cd.