WORKSHOP
ON
BIOLOGICAL ACTIVITY
OF
METALS AND METAL COMPOUNDS

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ANTIOXIDANT STATUS IN HELMINTHOSES AFTER TREATMENT WITH NEW METAL COMPOUNDS

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The parasitic diseases are widespread and cause large economic damages in the domestic animals and plants. Mineral substances play an important role in the metabolic disturbances of parasitoses.

The aim of our study was to investigate the effect of newly synthesized compounds of Zn, Mn, Co and Cu on the antioxidant (vitamin C and E, Zn, Co, Mn Cu, SOD and CAT) and physiological (mortality and body weight gain) status in the infected with helminths host. Investigated experimental host-parasite systems were chickens infected with Ascaridia galli (Nematoda) and rats infected with Fasciola hepatica (Trematoda). Newly synthesized compounds were: (Zn₈Cu₂)(OH)₃Cl; (Zn₉Mn₁₋ₓ)₄(OH)₆SO₄.2H₂O; (Zn₉Co₉Cu₁₋ₓ)₄(OH)₆SO₄.2H₂O and (Zn₉Co₉Mn₁₋ₓ)₄(OH)₆.2H₂O. The levels of the both vitamins, trace elements and SOD activity were reduced in the livers in the infected hosts. Developed antioxidant imbalance in the host was depend on the parasite and host species, parasite localization and toxicity. The application of (Zn₈Cu₂)(OH)₃Cl and (Zn₉Co₉Mn₁₋ₓ)₄(OH)₆.2H₂O influenced positively the antioxidant imbalance and restored body weight losses and reduced mortality. The rest salts did not show any effect on the infected host. Newly synthesized salts could be used for a control of helminthoses by improvement of the antioxidant defense system of the host.