

HEPATOPROTECTIVE AND AMELIORATIVE EFFECTS OF SELECTED ANTIOXIDANTS ON ALUMINIUM INDUCED TOXICITY ON WISTAR RATS

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ABSTRACT

Hepatoprotective and ameliorative effects of selected antioxidants (Zinc, Selenium, Ginseng, Vitamin A, Vitamin C, and Vitamin E) on aluminium induced toxicity on Wistar Rats was investigated. Forty-eight male Wistar rats were divided into eight groups of six male wistar rats each according to their body weight. Group 1 is the control group. Group 2 received only 200 mg/kg body weight of Aluminium, Group 3 received 14.8mg/kg body weight of zinc + 200 mg/kg body weight of Al (Al+Zn), Group 4 received 100 mg/kg body weight of Selenium + 200mg/kg body weight of Al (Al+Se), Group 5 received 10 mg/kg body weight of Ginseng + 200 mg/kg body weight of Al (Al+Ge), Group 6 received 100 mg/kg body weight of vitamin A + 200 mg/kg body weight of Al (Al+Vit.A), Group 7 received 100mg/kg body weight of vitamin C + 200mg/kg body weight of Al (Al+Vit.C), Group 8 received 100mg/kg body weight of vitamin E + 200mg/kg body weight of Al (Al+Vit.E). All the groups were fed with normal rat chow and water. Administration of aluminium and antioxidants were for six weeks. Liver enzymes - alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), as well as enzymes and markers of oxidative stress; reduced glutathione (GSH), superoxide dismutase (SOD), catalase (CAT) and malondialdehyde (MDA) were measured. Liver tissues were also collected for histopathological examination. The results showed that the oral administration of 200 mg/kg body weight of Al caused significant ($p < 0.05$) increase in the serum levels of the ALT, AST, ALP. Moreover, Al induced oxidative stress as indicated by a significant increase ($p < 0.005$) in the level of MDA with a concomitant decrease in the GSH as well as in the activity of SOD and CAT. Histological examination for liver sections revealed distorted liver architecture, vacuolization of cytoplasm. Administration of antioxidants to Al induced male Wistar rats ameliorated its toxic effect.

Keywords: Aluminium, antioxidants, ameliorate, liver, vitamins, hepatoprotective.