

Antioxidant Effects of Green-Tea on biochemical and Histopathological Changes of liver in Male Rats Poisoned by Malathion Insecticide

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ABSTRACT

Malathion is an organophosphate pesticide which is widely used in agriculture, veterinary and industries. Oxidative stress has been identified as one of Malathion's main molecular mechanisms of action in plasma, liver, pancreas, muscles and the brain. Green tea (*Camellia sinensis*), which is the most common drink across the world after water, has many antioxidant properties. The purpose of this research is to investigate the effects of Malathion on the liver and the preventive effects of green tea on Malathion-induced poisoning. Seventy-two Wistar male rats were randomly divided into the control, the sham, and the experimental groups (receiving respectively 40 mg/kg of Malathion; 100, 200, and 400 mg/kg of green tea; and 100, 200, and 400 mg/kg of Malathion and green tea respectively). All injections were performed intraperitoneally for 14 consecutive days. On the 15th day, blood samples were taken from the hearts of the rats to measure serum level of hepatic enzymes, and their liver tissues were removed to be studied. To do the statistical analysis One-way ANOVA test and Duncan's test at the 5% significance level were used. aspartate transaminase (AST), alanine transaminase (ALT), alkaline phosphatase (ALP), Malondialdehyde (MDA) and Total Oxidation Capacity (TOC) concentrations in the treatment groups with Malathion and green tea extract at 100, 200, and 400 mg/kg doses showed a significant decline compared to the Malathion group ($p < 0.05$), while Total Antioxidant Capacity (TAC) level showed a significant increase with various doses of green tea and Malathion compared to the Malathion group ($p < 0.05$). Green tea, probably due to its strong antioxidant properties, could improve the destructive effects of Malathion on the rat liver.