

Glutathione, Antioxidant Enzymes and Oxidative Stress in Acute and Subacute Exposure of Diazinon-Mediated Renal Oxidative Injury in Rats

ABSTRACT

This study aimed at investigating the possible nephrotoxic effects of the diazinon induced oxidative stress in rats following the acute and subacute administration. Oxidative stress markers in renal tissues, as well as serum biochemical parameters, were evaluated using colorimetric spectrophotometric techniques. Our data showed that diazinon administration to rats induced oxidative stress in kidney, as evidenced by increasing of renal lipid peroxidation level which was accompanied by decreased activities of antioxidant enzymes and depletion in the level of GSH ($p < 0.05$) compared to saline-treated control. The activities of renal γ -glutamyl transpeptidase and quinone reductase were increased ($p < 0.05$) compared to saline-treated control. In addition, diazinon treatment augments renal injuries as evident by the increase in serum creatinine and blood urea nitrogen ($p < 0.05$). Histopathological analysis of renal tissues was in concurrence with the biochemical studies. Overall results suggest that oxidative stress-induced lipid peroxidation and alteration in activities of glutathione and antioxidant enzymes play roles in diazinon-mediated renal injury and toxicity in rats.