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Khat (*Catha edulis*) Extract Increases Oxidative Stress Parameters and Impairs Renal and Hepatic Functions in Rats

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Background: The habit of khat chewing represents a major socio-economic problem in many countries but research into its hepato-renal toxic effects has produced contradictory results.

Objective: To evaluate the subacute effects of Khat (*Catha edulis*) extract on hepatic and renal functions in white albino rats.

Design: Randomized experimental animal study.

Setting: Physiology laboratory, medical school of King Khalid University.

Method: Twenty white albino rats aged between 14 and 16 weeks were included in the study. The rats were assigned randomly into two groups, ten each. Treated rats received orally administered hydro-ethanol extract of *Catha edulis* for four weeks. Control rats received corresponding amounts of normal saline.

Result: There was statistically significant increase in the activities of hepatic enzymes in treated rats compared to the control group. In addition, serum urea, bilirubin and phosphorous concentrations were significantly increased compared to a decreased serum total protein and albumin concentrations. Oral administration of the extract induced lipid peroxidation and oxidative stress in hepatic and renal tissues as shown by significant increases in lipid peroxidation biomarkers thiobarbituric acid reactive substances (TBARS) and significant decreases in levels of superoxide dismutase (SOD), catalase (CAT) and glutathione (GSH). Histological examination of *Catha edulis* treated rats revealed marked hepato-renal pathological changes compared to the control group.

Conclusion: These results indicate that orally administered *Catha edulis* extract exerts severe hepato-nephro toxicity and the mechanism of this damage may be related to oxidation, increased lipid peroxidation, and generation of free radicals inside these tissues.

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