

# Protective effect of curcumin on chromium-induced hepato and renal toxicity in mice

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The soluble hexavalent chromium Cr (VI) is an environmental contaminant widely recognized to act as a carcinogen, mutagen and teratogen towards humans and animals. The fate of chromium in the environment is dependent on its oxidation state. Hexavalent chromium primarily enters the cells and undergoes metabolic reduction to trivalent chromium, resulting in the formation of reactive oxygen species together with oxidative tissue damage and a cascade of cellular events. The present study was undertaken to explore the chemopreventive effect of curcumin on potassium dichromate ( $K_2Cr_2O_7$ )-induced hepato and renal toxicity in mice.  $K_2Cr_2O_7$  (7.5 mg/ kg body weight, intraperitoneally) enhanced lipid peroxidation, and hydrogen peroxide ( $H_2O_2$ ) generation.

$K_2Cr_2O_7$  treatment also increased the level of antioxidant enzymes viz., super oxide dismutase (SOD) and catalase (CAT). A sharp elevation in the levels of serum aspartate aminotransferase (AST) and alanine aminotransferase (ALT) have also been observed. Treatment of mice orally with curcumin (100 and 30 mg / kg body weight) resulted in a significant decrease in lipid peroxidation ( $P<0.001$ ) and  $H_2O_2$  generation ( $P<0.001$ ) in both liver and kidney tissues. Curcumin also restored the level of cellular antioxidant enzymes viz. SOD ( $P<0.001$ ), CAT ( $P<0.01$ ) and serum ALT ( $P<0.001$ ), AST ( $P<0.05$ ) significantly. Our result suggests that curcumin protects against chromium induced hepato and renal toxicity by virtue of its antioxidant activities.