

ملخص البحث رقم (3)

Title: Amelioration of nitrate induced hepatotoxicity by *Allium sativum* in mice.

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The liver plays a vital role in transforming and clearing chemicals and is susceptible to the toxicity from such agents. The aim of the present study was investigation of the hepatoprotective effect of garlic on Nitrate-induced oxidative damage of liver in mice. Mice were divided into six groups. Control group 1 received tap water. Group 2 received garlic solution at dose 200 mg kg⁻¹ b.wt. Group 3 and group 4 received sodium nitrate at doses 500 and 900 ppm kg⁻¹ b.wt. in drinking water freshly prepared daily. Group 5 and group 6 received sodium nitrate at doses 500 and 900 ppm kg⁻¹ b.wt. and treated with garlic 200 mg kg⁻¹ b.wt. The animals were sacrificed by cervical dislocation on the end of the experiment. Nitrate caused a marked ($p < 0.001$) increase in the levels of lipid peroxidation and superoxide dismutase in the liver. We also observed an increase in the hepatic Activity of Alanine Transaminase (ALT), Aspartate Transaminase (AST). Garlic significantly attenuated these adverse effects of nitrate and proffered a dose-dependent hepatoprotection. The present study showed that nitrate-induced oxidative damage in mice liver was amenable to attenuation by moderate dose of garlic extracts possibly via reduced lipid peroxidation and enhanced antioxidant defense system that was insufficient to prevent and protect Nitrate-induced hepatotoxicity. The 200 mg garlic dose was more effective in treatment of hepatotoxicity-induced by sodium nitrate and decrease the Bax expression. In conclusion, garlic can be given as a dietary supplement to human population exposed to environmental toxicants and can provide protection against toxic effects without being appreciably harmful itself.

Key words: Nitrate, garlic, Bax, hepatotoxicity, superoxide dismutase, liver enzymes