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### Protective effects of *Dunaliella salina* – A carotenoids-rich alga, against carbon tetrachloride-induced hepatotoxicity in mice

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#### ABSTRACT

The protective effects of *Dunaliella salina* (*D. salina*) on liver damage were evaluated by carbon tetrachloride (CCl<sub>4</sub>)-induced hepatotoxicity in mice. Male ICR mice were orally treated with *D. salina* or silymarin daily with administration of CCl<sub>4</sub> twice a week for 8 weeks. CCl<sub>4</sub> induced liver damage and significantly ( $p < 0.05$ ) increased the activities of alanine aminotransferase (ALT), aspartate aminotransferase (AST), and alkaline phosphatase (ALP) in serum and decreased the activities of superoxide dismutase (SOD), catalase, glutathione peroxidase (GSH-Px), and GSH content in liver whereas increased hepatic malondialdehyde (MDA) content as compared with control group. Treatment with *D. salina* or silymarin could significantly ( $p < 0.05$ ) decrease the ALT, AST, and ALP levels in serum and increase the activities of SOD, catalase, GSH-Px, glutathione reductase, and GSH content and decrease the MDA content in liver when compared with CCl<sub>4</sub>-treated group. Liver histopathology also showed that *D. salina* reduced the incidence of liver lesions induced by CCl<sub>4</sub>. The results suggest that *D. salina* exhibits potent hepatoprotective effects on CCl<sub>4</sub>-induced liver damages in mice, and that the hepatoprotective effects of *D. salina* may be due to both the increase of antioxidant enzymes activities and inhibition of lipid peroxidation.

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