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Chlorella vulgaris extract ameliorates carbon tetrachloride-induced acute hepatic injury in mice

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Abstract

The possible protective effects of *Chlorella vulgaris* extract (CVE) on carbon tetrachloride (CCl₄)-induced acute hepatic injury in mice and the mechanism underlying these effects was investigated. CCl₄ administration caused a marked increase in the levels of serum aminotransferases, lipid peroxidation and cytochrome P450-2E1 (CYP450) expression. Also, decreased glutathione (GSH) content and activities of cellular antioxidant defense enzymes such as superoxide dismutase (SOD), glutathione peroxidase (GSH-Px), catalase and glutathione-S-transferase (GST) were found after CCl₄ exposure. All of these phenotypes were markedly reversed by preadministration of the mice with CVE. In addition, CVE exhibited antioxidant effects on FeCl₂-ascorbate induced lipid peroxidation in mouse liver homogenates, and on superoxide radical scavenging activity. Taken together, these results suggest that CVE produced a

protective action on CCl₄-induced acute hepatic injury in mice, presumably through blocking CYP-mediated CCl₄ bioactivation, inducing the GSH levels, antioxidant enzyme activities and free radical scavenging effect. Therefore, CVE may be an effective hepatoprotective agent and viable candidate for treating hepatic disorders and other oxidative stress-related diseases.



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Keywords

Chlorella vulgaris extract; Carbon tetrachloride; CYP2E1; Detoxification; Antioxidant

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