

Suppression of Oxidative Stress and Proinflammatory Cytokines Is a Potential Therapeutic Action of *Ficus lepicarpa* B. (Moraceae) against Carbon Tetrachloride (CCl₄)-Induced Hepatotoxicity in Rats

ABSTRACT

Local tribes use the leaves of *Ficus lepicarpa* B. (Moraceae), a traditional Malaysian medicine, as a vegetable dish, a tonic, and to treat ailments including fever, jaundice and ringworm. The purpose of this study was to look into the possible therapeutic effects of *F. lepicarpa* leaf extract against carbon tetrachloride (CCl₄)-induced liver damage in rats. The DPPH test was used to measure the antioxidant activity of plants. Gas chromatography-mass spectrometry was used for the phytochemical analysis (GCMS). Six groups of male Sprague-Dawley rats were subjected to the following treatment regimens: control group, CCl₄ alone, *F. lepicarpa* 400 mg/kg alone, CCl₄ + *F. lepicarpa* 100 mg/kg, CCl₄ + *F. lepicarpa* 200 mg/kg and CCl₄ + *F. lepicarpa* 400 mg/kg. The rats were euthanized after two weeks, and biomarkers of liver function and antioxidant enzyme status were assessed. To assess the extent of liver damage and fibrosis, histopathological and immunohistochemical examinations of liver tissue were undertaken. The total phenolic content and the total flavonoid content in methanol extract of *F. lepicarpa* leaves were 58.86 ± 0.04 mg GAE/g and 44.31 ± 0.10 mg CAE/g, respectively. *F. lepicarpa*'s inhibitory concentration (IC₅₀) for free radical scavenging activity was reported to be 3.73 mg/mL. In a dose-related manner, *F. lepicarpa* was effective in preventing an increase in serum ALT, serum AST and liver MDA. Histopathological alterations revealed that *F. lepicarpa* protects against the oxidative stress caused by CCl₄. The immunohistochemistry results showed that proinflammatory cytokines (tumour necrosis factor- α , interleukin-6, prostaglandin E₂) were suppressed. The antioxidative, anti-inflammatory, and free-radical scavenging activities of *F. lepicarpa* can be related to its hepatoprotective benefits.