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Effects of *Froriepia subpinnata* extract on serum biochemicals and histopathological changes of liver in rats treated with trichloroacetic acid

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Abstract

Hepatocellular carcinoma is one of the challenges in health system in occurrence of which oxidative stress plays an important role. Considering *Froriepia subpinnata* (Anarijeh=FS) antioxidant effects, this study aimed to investigate its effect on preventing the occurrence of liver toxicity induced by Trichloroacetic acid (TCA) in animal model. FS hydroalcoholic extract was prepared from the aerial parts by maceration method. Forty-eight rats were divided into 8 groups as: control animals, treated with TCA (500 mg/kg) TCA+FS treated groups (100, 200, 400 mg/ kg), FS treated group 400 mg/kg, and doxorubicin (DOX) treated group (at 2.5 mg/ kg) and TCA + DOX treated group. After 28 days, blood was collected and serum was isolated. then Malondialdehyde (MDA), Glutathione peroxidase (GPx), Total Antioxidant Capacity (TAC), alanine aminotransferase (ALT), aspartate aminotransferase (AST), Alkaline phosphatase (ALP), tumor necrosis factor-alpha (TNF-alpha) were measured followed by liver tissue examination of histopathologically by light microscope. TCA significantly increased the amount of MDA and FS, at different concentrations, (100, 200, and 400mg/kg) decreased it compared to other groups ($P \leq 0.05$). The amount of TNFα was decreased by TCA but DOX increased considerably and FS treatment did not change the effect of TCA on TNFα level. Serum level of GPX, TAC, ALT, AST and ALP did not change by either TCA or FS treatment. TCA damaged liver tissue and caused hepatocyte degeneration, sinusoidal stenosis and vacuolization of cytoplasm. FS protected liver tissue in a dose dependent manner and at the dose of 400 mg/kg had better effect on reducing tissue damages. FS has a protective effect against histopathological changes induced by TCA in rat's liver tissue.

Key words: *Froriepia subpinnata*, Trichloroacetic acid, Oxidative stress, Hepatotoxicity

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