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Phytochemical Screening and Assessment of Hepatoprotective Activity of Geigeria alata Leaves Ethanolic Extract on Wistar Rats

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Abstract : Geigeria alata belongs to the family Asteraceae, is an effective plant traditionally used in Sudan as a therapy for hepatic disease and as an antiepileptic, antispasmodic and to treat cough and intestinal complaints.The liver is responsible for many critical functions within the body and any liver disease or injury will result in the loss of those functions leading to significant damage in the body. Liver diseases cause increase in liver enzymes (AST, ALP ALT) and total bilirubin and a decrease in total blood protein level. The objective of this study is to investigate the hepato-protective activity of Geigeria alata leaves ethanolic extract. The plant leaves were extracted using 96% ethanol using Soxhlet apparatus. The hepatoprotective effect was determined using 25 wistar rats, the rats was divided to 5 groups, each group contain 5 rats: [Normal control group] receiving purified water, liver damage was induced in wistar rats by administering a 1:1 (v/v) mixture of CCl4 (1.25 ml/kg) and olive oil once at day four of the experiment [negative control group]. Two doses of extract [400mg/kg and 200mg/kg] was applied daily for 7 days, and standard drug Silymarin (200 mg/kg) were administered daily for 7 days to CCl4-treated rats. The degree of hepato-protective activity was evaluated by determining the hepatic marker enzymes AST, ALP, ALT, total Bilirubin and total proteins (TP). Results have shown that, the extract of G.alata leaves reduced the level of liver enzymes ALT, AST, ALP, total bilirubin and increased the level of total proteins. Since the levels of liver enzymes; bilirubin and total protein are considered as markers of liver function, the extract has proven to reduce the detrimental effects of liver toxicity induced using CCl4. The hepato-protective effect of extract on liver was found to be dose dependent, where the 400mg/kg dose of the extract exhibited higher activity than 200mg/kg dose. In addition, the effect of the higher dose (400mg/kg) of the extract was found to be higher than Silymarin standard drug. The result concludes that, G.alata leaves extract was found to exhibit profound hepato-protective activity, which justifies the traditional use of the plant for the treatment of hepatic diseases.

Keywords : alata, extract, geigeria, hepatoprotective
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