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Investigation of the saponifiable and unsaponifiable matter compositions by GC/MS and the antioxidanthepatoprotective activities of aerial parts of *Forsskaolea tenacissima* Linn

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Investigation of the saponifiable matters of *Forsskaolea tenacissima* L. aerial parts by GC/MS revealed the presence of 38 fatty acids classified as saturated fatty acids (40.02%), unsaturated fatty acids (53.23%), hydroxylated fatty acids (6.42%) and miscellaneous fatty acids (0.33%). While, the unsaponifiable matter, composed of 70 compounds were classified as volatile oils (10.48%), sterols (34.11%), terpens (22.60%), megastigmans (2.59%), hydrocarbons (15.31%), sulphur containing compounds (2.20%), nitrogen containing compounds (3.25%) and miscellaneous compounds (8.90%). The antioxidant activity of total methanolic extract and different fractions of Forsskaolea tenacissima L. aerial parts at concentrations (1- 0.0625 mg/ml) by DPPH method showed that the methanol fraction and total methanolic extract have the highest antioxidant activity followed by ethyl acetate, dichloromethane and n-hexane fractions respectively. The total methanolic extract exhibited hepatoprotective activity nearly the same as silymarin against carbon tetrachloride (CCl₄) induced hepatic injury in albino rats followed by methanol fraction and finally n-hexane fraction. The protective effect of the plant extract and fractions was substantiated from significant decrease in ALT and AST enzymes, total bilirubin, MDA and nitric oxide and increase in GSH enzyme as compared to CCl₄ treated group. Histological investigation of the liver showed marked hepatoprotective effect of the total methanolic extract by absence of lesions, and necrosis, with minimal oedema in the portal area when compared to CCl4 treated group.

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