ANTIOXIDANT AND HEPATOPROTECTIVE POTENTIALS OF ETHYLACETATE AND METHANOL FRACTIONS OF Lannea barteri Oliv. (Anarcadiaceae) LEAF EXTRACT

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Introduction: Lannea barteri is a dioecious plant which is widespread in North and West Africa. It is used in folkloric treatment of many disease states ranging from epilepsy, diarrhea, oedema and ulcers etc.

Aim: This study investigated the antioxidant and hepatoprotective effects of ethylacetate and methanol fractions of Lannea barteri leaf extract.

Methods: In vitro models (alpha, alpha - diphenyl - beta - picrylhydrazyl (DPPH), reducing power and thiobarbituric acid assay (TBA) were used at 25, 50, 100, 200 and 400 microgram/ml concentrations of fractions of ethylacetate (EF) and methanol (MF) against ascorbic acid (ASC) (standard) at wavelengths of 517, 700 and 552 nm respectively and percentage inhibitions calculated thereafter. In the in vivo model, the ability of doses (200 & 400 mg/kg) of EA and MF to protect the liver against carbon tetrachloride (CCl4) (1 ml/kg/d in liquid paraffin, i.p for seven days) oxidative damage was tested in albino rats following oral administration with silymarin (25 mg/kg) as positive and 7% tween 80 as negative controls. Aspartate transaminase (AST), alanine transaminase (ALT), alkaline phosphatase (ALP), malondialdehyde (MDA), total serum protein, direct and total bilirubin were assayed alongside histopathological examination of the liver.

Results: In the in vitro assay, the highest respective percentage inhibitions by ascorbic acid and the fractions are: 91.2% (ASC, 200 & 181;g/ml), 36.56% (EF) and 52.8% (MF) both at 400 microgram/ml for DPPH assay; 47.77% (ASC), -0.93% (EF), 22.5% (MF) at 400 microgram/ml for FRAP assay and 117% (ASC), 140.95% (EF) both at 400 microgram/ml and 73.6% (MF, 25 microgram/ml) for TBA assay. The results of the in vivo study showed significant (P<0.0001) reduction in serum AST, ALT, and direct bilirubin and just a reduction in ALP, total bilirubin, and MDA with mild elevation in total protein. Histopathological studies revealed restorative effect on the liver architecture especially with MF. The result of phytochemical analysis revealed the presence of flavonoids, resins and terpenoids in EF with carbohydrate, alkaloids, reducing sugar, saponins, tannins and proteins additional in MF.

Conclusion: Further studies are needed to isolate and characterize the compound responsible for the antioxidant and hepatoprotective activities of Lannea barteri.