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Evaluation of the Protective Effect of Pterocarpus mildbraedii Extract on Propanil-Induced Hepatotoxicity

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Abstract : The protective effect of dichloromethane: methanol extract of Pterocarpus mildbraedii (PME), a widely consumed Nigerian leafy vegetable, on the toxicity of propanil was investigated in male rats. Animals were distributed into eight groups of five each. Group 1 served as control and received normal saline while rats in groups 2, 3, and 4 received 100 mg/kg, 200 mg/kg, and 400 mg/kg extract doses respectively. Group 5 rats were orally administered 200 mg/kg propanil while groups 6, 7, and 8 rats were given propanil plus extract. Oral administration of propanil elicited a 14.8%, 5%, 122%, and 78% increase in the activity of serum enzymes; alanine aminotransferase (AST), alanine aminotransferase(ALT), Alkaline phoshatase (ALP) and Gamma glutamyl transferase (□GT). There were also increase in Lactate dehydrogenase (LDH) activity, direct bilirubin and lipid peroxidation levels. Furthermore, PME significantly attenuated the marked hepatic oxidative damage that accompanied propanil treatment. The extract significantly decreased LDH activity and bilirubin levels following propanil treatment. Furthermore, propanil-induced alterations in the activities of antioxidant enzymes: Superoxide dismutase (SOD), catalase (CAT) and glutathione s-transferase (GST) in these rats were modulated by the extract. The percentage DPPH Radical Scavenging Activity of the extract was determined as 55% and compared to those of Gallic acid (49%). Hepatic histology examination further confirmed the damage to the liver as it revealed severe periportal cellular infiltration of the hepatocytes. These biochemical and morphological alterations were attenuated in rats pre-treated with 100 mg/kg and 200 mg/kg doses of the extract. These results suggest that PME possesses protective effect against propanil-induced hepatotoxicity.

Keywords : antioxidant, hepatoprotection, Pterocarpus mildbraedii, propanil
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