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Effect of Methanol Root Extracts of Moringa Oleifera on Lipid Profile Parameters, Atherogenic Indices and HMG – CoA Reductase Activities of Poloxamer 407-Induced Hyperlipidemic Rats

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Abstract : Hyperlipidemia is characterised by elevated serum total cholesterol and low density and very low-density lipoprotein cholesterol and decreased high-density lipoprotein are the risk factor for coronary heart diseases. There are claims by traditional medicine practitioners in Nigeria that Moringa oleifera plants are used for the treatment of cardiovascular diseases, but it appears there is no scientific research and, publication or documented work to verify these claims. This study aimed to determine the effect of methanol root extracts of Moringa oleifera on Lipid profile, Atherogenic indices and 3 hydroxyl 3 methylglutaryl Coenzyme A reductase activity of poloxamer 407-induced hyperlipidemic rats. The animals were grouped into 8; Group 1: Normal control, Group 2: Hyperlipidemic control. Groups 2 to 8 were induced with Poloxamer 407 1000 mg/Kg body weight. However, group 3 were treated with standard drugs (atorvastatin). Group 4 was treated with crude extract, and groups 5 to 8 were treated with purified fractions from column chromatography. The preliminary antihyperlipidemic study showed Methanol root extract at 200 mg/kg body weight significantly ($p \leq 0.05$) decreased total cholesterol, low-density lipoprotein, triacylglyceride, 3 hydroxyls 3 methylglutaryl Coenzyme A reductase, and increase high-density lipoprotein of hyperlipidemic treated groups. Screening the extracts for the most potent anti-hyperlipidemic activity reveals that fraction 1 of Total Cholesterol and Fraction 3 of Triacylglyceride have the highest percentage reduction of 56% and 51%, respectively. The atherogenic risk factor of all induced treated rats shows a significant ($p<0.05$) decrease in levels of Castelli's risk index II, atherogenic index of plasma and a significant ($p<0.05$) higher level of Castelli's risk index I ratio. The study shows that the methanol extract of root possesses antihyperlipidemic effects and may explain why it has been found to be useful in the management of cardiovascular diseases by traditional medicine practitioners.

Keywords : hyperlipidemia, moringa oleifera, poloxamer 407, lipid profile
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