Biochemical evaluation of the effects of Nigerian polyherbal preparation on Wistar rabbits

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ABSTRACT

Background: Diabetes mellitus is a metabolic disorder with multiple etiologies. Its sufferers are generally at high risk of dyslipidemia characterized by hypercholesterolemia, hyper-triglyceridemia, hyperlipoproteinemia and low levels of high-density lipoprotein cholesterol. Globally, the estimated cost of diabetes care was $376 billion in 2010, representing 12% of health expenditures for that year.

Methods: The effects of the aqueous extracts of a little known Nigerian traditional polyherbal formula consisting of Emilia coccinea, Acanthus montanus, Hibiscus rosasinensis and Asystasia gangetica on serum glucose concentration, amylase activity and lipid profiles of normal, diabetic, and liver-damaged rabbits were studied using standard procedures. The mixture of the aqueous extracts of the four plants was orally administered in two doses – 120mg/kg body weight and 240mg/kg body weight for 28 days.

Results: The drug elicited dose- and duration-of-administration-dependent, significant (p<0.05) reductions in serum levels of glucose, total cholesterol, triacylglycerol and LDL-cholesterol; and significant (p<0.05) increases in the HDL-cholesterol concentrations with no changes in amylase activity.

Conclusion: These results confirm the hypoglycemic, antihyperlipidemic and hepatoprotective potentials of the crude drug and thus justify its application in ethnomedicine in the management of diabetes.

Key words: Emilia coccinea, Acanthus montanus, Hibiscus rosasinensis, Asystasia gangetica, antidiabetic, hepatoprotection.