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## Effect of antioxidant-rich nutraceutical on serum glucose, lipid profile and oxidative stress markers of salt-induced metabolic syndrome in rats

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Metabolic Syndrome (MS) a high risk condition involving obesity, dyslipidemia, hypertension and diabetes mellitus are prevalent in Nigeria. The study aims to formulate an antioxidant rich nutraceutical from locally available foodstuff (onion, garlic, ginger, tomato, lemon, palm oil, water melon seeds) and investigate their effects on blood pressure, body weight, serum glucose, lipid profile, insulin and oxidative stress markers in salt-induced rats. The rats were placed on 8% salt diet for 6 weeks and then supplementation and treatment with nutraceutical and nifedipine in the presence of salt diet for additional four weeks. Feeding rats with salt diet for six weeks increased blood pressure and body weight of the salt-loaded rats relative to control. Significant ( $P < 0.001$ ) increase in serum blood glucose and lipid profile and decrease in High Density Lipoprotein-Cholesterol (HDL-C) was observed in salt-loaded rats as compared with control. Both supplementation and treatment (nifedipine) lowered the blood pressure but only supplementation lowered the body weight. Supplementation with nutraceutical resulted in significant ( $P < 0.001$ ) decrease in the serum blood glucose, lipid profile, Malonyldialdehyde (MDA), insulin levels, insulin resistance and increased HDL-C and antioxidant indices. The percentage protection against atherogenesis was  $76.5 \pm 2.13\%$ . There is strong positive correlation between blood pressure, body weight and serum blood glucose, lipid profile, markers of oxidative stress and strong negative correlation with HDL-C and antioxidant status. The results suggest that the nutraceuticals are useful in reversing most of the component of metabolic syndrome and might be beneficial in the treatment of patients with metabolic syndrome.

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