

Effects of toss jute (*Corchorus olitorius*) and yellow tassel (*Emilia coccinea*) vegetables extracts on the lipid profile and blood glucose level of alloxan induced diabetic rats

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Abstract

The study examined the effects of the aqueous extracts two leafy vegetables (*Corchorus olitorius* and *Emilia coccinea*) on the lipid profile and blood glucose level of alloxan induced adult male diabetic rats. The study adopted the experimental design. The tender leaves of the two leafy vegetables were cultivated from farmlands in Mbamo ward, Katsina-Ala, Benue State. The leaves were sorted, rinsed with portable water, shade dried and pulverized. The experimental animals for this study were healthy adult male albino wistar rats weighing between 100-200g. The acute toxicity and mean lethal dose (LD50) of the aqueous extracts was determined using a total of 18 mice for the test. The experimental animals were fed water and rat chow ad libitum. The rats were randomly divided into 7 groups of five rats each made up of six (6) test groups and a control group. Rats in group 1 served as a control group of normal rats fed rat chow and distilled water only. Groups 2 - 3, 4-5 and 6-7 were diabetic groups fed rat chow and administered orally 100, 200 and 300 mg/kg body weight of the various vegetable extracts, respectively early in the morning for the 14 days feeding trial. The rats in each group were induced of diabetes using alloxan on the 6th day and the results collected from the samples served as the baseline data. The individual weights of the rats were taken at the beginning of the experiment and at the end of the experiment to determine the weight gain. The blood samples collected before the feeding trial and after the treatment were subjected to biochemical analysis. The data obtained from the biological studies were analysed using the Statistical Product and Service Solutions (SPSS) version 21.0 computer software package. The 100mg *E. coccinea* group had the highest (10.7%) increase in weight. The extracts were able to significantly ($p < 0.05$) lower the blood glucose relative to the control. The 300 mg *E. coccinea* extracts showed the highest (43.1%) decrease in total cholesterol. All the vegetable extracts at various levels of supplementation showed a reduction in triglycerides. The 200mg *C. olitorius* group showed the highest (40.2%) reduction in triglycerides level ($p < 0.05$). The 300mg *E. coccinea* group had the highest (13.6%) increase in HDL-c. Vegetable extracts supplementation in all groups showed a decrease in LDL-c levels ($p > 0.05$). The 200mg *C. olitorius* and 300mg *E. coccinea* had the highest (40.3%) decrease in VLDL-c. There was a decrease in the % difference of the ratio of LDL-c/HDL-c in all the groups except 200mg/kg *C. olitorius* (42.9%) that rather showed an increase. All the values in the TC/HDL ratio were not above 5. There was an observed % decrease in the total protein in all groups. The 200mg *C. olitorius* group showed the highest (35.7%) overall decrease in albumin levels ($p < 0.05$). There was an observed % decrease in the activities of AST, ALT and ALP for all the groups. This study has revealed that, these vegetables have properties that were able to reduce blood glucose level and ameliorate the lipid profile in rats.



Biography

Igbatim C A, completed his Ph.D. in Human Nutrition and Dietetics from the University of Nigeria Nsukka, Nigeria at the age of 45 years. He is a Chief Standards Officer with the Standards Organisation of Nigeria. He has over ten publications in local and international journals. He is a researcher and consultant Nutritionist.

Publications

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