

Evaluation of antidiabetic, antihyperlipidemic and antioxidant effects of *Boehmeria nivea* root extract in STZ-induced diabetic rats

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Objectives

The potential role of 80% methanolic extract of *Boehmerianivea*(L.) Gaud. Urticaceae, root in the treatment of diabetes, along with its antihyperlipidemic and antioxidant effects, was studied in diabetic male wistar rats. Preliminary screening of extract revealed presence of polyphenolics and flavonoids. The animal study was conducted with variable doses of 125, 250 and 500 mg/kg of extract for 21 days in diabetic rats. A significant effect was observed at a dose of 500mg/kg. Administration of the extract at a 500 mg/kg dose resulted in a significant reduction of fasting blood glucose levels (BGLs), total cholesterol(TC), triglycerides(TG), blood urea(BUN), alanine aminotransferase(ALT), aspartate aminotransferase(AST), urine sugar and urine ketone levels in diabetic rats in comparison with the diabetic control group. Also, this dose significantly increased high density lipoprotein cholesterol(HDL-c), liver glycogen content, superoxide dismutase(SOD), reduced glutathione(GSH) and catalase(CAT) levels in diabetic rats at the end of 21 days of treatment. Therefore, dietary supplementation with *Boehmeria nivea* root extract could be beneficial for correcting hyperglycemia, hyperlipidemia and enhancing the antioxidant defense system.

Materials and methods

- * Animals: Healthy male rats (190-240 g)
- * BNRE preparation : The roots (6 kg) extracted with 80% MeOH for 3 days, dried and lyophilized.
- * Induction of diabetes: STZ (55 mg/kg bw) in citrate buffer (pH 4.5, 0.1M) was injected into overnight-fasted rats.

Experimental design and treatment schedule: 36 rats randomly divided into 6 groups and treated daily for 21 days as follows:

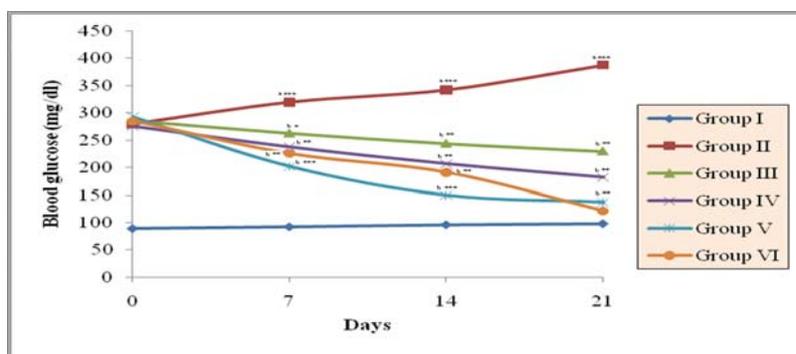
- Group I (normal rats- DW)
- Group II (diabetic rats- DW)
- Group III (diabetic rats- BNRE at 125 mg/kg)
- Group IV (diabetic rats- BNRE at 250 mg/kg)
- Group V (diabetic rats- BNRE at 500 mg/kg)
- Group VI (diabetic rats- glibenclamide)

Estimation of blood glucose, lipid and antioxidants

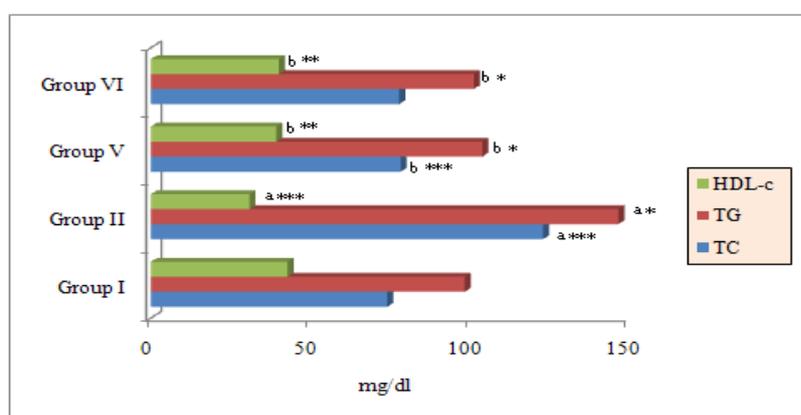
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Results

Effect of 21 days of BNRE treatment on blood glucose levels



Effect of 21 days of BNRE treatment on lipid profile



Effect of 21 days BNRE treatment on antioxidant profile

