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Scientific evaluation of a folk herbal compound for antihyperglycemic and associated bio health markers in chemically induced diabetic rat model

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Abstract

Background: Various herbal drugs in single or compound form have been used traditionally all over the world without any scientific research and verification for the treatment and prevention of various diseases including diabetes mellitus.

Objective: Current study was intended to evaluate a herbal compound used traditionally for the treatment of diabetes at local herbal clinics of Pakistan.

Methods: Diabetes was induced in 32 rats by injecting streptozotocin after 15 minutes of injecting nicotinamide. Rats with blood glucose levels≥150mg/dL, were divided into four groups with 8 rats in each group; Positive control (no treatment), standard control, treatment 1, and treatment 2 (250 and 500mg/kg of herbal compound) with a weekly measurement of body weight and BGL. A negative control group consisted of eight normal rats with BGL≤150mg/dL. After treatment of 21 days, all the rats were decapitated for blood collection. Serum was separated for evaluation of antidiabetic, antihyperlipidemic, antioxidant, hepatoprotective, and anti-inflammatory effects. Data were analyzed statistically by one-way analysis of variance (ANOVA).

Results: Results showed a significant decrease in the level of glucose in treatment 1 and 2 groups (194±5.09 and138±3.74 mg/dl respectively) as compared to the positive control group (241±9.51 mg/dl) and significantly increase in the level of insulin and glucagon in treatment groups as compared to the positive control group in a dose-dependent manner. Results also showed antihyperlipidemic, antioxidant, hepatoprotective, and anti-inflammatory activity of the herbal compound.

Conclusion: Hence, we can scientifically verify the herbal compound as an antidiabetic drug.

Keywords: Keywords: Folk herbal compound; Antidiabetic; Hepatoprotective; Antioxidant; Antiinflammatory

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