Original Paper

Effect of hydro-alcoholic extract of *Proveskia abrotanoides* on blood glucose and liver enzymes level in streptozotocin-induced diabetic rats

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Abstract

Background and Objective: Diabetes mellitus is a metabolic disorder that is characterized by hyperglycemia resulting from defects in insulin secretion and action, or even both of them. *Proveskia abrotanoides* has anti-bacterial, anti-parasitic, antioxidant, anti-inflammatory, and analgesic effects. This study was done to evaluate the effect of hydro-alcoholic extract of *Proveskia abrotanoides* on blood glucose and liver enzymes level in streptozotocin-induced diabetic rats.

Methods: In this experimental study, 60 male Wistar rats were randomly allocated into including healthy control, healthy received Glibenclamide, healthy -treated with 150, 300 and 600 mg/kg/bw of *Proveskia abrotanoides* extract, diabetic control, diabetic treated with 150, 300 and 600 mg/kg/bw of extract, positive control (diabetic treated with the Glibenclamide). After the treatments, the blood samples were taken from the animals and the level of blood glucose and liver enzymes including ALT, AST, and ALP were measured. Finally, the effect of hydro-alcoholic extract of *Proveskia abrotanoides* was compared with Glibenclamide as a conventional drug.

Results: The results showed a significant increase in liver enzymes (ALT, AST, ALP) in hyperglycemic rats compared to the healthy controls ($P<0.05$). The mean of AST, ALT and ALP enzymes in hyperglycmia group were 286.83±7.46, 172.16±5.74, 526.17±8017, respectively while in healthy control it was 239±12.16, 100±2.42 and 196.33±6.82, respectively. In hyperglycemic rats treatment with doses of 150, 300, and 600 significantly reduced liver enzymes levels in compare to hyperglycemic contol group ($P<0.05$). In group treated with 150 mg/kg/bw, the average of ALP, AST, and ALT enzymes was 160.67±6.29, 127.33±5.23 and 260.33±7.18, respectively. The mean of ALP, AST, and ALT enzymes in group treated with 300 mg/ kg/bw was 197.5±6.71, 144.33±8.82 and 201.67±9.60, respectively. In group treated with 600 mg/kg/bw, the mean of ALP, AST, and ALT enzymes was 192.23±8.23, 111.17±6.13 and 329±7.43, respectively. The hydro-alcoholic extract of *Proveskia abrotanoides* significantly reduced serum glucose and liver enzymes in comparison with Glibenclamide group ($P<0.05$).

Conclusion: The hydro-alcoholic extract of *Proveskia abrotanoides* reduces liver enzymes and blood glucose level in streptozotocin-induced diabetic rats.

Keywords: Diabetes mellitus, *Proveskia abrotanoides*, Liver enzymes, Blood glucose, Rat

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