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Pharmacological effects of ethanol extract of *Artemisia herba alba* in Streptozotocin-induced Type 1 Diabetes mellitus in rats

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Aim: The present study was designed to investigate the protective effect of *Artemisia herba alba* (Ah) against type 1 diabetes mellitus and its complications.

Main methods: Diabetes was induced in adult male Wister rats by administration of (Streptozotocin; STZ) at a dose of 52.5 mg/kg, i.p. Animals with diabetes were treated with either Ah ethanolic extract or gliclazide (10mg/kg, p.o.) for 14 days. Biochemical analysis was done such as glucose, insulin, homocysteine, lipid profile (cholesterol, triglyceride), liver function tests (*T.bilirubin*, AST & ALT), kidney function tests (BUN, sr. creatinine) and oxidative stress biomarkers. In addition, pancreas, liver, kidney, heart and aorta tissues were dissected out for pathological examination. Immunohistochemical study was done on pancreatic tissues for determination of insulin and glucagon immunoreactivities. Liver tissues were also separated for genetic analysis.

Key findings: Oral administration of Ah ethanolic extract at a concentration of 400, 200and 100 mg/kg daily for 14 days results in decreased fasting blood glucose and homocysteine levels as well as enhancement of plasma insulin level as compared with STZ-treated rats. The extract improved lipid profile, liver and kidney function tests. It also increased hepatic and renal contents of GSH, diminished lipid peroxidation, and inhibited pathological alterations induced in the different organs. Treatment with Ah extract increased insulin expression while decreased glucagon immunoreactivity and DNA band polymorphism.

Significance: Thus, our results show that Ah possesses a promising antihyperglycemic effect that is comparable with gliclazide.

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