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Alloxan induced diabetes and impairment of oxidative defense system in rat pancreas: Protective effect of *Actiniopteris dichotoma*

P Sailaja Rao¹, Mehnoor Farheen² and Prakash V Diwan³

¹Sri Venkateshwara College of Pharmacy, India

²Shadan Women's College of Pharmacy, India

³Maratha Mandal's Central Research Laboratory, India

The present study was aimed to evaluate the anti-hyperglycemic activity and *in vivo* anti-oxidant effect of ethyl acetate extract of *Actiniopteris dichotoma*. It is commonly known as peacock's tail which belongs to the family Pteridaceae. Ethyl acetate extract of whole plant of *Actiniopteris dichotoma* (EAAD) was prepared by Soxhlet extraction. Wistar rats weighing (180-200 gms) were divided into 6 groups (n=6) and three doses (100 mg/kg, 200 mg/kg and 400 mg/kg) of extract were selected. Insulin was used as a standard drug. Diabetes was induced by Alloxan (120 mg/kg, I.P) in control group. The animals were pre-treated with the extracts at specified doses for a period of 14 days. On 21st day, the blood glucose levels along with anti-oxidant enzymes like superoxide dismutase (SOD), catalase (CAT) and lipid peroxidase (LPO) were also determined in all animals. Histopathological studies were also performed to observe the effect of test drug on pancreas. The EAAD at 200 mg/kg body weight showed a significant reduction in blood glucose levels ($p < 0.001$) with the value of 150.6 mg/dl on 21st day as compared to the diabetic control. Also, the extract showed significant improvement in SOD and CAT with 35.61 and 40.56 U/mg of protein. Histopathological study of pancreatic tissue exhibited normal exocrine structure with less hemorrhage or damage in endocrine portion. These results suggest that ethyl acetate extracts of *Actiniopteris dichotoma* Bedd at the dose of 200 mg/kg showed anti-hyperglycemic effect with a substantial evidence of increased pancreatic cell viability as compared to the diabetic control.

sailajarao476@gmail.com