

The effect of hydro-alcoholic extract of Prosopis farcta on weight, blood glucose and gene expression of Pyruvate Kinase in Diabetic Rats (Type1)

Amir Bazi Shad¹, Hamid Reza Miri^{*2}, Sedighe Esmaeilzadeh Bahabadi³, Mohammad Rrza Hajinezhad⁴,
Fateme Dahmardeh Ghale- no³, Hadi Sabori⁵, Majid Hassanzadeh²

1- Department of Biology, Faculty of Basic Sciences, University of Zabol, Zabol, Iran

2- Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran

3- Department of Biology, Faculty of Basic Sciences, University of Zabol, Zabol, Iran

4- Department of basic veterinary science, Faculty of veterinary medicine, University of Zabol, Zabol, Iran

5- Department of Statistics, Faculty of Basic Sciences, University of Zabol, Zabol, Iran

***Corresponding Address: Torbat Heydariyeh University of Medical Sciences, Razi St., North Ferdosi Ave.,
Torbat Heydariyeh, Khorasan Razavi, Iran. Email: mirih1@thums.ac.ir**

Abstract

Background & Aim: Plants are useful natural sources of antioxidants for improving blood glucose control and preventing long-term complications of diabetes. The use of medicinal plants in the treatment of diabetes has shown significant impacts in reducing blood glucose in diabetic patients. The aim of the present study was to evaluate the effect of hydro – alcoholic extract of Prosopis farcta root on blood glucose, body weight and gene expression of pyruvate kinase (PK) in diabetic rats.

Methods: 45 male wistar rats (average 250 gr) were randomly divided into three groups equally: healthy controls and diabetic controls and diabetic treated with the hydro-alcoholic extract of Prosopis farcta root. Type 1 diabetes was induced by i.p injection of streptozotocin (60 mg / kg BW). Rats were weighted at day 0, 15 and at the end of the study. Diabetic rats treated daily with 300 (mg/kg) for 30 days. Healthy control and diabetic control groups received distilled water during this time. Blood glucose and PK gene expression were measured on the 0, 15 and 30th days after feeding hydroalcoholic root extract of P. farcta. The data were analyzed by one-way ANOVA followed by LSD, and Dunnet T3 post-hoc test ($P < 0.05$).

Results: PK gene expression analysis showed its expression increased in treated rats compared to the control diabetes group on the 15th day of study but this declined on the 30th day ($p < 0.05$). Also administration of P. farcta to diabetic rats resulted in a significant increase in body weight and a marked hypoglycemic effect was also seen in them ($p < 0.05$).

Conclusion: According to achieved data of this study, it is suggested that a treatment of diabetic rats with hydro alcoholic root extract of *Prosopis farcta* could possibly reduce blood glucose by increasing the expression of PK.

Keywords: *Prosopis farcta*, Pyruvate kinase; Type 1 Diabetes