

Abstract

Diabetes is a chronic disease caused by decrease of insulin secretion in pancreatic beta-cell dysfunction and increase of insulin resistance. Diabetes mellitus is a multifactorial disease, and more than 20 genes and loci have been identified in association with this disease. Recently, genome-wide linkage studies increased our understanding about the genetic factors involved in the onset and progression of diabetes and made clearer complex metabolic pathways that are involved in the disease. Pyruvate kinase (PK) catalysis the last reaction in the glycolytic pathway. In this reaction, the transfer of phosphoryl group from phosphoenolpyruvate to ADP lead to pyruvate and ATP production. The aim of this study was to investigate the effect of hydroalcoholic leaf extract on blood glucose and PK gene expression in diabetic rats. In this study, 45 male rats were randomly divided into three groups: 15 healthy controls and diabetic controls and diabetic treated by *Prosopis farcta* leaves extract. Type 1 diabetes was induced in rats with 300-150 g weight by injected Streptozotocin at 60 mg / kg dose. Diabetic rats treated daily with 300 mg / kg hydroalcoholic leaf extract of *P. farcta* for 30 days. Healthy control and diabetic control groups received distilled water during this time. Then the blood glucose was measured at day before and day 15 and 30 after injection of extract. PK gene expression in liver tissue was studied by Real- time PCR. Based on the results, blood glucose level in the treated diabetic group decreased compare to the control group at day 15. Gene expression analysis showed that PK gene expression in the treated diabetic group on day 15 was significantly increased compare to the control, then at the end of day 30, its expression was reduced but still higher than the control group. The results of this study shows that injection of leaf extract could reduce blood glucose in 15 days, possibly by increasing the expression of Pk.

Key words: Diabetes mellitus - Pyruvate kinase- *Prosopis farcta*



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Titel:

Effect of hydro - alcoholic *Prosopis farcta* (leaf) extract on pyruvate kinase gene expression in diabetic rats (type 1).

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