

Gymnemic Acid exerts its Anti-Diabetic Action By Modulating Dpp-4 Activity In Type 2 Diabetic Rats

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ABSTRACT

Diabetes mellitus is a multifactorial chronic metabolic disease characterized by hyperglycemia. Type 2 diabetes is the most common form of diabetes accounting for ~ 90% of diabetic cases and ~ 8% of the total. Plants have always been a prototypical source of drugs and many of the formerly available drugs have been derived directly or indirectly from them. Gymnemic acid is the primary active compound in leaves of *Gymnema sylvestre*, which has been traditionally used for treating diabetes. The present study aimed to investigate the role of gymnemic acid in lessening plasma DPP-IV activity in the Type 2 diabetes induced experimental animals. Young adult (4 months old) male Wistar albino rats (150-160g) were used for the study and they were grouped into four, Group-1 served as healthy control, Group-2 served as diabetic control, Group-3 served as diabetic control and GA (Gymnemic acid) supplemented treatment group and Group-4 served as drug control animals. Animals were induced with Type-2 diabetes by high fat diet and high fructose feeding. The effect of Gymnemic acid on islet cells in T2D in experimental animals was analysed by measuring the levels of free radicals, antioxidants. The effects of gymnemic acid on glycemic profile, lipid profile, c-peptide, insulin secretion, DPP4 activity and GLP-1 were assessed. Oral administration of gymnemic acid for 30 days in T2D rats significantly lowered plasma glucose, DPP4 activity in serum. The efficiency of Gymnemic acid in inhibiting the DPP-4 activity and thereby preventing GLP-1 degradation, which is the key proliferative and anti-apoptotic peptide concerned with beta cell.