

Effect of ethanolic extract of musa paradisiaca flowers on the key enzymes of carbohydrate metabolism studied in stz induced experimental diabetes in rats.

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ABSTRACT

Diabetes mellitus is a metabolic disorder characterized by disturbances in the carbohydrate, protein and lipid metabolism. Though drugs are plenty for the treatment of diabetes, none is found to be ideal due to undesirable side effects. Hence search for novel drugs, especially from plant origin continues. Based on folkloric use, the present study was designed to evaluate the antidiabetic potential of ethanolic extract of the nonfunctional male part of Musa paradisiaca flower (MPF) in STZ-induced experimental diabetes in rats. Qualitative analysis of the extract indicated the presence of biologically active ingredients such as flavonoids and saponins in the MPF extract. Acute toxicity studies revealed the non-toxic nature of MPF extract. Oral treatment of MPF extract (200 mg/kg body weight) to diabetic rats for 30 days established a significant decline in blood glucose and glycosylated hemoglobin levels and a significant increase in plasma insulin level. The altered activities of key enzymes of carbohydrate metabolism such as hexokinase, pyruvate kinase, lactate dehydrogenase, glucose-6-phosphatase, fructose-1, 6-bisphosphatase, glucose-6-phosphate dehydrogenase, glycogen synthase and glycogen phosphorylase in liver and kidney tissues of diabetic rats were significantly reverted to near normalcy by the administration of MPF extract. Thus, MPF extract regulates carbohydrate metabolism by modulating the key regulatory enzymes in the hepatic and renal tissues of diabetic rats. Separation, isolation and identification of the individual components from the extract are under progress.