

Antihyperglycemic and antioxidative effects of the hydro-methanolic extract of the seeds of *Caesalpinia bonduc* on streptozotocin-induced diabetes in male albino rats

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ABSTRACT

Background No satisfactory effective treatment is available yet to cure diabetes mellitus. Though, synthetic drugs are used but there are several drawbacks. The attributed antihyperglycemic effects of many traditional plants are due to their ability for the management of diabetes mellitus. **Materials and Methods** A hydromethanolic extract was administered orally at a dose of 250 mg/kg of body weight per day for 21 days. Its effects on the fasting blood glucose (FBG) level, activities of key carbohydrate metabolic enzymes like hexokinase, glucose-6-phosphatase, and glucose-6-phosphate dehydrogenase, and antioxidant enzymes like catalase and superoxide dismutase along with the effect on the lipid peroxidation level in hepatic tissues were measured. Glycogen levels were also assessed in hepatic and skeletal muscles and some toxicity parameters, such as serum glutamate oxaloacetate transaminase, glutamate pyruvate transaminase, and alkaline phosphates activities were measured. **Results** Treatment of the hydromethanolic extract of the seeds of *Caesalpinia bonduc* resulted in a significant ($P < 0.05$) recovery in the activities of carbohydrate metabolic enzymes along with correction in FBG and glycogen levels as compared with the untreated diabetic group. The extract also resulted in a significant ($P < 0.05$) recovery in the activities of toxicity assessment enzyme parameters. Activities of antioxidant enzymes like catalase and superoxide dismutase along with the lipid peroxidation levels were also recovered significantly ($P < 0.05$) after the treatment of the extract. The corrective effects produced by the extract were compared with the standard antidiabetic drug, glibenclamide. **Conclusion** Our findings provide that the extract shows possible antihyperglycemic and antioxidative activities.

KEYWORDS

Antihyperglycemic . antioxidative . *C. bonduc* . streptozotocin

REFERENCES