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Mechanisms of the antihyperglycemic activity of *Retama raetam* in streptozotocin-induced diabetic rats

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ABSTRACT

Retama raetam (RR) fruits are used in Saudi traditional medicine for the treatment of diabetes. Current study aimed at evaluating the potential and mechanisms of the antidiabetic activity of the RR methanolic extract in streptozotocin-induced diabetic rats. Oral LD₅₀ of the extract was found to be 1995 mg/kg. The extract was administered once orally to STZ-diabetic rats at three dose levels; 100, 250 or 500 mg/kg/day for 4 consecutive weeks. RR extract at 250 or 500 mg/kg significantly lowered blood glucose levels at the 3rd and 1st week of treatment, respectively. Meanwhile, oral glucose tolerance test indicated that the same two doses significantly lowered glucose levels at 30 and 60 min after glucose challenge. Administration of RR extract at 500 mg/kg/day for 4 consecutive weeks significantly increased serum insulin level. *In vitro* studies indicated that the extract significantly inhibits glucose absorption by rat isolated intestine. The extract neither altered glucose uptake by rat isolated psoas muscle nor the activity of hepatic microsomal glucose-6-phosphatase. In conclusion, the methanolic extract of RR improves STZ-induced diabetes in rats. This can be attributed, at least partly, to stimulating pancreatic insulin release and reducing intestinal glucose absorption.