

Antihyperglycemic effect of the alcoholic seed extract of *Swietenia macrophylla* on streptozotocin-diabetic rats

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ABSTRACT

Background Streptozotocin (STZ) selectively destroys the pancreatic insulin secreting cells, leaving less active cells and resulting in a diabetic state. The present study was designed to investigate the antihyperglycemic effect of the ethanolic seed extract of *Swietenia macrophylla* (SME) in normal and STZ-diabetic rats. **Materials and Methods** The experimental groups were rendered diabetic by intraperitoneal injection of a single dose of STZ (40 mg/kg body weight [BW]). Rats with glucose levels > 200 mg/dL were considered diabetic and were divided into 5 groups. Three groups of diabetic animals were orally administered, daily with seed extract at a dosage of 50, 100, and 200 mg/kg BW. One group of STZ rats was treated as diabetic control and the other group was orally administered 600 mug/kg BW glibenclamide daily. **Results** Graded doses of seed extract and glibenclamide showed a significant reduction in blood glucose levels and improvement in serum insulin levels. The extract also improved body weight and promoted liver glycogen content. After treatment, hemoglobin (Hb) level increased and glycosylated Hb level significantly decreased in diabetic rats. The activities of the carbohydrate metabolic enzymes showed significant changes in the rats. Of the 3 doses, 100 mg dose showed maximum activity. Histological investigations of pancreas also supported the biochemical findings. **Conclusions** Thus, our findings indicate the folklore use of the seed for diabetes and the mechanism seems to be insulin secretion.

KEYWORDS

Glucose . insulin . *Swietenia macrophylla* . streptozotocin

REFERENCES

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