



Thesis Abstract

Evaluation of the Hypoglycemic Activity of Spray-Dried Banaba [*Lagerstroemia Speciosa* (L.) Pers.] Powder on Alloxan-Induced Diabetic ICR Mice

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This study was conducted to evaluate the hypoglycemic activity of spray dried banaba [*Lagerstroemia speciosa* (L.) Pers.] powder (250 and 1000 mg/kg), banaba decoction (20 ml/kg) and glibenclamide (10 mg/kg) on alloxan-induced diabetic male ICR mice.

The administration of 250 and 1000 mg/kg spray dried banaba powder and banaba decoction (20 ml/kg) given once daily by gavage significantly reduced ($P < 0.05$) blood glucose level of diabetic mice in a 28-day treatment period. Percent reduction in blood glucose after 28-day treatment in groups given 250 mg/kg banaba powder, 1000 mg/kg banaba powder and banaba decoction were 23.88%, 32.87% and 20.51%, respectively. The drop in blood glucose was also related to the dramatic reduction of urinary glucose ($P < 0.05$).

No significant reduction of blood glucose was observed in glibenclamide-treated diabetic mice. The absence of functional β cells may have caused this failure. Urinary ketones were undetected throughout the treatment period (28 days).

There was a significant reduction in Body Mass Index and body weight in mice given spray dried banaba powder (250 and 1000 mg/kg) and banaba decoction when compared to the diabetic control group. The feed intake of mice in the non-diabetic control was comparable with the diabetic control. However, significant reduction in feed intake was observed in banaba treated and glibenclamide treated groups compared to the non-diabetic control. Water intake was significantly high in the diabetic control mice compared to the other groups. Water intake was normalized in diabetic mice treated with banaba. Necropsy and histopathological changes were also observed. But treatment effect was complicated by the toxic effect of alloxan on other organs of the body.

There was a general reduction in organ weights of diabetic mice compared to the non-diabetic control mice except for the spleen. Spleen weights are comparable to other groups.