

## ABSTRACT

In the present study, the medicinal plants Artocarpus heterophyllus, Asteracanthus longifolia, Bambusa vulgaris, Ficus benghalensis and Osbeckia octandra have been investigated for oral hypoglycaemic activity. Detailed studies have also been carried out on the toxicity and possible mode of action of Artocarpus heterophyllus and Asteracanthus longifolia.

The ability of all the plants under investigation to lower the fasting blood glucose level and improve the glucose tolerance in Sprague Dawley rats confirms the presence of hypoglycaemic activity in these plants. The magnitude of the hypoglycaemic effects varied with the dosage used and the time of storage (except for Artocarpus heterophyllus where the activity did not change on storage up to 3 days). No significant seasonal differences were observed in any of the plants investigated.

Investigations carried out with normal human volunteers and maturity onset diabetic patients revealed that the medicinal plants, Artocarpus heterophyllus and Asteracanthus longifolia were capable of improving the glucose tolerance in normal human volunteers and maturity onset diabetic patients.

Investigations with Artocarpus heterophyllus and Asteracanthus longifolia showed that the extracts of these plants had no toxicological effects on the histopathology of various body organs, liver function, haematological parameters (haemoglobin concentration, red blood cell count, white blood cell count and packed cell volume) or on the reproductive ability of the experimental animals. The general conditions of the animals also did not change and all the animals remained in good health through out the experimental period.

Studies on the extrapancreatic effects of the aqueous extracts of Artocarpus heterophyllus and Asteracanthus longifolia using Sprague Dawley rats as the experimental model, showed that these plant extracts had no effect on the gluconeogenic capacity of the kidney and the intestinal glucose absorption. The administration of the plant extracts prior to glucose loading however, resulted in a significantly increased glycogen content in the liver and muscle and a triglyceride content in the adipose tissue in comparison with rats treated only with the glucose load. The insulinase activity was markedly inhibited by Artocarpus heterophyllus while Asteracanthus longifolia had no such effect.