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Hypoglycaemic and Hypolipidaemic effect of an ethylacetate fraction of *Artocarpus heterophyllus* (jak) leaves in streptozotocin induced diabetic rats

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Previous investigations have shown that aqueous extracts of *Artocarpus heterophyllus* (jak) leaves (family Moraceae) can exert significant hypoglycaemic activity, and improve the glucose tolerance of healthy rats and humans, and newly diagnosed maturity onset diabetic patients. A preliminary study carried out by the authors with fractions separated from *A. heterophyllus* leaves showed that the ethylacetate fraction exerts the greatest hypoglycaemic activity in rats. The objective of the present study was to determine the effects of prolonged administration of ethylacetate fraction of *A. heterophyllus* leaves on serum glucose and lipid levels in streptozotocin induced diabetic rats since no reports are available on the effects of *A. heterophyllus* leaves on hyperlipidaemia associated with diabetes despite its clinical significance.

Oral administration of the ethylacetate fraction (20 mg kg $^{-1}$ bw) of *A. heterophyllus* leaves daily for five weeks significantly lowered serum glucose, cholesterol and triglyceride levels in streptozotocin induced diabetic rats. Compared to the control diabetic rats, the extract treated rats had 39% less serum glucose, 23% lower serum total cholesterol and 40% lower serum triglyceride levels and 11% higher body weight at the end of the fifth week. The percentage reductions in the serum parameters mediated by the test fraction were comparable with those produced by glibenclamide (57%, 32% and 42% reductions in serum glucose, cholesterol and triglycerides, respectively). The stimulation of insulin release by active principles in the ethylacetate fraction may be one of the mechanisms by which this fraction mediates its hypoglycaemic effect.

It may be concluded that the ethylacetate fraction of *A. heterophyllus* leaves contain one or more hypoglycaemic and hypolipidaemic principles which have the potential to be developed further for the treatment of diabetes specifically associated with a hyperlipidaemic state.

Key words: *Artocarpus heterophyllus; hypoglycaemic activity; hypolipidaemic; ethylacetate; streptozotocin*