

Antidiabetic effect of *Symplocos Cochinchinensis* (Lour) S. Moore bark in high fat diet – low Streptozotocin induced type 2 diabetic rats

Sunil C, Irudayaraj S, Ignacimuthu S.

Division of Ethnopharmacology, Entomology Research Institute, Loyola College, Chennai, India.

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ABSTRACT

Type 2 diabetes mellitus is a heterogeneous disorder characterized by a progressive decline in insulin action (insulin resistance) followed by the inability of beta cells to compensate for insulin resistance (pancreatic beta cell dysfunction). It accounts for more than 90-95% of all diabetes. Synthetic hypoglycemic agents can produce serious side effects and fail to alter the course of diabetic complications. Herbal remedies are effective with no side effects and at low costs compared to oral synthetic hypoglycemic agents. *Symplocos cochinchinensis* (Lour.) S. Moore. is used in Indian system of traditional medicine to treat diabetes mellitus. The present study aims to investigate the antidiabetic efficacy of the methanol extract of *S. cochinchinensis* bark in high fat diet–low streptozotocin induced type 2 diabetic rats. Acute toxicity study, oral glucose and insulin tolerance tests were carried out. The antihyperglycemic effect of *S. cochinchinensis* at 250 and 500 mg/kg was studied in high fat diet–low streptozotocin induced diabetic rats for 28 days. The extract showed no adverse effects up to 5g/kg body weight. In oral glucose tolerance test, the treatment with the *S. cochinchinensis* at 250 and 500 mg/kg showed a highly significant reduction of plasma glucose levels at 30 min after glucose load. The insulin tolerance test also showed improved insulin sensitivity after 60 min of insulin treatment. In high fat diet–low streptozotocin induced type 2 diabetic rats, after 28 days treatment with the methanol extract at 250 and 500 mg/kg reduced the plasma glucose levels significantly. A significant reduction in plasma insulin, plasma and hepatic total cholesterol, triglycerides and free fatty acids and a significant increase in liver glycogen were observed in treated diabetic rats. This study demonstrated the potential antidiabetic property of methanol extract of *Symplocos cochinchinensis* bark on type 2 diabetes mellitus, thus justifying its traditional usage.