

# Hypoglycemic effect of aspalathin, a rooibos tea component from *Aspalathus linearis*, in type 2 diabetic model db/db mice

## Abstract

Effects of aspalathin, a green rooibos tea component, on glucose metabolism were studied *in vitro* and *in vivo*. We first examined the effect of aspalathin on glucose uptake by cultured L6 myotubes and on insulin secretion from cultured RIN-5F pancreatic  $\beta$ -cells *in vitro*, and then investigated the effect of dietary aspalathin on fasting blood glucose level and conducted an intraperitoneal glucose tolerance test (IPGTT) using type 2 diabetes model mice *in vivo*. Aspalathin dose-dependently and significantly increased glucose uptake by L6 myotubes at concentrations 1–100  $\mu$ M. It also significantly increased insulin secretion from cultured RIN-5F cells at 100  $\mu$ M. Dietary aspalathin (0.1–0.2%) suppressed the increase in fasting blood glucose levels of db/db mice for 5 weeks. In IPGTT, aspalathin improved impaired glucose tolerance at 30, 60, 90, and 120 min in db/db mice. These results suggest that aspalathin has beneficial effects on glucose homeostasis in type 2 diabetes through stimulating glucose uptake in muscle tissues and insulin secretion from pancreatic  $\beta$ -cells.