

Effects of *Cinnamomum zeylanicum* (Ceylon cinnamon) on blood glucose and lipids in a diabetic and healthy rat model

Priyanga Ranasinghe, Sanja Perera, Mangala Gunatilake, Eranga Abeywardene, Nuwan Gunapala, Sirimal Premakumara, Kamal Perera, Dilani Lokuhetty, Prasad Katulanda
Departments of Clinical Medicine

ABSTRACT

Objectives To evaluate short- and long-term effects of *Cinnamomum zeylanicum* on food consumption, body weight, glycemic control, and lipids in healthy and diabetes-induced rats. **Materials and Methods** The study was conducted in two phases (Phase I and Phase II), using Sprague-Dawley rats in four groups. Phase I evaluated acute effects on fasting blood glucose (FBG) (Groups 1 and 2) and on post-oral glucose (Groups 3 and 4) blood glucose. Groups 1 and 3 received distilled-water and Groups 2 and 4 received cinnamon-extracts. Phase II evaluated effects on food consumption, body weight, blood glucose, and lipids over 1 month. Group A (n = 8, distilled-water) and Group B (n = 8, cinnamon-extracts) were healthy rats, while Group C (n = 5, distilled-water) and Group D (n = 5, cinnamon-extracts) were diabetes-induced rats. Serum lipid profile and HbA1c were measured on D-0 and D-30. FBG, 2-h post-prandial blood glucose, body weight, and food consumption were measured on every fifth day. **Results** Phase I: There was no significant difference in serial blood glucose values in cinnamon-treated group from time 0 ($P > 0.05$). Following oral glucose, the cinnamon group demonstrated a faster decline in blood glucose compared to controls ($P < 0.05$). Phase II: Between D0 and D30, the difference in food consumption was shown only in diabetes-induced rats ($P < 0.001$). Similarly, the significant difference following cinnamon-extracts in FBG and 2-h post-prandial blood glucose from D0 to D30 was shown only in diabetes-induced rats. In cinnamon-extracts administered groups, total and LDL cholesterol levels were lower on D30 in both healthy and diabetes-induced animals ($P < 0.001$). **Conclusions** *C. zeylanicum* lowered blood glucose, reduced food intake, and improved lipid parameters in diabetes-induced rats.

KEYWORDS

Blood glucose . Ceylon cinnamon . *Cinnamomum zeylanicum* . diabetes mellitus . lipids . Sprague-Dawley rats

REFERENCES