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Investigation of possible hypoglycaemic activity of *Canthium coromandelicum* (Kara) leaf extract on normoglyceamic Wistar rats

R D Widanagamage and Sagarika Ekanayake*
Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda

Leaves of *Canthium coromandelicum* commonly known as Kara are consumed as a dark green leafy vegetable. The leaves are recommended to be included in the normal diet as a *malluma* of diabetic patients by Ayurvedic doctors. Thus, the objective of the present study was to investigate the possible hypoglycemic activity of kara leaves on normoglycaemic Wistar rats since no scientific studies have been carried out to look into the efficacy.

A single-dose experiment (n=10), a dose curve (n=30, each dose 5 rats) and a multiple-dose experiment (n=12) using the optimum dose obtained from the dose curve were carried out. According to the single dose experiment the decrease in serum glucose levels of the test group was significant ($p = 0.005$) with a percentage decrease of 18.4 % compared to control when a dose of 20 g/ kg body weight was administered. A similar effect was observed for other doses of 15, 25 and 30 g/ kg body weight. The percentage decrease of serum glucose levels were 24.4 % ($p=0.007$), 15.4 % ($p=0.002$) and 25.7 % ($p=0.012$) respectively, thus indicating a possible hypoglycemic effect on normoglycaemic Wistar rats after a glucose challenge. Unlike in the case of lowering blood sugar by insulin like factors or effect on receptors, decrease in blood glucose by decreasing rate of absorption is usually compensated by gluconeogenesis. If the decrease is due to the above mentioned reasons, both long and short-term effects will cause a decline in blood sugar.

The leaf extract was administered at a dose of 20 g/ kg body weight for 14 days to study possible long term effect, (multiple dose experiment). A significant glucose lowering effect in the test group was not seen when compared to the control group after fasting overnight. This result therefore, indicates though there is a decrease in glucose in normoglycaemic rats following administration of the leaf extract, a long term effect is not observable. Thus, we can hypothesize that the decrease in serum glucose levels in normoglycaemic rats in the single dose experiment and in the dose curve could be due to decreased absorption of glucose in the gut. The % of soluble fibre of kara leaf was very high (1.8% DM) with a thick texture and was shown to contain pectin by the carbazole reaction. Pectin is known to reduce the uptake of glucose.

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