

Hypoglycemic and Hypolipidemic Effects of Aqueous Flower Extract from *Nycanthes arbor-tristis* L.

Brahmanage S. Rangika, Dinithi C. Peiris

Abstract—Boiled Aqueous Flower Extract (AFE) of *Nycanthes arbor-tristis* L. (Family: *Oleaceae*) is used in traditional Sri Lankan medicinal system to treat diabetes. However, this is not scientifically proven and the mechanisms by which the flowers reduce diabetes have not been investigated. The present study was carried out to examine the hypoglycemic potential and toxicity effects of aqueous flower extract of *N. arbor-tristis*. AFE was prepared and mice were treated orally either with 250, 500 and 750 mg/kg of AFE or distilled water (Control). Fasting and random blood glucose levels were determined. In addition, the toxicity of AFE was determined using chronic oral administration. In normoglycemic mice, mid dose (500mg/kg) of AFE significantly ($p < 0.01$) reduced fasting blood glucose levels by 49% at 4h post treatment. Further, 500mg/kg of AFE significantly ($p < 0.01$) lowered random blood glucose level of non-fasted normoglycemic mice. AFE significantly lowered total cholesterol and triglyceride levels while increasing the HDL levels in the serum. Further, AFE significantly inhibited the glucose absorption from the lumen of the intestine and it increases the diaphragm uptake of glucose. Alpha-amylase inhibitory activity was also evident. However, AFE did not induce any overt signs of toxicity or hepatotoxicity. There were no adverse effects on food and water intake and body weight of mice during the experimental period. It can be concluded that AFE of *N. arbor-tristis* possesses safe oral anti-diabetic potentials mediated via multiple mechanisms. Results of the present study scientifically proved the claims made about the uses of *N. arbor-tristis* in the treatment of diabetes mellitus in traditional Sri Lankan medicinal system. Further, flowers can also be used as a remedy to improve blood lipid profile.

Keywords—Aqueous extract, hypoglycemic hypolipidemic, *Nycanthus arbor-tristis* flowers.

B.S. Rangika, is with the University of Sri Jayewardenepura, Gangodawila, Nugegoda 10120 Sri Lanka (e-mail: sachinibr@gmail.com).
D.C. Peiris is with University of Sri Jayewardenepura, Gangodawila, Nugegoda 10120 Sri Lanka (corresponding author to provide phone: +9471-401-8537; fax: +9411-280-3828; e-mail: dinithi@sci.sjp.ac.lk).