Evaluation of Antidiabetic Activity of Flowers of Ranawara (Cassia auriculata L.)

Nadeeja Prathibhana, Karaldeniya Lekamge (School: Thurstan College)

Cassia auriculata is a medicinal plant traditionally claimed to be a remedy against DM. Previous literature has revealed the antidiabetic potency of C. auriculata employing various animal models but not zebrafish. Thus, the present study intended to validate the traditional claim of C.auriculata as an antidiabetic remedy using the zebrafish diabetic model. Embryotoxicity assays were conducted by exposing zebrafish embryos at 2 hpf to aqueous (0.4375, 0.875, 1.75, 3.5 and 7.0 g/L), 80% ethanol (0.25, 0.5, 1.0, 2.0 g/L), and n-hexane (0.125, 0.25, 0.5, 1.0 g/L) extracts of C. auriculata flowers. The lethal concentration 50 (LC50) values at 96 hpf were 2.359 ± 0.234, 0.824 ± 0.062, and 0.670 ± 0.042 g/L for aqueous, 80% ethanol, and n-hexane extracts respectively. Non-glucose-induced zebrafish embryos exposed to aqueous 1.5g/L (63.38 ± 2.62 mg/dL, 12.43%), 80% ethanol 0.5 g/L (51.62 ± 0.815 mg/dL, 28.68%), and n-hexane 0.5 g/L (52.68 ± 2.68 mg/dL), 27.22%) extracts produced significant reductions in glucose concentrations compared to the negative control (72.38 ± 2.62 mg/dL) at 72 hpf. Glucose-induced zebrafish embryos treated with aqueous 1.5 g/L (89.40 ± 1.305 mg/dL, 16%), 80% ethanol 0.5 g/L (79.06 ± 8.93 mg/dL, 25.72%), and n-hexane 0.5 g/L (61.93 ± 0.45 mg/dL, 41.81%) extracts displayed significantly reduced glucose concentrations compared to 0.1% w/v D-glucose treatment (106.43 ± 2.62 mg/dL) at 72 hpf. Accordingly, the present study validates the traditional claim of antidiabetic potency of C. auriculata. Nevertheless, in-depth studies are recommended to deliver C. auriculata flowers as an effective antidiabetic remedy