

Antioxidant, Cytotoxic and Phytotoxic Activities of *Schumacheria castaneifolia*, a Plant Endemic to Sri Lanka

**R.M.C.J. Bandara¹, D.M.B. Abeykoon¹, B.M.R. Bandara¹, A. Wickramasinghe¹,
D.S.A. Wijesundara², N. Karunaratne¹ and V. Karunaratne¹**

¹*Department of Chemistry, Faculty of Science, University of Peradeniya*

²*Royal Botanic Gardens, Peradeniya*

Investigation of the bioactivity of plants and their constituents is an important step in the discovery of novel drugs. The genus *Schumacheria* belonging to the family Dilleniaceae is endemic to Sri Lanka and contains three species, *S. castaneifolia*, *S. alnifolia* and *S. angustifolia*. There has been no systematic search for bioactive agents from the genus *Schumacheria*. This paper describes antioxidant, cytotoxic and phytotoxic properties of *S. castaneifolia*.

The plant was collected from Thummodara in the Sabaragamuwa Province. Air-dried leaves, root-bark and stem-bark were separately extracted into methanol and dichloromethane, and the extracts were tested for antioxidant activity using the 2,2-diphenyl-1-picrylhydrazyl assay, cytotoxicity using the brine shrimp (*Artemia salina*) assay and phytotoxicity using the lettuce (*Lactuca sativa*) seed assay.

In the antioxidant assay the IC₅₀ values of methanol extracts of the stem-bark, root-bark and leaves were 11, 7.6 ppm and 9.2 ppm, respectively; the dichloromethane extracts had relatively low activity with the corresponding IC₅₀ values at 212.2 ppm, 196.4 ppm and 210.5 ppm. The antioxidant activity of the known antioxidant, (±)-α-tocopherol showed an IC₅₀ value of 11.4 ppm. Methanol and dichloromethane extracts of the stem bark, root-bark and leaves showed low cytotoxic activity having LC₅₀ values for methanolic extracts at 903.8 ppm, 81.6 ppm and 66.0 ppm and for dichloromethane extracts at 74.4 ppm, 30.9 ppm and 340.1 ppm, respectively. A lactone isolated from a *Hortonia* sp. in a previous study was used as a positive reference control and showed an LC₅₀ value of 0.14 ppm. Phytotoxicity assay revealed root inhibition of 80.2% and shoot inhibition of 83.9% for the dichloromethane leaf extract at 2000 ppm level while the corresponding values for the methanolic extracts were 28.7% and 35.5%, respectively.

Financial support from the National Science Foundation, Research grant RG/2009/BS/01, is acknowledged.