

GENUS SCHUMACHERIA: BIOACTIVITY AND CHEMISTRY

**C.J. Bandara¹, B.M.R. Bandara¹, A. Wickramasinghe^{1*},
D.N. Karunaratne¹, V. Karunaratne¹ and D.S.A. Wijesundara²**

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

²*Royal Botanic Gardens, Peradeniya, Sri Lanka*

*awick@pdn.ac.lk

The genus *Schumacheria* (family Dilleniaceae) is endemic to Sri Lanka and contains three species, *S. castaneifolia* (vahl.), *S. alnifolia* (Hook f. and Thoms.) and *S. angustifolia* (Hook f. and Thoms.). We have previously reported the antimicrobial, antioxidant properties and brine shrimp lethality of *S. castaneifolia*. Here we report the total polyphenol (TPP) content, antioxidant activity and brine shrimp lethality of various plant parts of *S. alnifolia* and *S. angustifolia*, and the isolation of some secondary metabolites from the leaf and stem-bark extracts of the two plants. Air-dried plant parts of *S. alnifolia* and *S. angustifolia* were separately and sequentially extracted into hexane, dichloromethane and methanol and the solvent extracts concentrated. TPP content, antioxidant activity and brine shrimp lethality of the extracts were determined by using the Folin-Ciocalteu method, the DPPH assay and the brine shrimp (*Artemia salina*) assay, respectively. The TPP contents, expressed as the gallic acid equivalent in milligrams per gram of dry plant material, of methanol extracts of *S. alnifolia* leaf and stem-bark were 57.7 ± 0.0 and 69.3 ± 6.9 mg g⁻¹, respectively, while those of methanol extracts of *S. angustifolia* leaf, stem-bark, flower and root-bark were 59.0 ± 1.2 , 19.9 ± 0.3 , 22.4 ± 0.2 and 36.7 ± 2.3 mg g⁻¹, respectively. The hexane and dichloromethane extracts did not contain polyphenols. Consistent with the TPP content, the methanol extracts of both plants displayed strong antioxidant activity (IC₅₀, 8.2 ± 0.2 – 14.4 ± 0.6 ppm) compared to that of vitamin E (IC₅₀, 10.9 ± 4.3 pp). The dichloromethane extracts of both plants had only moderate antioxidant activity (IC₅₀, 120.3 ± 5.3 – 964.9 ± 40.1 ppm). The brine shrimp lethality of methanol extracts was moderate (LC₅₀, 23.6 ± 10.5 – 90.2 ± 35.4 ppm) and less than that of dichloromethane extracts (LC₅₀, 99.8 ± 59.5 – 646.9 ± 298.2 ppm). One phytosteroid, three triterpenoids, one steroidal glycoside and a triterpenoidal glycoside were isolated separately from the stem-bark and leaf dichloromethane extracts of both *S. alnifolia* and *S. angustifolia*.

Financial assistance given by the National Science Foundation (RG/2009/BS/01) of Sri Lanka is acknowledged.