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TOTAL POLYPHENOL CONTENT AND ANTIMICROBIAL ACTIVITY OF *Schumacheria castaneifolia* AND *Schumacheria alnifolia*

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The genus *Schumacheria* of the family Dilleniaceae is endemic to Sri Lanka and contains three species, *S. castaneifolia*, *S. alnifolia* and *S. angustifolia*. The phytochemistry and antimicrobial activity of this genus has not been previously investigated. Here we report the polyphenol content and antimicrobial activity of *S. castaneifolia* and *S. alnifolia*.

Air-dried parts of both plant species were separately and sequentially extracted into dichloromethane and methanol and the extracts concentrated. The total polyphenol content (TPP) of each methanol extract was determined using the Folin-Ciocalteu colorimetric method. The antimicrobial activity of *Schumacheria* plant extracts were evaluated against *Staphylococcus aureus* (NCTC 8532), *Escherichia coli* (NCTC 10418) and *Aspergillus niger* (wild type) using the agar well diffusion assay and the agar plate dilution method.

Preliminary assays with aqueous neutral FeCl₃ revealed that dichloromethane extracts did not contain polyphenols. The TPPs of stem bark and leaf of *S. castaneifolia* were found to be 65.8 ± 0.7, 49.2 ± 0.9 mg g⁻¹, respectively. The corresponding values for *S. alnifolia* were 69.3 ± 6.9, 57.7 ± 0.0 mg g⁻¹; the TPP being expressed as gallic acid equivalents in milligrams per gram of dry plant material. In comparison to the TPP values measured for the two *Schumacheria* species above, a commercially available sample of black tea, which is made from only tea flush, recorded a TPP of 187 ± 6.9 mg g⁻¹. Polyphenols are known to have a range of beneficial physiological properties, and tea (*Camellia sinensis*) is claimed to be one of the plants containing the highest amounts of polyphenols.

The stem-bark and root-bark extracts of *S. castaneifolia* and the stem-bark extracts of *S. alnifolia* displayed moderate antibacterial activity against both *S. aureus* and *E. coli*, having minimum inhibitory concentration (MIC) values in the range, 750-1024 mg l⁻¹. The leaf extracts were generally less active having higher MIC values (≥ 1024 mg l⁻¹) although the methanol extract of the leaves of *S. alnifolia* showed moderate activity (MIC 900-950 mg l⁻¹) against both bacterial species. The dichloromethane and methanol extracts (1000 mg/l) of *S. alnifolia* stem-bark displayed considerable antifungal activity against *A. niger*, having inhibition zones of 15 and 20 mm in diameter, respectively, in the agar well diffusion assay, while all the other *Schumacheria* extracts did not show antifungal activity.

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