

Identification of acteoside as the active antioxidant principle of *Premna serratifolia* root wood tissues

Lekshmi V. Bose¹, George K. Varghese², Solomon Habtemariam^{3*}

¹School of Environmental Sciences, M. G. University, Kottayam, Kerala, India.

²Department of Botany, C. M.S. College, Kottayam, Kerala, India.

³Pharmacognosy Research Laboratories, Medway School of Science, University of Greenwich, Chatham Maritime, Kent ME4 4TB, UK.

* Corresponding author: s.habtemariam@gre.ac.uk; Tel: +44 208 331 8302; Fax: +44 208 331 9805

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Abstract

Premna serratifolia Linn. (syn: *Premna integrifolia*) is one the most widely used plant in the Ayurvedic system of medicine. Several pharmacological activities including antioxidant effects and phytochemical investigations have been previously reported for the various parts of plant, except the root woody tissues. In the present study, the antioxidant activity and active principle of the root woody tissues were investigated. Antioxidant effect was routinely monitored using the DPPH radical scavenging assay while phytochemical investigation was based on analysis using HPLC and Teledyne Isco flash chromatography system. Through the use of comprehensive spectroscopy studies, the isolated active antioxidant principle was identified as acteoside (verbacoside). Acteoside, which was about four times more active ($18.3 \pm 3.7 \mu\text{g/ml}$; $11.4 \pm 2.3 \mu\text{M}$) than the crude root wood extract ($73.8 \pm 2.4 \mu\text{g/ml}$), could account for most of the reported pharmacological activity on *P. serratifolia*.

Keywords: *Premna serratifolia*; Verbenaceae; antioxidant; root wood; acteoside; verbacoside

Introduction

The genus *Premna* (Verbenaceae) is widely distributed in tropical and subtropical regions of Africa, Asia, Australia and the Pacific islands (Kadareit, 2004). *Premna serratifolia* Linn. (syn: *Premna integrifolia*), is a small tree or shrub that occur in India, Srilanka and the Andaman. Various parts the plant especially the roots are extensively used for thousands of years in Indian traditional medicine formulations such as Dashmoola kwatha, Chyanprashavleh, Haritakiavleh, Ayushyavardhaak tel and Narayana taila (API, 2001; Jothi et al., 2010). Among the various medicinal uses reported for the roots are for treating diabetes, chyluria, gonorrhoea, inflammation, swelling, bronchitis, dyspepsia, headach, liver disorder, piles, constipation and fever (API, 2001). Some pharmacological studies have revealed that the plant possess anti-coagulant (Gopal and Purushothaman, 1984), anti-inflammatory (Karthikeyan and Deepa, 2011), anti-arthritic (Karthikeyan and Deepa, 2010; Rajendran and Krishnakum-