

**DETERMINATION OF BIOACTIVITY AND ISOLATION OF GARCINOL IN  
*Garcinia quaesita***

**K.J.W. Rajapaksa<sup>\*</sup>, J.M.S. Jayasingha and T. Sampath**

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

*\*kumudij@gmail.com*

*Garcinia quaesita* (Family Clusiaceae) is a plant species endemic to Sri Lanka. This plant is commonly used in Ayurvedic medicine and in culinary. Determination of bioactivity and isolation of bioactive compounds from the bark and the fruit of *G. quaesita* have already been reported. However, there are no such reports on the leaves of *G. quaesita*. Therefore, determination of bioactivity was initiated by extracting a wide range of bioactive compounds to hexane, ethyl acetate and methanol solvents using sequential extraction. Determination of bioactivity for all three crude extracts was carried out using several assays; where antioxidant activity using DPPH assay, FRAP assay and total polyphenolic content using Foline-Ciocalteu assay, cytotoxicity using Brine shrimp lethality assay and anti-inflammatory activity using heat induced haemolysis. In determination of antioxidant activity, all three extracts showed IC<sub>50</sub> values below 100 mg L<sup>-1</sup> with respect to the control ascorbic acid demonstrating that the leaves of *G. quaesita* have a significant antioxidant activity. Among all the three crude extracts, hexane extract had the least IC<sub>50</sub> value obtained from the DPPH assay. The ethyl acetate extract has the highest reducing capability according to the FRAP assay and the methanol extract has the highest total polyphenolic content according to the Folin-ciocalteu assay. The Brine shrimp lethality assay results showed that the toxicity of the hexane, ethyl acetate and methanol extracts were low, high and moderate, respectively, relying on the LC<sub>50</sub> values obtained with respect to the control potassium dichromate. Heat induced haemolysis results showed that all three extracts exhibit significant anti-inflammatory properties with respect to the control (Aspirin). The hexane extract was selected for bio assay guided isolation of compounds since it has the highest antioxidant activity obtained from the DPPH assay and it also contains a higher number of antioxidant active compounds relative to the other two extracts. Vacuum-liquid chromatography, flash column chromatography and preparative thin-layer chromatography methods were applied to isolate the most prominent antioxidant active compound which is similar in R<sub>f</sub> value to Garcinol. The co-TLC results confirmed that the isolated compound is Garcinol. Hence it could be concluded that Garcinol is also present in the leaves of *Garcinia quaesita*.

**Keywords:** Antioxidant, Bioactivity, *Garcinia quaesita*, Garcinol