Abstract No: TO 17

Exploring *in vitro* antioxidant and anti-inflammatory activities of fresh fruit of *Garcinia quaesita*

K. S. J. Ekanayaka and M. J. Gunaratna*

Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka

**Corresponding author: medhagunaratna@kln.ac.lk*

Garcinia quaesita which is locally referred to as "Rath Goraka", is an endemic species growing wild in the wet and intermediate zones of Sri Lanka. This species has been in use for a long period of time in Sri Lankan traditional medicine to treat various disease conditions. Decoctions of the fruit rind are used for rheumatism, wounds and swelling. Dried fruit rind has been used as a condiment in Sri Lankan cuisine. In this study, we primarily investigated the total phenolic content (TPC), total flavonoid content (TFC), in vitro antioxidant and anti-inflammatory activities of aqueous ethanol (1:1) extract of freshy fruit of *Garcinia quaesita*. Results showed that the extract contained a TPC of 3053.25 (±30.07) μg GAE mL^{-1} and TFC of 443.19 (±4.76) μg CE mL^{-1}. Further, analysis of antioxidant activity of the extract using 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay showed a % inhibition between 35.13 % - 61.59 % for the concentration range 31.25 μg/mL to 500 μg/mL; whereas the ascorbic acid standard possessed a % inhibition between 91.00 % - 96.05 % in the same concentration range. Moreover, *Garcinia quaesita* extract at 1 mg/mL showed a higher percentage of inhibition against heat-induced haemolysis (70.62% ±2.14) than the standard (*O*-Acetylsalicylic acid) (53.66% ±3.36) in the human red blood cell (HRBC) membrane stabilization method. The p value ($p < 0.05$) in the one-way ANOVA test indicated that there was a significantly difference between the anti-inflammatory activity of fresh fruit extract of *Garcinia quaesita* and the standard. The results of Pearson's correlation analysis showed that there was a positive correlation between TPC, TFC, radical scavenging antioxidant activity and anti-inflammatory activities of the fleshy part of the fruit of *Garcinia quaesita*. Therefore, it can be suggested that the polyphenolic compounds, flavonoids, and other biologically active metabolites present in the aqueous ethanol extract of the fresh fruit of *Garcinia quaesita*, in combination, are responsible for producing strong antioxidant and anti-inflammatory effects.

Keywords: *Garcinia quaesita* fruit, Total phenolic content, Total flavonoid content, Antioxidant activity, Anti-inflammatory activity