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Characterization of biological activity of *Flueggea leucopyrus* Willd. (katupila)

B M M J Mendis[1], M D J Wijayabandara[2*] and S S S B D P Soysa[3]
[1]*Department of Chemistry, Faculty of Science, University of Colombo, Colombo-08*
[2]*Department of Pharmacology and Pharmacy, Faculty of Medicine, University of Colombo, Kynsy road, Colombo -08*
[3]*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo, Colombo-08*

Flueggea leucopyrus Willd. is a medicinal plant used for the treatment of many diseases including cancer in the Ayurvedic system of medicine. The present study was carried out to investigate the cytotoxic and antioxidant properties of the aqueous extracts of leaves and stem of the plant. Brine shrimp bioassay was used to study the cytotoxic properties of the plant. The crude extracts of leaves and stem did not show cytotoxic activity (IC_{50} >30 μg ml^{-1}) in the brine shrimp bioassay.

The aqueous extracts of leaves and stem were investigated for their total phenolic content and antioxidant properties. The leaves and stem extract contained a total phenolic content of 18.12% and 12.08% w/w of gallic acid equivalents respectively. The free radical scavenging activity (DPPH assay) of aqueous extracts of leaves and stem were investigated and compared with ascorbic acid which was used as a reference standard. The DPPH free radical scavenging activity of the leaves and stem extracts showed IC_{50} values of 8.08 and 17.56 μg ml^{-1} respectively. The IC_{50} value of ascorbic acid was 5.29 μg ml^{-1}. The Nitric oxide radical scavenging activity of the aqueous extract of the leaves and stem were also studied. The leaves showed concentration dependent NO radical scavenging activity at concentrations less than 5 μg ml^{-1}, giving IC_{50} value between 1.7-2.1 μg ml^{-1}. The stem extract did not show any dose dependent relationship towards NO radical scavenging activity. According to the phytochemical screening results, alkaloids, leucoanthocyanins and tannins of the pyrogallol type are present in both the leaves and stem of the plant. The results obtained in the present study indicate that aqueous extracts of the aerial parts of *Flueggea leucopyrus* Willd. is a potential source of natural antioxidants. Antioxidants have also been reviewed for their possible role in the prevention of cancer. Hence the results obtained from this study could be used in the rationalization of ethnomedical use of the plant.

*jayanthawijayabandara@yahoo.com Tel: 011 -2691111 Ext: 805