

ANTIOXIDANT ACTIVITY OF SOME SELECTED MEDICINAL PLANTS OF FAMILY RUBIACEAE AND ACANTHACEAE USING 1,1-DIPHENYL-2-PICRYLHYDRAZYL (DPPH) ASSAY

J. Thusyanthan^{1,3*}, P. Soysa¹ and R. Sivakanesan^{2,3}

¹*Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo, Sri Lanka*

²*Department of Biochemistry, Faculty of Medicine, University of Peradeniya, Sri Lanka*

³*Postgraduate Institute of Science, University of Peradeniya, Sri Lanka*
*thusyanthanj@gmail.com

Antioxidants play an important role in reducing oxidative damage to tissues, thus associate in preventing many diseases. The present study was carried out to determine antioxidant activity of the aqueous extracts of some selected plants belonging to the family of *Rubiaceae* and *Acanthaceae*, which are used to treat various diseases in traditional and ayurvedic medicine. Different parts of *Ophiorrhiza rugosa* (leaves, stems, roots and flowers), *Nauclea orientalis* (leaves, stems, roots, mature and immature fruits), *Pavetta indica*, *Morinda tinctoria* and *Justicia adathoda* (leaves, stems and roots) were collected and used from various locations of Sri Lanka in the months of May and June, 2012. Plant material was freeze dried and the powder was suspended in distilled water, subjected to microwave radiation and sonicated to prepare the aqueous extract. Antioxidant activity was determined by 1, 1-Diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay. Highest (lowest EC₅₀ value) and lowest antioxidant activities (highest EC₅₀ value) were observed in *Ophiorrhiza rugosa* leaves ($38.6 \pm 1.4 \mu\text{g/ml}$) and *Morinda tinctoria* stems ($5.9 \pm 1.5 \text{ mg/ml}$), respectively. The EC₅₀ value (reverse order of anti-oxidant activity), which is the concentration of compound which induces a response half way between the minimum and maximum concentration after an exposure time, for different parts of the plants showed a value less than 150 $\mu\text{g/ml}$. The values in descending order of Antioxidant activity was; *Ophiorrhiza rugosa* leaves > *Ophiorrhiza rugosa* roots > Mature fruits of *Nauclea orientalis* > *Ophiorrhiza rugosa* flowers > *Pavetta indica* leaves > *Nauclea orientalis* leaves. *Nauclea orientalis* could also be considered to be possessing good anti oxidant activity. The differences in the antioxidant activities might be due to different compounds present in different parts of the plant, species variation, environmental temperature, amount of rainfall, availability of water and nature of soil. Among the plants studied, leaves and roots of *Ophiorrhiza rugosa* showed the highest antioxidant activity compared to the other plants used in this study.