926/E2/Poster

Investigation of phytochemical content, antioxidant activity and antiproliferative activity of *Nauclea orientalis* L. bark and *Clerodendrum infortunatum* L. root

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Nauclea orientalis L. (Bakmee) and *Clerodendrum infortunatum* L. (Pinna) are medicinal herbs, used in Sri Lanka, in the treatment of cancer. However, the phytochemical content and the cytotoxicity of these plants have not been investigated to understand the reported ethnobotanical significance. The present study therefore, was carried out to evaluate the antioxidant activity and *in vitro* cytotoxicity of *Nauclea orientalis* L. (bark) and *Clerodendrum infortunatum* L. (root) using RD (Human Rhabdomyosarcoma) cancer cells as a model system. The total phenolic and flavonoid contents were determined using Folin- Ciocalteau and aluminium chloride colorimetric methods, respectively. The antioxidant properties of each plant was assessed by 1,1- diphenyl- 2- picrylhydrazyl (DPPH) radical assay and nitric oxide radical scavenging assays. Antiproliferative activity was determined using a 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. The EC_{50} values obtained are illustrated in Table 1.

Table 1: Total phenolic content, flavonoids and the EC_{50} values for DPPH, Nitric oxide and MTT assays, for *N. orientalis* L. bark and *C. infortunatum* L. root (Mean ± SD)

Decoction	Phenolics (w/w% of Gallic acid equivalents)	Flavonoids (w/w% of (-)-Epigallocatechin gallate equivalents)	EC_{50} value (µg/ml); Mean ± SD		
			Antioxidant activity		Cytotoxicity
			DPPH n=9	NO n=9	MTT n=3
N. orientalis L.	11.2 ± 2.1	84.9 ± 27.3	190.7 ± 6.1	119.4 ± 4.7	175.1 ± 7.1
C. infortunatum L.	1.7 ± 0.5	3.1 ± 1.1	345.3 ± 5.6	1171.9 ± 62.3	652.7 ± 19.4

The results obtained show that the phenolic content and flavonoid content are associated with antioxidant capacity of the plant extracts. Furthermore, it is observed that the antiproliferative activity of RD cells associates with antioxidant capacity.

Keywords: Antioxidant activity, *Clerodendrum infortunatum* L., cytotoxicity, EC_{50}, *Nauclea orientalis* L.

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