

**PHYTOCHEMICAL SCREENING, QUANTITATIVE ANALYSIS AND CYTOTOXIC POTENTIAL OF *Hemidesmus indicus* LEAF EXTRACTS IN VITRO**

**A.B.W.R. Silva<sup>1,2</sup>, N.N.R.N. Nugara<sup>1\*</sup>, P.M. Manage<sup>2,3</sup>, L.J.S. Undugoda<sup>1</sup>, D. Udayanga<sup>1</sup> and A.H.L.R. Nilmini<sup>4</sup>**

<sup>1</sup>Department of Biosystems Technology, Faculty of Technology, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

<sup>2</sup>Faculty of Graduate Studies, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

<sup>3</sup>Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

<sup>4</sup>Department of Material and Mechanical Technology, Faculty of Technology, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

\*nilushinug@sjp.ac.lk

Medicinal plants are considered as a dietary supplement for living organisms and play a beneficial role in treatment of many health problems in humans in certain South Asian countries including Sri Lanka. *Hemidesmus indicus* (L.) R. Br. is one of the widely used medicinal plants in Ayurveda in Sri Lanka and its local variety is known as 'Heen Iramusu'. The present study focused on screening and quantification of phytoconstituents in *H. indicus* crude extracts and cytotoxicity in vitro. Leaves of *H. indicus* collected from the dry zone in Sri Lanka were frozen, crushed, freeze-dried and powdered. Leaf extracts were prepared by shaking overnight a suspension of leaf powder (1 g) in 25 mL of ethanol, hexane and distilled water, separately, in triplicates. A qualitative analysis based on phytochemical screening was carried out. Total Phenolic Content (TPC) was determined according to the Folin-Ciocalteu procedure using gallic acid as the standard and Total Flavonoid Content (TFC) was determined using aluminum chloride colorimetric assay with quercetin as the standard. The water extract of *H. indicus* was examined for cytotoxicity in 3T3-L1 cells using MTT assay in order to identify possible consumable concentration levels of the extract. The phytochemical screening confirmed the presence of flavonoids, tannins, alkaloids and coumarins in the three extracts. TFC and TPC were highest in water and lowest in hexane extracts. TPC in water extract was 3-fold higher than hexane extract and TFC in water extract was 6-fold higher than hexane extract. Water extract showed no toxicity at concentrations below 300 µg/ml against 3T3-L1 cells. The flavonoids, coumarins and alkaloids present in *H. indicus* could be responsible for the medicinal properties of the plant.

Financial assistance from the University of Sri Jayewardenepura, Sri Lanka (Grant No. ASP/RE/TEC/2017/73) is acknowledged.

**Keywords:** *Hemidesmus indicus*, Cytotoxicity, Phytochemical analysis, TFC, TPC