



PHYTOCHEMICAL SCREENING, QUANTITATIVE ANALYSES AND CYTOTOXIC POTENTIAL OF *Aerva lanata* LEAVES EXTRACTS *IN-VITRO*

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Abstract

Plants are the most important source of medicines as well as dietary supplements for living organisms. The medicinal plants play a beneficial role in treating many health problems in humans throughout the world and extensively utilized in the South Asian region. *Aerva lanata* is one of the widely used medicinal plants in Ayurveda both in Sri Lanka and India. The present study mainly focuses on the identification, quantification of phytoconstituents in the crude extracts and cytotoxicity *in vitro* of *A. lanata*. Leaves of *A. lanata* plant were collected from the dry zone in Sri Lanka. Ethanol, hexane and water extracts (EE, HE and WE) were prepared using 1g of powdered fresh leaves which were dissolved in 25 mL of 100% ethanol, hexane and distilled water, separately in triplicates. A qualitative analysis based on phytochemical screening was carried out. Total Phenolic Content (TPC) and Total Flavonoid Content (TFC) were determined by following the Folin-Ciocalteu assay and aluminum chloride colorimetric assay, respectively. The WE of *A. lanata* was examined for cytotoxicity using 3T3-L1 cells by MTT assay in order to identify possible consumable concentration levels of the extract. The phytochemical screening confirmed the presence of flavonoids, tannin, alkaloids and coumarins irrespective of the different extracts. TPC in the WE was 3-fold higher than the HE, and marked as the highest. The highest level of TFC was found in the EE which was 3-fold higher than the WE. The WE showed no toxicity at concentrations below 300 µg/mL against 3T3-L1 cells. The presence of coumarins, flavonoids, and alkaloids are highly potential to be utilized in treating diabetes, obesity, rheumatoid arthritis, and cancers. These results provide referential information to identify the medicinal value of the plant towards the utilization of screening novel compounds to treat various diseases.

Keywords: *Aerva lanata*, Phytochemical Analysis, Medicinal Plant, TFC, TPC, 3T3-L1