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Standardization of different parts of *Acmella oleraceae* Murr. (Asteraceae) in terms of phytochemical, physico-chemical and bioactive properties

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Acmella oleraceae Murr. (Asteraceae) is a therapeutically important annual or short-lived perennial herb which has been widely used in Ayurveda and folk systems of medicine in Sri Lanka. The present study compared the quantitative physico-chemical parameters, qualitative phytochemical contents, total phenolic content (TPC), total antioxidant capacity (TAC) and cytotoxicity of leaf, stem and flower extracts of *A. oleraceae*. Physico-chemical and phytochemical parameters were tested according to standard procedure published by WHO. TPC and TAC were analyzed as per modified Folin-ciocalteu method and ferric reducing antioxidant power (FRAP) assay, respectively while cytotoxicity was determined by means of brine shrimp toxicity assay. The highest values for all the physico-chemical parameters, total phenolics, and TAC were found in leaves of *A. oleraceae*. However, the flower extracts exhibited higher brine shrimp toxicity. The order of cytotoxicity potency was flower > leaf > stem. This study revealed the significantly high antioxidant capacity and total phenolic contents in leaves and flowers and higher brine shrimp toxicity in flower extracts validating the use of both leaves and flowers in pharmaceutical and medical purposes. Physico-chemical, phytochemical, Thin Layer Chromatography (TLC) fingerprints, antioxidant and brine shrimp toxicity information generated through the present study could be effectively used for the quality control and standardization process of different parts of *A. oleraceae* in order to validate / upgrade the Sri Lankan Pharmacopoeia.

Keywords: *Acmella oleraceae,* Asteraceae, antioxidant capacity, cytotoxicity, total phenol content

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