

Investigation of toxicity, proximate composition and antioxidant capacity of the leaves of “thebu”, *Coctus speciosus* (Koenig) Sm

V. P. Bulugahapitiya* and L. A. S. Priyangika

*Department of Chemistry, Faculty of Science, University of Ruhuna,
Matara, Sri Lanka*

Coctus speciosus (Koen.) Sm belongs to the family coctacea and is commonly known as “thebu” in Sinhala. The plant has been found to possess many pharmacological properties such as antibacterial, antifungal, anticholinesterase, antioxidant, estrogenic and anti-diabetic. Many investigations have been reported for chemical and pharmacological properties of the rhizome of the plants but very limited studies are available on the leaves of this plant. Therefore, this study was aimed to evaluate toxicity, analyse proximate composition and determine antioxidant capacity of the leaves.

Brine Shrimp Lethality Assay was carried out for aqueous extract of the leaves to determine any cytotoxicity effects and possible pharmacological effects of the leaves. Cytotoxicity was expressed in Lethality concentration and the results showed the LC₅₀ of 3170 µgmL⁻¹ for the aqueous extract of leaves. Standard procedures were followed to determine proximate composition and the results showed the presence of 67.9% of moisture, 11.9% of total ash, 9.7% of crude fibre, 3.7% of protein, 2.2% of lipid and 4.4% of carbohydrates in the leaves. Antioxidant capacity was determined using 2,2-Diphenyl-1-picrylhydrazyl (DPPH) assay and Ferric reducing activity power (FRAP) assay, and ascorbic acid was used as the standard. IC₅₀ values obtained in DPPH assay were 730 µg mL⁻¹ and 40 µg mL⁻¹ whereas FRAP values were 23.3 mmol dm⁻³ and 880.5 mmol dm⁻³ for the leaves extract and ascorbic acid respectively. With this study it can be indicated that leaves extracts can be further evaluated for possible pharmacological activities, and that no significant calorific value and no high antioxidant power are associated with the leaves.

Keywords: Antioxidant, *Coctus speciosus*, proximate, toxicity

Acknowledgements: Authors greatly acknowledge Department of Chemistry, University of Ruhuna for providing all support for conducting this research.

*vajira@chem.ruh.ac.lk