

## Comparative Physicochemical Evaluation of Leaves of Selected Medicinal plants Used in Traditional Medicine

<sup>1</sup>Harini, P. A, \*<sup>1</sup>Gowri, R.

<sup>1</sup>Dept of Botany, Faculty of Science, University of Jaffna

\*gowri450@yahoo.com

### Abstract

The present study comprises physicochemical evaluation of leaves of four medicinal plants such as *Murraya koenigii*, *Gymnema sylvestre*, *Tinospora cordifolia* and *Enicostemma axillare*. Collected fresh leaves of above plants were washed and dried, then blended to form a fine powder and stored. Proximate nutrient contents of leaves were estimated according to the protocols recommended by the Association of Analytical Chemists (AOAC). Total caloric content was calculated by bomb calorimeter method. The pH in 1% w/v (1g; 100 ml) of water-soluble portions was determined using standard simple glass electrode pH meter. Estimation of essential chemical elements such as sodium, potassium, calcium and barium were calculated by flame photometric method. All experiments were performed in three replications. According to the results obtained, the highest and lowest ash content was found in in *Gymnema* sp. ( $18.65 \pm 0.35\%$ ) and *Murraya* sp. ( $8.38 \pm 0.22\%$ ), respectively. The moisture content was ranged between 3.47% (*Murraya* sp.) and 34.63% (*Tinospora* sp). The fat content varied from 1.49% (*Enicostemma* sp.) to 3.26% (*Tinospora* sp). Caloric content varied from 289.1 kcal/100g to 407.8 kcal/100g. Caloric content was significantly high in *Murraya* sp. (407.8 kcal/100g) and a lowest amount was found in *Tinospora* sp. (289.1 kcal/100g). All the plants showed similar and reliable pH values in the range of  $5.6 \pm 0.11$  and  $5.84 \pm 0.036$ . *Murraya* sp. and *Enicostemma* sp. exhibited the barium content of 1.5% which was found to be the highest among all. Sodium ( $0.828 \pm 0.012\%$ ) and Calcium content ( $0.331 \pm 0.017\%$ ) are significantly high in *Enicostemma* sp. whereas *Murraya* sp. and *Tinospora* sp. showed the highest and approximately same potassium content ( $0.724 \pm 0.021\%$ ). This study revealed that these four medicinal plants contain appropriate pH values favorable proximate nutrient composition and essential chemical elements.

According to the results *Enicostemma* sp. and *Murraya* sp. can be used as multi-functional medicinal herbs in traditional system of medicine and to prepare ready to use functional products and nutraceutical using its leaves.

**Keywords:** Calorie, Elements, Medicinal plants, Physicochemical, Leaves, pH