

Comparative analysis of nutritional and phytochemical properties of *Murraya koenigii* and *Micromelum minutum* cultivated in Sri Lanka

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Curry leaves, native to Sri Lanka, Bangladesh, and India, are utilized as a flavoring agent and as a crucial component in Ayurvedic medicine. This study aims to compare the nutritional and phytochemical properties of *Murraya koenigii* and *Micromelum minutum*. Samples of both species were collected from domestic gardens in the Kurunegala district of Sri Lanka, which were of similar age. Standard AOAC techniques were used to estimate the proximate composition, while total phenol content (TPC), flavonoid content (TFC), and *in vitro* antioxidant activity were assessed. All experiments were conducted in triplicate, and statistical analysis was carried out using ANOVA followed by Tukey's pairwise comparisons. The results demonstrated notable differences in the proximate composition between the two species. *M. minutum* contained higher moisture ($19.33 \pm 0.01\%$) and protein content ($18.00 \pm 0.01\%$). In contrast, *M. koenigii* showed significantly higher fat content ($6.30 \pm 0.25\%$). Regarding phytochemical content, the ethanol extract of *M. koenigii* showed a higher flavonoid content (17.24 ± 0.05 mg CE/g) compared to *M. minutum* (13.00 ± 0.02 mg CE/g). The

ANOVA revealed a significant difference ($p < 0.05$) in total phenolic content, with *M. koenigii* having more than twice the TPC of the other species. Additionally, Tukey's test showed superior DPPH (2,2Diphenyl-1-picrylhydrazyl) radical scavenging activity in *M. koenigii* as evidenced by its lower IC_{50} value (16.0 ± 0.9 μ g/mL compared to *M. minutum* (18.9 ± 0.9 μ g/mL). In conclusion, this study underscores the unique nutritional and phytochemical characteristics of both species. *M. koenigii* appears to be a better source of energy due to its higher fat content and exhibits remarkable antioxidant potential, enhancing its role in traditional medicinal applications. Furthermore, *M. minutum* serves as an excellent dietary source of protein. These findings highlight the complementary benefits of both species, suggesting their potential roles in nutrition and medicine.

Keywords:

Murraya koenigii; *Micromelum minutum*; Proximate analysis; Phytochemical analysis; Antioxidant activity.