

Morphological and Oil Content Variation of Curry Leaves in Sri Lanka

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Abstract

Murraya koenigii, commonly known as curry leaf in English is native to south Asian region including India and Sri Lanka. It is a perennial shrub or small tree commonly found in forests and cultivated in homegardens for its aromatic leaves and medicinal properties. The volatile oil extracted from leaves also bear insect repellent and anti-microbial properties. According to the local knowledge, people in Sri Lanka use various plants with similar morphology as curry leaves, especially for cooking. Therefore, this research is aimed to identify different types of curry leaf plants available in Sri Lanka and to analyse morphology, oil content and its constituents. For this purpose, a survey was first conducted by interviewing subject experts to identify different types of curry leaf plants available in the country. This survey identified 3 main species together with a few varieties. The identified species are *Murraya koenigii* (karapincha), *Micromelum minutum* (wal karapincha) and *Clausena indica* (mee-gon karapincha) and the varieties are beheth karapincha, dam karapincha and malu karapincha. Morphology of mature leaflets and rachis about 15 cm below the shoot apex was examined and herbarium sheets were prepared for morphologically different samples. Hydro-distillation was conducted for 100 g of leaves with 1.2 L of water for 5 hours to extract leaf oil. GC-MS instrument was used for oil constituent analysis. Morphologically curry leaves have bipinnately compound, spirally arranged leaves with length of 15-20 cm and leaflets with length of 3-4 cm and width of 1-2 cm. However, variations were also observed depending on the species and variety, for example, the leaf length was about 6 cm in beheth karapincha while 25 cm in *M. koenigii*. Leaves were usually green, but it was purple in colour for dam karapincha. *C. indica* had the highest oil yield (0.50%±0.24%) among tested species and varieties. *M. koenigii* recorded the highest oil yield from Dehiattakandiya (0.40%±0.06%) and the lowest from Melsiripura (0.13%±0.04%). According to the preliminary analysis conducted by GC-MS, the highest number of constituents was recorded by *M. koenigii* of Horowpothana (151 constituents) followed by *M. minutum* of Yagirala (79), *C. indica* of Rasnayakapura (75), *M. koenigii* of Yagirala (73), beheth karapincha of Panangala (44). Further studies are currently underway covering a wider geographical area to arrive proper conclusions.

Keywords: Curry leaves, Leaf morphology, Oil content, Oil constituents, *Murraya koenigii*