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Phytochemical and physicochemical analysis of *Ocimum sanctum* Linn from North Central and Southern provinces of Sri Lanka

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Ocimum sanctum Linn (known as Maduruthala in Sinhalese, Tulsi in Hindi), is a small herb belonging to family Lamiaceae and has been recommended for the treatment of bronchitis, bronchial asthma, malaria, diarrhea, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever, insect bite etc. Traditionally, *O. sanctum* L. is taken in many forms, as herbal tea, dried powder or fresh leaf. *O. sanctum* is widely cultivated in Asian countries including India and Sri Lanka. The active constituents such as eugenol and methyl eugenol present in *O. sanctum*, have been found to be largely responsible for the therapeutic potentials of the plant. Within the same species of plant, the composition of these compounds can vary with the nutrient composition of the soil, climatic season, development stage of the plant, natural association with other plants, storage of raw materials and the types of processing methods such as drying and extraction procedures. Therefore, the present study was designed to investigate differences or similarities in terms of (a) chemical composition of essential oil by GC analysis (b) physico-chemical parameters according to WHO guidelines [ash values and Thin Layer Chromatography (TLC) fingerprint] using *O. sanctum* grown in two provinces of Sri Lanka. *O. sanctum* was collected from two cultivations in the North Central and Southern provinces of Sri Lanka. Only aerial parts of the plant were used for the investigation.

Essential oil yield of plants collected from the North Central and Southern provinces were 1.9 and 1.5 % v/w respectively. Chemical composition of the oil was analyzed using gas chromatography revealed that plants collected from the North Central and Southern provinces contain 51.2% methyl eugenol, 19.7% β caryophyllene, 5.3 % eugenol and 64.7% methyl eugenol, 21.3% β caryophyllene, 0.6 % eugenol respectively in their essential oils. Further, a high content of methyl eugenol was present in plants collected from the Southern province. Total ash, water soluble ash and acid insoluble ash content of *O. sanctum* grown in the North Central province and Southern province were 12.9 ± 0.08 , 6.7 ± 0.14 , 0.35 ± 0.02 (% w/w) and 8.6 ± 0.03 , 3.6 ± 0.001 , 0.17 ± 0.02 (% w/w) respectively. TLC fingerprint profiles were established for CH_2Cl_2 extract of the plant by using CHCl_3 and MeOH in a ratio of 5:0.1 (v/v). Eleven number of prominent spots were present in the TLC profile after spraying vanillin sulphate. However, there were no significant differences between the TLC profiles. In conclusion, this study revealed the differences (by % of methyl eugenol, β caryophyllene and eugenol) and similarities (by TLC fingerprint profiles) of *O. sanctum* grown in the North Central and Southern provinces of Sri Lanka.

Keywords: *Ocimum sanctum* Linn, Lamiaceae, essential oil, physico-chemical parameters, thin layer chromatography