

## Determination of Composition and Curcumin analysis of Turmeric Grown in Sri Lanka and India

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Turmeric is a spice, colouring agent and herb which is consumed throughout the world. The main objective of this research was to do a comparative analysis of the composition of 5 different turmeric types. Two Indian market samples were used namely as Indian Pettah (IP) and Indian Matale (IM). Three Sri Lankan Samples were used namely Local Matale (LM) Research Matale (RM) and Homegarden Matale (HM). The research was done at Export Agriculture Research Institute Matale and University of Sri Jayewardenepura. Proximate analysis for all parameters and antioxidant content were quantitatively analyzed while phytochemical content was qualitatively determined. The results show a range of values which indicate the highest and lowest values respectively such as moisture (12.4 -11.33) %, volatile oil (3.3- 1.80), curcumin (5.053-3.5) %, oleoresin (15.87-14.2)% , protein (8.53-7.6)%,total ash (7.7-6.7)%, acid insoluble ash (1.8-1.1)% and fiber (7.9-7.2)%. Total Phenolic content ranged from (627.46-422.68) mg GAE 100g<sup>-1</sup> and the DPPH free radical scavenging capacity was (7.7-3.48)  $\mu$ g per ml. The identified phytochemicals were saponin, tannin flavonoids and steroid. Mineral were analyzed using Atomic Absorption Spectroscopy and Na content ranged from (32-35) mg 100g<sup>-1</sup>, K (1603-2402) mg 100g<sup>-1</sup>, Fe (32-38) mg 100g<sup>-1</sup> and Cu (0.62-0.73) mg 100g<sup>-1</sup>. Volatile oil of the turmeric rhizome was subjected to Gas Chromatography Mass Spectroscopy and 44 different compounds were identified. Indian samples contained a comparatively high number of volatile compounds. The genetically modified research sample (RM) was recorded with highest values for curcumin and oleoresin. It concludes that there is a significant difference in composition among Indian and local samples.

*Keywords:* Turmeric, curcumin, oleoresin, Phytochemical, Comparative analysis, Volatile oil, antioxidant