Morphological and chemotypic diversity of a cultivated cinnamon (*Cinnamomum verum* J. Presl) collection at the mid-country research station in Sri Lanka

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ABSTRACT

Though Sri Lankan cinnamon (Cinnamomum verum J. Presl) poses a significant morphological and chemical diversity, challenging standardization, it presents opportunities for breeding tailored to niche market products. This study evaluated 71 cultivated C. verum accessions at the Mid-Country Research Station (MRS), Dalpitiya, Sri Lanka, including elite varieties Sri Gemunu and Sri Wijaya. Nine leaf traits were assessed using TURIS 2013 descriptors. Principal Component Analysis (PCA) and cluster analysis grouped accessions into six morphological clusters. Gas Chromatography-Mass Spectrometry (GC-MS) analysis of leaf essential oils revealed 34 compounds. Eugenol ranging from 92.88-98.09% (accessions 52,64,65 and 70) and accession 41, which was unique for 94.94% benzyl benzoate and no eugenol, suggested the existence of distinct chemotypes. The study supports the idea of divergent biosynthetic pathways. These findings highlight the potential of Sri Lankan C. verum for breeding high-value varieties with tailored phytochemical profiles for use in food, pharmaceuticals, and cosmetics.

Keywords: Benzyl benzoate, *Cinnamomum verum*, cinnamon chemotypes, eugenol, germplasm characterization, leaf morphology.