

COMPARISON OF SOIL PHYSIOCHEMICAL PARAMETERS IN TRADITIONAL AND NON-TRADITIONAL CINNAMON GROWING SOILS

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There is a growing interest in expanding cinnamon cultivation to non-traditional areas due to its increasing global demand. However, there are no area-specific recommendations for fertilizer and other management practices given by the Department of Cinnamon Development for non-traditional areas. Hence, this research studied the physicochemical properties of soils in both traditional and non-traditional cinnamon-growing areas to assess their influence on the growth and development of cinnamon plants. The study was conducted in two traditional areas (*Thihagoda* and *Kalutara*) and two non-traditional areas (*Anuradhapura* and *Polonnaruwa*). Soil chemical parameters tested, included pH, electrical conductivity (EC), available phosphorus (P), exchangeable potassium (K), exchangeable calcium (Ca), and magnesium (Mg). Physical parameters assessed were soil moisture and bulk density and some on-field properties such as soil color, texture, stickiness, plasticity, root distribution, rock fragment and compactness. Growth parameters measured, included stem height and diameter. SAS 9.1.3 performed ANOVA in a split-plot design, using the LSD test for mean separation. Traditional and non-traditional soil properties significantly differ, with traditional zones promoting better cinnamon growth due to higher organic carbon, while non-traditional areas have higher bulk density, organic carbon, pH, and available phosphorus, indicating less suitability for cinnamon yield. Traditional areas like *Thihagoda* and *Kalutara* had significantly higher dry bark yields (*Kalutara* 800 kg ha⁻¹ year⁻¹, *Thihagoda* 900 kg ha⁻¹ year⁻¹, *Anuradhapura* 550 kg ha⁻¹ year⁻¹, *Polonnaruwa* 500 kg ha⁻¹ year⁻¹) compared to non-traditional areas, suggesting that further optimization in soil management is needed to improve cinnamon yield and economic productivity.

Keywords: Cinnamon yield, Soil properties, Soil quality, Stem diameter, Stem height