

EFFECTS OF *Gliricidia sepium* AND *Arachis pintoi* ON CINNAMON GROWING SOIL

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A study was undertaken at spice garden Middeniya to examine the selected properties of cinnamon (*Cinnamomum zeylanicum* Blume) growing soil as influenced by growing *Gliricidia sepium* (GS) and *Arachis pintoi* (AP). Six treatments namely, T1 (Control)- cinnamon + recommended dosage of fertilizer (RDF), T2- cinnamon + organic manure (20 t ha⁻¹ yr⁻¹), T3- cinnamon + single row GS + 50% RDF, T4- cinnamon + double row GS + 50% RDF, T5- cinnamon + triple row GS + 50% RDF and T6- cinnamon + AP + 50% RDF were used with triplicates. Soil samples were collected monthly from 0-15 cm soil depth. Standard soil analytical methods were performed to determine soil colour (SC), pH, electrical conductivity, organic carbon, total nitrogen, available phosphorus (P), exchangeable potassium (K), available sulphur (S), biomass carbon (BC), microbial activity (MA), biomass nitrogen (BN) and vascular arbuscular mycorrhizae (VAM) spores. Stem height and diameter of cinnamon were measured as growth parameters. MA was significantly increased in all the treatments compared to control. A significant effect ($P < 0.05$) of all tested chemical parameters except S, P and K contents was observed in all treatments compared to control. Nitrogen content in all other treatments was significantly higher ($P < 0.05$) compared to control ($0.38 \% \pm 0.07$). Among the tested biological properties, BC and BN elicited significant increase ($p < 0.05$) in all other testaments compared to control. VAM count was higher in T6 ($2.10 \text{ g/mm}^2 \pm 0.22$) but was not significantly different with other treatments ($P > 0.05$). Significant improvement in growth was observed in all treatments ($P < 0.05$) compared to control. In conclusion, Cinnamon can be cultivated with half recommended dose of chemical fertilizers with incorporated legumes and organic matter at Middeniya of Sri Lanka.

Keywords: *Arachis pintoi*, *Cinnamomum zeylanicum* (Blume), *Gliricidia sepium*.
Soil properties