IDENTIFICATION OF NUTRIENT DEFICIENCIES THROUGH VISUAL DEFICIENCY SYMPTOMS OF CINNAMON

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Most of the small scale Cinnamon (*Cinnamomum zeylanicum*) growers do not apply fertilizer at the correct time and as a result, obtain lower yield. It has been suggested to use deficiency symptoms as field indicators to identify nutrient deficiencies and the time for fertilizer application. A field study and a pot experiment were conducted to determine nutrient deficiencies through visual symptoms of cinnamon and proper combination of Ca and Mg for optimum growth. In the field study, plant and soil samples were collected from cinnamon plantations which showed deficiency symptoms such as chlorosis and other leaf colour changes. Visual deficiencies recorded by photographs were rated according to Munsell color notations and grouped into 13 categories. Simultaneously, soil samples were collected from 0 to 30cm depth of the manure circle of cinnamon plants and analyzed for nutrients. A pot experiment was established to identify deficiency symptoms of major nutrients (N, P, K, Ca and Mg) and to find out a suitable combination of Mg and Ca levels for optimum growth of cinnamon. Eight treatments were tested using CRD with three replicates. The tested treatments were recommended N, P, K levels with three different Ca and Mg ratios (T_1, T_2, and T_3) and treatments lacking N (T_4), P (T_5), K (T_6), Mg (T_7) or Ca (T_8). Growth performance and leaf colour change of each treatment were recorded. In the field experiment, highest and lowest leaf N levels were observed in cinnamon leaves belong to category 13 (7.5GY 4/4) and category 10 (2.5GY 7/10) respectively. However, no any relationship between soil nutrient levels and leaf colour changes were observed. Similarly, no significant colour changes were observed among treatments in the pot experiment possibly due to inadequate time to develop deficiency symptoms on cinnamon plants. However, highest plant height was recorded in T_2treatment(Mg: Ca 26:43 mg/plant/week) three months period after establishment. The study concluded that, visual deficiency symptoms cannot be considered as appropriate field indicators to assess nutrient deficiencies in cinnamon growing soils.

Keywords: Cinnamon, Deficiency symptoms, Munsell notations, Nutrient analysis, Plant nutrients