NEMATODE INFESTATION, BUSH DEBILITATION AND YIELD DECLINE IN SELECTED LOW COUNTRY TEA PLANTATIONS IN SRI LANKA

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Tea grown in the low country regions provides a significant contribution to the national plantation sector in Sri Lanka. However, in the recent past, bush debilitation and yield decline were reported in many tea growing locations. This is considered to be a multifactor phenomenon and affected by irregular rainfall patterns, poor soil management and perennial pest damage. The objectives of this research were to study the role of nematode infestation on yield decline and bush debilitation in tea plants, and to assess tea root growth under nematode infestation. Experiments were conducted as Completely Randomized Design. Soil samples were collected from three areas; Hapugastenna, Cicilton and Richiland tea estates in the low country. Young tea plant (cultivar TRI 2024) roots were grown on nematode-infested and sterilized soils in separate test tubes and maintained in a plant house at 22°C with 80% relative humidity. After two months, 1-2 cm segments of roots taken from plants were stained to determine the presence of nematodes. Differences between infested soils and sterile controls were tested by ANOVA using SAS. In all the three locations, the sterilized soils had a significantly higher ($P<0.05$) root fresh weight compared to *P. loosi* infested soils. The lowest root fresh weight was observed in Hapugastenne. The highest nematode count was observed in the infested soil collected from Cicilton estate. It is assumed that *P. loosi* disturbs the soil nutrient absorption, and plants may be stressed and exhibit pre-mature flowering and fruiting causing bush debilitation and yield decline. The study concludes that *P. loosi* significantly damage the tea root system. Further studies are required to study on available soil nutrients, pH and organic matter content in the soil samples collected from the affected areas.

Keywords: Bush debilitation, *Pratylenchus loosi*, Root system, Tea, Yield decline