Developing an Effective Management Method for Little Leaf Disease in Brinjal (*Solanum melongena* L.) Caused by Phytoplasma in Sri Lanka

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Abstract: Little leaf disease (LLD) is highly destructive to brinjal cultivation in Sri Lanka. LLD is cumbersome in the field since the causal agent is a phytoplasma spread by insect vectors. A study was conducted with the objective of determining an effective management method for LLD in brinjal and thereby increasing the yield. This experiment was carried out at the Agricultural Research Station, Thirunelvely, Jaffna, from February to May 2023. Cultivar plastic was used in this study with a Randomized Complete Block Design adopted r(RCBD) with three replicates and five treatments Viz; T1: Foliar application (FA) of Imidacloprid, T2: FA of Salicylic acid, T3: Seed treatment with Thiamethoxam and FA of Thiamethoxam, T4: FA of Gibberellic acid, C: Control. Yield performance, number of insect vectors per plant, LLD-infected plants per plot and number of phyllody per plant were assessed. Data were analyzed by ANOVA using SAS statistical software (version 9.4). The insect frequenting LLD-infected plants was identified to be leafhopper (*Hishimonus phycitis*). In the vector population, when compared to C, all the treatments were significantly low. T3 had the lowest leafhopper population (4.66) per plant in comparison to the control (12.44). There was a significant difference in brinjal yield among the treatments. T3-treated plants recorded the highest yield (25.33 ton/ha) compared to the control (15.16 ton/ha). The LLD incidence in brinjal plants was significantly low in T3 compared to T1 and C. All plants were free of LLD with T3 treatment and did not develop any phyllody. Additionally, all other treatments (T1, T2 and T4) resulted in a significantly lesser number of phyllody compared to the control. Therefore, this study concludes that the use of Thiamethoxam as seed treatment coupled with field applications reduces the leafhopper (*Hishimonus phycitis*) population in brinjal cultivar plastic, reducing the LLD and, in turn, increasing the yield.

Keywords: Brinjal cultivar plastic, Gibberellic acid, Leafhopper, Little leaf disease, Seed treatment.

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