

Evaluation of Resistant Rootstocks for Grafting Tomato (*Solanum lycopersicum*) Variety *Thilina* to Manage Bacterial wilt

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Bacterial wilt (BW) is an economically important, soil-borne disease of tomato (*Solanum lycopersicum*) that can cause severe yield losses up to 100%. Although the tomato variety *Thilina* has desirable fruit traits like thick pericarp, it shows only moderate bacterial wilt resistance. Grafting *Thilina* onto BW-resistant rootstocks offers an eco-friendly strategy for disease management. This study evaluated the BW resistance of *Thilina* grafted onto resistant rootstocks. Lanka Sour and T245 tomato varieties, *Pepino* (*Solanum muricatum* Aiton), and eggplant (*Solanum melongena* L.) cv. *Padagoda* were used as bacterial wilt-resistant rootstocks for wedge grafting onto the tomato variety *Thilina*. Non-grafted *Thilina* plants served as the control. All plants were transplanted in a field that had been heavily contaminated with the bacterial wilt during the previous cropping season. Wilting incidence, vegetative growth and fruiting parameters were evaluated. Data were analyzed using one-way analysis of variance (ANOVA) in SAS statistical software, and means were separated using Duncan's multiple range test at $p \leq 0.05$. A significantly lower wilting percentage was observed in plants grafted on Lanka Sour (0%), *Padagoda* (3.13%), and *Pepino* (4.17%) compared with the non-grafted *Thilina* (37.5%) and T245 (9.38%), at 60 days after transplanting. The greatest plant height was recorded in rootstock *Padagoda*, followed by T245 and Lanka Sour. The maximum number of primary branches was observed in rootstock Lanka Sour, followed by *Padagoda* and T245. The highest number of fruits was produced by *Thilina* grafted onto Lanka Sour. Number of fruits on T245, non-grafted and *Padagoda* plants were statistically similar, whereas grafting onto *Pepino* rootstock resulted in the lowest fruit yield. The study findings indicate that Lanka Sour, *Padagoda*, and *Pepino* rootstocks effectively reduced bacterial wilt in *Thilina* variety. Lanka Sour is recommended for complete resistance and optimal yield. *Padagoda* enhances plant growth whereas *Pepino* reduces yield despite its disease suppression.

Keywords: Bacterial wilt, Growth, Resistant rootstocks, *Solanum lycopersicum*