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Compatibility and performance of susceptible tomato cultivars grafted onto bacterial wilt (*Ralstonia solanacearum*) resistant rootstock

Kanyua Stella1*, Mwangi Maina[1] and Mbaka Jesca.[2]
[1] Department of Agricultural Science and Technology, Kenyatta University, Kenya.
[2] Horticulture Research Institute, Kenya Agricultural and Livestock Research Organization, Kenya
*Corresponding author email: ignastella@gmail.com

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ABSTRACT

Objective: Tomato (*Solanum lycopersicum* L.) belongs to the *Solanaceae* family and currently is one of the most important vegetable crops. Bacterial wilt, caused by *Ralstonia solanacearum* is a soil borne disease of tomato causing significant economic damage on tomatoes, tobacco and potatoes. Bacterial wilt is difficult to manage because the pathogen can survive in soil for long periods in association with a wide range of crops such as pepper, potato, capsicum, eggplants and weeds such as Jimson weed and nightshade. The objective of this study was to determine compatibility and performance of susceptible tomato cultivars grafted onto bacterial wilt resistant rootstocks.

Methodology: Scions from susceptible tomato commercial cultivars (Anna F1 and Cal J) were grafted onto rootstocks of Eggplant, Sodom apple and tomato cultivar Mt56 that were determined to be resistant to bacterial wilt in a previous study. Cleft grafting technique was used in the experiment. Data on compatibility was assessed daily to check on the healing of the graft union and number of established plants. The grafted plants were considered compatible if 67% of the grafted plants had healed and growth established fourteen days after grafting. Data were subjected to ANOVA using GenStat version 15 and significantly different treatment means separated using LSD at $P \leq 0.05$.

Results and application: The grafted plants were compatible at varying rates, that is Mt56 + Anna F1 (93.30%), Mt56 + Cal J (76.7%), *S. melongena* + Anna F1 (96.7%), *S. melongena* + Cal J (83.3%), *S. incarnum* + Anna F1 (73.3%), and *S. incarnum* + Cal J (100%). It was concluded that tomato scions and the botanically related wilt resistant rootstocks are compatible. All the grafted plants performed well except those on Sodom apple rootstock whose stem did not expand at the rate as the scion stem. It is recommended that the proven resistant rootstocks be deployed to tomato farmers for use in tomato grafting and subsequent increase in their production.

Key words: Grafting, Compatibility, Performance, Bacterial wilt