

**SCREENING OF RESISTANCE TO BACTERIAL WILT CAUSED BY
Ralstonia solanacearum IN SELECTED TOMATO LINES**

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by
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ABSTRACT

Bacterial wilt caused by *Ralstonia solanacearum* is a major constraint of tomato cultivation worldwide. The most effective way of controlling the disease is cultivation of resistant varieties. The objectives of the study were to identify local isolates of *Ralstonia solanacearum* with morphological, biochemical and molecular methods, to study virulence of the isolates and to identify resistant tomato lines to local isolates of *Ralstonia solanacearum* from selected tomato lines obtained from Horticultural Crops Research and Development institute (HORDI), Gannoruwa. Symptomatic tomato plants were collected from four different locations Matale, Ragala, and two vegetable fields in Gannoruwa area. Colony morphology of all four isolates were studied on Tetrazolium Chloride (TZC) and Sucrose Peptone Agar (SPA) media. All the isolates exhibited the typical colony morphology of pathogen by producing the colonies with pinkish red centers and cream white margins on TZC media and cream white colour colonies on SPA media. PCR based identification with the RALS-F and RALS-R specific primers confirmed all the isolates were consisted with the pathogen by giving an amplification of 400 bp fragment. Pathogenicity test conducted under greenhouse conditions exhibited the highest virulence in isolate collected from vegetable fields of HORDI by producing more than 80% of wilt incidences within two weeks after inoculation. The highest virulent isolate was used for the screening of 13 selected tomato lines under greenhouse conditions. Resistant variety Katugasthota Wilt Resistant and a susceptible variety Goraka Thakkali were used as the controls. All the screened tomato lines exhibited more than 30% of wilt incidences 14 days after inoculation. There was no significant difference in susceptibility of screened tomato lines to the bacterial wilt disease.

Keywords: Bacterial wilt, *Ralstonia solanacearum*, Resistant varieties, Tomatoes, Variety screening