

## CONTROL OF *Ralstonia solanacearum* WILT OF TOMATO USING BACTERIOPHAGES

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A study was conducted to determine the efficiency of bacteriophages in controlling bacterial wilt of tomato *in-vivo* caused by *Ralstonia solanacearum*. A mixture of bacteriophages with a concentration of  $10^8$  pfu/ml was repeatedly applied as soil application, twice before and once after the inoculation with two day interval. Three varieties; *Thilina*, *Rajitha* and *Lanka Savar* were used in a planthouse pot experiment and variety *Thilina* in field experiment. Another pot experiment was conducted using soil amendments; talc, clay and compost. Data on percentage wilt incidence and number of days for wilt symptoms to appear were analyzed by ANOVA. Survival of bacteriophages in soil was quantified.

All three varieties developed wilt symptoms when inoculated with the pathogen as well as with pathogen and phages, though rate of wilt development showed a variation by the 12<sup>th</sup> day. Wilt development was reduced by 20% in variety, Lanka Savar, treated with pathogen and phage mixture compared to other two varieties. Percentage wilt development was reduced by 22.3 in plants treated with both pathogen and phages by 10<sup>th</sup> day in the field experiment. Addition of talc, compost and clay reduced the wilt development by 60, 60 and 20 % respectively by the 14<sup>th</sup> day after inoculation. Addition of talc or compost has reduced wilt development by 62.8 % in *Thilina* grown in the field and 66.6% *Lanka Savar* grown under planthouse conditions.

Soil amendments significantly reduced ( $p < 0.0001$ ) the rate of wilt development. Talc-amended soil delayed the death of plant compared to compost. Soil amendments significantly enhanced ( $p < 0.012$ ) the survival efficiency of bacteriophages, where talc was the best. Results highlighted the potential of bacteriophages in controlling bacterial wilt *in-vivo* and the ability of talc and compost in improving efficiency of controlling wilt and survival of bacteriophages in soil.

**Key words:** Bacteriophages, *Ralstonia solanacearum*, Soil amendment, Survival efficiency, Tomato