

EFFICACY OF MICROBIAL ANTAGONISTS IN NUTRIENT AMMENDED MEDIA FOR THE CONTROL OF BACTERIAL WILT (*RALSTONIA SOLANACEARUM*) IN TOMATO (*SOLANUM LYCOPERSICUM*)

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Abstract

Bacterial wilt, caused by *Ralstonia solanacearum*, is one of the most important tomato diseases in Kenya. This disease causes yield losses of up to 100%. Biological control agents (BCA's) such as *Bacillus spp* and *Trichoderma spp* are known to be effective against various plant pathogens. Studies were conducted to evaluate the efficacy of microbial isolates of *Bacillus subtilis* 001, *Trichoderma asperellum* TR 900 and *Metarhizium anisophilae* in the control of bacterial wilt. Seedlings were drenched with either *B. subtilis* 001, *T. asperellum* TR 900, *Metarhizium anisophilae* or a combination of the three biological control agents at concentration 10⁷ CFU/g and planted in *Ralstonia solanacearum* inoculated media at a concentration of 10⁸ CFU/g. After six weeks, percent disease incidence was 38.4%, 44.6% and 52.6% respectively compared to 45% in the control. Transplanting of tomato seedlings in nutrient amended media with organic matter, NPK, CAN, later enhanced with *B. subtilis*, *T. asperellum* and challenged with *Ralstonia solanacearum* resulted in significant disease incidence reduction (p<0.001). Therefore, application of *Bacillus subtilis* and *Trichoderma asperellum* in amended can provide a potential control of bacterial wilt disease in tomato.

Key words: *Ralstonia Solanacearum*, *Bacillus subtilis*, *Trichoderma asperellum*, cfu, BCAs