

**IN VITRO SCREENING OF ANTAGONISTIC ACTIVITY OF SOME BACTERIAL ISOLATES AGAINST *COLLETOTRICHUM* SP. CAUSING ANTHRACNOSE DISEASE IN TOMATO**

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Tomato anthracnose is a destructive postharvest disease worldwide where the application of synthetic fungicides is the only control measure. The efficacy of seven selected bacterial antagonists in bio-control of the tomato anthracnose pathogen *Colletotrichum* sp. was evaluated in this study. Tomato anthracnose pathogen was isolated from an infected tomato fruit sample collected from a home garden in Colombo. The pathogen resembled *C. truncatum* according to phenotypic characters, and its pathogenicity on tomato fruit was confirmed through Koch's postulates. Healthy tomato rhizosphere and phyllosphere samples were used as potential sources to isolate antagonistic candidates. Extracts of rhizosphere soil samples and crushed phyllosphere samples were serially diluted to obtain bacterial isolates, and single colonies were obtained by subculturing. Twenty-four bacterial isolates underwent a two-step screening procedure: co-cultivation and dual culture plate assays. Seven different bacterial isolates coded as RA 8, RA 12, RA 17, RA 18, RA 29, PA 4, PA 12 showed significant ( $p < 0.05$ ) inhibition in the mycelial growth of *C. truncatum* and RA 8, RA 12, RA 17 and PA 4 isolates of *Bacillus* and *Pseudomonas* genera which showed highest suppression were selected for further testing of biocontrol efficacy. Spore germination of *Colletotrichum truncatum* was also suppressed up to 70 % by the selected antagonists. Morphological deviations and abnormalities in the protruding hyphae of the pathogen could be observed in the presence of the bacterial antagonists. The cellophane overlay technique indicated that all seven antagonists produced diffusible antifungal compounds against the pathogen. As the mycelial growth test revealed, hyper-parasitism and competition are also antagonistic mechanisms the selected antagonists extend. These findings direct further investigations on the *in vivo* biocontrol efficacy in mitigating the tomato anthracnose pathogen.

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