

ABSTRACT

BIOLOGICAL CONTROL OF FIG ENDOSEPSIS WITH ANTAGONISTIC BACTERIA

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“Fig endosepsis” caused by *Fusarium* spp. is one of the most important diseases of fig fruits in Turkey. The study aims at determining *in vitro* and *in vivo* effectiveness of antagonistic bacteria isolated from male and female fig fruits against *Fusarium* spp causing Fig Endosepsis in Aydın Province. *Fusarium* spp was isolated from diseased caprifigs and bacteria were isolated from healthy caprifigs collected from Aydın province (Bozdoğan, Nazilli and Erbeyli Fig Research Institute). Pathogenicity of purified *Fusarium* isolates was evaluated on detached caprifig fruits and identified by PCR analysis with ITS1/ITS4 and ef1/ef2 primers, followed by sequencing and NCBI BLASTn analysis. Twenty out of 138 purified bacterial strains showing the highest inhibitory activity against 3 *Fusarium* isolates in dual culture tests were also identified by 16S rDNA sequencing after amplification of the gene by PCR with the primers 27F/1390R. Twenty selected bacterial strains were also tested for the effect on fig wasp (*Blastophaga psenes*) emergence and the pathogenicity of *Fusarium verticillioides* on detached caprifig fruits. At the end of study, 30 *Fusarium* strains were identified as *Fusarium solani*, 15 *Fusarium proliferatum*, 9 *Fusarium verticillioides* and 13 *Fusarium* sp. In the orchard experiments, caprifig fruits treated with 4 selected bacterial strains and one commercial fungicide (prokloraz) were used by pollination in a commercial fig (cv Sarılop) orchard of Kızıldere willage of Nazilli town. Experiments were conducted by using randomized-plot design 7 treatments (4 bacterium, 1 fungicide, 1 untreated control, 1 farmer condition) with 3 replicates. Orchard experiments resulted in decrease in the fig endosepsis by 72% from the application of *Pseudomonas* sp ((BB7-B4), 62.23% of *Pantoea* sp. (Boğa in 1), 52,77% of *Serratia* sp. (Kaba ilek B2), 42.77% of *Pseudomonas* sp. (BEB 10 B2T). Commercial fungicide (prokloraz) treatment showed 34.31% activity against fig endosepsis in the orchard experiment.

Key words: *Ficus carica*, fig endosepsis, Sarılop, caprific, biocontrol, *Fusarium* spp.