

ABSTRACT

Ph. D Thesis

**DETERMINATION OF THE EFFICACIES OF SOME FUNGICIDES ON
Fusarium spp. AS THE CAUSAL AGENTS OF FIG ENDOSEPSIS
DISEASE**

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Fig endosepsis, known also as brown rot or pink rot, is an important disease caused by *Fusarium* spp. occurring in caprifigs and Calimyrna, as well as seldom in parthenocarpic fruits and causes important quality losses in most of the fig growing countries. The study was conducted to determine the effect of fungicide and fungicide mixtures against fig endosepsis under laboratory and field conditions. The rates of diseased mamme fruits, as well as the incidence of *Fusarium* spp. were determined in the caprifig collection orchard of Erbeyli Fig Research Institute (E.F.R.I) in Aydın province of Turkey between 2005 and 2008. Aiming to obtain clean profichi fruits, the incidence of *Fusarium* spp. was determined in mamme fruits dipped into the fungicide solutions. In addition, mamme fruits previously treated with fungicide and fungicide mixtures were hung to the caprifig trees to obtain clean subsequent profichi fruits which were used for the pollination of Calimyrna fruits. Finally, the incidence of *Fusarium* spp. in Calimyrna fruits were determined to assess the efficacies of fungicide applications. Additional studies were conducted to determine the ED₅₀ rates of fungicides. As a result, it was found that the incidence of *Fusarium* spp. in mamme fruits during the period between 2005 and 2008 were 57.4, 64.7, 40.3 and 30.3 %, respectively. In laboratory experiments carried out during three years by dipping mamme fruits to the fungicide solutions (thiophanate-methyl, thiophanate-methyl+chlorothalonil, cyprodinil, fludioxonil, cyprodinil + fludioxonil, prochloraz, tebuconazole), prochloraz was found to be the most effective fungicide in reducing the incidence of *Fusarium* spp. Variable results were obtained in the incidence of *Fusarium* spp. onto fig wasps (*Blastophaga psenes*) from all fungicide treated mamme fruits during three years. In case of reducing *Fusarium* spp. in Calimyrna fruits that were pollinated with profichi fruits obtained via fungicide treated mamme fruits, prochloraz (100 ml/100 l) and tebuconazole (240 g/100 l) were found to be as the most effective fungicides. In total, 120 *Fusarium* spp. isolates were obtained from Calimyrna fruits and 80% of these were identified as *Fusarium verticilloides* and 20 % as *Fusarium solani*. Most of these isolates were found to be highly virulent.

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