

Induced Systemic Resistance in Tomato Plants against Fusarium Wilt Disease Using Biotic Inducers

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Abstract : Tomato Fusarium wilt disease caused by *Fusarium oxysporum* f. sp. *Lycopersici* (FOL) is considered one of the most destructive diseases in Egypt. Effect of some biotic inducers such as *Bacillus megaterium* var. *phosphaticum*, *Glomus intraradices* and *Glomus macrocarpum* at seven different mixed treatments, was tested for their ability to induce resistance in tomato plants against the disease. According to pathogenicity tests, all the tested isolates of FOL showed wilt symptoms on both of the tested cultivars; however, they considerably varied in percentages of disease incidence (DI) and disease severity (DS). Castle Rock was more susceptible than Peto 86, which was relatively resistant. Pretreatment of both cultivars, under greenhouse conditions, with the tested biotic inducers alone or in combination with each other's, significantly increased the induction of chitinase, β -1,3-glucanase, peroxidase, and polyphenoloxidase and reduced disease incidence and severity, compared with untreated noninoculated (C1) and untreated inoculated (C2) controls. Application of a combination of BMP, with GI and GM was the most effective in increasing the induction rate of the tested enzymes, compared with the other treatments. Induction of enzymes in most of the tested bioinducers treatments gradually increased, attaining maximum values after 48 or/and 72 hrs after challenging with FOL, then gradually declined. GI was the least effective bioinducer.

Keywords : *F. oxysporum* f. sp. *lycopersici*, defense enzymes, induced systemic resistance, ISR, *B. megaterium* var. *phosphaticum*, *G. macrocarpum*, *G. intraradices*

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