

Evaluation of certain antagonistic fungal species for biological control of faba bean wilt disease incited by *Fusarium oxysporum*

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Abstract

Fusarium wilt incited by *Fusarium oxysporum* Schlecht. causes a remarkable economic losses in faba bean (*Vicia faba* L.) growing areas. In this study, fourteen isolates of *F. oxysporum* were isolated from the diseased faba bean plants, showing wilt symptoms, obtained from different localities in Assiut governorate. The isolates proved to be pathogenic on Masr-1 faba bean cultivar under greenhouse conditions. The effectiveness of five antagonistic fungal species (*Trichoderma harzianum* Rifai., *Trichoderma viride* Pers., *Gliocladium roseum* Bainier, *Gliocladium catenulatum* Gilman & Abbott and *Saccharomyces cerevisiae*) in growth inhibition of the pathogen *in vitro* as well as controlling the disease in greenhouse were evaluated. All tested antagonistic fungi were able to inhibit the growth of *F. oxysporum* in dual culture, significantly, as compared with control. Results also indicate that *F. oxysporum* suppressed strongly by coating seeds of faba bean by *T. harzianum*, *T. viride*, *G. roseum*, *G. catenulatum* and *S. cerevisiae* before sowing in the soil. Furthermore, the lowest percentages of *Fusarium* wilt severity were recorded by *T. viride* and *G. roseum* which reduced disease incidence to 22.25 % and 25.25% respectively, compared with 75.50 % in untreated seeds. It could be suggested that such antagonistic fungal species might be promising as alternatives for controlling faba bean wilt caused by *Fusarium oxysporum*.

Key words: antagonistic fungi, biological control, faba bean, *Fusarium* wilt, *Fusarium oxysporum*.

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