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Research Details :

Research Title : المقاومة الحيوية للفطريات الممرضة المحمولة في التربة على البذور والجذور في المنطقة الغربية بالمملكة العربية السعودية

المقاومة الحيوية للفطريات الممرضة المحمولة في التربة على البذور والجذور في المنطقة الغربية بالمملكة العربية السعودية

Descriptipn : The antagonistic effect of the antagonistic soil microorganisms *B. subtilis*, *Ch. horrida*, *F. semitectum*, *Ph. humicola* and *T. viride* on the growth and the pathogenic ability of *C. echinulata*, *F. oxysporum*, *R. bataticola* and *R. solani* that cause seed and root rot was studied. 145 organisms were isolated of which 128 isolates were fungi belonging to 24 fungi genera and 17 bacterial isolates belonging to 6 bacterial genera from four places namely: Jeddah , Makkah Al-Mukarramah , Taif and Al-Qunfudhah. Antagonism was studied between the soil antagonistic microorganisms and the pathogenic fungi in the laboratory. The pathogenesis was tested on two plants using the Emerald variety of okra and Eskandarani variety of vegetable marrow. *C. echinulata* was found to be the most harmful to the two plants followed by *R. bataticola* and then *F. oxysporum*. It was found in the case of dual cultures in PDA medium that the antagonistic soil microorganisms has an inhibiting effect on the growth of the pathogenic fungi especially *T. viride*. When the media is inoculated with either an antagonistic microorganisms or a pathogenic fungus the effect is the inhibition of the other organism grown on the surface of the inoculated media. When the soil is mixed with a filtrate of an antagonistic microorganisms previously exposed while to boiling temperature, no inhibition to the growth of the pathogenic fungi takes place, the non-boiled filtrates had an inhibiting effect on the pathogenic fungi particularly *Ps. aeruginosa* bacteria on *C. echinulata*, and *F. oxysporum* fungi. It was also noted that the non-boiled filtrates of more than one antagonistic microorganisms had an inhibiting effect on the growth the former fungi especially *F. semitectum* on *C. echinulata* . *Ph. humicola* , *Ch. horrida* and *F. semitectum* fungi showed a high secretive activity on the chitinase enzyme. the study of employing the soil antagonistic microorganisms as a resistance means against disease showed that the addition of the antagonistic microorganisms to a soil previously inoculated with an equal amount of the pathogenic fungus for two days reduced the rate of disease and increased the rate of germination especially when used in the case of *Ph. humicola* against *R.solani* in okra and *F. semitectum* against *F. oxysporum* in vegetable marrow. When the antagonistic microorganisms are added to the inoculum of pathogenic fungi at the same microorganisms are added to the inoculum of pathogenic