PATHOLOGICAL STUDY ON FUNGAL ROOT ROTS OF CANTALOUPE UNDER EGYPTIAN CONDITION

BY

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B.Sc. Agric. Sci. (Plant Production), Fac. Agric., Cairo Univ., 2013

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ABSTRACT

Isolation trials carried out from samples of cantaloupe plants suffering from vine decline and root rot collected from Giza (El- Ayaat), Beni Suef (Seds), Behera (Wadi El Natrown) and Matruh (Alhamam) governorates yielded 6 different fungal genera. These fungi were identified as *Sclerotium bataticola, Rhizoctonia solani, Botryodiplodia* sp., *Plectosphaerella melonis, Monosporascus cannonballus* , *Fusarium solani* and *Fusarium oxysporum. Pa. melonis,* as a new first report in Egypt was only isolated from Behera (Wadi El Natrown). The most frequent isolated pathogen from rotted rot and vine decline of cantaloupe plants was *Pa. melonis.* Meanwhile, the lowest percentage of frequency was recorded for *F. oxysporum.* The pathogenicity of the isolated fungi in pot experiments revealed that the great percentage of cantaloupe root rot was recorded from soil infested with *F. solani* even after one or two months post transplants. In microplots experiment using different double combinations of the fungi tested the highest average percentage of cantaloupe root rot and disease severity index were obtained from soil artificially infested with all the tested fungi. The effect of five different degrees of temperature on the linear growth of the fungi tested was carried out *in vitro*. It was found that any of the fungi tested were not able to grow 10°C. Whereas, start of growth of all the fungi occurred when the fungi incubated at 15 ºC but the growth of *M. cannonballus* started late (96hrs) from incubation at this degree. Studying the effect of different degrees of temperatures on the growth dry weight (mg) of the tested fungi after 5,10 and 15 days of incubation indicated that the dry weight of the fungi was increased by the increase in the temperature degrees tested. Studying the interaction among the causal organisms on solid medium(PDA) revealed that all double combinations between fungi tested caused a reduction in their growth. This was more pronounced when *Botryodiplodia* sp. was cultured with any of the other fungi tested. Effect of an isolate of *Bacillus amyloliquefaciens* against the fungi tested revealed that the bacterial isolate was effectively suppressed the mycelia growth of all of these fungi. Effect of five fungicides on the growth of the fungi tested using PDA poisoned medium pointed out that all the tested fungicides significantly reduced the growth of the tested fungi. Transplants treated with salicylic acid and Bion gave good results in reducing incidence of root rot in plants grown in artificially infested soil with *Pa. melonis* .Also chitosan treatment became very effective in reducing root rot incidence of plants grown in infested soil either with *S. bataticola* or *R. solani* Chemical inducers increased the growth parameters of treated transplants. It was found that the highest effect on percentages of cantaloupe root rot incidence was recorded from using *B. amyloliquefaciens* against infection by either *F. solani* or *Botryodiplodia* sp..

Key words: Cantaloupe, chemical control, chemical inducers, rotted rot, vine decline

DEDICATION

I dedicate this work to ALLAH who gives me the power and health. And special thanks to my parents, brothers and friends for their love and support.

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