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شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

بالرسالة صفحات
لم ترد بالاصل

بعض الوثائق الأصلية تالفه

BIOLOGICAL CONTROL OF PLANT PARASITIC NEMATODES

BY

Eman Samir Fathy Hagag

B. Sc. (Agric.), Tanta Univ., A.R.E., 1994

Thesis

Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Master of Science

in

AGRIC. MICROBIOLOGY

Agricultural Botany Department

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Kafr EL- Sheikh

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Approved by :

Abdel Hadi

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Date : / 2000

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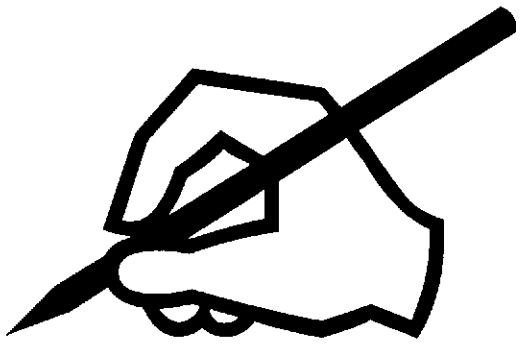


INTRODUCTION

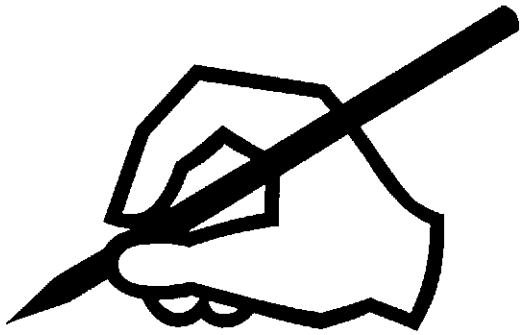
1. INTRODUCTION

Plant-parasitic nematodes cause significant reduction in yield and quality of many crops. Feeding by nematodes damages the plant by affecting nutrient absorption and providing infection sites for a wide range of secondary plant pathogens. Root-feeding nematodes have also been found to transmit viral diseases (Warrior, 1997). Annual crop losses due to nematode damage have been estimated, on a world wide basis, to average 12.3 % (Sasser and Freckman, 1987).In Egypt, estimated losses for vegetable crops due to nematode-related disease complexes amounted to some 15 % in 1986, with losses for field crops ranging from 5 to 20 % (Eissa, 1988).

Root-knot nematodes, *Meloidogyne spp.* are widely distributed and of wide host range. More than 70 *Meloidogyne* species are known throughout the world (Sasser, 1981). Only four species, *M. incognita, M.javanica, M. arenaria* and *M. hapla* are of major economic importance. One of the most favorable host plants for root-knot nematodes is tomato. Meanwhile, it is one of the most important, popular and widely distributed vegetable crops grown in Egypt. It is primarily cultivated for local market, export and processing. The cultivated area of tomato in Egypt in 1996 was 412103 feddans, according to the estimation of Ministry of Agriculture with an average yield of 14.6 tons/ feddan (Hassan, 1998). However, damage caused by root-knot nematodes constitutes a major constraint to cultivation of tomato especially in sandy soil and reclaimed desert lands in Egypt.

Although, cultural practices such as flooding, fallowing, crop rotation were and are still the most widely used methods to reduce losses from nematodes, the economic pressure on land use limits the application of such methods. In addition, cultivaters of crops with resistance or tolerance to nematodes are not- if any- widely distributed.

Since the discovery of the first nematicides in the 1940s, and the introduction of the organophosphate and carbamate nematicides in the 1960s , their use has being increased substantially to control nematode in high value crops. However, the finding that DBCP (1,2- dibromo-3-chloropropane) was carcinogenic (Stirling, 1991) and the high mammalian toxicity of the organophosphate and carbamate contributed to the poor public image of nematicides. Health and environmental problems associated with chemical control created a considerable public pressure to limit or even ban the use of nematicides. To avoid the drawbacks of chemical control, a range of other nematode management strategies have to be developed and biological control is one such alternative. Therefore, the present study aimed at isolating of antagonists of root-knot nematodes (*Meloidogyne spp.*) and evaluating their efficiency as potential biological control agents against the root-knot nematode in laboratory and under greenhouse conditions. The study aimed also at evaluating the efficacy of the most promising antagonists to control root-knot nematode on tomato under field conditions.



REVIEW OF LITERATURE