بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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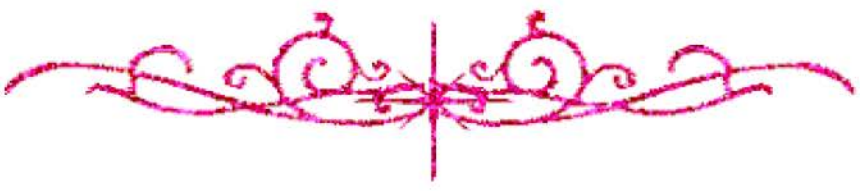

بالرسالة صفحات لم ترد بالأصل

EFFICACY OF DIFFERENT FUNGICIDES AGAINST CERTAIN FUNGI

A Thesis

Presented to the Graduate School
Faculty of Agriculture, Alexandria University
in Partial fulfillment of the Requirements for the Degree of

Doctor Philosophy of Science

in

Chemistry of Pesticides

By

Manal Mohamed Sayed Zin El-Dein

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To

my

Father,

Husband

& Son

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INTRODUCTION

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Tomato *(Lycopersicon esculenturn* Mill) is one of the most important Solanaceous economic vegetable crops in Egypt for local consumption and exportation. The cultivated area with tomato during 1998 growing season was 412103 feddans, which increased to 421838 feddans in 1999 with an average of 9.64 and 12.22 tones yield/feddan, respectively. (c.f Dept. of Econ. Agric. and Agric Statis., Ministry of Agriculture and Land Reclamation, A.R. Egypt, 1998 and 1999), (Ibrahim, 2000) and (Khalil, 2000).

Tomato is subjected to attack by numerous diseases wherever the crop is planted. Fungal pathogens are considered as damaging agents causing a considerable reduction of its production. The wilt disease caused by *Fusariurn oxysporum* fsp. *lycopersici* (Sace.), Synder and Hansen and *Rhizoctonia solani* Kuhn have serious effects on tomato plants either in nurseries or in the fields. These fungal infection are the main reason for replantation and increasing of tomato production costs (Awad, 1990). The crop is highly affected during the seasons of early summer and nili in the governorates of Upper Egypt and the reclaimed sandy regions of Nubaria and Ismailia, (Snyder, *et al.*, 1981).

Damping-off disease is commonly controlled through the use of seed treatment fungicides that increase the percentage of healthy seedlings, Singh *et al.*, (1982) and Sumner *et al.*, (1988).

Tomato, grown all over the year around resulting in continuous flow of production of fruits, which have a potential of continuous need for satisfying local markets consumption and also fresh exportation. Besides, excess of the tomato production is needed for coming to be used as a sauce, concentrated pastes or juices.

Tomato plants are grown all over Egypt because the average temperature, relative humidity, types of soil and other ecological factors are favorable for tomato production. Tomato plants are cultivated either in open fields or under plastic houses.

Tomatoes pass through several stages in the course of a season's growth: seedling establishment, vegetative growth, flowering, and fruiting stages all differ in requirements and susceptibility to pests, (Integrated Pest Management for Tomato, University of California, 1990).

Tomato plants are known to be liable for several insect and non-insect pests' infestations in addition of several disease infections. The North Coast and North Delta areas are suitable for continuous production of tomato allover the year. However, the sandy soil and the optimum microclimate in these areas where modest temperature and higher relative humidity are prevailing encourage the fungal disease infections. Therefore the fungal disease control is an important limiting factor for the successful production of tomato in the Alexandria and Beheira Governorates.

The main three fungal diseases which are expected to infect tomato plantations in Alexandria area are two root fungal infections with *Fusarium oxysporum* and *Rhizoctonia solani* in addition to the foliage fungal infection with *Alternaria alternata*. The chemical control with conventional and specific fungicides was attempted in both laboratory and field screening competitive program. In addition, one acaricide was investigated through out the laboratory and greenhouse experiments.

The aim of the present work of the tested pesticides against *F.oxysporum*, *R. solani* and *A.alternata* to find out the efficacy of these pesticides and also their effect on pectolytic, ribonuclease and glutathion-s-transferase enzymes activities of these fungi. Also, phytotoxic effect, disease index, effect on root and stem growth, total solid weight, the percent of chlorophyll a, b and carotene content were assayed and discussed. The more potent and least phytotoxic tested pesticides were shown in a suggested control program for these three important phytofungal diseases.