بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

MINUFIYA UNIVERSITY

FACULTY OF AGRICULTURE AGRICULTURAL BOTANY DEPT.

INTEGRATED CONTROL OF ROOT-ROT DISEASE OF FABA BEAN (*VICIA FABA*)

Thesis Submitted in Partial Fulfillment
For the Degree of

Doctor of Philosophy

In

Agricultural Science "Plant Pathology"

By

Rania Zaky El-Shennawy

M.Sc. Agric. (Plant Pathology), Minufiya University, 1995

Supervised by :

Prof. Abdel-Monsef A. Basiony	(Ph.D.)
Prof. El-Shawadfy M. Mousa	(Ph.D.)
Prof. El-Said Z. Khalifa	(Ph.D.)
Prof. Doriya E. Dowaydar	(Ph.D.)
Dr. Gomaa A. Amer	(Ph.D.)

B
١٨٨٤

2001

APPROVAL CHEET

Title of thesis : **Integrated control of root-rot disease of faba bean (*Vicia faba*).**

Submitted to : Department of Agricultural Botany, Faculty of Agric., Minufiya Univ., Shibin El-Kom, EGYPT.

Presented by : **Rania Zaky El-Shennawy**
M.Sc. Agric. (Plant Pathology), Minufiya Univ., 1995

For : The Degree of **DOCTOR OF PHILOSOPHY** in Agricultural Science
(Plant Pathology)

This thesis has been assessed and Approved by:

Signature,

Prof. Abdel-Razik Abdel Aleim	***(Ph.D.)***	A. Abd-Elrazik
Prof. Abdel-Monsef Basiony	***(Ph.D.)***	A.M. Basiony
Prof. Mahamed Ammar	***(Ph.D.)***	M.M. Ammar
Prof. El-Shawadfy Mansour	***(Ph.D.)***	E.M. Mousa

Judgement Committee in charge

Venue: Department of Agricultural Botany, Fac. of Agric., Minufiya Univ., Shibin El-Kom, EGYPT.

Date: 25 / 07 /2001

CREDIT SHEET

(Supervision Committee)

The Thesis Entitled: Integrated control of root-rot disease of faba bean (*Vicia faba*)

Presented by: *Rania Zaky El-Shennawy*

M.Sc. Agric. (Plant Pathology), Minufiya Univ., 1995

Has been supervised by:

1. ***Prof. Abdel-Monsef A. Basiony (Ph.D.)***
   Professor of Plant Pathology, Minufiya University.

2. ***Prof. El-Shawadfy M. Mousa (Ph.D.)***
   Professor of Plant Pathology, Minufiya University.

3. ***Prof. El-Said Z. Khalifa (Ph.D.)***
   Professor of Plant Pathology, Minufiya University.

4. ***Prof. Doriya E. Dowaydar (Ph.D.)***
   Professor of Plant Pathology, Inst. Of Plant Pathology, Giza.

5. ***Dr. Gomaa A. Amer (Ph.D.)***
   Associate Professor of Plant Pathology, Minufiya University.

Academic Staff members of the Department of Agricultural Botany, Faculty of Agric., Minufiya University, Shibin El-Kom, Egypt.

Signatures of the Supervisors:

1. A.M. Basiony
2. E.M. Mousa
3. E.Z. Khalifa
4. Doriya D.
5. Amer, Gomaa

Date: / /2001

ABSTRACT

"Integrated control of root-rot disease of faba bean (*Vicia faba*)"

By

Rania Zaky El-Shennawy (Plant Pathology)

Root-rot disease of faba bean is mainly caused by *Rhizoctonia solani, Fusarium solani* and *pythium* sp., *Thrichoderma hamatum, T. viride* and *T. harizianum* were the best fungal biocontrol agents which inhibited the growth of all tested pathogens. However, *Bacillus subtilis* was the best tested bacterial one. Both Topsin and Monoserin were the most effective fungicides against *R. solani* and *F. solani* at 100 ppm. All Trichoderma isolates tolerated previcure N (100 ppm) and Vitavax-Thiram (50 ppm); while Topsin and Rhizolix (100 ppm / each) inhibited the growth of all Trichoderma isolates. all mutants of *T. hamatum*; that induced chemically in combination with UV; suppressed the growth of the three pathogens and gave much better results than did the wild type of *T. hamatum*. Mutant (1) was the best for controlling all the pathogens. Sugar cane baggase followed by wheat bran supported the maximum colony formation of Trichoderma up to 60 days, where it favoured the mycelia growth, sporulation and consequently disease control. On the contrary, peat soil and saw dust inhibited the growth of *T. hamatum*. Faba bean cultivar Giza 714 was more resistant, while Giza 643 was more susceptible to root-rot disease.

Application of the biocontrol agents; alone or in combination with Topsin fungicide led to disease control and decreased faba bean damping-off. Biocontrol agents still effective in the potted soil for the second time of sowing. Mutant (1) and (6) + Topsin M gave the lowest against *Pythium* sp. damping-off Mutant (9) in combination with 50 ppm Topsin gave the best results against *R. solani* damping-off. However, Mutant (1) + Topsin (50 ppm) or Mutant (9) + Topsin M managed *F. solani* damping-off.

All tested biocontrol agents decreased root rot disease. Seed coating and / or soil application using different carrying materials decreased root-rot infection with different rates.

ACKNOWLEDGMENT

First of all thanks, my merciful ***GOD*** *for his continuous help during my life, my work and throughout this study.*

I would like to express this sincerest and the deepest personal gratitude and sincere appreciation to ***Prof. Dr. Abdel-Monsef Basiony,*** *as well as* ***Prof. Dr. El-Shawadfy M. Mousa,*** *who had been a source of constant help in various, for suggesting the problem, kind supervision, guidance, valuable advice, constant encouragement, unfailing patience and helpful criticism throughout the course of this investigation and the preparation of this manuscript.*

It gives me a great pleasure to acknowledge my debt to ***Prof. Dr. El-Said Z. Khalifa*** *and* ***Dr. Gomaa A. Amer,*** *for their supervision, interest, guidance, helpful criticism, marvelous understanding and providing most of the facilities which enable me to complete my research work.*

My sincere thanks are extended to ***Prof. Dr.Doriya Dowaydar,*** *Professor of Plant Pathology, Inst. of Plant Pathology, (A.R.C.) Giza, for her supervision, her faithful efforts and valuable assistance.*

The author wishes also to thank ***The Staff Members of Agricultural Botany Dept., Faculty of Agric., Minufiya University,*** *for their great assistance.*

I shall be failing in my duty if I don't mention my acknowledgement and gratitude to ***my Husband and my Sons, my Father, my Mother and my Brothers,*** *for their support during the course of this study.*

CONTENTS

Page