



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

جامعة عين شمس

شبكة المعلومات الجامعية

@ ASUNET



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of
15-25- c and relative humidity 20-40 %



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالاصل

**USING SOME NEW TRENDS IN CONTROLLING
SOME STORAGE AND SOIL PATHOGENIC
MICROORGANISMS AFFECTING ONION CROP'S
PRODUCTIVITY**

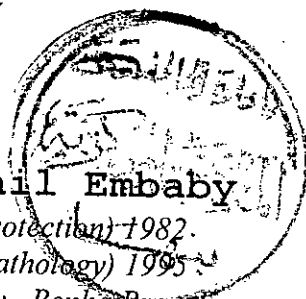
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B. Sc. Agricultural Science, (Plant Protection) 1982.

M. Sc. Agricultural Science, (Plant Pathology) 1995.

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Thesis

Submitted in Partial Fulfillment of the requirements
for the Degree of

**Doctor of Philosophy
in
Plant Pathology**

*Department of Agricultural Botany,
Fungus and Plant Pathology Branch
Faculty of Agriculture, Moshtohor*

**ZAGAZIG UNIVERSITY
(BENHA BRANCH)**

2003

117
CP

Supervision Committee

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ACKNOWLEDGMENT

Firstly my unlimited thanks to "Allah"

The author wishes to express his deepest gratitude and indebtedness to the senior supervisor of the present work **Dr. Nawal Abdel-Monem Eisa**, *Professor of Plant Pathology, Agric. Botany Dept., Fac. Agric., Moshtohor, Zagazig Univ. Benha Branch* for her constructive supervision, valuable advice, kind guidance and for her help in putting thesis in its final form.

I'm also indebted to **Dr. Nassim Abd El-Aziz Neweigy** *Prof. of Microbiology, Agric. Botany Dept., Fac. Agric., Moshtohor, Zagazig Univ. Benha Branch*, for continuous help offered during the course of this investigation.

The author also wishes to express his deepest gratitude to **Dr. Mohamed Abd El-Latief Nofal** *Prof. of Plant Pathology, National Research Center (NRC)* for his sincere encouragement, scientific support, keeping interest, his helps in provision of all facilities needed for the present work and great assistance in the preparation of this manuscript.

I would like to thanks **Dr. Mokhtar Mohamed Abd El-Kader** *Prof. of Plant Pathology, National Research Center (NRC)* for kind help of this investigation. Deep thanks are also extended to **Dr. Gehad M. El-Habbak and Fathy G. Mohamed Assis** *Profs. of Plant Pathology, Agric. Botany Dept., Fac. Agric., Moshtohor, Zagazig Univ. Benha Branch* for their continuous help through out this work.

Also, thanks for Prof. **Dr. El-DougDoug, Kh.** *Microbiology Dept., Fac. Agric., Ain Shams Univ.* and **Dr. Mohamed F. Abou E-Ella** the researcher in *Taxocology in the Central Lab. For Food and Feed Agric. Res. Center (ARC), Giza, Egypt* for their helps in biochemical determinations.

Thanks are also due to *all staff members* of the *Fungi and Plant Pathology Branch, Agric. Botany Dept., Fac. Agric., Moshtohor, Zagazig Univ., Benha Branch and Plant Pathology, National Research Center (NRC).*

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INTRODUCTION

INTRODUCTION

Onion (*Allium cepae* L.) is one of the most important vegetable crops in Egypt for local consumption and exportation. Onion bulbs are used as fresh for eaten raw or cooking, used as flavouring for other foods. Some times onion bulbs are preserved dried or pickled. Some leaves used as scallions and sprouted seeds may be eaten. Cooking and nutrition the edible onion bulb averages 85-87% moisture, 1.4% protein, 10% total carbohydrates, 0.2% fat and about 0.6% ash. One medium onion bulb can supply up to 20% of recommended daily amounts of vitamin C, plus some folic acid, fiber, thiamine, calcium, phosphate, iron and vitamin B₆. The sulfur compounds in onions may reduce cholesterol and lower blood pressure.(reference)

Onion ranks the third crop for exportation after cotton and rice in Egypt and rank among world countries according to productivity of main crops. The total cultivated area of onion, (green) crop was 5237 feddan (Table I) but onion (dry) crop was 82745 fed inter cropped and 36482 fed of single cropped (Table II). The total productivity for exportation 150537760-kg gave 18800806 \$ equal 63917108 bounds in 1999. Kaluobia is the highly productive Governorate (the mean yield ton/fed. 15.528) while, in Beni- Sewief Governorate the productivity is 7.963 ton/fed..

Table I: Area and yield production of onion (green) crop during 1999 season.*

Location	Area (Fed.)	Production (Ton)
Lower Egypt	1188	8849
Middle Egypt	2165	10219
Upper Egypt	1316	15506
New lands	568	6383
Grand total	5237	40957

*Calculated by the General Department of agricultural statistics (from F. A. O anonymous data 1999).

Table II: Area, yield and production of onion (dry) crop during 1999 season in new lands.

Location	Single cropped		Inter cropped	
	Area (fed.)	Product. (ton)	Area (fed.)	Product. (ton)
Lower Egypt	35106	293345	23000	309755
Middle Egypt	1084	8143	23826	221511
Upper Egypt	292	1561	9649	132491
New lands	-	-	26270	226040
Grand total	36482	303049	82745	889797

Numerous microorganisms attack onion (*Allium cepae* L.) under either field or store conditions, causing high losses in quantity and quality. Some of these microorganisms (fungi and bacteria) can remain in the soil for long time due to their abilities to form long-lived, dormant resting structures even for several years and to resume activity rapidly when condition return favorable. Some fungal diseases reveal themselves only when onions are planted. Some of them affect the roots and bulbs of onion also the disease start on the foliage and spread downwards in addition to some bacterial diseases. Pests are also a great problem, where, onion fly (onion maggots) causes high losses in stored bulbs. Soil microorganisms' (fungi & bacteria) attack onion bulbs after damaging and cause great harms.

As this study aimed to: **a-** Isolate the pathogenic microorganisms including fungi and bacteria at attack onion bulbs after transplanting and harvesting. **b-** Identifying the pathogenic microorganisms. **c-** Proving the pathogenicity of isolated pathogens on onion. **d-** Studying the effect of disease agents on plant growth parameters, production of yield and storage losses. **e-** Studying the effect of pathogenic fungal filtrates on onion seed germination. **f-** Determining some of enzyme activities related to infection. **g-** Studying the changes in phenolic compounds related to infection and production of toxins by the pathogenic fungi and studying different control methods. including (integrated pest management (IPM)).

**REVIEW OF
LITERATURES**

REVIEW OF LITERATURES

I- Causal organisms:

I-Soil borne diseases

a- Fungal diseases:

Some microorganisms (fungi and bacteria) remain in the soil for long time. There are two main ways by which organisms within soil possess or control their substrates. One is called dormant survival, and other is called saprophytic survival. Some fungal diseases reveal themselves only when onion is planted such as white rot. Some of the diseases affecting the roots and bulbs of onion may start on the foliage and spread downwards such as bacterial rot and others may carry over into storage such as black mold and basal rot (George, 1987).

Onion smut:

Walker (1952) reported that, the fungus (*Urocystis cepulae*) persist in the soil as a saprophyte, remain for an indefinite number of years in infested soil. The disease appears first on the cotyledon of the young plant soon after it emerges from the soil. The lesion consists of a dark, slightly thickened area involving leaf or cotyledon for one to several millimeters. The lesions in plants at all stages often rift to expose black powdery masses of spores. The majority of infected seedlings die within 3 to 4 weeks after emergence.

Tachibana and Duran (1966) mentioned that, smut spores (teliospores) can survive for several years in the soil and infected young plant after germination.

Ahmed (1974) mentioned that, onion smut are caused by *Urocystis colchici* which caused pre- emergence damping-off infection seedling.

Kochman and Macias (1974) reported that, the optimal range of temperature for infection with smut onion being 15-