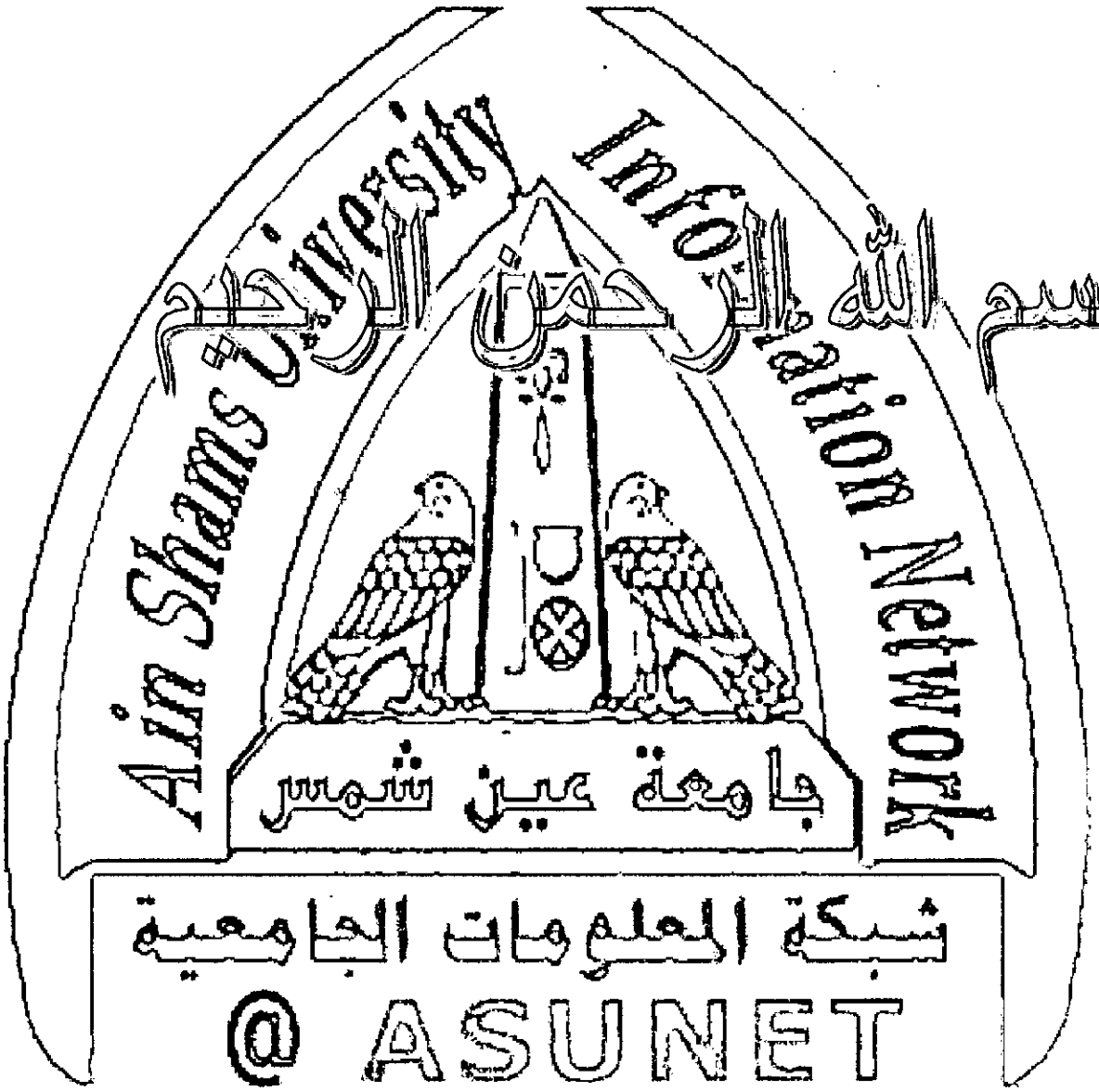

شبكة المعلومات الجامعية




# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## قسم

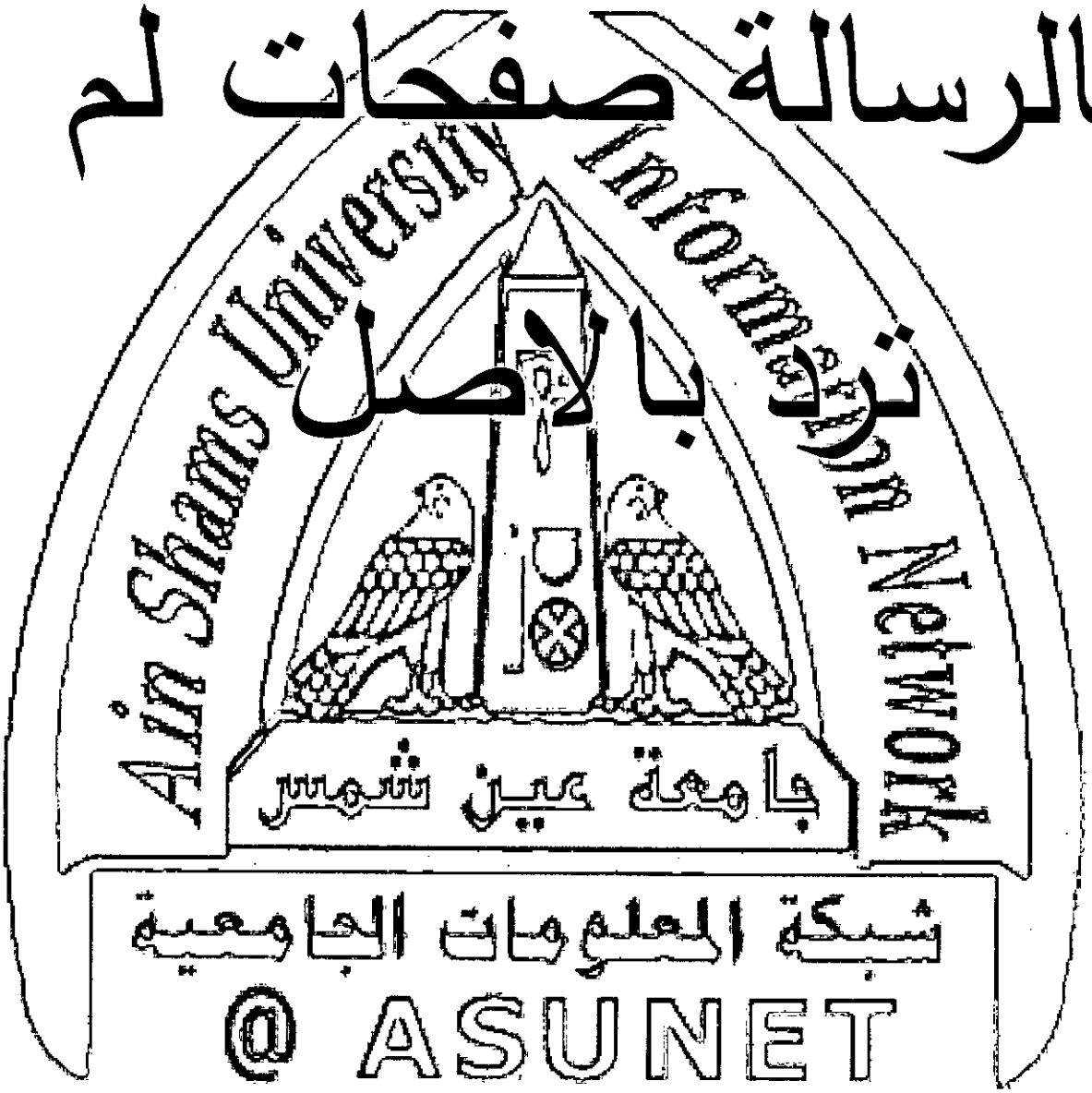
نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

## 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%**


# بالرسالة صفحات لم ترد بالأصل



# بعض الوثائق الأصلية تالفة

Ain Shams University Information Network
جامعة عين شمس
شبكة المعلومات الجامعية
@ ASUNET

# Studies on application of some plant products and their mixtures with modified atmospheres against certain insects infesting stored maize

By

**TAREK ABD – El - MOAZ ABD EL-RAHMAN BADR**

(B. Sc. Agric., Zagazig University, 1988)

(M. Sc. Agric., Zagazig University, 1996)

**THESIS**

Submitted in partial fulfillment
of the requirements for the degree

Of

## Doctor of philosophy

In

## Agricultural Science

## (Economic Entomology)

Department of plant protection
Faculty of Agriculture, Moshtohor
Zagazig University, Banha Branch

**2004**

# Studies on application of some plant products and their mixtures with modified atmospheres against certain insects infesting stored maize

By

**TAREK ABD El - MOAZ ABD EL-RAHMAN BADR**

**B. Sc., Moshtohor Fac. Agric., Zagazig Univ. Banha branch, 1988**

**M. Sc., Moshtohor Fac. Agric., Zagazig Univ. Banha branch, 1996**

**Under the supervision of:**

**Prof. Dr. Faris Amin Mohamed El-Lakwah,** Faris El-Lakwah

Professor. Of Economic Entomology, Department of plant protection, Faculty of Agriculture, Moshtohor, Zagazig University.

**Prof. Dr. Metwally Mostafa Khattab**...M. Khattab

Professor of Economic Entomology, Department of plant protection, Faculty of Agriculture, Moshtohor, Zagazig University.

**Dr. Zaghlol Abd El-Fatah Halawah**...Halawah

First Researcher of Economic Entomology at the plant Protection Research Institute Agric., Res., Center, Ministry of Agriculture.

**2004**

# APPROVAL SHEET

## Studies on application of some plant products and their mixtures with modified atmospheres against certain insects infesting stored maize


By

**TAREK ABD El - MOAZ ABD EL-RAHMAN BADR**

**B. Sc. Moshtohor Fac. Agric., Zagazig Univ. Banha branch, 1988**
**M. Sc. Moshtohor Fac. Agric., Zagazig Univ. Banha branch, 1996**


**This thesis for ph. D. Degree has been**

**Approved by:**

1- **Prof. Dr. Shalaby Mohamed El- Awady** ..... S. M. El-Awady
Professor of Economic Entomology at the plant protection Dept. Fac., Agric., El-Azhar – EL-Azhar University, Cairo.

2- **Prof. Dr. Ezzat Farag El-Khyat** .... E. El Khayat .....
Professor of Economic Entomology and Head of plant Prot. Dept. Fac., of Agric., Moshtohor, Zagazig, University.

3- **Prof. Dr. Faris Amin Mohamed El-Lakwah** Faris El-Lakwah
Professor of Economic Entomology at the plant protection Dept. Fac., of Agric., Moshtohor, Zagazig, University.

4- **Prof. Dr Metwally Mostafa Khattab** M. K. Khattab
Professor of Economic Entomology at the plant protection Dept. Fac., of Agric., Moshtohor, Zagazig, University.

5- **Dr. Zaghlol Abd El-Fatah Halawa** .....
First Researcher of Economic Entomology at plant Protection Research Institute, Agric., Res., Center, Ministry of Agriculture.

**Data of Examination:18/5/ 2004**

# ACKNOWLEDGMENT

This present study was conducted and supported by the National project of integrated pest mangement for post – harvest pests, financed by EEC-Counterpart funds through the Egyptian Ministry of Agriculture and Land Reclamation.

The author is highly indebted to the authorities of this National project.

Meanwhile, I want to express my deep thanks and gratitude to **Prof. Dr. Faris Amin Mohamed El-Lakwah,** Prof. Of Economic Entomology and control of stored product pests at the Plant Protection Dept. Fac. of Agric. Moshtohor, Zagazig Universty for supervision; suggesting the subject, valuable assistance and reviewing the manuscript.

My deep cordial thanks also extended to **Prof. Dr. Metwaly Moustafa Khattab,** Prof. of Economic Entomology at the same Department for his supervision and helpful advice.

I'm thankful also to **Dr. Zaghlol Abd El- Fatah Halâwah** First Researcher of Economic Entomology at Plant Protection Research Institute Agric., Res., Center, Ministry of Agriculture for supervision and helpful advice.

Also I want to express my deep thanks to all staff of the Plant Protection Department of the Faculty of Agric. at Moshtohor for their help.

# Contents

## List of Tables