



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



شبكة المعلومات الجامعية  
@ ASUNET



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





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%

# بعض الوثائق الأصلية تالفة

# بالرسالة صفحات لم ترد بالاصل



٢٢٥

# **ADJUSTMENT OF SOME *ATRIPLEX* SPECIES TO SALT AND HEAT STRESSES**

Thesis submitted to  
**THE FACULTY OF SCIENCE  
TANTA UNIVERSITY**

In Partial Fulfilment of the Requirements for

**M. Sc. Degree**

**BOTANY**

( Physiology )

by

**Mohamed Abd El-Latif Ibrahim Zaied**

**B. Sc. 1994**

**Botany Department  
Faculty of Science  
Tanta University**

**2001**



# **ADJUSTMENT OF SOME *ATRIPLEX* SPECIES TO SALT AND HEAT STRESSES**

Thesis submitted to  
**THE FACULTY OF SCIENCE  
TANTA UNIVERSITY**

In Partial Fulfilment of the Requirements for

**M. Sc. Degree**

**BOTANY**

( Physiology )

by

**Mohamed Abd El-Latif Ibrahim Zaied**

**B. Sc. 1994**

**Botany Department  
Faculty of Science  
Tanta University**

**2001**





DEDICATION  
TO  
THE SOUL OF MY  
FATHER  
TO  
MY MOTHER  
TO  
MY WIFE

## ACKNOWLEDGEMENTS

Thanks to the mighty, merciful and compassionate God for his help in the performance of this work.

I wish to express my sincere gratitude to Prof. Dr. Mohamed Nabih El-Shourbagy Professor of plant physiology, Botany Department, Faculty of Science, Tanta University, for suggesting the point of research, valuable help, advice and guidance during the experimental work and preparation of the manuscript.

My deep appreciation goes to Dr. Fatma El-Shintinawy, Assistant Professor of plant physiology, Botany Department, Faculty of Science, Tanta University, for her valuable support, encouragement and criticism during the experimental work and preparation of manuscript.

My thanks and gratitude are also due to Dr. Samha Dwidar, lecturer of plant physiology, Botany Department, Faculty of Science, Tanta University, for her help follow up during the research. Her assistance and help with the manuscript are highly appreciated.

My sincere thanks goes to Prof. Dr. Abdel-Monem Higazy and Prof. Dr. Ahmed Morsy Ahmed in the Desert Research Center, Cairo, for providing the seeds of *A. nummularia*.

I would like to express my thanks to Dr. Adel Selim, Professor of organic chemistry for helping in the determination of some elements.

My grateful thanks to Dr. Mahmoud Abu El-Yazeed, Professor of plant physiology, for his help in conducting of the statistical analysis.

Finally, grateful thanks are recorded to my family for their patience and support throughout this work.



## SUPERVISORS

**Dr. Mohamed Nabih El-Shourbagy**

Professor of plant physiology,  
Botany Department,  
Faculty of Science,  
Tanta University,  
A.R.E.

**Dr. Fatma El-Shintinawy**

Assistant professor of plant physiology,  
Botany Department,  
Faculty of Science,  
Tanta University,  
A.R.E.

**Dr. Samha Dowidar**

Lecturer of Botany,  
Department of Botany,  
Faculty of Science,  
Tanta University,  
A.R.E.

*M. E. H. Osman*

**Head of Botany Department**

**Prof. Dr. Mohamed El-Anwer Hessen Osman**

## NOTE

A part from the work, carried out in this thesis, the candidate had attended post-graduate courses for one academic year covering the following topics:

- 1- Instrumental analysis and chromatography.
- 2- Physiology of microorganisms.
- 3- Advanced biochemistry and organic acid metabolism.
- 4- Water relations, stomata, permeability and ion absorption.
- 5- Manometric techniques.
- 6- Free studies in genetics.
- 7- Nitrogen metabolism.
- 8- German language.

He had successfully passed a written examination in these studied courses.

M. E. H. Osman —

**Head of Botany Department**

**Prof. Dr. Mohamed EL-Anwer Hessen Osman**

## TO WHOM IT MAY CONCERN

This is to certify that this work has not been previously submitted for any degree at this or any other University.

Mohamed Abd El-Latif Ibrahim Zaied



## CURRICULUM VITAE

Name : Mohamed Abd El-Latif Ibrahim Zaied  
Date of Birth : 11 / 6 / 1970  
Social Status : Married  
Nationality : Egyptian  
Locality : Tanta  
Qualification : B. Sc. In Botany ( 1994 ) Faculty  
of Science, Al-Azhar University.



**Head of Botany Department**

**Prof. Dr. Mohamed EL-Anwer Hessen Osman**