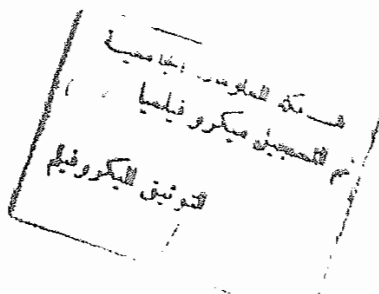






Ain Shams University  
Faculty of Science  
Botany Department



# *Studies on the Plant Ecology of Ras Sudr Area and Vicinity, South West Sinai*

**THESIS**

*Submitted For Partial Fulfilment  
For the Degree of  
MASTER OF SCIENCE  
IN BOTANY*



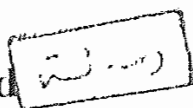
61663

581.1

H. A

By

**Hisham Ahmed Maroaf Mohamed**  
B.Sc. ( 1990 )

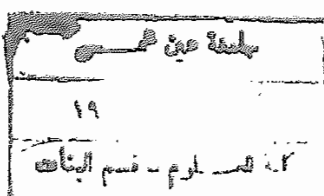


Ain Shams University  
Faculty of Science  
Botany Department

المستوفى  
سيد زعم خليل

رئيس قسم البساتين  
عبد الصمد

1996







***This thesis has not submitted  
before, at this or at any  
other University***

*Hisham Ahmed Maroaf Mohamed*



*Approval Sheet*  
*Studies on the Plant Ecology of*  
*Ras Sudr Area and Vicinity,*  
*South West Sinai*

A THESIS

Submitted in Partial Fulfilment of the  
Requirements for the Degree of Master of  
Science in Botany

By  
**Hisham Ahmed Maroaf Mohamed**

B.Sc., Botany, Cairo University, 1990

**Prof. Dr. Mohamed Ahmed Hamaouda**

**Prof. Dr. Mohamed Mahamed Youssef**

**Prof. Dr. Sayed Farag Khalifa**





# ABSTRACT

*Hisham Ahmed Maroaf Mohamed . Studies on the Plant Ecology of Ras Sudr Area and Vicinity, South West Sinai, M.Sc. Thesis, Ain Shams University, Cairo, Egypt.*

*The Present thesis includes ecological and anatomical studies to show how far the ecological conditions contribute to the morphological and anatomical characters of species under study.*

*Both metamorphosis and adaptations of these plants were interpreted under halophytic, xerophytic and wide range amplitudes at habitats at " Ras Sudr " and vicinity South West Sinai. The physical & chemical properties of soil in each locality could be bind with the growth, morphological and anatomical characteristics of the dominant plants .*

## **Key Words :**

*Sinai - Ras Sudr - Ecology - Morphology - Micromorphology or Anatomy - Macromorphology - Associations - Halophytes - Xerophytes - Wide Ecological Amplitude .*





## ACKNOWLEDGMENTS

I would like to express my sincere gratitude to *Dr. Sayed Farag Khalifa*, Professor of Plant Taxonomy & Flora, Botany Department, Faculty of Science, Ain Shams University and the late *Dr. William Abdullah Girgis*, Professor of Ecology, Exhead of Ecology Unit, Desert Research Center, Mataria, Cairo, for their supervision, support advices during the work and for their great help in the preparation of the thesis.

Thanks are also due to *Dr. Ahmed Moursy Ahmed*, Prof. of Ecology & head of the Department of Ecology & Ranges Dept., Desert Research Center , Mataria Cairo, for his continous help throughout this investigation.

My acknowledgment is due to Prof. *Dr. Seham Mohamed Ali*, Head of Botany Department, Faculty of Science, Ain Shams University for her kind indispensable help.

Deep thanks are also presented to the President of Desert Research Center (DRC) and all staff members for their continuous help and encouragement .



<u>List of Tables</u>	Page
<b>Table (1) :</b> Mean values of climatic particulars for Wadi-Sudr, South West Sinai, during the period 1982 - 1991 from the Meteorological Department of Sinai.	29
<b>Table (2) :</b> Mechanical analysis of soils associated with the different surveyed plant communities in S.W. Sinai .	31
<b>Table (3) :</b> Chemical analysis of soils associated with the different surveyed plant communities in S.W. Sinai.	35
<b>Table (4) :</b> Floristic composition of ten stands representing <i>Lygos raetam</i> community .	48
<b>Table (5) :</b> Floristic composition of ten stands. representing <i>Hammada elegans</i> community .	50
<b>Table (6) :</b> Floristic composition of ten stands representing <i>Halocnemum strobilaceum</i> and <i>Arthrocnemum glaucum</i> communities.	51
<b>Table (7) :</b> Floristic composition of eight stands representing <i>Zygophyllum album</i> community.	52
<b>Table (8) :</b> Chemical analysis of dominant Plants in the different surveyed habitats of S.W. Sinai .	54

<u>List of Plates</u>	Page
Plate (I) : Micromorphology of <i>Halocnemum strobilaceum</i>	63
Plate (II) : Micromorphology of <i>Nitraria retusa</i>	67
Plate (III) : Micromorphology of <i>Limonium pruinsum</i>	71
Plate (IV) : Micromorphology of <i>Tamarix aphylla</i> and <i>Tamarix nilotica</i>	73
Plate (V) : Micromorphology of <i>Atriplex halimus</i>	77
Plate (VI) : Micromorphology of <i>Anabasis articulata</i> and <i>Hammada elegans</i> ..	81
Plate (VII) : Micromorphology of <i>Euphorbia retusa</i>	85
Plate (VIII) : Micromorphology of <i>Suaeda pruinosa</i>	87
Plate (IX) : Micromorphology of <i>Lygos raetam</i> .	89
Plate (X) : Micromorphology of <i>Salsola tetrandra</i>	93
Plate (XI) : Micromorphology of <i>Zygophyllum album</i>	97

<b>CONTENTS</b>	<b>Page</b>
PREFACE	1
INTRODUCTION	3
SCOPE OF THE THESIS	9
<b>Part I</b>	
<b>Ecological Studies</b>	
SECTION A	
MATERIALS AND METHODS	
MATERIALS	
I. Geological and Geomorphological Setting of Studied Areas	11
- Wadi Sudr	11
- Wadi Gharandal	14
- Wadi Wardan	16
II. The Selected Plant Species :	16
- Halophytic plants	18
A . Succulent Species	18
B . Excretive Plants	18
- Xerophytic Plants	18
- Plants of Wide Ecological Amplitude	19
METHODS	19
I. Environmental Conditions	
1. Climatic Factors	19
2. Edaphic Factors	19
a. Physical Properties of Soil ( Granuleometric Analysis )	19