



بسم الله الرحمن الرحيم



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
على 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



Effect of Cultivations on Aquatic Plants in Canals in Upper Egypt

A THESIS

Submitted in Partial Fulfillment
for the Degree of M.Sc. in Botany.

Presented by

IBRAHIM BAYOUMI ABDEL-FREED

SUPERVISED BY

Prof. Dr. Irina V. Springuel

Professor of Plant Ecology and
Head of Department of Botany
Faculty of Science at Aswan
South Valley University

Dr. Magdi M. Ali

Assistant Prof. of Plant Ecology
Department of Botany
Faculty of Science at Aswan
South Valley University

Department of Botany
Faculty of Science at Aswan
South Valley University
EGYPT.
2001

791
29

بسم الله الرحمن الرحيم

"ومن آياته انك ترى الأرض خاشعة فإذا أنزلنا عليها
الماء اهتزت وربت إن الذي أحيانا لمحيى الموتى انه
على كل شيء قدير"

صدق الله العظيم

"سورة فصلت آية ٣٩"

To

The Memory Of My Father and To My Mother

To

My Brothers and My Sisters

THIS THESIS HAS NOT PREVIOUSLY BEEN
SUBMITTED FOR ANY DEGREE AT THIS OR
ANY OTHER UNIVERSITY

ACKNOWLEDGEMENTS

ACKNOWLEDGEMENTS

I am greatly indebted to **Professor Irina. V. Springuel**, Head of Botany Department, Faculty of Science at Aswan, South Valley University for suggesting of research topics, supervising this work and for her patience, continuous assistance and guidance throughout this work

I express my sincere thanks to **Dr Magdi M. M. Ali**, **Assistant Professor** in the Botany Department, Faculty of Science at Aswan, South Valley University for his supervision, continuous assistance and help.

I would like also to express my deepest appreciation to **Professor A. E. Belal**, Director of the Unit of Environmental Studies and Development, Aswan, South Valley University for providing all facilities of the unit for this work and his kind guidance during all my studies in this University. Also I would like to thanks all members of the Unit .

Also thanks for **Dr. Mohammed E. Soltan** Assist. Prof., Chemistry Department, Faculty of Science at Aswan, South Valley University for his helping in samples analysis and continuos encouragement.

Many thanks are due to **Professor M. T. El-Haty**, Dean and **Professor A. I. Koriem**, Vice Dean, Faculty of Science, at Aswan, South Valley University for their help and encouragement of my work.

Many thanks are due to **Dr. Usama Radwan** and **Mr. Mustafa Taher**, Botany Department, Faculty of Science at Aswan, South Valley University for their helping in drawing the maps.

I am gratefully acknowledge the Egyptian UNESCO National commission for the MAB Young Scientist Award which supported me in implementing this research.

Thanks are also to all colleagues of the Botany Department for their help and encouragement during my study in this department.

I would like to express all my deep appreciation to my family and my friends for their kind help, and continuous support, which could not be really appreciated.

Ibrahim B. Abdel-Freed

CONTENTS

Contents

	Page
List of tables -----	vi
List of figures -----	xiii
List of plates -----	xiv
Abstract -----	xv
Aims -----	1
1. Introduction-----	2
1.1. History of irrigation in Egypt -----	2
1.2. Recent agriculture and irrigation -----	9
1.3. Effect of agrochemical on aquatic habitats -----	11
1.4. Aquatic weeds problems in irrigation and drainage systems. -----	12
1.5. Sugar cane cultivation -----	14
1.6. History of sugar cane cultivation in Egypt -----	16
1.7. Economic value of sugar cane crop -----	16
 2. Sites description -----	 19
2.1. Kom Ombo District -----	19
2.1.1. Irrigation canals -----	19
2.1.1.1. Ganabiet Kassel -----	19
2.1.1.2. Afifi District -----	19
2.1.1.3. Suars -----	22
2.1.1.4. El-Sahel -----	22
2.1.1.5. Cattau District 2 -----	22
2.1.1.6. El-Hagher -----	23
 2.1.2. Drainage canals -----	 23
2.1.2.1. El-Safssaf -----	23
2.1.2.2. Drain No 96-----	24
2.1.2.3. Maniha -----	24
2.1.2.4. Hod-Zaki -----	24

2.2. Nasser District	25
2.2.1.1. Balana	25
2.2.1.2. Ganabiet Balana	25
2.2.2. Drainage canals	26
2.2.2.1. Balana drainage canal	26
2.3. Water manipulation	26
 3. Materials and Methods	 28
3.1. Sampling regime	28
3.2. Submerged macrophytes	28
3.3. Water physico-chemistry	28
3.3.1. In the field	29
3.3.1.1. pH and temperature	29
3.3.1.2. Flow rate	29
3.3.1.3. Light climate	29
3.3.1.4. Total dissolved salts and conductivity	29
3.3.1.5. Dissolved oxygen	30
3.3.2. In the laboratory	30
3.3.2.1. Biochemical oxygen demand (BOD)	30
3.3.2.2. Chemical oxygen demand (COD)	30
3.3.2.3. Chlorides	31
3.3.2.4. Bicarbonates	31
3.3.2.5. Calcium, Magnesium and Total hardness	31
3.3.2.6. Sulphates	31
3.3.2.7. Potassium and Sodium	31
3.3.2.8. Ammonia	31
3.3.2.9. Nitrite	31
3.3.2.10. Nitrate	32
3.3.2.11. Total soluble phosphates	32
3.4. Hydrosol Analysis	32
3.4.1. Hydrosol Chemistry	32
3.4.1.1. Hydrosol Extraction	32
3.4.1.2. Oxidized nitrogen-nitrate and nitrite	32
3.4.1.3. Ammonia	32