بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Physiological Studies on Jojoba (*Simmondsia chinensis*), a Newly Loaned Economic Plant

Thesis
Submitted for Partial Fulfillment of Master Degree in Science (Botany)

By
Hanan Farid Mahmoud Shaaban
B.Sc. in Science (Botany)

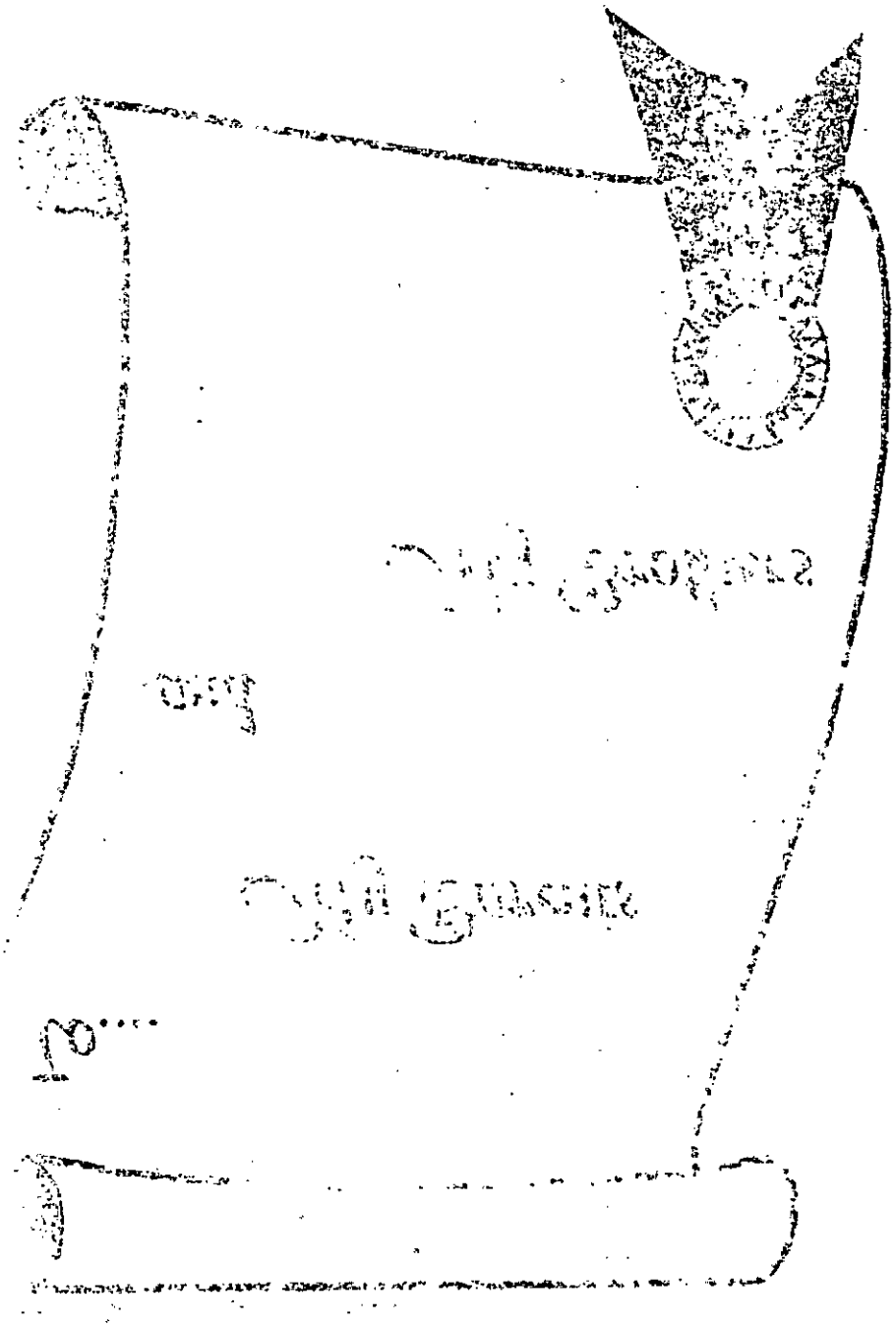
Under supervision of

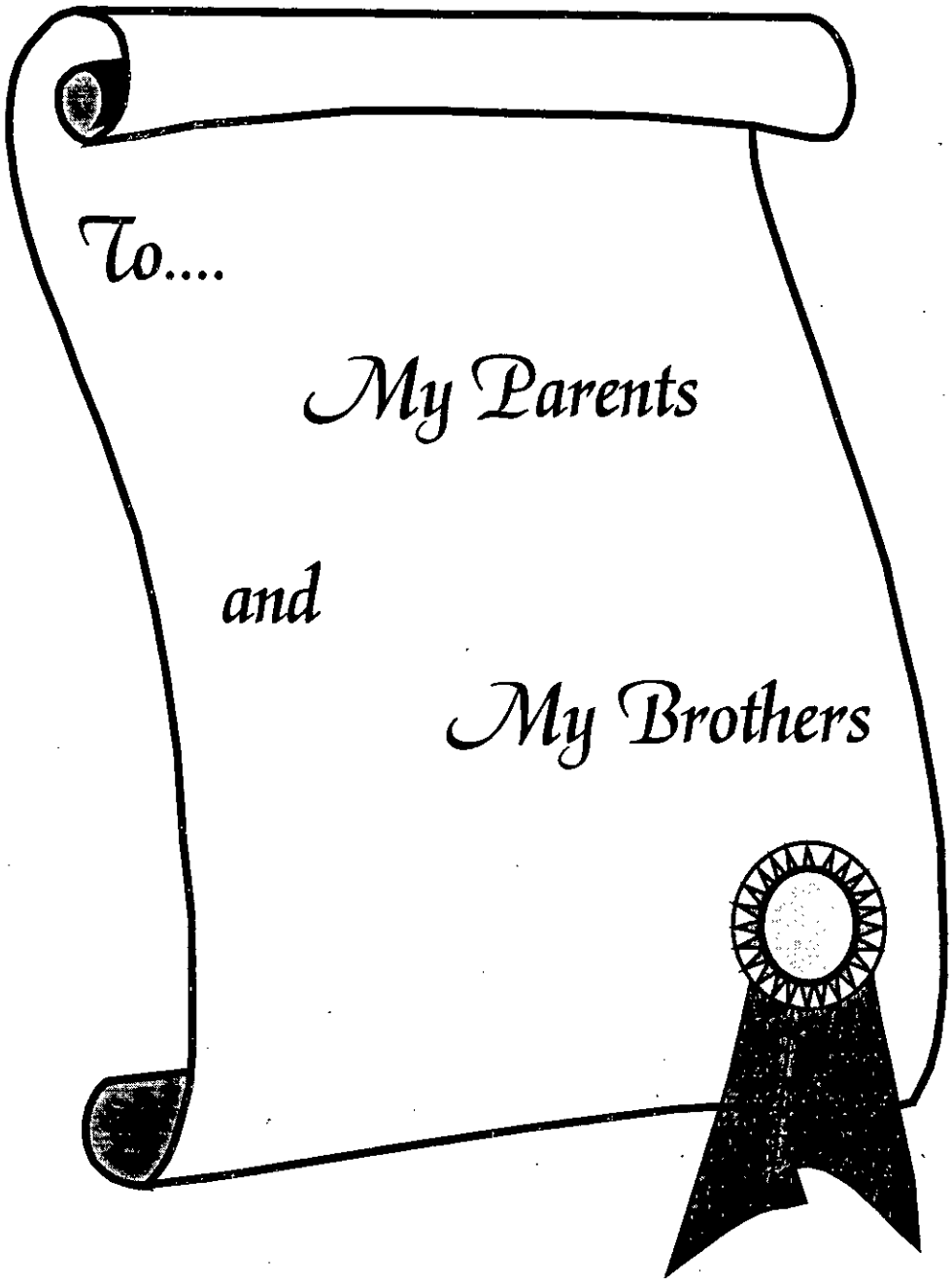
Prof. Dr. Seham Mohamed A. Moustafa
Professor of Plant Physiology
Faculty of Science, Ain Shams University

Dr. Abla Hassan Nassar
Assistant Professor of Plant Physiology
Faculty of Science , Ain Shams University

Dr. Magda Mahmoud El-Araby
Lecturer of Plant Physiology
Faculty of Science, Ain Shams University

Ain Shams University
Faculty of Science
2000




To....
My Parents
and
My Brothers

Acknowledgement

Sincerely, I express my deepest thanks, grateful appreciation, and certainly a convetional word of acknowledgement can not pay for the valuable guidance I have received from Prof. Dr. Seham Mohamed A. Moustafa, Professor of Plant Physiology, Dr. Abla Hassan Nassar, Assistant Professor of Plant Physiology; for suggesting the point of this work; and Dr. Magda Mahmoud El-Araby, Lecturer of Plant Physiology, Departement of Botany, Faculty of Science, Ain Shams University, for their support and understanding all the time, and continuous encouragement and discussions throughout the work.

I would also like to thank Prof. Dr. Sayed F. Khalifa, Head Department of Botany, Faculty of Science, Ain Shams University, for his kind encouragement and advises concerning scanning of the photographs of the thesis.

I also offer my appriciation for Mr. Khaled Hashem for his generous help during photographing samples of the work.

Abstract

Jojoba [*Simmondsia chinensis* (Link) Schneider] is a newly introduced plant in Egypt fitting cultivation in desert areas and wastelands. Germination and subsequent early growth of jojoba seedlings proved sensetivity to salinity stressful conditions. Amelioration of the adverse effect of salinity was carried out by seed treatment with 50 ppm gibberellic acid (GA_3) solution. Furthermore, manipulation by endogenous indolacetic acid, GA_3, abscisic acid, and cytokinins (benzyladenine, zeatin and zeatinriboside) was also interpreted. The underlying role of endogenous polyamines was discussed on the basis of the relative ratios of putrescine, spermidine and spermine. Salinity-induced and –repressed proteins were also observed in relation to corresponding bands regulated by GA_3 treatment.

A promising part of this thesis is also the *in vitro* production of liquid wax (jojoba oil) from callus tissue initiated from cotyledon cells. Best growth of callus was achieved on Murashige and Skoog (MS) medium supplemented with 1 mg/l 2,4-D and 0.2 mg/l 2ip and incubated for 5 weeks under 16 hrs. Photoperiod. A progressive increase of oil accumulation was induced by increasing the concentration of sucrose from 3-20 % or of sodium chloride from 50-200 mM in the MS medium. The highest production of oil was obtained using 20 % or 200 mM sodium chloride where these values represented 50.6 % and 39.3 % of the oil content of the dry seed, respectively. GLC analysis of the original seed oil and that produced *in vitro* showed qualitative similarity of constituting fatty acids and quantitative variation.

Key words

Jojoba-Salinity-EndogenousIAA,GA_3,Cytokinins-Polyamines- Protien Patterns- Tissue Culture- Oil Production *in vitro*.

Contents

CONTENTS