جامعـة الإسكندريـة
كلية الزراعة . سابا باشا

الإكثار المعملي الدقيق لنبات الطرطوفة والكشف عن التغيرات الجينية باستخدام العلامات الجزيئية لـ د.Ãä

مقدمة من

منى محمد يسري جابر

رسالة علمية مقدمة استيفاءً لمتطلبات منح درجة

دكتور الفلسفة في العلوم الزراعية
(تخصص البساتين - الخضر)
قسم الإنتاج النباتي

من

جامعة الإسكندرية

2009

Alexandria University
Faculty of Agric. (Saba-Basha)

In vitro PROPAGATION OF JERUSALEM ARTICHOKE AND THE DISCOVERY OF THE GENETIC VARIATION USING MOLECULAR DNA MARKER

BY

MONA MOHAMMED YOUSRI GABER

A Thesis Submitted in Partial Fulfillment of the Requirements Governing the Award of the Degree of

DOCTOR OF PHILOSOPHY IN AGRICULTURAL SCIENCES

(HORTICULTUR-VEGETABLES)

Department of Plant Production

From

Alexandria University

2009

لجنة الإشراف :

الأستاذ الدكتور/ على إبراهيم على حسن عبيدو .....

أستاذ الخضر – قسم الإنتاج النباتي
كلية الزراعة – سابا باشا - جامعة الإسكندرية

الأستاذ الدكتور/ سعد محمود محمد شمة .....

أستاذ أمراض النبات – قسم النبات الزراعي
كلية الزراعة – سابا باشا - جامعة الإسكندرية

الدكتور/ السيد السيد حافظ .....

مدرس بمعهد بحوث الهندسة الوراثية والتكنولوجيا الحيوية
مدينة مبارك للأبحاث العلمية

SUPERVISION'S COMMITTEE

Prof. Dr. Ali Ibrahim Ali Hassan Ebido ……

Prof. of Vegetables
Fac. of Agric. Saba Bacha, Alexandria University

Prof. Dr. Saad Mahmoud Mohammed Shama ……

Prof. of Plant Pathology
Fac. of Agric. Saba Bacha, Alexandria University

Dr. El-Sayed El-Sayed Hafez ……

Lecturer of Nucleic Acid Research Department,
Mobarak City, new Borg Elarab

ACKNOWLEDGEMENT

The writer wishes to express his deepest grateful thanks and sincere gratitude and appreciation to **Prof. Dr. Ali Ibrahim Ali Hassan Ebido**, Prof. of Vegetables, Faculty of Agriculture (Saba-Bacha), Alexandria University, for suggestion of the research theme effective supervision, great continuous, encouragement continuous help and guidance throughout the investigation and preparation of the manuscript.

Great thanks and gratitude are due to **Prof. Dr. Saad Mahmoud Mohammed Shama**, Prof. of Plant Pathology, Faculty of Agriculture (Saba-Bacha), Alexandria University, for valuable advice, understandable supervision, providing full facilities and encouragement during the period of this work.

Great thanks and gratitude are due to **Dr. El-Sayed El-Sayed Hafez**, Lecturer of Nucleic Acid Research Department, Mobarak City, new Borg Elarab for his co supervision, his helpful suggestions, continuous help and encouragement, constructive cartelization and guidance throughout the investigation.

Sincere appreciation is also due to all the staff members of Plant Production Dept. Faculty of Agriculture (Saba-Bacha), Alexandria University, for the continuous help, encouragement and providing the facilities needed during the investigation.

My appreciation is due to my beloved family, my father and my mother, my dear husband and my daughter Mariam, for their support and under standing.

Appendix 1: Murashige and Skoog Medium. Composition and Preparation.

Constituent	Concentration of stock solution (mg/litre)	Volume of stock per litre of medium (ml)	Storage of stock solution
Major inorganic nutrients :			
NH_4NO_3	33.000		
$KN0_3$	38.000		
$CaCl_2.2H_2O$	8800	50	+ 4°C
$MgSO_4.7H_2O$	74000		
KH_2PO_4	3400		
Trace elements :			
KI	166		
H_3BO_3	1240		
$MnSO_4.4H_2O$	4460		
$ZnSO_4.7H_2O$	1720	5	+ 4°C
$Na_2MoO_4.2H_2O$	50		
$CuSO_4.5H_2O$	5		
$CoCl_2.6H_2O$	5		
Iron source :			
$FeSO_4.7H_20$	5560	5	+ 4°C
$Na_2EDTA.2H_2O$	7460		
Organic supplement :			
Myo-Inositol	20 000		
Nicotinic acid	100		
Pyridoxine-HCl	100	5	-20°C
Thiamine-HCl	100		(in 5 ml
Glycine	400		aliquots)
Carbon source :			
Sucrose	--	Ass as solid (30g/litre)	

Appendix 2: Structure of the Protein marker

Protein	MW
Myosin	205
Beta-Galactosidase	116
Phoslphorylase B	97.4
Bovine Serum Albumin	69
Glutamic dehydrogenase	55*
Lactic dehydrogenase	36.5
Carbon anhydrase	29
Trypsin inhibitor	20.1
Lysozyme, chicken egg white	14.3
Aprotinin, Bovine Lung	6.25
Inulin Beta chain	3.5

CONTENTS

LIST OF TABLES

LIST OF FIGURES