MICROPROPAGATION OF STRAWBERRY
(*Fragaria x ananassa*)

By

MANAL SHAABAN GOMAH

B.Sc. Agric. Sci. (Vegetable Crops), Fac. Agric., Cairo Univ., 2007

THESIS

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APPROVAL SHEET

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Approval Committee

Dr. MOHAMED MOHAMED ALI……
Professor of Vegetable Crops, Fac. Agric., Assiut University

Dr. MOHAMED MOHAMED SHAHEEN……
Professor of Vegetable Crops, Fac. Agric., Cairo University

Dr. SAHAR SAMIH TAHA…….
Associate Professor of Vegetable crops, Fac. Agric., Cairo University

Dr. SAYED FATHEY EL-SAYED……..
Professor of Vegetable Crops, Fac. Agric., Cairo University

Date: 27/8/ 2017

SUPERVISION SHEET

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DR. SAYED FATHEY EL-SAYED

Professor of Vegetable Crops, Fac. Agric., Cairo University

DR. SAHAR SAMIH TAHA

Associate Professor of Vegetable crops, Fac. Agric., Cairo University

DR. ADEL EL SAWY MOHAMED

Professor of Plant Biotechnology - National Research Center

Name of Candidate: Manal Shaaban Gomah **Degree:** M.Sc.
Title of Thesis: Micropropagation of strawberry
Supervisors: Dr. Sayed Fathey El-Sayed
Dr. Sahar Samih Taha
Dr.Adel El Sawy Mohamed

Department: Vegetable Crops
Approval: 27/08/2017

ABSTRACT

This study was carried out during the period from 2010 to 2014 in the plant tissue culture Laboratory and the farm of the PICO comp. at Giza and El-Behaira Government, respectively, Egypt. The aim of this work was to study the effect of subculture number and Benzyl Adenine (BA) concentration on the production of strawberry plants.

Meristem tip of three strawberries *(Fragaria x ananassa)* cultivars, namely, Sweet Charlie, Festival and Camarosa, were cultured on MS basal medium (Murashige and Skoog, 1962) free-hormone for 4 weeks and subcultured on media having three different concentrations (0.5, 0.25, 0.10 mg/l) of BA.

The highest multiplication rate was obtained in the sixth subculture with BA at 0.5 mg for Sweet Charlie. The performances of tissue culture-derived plants for fruiting under open field conditions, revealed that the highest percentage of marketable yield in the early, medium and late pickings was noticed in all cultivars in the sixth plants with using BA at 0.10 mg/l, Also the greatest early yield (3.041 kg/m^2) was recorded for the plants of 'Sweet Charlie' produced from the fifth subculture in medium had BA at 0.5. The greatest medium yield (2.705 kg/m^2) was recorded for the plants of 'Sweet Charlie' produced from the fifth subculture in medium had BA at 0.5 mg, the highest late yield (3.443 kg/m^2) was recorded for the plants of 'Sweet Charlie'produced from the sixth subculture in medium had BA at 0.25 mg.

The heaviest average fruit weight during early pickings (29.66 g) was recorded for the plants of Sweet Charlie produced from the sixth subculture in medium having BA at 0.25 mg, The highest average fruit weight during medium pickings (28.23 g) was recorded for the plants of 'Sweet Charlie' produced from the fourth subculture in medium had BA at 0.25 mg, The highest average fruit weight during late pickings was recorded for the sixth subculture in BA medium had 0.25 mg/l in Sweet Charlie.

Molecular analysis by using RAPD-PCR indicated that mass propagation via meristem tip culture till the sixth subculture is reliable in producing genetically similar plants to the mother ones.

Key words: Strawberry, tissue culture, BA concentration, open field, RAPD-PCR.

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LIST OF ABREVIATIONS

Abbreviation	Full name
BA	Benzyl Amino Purine
cv	Cultivar
cm	Centimeter
IAA	Indole-3-Acetic Acid
IBA	Indole-3 butyric acid.
Kin	Kinetin
µM	Micromolar
ml	Milliliter
mg	Milligram
MS	Murashige and Skoog medium
NAA	Naphthalene Acetic Acid.
PGRs	Plant Growth Regulators
v/v	Volume to volume
TDZ	Thidiazuron
2,4-D	2,4 – Dichlorophenoxy acetic acid
RAPD	Random amplified polymorphic DNA
g/l	Gram per liter
mg/l	Milligram per liter

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