شبكة المعلومات الجامعية

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
علي 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 الوثائـــــــق الاصليـــــة تالفـــة

بالرسالة صفحات لم ترد بالاصل

STUDIES ON PROPAGATION OF OLIVES BY GRAFTING AND TISSUE CULTURE

By:

B7015

Munzer Hussein Al-darweesh

B.Sc. Hort., (Agric., Hort., Dept) Aleppo Univ.
1996

supervised by:

Prof. Dr. Mohammed Ahmed Fayek

Dr. Mohammed Helmy Abd El-Zaher

Dr. Osama El-kubaisy

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This thesis for M.Sc. Degree has been approved by:

Prof. Dr. M. A. Fayek

Prof. Dr. Omaima A. Kilany

Prof. Dr. M. A. Khan

Committee in charge

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Faculty of Agriculture

Cairo University

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Abstract

A comprehensive study was undertaken in two objectives. The first one was planed to investigate the best combinations of scion and rootstock in olive) ***Olea europaea*** L.). Three olive cultivars characterized by their little rooting capacity i.e. Kalamata, Picholin, and Sevillano used as scions. Each scion was side-veneer grafted during the 1 st. week of May 2000 and April 2001 on one-year-old plants used as rootstocks, namely: Chimlali seedlings, rooted cuttings of Picual and Coratina. Grafting success significantly varied according to rootstock , scion and grafting date. Grafting during the 1 st. week of April resulted in more success percentage than that at the 1 st. weak of May. Chimlali seedling rootstock was the most promising rootstock for grafting the three olive cultivars under study due to it was the most vigorous rootstock, giving the highest averages of grafting success, length and diameter of scion shoot, leaf area of scion, fresh and dry weight of scion shoot and leaves, and chlorophylls A, B as well as it showed the best development of union-zone. On the other hand, Picual as rootstock was the least promising rootstock due to it gave the least averages of the above studied items. Meanwhile, Coratina rootstock was intermediate. Dry weight of rootstock roots and whole grafted plants varied according to the scions and rootstocks.

The second objective was undertaken to obtain somatic embryogenesis from Kalamata olive cotyledon callus, and shoot organogenesis from mature somatic embryos. Mercuric chloride at 0.05% was the best treatment for surface sterilization of olive cotyledon explants as it gave the highest average of survived explants and the lowest average of explants developed browning. Dark conditions was more effective for callus induction (as callus fresh weight) than light conditions.2,4-D treatments produced friable callus converted to browning color. IBA treatments gave white and compact callus used for testing its embryogenic capacity. Casein hydrolysate at 700 mg\l stimulated callus induction of olive cotyledon explants. Somatic embryos induction was affected by type and concentration of experimented cytokinins (Zeatin or 2ip). Zeatin at 0.1 mg\l and dark conditions stimulated more somatic embryos induction as compared with 2ip or light conditions. Somatic embryos completely inhibited by Zeatin or 2ip at concentrations higher than 0.5 mg\l. For shoot organogenesis, Zeatin at 1.5 mg\l was the most effective cytokinin, followed by 2ip then BA at the same concentration. Woody plant medium supplemented with 2.5 mg\l GA3 gave more satisfactory growth for somatic embryos and regenerated shoots as compared with MS medium. The highest rooting percentage of

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regenerated shoots was achieved in ½ MS medium supplemented with IBA at 0.75 or 1.00 mg\l ;meanwhile NAA was less effective. Olive plantlets, which regenerated *in vitro* were sensitive to dehydration during acclimatization stage. Plant survival was about 80% when these plantlets transferred from aseptic culture *in vitro* to greenhouse conditions.

Keywords: Olive, propagation, grafting, rootstocks, scion growth, union zone histology, tissue culture, cotyledon, callus, somatic embryogenesis, shoot organogenesis, rooting, acclimatization.

Abbreviations: 2,4-D-2,4-dichlorophenoxyacetic acid, IBA-indole-3-butyric acid , NAA-naphthaleneacetic acid, GA3- gibberellic acid, 2ip–[2-isopentenyl]adenine.BA-6-benzylaminopurine,W.P.M.-woody plant medium, MS-Murashige & Skoog medium.

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GENERAL INTRODUCTION:

The olive tree (*Olea europaea* L.) belongs to the family Oleaceae. It is thought, that the olive was in ancient times, a native of Asia Minor, and it then spread to the countries of Mediterranean basin (Rugini 1986) .A plant surrounded by legend and myth, its praises have been sung by many a writers and philosophers since time immemorial. The olive tree is a long-lived evergreen and adapts easily to many and varied environments.

Olive tree is a crop species of economic and cultural relevance in the Mediterranean countries. Varieties of olive are cultivated mainly for oil (93%) and also for table olives. Olive oil ranks sixth in world production of fluid vegetable facts, preceded by soya, peanut, sunflower, colza, and cotton seed oils (Rugini 1988). However, it is still the first oil for its taste, which makes it very appetizing, and for both its nutritional qualities and its use in diet therapy.

In Syria, a known historic fact is that Syria is the first land to produce olives in the ancient world. Nowadays Syria is the world's fourth biggest producer of olive oil and the fifth producer of table olives. Areas planted with olive trees in Syria are estimated at 458,000 hectares, planted with 61 million trees, of which 60% are yielding fruit. These trees produced 450000 tons of table olives and 100000 tons of olive oil. (International Olive Oil Council Statistics, IOOC, 2001)

According to International Olive Oil Council statistics (2001), there are about 789 million trees worldwide, 95 percent of them in the Mediterranean region, and the world olive oil production about 641000 metric tons. In Egypt, the acreage of olive progressed from 21538 feddans in 1990 to 103933 feddans in 1999 producing 278080 tons (ministry of Agric. Statistics. 1999).However, olive growing is expanding to most of world