BIO MORPHOLOGICAL CHARACTERIZATION OF SOME LOCAL OLIVE OIL CLONES COMPARED WITH WORLD CULTIVARS.

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SALAH ELDIN MOHAMMED ELSAYED.

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M.Sc. Thesis In Agricultural Sci.

By

SALAH ELDIN MOHAMMED ELSAYED.

B.Sc .Agric. Sci.(Pomology), Fac. Agric., Cairo Uni., 2010.

SUPERVISION COMMITTEE

Dr. Mohamed Ahmed Fayek

Professor of Pomology, Fac.Agric., Cairo University

Dr. Mohamed Abdel-Aziz Abdel-Mohsen

Lecturer.of Pomology, Fac.Agric., Cairo University

Dr. Sanaa Ibrahim Laz.

Head of Research of Olive and Semi Arid Fruits, Horticultural Research Institute, ARC, Giza

Name of Candidate: Salah Eldin Mohamed Elsayed Degree: M.Sc.

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Supervisors: Dr. Mohamed Ahmed Fayek.

Dr.Mohamed Abdel-Aziz Abdel-Mohsen.

Dr. Sanaa Ibrahim Laz.

Depatment: Pomology. **Branch**:

Approval: / / 2014

Abstract

Egyptian olive oil genotypes "Sewia, Maraki and E52" were compared with two international ones "Coratina and Koroneiki" during the seasons of 2011and 2012. Results showed that, Maraki had higher tree height(m), canopy surface area (m²), canopy volume(m³) than the other genotypes whereas E52 recorded the lowest ones in both seasons. Time of flowering varied according to cultivars and season. Coratina, Maraki and Sewia were earliest than Koroneiki, but it was late in E52. Coratina had longer inflorescence (>3.5 cm), but that of others were medium (2.5-3.5 cm). The highest number of flowers per inflorescence (> 25) was recorded in Maraki and the lowest number (<18) was recorded in Koroneiki. Perfect flower percentage varied according to genetic factors and to climate. It was highest in Coratina (> 90%) and lowest in Sewia (75%). Fertility of pollen was highest in Sewia and lowest in E52. All of the studied genotypes were self-incompatible. Under open pollination Coratina produced the highest yield in the two seasons; E52 was alternate bearing genotype. Fruit and stone weight were lowest in Koroneiki, medium in E52, high in Coratina and Maraki and highest in Sewia. Fruit shape was elongated in Koroneiki, ovoidelongated in E52 and Coratina, and ovoid in Sewia. Stone shape was elongated in Koroneiki, E52 and Coratina; oviod in Maraki and elliptic in Sewia.Oil content (%) was highest in Maraki and E52, followed by Coratina, Sewia then Koroneiki in decreasing order. Based on the quality parameters of oil (acid value, peroxide value, UV absorbation at 232 and 270 nm, polyphenols and tocopherol) proved that it ranked extra virgin. The ratio of total unsaturated to saturated fatty acids was highest in Maraki, followed by Sewia then Coratina, but the lowest ratio was found in E52 and Koroneiki. Based on RAPD and ISSR-PCR genetic markers, the genetic similarity was between Sewia and Maraki and the least between Coratina and Koroneiki.

Keywords: olive, characterization, Sewia, Maraki, E52, Coratina and Koroneiki.

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