CONGENIALITY DEGREE BETWEEN FLAME SEEDLESS CV. AND SOME NEMATODE RESISTANT GRAPEVINE ROOTSTOCKS

By

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B.Sc.Agric.Sc. (Pomology), Cairo Univ. (2004)
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ABSTRACT

Amal Masoad Abdel-Latief Rakha: Congeniality Degree Between Flame Seedless cv. and Some Nematode Resistant Grapevine Rootstocks. Unpublished Ph. D. Thesis, Department of Horticulture, Faculty of Agriculture, Ain Shams University, 2017.

Three independent experiments were carried out during 2012 and 2013 seasons to evaluate three Nematode resistant rootstocks of grapevine and three grafting techniques in two different dates for the Flame seedless grapevine cv. propagation.

The obtained results show that Freedom rootstock surpass the other two tested ones (Harmony and Salt creek). In addition, Tongue grafting technique is better than Cleft grafting. Result also revealed that summer grafting using Chip budding (Yema budding) gain the highest graft take (survival %) but has the lowest compatibility degree (F.C.C.).

The considered parameters for the evaluation of rootstock type, grafting method and grafting date were: graft take (survival %), congeniality degree (compatibility as F.C.C.),vegetative growth of scion and its leaf minerals content,chemical composition of rootstock at the time of grafting.

However, data proved that bench grafting with Tongue method on Feb.15th using Freedom rootstock is the recommended technique for Flame seedless grapevine cv. propagation.

Key words: Grape, Grafting, Tongue grafting, Flame seedless, Rootstock, Salt Creek, Freedom, Harmony.

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DEDICATION

I dedicate this work to whom my heart felt thanks; to **my Father** and **my Mother** for their patience and help, as well as to **my Grandmother** ,**my brothers Ahmed**, **Abd El-Rahman** and **Abd Allah** and **my Husbund Dr. Waleid Mohamed El-Sayed Shakweer, my son Abd El-Rahman and my doughter Nada** for all the support they lovely offered along the period of my post graduation.

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INTRODUCTION

Grape (*Vitis vinifera* L.) is one of the most important fruit crops on a worldwide because it is the fourth crop all over the world after citrus, apple and bananas. Turkey is the world's largest grape producer followed byThe United States of America and then China. In Egypt, grape is considerd as one of the main fruits which ranks the second after citrus. The province of Minya occupies the first place in the production of grapes in Egypt followed by Dakahlia and then EL-Gharbia. Egypt ranks as a 14^{th} largest producer of grapes in the world where its area reached about 192934 feddans that produce about 1596169 tons **(Ministry of Agriculture statistics, Egypt, 2015).**

Grapevines belong to the order: Rhamnales, Fam: Vitaceae and Genus: Vitis. European grapes *Vitis vinifera* are widely cultivated all over the world due to their high yields and excellent quality and various usages. Grape is a popular fruit for both local consumption and exportation in many temperate and tropical countries throughout the world.

Grapevine (*Vitis vinifera* L.) which included all edible cultivars is nematode sensitive. Nematodes cause serious troubles on grapevines such as root gall formation, general weakness, reduced yield and transmission of viral agents. Therefore, the grafting on nematode resistant rootstocks could be a powerful solution to avoid infection with nematodes. Recently in the last decades, grafting became gradually the common way to propagate the promising cultivars of grape. In this concern, some nematode resistant grape rootstocks i.e. Freedom, Harmony, Salt creek, SO4, Richter…etc had been enrolled in Egypt.

The Harmony rootstock was developed by Harmon and Weinberger at the USDA-Fresno and it is a cross between seedling of Dog ridge and a seedling of 1613. Freedom rootstock is a similar cross but the seedling selections were different and it was selected in 1956. Salt creek rootstock correctly named Ramsey rootstock, because there is another variety