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التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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HANAA ALY

USE OF SOILLESS CULTURE TECHNIQUES IN THE PRODUCTION OF CHRYSANTHEMUM AND CARNATION

By

HADEER AHMED RAFAAT MOSTAFA
B.Sc. Agric. Coop. Sci., Agric. Higher institute for agric. Coop., 2012

A Thesis Submitted in Partial Fulfillment
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Approval sheet

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ABSTRACT

Hadeer Ahmed Rafaat. Use of Soilless Culture Techniques in the Production of Chrysanthemum and Carnation. Unpublished M.Sc. Thesis, Department of Arid Lands Agricultural graduate studies and Research Institute (ALARI), Ain Shams University, 2021.

This research study was carried out during the two successive seasons of 2017/2018 and 2018/2019 at the farm located within the vicinity of the ALARI, Shobra Elkheima, Qaliobia Governorate, Egypt, inside an unheated plastichouse. It was aimed to determine the most suitable local substrate mixtures as growing media for the cultivation and optimum production of chrysanthemum and carnation. The experiments were laid out in a completely randomized design (CRD) with 3 replications in each treatment, and the result data were subjected to analysis of variance (ANOVA). Chrysanthemum (*Dendranthema grandiflora* Ramat.) cv. Zembla was chosen imported initially from DELIFLOR Company, in the Netherlands. Carnation (*Dianthus Caryophyllus)* cv. Baccarat Pink was selected imported originally from Selecta Company, in Spain. Seedlings were planted in six types of substrate cultures. Three of them were chosen from the local environment, namely water hyacinth, palm fiber and sugar-cane refuse in addition to sawdust (fine + coarse) and peat moss. The seedlings were pricked out into pots (25 cm) filled beforehand with eleven substrate-culture mixes as treatments: Peat moss (P), Water hyacinth (WH), WH + P (1:1v/v), Palm fibers (PF), PF + P (1:1 v/v), Coarse sawdust (CS), CS + P (1:1 v/v), Fine sawdust (FS), FS + P (1:1v/v), Sugar-Cane refuse (SR), SR + P (1:1v/v). The results indicated that the substrate-culture media combinations of PF + P and WH + P (either of them separately in some cases or both of them) gave higher significant values when compared to the others with regards to vegetative parameters, i.e. plant height, stem diameter, number of leaves per plant, fresh and dry weights of shoots and roots in addition to greenness of leaves as SPAD reading values. Also, the

same was found in flower parameters studied, i.e. flower diameter, bud emergence, days to flower color showing and days to flower harvest when the same abovementioned two substrate-culture media were used. Similarly, vase life of cut-flowers was influenced by the local substrates initially used as culture media in bringing up the cut-flowers. It showed longer standing, as expected by 5 days for chrysanthemum while for carnation it was 4 days when flowers were obtained from both of WH + peat (1:1) and Palm fiber + peat (1:1) compared to other substrate culture media.

Keywords: Chrysanthemum, *Denderanthema grandiflora* Ramat, Carnation, *Dianthus caryophyllus*,Soilless-substrate culture, Cut-flowers, Water hyacinth, Palm fibers, Sawdust, Peat moss, Sugar-cane refuse and Vase life.

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