

STUDIES ON PRODUCING GLADIOLUS USING SOILLESS CULTURE TECHNIQUE

By

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B. Sc. Agric. Sc. (Horticulture), Ain Shams University, 2003

**M. Sc. Agric. Sci. (Agricultural and Food Production in Arid Lands), Arid Land
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ABSTRACT

Gladiolus is considered one of the world's leading cut flowers, also: It is one of the most commonly cultivated flowering plants world-wide. However Gladiolus flowers have a great economic return. Gladiolus plants and corms are very sensitive to a number of soil borne diseases which may cause loss of flowers and plants. Investigations are there for being done to study the convenience of using soilless culture technology as an alternative cultivation system for producing Gladiolus. In this context, two experiments were conducted under greenhouse conditions in the experimental sites of the Central Laboratory for Agricultural Climate (CLAC), Agriculture Research Center, Ministry of Agriculture and Land Reclamation, Dokki, Giza, Egypt and the Ornamental Horticulture Department, Faculty of Agriculture, Cairo University, Giza, Egypt during seasons of 2016 and 2017 to evaluate the suitability of different soilless culture substrates for growth, flowering and quality of two cultivars of Gladiolus; Gladiolus cv. "Nova lux" and Gladiolus cv. "Chinon". Four types of soilless culture substrates were investigated as follow; perlite "Pr" 100%, mixture of sand and rice husk "SRh" (1:1 v/v), mixture of peat moss and perlite "PePr" (1:1 v/v) and finally mixture of peat moss: rice husk "PeRh" (1:1 v/v). Different measurements of Gladiolus cultivars "Nova lux" and "Chinon" were recorded during the experimental time such as: Number of days taken for plant emergence, number of days from cultivation to flower bud initiation, plant height, leaf width, fresh weight of the remaining aerial parts, dry weight of the remaining aerial parts, number of days from cultivation to appearance of first color, spike length, number of florets per spike, spike base diameter, spike fresh weight, spike dry weight, number of days from cultivation to corm harvesting, corm diameter, average corm fresh weight, average corm air dry weight, number of cormels per m², chlorophyll content in leaves and nitrogen, phosphorus and potassium percentages in leaves. The results of both Gladiolus cultivars indicate that the mixture of perlite and peat moss "PePr" (1:1 v/v) was the most appropriate substrate for producing Gladiolus with high yield and flower quality. Gladiolus plants grown in PePr gave the highest values regarding plant height, leaf width, fresh weight of the remaining aerial parts, dry weight of the remaining aerial parts, number of florets per spike, spike base diameter, spike fresh weight, spike dry weight, corm diameter, average corm fresh weight, average corm air dry weight, number of cormels per m² and finally chlorophyll content in leaves.

Key words: Gladiolus, Nova lux, Chinon, Spike, Corm, Soilless, Substrate, Container, Perlite, Peat moss, Rice husk and Sand.

DEDICATION

*I dedicate this work with my sincere love and appreciation to my husband **Wael** Whose wishes for my success and whose untiring efforts materialized this dream and thanks to my beautiful daughter **Alaa**, her childhood and her innocent heart give me the optimism, the hope and the encouragement in every step of my post-graduate studies.*

*With all thanks, respect and appreciation I dedicate this work to my **family** for their help and continuous encouragement during my life.*

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