EFFECT OF GROWING MEDIA, BIO AND ORGANIC FERTILIZATION ON GROWTH, FLOWERING AND CHEMICAL CONSTITUENTS OF (*Calendula officinalis*)

By

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B.Sc. Agric. Sci. (Ornamental Horticulture), Fac. Agric., Cairo Univ., 2005

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DEDICATION

I dedicate this work to the spirit of my mother God rest her soul

Acknowledgment

*Thanks to "**ALLAH**" the merciful and clement God for everything especially completing this work.*

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TITLE : EFFECT OF GROWING MEDIA, BIO AND ORGANIC FERTILIZATION ON GROWTH, FLOWERING AND CHEMICAL CONSTITUENTS OF *CALENDULA OFFICINALIS*
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ABSTRACT

The experimental trial was consummated throughout two successive seasons (2014/2015 and 2015/2016) at the nursery of Faculty of Agriculture, Cairo University, Giza to find out the individual and the combined effects of different growing media and types of fertilization on growth, flowering and chemical composition of *Calendula officinalis* plant for achieving the hope of producing plants of good quality. The layout of the experiment was factorial in randomized complete block design (RCBD), with three replicates. The first factor was the type of growing media, whereas, the second one was the different fertilization treatments. The results emphasized that using the mixture of either sand+ compost (1:1, v/v) followed in the second category by clay+ compost (1:1, v/v) were the best growing media used in improving plant traits in both seasons, as they raised plant height (cm), No. of branches/plant, leaf area (cm^2), No. of days from planting to flowering, total No. of flower heads/plant, fresh weight of total flower heads (g.), fresh weight of petals (g.) and dry weight of petals (g.). Moreover, chemical constituents of the plant was also affected by the different growing media used in plantation, as the mixture of sand+ compost raised chlorophyll (a),(b) and carotenoids content in leaves. Meanwhile clay and clay+ compost improved chlorophyll (a) and total carotenoids in leaves. Moreover, the mixture of sand+ compost medium proved its superiority with occupying the first category in improving carotenoids content in ray flowers, and total carbohydrates content in the leaves, Nitrogen, Phosphorus and Potassium content in leaves. Meanwhile the mixture of clay+ compost medium occupied the second rank in improving the previous chemical constituents mentioned above (concerning pigments and mineral content in newly established plants).

Regarding the effects of fertilization on all plant parameters, were studied in the current study, it is clear that either actosol or nitrobein with their two levels (2.5 and 5ml/l), clearly improved in most cases the previous plant traits, with the superiority of receiving plants nitrobein at 5ml/l in most cases.

From the aforementioned results, it could be recommended to use the mixture of either sand+ compost or clay+ compost media with supplying plants either actosol or nitroben at the dose of 2.5 or 5 ml/l with the hope of producing *Calendula officinalis* plants of good quality.

Key words: *Calendula officinalis*, bio fertilizers, organic fertilizers, growing media, compost, sand clay.

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