



EFFECT OF IRRIGATION BY SEVERAL LEVELS FROM DIFFERENT TYPES OF FERTILIZER-SOAKED ON GROWTH AND LENGTH OF BLOOMING PERIOD FOR SNAP DRAGON PLANTS (*ANTIRRHINUM MAJUS* cv. BUTTERFLY)

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Abstract

The experiment was conducted to find the effect of irrigation by several levels of the concentrations of fertilizer-soaked on growth and length of the period of blooming to snap dragon plants that prepared from drenched several types of organic manures with deferent concentrations alone (FYM, PM and sheep's manure) then mixed together with limited concentrations (1/2 – 1/2 and 1/3–1/3-1/3) after one week from putted these fertilizer-soaked under the sun shine. The experiment was divided into three replicates in a randomized complete block design manner (RCBD). The diameter of plant pots is 30cm. All results indicated to superiority of treatment $T_6 = 5 + 5t/h^{-1}$ (PM + sheep's manure) with plant height 32 cm, number of leaves 29.33 and blooming period to 28 days, followed by treatment $T_7 = 3.33 t/h^{-1}$ (FYM + PM + sheep's manure), which recorded plant height 30 cm, number of leaves 28.66, number of flowers per plant 8.00 and blooming period to 27 days, while lowest results was recorded with control treatment in plant height 11.33 cm, number of leaves 17.33, number of flowers per plant 2.00 and blooming period 14 days. All the treatments didn't showing any significant result in stem girth of snapdragon plants.

Key words : Drenched solutions, FYM (farm yard manure), PM (Poultry Manure), GSM (Goat and Sheep Manure), snap dragon plants (*Antirrhinum majus*), growth and blooming, late season, HA.

Introduction

The scientific name of the snapdragon is (*Antirrhinum majus*). Returns to the family (Scrophulariaceae) and all species are called Antirrhinum followed by its 40 species (Dorling, 2008). Snapdragon is a perennial herbaceous plant, the plant height reach to around 0.5-1m and rarely up to 2 m. The leaves are wide, arranged in a pointed spiral shape, with a length of 1-7 cm and a width of 2-2.5 cm. Flowers grow on a floral holder. Each flower reaches a diameter of 3.5-4.5 cm. It is full of hermaphrodite flowers, with two distinctive lips located at the end of the coriander. The color of wild flowers are spread between the purple and the pink with a steady yellow color of the prominent lips. Plants through giant bees humming as these insects enter into the flower and flower dishes to ensure that the process of pollination, the fruits of several seeds in an oval capsule diameter

10-14 mm (Plamey *et al.*, 1989). Humic acid (HA) is an organic fertilizer derived from indigenous lignite coal and is used in very low concentration, 7 to 20 mg kg⁻¹ soil (Nisar and Mir, 1989). It is a naturally occurring polymeric organic compound and is known to perform a wide variety of functions (Schnitzer and Khan, 1972 and Sposito, 1989). HA is produced through the decay/oxidation of organic matter through microbial action and is naturally found in soil, rivers, oceans and in lignitic coals (Lawson and Stewart, 1989). It is a vital constituent of soil organic matter and soils devoid of HA are difficult to be maintained fertile even with large applications of chemical fertilizers. HA serves as a catalyst in promoting the activity of microorganisms and reduces the adverse effects of the chemicals on the environment (Bhardwaj and Gaur, 1970). It has an ability to form complexes it can convert elements into forms suitable for assimilation by plant (Vaughan and Donald, 1976). Evidences suggest that the effects of HA

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on soil and plant are longer-lived than other inorganic sources (Sibanda and Young, 1989). Small concentration of HA has been reported to enhance root length, plant growth, moisture and nutrient uptake significantly (Kononova, 1966). However, higher nutrient contents in the soil have been reported to retard the growth promoting properties of humic compounds.

Materials and Methods

This experiment was conducted to study the effect of irrigation by using different concentrations of different organic manures on the growth and length of flowering of the *Antirrhinum majus* cv. Butterfly, which planted in the glass house of the Faculty of Agriculture at All-Muthanna University. Seeds brought from agricultural offices with a germination rate of 85% and it planted in mid-December 2016 on rows in proper pots with a diameter reach to 30 cm after filling it with a layer of bitmus and fine sand 0.5 by 0.5 in thickness of 20 cm which provides suitable pH for seed germination and adequate moisture. These seeds are covered with a pulp (Magnesium-silicate iron) is formed as a glass material to prevent rotting and the spread of other soil diseases, and in general is normal 0.7 Alkaline reaction is very light and can be easily mixed with other agricultural environments. Also used to maintain appropriate moisture plant seeds were planted in light-light areas as recommended by Goldsmith seed syngenta flowers.

A sufficient quantity of FYM, PM, GSM drenched in containers has twenty liters of warm water and left for a one week under a sunny place with continue moving until the smell of ammonia are emerged. The reason of using these types of manures as the sources of food integrated, cheap and have multiple benefits and contain the elements of nitrogen, phosphorus, potassium and other elements and as mentioned below:

The following table represents the contents of each of the compost of FYM, PM and GSM manure of the forms of nutrients, namely nitrogen, phosphorus and potassium, which were analyzed in the laboratories of the Faculty of Agriculture Department of Soil sciences in University of All-Muthanna.

Manure Type	N% urea	P ₂ O ₅ %	K ₂ O
Composting of FYM	0.48	0.19	0.47
PM	3.00	2.24	1.35
Manure s of sheep manure	2.95	0.96	1.87

Light irrigation was used for the extraction of FYM, PM and GSM, respectively, after transplanting of plants with two real leaves. The recommended doses was 10t/h¹, which mean 1 kg and the treatments was distributed

as T₀ = control, T₁ = 10t/h¹ (FYM), T₂ = 10t/h¹ (PM), T₃ = 10 t/h¹ (GSM), T₄ = 5 + 5 t/h¹ FYM + PM), T₅ = 5 + 5 t/h¹ (FYM manure + sheep manure), T₆ = 5 + 5 t/h¹ (PM + GSM), T₇ = 3.33 t/h¹ (FYM + PM + GSM). The method of adding is use one cup and mixing the addition according to recommended of addition we selected three plants to take the observations of growth and flowering and analyzed these data by following the analysis of variance proposed using the LSD test.

Results and Discussion

Plant height(cm)

The results showed many deference's in height of plant as a result of irrigated snap dragon plants by different organic solutions with different concentrations. These results, which recorded in table 1 showed the superiority of T₆ = 32 cm height on T₅ = 24.66 cm and T₀ = 11.66 and this result is compatibility with the same result as Giragi *et al.* (2012).

Number of leaves

The results showed many deference's in number of leaves per plant as a result of irrigated snap dragon plants by different organic solutions with different concentrations. These results which recorded in table 2 showed the superiority of T₆ = 12 followed by T_{4,7} = 10.66 cm and the least result recorded with T₀ = 6.00. These result were compatibility with the same result as Giragi *et al.* (2012).

Stem girth

The results showed there's non-significant results between all the treatments in stem girth of plants. These result were compatibility with the same result as Giragi *et al.* (2012).

Table 4 shows average length of flowering period (days). The data of the results of the transactions recorded different readings, the best of which was the treatment of 6T = 5 + 5 tons e 1-1 fertilizer of poultry + sheep and goat fertilizer with 28 days, followed by treatment 7T = 3.33 tons e -1) compost cattle + poultry fertilizer + sheep and goat fertilizer) 27 days and treatment T2 = 10 tons e -1 (poultry fertilizer) 26 days and treatment T3 = 10 tons e -1 (sheep and goats fertilizer) 24 days followed by T1 = 10 tons e -1 (cattle fertilizer) 19 days and 4T = 5 + 5 tons H1 - (Cattle Fertilizer + Poultry Fertilizer) with 18 days and the lowest number of days of flowering recorded with control = T0 for 14 days, respectively. The effect of the coefficients on the hormonal and nutritional activity in the flower buds resulted in the lengthening of the flowering period, which is the same result obtained with the seven palate plants, both Ambreen Memon and

Table 1 : Effect of irrigation by several levels from different types of fertilizer-soaked on plant height snapdragon plants (*Antirrhinum majus* cv. butterfly).

Treatments	The average by the date of observations			
	19/January	2/ February	17/February	5/march
T ₀	3.33 d	5.00 c	7.33 b	11.66 c
T ₁	4.00 bcd	7.33 abc	12.00 a	26.00 ab
T ₂	4.66 abcd	6.33 bc	11.33 ab	27.33 ab
T ₃	5.66 a	8.66 ab	14.33 a	29.66 ab
T ₄	3.66 dc	8.33 ab	13.00 a	28.33 ab
T ₅	4.33 abcd	7.66 ab	12.33 a	24.66 b
T ₆	5.00 abc	9.33 a	15.66 a	32.00 a
T ₇	5.33 ab	9.00 ab	15.33 a	30.00 ab
L.S.D _{0.01}	1.6191	2.6657	4.5384	7.318

Table 2 : Effect of irrigation by several levels from different types of fertilizer-soaked on number of leaves snapdragon plants (*Antirrhinum majus* cv. butterfly).

Treatments	Average by dates	
	2/2	5/3
T ₀	6.00 c	17.33 b
T ₁	9.33 abc	25.33 a
T ₂	8.00 bc	26.66 a
T ₃	10.66 ab	28.00 a
T ₄	10.66 ab	28.66 a
T ₅	9.33 abc	26.66 a
T ₆	12.00 a	29.33 a
T ₇	10.66 ab	28.66 a
L.S.D _{0.01}	3.3889	6.1603

Table 3 : Effect of irrigation by several levels from different types of fertilizer-soaked on stem girth for snap dragon plants (*Antirrhinum majus* cv. butterfly).

Treatments	Average
T ₀	2.00 a
T ₁	2.00 a
T ₂	2.00 a
T ₃	2.00 a
T ₄	2.00 a
T ₅	2.00 a
T ₆	2.00 a
T ₇	2.00 a
L.S.D _{0.01}	1.7309

Khalilullah Khetran (2014).

Conclusion

The organic fertilization of mixture PM with GSM fertilizer in warm water for 7 days had a significant effect on plant height (32 cm) and the length of flowering period

Table 4 : Effect of irrigation by several levels from different types of fertilizer-soaked on length blooming period for snap dragon plants (*Antirrhinum majus* cv. butterfly).

T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇
14	19	26	24	17	18	28	27

(28 days) followed by the addition of a mixture of the compost of FYM, PM and GSM by 3.33t/h⁻¹ also had a significant result with a height of 30 cm and a length of flowering lasted for 27 days and the sequence of the rest of the transactions with a significant difference on the treatment of the witness. It is clear from the results of this experiment is that plant response to fertilizer-soaked because it contains all the necessary nutrients that help to increase growth and length of flowering and have a significant impact significantly on improving the productive and aesthetic characteristics of the snapdragonplants with ease of conducting these transactions and the possibility of achieving economic feasibility possible. We recommend using these solutions for the same fertilizers as they are useful for the same crop and also useful for the subsequent crop, which is cultivated in the same place and has a positive effect in the coordination of flowers of the cut flowers, which is the snapdragon of the most important and most widespread.

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