EFFECT OF HUMIC ACID ON VEGETATIVE GROWTH OF DUTCH IRIS

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ABSTRACT

The ''effect of humic acid on vegetative growth of dutch iris' The experiment was laid out in Randomized Complete Block Design (RCBD) with different concentrations of Humic Acid were applied with 4 treatments (T1 = control, T2= Humic Acid 2.50mg/L, T3=Humic Acid 5.0 mg/L, T4= Humic Acid 7.50 mg/L in 3 replications. The maximum figure of Plant height (22.24cm) is noted in T3 and lowest (18.31cm) in T1. The highest number of leaves per plant (4) was recorded in treatment T2 while it was the lowest (3.63) in T4. The highest stem diameter per plant (14.55mm) was found in treatment T4 which remained the least (112.55mm) in control treatment T1. Maximum leaf area (24.52cm^2) was recorded in treatment T4 while minimum leaf area (15.47cm^2) was recorded in treatment T1. Maximum treatments have non-significantly affected majority of the parameters of bulb quality, but the best result was recorded in T4 where we applied Humic Acid at the rate of7.50 mg/L

Key words; Dutch Iris, Ethanol, Humic acid, Leaf area, Weighing scale.

I.INTRODUCTION

Dutch iris botanically known as *Iris hollandica*is a significant member of order Asparagales in family Iridaceae which is a crossbreed created from varieties local to Portugal, Spain, and North Africa (Shahidi-Noghabi 2015). Iris holds a bulb of around 10 centimeters (3.9in) and can arrive at a stature of around 60 centimeters (24in). this bulbous iris has tight erect green leaves and bears largish blue to yellow and white blossoms. It mostly flowers in May-June in the northern side of the equator, and in September-October in the southern half of the globe(Sheikh et al. 2000).

The flowering percentage of Dutch iris increased and the proportion of non-flowering three-leaved plants droppes as the length of ethylene exposure at 10 l/l air or the number of ethylene treatments increases..(Imanishi and Yue. 1985).

Geophytes are now used in profitable production of freesia, Dutch iris and tazetta narcissus. Changes in flowering response, respiration, and soluble carbohydrate content of bulb scales and apices of different-sized iris bulbs treated with ethylene were evaluated in the study reported here to test this theory. (Imanishi, Halevy et al. 1994)

Beared-less irises have more conservative worth because of its perpetual nature, bearing slim grass like leaves with erect stem taking verdures of 3 enormous dispersing fall and 3 little erect petals. They stand most loved spring elaborate blossoms for their alluring appearance just as eco-accommodating conduct notwithstanding improve the earth stability(Crișan et al., 2017). Yet, the development of iris is likewise relying upon additional variables, for example, temperature, light, water and agrochemicals comparably large scale and miniature supplements. Almost certainly both have characters in the development of bulbous blooming plants, paying little heed to macronutrients; micronutrients too greatly affect plant metabolic activities for more beneficial advancement and their lack cause decrease underway just as nature of flowers (Lahijie and Sciences.,2012)

Dutch iris is a monetarily significant cut blossom species (Jerardo, 2007), Despite the fact that their beauty is limited by a low stature container life of 2–5 d((Jones et al., 1994) the frustration of iris blossoms to it also is a significant postharvest problem to open completely after dry transportation and storage. (Mayak and Halevy, 1971). A few medicines have been studied to see whether they can help iris blossoms open and stay in their containers longer.(Swart,1985).

II.METHODOLOG

The experiment research was arranged in corresponding to RCB Design with four treatments and three replications. The bulb of Blue Dutch iris was transplanted to main field in October 2020. After sowing we applied our treatment in December 2020 and collected data on first week of January 2021. The data was tabulated and analyzed using statistics 8.1software. Significant and non-significant figures were ascertained for results band discussion.

III.MODELING AND ANALYSIS

TREATMENT	CONCENTRATION
T_1	Control
T_2	Humic acid 2.50 mg/L
T_3	Humic acid 5.0mg/L

T4	Humic acid 7.50 mg /L

IV.RESULTS AND DISCUSSIONS

Plant height

The results regarding plant height are presented in figure 1 while the ANOVA is shown in Table 1. The statistical analysis depicted a non-significant effect of humic acid on the plant height of dutch iris. However, thePlant height was the highest (22.24 cm) in T3 and the lowest (18.31 cm) in T1.

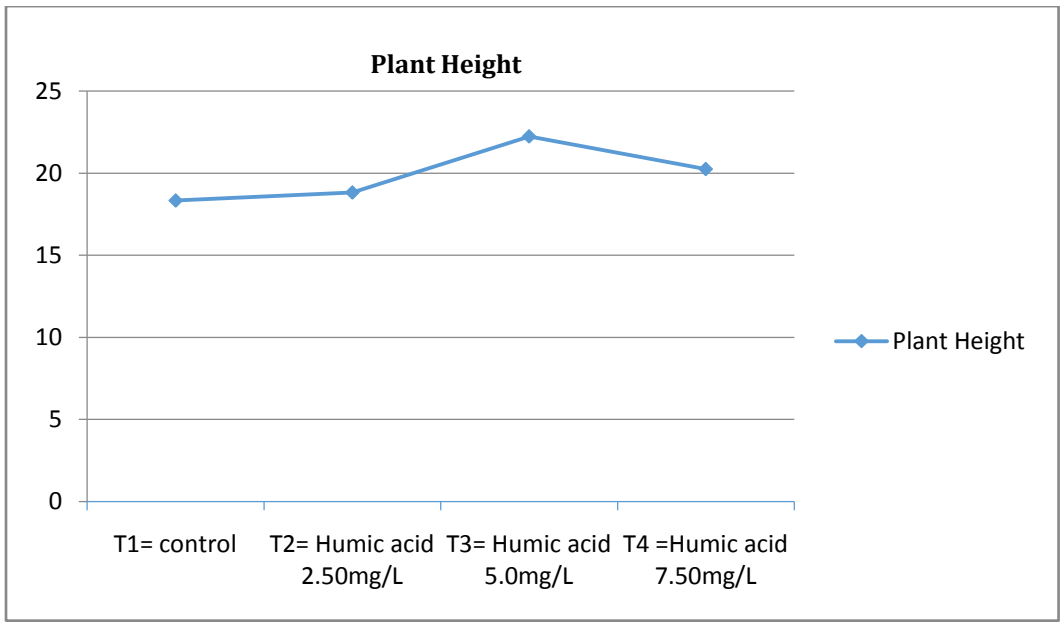

Fig. 1. Effect of humic acid concentrations on plant height.

Table 1: Analysis of variance for plant height:

Randomized Complete Block ANOVA Table for Plant Height

Source	DF	SS	MS	F	P
Rep	2	53.9821	26.9910		
Treatment	3	29.8132	9.9377	3.70	0.0809
Error	6	16.0961	2.6827		
Total	11	99.8914			

Number of leaves per plant

The results regarding number of leaves per plants are presented in figure 2 while the ANOVA is shown in Table 2. The statistical analysis depicted a non-significant effect of humic acid on the number of leaves per plants of dutch iris. Highest number of leaves per plant (4) was recorded in treatment T2 while minimum (3.63) number of leaves per plant was recorded in treatment T4.

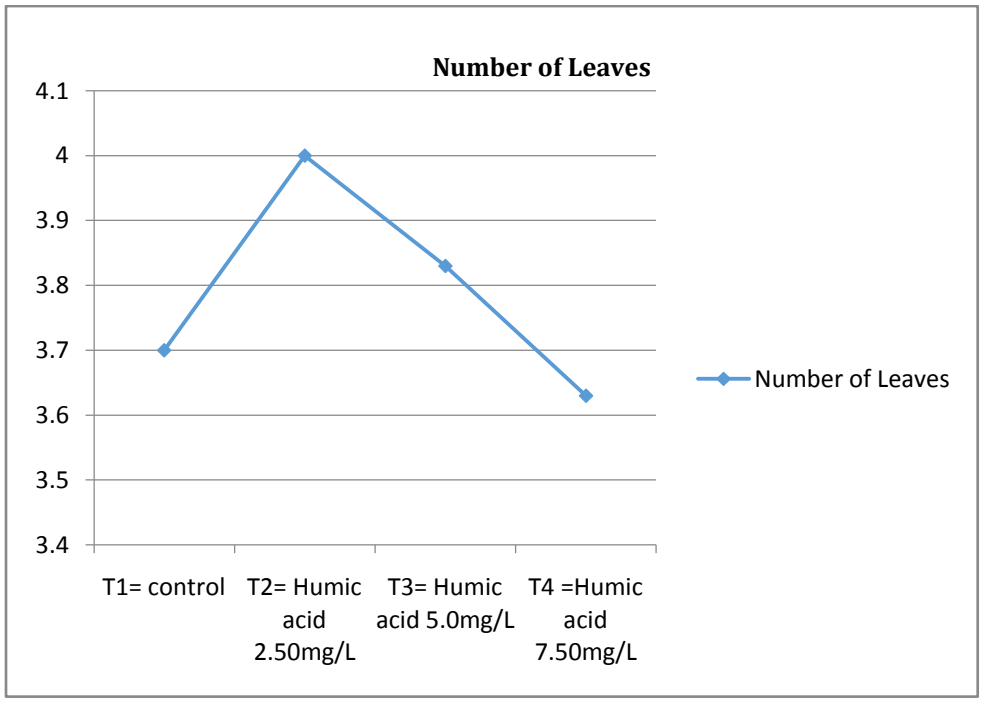

Fig . 2. Effect of humic acid concentrations on number of leaves per plants.

Table 2: Analysis of variance for Number of leaves per plant:

Randomized Complete Block ANOVA Table for number of leaves per plants

Source	DF	SS	MS	F	P
Rep	2	0.27167	0.13583		
Treatment	3	0.23583	0.07861	0.33	0.8032
Error	6	1.42167	0.23694		
Total	11	1.929			

Stem Diameter

The results regarding stem diameter are presented in figure 3 while the ANOVA is shown in Table 3. The statistical analysis depicted a non-significant effect of humic acid on the stem diameter of dutch iris Maximum diameter of stem recorded (14.55mm) in treatment T4 while minimum diameter of stem recorded (12.55mm) in control treatment T1.

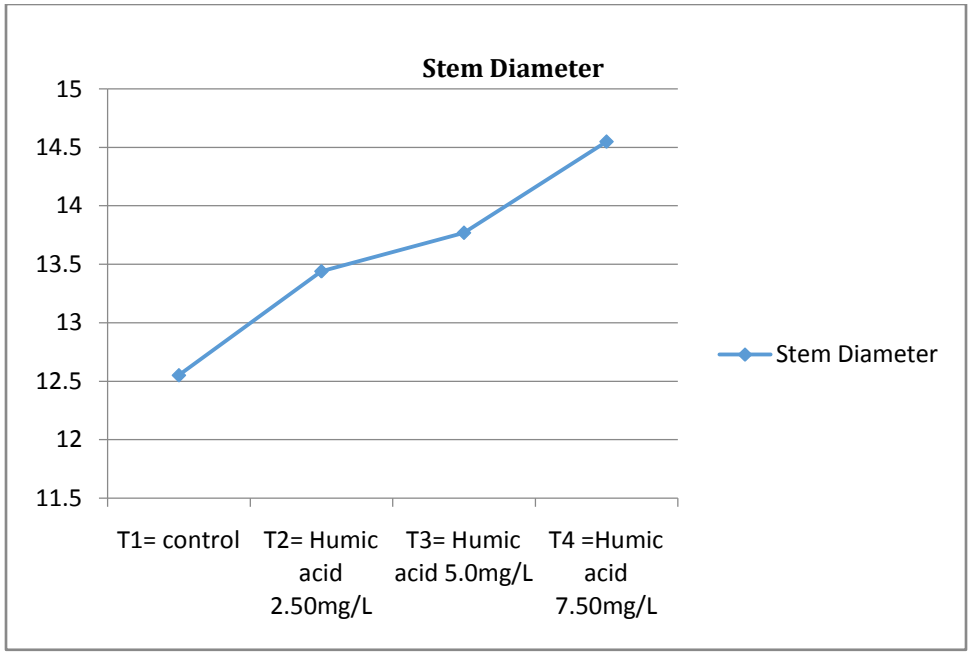

Fig. 3. Effect of humic acid concentrations on stem diameter.

Table 3: Analysis of variance of Stem diameter

Randomized Complete Block ANOVA Table for SD

Source	DF	SS	MS	F	P
Rep	2	5.1783	2.58917		
Treatment	3	6.1530	2.05100	0.21	0.8871
Error	6	59.0898	9.84831		
Total	11	70.4212			

Leaf Area

The results regarding leaf area are presented in figure4 while the ANOVA is shown in Table 4. The statistical analysis depicted a non-significant effect of humic acid on the leaf area of dutch iris. The maximum leaf area was recorded in treatment T4(24.52cm) while minimum was recorded in control To (15.47cm).

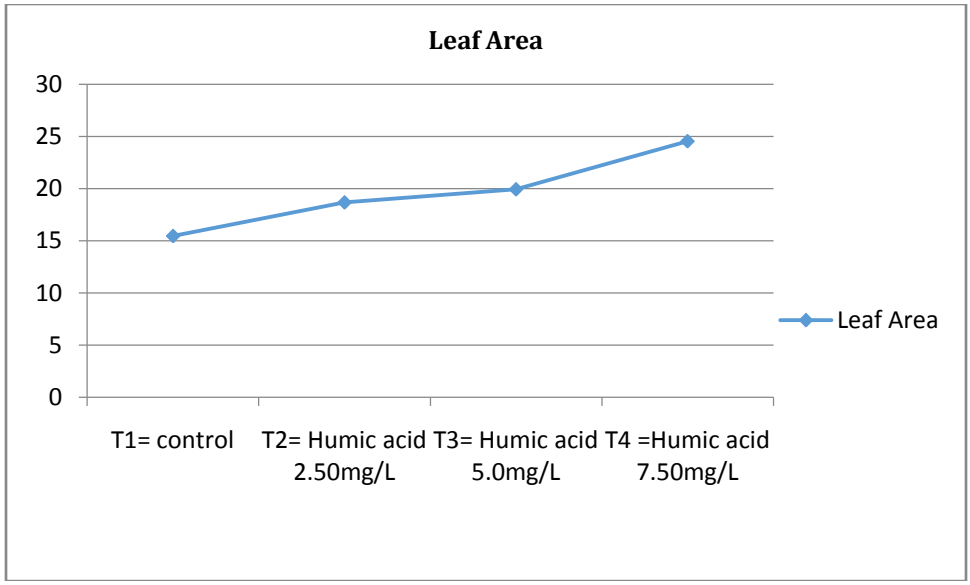

Fig. 4. Effect of humic acid concentrations on leaf area.

Table 4: Analysis of variance Leaf area

Randomized Complete Block ANOVA Table for LA

Source	DF	SS	MS	F	P
Rep	2	69.381	34.6907		
Treatment	3	126.737	42.2457	2.89	0.1241
Error	6	87.560	14.5933		
Total	11	283.678			

V.CONCLUSION

Although the results shown above are mostly non-significant however, there is clear from the above data the humic acid has some effects on the vegetative growth of iris. Treatment T-4 exhibited best results for most of the parameters. Parameters are Plant height, Numbers of leaves per plant, Stem diameter, and Leaf area.

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