SUMMARY

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This study was carried out during two successive seasons [1993-1994 and 1994-1995] at the Experimental Farm of the Faculty of Agriculture, Zagazig University at Moshtohor, Kalubia Governorate.

Three main experiments were conducted to study the effect of growth substances, amino acids and storage temperature on vegetative growth, flowering and chemical analysis of *Narcissus tazetta* plant.

I- Growth substances :

This experiment aimed to study :

Effect of gibberellin, ethephon and paclobutrazol at concentrations of 50, 100 and 150 ppm for each.

II- Amino acids :

In this experiment three Amino acids were examined i.e. tryptophan, aspartic and glutamic acids at 50, 100 and 150 ppm for each.

III- Bulbs storage :

Different temperatures were used to store bulbs before propagation 5 ± 2°C, 10 ± 2°C, 25 ± 2°C and 27 ±2°C was examined.

The most important resuls obtained were :

I - Growth substances experiment :

1- The data revealed that, spraying with grwoth regulators specially, gibberellin at 150 and 100 ppm and ethephon at 150 ppm caused highly significant increases in most of the vegetative growth parameters as number, hight, fresh and dry weight of laves per plant

and dry weight of leaves per plot. On the other hand, spraying with paclobutrazol gave opposite effect.

2- All grwoth regulators treatments, with their different concentrations, caused significant increases in the mean number of bulbs per plant, fresh and dry weight of bulbs per plant and per plot (1 m2). The best concentration in this concern was 150 ppm for all growth substances specially paclobutrazol.

3- Gibberellin and ethephon at different concentrations caused highly significant increases in the number of peduncle per plant, diameter, height, fresh and dry weight of peduncle specially with the height concentrations (100 and 150 ppm.). On the other hand, sprying with paclobutrazol caused a decrease in peduncle height, fresh and dry weight of peduncle compared with control, while it caused significant increases in number, diameter, fresh and dry weight of peduncles per plant.

4- Spraying narcissus plants with different concentrations of gibberrellin and Ethephon caused early flowering and significant increases in number of florets per peduncle and per plant, diameter of florets, fresh weight of florets per peduncle and per plant. While, spraying with paclobutrazol at 50, 100 and 150 ppm delayed flowering and increased the number and weight of florets per plant, but decreased number of florets per peduncle, diameter and fresh weight of florets per peduncle compared with the control.

5- All tested growth regulators at different concentrations i.e. 50, 100 and 150 ppm. caused highly significant increases in concrete and absolute oil percentages in florets, except paclobutrazol and ethephon at low concentrations compared with the untreated plants.

6- Also, spraying with growth substances used at their different concentrations caused significant increase, in total alkaloids percentage in peduncle, leaves and bulbs compared with the untreatd plants.

II - Amino acids experiment :

1- All tested amino acids at concentrations of 50, 100 and 150 ppm. induced good results for vegetative growth measurments such as number, length, fresh and dry weight of leaves per plant and dry weight of leaves per plot. The best results were obtained when higher concentrations were used specially with tryptophan.

2- Treating narcissus plant with amino acids at different concentrations caused significant increases in number, fresh and dry weight of bulbs per plant and per plot. The best results of the previous mentioned parameters were obtained when higher concentration of each amino acid was used. The best effect was obtained with tryptophan.

3- All amino acids at all concentrations used caused significant increases in the parameters of peduncle (number, length, fresh and dry weight) over the untreated plants.

4- All the tested amino acids at different concentrations caused early flowering and significant increases in number of florets per peduncle and per plant, diameter and fresh weights of florets per peduncle and per plant. The best results in this concern were obtained with the higher concentrations.

5- All amino acids tested in this work with their different concentrations resulted in significant increase in concrete oil percentage in florets and also a slight increase in absolute oil percentage in florets, compared with control.

6- The data revealed that, spraying narcissus plants with the tested amino acids at their different concentrations caused highly significant increases in total alkaloids percentages in peduncle, leaves and bulbs. The superiorty in this concern was for the higher concentration of each amino acid and specially with tryptophan.

III - Bulbs storage :

1- Bulbs storage for two monthes on 5 ± 2°C, 10 ± 2°C in refrigerator and 25 ± 2°C (in soil) before planting caused significant increases in number, length, fresh and dry weight of leaves per plant and dry weight of leaves per plot. On the Contrary, the lowest values of the prementioned measurments were obtained when bulbs were stored at 25 ± 2°C (in soil) or 27 ±2°C (in room).

2- Cold storage of bulbs (5 ± 2°C or 10 ±2°C) for two monthes before planting gave high significant increases in number, fresh and dry weight of bulbs per plant and per plot when combared with those stored at 25 ± 2°C (in soil) or those stored at 27 ± 2°C (in room) which gave the lowest values.

3- Cold storage at 5 ± 2°C and 10 ±2°C caused significant increases in number of peduncles per plant, diameter, length fresh and dry weight of peduncle. The best treatment was storage of the bulbs at 5 ± 2°C. However, bulbs stored at 25 ± 2°C or 27 ±2°C gave the lowest values in this concern.

4- Storage of bulbs at low temperature (5 ±2°C or 10 ± 2°C) before planting caused early flowering and increased the number of florets per peduncle and per plant, diameter and fresh weight of florets per

peduncle and per plant. While, storage of bulbs at 25 ± 2°C and 27 ± 2°C gave the lowest values.

5- Cold storage of bulbs at 5 ± 2°C and 10 ± 2°C produced inreases in concrete and absolute oil percentages in florets compared with those stored at 25 ± 2°C and 27 ± 2°C.

6- Storage at 5 ± 2°C and 10 ± 2°C caused an increase in total alkaloids percentage in peduncle, leaves and bulbs compared with those stored at 25 ± 2°C and 27 ± 2°C.

RECOMMENDATION

From the previous data it could be recommended that, Narcissus plant could be sprayed with gibberellin or ethephon at 100 to 150 ppm for good results of vegetative growth, flowering and chemical contents of absolute oil or alkaloids. Also, it could be recommended to use of one of the amino acids, Tryptophan, Aspartic or Glutamic acid at 150 ppm as foliar spray for promoting vegetative growth, flowering parameters and contents of absolute oil or alkaloids production. Concerning bulbs storage, it could be recommended to store the bulbs at 5 ± 2°C or 10 ± 2°C for two months before planting for producing high quality of flowers or new bulbs and higher content of absolute oil in florets and total alkaloids in peduncle, leaves and bulbs.