



**STUDY DIFFERENT CONCENTRATIONS HORMONE INDOLE BUTYRIC ACID
AND NAPHTHALENE ACETIC ACID ON ROOTING CUTTINGS SEVEN COLOR
ROSE (ROSA HYBRID)**

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ABSTRACT

In recent years, the cultivation of plants in the greenhouse and nursery work is very widespread. In this regard, it is necessary to determine variables influencing the amount and quality of researchers is cutting production. In order to evaluate the effect of different concentrations of the hormone indole butyric acid and naphthalene acetic acid The seven colors of rose cuttings Factorial experiment in a completely randomized design with three replications In the spring of 2014, Was conducted in a greenhouse located in the city of Babol. The first one contains different concentrations of naphthalene acetic acid (zero, 1,500, 3,000 and 4,500 mg per liter), and the second factor Different concentrations of indole butyric acid (zero, 1,500, 3,000 and 4,500 mg per ml). The results showed that Treatment of the cuttings by NAA and IBA could be indicators of rooting cuttings rose seven colors. The use of hormone indole butyric acid concentration of 3000 mg Cuttings for rooting and shoot growth was perfect rose And led to 30 percent growth compared to other concentrations have. Reduced NAA levels to 1500 mg per liter The shoot growth was better than the concentrations of this hormone And led to the growth of the scion shoots are 10% higher than other concentrations. Therefore, according to the market-friendly and high demand rose in the world the use of indole butyric acid at a concentration of 3000 mg per liter Coupled with a concentration of 1500 mg per liter NAA could be one way to increase production is the goal.

With regard to the issues mentioned results and overall assessment was that appear IBA hormone concentrations of 3000 And 4,500 mg for other traits had the best results.

Keywords: Rooting hormone, NAA, IBA, cuttings, roses

INTRODUCTION

Rose symbol of kindness, gentleness, inspiration, spirituality and the source of wit and happiness for mankind. Interest in flowers woven by human creation and if people see that in floriculture and maintenance flowers are more enthusiastic, Our country due to climatic variations and many sunny days during the year is a special occasion for the production of flowers and plants And by paying attention to these things manufacturers can be large producers and exporters in this sector. One of the industry's inabilities to mass production and quality goals are plants (2). Rose cultivation dates back to prehistoric times when myth and reality are combined. Its name in ancient literature to read and images on the stones of ancient remains to this day (3). Rose is a plant that belongs to the Rosaceae family. There are about 107 genera and 3,100 species in this family. Along with 24 other families on one side with roses and this order is known as the order Rosales. About 70 genera of the rose family as ornamental plants, food and medicine are frequently used. Rose genus of about 140 species of which 95 species of Asian origin them, 18 North American origins and the rest of Europe and Africa

originated (4). More than 20,000 varieties of roses as a result of hybridization, mutation, and selection and by using the methods mentioned new samples are obtained each year. Among the common traits of these plants can be noted in these cases: Being unwell periapt, rarely without petals and are shaped by the plate. Sepals, petals and stamens are often on the periphery of the receptacle. Flags are often two or three times or infinitely sepals are numerous (5). Many varieties of roses because of features such as beauty, durability, form flowers and shoots are suitable for use as cut flowers and the figures are particularly favorable conditions for harvesting and consumption are used as cut flowers. Rose cut flowers because of the beauty and diversity of plants has been at the forefront of global trade and may not flower in the world that is not roses among your sales goals. Hybrid varieties are used for the production of cut flowers (6). With proper greenhouse production facility it provides all year round. This is a perennial plant that provides economic operation is possible up to 6 years. For flower cultivation is usually 7 plants per square meter and 3 to 5 months after planting what

a bond to be operational. There are different varieties of roses in any color, flowers, resistance to diseases and pests, resistance to cold or heat and power plants are the main different types. For flower cultivation is usually 7 plants per square meter and 3 to 5 months after planting what a bond to be operational. There are different varieties of roses in any color, flowers, resistance to diseases and pests, resistance to cold or heat and power plants are the main different types. As the number of cases rose, performing segmentation is required in addition to researchers and breeders, ordinary people as well as scientific and as simple as possible and easy to use. Although rooting stem cuttings of various substances such as carbon monoxide, acetylene and ethylene, but commercial products such as auxin indole acetic acid, NAA and indole butyric acid on rooting cuttings have a great impact. A polar auxin moves naturally in plants and through the phloem from the top to the bottom (7). But more concentration at the bottom of the cuttings used, polar state disappears and moves well from the bottom up. Indole acetic acid naturally out of the cell into the cell when the ionized and non-ionized. Non-ionized due to the cell membrane into the cell can no longer be removed by the carrier protein from the cell. Auxin moving speed of about one

centimeter per hour (8, 9). According to the market-friendly and high demand rose in the world with high quality and marketable production rose worldwide could be one way to increase exports and create jobs in the country. Since the limited research on the impact of hormones on rooting rose cuttings have been seven colors, this research can be an effective step in increasing the production of this figure. The goals of this research were followed: The effect of different concentrations of NAA on the rooting hormone indole butyric acid and rose in seven colors, to determine the optimal concentration for rooting hormone indole butyric acid and naphthalene acetic acid, can be massively rose seven colors with roots growing out of uniform.

MATERIALS AND METHODS

The effects of different concentrations of IBA and NAA on rooting Rose seven colors of the greenhouse located in the city of Babol will be completely randomized in a factorial design with three replications, A factor of four levels (zero as a witness, 1500, 3000, 4500 ppm), NAA And factor B includes four levels (zero as a witness, 1500, 3000, 4500 ppm) was indole butyric acid.

This is the first packet in a bucket full of water with Coco peat Coco peat in a short time in the water, softened and then the

excess water is filtered through a fine and was placed under the sun. At least one full day, time is required for drying. Coco peat, After drying, mix 1 part perlite + 1 part sand + 6 Episode Coco peat And 1 part peat was prepared And the same was dumped in plastic bags at four levels expressed in hormone Soluble. On May 2014 greenhouse ready for cultivation in Babylon were prepared. The materials used to make various concentrations of hormones including testosterone, alcohol and 85 percent distilled water, Paper, sensitive scales three decimal places, the flask, the desired value for each weighed 200 mg hormones and any amount of alcohol was added slowly to 14 ml of alcohol and this solution was used to solve the hormone and transparency. To make a solution of 1500 ppm First, 200 mg of testosterone slowly poured in 14 ml of alcohol in the flask and then the This solution is slowly distilled water and brought to a volume of 133 ml with distilled water and alcohol, the flask shaken until the solute and solvent were well resolved. To make a solution of 3000 ppm Instead of 133 cc to 66 cc volume has and to create a solution of 4500 ppm it was brought to 133 the volume of 44 cc. Each different hormone concentrations in dark brown glass casting and to prepare the cuttings were stored at room temperature.

On the same day rose cuttings taken from seven color 3 cuttings per pot in the same size of the middle branches of the rootstock were healthy. Cuttings prepared with the same length in the same culture medium in the same plastic bag with same condition were grown in a greenhouse. In this study, a total of 144 cuttings were used 2 to 3 cm below the cuttings were placed for 10 seconds in a solution hormones And in the context of pre-irrigated cultivation, were killed. The analysis of variance was performed using SAS software and then mean comparisons by Duncan's multiple range test at the statistical level of ($P=5\%$) and ($P=1\%$), Done. Also, Microsoft Excel and SPSS was used to draw diagrams.

RESULTS

Root fresh weight

Based on the results of analysis of variance showed the use of NAA and indole butyric acid and their interaction on wet weight root roses seven color was significant (Table 1). The results of comparison of different levels of NAA showed the highest root weight (0/97 g) the cuttings that were by concentration of 4500 mg per liter NAA were treated. Using lower concentrations of NAA resulted in reduced weight of root cuttings rose seven colors and differences were not significant (Figure 1). The results obtained showed different concentrations of indole butyric acid significant effect on the

weight of the root cuttings of roses. If (Figure 2) is the use of indole butyric acid concentration of 3000 mg led to more weight rooting Significantly more (0.98 g) the results of other experiments to investigate the interaction of different concentrations of indole butyric acid and naphthalene acetic acid showed that The highest fresh weight (0.2 g) was the scion of the concentration of 3000 mg L indole butyric acid (NAA) were treated with 4500 levels (Figure 3).

The highest root the results of data analysis showed that the effect of indole butyric

acid (NAA) and the length of the longest roots in the probability of a significant percentage. The interaction of indole butyric acid and naphthalene acetic acid significant effect on the length of the longest root cuttings rose in seven colors (Table 1). According to the results of the comparison showed average concentrations of NAA's rose cuttings root length increased. Naphthalene acetic acid concentration increased to 3000 mg resulted in increased root length and above is significant difference between treatments. (Figure 6).

Table 1: Analysis of variance examined Traits							
Branch Length	Mean Square traits					Degree of freedom	Resource change
	number of branches	number of cuttings	Root length	highest root	Root fresh weight		
21.67 **	28.81 **	10.01 **	4.87 **	18.58 **	0.402 **	3	Naphthalene acetic acid (A)
10.45 **	2.25 **	3.94 **	5.52 **	8.96 **	0.597 **	3	Indole butyric acid (B)
22.48 **	6.10 **	6.36	5.95 **	19.27 **	** 0.531	9	A × B
0.782	0.47	1.57	0.83	0.67	0.025	32	Error
7.22	16.54	17.23	14.88	7.22	12.77	-	Coefficient of variation

Ns, * and ** are non-significant, meaningful and statistically significant at the 5% and significant at 1 percent

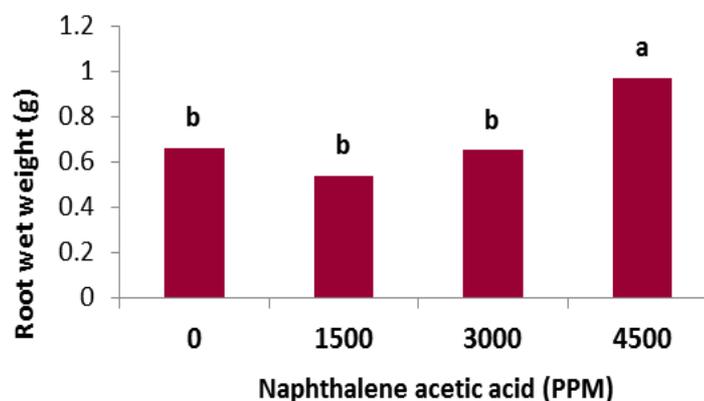


Figure 1: The effect of different concentrations of NAA on rooting weight rose seven colors

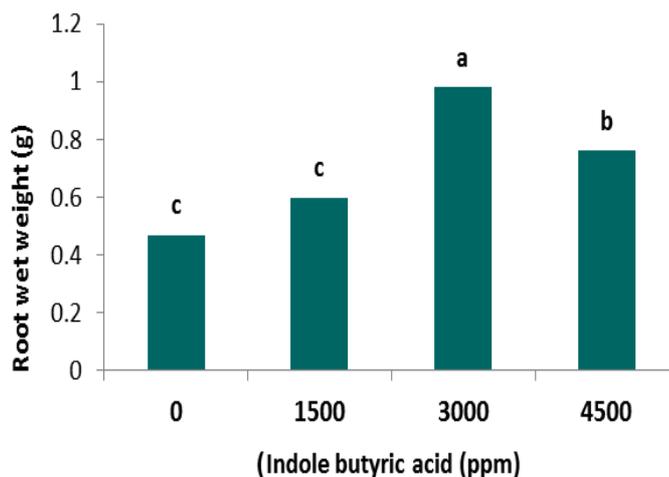


Figure 2: The effect of different concentrations of Indole butyric acid on rooting weight rose seven colors

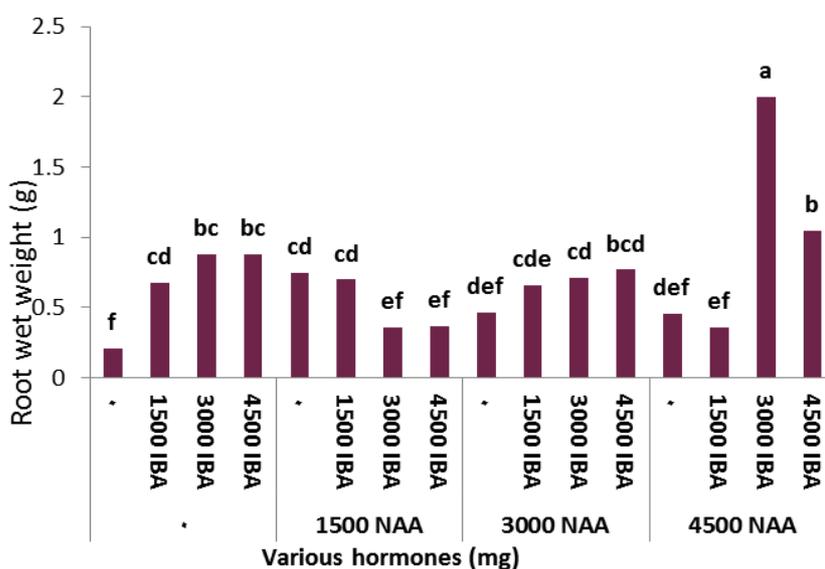


Figure 3: Interaction of naphthalene concentrations of Indole acetic acid and butyric acid wet weight root cuttings rose seven colors

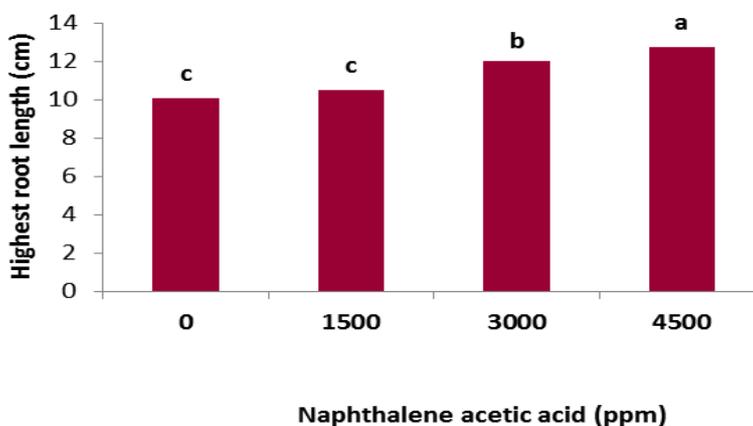


Figure 4: The effect of different concentrations of NAA on rooting rose the highest in seven colors

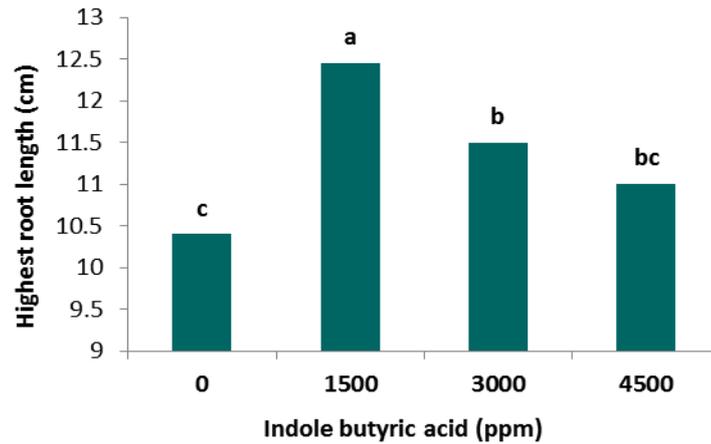


Figure 5: The effect of different concentrations of indole butyric acid on the highest rooting rose seven colors

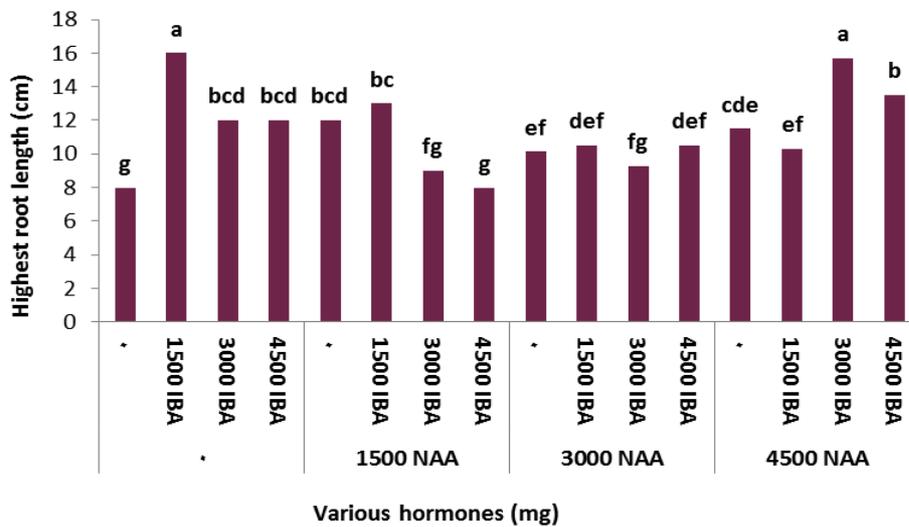


Figure 6: Interaction concentrations of Indole butyric acid (NAA) and the length of the longest root cuttings rose seven colors

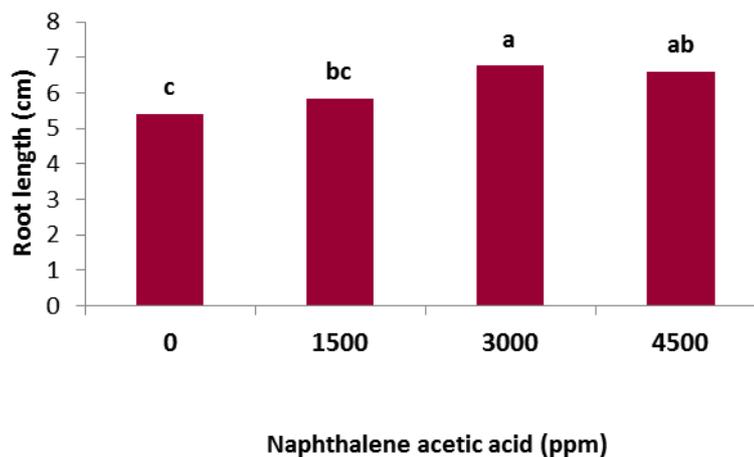


Figure 7: The effect of different concentrations of NAA on the rooting rose seven colors

Root length

Based on the results of this study showed the use of different concentrations of indole

butyric acid and also using different concentrations of NAA had no significant effect on root cuttings of roses. Interaction

indole butyric acid and naphthalene acetic acid a significant effect on the likelihood of an increase in root length (Table 1). Based on the results of comparison of different concentrations of NAA was found Most of the root cuttings that were related to the concentration of 3000 mg per liter Naphthalene acetic acid were treated. (Figure 7). Based on the results of this test showed a concentration of 4500 mg per liter of indole-butyric acid increased

significantly during root cuttings rose. Using lower concentrations of the hormone led to sharply reduced root length And not significantly different from zero concentration (Figure 8). Interaction and indole butyric acid (NAA) showed Application concentration of 3000 mg per liter NAA and 1,500 milligrams per liter of indole butyric acid And also the concentration of 4500 mg per liter NAA increased the rooting of rose (Figure 9).

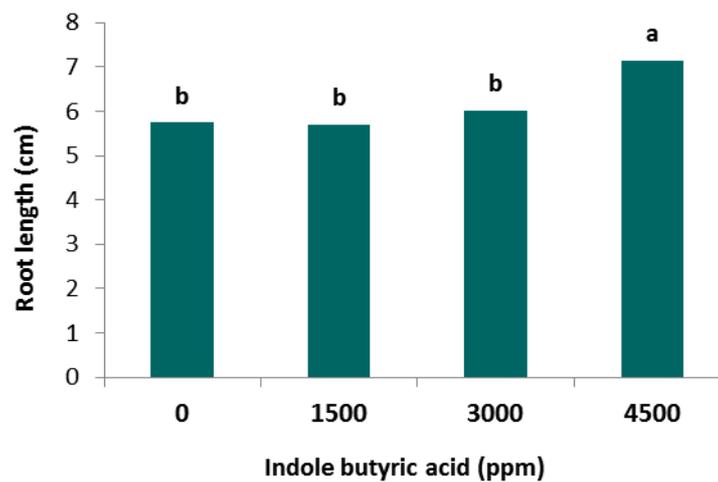
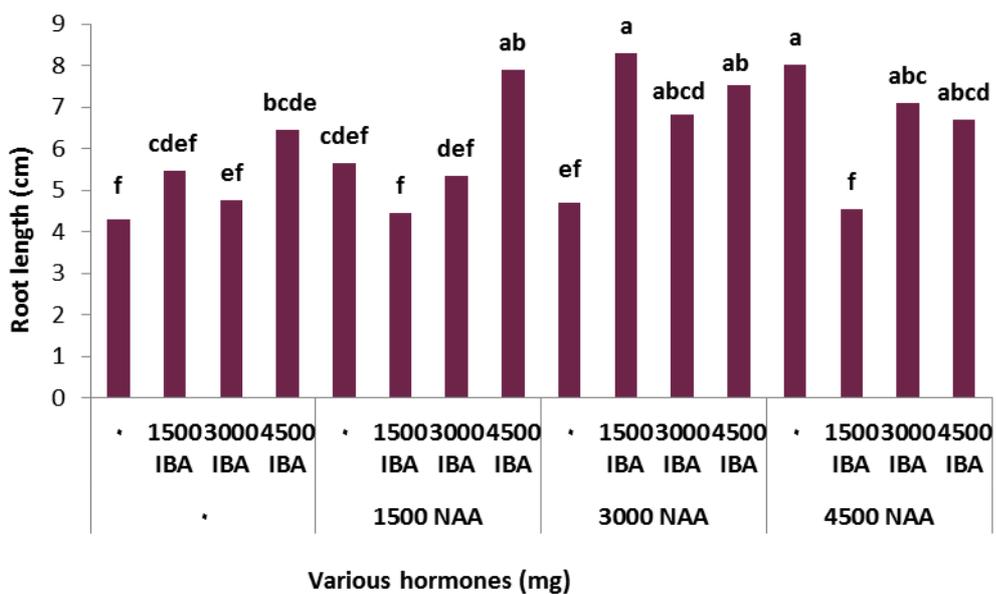


Figure 8: The effect of different concentrations of Indole butyric acid on the rooting rose seven colors



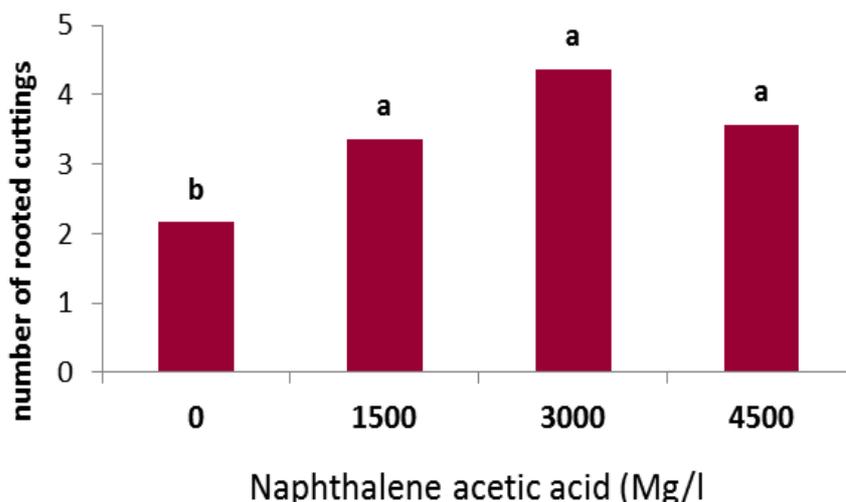


Figure 9: Interaction concentrations of NAA and indole butyric acid on the rooting rose seven colors

DISCUSSION

1. Overall results of the study showed that treatment of cuttings by NAA and IBA could be indicators of rooting cuttings rose seven colors. 2. With regard to the issues mentioned results and overall assessment was that appear IBA hormone concentrations of 3,000 and 4,500 milligrams per liter The best result was obtained for other traits.

1. The concentration of 3000 mg per liter Coupled with a concentration of 1500 mg per liter NAA could be one way to increase production is the goal.

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