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RESEARCH ON INFLUENCE OF TOP SHOOTS PINCHING ON PLANT GROWTH AND BLOSSOMING OF SOME NEW VARIETIES OF PETUNIA

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Abstract

According to statistics, Petunia became the most used flower specie for summer and autumnal decor of parks and gardens. The degree of branching of the plant is a characteristic of variety but as well branching plant is influenced by the number of applied top pinching shoots. Our experiments were focused on study of reaction of four new varieties of Petunia ('Veranda Scarlet', 'Picotte Purple', 'Surfinia Blue', 'Shishi Purple') to pinching shoots. We used rooted cuttings of each variety that off the top over the 4-8 leaf growth (from 2.5 to 4 cm). Shoots arising from these were pinching pinch in the same way (every month) and repeated pinching and secondary shoots. The effect of pinching to quantify the observations, measurements and determination of the main indicators of growth and flowering plants: the number and length of shoots on the degree of branching, leaf number, plant height and diameter, number of buds and flowers. In terms of vegetative growths responded best plants of the varieties 'Picotte Purple' and 'Blue Surfinia' who had higher values of the indicators of growth right from the first pinch. In quality flowering best results were obtained from varieties 'Picotte Purple' and 'Veranda Scarlet'. These results attest to the fact that pinching of the shoots often has a positive impact on the formation, growth and flowering of petunia plants, plant response to these works is different depending on variety.

Keywords: *blossoming, branching, growing, petunia, pinching*

INTRODUCTION

Petunia is undoubtedly one of the most popular flower species for summer decoration of parks, gardens, balconies and terraces [4, 6]. Most often the plants are produced from seeds [1, 2, 5]. Recent researches have shown that some varieties behave very well to multiplication by cuttings [7].

Plants shoots good capacity allows to obtain a satisfactory number of seedlings in a short Period of time and the mother plants from cuttings which were can be used for decoration collected, after the cutting [3].

Branching plant capacity is superior to plants obtained from cuttings, degree of branching is influenced by variety and number of pinching applied [7].

MATHERIAL AND METHOD

The experiments were initiated from rooted cuttings of four new varieties of *Petunia* - *'Veranda Scarlet', 'Picotte Purple', 'Surfinia Blue'* and *'Shihi Purple'*.

Seedlings planted in pots were tissue with a diameter of 10 cm in peat substrate (90%) + perlite (10%), on 7/12/2010.

At 10 days after planting rooted cuttings in pots we pinching, eliminating the strict branching tip growth.

The following pinching, in number two, were made at intervals of one month each, the shoots emerged after previous pinching above the 4-6 leaves at the base.

After each pinch biometric measurements were made on the number and length of shoots emerged after pinching, number of leaves on the vine, plant height.

Starting with what the second month after the last pinch was recording and plant diameter, number of flowers and flower buds per plant.

The results were interpreted through the prism of the correlation between different elements of growth and flowering plants.

RESULTS AND DISCUSSIONS

The results of our research shows that the studied varieties react differently to pinching shoots that growth stimulation surgery degree of branching plant.

The data in Table 1 show that when first picking (done at 10 days after planting rooted cuttings in pots), plants had an average height 2.60 cm between the variety *'Shihi Purple'* and 3.40 cm from the variety *'Surfinia Blue '*.

Table 1. The growing of the plants at the first pinching

Variety	Plant height (cm)	Leaves number
'Veranda Scarlet'	3,25	3,5
'Picotte Purple'	2,75	7,5
'Surfinia Blue'	3,40	6,5
'Shihi Purple'	2,60	4,5

In the number of leaves, ranging from 3.5 to variety *'Veranda Scarlet'* and 7.5 cultivar *'Picotte Purple'*.

When the second picking, performed one month after the first pinching, number of shoots per plant vary between 4.5 shoots the variety *'Veranda Scarlet'* and 7.0 shoots the varieties *'Surfinia Blue'* and *'Shihi Purple'* (Table 2).

Table 2. The growing of the plants at the second pinching

Variety	Plant height (cm)	Shoots number	Leaves number/shoot
'Veranda Scarlet'	3,4	4,5	4,5
'Picotte Purple'	3,6	5,5	8
'Surfinia Blue'	2,8	7	4,5
'Shihi Purple'	3	7	5

In the number of leaves per shoot, it ranged from 4.5 to varieties *'Scarlet Veranda'* and *'Surfinia Blue'* and 8.0 cultivar *'Picotte Purple'* (photo 1 and 2).

Photo 1. The growing of the plant of *'Surfinia Blue '* variety at the second pinching

Photo 2. The growing of the plant of *'Veranda Scarlet'* variety at the second pinching

What the third pinch performed on shoots emerged after the second pinching, there is a significant increase in the number of shoots per plant, this variety oscillating between 10.5 *'Veranda Scarlet'* and 16, 5 the variety *'Surfinia Blue'* (Table 3).

Table 3. The growing of the plants at the third pinching

Variety	Plant height (cm)	Shoots number	Leaves number /shoot
'Veranda Scarlet'	3,6	10,5	5,5
'Picotte Purple'	3,8	12,5	8,5
'Surfinia Blue'	3,0	16,5	7,5
'Shihi Purple'	3,2	16,0	6,5

After the third pinch longer required about 2 months for the plants to reach quality standard to be recovered, expressed by the onset of flowering (Photo 3-6).

Photo 3. The plant of *'Veranda Scarlet'* after two months from third pinching

Photo 4. The plant of *'Shihi Purple'* after two months from third pinching

Photo 5. The plant of *'Surfinia Blue'* after two months from third pinching

From this point, it is found that growth rate and number of flowers per plant grow very rapidly, resulting in achieving maximum potential ornamental plant in about three months since the last pinching.

Photo 6. The plant of *'Picotte Purple'* after two months from third pinching

Even if they receive the same number of pinching, differences between varieties are significant for all the growth and flowering. Thus, in Table 4, it is found that the final determination, made in late May, the variety *'Purple Picotte'* presents the highest values increases both in terms of vegetative and flowering elements while variety *'Surfinia Blue'* presents the lowest values of these elements (Photo 7-10).

Photo 7. The plant of *'Veranda Scarlet'* after three months from the last pinching

Photo 8. The plant of *'Shihi Purple'* after three months from the last pinching

Photo 9. The plant of *'Surfinia Blue'* after three months from the last pinching

Photo 10. The plant of *'Picotte Purple'* after three months from the last pinching

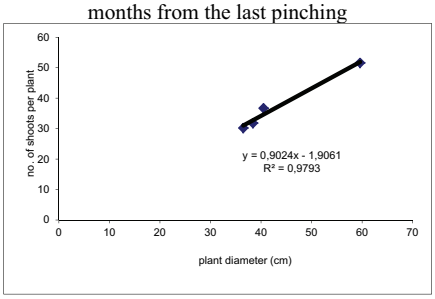


Fig. 1. The correlation between the diameter of plant and the number of shoots per plant

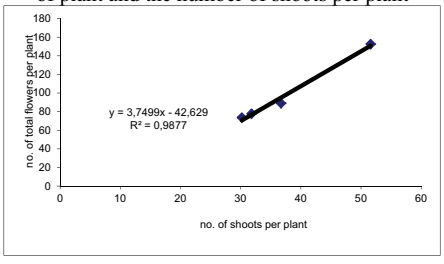


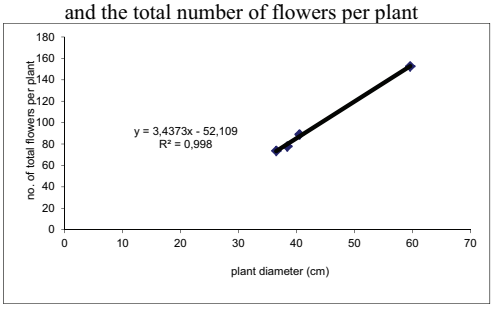
Fig. 2. The correlation between the number of shoots per plant and the total number of flowers per plant

Table 4. The growing and the blossoming of the plants at the third months of the last pinching

Variety	Plant height (cm)	Plant diameter (cm)	Shoots number	Total flowers number	No. of opened flowers	No. of. bud flowers
'Veranda Scarlet'	50,2	40,5	36,7	89,0	58,2	30,8
'Picotte Purple'	68,4	59,6	51,6	152,6	96,0	56,6
'Surfinia Blue'	61,3	36,5	30,2	73,7	50,0	23,7
'Shihi Purple'	66,5	38,4	31,8	77,8	46,4	31,4

Studying correlations between different elements of growth and flowering plants were established direct correlations, positive and very strong between plant diameter and number of shoots (Fig. 1), number of shoots and number of flowers per plant (Fig. 2) and plant diameter and number The flowers on the plant (Fig. 3).

Fig. 3. The correlation between the plant diameter and the total number of flowers per plant



These correlations show that the elements between vegetative growth and flowering elements there is very closely related to each of the four varieties.

CONCLUSSIONS

These studies have established that for good branching Petunia plants, necessary for obtaining a maximum value of ornamental plants, pinching need three: first performed 10 days after planting rooted cuttings and these two in a months difference.

In terms of vegetative growths responded best plants of the varieties *'Picotte Purple'* and *'Blue Surfinia'* who had higher values of the indicators of growth right from the first pinch.

If after first picking moderate branching plant, after the second pinch branching plants that greatly intensifies after the third pinch plants to branch out into explosive pace.

Reaching potential ornamental plants is made up of three months after the last pinch.

Plant response to pinching the shoots is different depending on the variety, the final maximum level of vegetative growth and flowering occurring in variety *'Purple Picotte'* and lows in the variety *'Surfinia Blue'*.

For each of the four varieties, plant diameter, number of shoots per plant and total number of flowers per plant are closely linked by positive correlations, direct and very strong.

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