

STUDIES CONCERNING THE INFLUENCE OF ROOTING SUBSTRATE AT *COLEUS BLUMEI* BENTH.

STUDII PRIVIND INFLUENȚA SUBSTRATULUI DE ÎNRĂDĂCINARE LA *COLEUS BLUMEI* BENTH.

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Abstract: *Coleus (Solenostemon) is a genus of perennial plants, native to tropical Africa, Asia, Australia, the East Indies, the Malay Archipelago and the Philippines. The most popular species from this genus is Solenostemon scutellarioides, and take part of Lamiaceae family. One of advantages to growing Coleus is that this genus is very easy to propagate. There are two ways to: by seeds and cuttings. In our experience we where observed three Coleus varieties: "Rainbow Volcano", "Velvet Lime", and "Solar Shade" which are rooted in two different substrates type (peat, perlite+peat).*

Key words: *Solenostemon scutellarioides, cuttings, rooting substrate*

Rezumat: *Coleus (Solenostemon) este un gen care cuprinde plante perene, originare din Africa tropicală, Asia, estul Indiei, din Arhipelagul Malaezian și din Filipine. Cea mai cunoscută specie din cadrul genului este Solenostemon scutellarioides, din familia Lamiaceae. Specia se înmulțește relativ repede și ușor, generativ prin semințe și vegetativ, prin butași. În experiențele efectuate, s-a urmărit comportarea a trei varietăți de Coleus "Rainbow Volcano", "Velvet Lime", and "Solar Shade" în două substraturi de înrădăcinare (turbă, perlit+turbă).*

Cuvinte cheie: *Solenostemon scutellarioides, butași, substrat înrădăcinare*

INTRODUCTION

Solenostemon scutellarioides, known as decorative nettle, a prevalent and loved species by amateur and professional growers, because the varied leaves and beautiful coloring. It had strong ramifications, leaves opposite, broadly oval or less deeply toothed. Plants have a very large color range can be unique (yellow, red, purple and green) or multicolored (or striated various spots). Stalk ramifications are edges and ends with floral spice with small flowers; pale blue-purple (Maria Cantor, 2008).

The aim of the research was to improve the current assortment of floricultural plants in Romania, with new varieties of ornamental species with different morphological characteristics, to be promoted and placed in production. Along with taking the study of new varieties, it has studying the improvement of the culture technology, too. In the present paper, we made some research's regarding the influence of rooting substrate on morphological characters of three varieties of *Coleus* cuttings and the influence of length on rooting.

MATERIAL AND METHOD

The subjects of our research were three *Coleus* varieties: 'Rainbow Volcano', 'Velvet Lime', 'Solar Shade' (Fig. 1.), which were followed the rootedness in different substrates (peat and peat + pearls).

The experience was established in 2008 in the didactical greenhouse of Floriculture Department from USAMV Cluj.

The cuttings were made on 24.01.2008 which was harvested from mother plants prepared in 2007-2008. The forming was performed at 1-2 mm below the base node and it was removed the third part of leaves to reduce the perspiration.

Length of cuttings used for rooting varied as follows: 4-5 cm; 5-6 cm; 7-8 cm.

From each variant were prepared 30 cuts.

Another important experimental factor was the rootedness substrate. Thus, they used two substrates, as follows:

a) perlite

b) perlite + peat (in equal proportions of 50%).

The cuts were prepared for rooting with Radistim.



Fig. 1. The studied *Coleus* varieties

RESULTS AND DISCUSSIONS

Both of establish the experience, and during the rootedness we have made a series of observations and calculations required for characterization of the used biological material. Thus, there were measurements on the number of rooted cuttings; the cuttings have formed only callus and number of unrooted cuttings (table 1).

Table 1

The influence of substrate on cuttings rootedness at the three *Solenostemon scutellaroides* varieties

Variety	Rooting substrate	Total no. of cuttings	No. rooted cuttings	No. of callused cuttings	Unrooted cuttings
„Rainbow Volcano”	Perlite	30	19	5	6
	Perlite+peat	30	25	2	3
“Velvet Lime”	Perlite	30	30	-	-
	Perlit+peat	30	30	-	-
“Solar Shade”	Perlite	30	27	-	3
	Perlit+peat	30	30	-	-

The best results were obtained at the variety 'Velvet Lime', which presented a rootedness of 100% of both rooting substrates. The 'Rainbow Volcano' and

'Solar Shade' varieties are rooting favorable in the substrate compound by perlite + peat (83,3%-63,3%) and less in perlite (60%-90%). At all studied varieties, the best rootedness occurs when the substrate was compound by peat + perlite.

In the table 2 are presented the results obtained regarding the number of rooted cuttings at different lengths for them.

Table 2

The influence of length of cuttings on rootedness, at the three *Coleus* varieties

Variety	Rooting substrate	Total no. of cuttings	The length of cuttings (cm)	No. rooted cuttings
„Rainbow Volcano”	Perlite	30	4-5	19
		30	5-6	20
		30	7-8	18
	Perlite+peat	30	4-5	26
		30	5-6	27
		30	7-8	22
“Velvet Lime”	Perlite	30	4-5	30
		30	5-6	30
		30	7-8	30
	Perlite+peat	30	4-5	30
		30	5-6	30
		30	7-8	30
“Solar Shade”	Perlite	30	4-5	27
		30	5-6	28
		30	7-8	26
	Perlite+peat	30	4-5	30
		30	5-6	30
		30	7-8	30

Regarding the influence of cuttings length on rootedness, at the three varieties of *Coleus*, it is found that the most favorable results are obtained when the length of cutting are between 5-6 cm in the mixed substrate, then followed by long range cuttings between 4-5 cm, rooted in perlite and perlite+ peat.

Concerning the influence of rootedness substrate on morphological characteristics of three varieties of *Coleus*, it is found that the total height of the cuttings were between 8,1-15,4 cm (at the varieties Rainbow Volcano and Solar Shade), and the cuttings width was between 7,6-11,0 cm (Rainbow Volcano and Solar Shade). The length of roots varied as follows: 1,9 cm at Rainbow Volcano variety and 4,2 cm at Solar Shade. The number of roots was between 8,0 and 11,2. The higher values were obtained when was used the perlite substrate, and the better rootedness was obtained in the mixed substrate (perlite + peat).

To describe the influence of rootedness substrate on total height of cuttings, rooted cuttings height, width and number of cuttings rooted, to be three varieties in the study were performed numerous observations and calculations. The average values of these characters are presented in table 3.

Table 3

The influence of rooting substrate on morphological characteristic at the three
Coleus varieties

Variety	Rooting substrate	Total height of cuttings (cutting+root) cm	The height of rooted cuttings cm	Diameter of leaves cm	The length of cuts cm	No. of roots
„Rainbow Volcano”	Perlite	12,6	9,0	8,8	3,8	9,8
	Perlite+peat	8,1	6,2	7,6	1,9	8,0
“Velvet Lime”	Perlite	13,6	9,8	9,8	3,8	10,2
	Perlit+peat	9,2	6,8	8,8	2,4	8,2
“Solar Shade”	Perlite	15,4	10,8	11,0	4,2	11,2
	Perlit+peat	9,4	6,6	8,6	2,8	8,4

CONCLUSIONS

Based on the obtained results the following conclusions and recommendations:

1. Analyzing the influence of substrate on rootedness at the three varieties of *Coleus*, it can be concluded that in the case of the 'Velvet Lime' variety using the perlite and perlite + peat the rootedness was 100%. At "Solar Shade" and "Rainbow Volcano" varieties are rooted favorable in the mix substrate compound by peat + pearl stone.

2. Characterizing the influence of cutting length on rootedness, it was found that the most favorable length of cuttings was the average (5-6 cm) length, which increased the number of rooted cuttings.

3. Regarding the influence of rootedness substrate on morphological characters of the cuttings, we can say that the height of the cuttings and the rest of the characters examined were affected favorable by both of the rootedness substrates.

To obtain a high quality of biological material for multiplication with a high rootedness percent it is recommended the cuttings with medium size and as the rootedness substrate the better is the mixture consisting in perlite 50% and peat 50%.

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