

# WAYS TO IMPROVE THE BREEDING PROCESS TO SPECIES AND *AJUGA REPTANS* L. *CERASTIUM TOMENTOSUM*

## STUDIUL MODALITĂȚILOR DE ÎMBUNĂTĂȚIRE A PROCESULUI DE ÎNMULTIRE LA SPECIILE *AJUGA REPTANS* L. ȘI *CERASTIUM TOMENTOSUM*

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**Abstract.** Based on the fact that they have a small waist, a large coverage of the soil and remain over winter with persistent foliage, *Ajuga reptans* and *Cerastium tomentosum* species, they can be used to exceptional gardens settings, both rustic and classical style. Also, we can flourish in the borders, on level ground or downhill, in compact spots, in combinations and mosaics, the plant roof and rustic settings. The following study shows our concern to provide a significant multiplication rate of these species so to ensure the necessary material in sufficient quantities.

**Key words:** rizogenesis, *Ajuga reptans*, *Cerastium tomentosum*, Radistim, Naporiz

**Rezumat.** Speciile *Ajuga reptans* și *Cerastium tomentosum*, prin faptul că au o talie mică și o capacitate mare de acoperire a solului, rămân și peste iarnă cu frunzișul persistent, se pot folosi la decoruri de excepție atât în grădinile rustice, cât și în cele în stil clasic. De asemenea, le putem etala în borduri, pe teren plan sau în pantă, în pete compacte, în combinații și mozaicuri, la acoperișuri vegetale și la decoruri rustice. În studiul de față prezentăm preocupările noastre în a asigura o rata de multiplicare cât mai mare a acestor specii pentru a se putea asigura necesarul de material săditor în cantități suficiente.

**Cuvinte cheie:** rizogeneză, *Ajuga reptans*, *Cerastium tomentosum*, Radistim, Naporiz

### INTRODUCTION

*Ajuga* genus is part of the *Labiata* family. It contains many species and a large area spread across the globe. In Romania flora species are exceptional, waiting too long to be put into value, not necessarily through improvement and ennoblement (Parvu, 2003). There are 45 species with a small frame and a herbaceous habit, mostly perennial, and highly resistant winter foliage and keeping intact (Preda M., 1979).

Strains and rootstocks have also an edge form and the leaves can be whole, dental or increase on the edge of different colors. Leafs short and thick, help to maintain plant in a compact form.

*Ajuga reptans* is a decorative species, the leaves are red-violacee metallic-looking, brilliant. The variety "Atropurpurea" leaves are purple-golden color and intense-blue flowers in a spike-like formations elongate. At *Ajuga reptans*' *Alba*

flowers are white and the "Pink Beauty" leaves are green and flowers are pink. In "Bronze Beauty" are the leaves and golden flowers are blue, and the "Gaiety" are leaves and purple-blue flowers are the color Liliacului (Preda M., 1979).

*Cerastium* genus is part of the family Caryophyllaceae. Most of them are part hardy plants and fewer of them annual, with origins in northern and temperate zones of Europe (Mărgărit A., Margarit Ana, 2004).

They get over the cold season, and are keeping all the air and groundwater, for example, semi wooden plants, whether the cold air coming in and they disappear only the shadow.

Increasing the air takes place rapidly during the spring, when temperature, light and high humidity favor this process (Mărgărit A., Margarit Ana, 2004).

*Cerastium tomentosum* leaves are soft, oblong-spatulate, color accented silver piliferous and numerous shorts (Mărgărit A., Margarit Ana, 2004).

Plants are easily multiplied by cuttings, in spring, the seedlings in the ground, with the addition of more sand, and a shading in the first phase.

Mature plants can regenerate, and also by cutting at 3-4 years. Once introduced into the garden is difficult to lose (Selaru Elena, 2001).

## MATERIAL AND METHOD

In the research covered the work to follow the capacity of multiplication of species and studied how to improve them to get many more descendants a season of growing from a small amount of biological material used as the parent plant. Species taken in the study were: *Ajuga reptans* and *Cerastium tomentosum*.

For this reason, have used both products with a role of stimulating the rizogenesis: Radistim and Naporiz. They contain auxine ANA (naphthyl-acetic acid) and AIA (indolil-acetic acid) in different percentages. After quantifying the results in rooting process, was made a comparison between the behavior of plants under the action of these bioincentive substances.

In experiment were used 10 plants of each parent species. From the experience for the two species were harvested cuttings. They were root for the shelter, on a substrate of sand and peat 1/1. Rooting verification and quantification of results was done after four weeks.

The experiment contained three working versions. The first version, which was called variant witness was made up of cuttings rooted made simple without being treated with anything. A second variation has used cuttings treated with a bio inceletive called Radistim and the third option was used with another substance with bio incentive called effect called Naporiz.

The two products Radistim and Naporiz are talc powder containing auxine ANA (naphthyl-acetic acid) and AIA (indolil-acetic acid) in different percentages with positive influence on the rooting)

Thus was done the comperison between the behavior of plants under the action of these bioincentive substances.

Results obtained from experiments were analyzed statistically using analysis variant. Based on indications found in the methodological literature (Ardelean and Sestraș, 1996) were calculated and are such differences were seen real and significant differences between experimental variants and media experience.

## RESULTS AND DISCUSSIONS

In the process of copying in the species *Ajuga reptans* resulted 73 rooted cuttings from the first possibility, the witness, where there were used no bioincentives. The second variant has been used as bioincentive, Radistimul, were obtained 78 rooted cuttings. In the third variant has been used as bioincentive substance called Naporiz and there were produced 75 rooted cuttings.

In species *Cerastium tomentosum* were collected 60 rooted cuttings in the first variant in which there has been no treatment to stimulate rizogenesis. In the second variant has been used for rooting stimulating Radistim , it resulted 65 rooted cuttings. For the third variant has been used Naporiz were obtained 62 rooted cuttings. Data are presented in tables 1 and 2.

Highlighting differences in meanings for the values calculated from these two species *Ajuga reptans* and *Cerastium tomentosum* is done by tables 1 and 2.

Table 1

**The statistical interpretation of data obtained in the propagation of the species  
*Ajuga reptans***

No. crt.	Variant	No of plants obtained	Relative number	Differences	Significance
1.	V <sub>1</sub>	73,00	100	-	-
2.	V <sub>2</sub>	78,00	107	5,00	***
3.	V <sub>3</sub>	75,00	103	3,00	**

DL 5%	2,01
DL 1%	2,89
DL 0,1%	4,25

For *Ajuga reptans* species comparison was done based on variant V<sub>1</sub> - witness (untreated), which has obtained a number of 73 rooted cuttings. In variant V<sub>2</sub>, which was used Radistim number of rooted cuttings is 78, which means that the difference obtained from V<sub>1</sub> is positive real and very significant. At V<sub>3</sub> variant where bio incentives substance was Naporiz number of plants obtained from 75. Difference obtained from V<sub>1</sub> is distinct real significant.

Table 2

**The statistical interpretation of data obtained in the propagation of the species  
*Cerastium tomentosum***

No. crt.	Variant	No of plants obtained	Relative number	Differences	Significance
1.	V <sub>1</sub>	60,00	100	-	-
2.	V <sub>2</sub>	65,00	108	5,00	**
3.	V <sub>3</sub>	62,00	103	3,00	*

DL 5%	2,73
DL 1%	3,92
DL 0,1%	5,77

Table 2 data show that at species *Cerastium tomentosum* variant V<sub>1</sub> has been witness variant. In variant V<sub>2</sub>, one in which treatment was Radistim number of plants obtained was of 65 rooted cuttings. The differences obtained were real positive and significantly distinct from variant witness.

At V<sub>3</sub> variant, in which treatment was done with Naporiz number of plants obtained was 62, the differences are real, positive and significant witness to the variant.

## CONCLUSIONS

Following the study presented in this work we can say as a general conclusion that at the two species analyzed was observed an increase in the number of rooted plants, compared with untreated variant, both in situations in which was used as bio incentive RADISTIM and that has been used NAPORIZ.

Also, we can say that for both species the best results, with distinct differences and very significant, were the variations obtained in the treatments performed with RADISTIM. This highlights the superiority of this product in response to rooting the two species presented in the current study.

Among the species studied, the best results were obtained in *Ajuga reptans* species (78 plants), and at *Cerastium tomentosum* (65 plants) when they were treated with Radistim.

Positive differences, real and very significant were obtained only if the species *Ajuga reptans* treatments with Radistim, which highlights the better responsiveness of this species for this bio incentive.

Real differences, positive and significant distinct were obtained in the case of species *Ajuga reptans* to treatment with Naporiz and for species *Cerastium tomentosum* treatment with Radistim.

At *Ajuga reptans* species have been obtained very good results after treatment with Radistim and good results after treatment with Naporiz where real difference is produced separately significant.

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