# THE INDUCEMENT AT THE ROOTEDNESS PROCESS OF CHAENOMELES JAPONICA CUTTING USING RADISTIM TYPE BIOACTIVE SUBSTANCE

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***Abstract***

*Chaenomeles japonica is a shrub cultivated as decorative plant for its small, lasting and shining leaves,oval-elongated (3-5 cm/2,5-4,5 cm), with short tail (2-5 Ø) and for the various colored sepals (pink, red, violet)gathered around the yellow flowers with no decorative value. In present it is known as a decorative plant cultivated in field. In areas with less favorable climate conditions where the minimal temperature goes down during winter below the resistance limit, they are cultivate in pots placed outdoor during the summer and indoor during the cold season. In our country Chaenomeles japonica is no very spread because of the shortage of cutting caused by the low rate of multiplication. In order to increase the efficiency of multiplication on vegetative way, between 2009-2011, in the green houses from Oradea we have wached over the Chaenomeles japonica cuttings rootedness process using stimulating substances of Radistim type.*

**Key words**: Chaenomeles japonica, rooting substrate, variants, cuttings

## MATERIAL AND METHOD

There where inghathered cuttings semi-wooden 8-10 cm long. The experiment was organized in two variants:$V_1$ - untreated standard and $V_2$ - treatment with radistim 2, using 1000 cutting per variant in four different times.

Cutting planting for striking roots has been made in perlit with 1-1,5 mm particles, placed on the parapet with a thickness of substratum of 12-14 cm. The treatment was made before planting. First there was a renewed the humidity staus. Then the cuttings were inderted in the powder stimulating substance (radistim 2) with 1-2 cm of their root.

The cutting were planted for striking roots in the first decade of Mai. The distance between cuttings was 6x6 cm and the depth was 2-3 cm. The soil was well ramed in order to remove the air from the rootedness zone.

During the rootedness period the temperature oscillated between 18-27 celsius degrees in air and 20-21 celcius degrees in substratum. The substratum's humidity was 65-75% of total capacity of retaining and the relative humidity was 75-85%.

The light was directed by covering the cuttings with paper and windows of the green house were whitewashed once the growing process started. For the variants differentiation there were made observations and

determinations concerning the lenght of rootednees period, the proportion of rooted cuttings and the dimensions of new formed roots.

**RESULTS AND DISCUSSIONS**

First roots appered at closed intervals of time for the two variants with a slight advantage for the cuttings trated with Radistim 2.

The period of complete rootedness processs last 57 days (04.05-30.09).

After the striking root process the cuttings were dislocated from the rootedness substratum and they were passed in clay flower pots which have the diameter of 6-8 cm. In this pots the substratum is formed of: two parts peat, one part earth of leaves, one part compost and one part sand.

The number of rooted cutting from the total cutting planted for rootedness, for each variant registered growing values from 703 cutting for $V_1$ (control, standard variant) to 799 cuttings for $V_2$ when the cuttings were treated with Radistim 2 (Table 1).

*Table 1*

The striking roots proportion of Chaenomeles japonica cuttings at Oradea's green houses (average values 2009-2011)

| Variants | Number of rooted cutting | | ±D | Semnification of the diference |
|---|---|---|---|---|
| | Absolute (pcs.) | Relative (%) | | |
| V1 - untreated standard (control variant) | 703 | 100 | - | - |
| V2 - treatment with Radistim | 799 | 113 | 96 | xxx |

LSD 5% - 25,6 LSD 1% - 50,7 LSD 0.1% - 82,4

In relativals terms treatment with Radistim 2 increased the rate of cuttings striking roots with 13% comparatively with the untreated variant. From the statisticpoint of view this difference is considered as very meaningful.

The treatment with radistim 2 stimulates also the quality of rooted cutting through the number and the dimension of the roots.

From table no.2 arises that the average number of roots per cutting is growing from 9,9 pcs. at $V_1$- untreated, to 13,4 pcs. per cutting at $V_2$-treated whith Radistim 2.

In relativals terms the treatment with Radistim 2 increased the number of roots per cutting with 35% comparatively with the untreatment variant. From the static point of view this difference is considered as very meaningful.

*Table 2*

Average number of roots per cutting
(average values 2009-2010)

| Variants | Average number of roots | | ±D | Semnification of the diference |
|---|---|---|---|---|
| | Absolute (pcs.) | Relative (%) | | |
| V1 - untreated standard (control variant) | 9,9 | 100 | - | - |
| V2 - treatment with Radistim | 13,4 | 135 | 3,5 | xxx |

LSD5% - 2,8 LSD 1% - 3,10 LSD 0.1% - 4,52

The increasing capacity of striking roots arises also from the number and the thickness of the newly formed plants'roots.

From the table no.3 we can see that the lenght and the thickness of Chaenomeles japonica cutting vary between large limits with favor for those treated with Radistim.

*Table 3*

The lenght and the thickness of Chaenomeles japonica rooted cuttings
(average values 2009-2011)

| Variants | The lenght of roots-extreme limits (cm) | Grouping the roots in accordance with its thickness | | Total |
|---|---|---|---|---|
| | | Pes.<1mm | Prs.>1mm | |
| V1 - untreated standard (control variant) | 0,3-10,1 | 5,7 | 3,2 | 8,9 |
| V2 - treatment with Radistim | 0,4-14,5 | 7,6 | 4,9 | 12,5 |

For the control variant the newly formed roots registered variable lenght between 0,3 and 10,1 cm. For the cutting treated with radistim 2 the value were higher, between 0,4 and 14,5 cm.

Grouping the newly formed roots in accordance with its thickness, for the roots with diameter smaller that 1 mm there were registered values in growth from 5,7 pcs. for $V_1$ to 7,6 pcs. for $V_2$. For the roots with diameter bigger that 1 mm there registered values in growth from 3,2 pcs. for $V_1$ to 4,9 pcs. for $V_2$.

**CONCLUSIONS**

* Chaenomeles japonica as decorative species, with useful economic implications, can be multiplied through vegetative way by cuttings.

* The multiplication rate of Chaenomeles japonica through cuttinds can be stimulated by using bioactive substances of Radistim type.

* Stimulating the rootedness precess of semiwooden cutting of Chaenomeles japonica with bioactive substances of Radistim type guarantee a highly vegetative potential for newly formed plants.

* The stimulate substance Radistim increase the striking roots rate. So the treated cuttings stroke roots in proportion of 70,3% comparatively to 79,9% for those untreated.

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