THE SUBSTRATUM INFLUENCE ON CUTTING’S ROOTING OF FICUS ELASTICA RUBRA

Vlad Mariana, Vlad Ioan, Vlad Ioana Andra

University of Oradea, Faculty for environmental Protection, 26 General Magheru St., 4100848, Oradea, Romania; ioanvlad2006@yahoo.com

Abstract

Kind of exotic plants, decorative through leaves, comprises about 200 species. They are found in culture as decorative houseplants by pot and leaves. They are plants with low heat demands, resisting over the winter and in cooler rooms. During summer, the plants prefer air and soil moisture. The plant multiplies by peak and strain cuttings and strikes roots in 3-4 weeks. Ficus elastica Rubra is a decorative plant cultivated for its big, lasting leaves, oval-elongated (30-40cm), 3-5m tall. In present it is known as a decorative plant cultivated as indoor plant.

Keywords: Ficus elastica Rubra rooting substrate variants, cutting

INTRODUCTION

In Romania the species exhibits a restricted spread is little spread, tha cause might be the absence of the planting material. To rise the efficiency of the vegetative multiplication by, we investigated the substratum influence on cutting rooting.

MATERIALS AND METHODS

The cutting were gathered on the first decade of November. There have been used 10 – 12 cm long cuttings.

The experiment included three variants:

- \( V_1 \) – rooting in perlite;
- \( V_2 \) – rooting in peat;
- \( V_3 \) – rooting in peat 50% + perlite 50%

For each variant have been used 100 cuttings

The cuttings were planted on 6x6 cm distance, 3 cm depth, before planting the substratum has been trumped to eliminate the air bags from the rooting are. The experiment took place in a green house, the thickness of the rooting substratum was 10 – 12 cm.

In the rooting period the temperature oscillated between 10°C – 24°C in air and 15 - 20°C in rooting substratum. The relative humidity oscillated between 75% - 85%. The ligh was directioned by covering the cutting with a green net. We have made observations and determinations about the period of rooting process, the cuttings rooting percentage, the
length and the number of roots for every cutting. The complete rooting period took 210 days.

RESULTS AND DISCUSSION

The number of rooted cuttings varied from 64 rooted cuttings on V₁ – rooting in perlite variant, to 83 rooted cuttings on V₃ – rooting in peat 50% + perlite 50%, (table 1)

On relative aspect, the number of rooted cuttings had risen with 16% on V₂ – rooting in peat and with 32% on V₃ – rooting in peat 50% + perlite 50%, as on V₁ – rooting in perlite variant.

<table>
<thead>
<tr>
<th>Variantes</th>
<th>The number of rooted cuttings</th>
<th>±D</th>
<th>Signification of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>V₁ – rooting in perlite</td>
<td>64</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>V₂ – rooting in peat</td>
<td>74</td>
<td>116</td>
<td>10 xx</td>
</tr>
<tr>
<td>V₃ – rooting in peat 50% + perlite 50%</td>
<td>83</td>
<td>132</td>
<td>19 xxx</td>
</tr>
</tbody>
</table>

The rooting substratum has a great influence on the quality of the rooting material. The number and the dimensions of roots of every cutting watched to prove that. The medium number of roots per cutting oscilated between 7,3 on V₁ – rooting in perlite variant, and 14,1 on V₃ – rooting in peat 50% + perlite 50% (table 2).

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>V₁ – rooting in perlite</td>
<td>7,3</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>V₂ – rooting in peat</td>
<td>9,2</td>
<td>126</td>
<td>1,9</td>
</tr>
<tr>
<td>V₃ – rooting in peat 50% + perlite 50%</td>
<td>14,1</td>
<td>193</td>
<td>6,8 xxx</td>
</tr>
</tbody>
</table>

LSD 5% - 2,0
LSD 1% - 3,2
LSD 0,1% - 5,1
On relative aspect, the substratum quality has raised the number of roots cutting with 26% on \( V_2 \) – rooting in peat variant, and with 93% on \( V_3 \) – rooting in peat 50% + perlite 50% variant. The rise of rooting capacity shows from the length and the thickness of the cuttings roots, too.

The thickness and the length of the roots alternates but the highest values, obtained on \( V_3 \) – rooting in peat 50% + perlite 50% variant (table 3).

<table>
<thead>
<tr>
<th>Variantes</th>
<th>The length of the roots (extreme values) (cm)</th>
<th>The number of the roots per cutting with Diameter &lt;1mm (pcs.)</th>
<th>Diameter &gt; 1,1 mm (pcs.)</th>
<th>The number of roots per cutting (pcs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_1 ) – rooting in perlite</td>
<td>0,6 – 0,9</td>
<td>5,2</td>
<td>3,2</td>
<td>8,4</td>
</tr>
<tr>
<td>( V_2 ) – rooting in peat</td>
<td>0,7 – 12,9</td>
<td>7,5</td>
<td>3,8</td>
<td>11,3</td>
</tr>
<tr>
<td>( V_3 ) – rooting in peat 50% + perlite 50%</td>
<td>0,8– 15,3</td>
<td>9,2</td>
<td>7,0</td>
<td>16,2</td>
</tr>
</tbody>
</table>

On \( V_1 \) rooting in perlite variant, the cutting roots were 0,6-0,9 cm long and \( V_3 \)-rooting in peat 50% + perlite 50% variant we obtained 0,8-15,3 cm length. About thickness of the roots we acquired following: the average number of roots with diameter \(< 1 \text{ mm, per cutting was}\) 5,4 on \( V_1 \) – rooting in perlite variant and 8,4 on \( V_3 \) – rooting in peat 50% + perlite 50% variant, and the medium number of roots with diameter \( >1,1 \text{ mm was } 2,5 \) on \( V_1 \)-variant.

The paper describes an experiment of rooting the cuttings of Ficus elastica Rubra proved that the substratum has an great influence to the rooting process. From three variants of rooting we obtained the best results on rooting in peat 50% + perlite 50% variant.

**Conclusions**

1. Ficus elastica Rubra, as ornamental tree, with great economical value, can be multiple vegetively, using cuttings.
2. Using a proper substratum increases the rate of multiplication.
3. A proper substratum rises the quality and the number of roots per cutting too.
4. The substratum composed by peat 25% + perlite 75% has raised the rooting rate. The rooting percentage was 132% on V₃ – rooting in peat 50% + perlite 50%, on V₂ – rooting in peat variant and 126% on V₁ – rooting in perlite variant.

REFERENCES