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DETERMINATION OF ROOTING CAPABILITY OF DIFFERENT PARTS OF ANNAUL SHOOTS OF *Rosa glauca and Rosa pendulina* IN THE FOG HOUSE

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Abstract:

Different parts of annual shootings of easy-rooting *Rosa glauca* and diffucult-rooting *Rosa pendulina* species were tested in order to determine the rooting capabilities in the fog house. *R. glauca* gave more rootings than *R. pendulina* in peat:sand (1:1) medium. Apical and subapical sections of both species rooted easier than basal sections of same shootings. Although basal parts of *R. glauca* formed normal callus and roots, *R. pendulina* sections formed more callus, but less roots.

Key Words: *Rosa glauca, Rosa pendulina*, rooting, foghouse

Fog Serasında *Rosa gluca* ve *Rosa pendulina* Sürgünlerinin Farklı Kısımlarının Köklenme Özelliklerinin Araştırılması.

Özet:

Fog (sis) serasında kolay köklenen *Rosa glauca* ve zor köklenen *Rosa pendulina* türlerinin yıllık sürügünlerinin farklı bölgelerinden alınan çeliklerin köklenme özellikleri araştırılmıştır. Turba + kum ortamında *Rosa glauca*'nın köklenme oranı *Rosa pendulina*'dan daha fazla olmuştur. Her iki çeşitte de sürgün ucu ve sürgün ucu altından alınan çeliklerden elde edilen köklenmenin, orta ve taban kısımlardan alınan çeliklerden elde edilen köklenmeden daha fazla olduğu saptanmıştır. Kolay köklenen *R. glauca* çeliklerinin taban kısımlarında az kallus oluşmasına rağmen, zor köklenen *R. pendulina* çeliklerinin tabanında daha fazla kallus oluşmuş fakat köklenme az oranda olmuştur.

Anahtar Kelimeler: *Rosa glauca, Rosa pendulina*, köklenme, fog (sis) serası

1. Introduction

Rosa species have been taken very important places in human life. They have been used for many different purposes such as cosmetic and food industries and quite valuable ornamentals as cut flowers and landscaping individuals. *R. canina, R. multiflora, R. gluaca, R. pendulina, R. chensis and R. manetti* species have been used as rootstocks and for other purposes since they are very much resistant to some unfavorable enviromental conditions e.g. alkalinity, coldness, drought, diseases and insects (Bailey, 1950).

Rosa species are propagated both by generative and vegetative methods. Generative propagation based on seeding is not recommended because of segragation in relation to open pollination (Sedef, 1992). Propagation from hardwood cuttings is very common in roses.

There is not much problem in easy-to-root species. Howewer, some long-lasting problems are still in existance in diffucult to root species (Ülger and Baktır, 1992). Using of growth regulators

somewhat hastens to solve the rooting problems in these species and cultivars (Baktır and et al., 1991).

In this research, various parts of annual shootings of easy-rooting *Rosa glauca* and diffucult-rooting *Rosa pendulina* species were investigated in the fog house conditions.

2. Materials and Methods

Cuttings were taken from *R. glauca* and *R. pendulina* grown in the Research Station of Department of Fruit and Nursery Management, Hannover University. Annual shootings of the species were divided into four sections. Apical, subapical, middle and basal sections. The lentgh of cuttings varied between 8-15 cm according to vigor and conditions of cuttings and each cuttings contained 3-4 leaves on. The prepared cuttings were transferred into peat: sand (1:1) medium after treated with 3000 ppm powder IBA (indole butyric acid). Relative humidity of the fog house were keep out about 90-95 % during the research. The cuttings were controlled weekly intervals after thirty days from planting time. The cuttings were taken out from the medium for measuring the number of rooted cuttings and number of root, than rooted cuttings replanted in the fog house.

3. Results and Discussions

3.1. Results

R. glauca cuttings gave more roots in comparision to *R. pendulina.* The difference between these two species were found statically important at 0.05 level. Apical and subapical sections of *R. glauca* gave 97.22 % rooting and this was followed by basal sections with 63.89 % and middle sections with 61.22 rootings, respectively.(Figure 1). No significant difference was found in root and callus formation between apical and subapical shoot cuttings, but there were significant differences between root and callus formation of above cuttings and middle and basal cuttings at 0.05 level.

The highest rooting rate of *R. pendulina* was found on subapical cuttings with 46.16 %, and this was followed by apical cuttings and middle section cuttings with 42.31 % and finally basal cuttings with 23.08 %, respectively.

There was not any statically significant differences in number of rooted cuttings between apical shoots, subapical shoiots and middle section cuttings although the rooting of basal cuttings was significantly low at 0.05 level in *Rosa pendulina.*

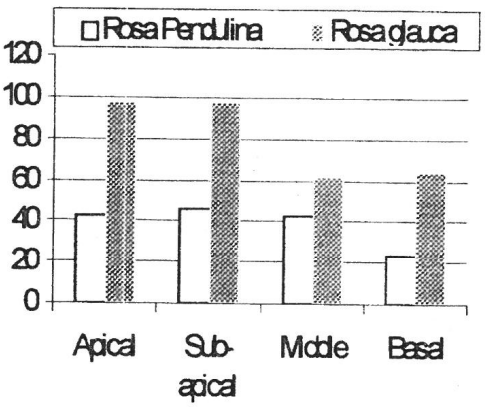

Figure 1. Rooting Percantege of *Rosa glauca* and *Rosa pendulina* in The Peat: Sand (1:1) Medium in the Fog House.

R. glauca produced more roots on rooted cuttings than *R. pendulina.* The difference in the rootings between these species were statically significant at 0.05 level.

The highest number of roots in *R. glauca* was obtained from subapical cuttings. This was followed by apical, middle, and basal cuttings in order. The highest number of roots was obtained from middle section cuttings of *R. pendulina* and

this was followed by basal, apical and subapical cuttings, respevtively.

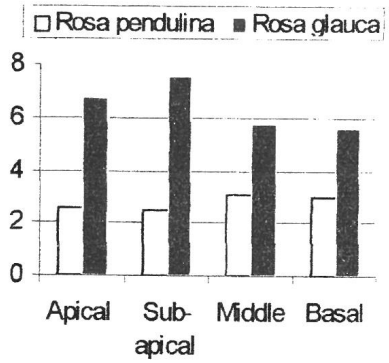

Figure 2. Root Number of *Rosa glauca* and *Rosa pendulina*.

3.2. *Discussion*

There have been an increasing attemps to trigger the rooting of diffucult-to-root species in the fog house. The foghouses have optimal physical conditions, especially high humidity for rooting of woody species. Since the water lost of wood cuttings is minimized in the fog house, the cuttings stay alive longer and rooting level increase.

It was found that the rooting rate of the *R. glauca* treated with 3000 ppm IBA powder was higher than that of the *R. pendulina* under same conditions (Figure 1). Similar results were found on the cuttings of both species by Plöger (1989).

It is known that gnotype, age of plant, type of cuttings, time of year and some other factors are quite important on rooting. The cuttings of young plants can root easier than old ones. On the other hand, different sections same organ show different abilities for rooting capaties. This was clearly shown in this research, while the apical parts of *R. glauca* shoots gave 97.22 % rootings, basal parts of the same species gave 42.31 rootings. In a similar way, the cuttings taken from apical parts of annual shoots of *R. pendulina* gave 42.31 % rootings ans basal parts gave 23.08 % rootings, respectively. Cuttings of apical and subapical parts of these two rosa species showed almost same potential in rooting. The other two parts produced lower rooting potential. From the obtained results, it can be easyl concluded that, apical and subapical parts of shoots should be choosen for rooting purposes in these *Rosa* species.

Number of roots formed on *R. glauca* cuttings were more in number than that of *R. pendulina*. The differences between the species on root number was statiscally important at 0.05 level. Plöger (1989) found apposite result. The differences between these two researches may come from hormon application. IBA was used on the cuttings in this research wherease IBS+Euparen were used in Plöger's research. Callus formation was rarely seen on the cuttings of easy-to-root species. Most of the *R. pendulina* cuttings formed callus on which no roots were appered.

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