

## **Preliminary Results Regarding the Potential of Propagation by Green Cutting of the Plum Rootstock Mirobolan BN 4 Kr**

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**Abstract.** The Mirobolan BN 4 Kr is a plum rootstock. The vegetative propagation of rootstocks is a way that avoids the inconvenient of generative propagation. In order to assess its potential of vegetative propagation by using green cuttings; an experiment was performed at SDCP Bistrita. We used three different culture substrates- V1-sand, V2-pearl stone and V3- 1:1 mix of sand and pearl stone. The highest rooting percentage was noticed at substrate version- mix of sand and pearls tone. From the total number of planted cuttings 78.7 % presented roots in V3. For the other two substrate versions, the rooting percentage was 70.6 % for V2 and 58.8 % for V1. Preliminary results are promising and we expect that the further studies will get new consistent information in order to improve the technique for obtaining easily a large number of rooted cuttings and will help us to add more credibility to its large scale potential propagation.

**Keywords:** Mirobolan BN 4 Kr, green cutting, propagation potential.

**Introduction.** The study of breeding efficiency is an important step in the subsequent development of rootstocks breeding technologies. Propagation by green cuttings offers the possibility of rapid multiplication, especially for valuable rootstocks (Ceausescu *et al.*, 1978). We have studied the Mirobolan BN 4 Kr, because it is the only Romanian plum rootstock resistant to *Plum pox* virus (Minoiu *et al.*, 1998, Polak, 2011, Zagrai *et al.*, 2009), and so far, it was propagated only generative. Similar studies were performed, for other rootstocks, at ICDP Pitesti (Mazilu *et al.*, 2008).

**Aims and objectives.** This study aimed the rooting capacity of Mirobolan BN 4 Kr green cuttings, in different culture substrats. By using this rootstock on large scale we aim to limit the spreading of *Plum pox* virus in nurseries, orchards and mother plantations for scions.

**Materials and methods.** The Mirobolan BN 4 Kr is a plum rootstock obtained at SDCP Bistrita through mutagenesis, known as resistant to *Plum pox* virus, which is considered the most destructive viral pathogen of the stone fruits. For the study there were used green cuttings, harvested in July. After harvesting the cuttings were wrought at cca 25 cm length, treated with root stimulants- Radistim 1 and planted in three different versions of culture substrates, as follows: V1 version- sand, V2 version- pearl stone and V3 version- a 1:1 mix of sand and pearl stone.

The optimal vegetation conditions were provided by using an artificial fog system. The rooting of cuttings was made without heating the culture substrate. The observation and determination were made after the end of the vegetation cycle.

**Results and discussion.** The highest rooting percentage was noticed at substrate version- mix of sand and pearl stone. From the total number of planted cuttings 78.7 % presented roots in V3. For the other two substrate versions, the rooting percentage was 70.6 % for V2 and 58.8 % for V1.

### **Conclusion**

On the basis of the preliminary results obtained, we can conclude that the best substrate version for the culture of Mirobolan BN 4 Kr green cuttings is the 1:1 mix of sand

and pearl stone. The study continues in order to elaborate an appropriate multiplication technology and to promote its large scale utilization.

#### REFERENCES

1. Ceausescu, I., P. Parvan, I. Ilarie and N. Stanciu (1978). Modern technologies for producing fruit tree planting material, Ed. Bucuresti.
2. Mazilu, C., I. Dutu, S. Ancu and A. Posedaru (2008). *Adaptabil-* a clonally Romanian rootstock with high efficiency to nursery propagation. International workshop on sustainable fruit growing and use of urban sludge as fertilizer for fruit tree, Pitesti. Ed. INVEL Multimedia, Bucuresti, pg. 72-77. ISBN 978-973-7753-74-8.
3. Minoiu, N., A. Maxim, D. Vladianu, I. Platon, and R. Balaci (1998). New results concerning the Plum pox virus epidemiology and resistance of plum cultivars, hybrids and rootstocks. *Acta virologica* 42: 244 – 247
4. Polak, J. (2011). In SharCo-FP7 project, Deliverable 3.1., 2nd version, by Cambra M. Improved methods to detect the presence of PPV viruliferous aphids in nurseries and ranking of the susceptibility to natural PPV infection of different Prunus rootstocks, pg.12
5. Zagrai, I., L. Zagrai and L. Ion (2009). The response of Different Prunus Genotypes to D and Rec Strains of Plum Pox Virus. *Bulletin UASVM.Horticulture* 66(1-2)/2009: 249-254.