RESEARCH ARTICLE (Open Access)

Effect of Nano AG on the Rooting Ability of the Cv."Ulli i Kuq"

FADIL THOMAJ[1]*, KOZETA BREGU[1]

[1] Agricultural University of Tirana, Department of Horticulture & Landscape Architecture

Abstract

The cultivar U.i Kuq is characterized by a poor rooting capacity (less than 20%). The aim of this experiment was to evaluate the efficiency of use of a commercial product (Nano Ag) as a rooting agent to this specific cultivar. For that purpose an initial stock solution containing 530 mg Nano AG capsules dissolved in 0.5 liters of distilled water was prepared. Further, to test the effect of Nano AG on the rooting capability of olive cuttings several diluted solutions were prepared, as following; V1 = 5 ml stock solution + 100 ml of distilled water; V2 = 10 ml stock solution + 100 ml distilled water; V3 = 15 ml stock solution + 100 ml distilled water; V4 = 20 ml stock solution + 100 ml distilled water. Treatment with Nano AG has shown encouraging results in rooting capacity of cv.U. i Kuq cuttings (up 40-45%). Therefore, Nano AG should be considered as a good alternativefor cultivars with poor rooting capacity through treatment with auxin AIB. Based on this fact, we recommend further studies with other olive cultivars by using other, more diversified treatment doses.

Keywords: Cultivar; rooting capacity; Nano Ag; stock solution, auxin.

1. Introduction

Rooting yield of various olive cultivars depends on various internal and/or external factors. Tirana region is very rich in autochthonous olive cultivars with high biological and agronomical values which deserve to be propagated in the future. The results obtained for the rooting capacity of the Ulli i Kuq cultivar showed that this cultivar is characterized by a low rooting yield (about 20%)[3;4]

NANO AG is a biofertilizer that contains mineral components, plant vitamins, enzymes and coenzymes. Coenzymes are important as they protect natural auxins from degradation[1;2;10]

In agriculture it is known as a biofertilizer with very positive effects on plant growth and production, while in olive growing it has given very positive results in plant transplantation, but also in cuttings for some cultivars tested [5].Some nutrients are important factors in the formation and emergence of adventitious roots of the cuttings, while others act as a cofactor in the rooting process, as they participate in the auxin synthesis cycle that favors rooting [6].

2. Material and Methods

Preparation of the base solution: One capsule of Nano AG, 530 mg was dissolved in 0.5 liters of distilled water, which was the base solution. To test its effect on the rooting of the cuttings, some more dilute solutions were prepared according to the following variants:

V1 = 5 ml stock solution + 100 ml of distilled water

V2 = 10 ml stock solution + 100 ml of distilled water

V3 = 15 ml stock solution + 100 ml of distilled water

V4 = 20 ml stock solution + 100 ml of distilled water

*Corresponding author: Fadil Thomaj; E-mail: fthomaj@ubt.edu.al

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For each variant, 40 cuttings were prepared from the Oliva Rossa di Tirana cultivar and then were treated.Treatment of the cuttings lasted about 10-12 seconds.The diameter of the treated cuttings was between 2.5 and 5 mm.The roots number and their length were counted on the rooted pieces of each variant.
The data obtained were subjected to statistical analysis (ANOVA) and Tukey-Kramer test

3. Results and Discussion

The obtained results show that the treatment with Nano AG resulted in a very significant improvement by increasing the rooting limit up to 40-45%, respectively in V2 and V3.This rooting rate is classified as good to very good, for cultivars that enroot with difficulty. Of the four variants used, V3 and V2 were the best, while in V1 the level of rooting was almost the same as that obtained in the treatment with AIB 4000 ppm (23%)[3].Given that the cost of Nano Ag is much lower than AIB and it is a biological preparation, such a result can be consideredgood [7;8;9]. V4 representing a higher concentration proved unsuccessful.In this variant a strong callus was observed but no root formation, even in a few pieces that managed to enroot, the roots were few and poorly developed. (Fig.1)
Oneway Analysis of % rooting By Varianti

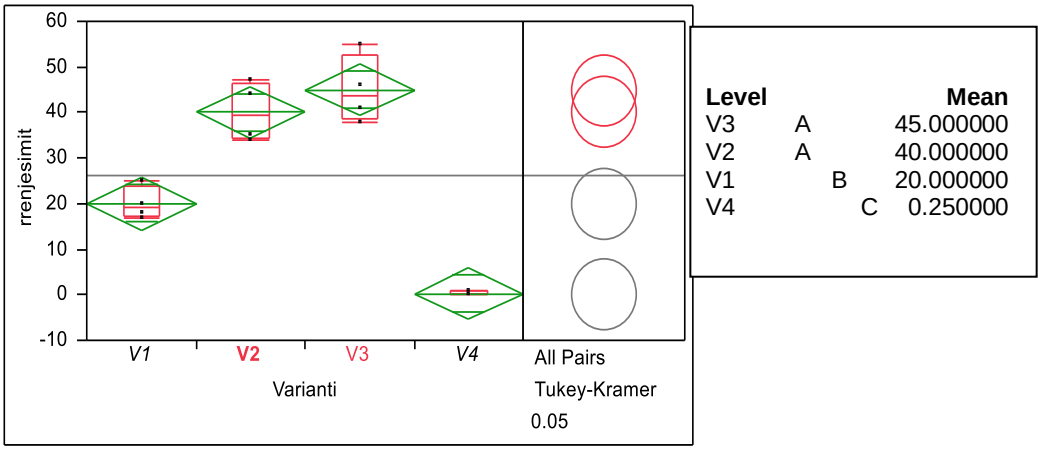
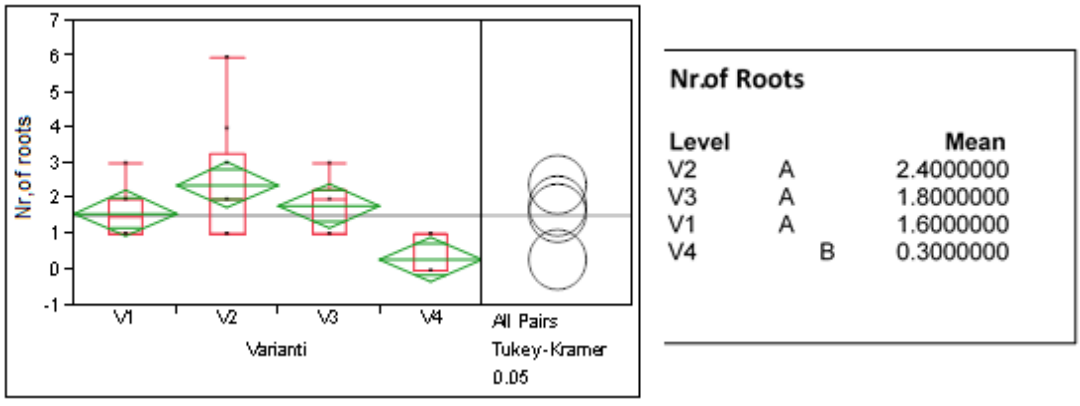
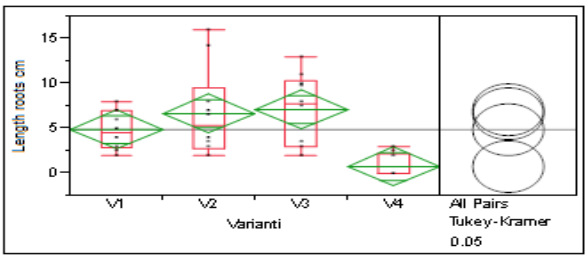


Figure 1. The Impact of Nano AG on the Rooting of the Cultivar Ulli i Kuq

The data obtained on the impact of Nano AG on the number and length of the roots, show that the differences between V1, V2 and V3;are not statistically significant but are significant when compared with V4. Concerning the number of roots variant V2 has priority, while V3 has priority regarding the length of the roots (Fig.2,3)

Oneway Analysis of Nr.of roots&Lengthof roots By Varianti





Length of roots

Level		Mean
V3	A	7.0700000
V2	A	6.6200000
V1	A	4.8500000

Figures 2; 3. Impact of Nano AG on the number of roots and their length.

4. Conclusions

The treatment with Nano AG has provided very encouraging results in enrooting the cuttings of Red U cultivars considered as difficult to root.

Nano AG is an ecological biofertilizer with a much lower cost than auxin (AIB), which positively impacts the cost of the seedling and has no impact on the environment.

5. References

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