SUMMARY

5. SUMMARY AND CONCLUSION

This investigation was carried out during 2000-2001 and 2001-2002 seasons at North Sinai Research Station at El-Sheikh Zuwayid, Desert Research Center (D.R.C), Egypt to shed light on rooting ability of olive cuttings cvs. Manzanillo and Picual.

Possibility of producing standard nursery plants (survived rooted cutting) through enhancing rooting ability in stem cuttings by applying some preplanting treatments on mother plants or cuttings is the purpose of this study.

Moreover, changes in some chemical components namely phenols and indoles were determined in cuttings.

Furthermore, anatomical studies were also carried out for the basal portion cuttings of both cultivars to shed light on difficulties or success in rooting of the cuttings.

Subterminal leafy cuttings with 12 to 15cm. length and the four terminal leaves which were retained, were prepared in (February – June – October) for Manzanillo and Picual olive cultivars.

The obtained results in this work could be summarized as follows:

1- Cuttings taken from Manzanillo cv. gave significantly an increase in rooting percentage, number of roots and average root length as compared with those taken from Picual cv.

2- Cuttings planted in June had the highest rooting percentage, number of roots and average root length,

followed in descending order values by those taken in October, while February recorded the lowest values during the two seasons of study.

3- Cuttings collected from shaded mother trees gave a significant increase in rooting percentage, number of roots and average root length in comparison with those taken from unshaded mother trees (control).

4- Moreover, dipping cuttings in IBA at 6000 ppm for 5 secondes was the most effective IBA preplanting treatment that increased rooting percentage, number of roots and average root length of cuttings as compared with other preplanting treatments.

5- As for the interaction effect:

   (a) Shaded cuttings from mother trees of Manzanillo cv. which planted in June and treated with IBA at 4000 ppm and also those taken from Picual cv. and treated with IBA at 6000 ppm, significantly gave the highest rooting percentage.

   (b) Whereas June shaded cuttings which treated with IBA at 6000 ppm significantly possessed the longest roots.

6- Manzanillo cuttings produced higher value of survival percentage, number of sprouted shoots and average shoot length per rooted cutting as compared with those taken from Picual cv.

7- June planting exhibited the highest value of survival percentage, number of shoots and average shoot length,

while February had the lowest value. However, those collected in October had an intermediate value in this respect during the two seasons of study.

8- On the other hand, shaded cuttings gave the highest survival percentage, number of sprouted shoots and average shoot length.

9- Furthermore, IBA at 6000 ppm was the most desirable treatment as resulted statistically in the highest survival percentage, number of shoots and shoot length.

10- June collection gave the greatest value of leaf area and dimensions per rooted cutting in comparison with the other collection times (October – February).

11- Furthermore, shaded cuttings produced the highest value of leaf area, leaf length and leaf width per rooted cutting.

12- Moreover, dipping in IBA at 6000 ppm was the superior preplanting treatment as compared with the others in this respect during the two seasons, respectively.

13- Picual cuttings had a significant higher content of total phenols as compared with those of Manzanillo cv. during the study.

14- Generally, February cuttings significantly contained the highest level of total phenols as compared with June cuttings which gave the lowest value of total phenols. While October cuttings had a moderate level in this respect.

15- Cuttings prepared from unshaded mother trees (control) significantly showed a higher content of total phenols in comparison with those taken from shaded mother trees.

16- Cuttings taken from Manzanillo cv. had the highest value of total indoles as compared with that of Picual cv.

17- Moreover, June cuttings significantly contained the highest value of total indoles as compared with other collection times (October and then February) during the two seasons of study.

18- In addition, cuttings taken from shaded mother trees had the significant highest level of total indoles in comparison with that of unshaded mother trees (control).

19- Anatomical study indicates that both cultivars (Manzanillo – Picual) contains a slight interrupted ring of sclerenchymatous cells, but Manzanillo cv. had more interrupted ring of these cells than Picual cv.

This may be refer to the increase of rooting in Manzanillo cv. as compared with Picual cv. Moreover, adventitious roots of Manzanillo cv. was initiated from cambium zone, while Picual cv. from cambium zone and pith. Cambium was more activated by IBA concentrations, particularly 4000 ppm for Manzanillo cv. and 6000 ppm for Picual cv.

Generally, during the rooting period, sclerenchyma ring degraded in both cultivars but the rate of degradation rapidly increased in Manzanillo cv. than in Picual cv., this may refer to the increase in rooting potential in Manzanillo cv. than Picual cv.