

VII - SUMMARY

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The present study was conducted during two successive seasons, 1982 and 1983 in the greenhouse at the Faculty of Agriculture "Moshtohor" Zagazig Universtiy.

Uniform and healthy one-year old seedlings of Thompson seedless grape Cv. (Vitis vinifera L.), Meet-Ghamr peach (Prunus persica) and Holywood plum (Prunus salicina) were the plant material of this study.

In both seasons and during the 1st week of March, these plants were planted in pots of 30 cm. in diameter that had been filled with specific weight of a media consisting of clay soil and sand at equal proportions.

Irrigation was carried out twice weekly by adding $\frac{3}{4}$ a Liter of tap water to each pot until May 20th and 25th during the first and the second season of study, respectively. Saline solutions were added for irrigation at the concentration of tap water, 2000, 4000 and 6000 p.p.m of Ca (CL)_2 , MgSO_4 , KCL , K_2SO_4 , Na_2SO_4 and NaCL . Salinity treatments together with two levels of sodium adsorption ratio (S.A.R.) 3 and 6, and S.A.R. levels combined with two levels of chloride low and high were used. The accumulated salts were removed every ¹⁶1 days from the pots by irrigation with tap water, then it was followed by rewatering with the same salt solution the next day.

Vegetative growth measurements were expressed as, stem length, number of leaves, number of branches, top to root ratio, and leaves, stem, root and total plant dry weights.

Leaf chlorophyll (a and b) content were recorded and leaf and root mineral content included N,P,K,Na, Ca and Mg compositions were determined.

The obtained results could be summarized as follows:

- 1 - Stem length, percent increase in stem length, number of leaves, percent increase in number of leaves and number of branches were progressively depressed by all the used salinity concentrations in Thompson seedless grape, Meet-Ghamr peach and Holywood plum seedlings.
- 2 - Increasing the salinity of irrigation water decreased dry weight for leaves, stem, root and total plant dry weight and top to root ratio for the tested three fruit species.
- 3 - Increasing sodium adsorption ratio (S.A.R.) from 3 to 6 or chloride levels in irrigation water resulted in a reduction of stem length, number of leaves and number of branches in all three fruit species during 1982 and 1983 seasons.
- 4 - Increasing sodium adsorption ratio (S.A.R.) from 3 to 6 in irrigation water caused highly significant decrease in leaves, stem, roots and total

plant dry weight in tested three fruit species under study.

- 5 - In addition; the interactions between salinity X S.A.R.; S.A.R. X chloride; salinity X chloride, and salinity X S.A.R. X chloride caused decreased in stem length, number of leaves and number of branches in all tested three fruit species during the study.
- 6 - Increasing the salt concentrations in irrigation water decreased significantly total leaf chlorophyll content as compared with those of the control for Thompson seedless grape, Meet-Ghamr peach and Holywood plum.
- 7 - Increasing the salt concentrations in irrigation water led to increase Na and Ca content in leaves and roots in all three fruit species.
- 8 - Leaf and root nitrogen, phosphorus, Potassium and Magnesium contents decreased with increasing salt concentrations of irrigation water in all tested fruit species.
- 9 - In addition; leaf and root Nitrogen, Potassium and Magnesium contents decreased, while sodium and calcium contents were increased with increasing sodium adsorption ratio (S.A.R.) from 3 to 6 in irrigation water in all fruit species during the study. On the other hand, leaf and root Phosphorus content was not affected.
- 10- Moreover; leaf and root nitrogen and magnesium contents were decreased, while calcium content was increased with increasing chloride levels in irrigation water in all three fruit species under study. Meanwhile, leaf and root phosphorus and sodium contents were not affected.