Physiological studies on growth and Salt

Ahmed Hamdi Osman Ali

The present study was carried out during two consecutive seasons of 2001 . and 2002 in a greenhouse belonging to Desert Institute, Cairo, Egypt.Uniform and Healthy two year old transplants of three apple rootstocks namely: Malus communis (MC); MM 106 and Baladi were the plant material used in this study, on February lst during both seasons plastic pots of 35 cm. diameter that had been filled with about 10 kg sandy soil bought from eastern desert along Cairo, Esmailia rode (location about 60 km from Cairo). Soil type were taken from a depth of 0-30 cm; from ground surface was chemically and mechanically analyzed before period of equilibration. Then irrigation was done at the rate of one titre/ pot at two days intervals till 1stMarch, whereas irrigation with different investigated saline solutions was start during both seasons of study.Saline solutions were prepared for irrigation at the concentration of tap water (0), 2000, 3000 and 4000 ppm of NaC1, Na2SO4, CaC12, MgSO4, KCl and K2SO4 as well as each concentration was prepared with two levels of sodium adsorption ratios (S.A.R.) i.e., 3 and 6 and each level of sodium adsorption ratio have two Cl: SO4 levels i.e., (low and high). The accumulated salts were removed every 21 days by irrigation with tap water, then followed by rewatering with the same salt solution the next day.It was aimed to investigate salt tolerance of these apple rootstocks from one hand and possibility of minimizing the depressive effect of salt stress from the other.