

I. INTRODUCTION

The pomegranate (*Punica granatum, L*) belongs to the family punicaceae. It is a considerable importance in Mediterranean countries (owing to the higher fruit quality of pomegranates grown in such area), South America and the Southern United States is planted on a large or small commercial scales beside in other many parts of the world **Ochse, (1961).**

The pomegranate is a food considered of medical importance. Every part of the tree leaves, flowers and roots have been featured as medicine for Thousands of years. Ancient medical authorities considered it a tonic for heart.

There is a great opportunity for the pomegranate production in Egypt to increase rapidly to meet the demands of the local and foreign markets. In Egypt, pomegranates are grown well under different soil conditions. The total area planted with this fruit trees was about 5399 feddans, (according to the latest statistics of the Ministry of Agriculture 2005) with total production of 27196 metric tons. This area is mainly concentrated in upper Egypt Governorates, the majority of this area is in Assuit (about 70% of total national area) and the rest is in the new reclaimed areas.

Land reclamation projects in the Toshky, Sinai, Estern and Western deserts are planned to increase the cultivated area, and to produce more food, occupy a very important sector in the Programs of Agricultural development in Egypt. These projects depend on the under ground water which usually contains high concentration of salts. Therefore, for the success of these projects, it is important to determine the kind of crops which can tolerate their salinity levels.

It is well documented that salinity of both soil and irrigation water affects growth of fruit trees. Also, there is a general agreement that the trees of many fruit species have less water requirements and can tolerate salinity when compared with most vegetable and agronomy crops. Therefore, the Egyptian Agricultural strategy aims to a continuous expansion of fruit trees cultivation in the newly reclaimed lands. However, success in such areas depend on good choice of species or cultivars which could tolerate salinity and drought.

Saline water could be used for irrigation in new cultivated lands. The suitability of water for irrigation is governed by many factors such as the salt resistance of crops, type and concentration of salts in the water, the leaching characteristics of the environment and the use of new irrigation methods which could minimize salt stresses.

Salt stress is a very acute problem in agriculture, so it was received the attention of many investigators, because of the need to increase fruits yield in saline soils.

Pomegranate has been described as a salinity tolerant fruit trees. The impact of salinity stress on growth of pomegranate seedlings was differed among plant species and much more among genotypes.

The objective of the present work was to study the effect of three levels of salinity in irrigation water of pomegranate transplants namely Manfalouty, Wardy (Rosy) and Nab El-Gamal, on vegetative growth, physiological measurements and leaf mineral contents as well as anatomical structure of leaves and roots.