# INTRODUCTION

# I-INTRODUCTION

Olive tree (***Oleae europaea L.***) belongs to the family Oleaceae. It can thrive and produce in new reclaimed areas where other crops can't grow. Besides, the nutritional importance of olive fruits, either as a table or for oil production. Hence, olive trees areas increased rapidly in Egypt and reached about 117886 feddans, which in turn produced about 336442 metric tons of fruits in the year 2003 according to the statistics of Ministry of Agriculture Vol. 2. The problem of the restricted sources of water, besides the extension of olive growing in Egypt, especially in the new lands, may direct our attention to follow new water regime programs. Meantime, it forced us to search for other sources such as underground or waste water .

The effect of various soil moisture regimes on plant growth revealed that, growth was affected by shortage of water. Water stress was found to affect every aspect of plant growth and it was directly related to the amount of water applied (**Horton *et al.*, 1982**). Most of the new reclaimed soils suffer from shortage of water that may affect growth, physiological and chemical constituents of the plant (**Boggess *et al.*, 1976 and Hassan, 2002).**

The majority of sewage water is discharged into agricultural drainage canals and lakes. Such water usually receives secondary treatment. In Egypt, the first use of treated sewage water as a source of irrigation and plant nutrients was in the eastern desert north east of Cairo since 1919. The current use of treated municipal sewage water was estimated by 1.1 billion $m^3$ per year (**Poraas, 2000**)..Yet, sewage, water application to the soil has caused many problems such as potential accumulation of heavy metals like Cadmium (Cd),

Nickel (Ni) or Lead (Pb). Furthermore, the entry of such metals in the food chain of plants or animals may affects health.

Using underground water in new reclaimed lands in Egypt may also solve partially the water shortage problem. Meantime, wells water may have other side effects such as salinity problem especially in Egypt where the problem is acute according to **Balba, (1969)** who reported that about 60% of the arable lands are saline soils.

Both water sources may lead to the decrease in water content (dehydration), osmotic potential, and total water potential accompanied with loss of turgor and decrease in growth (**Kramer, 1983**).

This work was conducted to study the effect of different water levels from two sources of irrigation water (sewage and wells). In addition, the use of soil mulching to overcome the heavy metals accumulation in fruits, was also of concern.