# INTRODUCTION

# 1. INTRODUCTION

In order to meet demands of the large population in the world and Egypt, irrigation with low quality water such as brackish water and sea water is one of the solutions particularly in the newly reclaimed soils to increase agricultural production. Nevertheless, the use of such waters for irrigation without proper management could produce negative effects on crop-production and soil productivity.

Saline water may affect soil mineral composition, the release of nutrients from soil components and finally can affect plant growth and nutrients content. If the essential elements, recessarfy for the physiological process of the plant, are made easily available to plant roots by application of the fertilizers, a better crop growth can expected. However, the availability of nutrients under soils irrigated with sea water dilutions will largely depend on the salt concentration (EC), SAR, the release of nutrients from the soil to the plant root (available amounts of nutrients and the selective behaviour of the plant species with respect to each nutrient. The dry matter production and nutrients uptake by plants from the soil using dilutions of sea water for soil irrigation is very complicated.

Therefore, the aim of this work is to study the following:

1- Effect of salinity of sea water dilutions used for irrigation on some soil chemical properties such as soil salinity (EC), soluble cations and anions, soil reaction (pH), and sodium adsorption ratio (SAR).

2- Availability of some nutrients in soil as affected by salinity of sea water dilutions used for irrigation.

3- Effect of salinity of sea water dilutions used for irrigation on dry matter yield, phosphorus, manganese and zinc concentration and uptake by barley plant.