1. INTRODUCTION

Irrigation in arid and semi-arid zones oftenly leads to the development of salt-affected soils, which are either barren or less productive, thereby creating problems for man.

Water quality also plays a dominant factor controlling plant growth and hence the area of the cultivable land, that is because water supplemental of good quality, needed for agriculture purposes are not available under all circumstances.

The suitability of water for irrigation depends on many factors, some of them are related to the chemical and physical properties of water itself (salinity, acidity, alkalinity, presence of toxic elements and percentage of colloids and suspended materials). The other factors depend on all the conditions of the concerned case, such as, plant, type, varieties, meteorological conditions, and soil characteristics.

The patterns of salt and water movements along the soil profile are the considered to be the nest results of those items and factors, mentioned above. However, the water movement within soil profile is a relatively complex phenomenon because of the various direction and strata in which it moves. Moreover, the mechanisms controlling, its movement are not steady under the different cases and conditions.

The objectives of this investigation could be summarized as follows:

- Evaluating the different factors controlling water and salt movement in soils.
- Evaluating the effect of irrigation water quality upon some major soil properties.