Abstract

One of the biological processes can be effective in reducing the loss of vegetation and soil and creating conditions for development of the desert is saline and alkaline soil. So an experiment was carried out on a factorial design with 3 treatments in 3 replicates randomly in the crop year in kalshour sideline of Sabzevar. Treatments consisted of soil depth (0-50 and 50-100 cm), type of irrigation water (freshwater and saltwater) and sampling time (before and after the cultivation of crops) and parameters such as pH, salinity, sodium adsorption ratio, soluble cations (sodium, potassium, calcium and magnesium) and soluble anions (chloride, bicarbonate and sulfate) were studied. The results indicated that only soil acidity has a significant effect on soil depths. Such that the amount of pH in 0-50 cm was more than 50-100 cm. Effect of irrigation water was significant on all parameters were studied. Apart from the acidity, the other parameters in salt water were significantly higher than fresh water. Sampling time (before and after planting) have significantly effect on sulfate and bicarbonate anions. So that the bicarbonate was significantly higher before planting and sulfate was significantly higher after planting. Conditional effect of treatments (soil depth, water irrigation, and sampling time) has only significantly effect on water irrigation per sampling time for sulfate and bicarbonate anions. Obviously with respect to the geographical location of study area and the quality and quantity of irrigation water, if agricultural operations were not managed properly, the risk of soil salinity is increasing day by day. Hence, water and soil management can play an important role in reducing soil degradation and desertification.

Key words: Deep soil, Irrigation water quality, Sampling time,Chemical properties of soil

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