



Effects of irrigation with treated wastewater on chemical soil properties

M. Parvan, S. Danesh, and A. Alizadeh

The use of treated wastewater, as a marginal quality water, in agriculture is a justified practice, yet care should be taken to minimize adverse environmental impacts and to prevent soil deterioration. The objective of this research was to investigate the long-term effects of irrigation with treated wastewater on soil properties. The investigation was carried out by comparison of soil properties in two different fields; one irrigated with the effluent from Parkand Abad Wastewater Treatment Plant over a period of six years and the other one irrigated with water over the same period of time. Soil samples were taken from different depths of 0-25, 25-50, 50-100, 100-150 and 150-200 cm in both fields, and analyzed for various chemical properties. The results indicated that EC, TDS and Chlorine were increased significantly, in all depths, in the soil irrigated with the treated wastewater. The use of treated wastewater increased exchangeable potassium, magnesium and phosphorous significantly in the top soil layer (0-25), while the increase in calcium was occurred up to depth of 50 cm. Irrigation with the treated wastewater increased soil sodium content in all depths except for the depth of 100-150 cm. Irrigation with the treated wastewater did not affect the soil pH and nitrogen content significantly.