Third National Congress of Recycling and Reuse of Renewable Organic Resources in Agriculture
Islamic Azad University, Khorasgan Branch (Isfahan)
Agricultural Faculty, Waste and Wastewater Research Center
13-15 May 2008

Investigation of heavy metals Cu, Mn, Zn and Fe in wheat irrigated by industrial wastewater

Hr. Rahmani[1]
1. Scientific Member of Soil and Water Department, Agricultural and Natural Resources Research Center, Esfahan, Iran

The contamination and quality of irrigation water is of the main concern especially in the regions with limited water resources. In such region not only, the water resources should isely be utilized at the same time should be prevented from contamination. The quality of industrial EW of Zob-Ahan (Iron foundries), and its impact on wheat plant was studied for one year. The EW were sampled, seasonally, every 6 hours during 24 hours periods. During a one-year study, In area irrigated with industrial EW, 3 farms of approximately 0.5 ha were selected. The comparison of chemical properties and concentration of heavy metals in industrial EW with permissible level shows that BOD, COD, TDS, N-NO_3, Cl^-, SO_4^{2-} and EC are limited for discharge into surface water and, disposal into absorption wells and BOD, COD, TSS,TDS, N-NO_3, Cl^-, SO_4^{2-}, HCO_3^-, SAR and EC and heavy metal concentration of Zn, Cu and Mn for utilization as the irrigation water.Comparison of the result with the permissible level show that the concentration of Cu exceed the permissible level and Fe is higher than sufficiency range in wheat shoot and grain. The wheat plant has the tendency to accumulate more Zn and Cu in the grain compare with the shoot and accumulate Fe in shoot compare to grain.

Keywords: Wastewater, Permissible level, Pollution, Heavy metals

[1] Corresponding author Email: hr.rahmanii@yahoo.com