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

Long-term impact of irrigation with municipal sewage on accumulation of Fe, Cu and Pb in Soil under afforestation(*Robinia pseudoacacia* L.)

M. Tabari [1] and A. Salehi[2]
1. Associate Professor, Tarbiat Modares University
2. M.Sc. Student in Forestry, Tarbiat Modares University
and member of Young Researchers Club

There is a gradual decline in availability of fresh water to be used for irrigation and consequently, the use of sewage for irrigating lands is increasing particularly in near-urban areas. On the other hand, the use of sewage for irrigation purpose might strike ecosystem. Hence, a case study was undertaken to assess the long-term effect of sewage irrigation on heavy metals content in soils and plants. In this study, two sites under afforestation of black locust (*Robinia pseudoacacia* L.) trees irrigated by municipal sewage and well water in south of Tehran for at least 15 years were selected. For this purpose, four sample plots (30 m × 30 m) were randomly chosen in either of both areas. In each plot, four profiles were dug to take soil samples at depths of 0-15, 15-30, 30-60 cm. Heavy metals concentration in water and soil samples was determined in laboratory with atomic absorption spectrophotometer. Results indicated that municipal sewage and sewage-irrigated soil contained much higher amount of Fe, Cu, and Pb. Fe and Pb of municipal sewage and Pb of well water and also Pb of soil treated with both treatments were greater from the normal ranges. Results suggested that regulations about the utilization of sewage in irrigation should be considered for controling heavy metals content that may be added to soil.

Keywords: Afforestation, Irrigation, Heavy metals, Municipal sewage, Soil pollution

[1] Corresponding author Email: salehi.azadeh@yahoo.com