

# Relationship to traffic volume and accumulation of lead and cadmium in roadside soils in Tehran, Iran

BEHBAHANINIA Azita

Department of Environment and Agriculture, Islamic Azad University, Roodehen branch, Iran

## Abstract:

The present study was designed to investigate relationship between traffic volume and accumulation of lead and cadmium in roadside soils. Tehran-Damavand road is one of the highest numbers of vehicles travelling in during a day. Heavy metals like lead and cadmium are found in gasoline, petrol, oil, additives and supplements fuels. Samples were taken from three sites in the road. At each site, soil samples were collected 0, 10, 50 m from roadside in two depth, 5 and 15 cm during 4 seasons. Some physico-chemical characteristics were determined in soils samples. Some meteorological factors such as percent of precipitation, wind direction and speed were determined. Traffic volume was considered by counting vehicles in special time in different site. Total lead and cadmium was determined by refluxing the samples with concentrated nitric acid. Lead levels obtained in the range of 3-45 mg/kg. The result showed there is a significant decrease in lead levels with increasing depth in roadside soils of the three major sites investigated. Result indicated the decrease in the levels of both lead and cadmium in surface soil, with increasing distances from the roadway. The depth profile of roadside soils generally showed lead accumulation within 5 cm. A direct relationship was observed between lead content of roadside and traffic volume. Statistical results showed lead has negative correlation coefficient with distance and precipitation and positive correlation coefficient with traffic. Cadmium level has negative correlation coefficient with depth and precipitation at the 0.05 level.

Keywords: lead, cadmium, roadsides, traffic, soils

Topic: D. Urban soils, social and health issues

Sub-topic: D2. Urban soils and human health

Presentation type: Oral

Information of corresponding author

Full Name: Azita Behbahaninia

Organization: Islamic Azad University

Mailing address: Iran Roodehen, Daneshga Stereet, Islamic Azad University, Department of Environment and Agriculture, Post Code 3973133851

Tel: 01198-912-1323734

E-mail: Azitabehbahani@yahoo.com