

RESEARCH PAPER:

A comparative study of heavy metals pollution along highways in agricultural soils from Tehran, Iran and Pune, India

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SUMMARY

Environmental pollution of heavy metals from vehicles has impact on human health in recent years. The present research was conducted to study heavy metal contamination in agricultural soils around Teheran, Iran and Pune, India. Agricultural soil samples were collected from six sites from above locations. Top soil samples (0-10 cm) were collected and analysed for eight heavy metals like cadmium, copper, lead, zinc, iron, manganese, nickel, chromium. The result from Indian soils showed that at station one, manganese, nickel, lead were maximum in concentration and iron, nickel were in minimum concentration. Station two has iron in maximum concentration while chromium was observed to be maximum at station six. At station five zinc, chromium and nickel were observed to be in minimum as compared to other stations. Also, at station three copper and chromium were more in concentration. So, overall it was observed that, station one was having more heavy metal concentration as compared to other five stations. Cd was observed to be in negligible concentrations in all the sites. Agricultural soil samples from Iran showed that at station one, manganese, zinc were maximum in concentration and iron, nickel were in minimum concentration. Station two has iron and nickel in maximum concentration while chromium in minimum concentration at station two. At station three, copper and lead has maximum as compared to other stations. At station five, chromium has more concentration while manganese minimum. The vehicular pollution around Pune and Teheran has increased day by day and naturally it affects agricultural soils.

Key Words :

Heavy metal
pollution,
Agricultural
soils,
Environmental
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Heavy metal concentration in agricultural soils can affect human beings directly, through soil ingestion or through the food web by ingestion of crops and animals. An increase in heavy metal deposition in agricultural soils and crops are observed due to transport of heavy vehicles near the agricultural farm. Awofolu (2004) recorded impact of automobile exhaust on levels of lead in a commercial food from bus terminals. Vegetables constitute essential components of the diet. They are contributing protein, vitamins, iron, calcium and other nutrients which are essential for human health. Contamination of vegetables with heavy metal may be due to irrigation with contaminated water, addition of fertilizers, industrial emissions, transportation, etc. These

food plants contain both essential and toxic metals over a wide range of concentration. Consumption of crops by human and animals as food and fodder are major factors of damaging human health. In India heavy metal contamination study of soil and vegetables has been carried out at Varansi by Sharma *et al.* (2007). A survey along two national highways near Lucknow was carried out and reported lead deposition as reflected by soils. Lead (pb) burden showed that decrease in concentration with increasing distance from the road margins. At both the sites, lead concentration was above back ground concentration at the soil depth of 15cm. Some plants contained high concentration of Pb over their respective controls, with more accumulation in the underground portions of