

# **Multivariate analysis of heavy metal pollution in roadside soil of Bursa, NW Turkey**

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In this study heavy metal pollution in soils along the highways in the city of Bursa was investigated. Results of cluster and factor analyses indicate that elements are derived from three different sources: 1) Pb, As, and Cd have an anthropogenic source and Pb and Cd are mostly originated from traffic, 2) Cu, Zn, Hg and Cd elements also have an anthropogenic source originating from industrial activities and traffic and 3) Ni, Cr, Co and Mn elements are of lithologic origin. Consequently Pb, As, Cd, Zn, Hg and Cu are ascertained to be of anthropogenic origin and derived from traffic and industrial activities nearby. Soil pollution was investigated with the use of Enrichment Factor (EF), Pollution Index (PI) and Integrated Pollution Index (IPI) values. Evaluation of PI values with respect to distance to the road indicates that concentrations of Pb, Cd, Cu, Hg and Zn elements significantly vary – increasing to the road side. IPI values yield that soils along the Bursa D-90 highway and O-33 motorway are moderately to very significantly polluted.