

SUMMARY

Prague and Brno belong to one of the most contaminated cities of Czech Republic. The main objective of this study was to compare PGE contents and concentrations of risk elements (Zn, Cd, Pb, Cu, As, Sb, Hg) in the soils of both cities' municipal parks. Soil samples were taken from depths of 0–10 cm, 10–20 cm and 20–30 cm. Besides soil samples, the sand samples from children sandpits were taken from depth 0–30 cm. In 52 samples of soil and sand Pd, Pt and Rh contents were determined by ICP-MS after Ni-S fire assay procedure. Soil samples were additionally analysed on Pb isotopic composition. Higher PGE contents were determined in Prague; the highest contents were measured at location of Ortenovo náměstí ($50,5 \mu\text{g}\cdot\text{kg}^{-1}$ Pt, $33,9 \mu\text{g}\cdot\text{kg}^{-1}$ Pd a $11,3 \mu\text{g}\cdot\text{kg}^{-1}$ Rh). Elevated PGE concentrations were found in the upper layers of most soils in both cities. Elevated contents of risk elements were determined at locations with high traffic density. Most of samples showed that contents of risk elements decrease with depth. The highest concentrations reached Zn ($394 \text{ mg}\cdot\text{kg}^{-1}$), Pb ($290 \text{ mg}\cdot\text{kg}^{-1}$) and Cu ($181 \text{ mg}\cdot\text{kg}^{-1}$). In Prague, the isotopic ratios $^{206}\text{Pb}/^{207}\text{Pb}$ vary from 1,136 to 1,181; in Brno from 1,161 to 1,192. Measured isotopic ratios suggest contamination both from gasoline and ore combustion.

Key words: platinum group elements, trace elements, lead isotopes, urban soils