Dispersion and Pollution Characteristics of Platinum in Urban Environment of Seoul, Korea

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The emission of platinum(Pt) from automobile catalytic converters has led to rapid increases in Pt levels in urban environment, and there is growing concern about the effects of this new pollutant. The purpose of this study is to assess Pt levels in road dusts, roadside soils and tree barks in and around Seoul city. All samples were collected from the sites of differing traffic volumes, and analyzed for Pt by inductively coupled plasma mass spectrometry (ICP-MS) and other heavy metals by inductively coupled plasma optical emission spectrometry (ICP-OES) after acid digestion. Platinum levels were in the range of 0.4 - 444.4 ng/g in road dusts and roadside soils, and 0.9 - 4.5 ng/g in tree barks. These results are comparable with other previous studies and show high elevation of Pt levels in urban environment. Platinum levels in the roadside environment are influenced by traffic volume and driving style. Higher Pt levels occurred in dust samples taken from the sites that had high traffic volume and erratic stop-start driving conditions. Tree bark was utilized as a substrate for collection of airborne particulate matter and the results of this study show that Pt-containing particles are present in urban atmosphere.