Distribution of persistent organic pollutants and polycyclic aromatic hydrocarbons in sediment samples from Vietnam

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Abstract: The presence of eight kinds of persistent organic pollutants (POPs) such as DDT and its metabolites (DDTs), hexachlorocyclohexanes (HCHs), chlordane compounds (CHLs), drin compounds (Drins), heptachlor, hexachlorobenzene (HCB), heptachlor-epoxide, polychlorinated biphenyls (PCBs) and sixty-four polycyclic aromatic hydrocarbon compounds (PAHs) was identified using high resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) to investigate their distribution in surface sediment from Hanoi, Hue, and Ho Chi Minh in Vietnam. A survey of sediment samples from Osaka was conducted for comparison. The concentrations of ?DDTs, ?CHLs, ?PCBs and ?PAHs in Vietnam were 0.19-140, N.D.-9.0, 0.11-110, and 30-5500 ng/g-dry, respectively. Concentrations of these compounds in urban areas were higher than those in other areas. In addition, the ?DDT concentrations in Vietnamese urban areas were higher than those in Osaka. These results suggest that most DDTs would be used as insecticides for the purpose of health services rather than as agricultural chemicals. PAH pollution in urban areas and suburbs is caused mainly by runoff of petrol, whereas in rural areas, the combustion of fossil fuels and biomass is the major pollutant source.

Author Keywords: High resolution gas chromatography/high resolution mass spectrometry; Persistent organic pollutant; Polycyclic aromatic hydrocarbon; Sediment sample; Vietnam

Index Keywords: fossil fuel; polycyclic aromatic hydrocarbon; article; biomass; gas chromatography; health service; mass spectrometry; organic pollution; urban area; Viet Nam

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