lowest fluxes were in autumn. The compositions of deposition fluxes of particle-associated PAHs were compared with those of total suspended particles (TSP) in the air. It is observed that wet deposition contributed more heavyweight PAHs to the lake, whilst dry deposition along with low temperature favoured the deposition of lightweight PAHs. With increasing rainfall, the compositions of particle-associated PAHs deposits onto the earth surface became similar to those of TSP. Gaseous phase PAHs were sampled along with the particle phase PAHs in the atmosphere using the high volume sampler, and the precipitation scavenging of vapours PAHs was calculated based on the previous theories combining the gaseous PAHs and the volume of rainfall *in-situ*. The results showed that the gas wet deposition fluxes of total PAHs ranged from 0.15 to 8.29 g • m^{-2} • d^{-1}, and the predominant PAHs in the vapor wet deposition fluxes were three to four-ring compounds. SPMDs were deployed to assess the concentrations of the dissolved phase PAHs in water of the Luhu Lake concurrently. Based on the stagnant two-film model, the direction and magnitude of diffusive exchange fluxes of PAHs across the air-water interface in Luhu were calculated. The results showed that the net fluxes were from air to water (net deposition) on all the sampling period. They range from -3.2 to -31.3 μg m^{-2} •d^{-1} and averaged -17.7 μg m^{-2} •d^{-1}. For the individual compounds, the flux direction varied. Naphthelene, acenaphthylene, and acenaphthene had net fluxes from water to atmosphere, and naphthalene had the highest magnitude of exchange flux (Ave 2.8 μg • m^{-2}).

Key words PAHs; air deposition; air-water exchange; urban lake; flux

Organochlorine pesticides in marine environment of Quanzhou Bay, Southeast China

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As one of the most important buildup of persistent organic pollutants (POPs), organochlorine pesticides (OCPs) have received more and more attention. Samples including sediments, water and marine products were collected. In the lab, nineteen types of organochlorine pesticides were tested using GC-ECD following US-EPA 8080A method. In the top sediments, the concentration of HCHs was 0.1–3.08 ng/g and the concentration of DDTs was 3.53–75.83 ng/g. In the bottom sediments, the concentration of HCHs was 0.1–3.59 ng/g and the concentration of DDTs was 1.56–81.68 ng/g. The concentration ranges of HCHs and DDTs in sea water were 1.31–9.96 ng/L and 0.78–6.51 ng/L, respectively. And the concentration ranges of HCHs and DDTs in land surface water were 7.04–14.08 ng/L and 3.82–9.66 ng/L, respectively. The residual levels of HCHs and DDTs in marine product samples ranges from 0.1 to 0.6 ng/g and from 0.57 to 85.02 ng/g, respectively. In this thesis, discussions of DDTs and HCHs in sediment, water and marine product samples were made. The following are the main results and conclusions: A general decreasing trend was found from the inner to outer sectors of the Bay for both sediment and water samples. The distribution of OCPs depends greatly on the different properties pertaining to them. The topography, redox, hydrodynamic condition as well as other factors also play an important role in controlling the distribution and fate of OCPs. The Quanzhou Bay has been contaminated by OCPs in sediments, water and biota. When compared to remote sites, the pollution of OCPs in the Quanzhou Bay is elevated. Compared with other seriously polluted sites, the pollution of OCPs in the Quanzhou Bay is moderate. Bioaccumulation factor of DDTs and HCHs was also calculated. All these provide basic data to local government for the management of the Bay. However, further studies are indispensable to obtain a more profound understanding.

Key words organochlorine pesticide; Quanzhou Bay; biota; sediment core; eco-system

PAHs in surface soils from the western watershed of Bohai Sea

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Three hundreds and two surface soil samples were collected from the western watershed of Bohai Sea and measured for 16 polycyclic aromatic hydrocarbons (PAHs). The arithmetic mean and standard deviation of the total PAHs were 546±854 ng • g^{-1}. The spectrum of the PAH species was similar to that observed in soils from other places with domination of 3- and 4-ring compounds. The relatively high concentrations were observed in the Beijing-Tianjin-Tangshan metropolitan area, southwest of Hebei along Xingtai-Handan-Shijianzhuang-Zhangjiakou and two isolated cities in Shandong (Zibo and Ji'nan). The sampling sites with relatively lower PAHs concentrations extend from north mountainous area of Hebei to alluvial plain of northwestern Shandong. The