



淮河中游重化工聚集区干流水体中多环芳烃研究

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摘要 淮河是中国七大河流之一, 在中国国民经济发展中具有举足轻重的地位。有机物污染是淮河的主要污染形式。多环芳烃 (PAHs) 是一种典型持久性有机污染物 (POPs), 在水中的浓度较低, 易于被悬浮物和沉积物吸附。为探讨淮河中游重化工聚集区干流水体中多环芳烃的含量和分布情况, 2007 年 10 月在淮南和蚌埠段采集悬浮物样品和表层沉积物样品。所采集的环境样品经自然风干后, 利用二氯甲烷提取, 无水硫酸钠和固相萃取柱组合净化, 采用气相色谱-质谱联用法 (GC-MS) 同时定性和定量检测其 PAHs 含量, 获得了美国 EPA 优先表中所列的 16 种 PAHs 含量数据, 在此基础上探讨了淮河中游重化工聚集区干流水体悬浮物和沉积物样品中 PAHs 的分布特征, 并初步分析了蚌埠市饮用水源区蚌埠闸处 PAHs 的超标情况。结果表明: ① 淮河中游重化工聚集区干流水体环境样品中 PAHs 总含量变化幅度较大, 其悬浮物浓度范围为 1 169.44~4 048.86 ng/g, 表层沉积物中浓度范围为 91.98~1 292.52 ng/g; ② 就单一组分而言, 悬浮物中萘含量最高, 表层沉积物中二苯并[a,h]蒽最高; ③ 受采样点环境和 PAHs 本身性质影响, 悬浮物中 PAHs 量远大于其沉积物中量, 整体呈现悬浮物中以低环 PAHs 为主、沉积物中以高环 PAHs 为主的特征; ④ 根据《国家海洋沉积物质量标准》, 蚌埠闸沉积物中 PAHs 超标严重, 对蚌埠市的饮水安全产生一定的威胁, 同时, 此处悬浮物中 PAHs 含量也很高, 潜在危害性更大, 应给予重视。

关键词 淮河; 悬浮物; 沉积物; 多环芳烃

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Study on PAHs from the Heavy Chemical Accumulation Area in the Main Stream of the Middle Reaches of Huaihe River

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Abstract As one of the seven major rivers in China, Huaihe River is of great importance in the national economy, in which organic contaminations become a major issue. Polycyclic Aromatic Hydrocarbons (PAHs) are typical examples of Persistent Organic

Pollutants (POPs). PAHs are very low in water and easy to be adsorbed by suspended substances and sediments. To study the concentrations and distributions of PAHs in the heavy chemical accumulation area in the main stream of the middle reaches of Huaihe River, suspended substance and surface sediment samples from the section of Huainan and Bengbu were collected in October 2007. By naturally air-drying, the environment samples were extracted with dichloromethane. Then the samples were cleaned up by sodium sulfate coupled with the columns of solid phase extraction. Finally the samples were measured qualitatively and quantitatively by Gas Chromatography/Mass Spectrometry. The data for 16 PAHs in the prior table listed by American EPA were obtained. On its basis, the features of the PAHs distribution in the heavy chemical accumulation area in the main stream of the middle reaches of Huaihe River were studied, especially, the PAHs contents in Sluice Bengbu, which were found to be above the standard in a preliminary study. The results may be summarized as follows. (1) The levels of the studied PAHs are high, from 1 169.44 to

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此处悬浮物中 PAHs 含量也很高,潜在危害性更大,应给予重视。

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“第4届中日韩地理学家学术研讨会暨 第12届全国青年地理工作者学术会议”征文



由中国地理学会发起,中、日、韩三国地理学会联合主办的“中日韩地理学家学术研讨会”已于2006年(中国北京)、2007年(日本熊本)和2008年(韩国清州)成功举办。“第4届中日韩地理学家学术研讨会”拟定于2009年12月9-11日在广州市中山大学召开。会议同期还将举办“第12届全国青年地理工作者学术会议”,共同探讨当代地理学的前沿领域与未来发展。

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