

عنوان مقاله:

Determination of Polycyclic Aromatic Hydrocarbons in Soil and Water Around Automobile Repair Workshops within Eket Metropolis in Akwa Ibom State, Nigeria using GC-MS Service Unavailable

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خلاصه مقاله:

Polycyclic Aromatic Hydrocarbons (PAHs) are widespread in air, water, terrestrial, and biological systems and can be transferred between these resources. Sixteen United States-Environmental Protection Agency (US-EPA) priority PAHs in soils and underground water from some automobile repair workshops within Eket metropolis in Akwa Ibom State, Nigeria were determined using gas chromatography-mass spectrometry (GC-MS) to assess the extent of pollution caused by automobile repair activities. Soil samples were collected at various depths within five automobile repair workshops using stainless steel hand-held auger. Water samples were also collected from boreholes around the vicinity of the automobile repair workshops using an amber glass bottle with a screw cap. The results obtained showed that all the sixteen US-EPA priority PAHs were detected in varying concentrations in the soil samples while dibenzo(a,h)anthracene was not detected in any of the water samples. The Σ_{16} EPA PAHs detected in the soil samples in the five automobile repair workshops ranged from 0.82-12.98 mg/kg. The Σ_{15} EPA PAHs detected in the water samples ranged from 1.71-16.07 mg/l. According to the European Commission classification system of soil contamination, the soil was classified to be moderate to heavily contaminated. The carcinogenic potency BaP equivalent concentration (BaPeq) for the soil samples ranged from 0.4610-1.5058 mg/kg. The BaPeq for the water samples around the sampling sites ranged from 0.1644-0.4238 mg/l. Diagnostic ratios showed that the possible sources of PAHs in this study area were derived from mixed sources (Pyrogenic, Petrogenic, and phytogenic sources). Hence the soils and water around the workshop are moderately contaminated. Polycyclic Aromatic Hydrocarbons (PAHs) are widespread in air, water, terrestrial, and biological systems and can be transferred between these resources. Sixteen United States-Environmental Protection Agency (US-EPA) priority PAHs in soils and underground water from some automobile repair workshops within Eket metropolis in Akwa Ibom State, Nigeria were determined using gas chromatography-mass spectrometry (GC-MS) to assess the extent of pollution caused by automobile repair activities. Soil samples were collected at various depths within five automobile repair workshops using stainless steel hand-held auger. Water samples were also collected from boreholes around the vicinity of the automobile repair workshops using an amber glass bottle with a screw ... cap. The results obtained showed that all the sixteen US-EPA priority PAHs were detected

کلمات کلیدی:

Polycyclic Aromatic Hydrocarbons, Automobiles repair workshops, Contamination, Soil and underground water, Gas chromatography-mass spectrometry

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