عنوان مقاله:

Polycyclic aromatic hydrocarbons species in soil and its probabilistic cancer risk to residents near municipal solid waste landfill site

محل انتشار:

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خلاصه مقاله:

Present study was undertaken to examine the extent of Polycyclic Aromatic Hydrocarbons (PAHs) contamination in neighbourhood lithospheric environment of landfill site situated in eastern outer edge of Kolkata metropolitan city in West Bengal, India, along with its sources identification, spatial distribution and probabilistic cancer risks to residents. The collection and analytical tests were performed for all prevailing seasons in local geographical condition. The concentration of sum of 16PAHs (Σ16PAHs) in soil ranged from 8561μg/kg to 20268μg/kg and the average concentration is 14459μg/kg. On the basis of experimental information, the likelihood of cancer manifestation through contact to place-linked PAHs was quantitatively estimated. benzo(a)pyrene, Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a)anthracene, indeno (1,2,3-c,d) pyrene and chrysene, among 16PAHs are ascertained to provoke cancer in the residents. Carcinogenic risk due to oral intake and dermal contact is computed as 1.21E-05 and 4.02E-06 respectively. Progressive lifetime cancer risk to resident is set up as 1.61E-05. Source identification of PAHs indicates that it mainly originated from incomplete combustion of solid waste. Atmospheric diffusion and deposition led to PAHs input to soil all around waste disposal site, resulting in a consistent pyrogenic supply pattern in soil. This risk appraisal grants a realistic tool for resolution at corporation level to take up .risk management policy at contaminated location

کلمات کلیدی:

Carcinogenic PAHs, Health risk assessment, MSW landfill, Pyrogenic process, Soil contamination