LEVELS OF POLYAROMATIC HYDROCARBONS IN KANDY CITY

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The present work involves an investigation of polyaromatic hydrocarbons (USEPA priority components) in Kandy city. The secondary objective is to estimate the potential health risks associated with inhalation exposure, based on the toxic equivalency factors (TEFs) in different categories in this study. Five different types of categories were selected for the study. Particulate samples were collected for chemical analysis at five different categories of the buildings. Key meteorological parameters such as wind speed, wind direction, ambient temperature and relative humidity were also measured at the categories. All samples were analyzed for the 16PAH priority pollutants listed by USEPA. The total concentrations of particulate PAHs are in the range of 0.386 ng/m^3 to 14.65 ng/m^3, Categorization of locations based on degree of urbanization, type of fuel using for cooking and proximity to road from the location. The highest total PAH concentration occurred at the category 3. The category 2 had the least total PAH concentration, second highest occurred in category 5 and there after category 1and finally category 4. These results suggest that the degree of urbanization, fuel type and proximity to road influences the total concentrations of particulate PAHs. The dominant particulates of PAHs measured at the categories are naphthalene, acenaphthylene, acenaphthene. Then benzo[a]pyrene [B(a)P] indicating particulate PAHs are contributed by a mixture of both diesel and petrol engine type of vehicles, and biomass combustion. The total BaP_{eq} concentrations for different categories ranged from 0.06 ng/m^3 to 3.08 ng/m^3. The total BaP equivalency results showed the potential health risk to cancer due to inhalation exposure is of concern for residents living in high urban area with usage of wood as fuel. Since the total BaP_{eq} concentrations for this category was higher. Very close to, or slightly exceeded the maximum permissible risk level of 1 ng/m^3 of benzo(a)pyrene in other categories also.