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Characteristic of polycyclic aromatic hydrocarbons (PAHs) in urban air of Jakarta

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Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous constituent of particulate matter and well-known to be carcinogenic and mutagenic. These associated PAHs are resulted predominantly from gasoline and diesels released from vehicles. In Jakarta, this air pollutant has not been considered as a parameter to be controlled by Government. This study showed characteristics of PAHs in urban air Jakarta. These particulate associated PAHs samples were collected at three sampling site area in Jakarta from January to February 2016. The concentrations of 16 selected PAHs in were quantified. Spatial variations of PAHs were characterized. The sum of 16 PAHs in particulate at roadside ranged from 3 to 330 ng/m³, whereas at residential site the total PAHs was from 0.5 to 122 ng/m³. Higher PAHs concentration was mainly caused by local emission source superimposed by highly polluted air masses from South Jakarta. The lower PAHs concentration were observed, and were likely due to easier dispersion of air pollutants, washout effect and to lesser content, photo degradation and higher percentage in the air in vapor phase. It is important to determine PAHs in associated and vapor phase as a baseline in urban Jakarta. Resulted characteristics of this study provides interesting information for solving the air pollution problem in the local area of Jakarta and this in turn can be utilized by urban area with similar characteristic.

Biography

Miftahudin has his expertise in evaluation and passion in improving the quality of urban air. His research focuses on characteristic of pollutant organics especially Polycyclic Aromatic Hydrocarbons (PAHs) in the atmosphere which are well-known to be carcinogenic and mutagenic matters. These PAH products are incomplete combustion and pyrolysis of fossil fuels. Research was conducted with the air ambient of roadside Jakarta traffic area to understand the abundance, speciation, distributions and potential sources of PAHs in the vapor phase and in the particulate phase, so that air pollution caused by both PAHs phase can be efficiently controlled. He also studies the dispersion model of how PAHs enter the environment and what effects they have and application of chemical theory to calculate the impact of human activity on the environment. He has built this model after determining the characteristics of PAHs. Resulted characteristics and this study provides interesting information for solving the air pollution problem in the local area of Jakarta and this in turn can be utilized by urban area with similar characteristic.

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