

## **Organic Carbon and Poly Aromatic Hydrocarbon Composition of Ambient Air Particulate in Kolkata, India**

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Air borne particulate matter is a generic name, which includes dust, dirt, soot, smoke and liquid droplets emitted into air. They are small enough to be suspended in the atmosphere. These particulates are the components of tropospheric region. They can be characterized by their physical attributes. They affect on human health through their transportation, deposition and chemical composition. Outdoor source of particulate matter are vehicles exhaust and dust resulting from automobile (Krupnick 1991).

The objectives of the present study are to estimate the amount of the Total Organic Carbon (TOC) present on the Particulate Matter (PM), to identify and estimate the amount of the 16 USEPA Polynuclear Aromatic Hydrocarbon (PAH) present in the particulate matter and to evaluate whether any relationship between PM and TOC between PM and PAH and between PAH & TOC at different places Kolkata, West Bengal, India.

Samplings have been done in the winter season (December, 2003, January, 2004, and February, 2004) at different schools of Kolkata. Organic carbon and PAHs have been measured by TOC analyzer and High Performance Liquid Chromatography (HPLC) technique respectively. The results show that the correlation of organic carbon is higher in PM<sub>10</sub> than in PM<sub>2.5</sub> may be due to the number of particles in PM<sub>10</sub> are more than that of PM<sub>2.5</sub>. High correlation is noted between particulate and organic carbon in PM<sub>2.5</sub> ( $R^2=0.91$ ). The average concentration of PAH is higher in PM<sub>10</sub> than PM<sub>2.5</sub>. In PM<sub>10</sub> the concentration of Benzo(a) pyrene is the highest and concentration of Naphthalene is the lowest, but in PM<sub>2.5</sub> the concentration of Benzo(k)fluoranthene is the highest and that of Phenanthrene is the lowest.

Keywords: Particulate matter, Organic carbon, Poly aromatic hydrocarbon.

### **Reference**

- [1] Krupnick, A. J., Transportation Research Record, Energy & Environmental Issues, **1991**, 1312, (1991).