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## Atmospheric Abundance Of EC, OC And WSOC During Day And Night Time At An Urban Site Of Bihar State (INDIA)

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Fossil fuel emissions contribute huge amount of carbonaceous aerosols into the air which plays an important role in the climate change. The carbonaceous aerosol especially organic carbon (OC) and elemental carbon (EC) affect radiative forcing of the Earth. Therefore, the present study was carried out at an unexplored urban site in Saharsa district of Bihar state in India. The aerosol samples were collected during monsoon period (June-September 2019) to study day and night time variation of OC, EC and water soluble organic carbon (WSOC). The average concentration of EC during day time was noticed as  $6.8 \mu\text{g}/\text{m}^3$  while during night time as  $8.5 \mu\text{g}/\text{m}^3$ . The average concentration of OC during day time was noticed as  $9.1 \mu\text{g}/\text{m}^3$  while during night time as  $13.7 \mu\text{g}/\text{m}^3$ . On an average the night time concentrations of OC and EC were almost 25% higher than their day time concentrations. . The concentration of fine particulate matter was found to be higher during the night time as compared to the day time. OC/EC ratios were relatively lower than the standard value considered for biomass burning as a sources which suggested that the sources were mostly of fossil fuel burning type, probably thermal power plant and automobile exhaust. The average ratio during day time and night time was noticed to be 1.45 and 1.65 suggesting the dominance of EC which also indicated fossil fuel burning, the major source of carbonaceous aerosol at the site. The average WSOC/OC ratio was found to be same during both day and night time due to the formation of secondary organic aerosols. The average concentration of total carbonaceous aerosols accounted for about 24% of the total fine particulates during day time and about 18% of the total fine particulates during night time indicating more prominent carbon emission activity during day time.

**Keywords:** Carbonaceous Aerosol, Organic Carbon, Elemental Carbon, WSOC, Total Carbonaceous Aerosols.