

## CONTRIBUTION OF ORGANIC CARBON AND ELEMENTAL CARBON TO HAZE FORMING PARTICLES IN DELHI

**P.S. Khillare, T. Singh**

*School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India*

Delhi is one of the ten most polluted cities of the world. The concentration of TSP and PM<sub>10</sub> in Delhi exceeds by many times the national and WHO standards resulting in adverse effects on human health and atmospheric visibility. The present study was undertaken to determine the concentrations of organic carbon (OC) and elemental carbon (EC) in fine and coarse fractions of PM<sub>10</sub>. The study was carried out during a period of June – October 2003 in Delhi. The period of study was purposefully chosen to see the effects of pre-monsoon (June-July) and post-monsoon (October) months on PM<sub>10</sub> concentration. August and September are the main monsoon months in Delhi. The PM<sub>10</sub> sampling was done by eight- stage Andersen impactors at three different sites - urban, rural and urban background- in Delhi. Concentrations of OC and EC were subsequently measured by ELTRA CS-500 carbon analyzer. In general, the concentration of PM<sub>10</sub> was more in pre and post monsoon months as compared to monsoon months and it was highest in the month of June when frequent heavy dust-storm conditions prevail. The average PM<sub>10</sub> concentration varied between 116-488  $\mu\text{g}/\text{m}^3$  which exceeds the national standard of 60  $\mu\text{g}/\text{m}^3$ . The average concentration of OC and EC varied between 59-66  $\mu\text{g}/\text{m}^3$  and 14-33  $\mu\text{g}/\text{m}^3$  respectively. Up to 50% of OC and 40% of EC was in fine fraction (PM<sub>2.5</sub>) of PM<sub>10</sub>. The study concluded that OC and EC were the major components of visibility impairing aerosol in Delhi.