

Assessment of mutagenic/carcinogenic potential of PM_{2.5} and
PM_{2.5-10} ambient air pollutants via Comet assay and
EROD-microbioassay

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Recent researches has been designed to examine the presence of mutagenic/carcinogenic compounds in urban airborne particulates. Ambient air particulate matters are classified into two distinct modes in size distribution, namely the coarse and fine particles. Correlation between high particulate concentration and adverse effects on human populations has long been recognized. However, the toxicology of these adverse effects has not been clarified. Single cell gel electrophoresis(SCGE) assay, comet assay is rapid, simple and sensitive technique for measuring DNA-damage with a small number of cells. This assay enables the detection of various forms of DNA-damage in individual cell levels. It is suggest that comet assay is useful tool to evaluate the genotoxic effect of environment media.

We investigated the genotoxic effect of PM_{2.5} and PM_{2.5-10} collected from urban area in human pleural alveolar epithelial(A549)cells. Genotoxicity of solvent-extractable organic compound (SEOC) in the particulate was measured by comet assay. It is reported that the DMSO fraction would contain mainly the polycyclic aromatic hydrocarbons(PAHs), while the lipid-soluble fraction would be enriched with fatty acids. PAHs in urban particulate matter was measured by EROD-microbioassay.