

[P-39]**Mutagenic Potentials of Ambient Particulate Matters (PM)**

Jin-In Kim, Hyung-Seog Jang, Seung-Min Oh, Kyu-Hyuck Chung

College of Pharmacy, Sungkyunkwan University, 300, Chunchun-Dong, Jangan-Gu, Suwon, Gyeonggido 440-746, Korea

Ambient particulate matter (PM) exposure levels are correlated with the incidence of acute mortality and morbidity due to cardiovascular or pulmonary complications. PM is a complex mixture of aggregates of organic and inorganic compounds such as carbonaceous material, polyaromatic hydrocarbons, metals, salt and endotoxins. PM is known to be contained numerous genotoxic carcinogens. In order to identify which chemical classes are responsible for the majority of the observed biological activities, this study was designed to examine the presence of mutagenic/carcinogenic compounds quantitatively assess the genotoxic effects in PM. Ambient particulate matter was collected on a cascade impactor in traffic area, residential area and indoor for one week. PM was collected size-fractionated PM₁₀ and PM_{2.5}. Particulate organic matter was extracted by the dichloromethane/sonication method. We examined genotoxic potentials of PM using novel genotoxicity tests for assessing toxic effects at the DNA and chromosomal level (in vitro comet assay, in vitro MN test). Total toxicity was calculated TCDD equivalent concentration. It was found that PM induced DNA damage in a dose-dependent manner. As a result, high mutagenic potentials observed at the residential area than other sampling area.

Keyword: Ambient Particulate Matter, Comet Assay, MN Test