

Abstract 575

Use of different Salmonella/microsome assay protocols to evaluate the mutagenicity of air samples from São Paulo Metropolitan Area, Brazil

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Abstract

Urban air pollution is a worldwide problem, its contaminants being mostly generated as a result of industrial activities and motor vehicle exhausts. Several classes of chemicals have been associated with the adverse effects caused by the exposure to air contamination and no single biological method is capable of detecting all the mutagenic effects of that complex mixture.

In order to find out one or more simple assays to monitor the genotoxicity of air samples, we compared the genotoxicity of water and organic-soluble extracts of particulate matter collected in 5 different locations within Sao Paulo metropolitan area, using different protocols of the Salmonella/microsome assay. Water soluble extract was tested directly to Salmonella strains TA98, TA100 and TA97a. Organic extracts were tested both with the microsuspension method (KADO) and with the microplate fluctuation protocol (MPF), with TA98 and TA100 strains. All experiments were performed with and without metabolic activation.

Water soluble compounds did not show mutagenic activity, although one of the samples collected in a site near a petrochemical plant demonstrated dose response results with TA97a. Genotoxic activity was detected in all the organic extracts analyzed, in both protocols. Comparing the two methods, results obtained with TA100 in the MPF protocol are higher than those obtained by the KADO protocol, but the same could not be verified to TA98. Differences were also found in the responses with and without metabolic activation, regardless of the kind of the main pollution sources influencing the collection sites.

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