

COMPARISON OF TWO PROTOCOLS OF THE *SALMONELLA*/MICROSOME ASSAY TO EVALUATE THE MUTAGENICITY OF AIR PARTICULATE MATTER.

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key-words: air mutagenicity, *Salmonella*/microsome assay, microsuspension, Microplate Fluctuation protocol

The mutagenic effects of the complex mixtures of atmospheric pollutants are mainly derived from industries and vehicle emissions and are of potential public health concern. The objective of the present study was to evaluate the applicability and sensitivity of two *Salmonella*/microsome protocols, the microsuspension assay and the Microplate Fluctuation protocol (MPF), in the detection of mutagenic compounds in airborne particulate matter. The samples were collected using a HI-VOL sampler, during 24 hours, in two periods (March and April/2008), at four different monitoring sites in the São Paulo metropolitan area (Air 1 - 8) and one site located at the Cubatão industrial area (Air 9 and 10). The samples, extracted with methylene chloride by ultrasonication, were tested in the two protocols with TA98 and TA100 *Salmonella* Typhimurium strains. In the microsuspension assay, 10^9 bacterial cells were exposed, in duplicate, to four sample concentrations, with and without metabolic activation, during 90 minutes at 37°C and were disposed in minimal agar plates. The number of revertant colonies were counted after 66 hours of incubation (37°C). In the MPF protocol, 10^7 bacteria were exposed to the same conditions and, after 90 minutes, were diluted in a pH indicator medium and distributed into microplate wells. After 48 hours of incubation at 37°C, the purple (negative) and yellow (positive) wells were counted. The results showed that the organic extracts presented greater sensitivity to TA98 tester strain without metabolic activation in the microsuspension assay. Air 1, 2 and 10 results were different in the two protocols to TA100 tester strain in the presence of metabolic activation. In the microsuspension protocol, these extracts presented a weak dose-response relationship and in MPF the results were clearly positive suggesting a greater sensitivity to TA100 under this condition. Despite of the differences in the sensibilities of the strains evaluated, in the conditions tested, both protocols provided the same overall results, pointing out the mutagenic activity of the samples.