

## QUANTITATIVE DETERMINATION OF NO<sub>2</sub>, SO<sub>2</sub> AND SPM EXPOSURE LEVELS ON BUS PASSENGERS WITHIN THE COLOMBO METROPOLITAN AREA IN SRI LANKA

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Urban air quality is a critical issue in most of metropolitan cities as exposure to air pollutants can cause adverse health problems. Passengers travel in urban areas using busses with open windows are one of the most susceptible groups who expose to air pollutants associated with emissions of automobiles. This study was carried out to determine the passenger exposure levels to air pollutants during heavy traffic within the Colombo metropolitan city in Sri Lanka.

Samples were collected by travelling in public transport buses along six major routes from the Colombo main bus station to a destination about 50 km away. Sampling was carried out for one way travelling and two way travelling during morning and evening of a particular day. Exposed samples were analyzed for NO<sub>2</sub> and SO<sub>2</sub> concentrations using UV Spectroscopic method. Suspended Particulate Matter (SPM) samples were gathered using personal air sampler. The results indicate that exposure levels of NO<sub>2</sub> by travelling one-way, are in the range of 96-550 µg/m<sup>3</sup> in which are significantly higher than that of the ambient air quality level of 70 µg/m<sup>3</sup> in the study area. The results of SPM exposure levels are in the range of 400-850 µg/m<sup>3</sup> in which are significantly higher than that of the ambient air quality level of 200 µg/m<sup>3</sup> in the study area. The results of SO<sub>2</sub> exposure levels are in the range of 30-700 µg/m<sup>3</sup> in which are greater than that of the ambient air quality range of 40-50 µg/m<sup>3</sup> in the study area. Exposure levels are highly significant in heavy traffic routes and vary with the rush hour time periods of the day. Minimizing the travel duration, reducing unnecessary idling time and using properly maintained buses would clearly reduce passenger's exposure to air pollutants while travelling.