

In-vehicle and pedestrian exposure to carbon monoxide and volatile organic compounds in a  
mega city

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#### A b s t r a c t

This study is to determine in-vehicle and pedestrian exposure to carbon monoxide (CO) and volatile organic compounds (VOCs) in six roadways in Lagos mega city. Measurements were made twice a day for two weeks for four major modes of transportation in the city using the MultiRae ambient gas monitor. The levels of CO measured were 4.40–39.78 ppm while that of VOCs were 0.00–0.39 ppm. Highest average CO and VOCs concentrations were obtained inside car during morning commuting periods. These average concentrations were found to be statistically significant when compared with other three transportation modes studied.

The average concentrations of the pollutants in the morning were statistically similar to average concentration in the afternoon as Student's ttest indicated no statistical significant difference (p N 0.05). This study revealed that car commuters are exposed to higher concentrations of CO and VOCs than bus and BRT commuters with pedestrians having the lowest exposure to the pollutants.

Keywords: Vehicle, Pedestrian, Exposures, Carbon monoxide and volatile organic compounds