VEHICULAR EMISSIONS AROUND BUS STOPS IN PORT HARCOURT METROPOLIS, RIVERS STATE, NIGERIA

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ABSTRACT

The study examined the vehicular emissions in bus stops along selected major roads (East West Road, Aba Road, Ikwerre Road, Trans Amadi Road) in Port Harcourt Metropolis, Rivers State, Nigeria. Vehicular emissions such as NO_2, SO_2, PM_1, $PM_{1.5}$, PM_4, PM_7, PM_{10}, TSP, CO, and O_3, temperature and relative humidity were determined using multi-gas monitor (Aeroqual 300 series) Gas Meter. Descriptive and inferential statistics were employed for the analysis. Findings revealed that 80 bus stops were found along major roads with highest number (26.3%) along Ikwerre Road. During the peak period, the total number of cars along all the major roads was 1567 (66.2%) while buses were 777 (32.8%). Total vehicle count was highest (43.4%) along Aba Road and the least was found along Trans Amadi Road (14.7%). The mean car was highest in Aba Road (59.9) while the lowest mean car was found along Ikwerre Road (25.4). However, during the off peak periods, the cars were also higher than the buses while the highest total vehicular count was found along Aba Road (46.9%). The highest mean car was found along Aba Road (21.0) and least was found along Ikwerre Road. During the peak period, NO_2, PM_1, $PM_{2.5}$, PM_4, PM_7, PM_{10}, TSP and SO_2 were significantly varied among the bus stops in the selected major roads. During the off peak period, the concentrations of PM_7, PM_{10}, TSP and O_3 varied significantly among the bus stops in the selected major roads in Port Harcourt Metropolis. Among the roads, Trans-Amadi Road had the highest concentrations of $PM_{2.5}$, PM_4, PM_7, PM_{10}, TSP and SO_2 during the peak period and off peak period. Findings showed that NO_2, PM_4,PM_7, PM_{10}, and O_3 were significantly varied between the peak period and off peak period. The study recommended that the residents around Trans-Amadi Road should always go for medical assessment due to higher concentrations of $PM_{2.5}$, PM_4, PM_7, PM_{10}, TSP, O_3 and SO_2.

Keywords: Bus stop, Major roads, Medical assessment, Port Harcourt, Vehicular emissions.