

عنوان مقاله:

Assessment of an atmospheric heavy metal from a transport pool within the Ilorin Metropolis, Nigeria

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خلاصه مقاله:

Particulate emission from a high density of vehicles has become a subject of interest and great concern for the assessment of local air quality within the Ilorin metropolis, Nigeria. This study aims to determine possible heavy metal pollution from vehicular emission along the major transport pool within the Ilorin metropolis. Deposition gauges were placed on a pole above human breathing height at ۱.۵ m at selected major roundabouts within the Ilorin metropolis. Gauges were planted for one month (April ۲۷th to May ۳۰th, ۲۰۲۰) during the Covid-۱۹ lockdown and one month (January ۱۵th to February ۱۴th, ۲۰۲۱) after the Covid-۱۹ lockdown. The collected samples were rinsed with deionized water, filtered, and dried in a desiccator. The dried samples were characterized using Energy-dispersive X-ray fluorescence (EDXRF). Twenty-one heavy metals were detected from all sampling locations. The total sum concentrations of the heavy metals recorded during and after the Covid-۱۹ lockdown were ۱۰۱۸.۵۸۷۸۵ and ۱۳۵۹.۱۵۴۷۹ mg.m^{-۳}, respectively. The averaged measured concentration of most of the heavy metals sampled along selected major roundabouts within the Ilorin metropolis during and after Covid-۱۹ lockdown exceeded the permissible emission limit. The Deposition Flux (DF) of the measured heavy metals ranged from ۴.۵۳ to ۸.۹۱ g.m^{-۲}.month^{-۱} during the lockdown and from ۶.۲۳ to ۲۹.۵۵ g.m^{-۲}.month^{-۱} after the lockdown. The enrichment factor and concentration ratio were also determined. The results of both indicated that heavy metal pollutions originated from multiple similar anthropogenic sources, and photochemical degradation was active in all the sampling locations. This study suggested

the need to shift from a fossil fuel economy to a hydrogen economy to mitigate heavy metal pollutions from vehicular .emissions to the barest minimum

کلمات کلیدی:

Particulate pollution, EDXRF, Hydrogen Economy, diffusion, dispersion, vehicular emission

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