

## **GEOCHEMICAL EVALUATION OF IMPACTS OF URBANIZATION ON SOILS AND DUSTS IN AKURE AND BENIN CITY METROPOLIS, NIGERIA**

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This study is aimed at determining the spatial distribution of heavy metals in the soils and road dusts of the study areas. A systematic sampling of soil and dust from Akure and Benin City metropolis was undertaken. Composite top soil samples, road dusts and dusts samples from filling stations were collected from major roads traversing the cities. Eighty-two (82) top soil samples, Sixty two (62) road dust samples and eleven (11) samples from filling stations were collected. All the samples were air dried at room temperature and disaggregated were digested using hot aqua regia and subsequently analysed for elemental contents using Inductively Coupled Plasma Emission Spectrometry (ICP-OES). The results of the analysis on Akure samples revealed the following range of values pH (6.6 - 7.9); Total Dissolved Solids (96.2-3276); EC (148-5040  $\mu\text{S}/\text{cm}$ ); Cu (10-71ppm); Pb (12-158ppm); Zn (25-552ppm); Ni (5-32ppm); Cr (10-76ppm); Co (6-22ppm); Th (3-23ppm); Cd (0.5-1.5ppm); Ba (54-261ppm); Mo (1-3ppm) and V(26-72ppm). For the dusts the following trends were observed: Cu (35-147ppm); Pb (52-487ppm); Zn (118-876ppm); Cr (48-162ppm); Co (6-19ppm); Th (17-25ppm); Cd (0.7-1.4ppm); V (50-132ppm); Mo(1-6ppm)and Ba (65-145ppm). The results of the analysed samples from Benin City showed the following trends: pH (5.5 to 7.8); Electrical Conductivity (37.0-860.0 $\mu\text{S}/\text{cm}$ ) and TDS (24.0-328.25mg/L). The elemental composition revealed the following trends: Cu (4-1125ppm); Pb (9-2889ppm); Zn (29- 5022ppm); Ni (2-52ppm); Co (1-12ppm); Mn (53-132ppm); Th (3-12ppm); Sr (4-969ppm); Cd(Below Detection Limit, BDL-27.2ppm); Sb (5-12ppm); V (17-108ppm); La ( 3-13ppm); Cr (15-90ppm), Ba (6-530ppm) and As (BDL-6ppm). The geochemical and geo-accumulation index maps produced showed large variability in the spatial distributions of elements in topsoil and dust respectively as well as their pollution status. Further evaluation of the results using contamination indices revealed that soils and dusts from areas that are densely populated with considerable commercial activities are significantly enriched in metals with considerable impact on quality of the environmental media analysed.

Keywords: urbanization, contamination indices, pollutants