

Distribution Patterns of Trace Metals in Soils of Gbongan-Odeyinka-Orileowu Area, Southwestern Nigeria

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Abstract : One hundred and eighty six in situ soil samples of the B-horizon were collected around Gbongan-Odeyinka-Orileowu area, southwestern Nigeria, delineated by longitude 4°15' and 4°30' and latitude 7°14' and 7°31' for a reconnaissance geochemical soil survey. The objective was to determine the distribution pattern of some trace metals in the area with a view to discovering any indication of metallic mineralization. The samples were air-dried and sieved to obtain the minus 230 μ fractions which were used for pH determinations and subjected to hot aqua regia acid digestion. The solutions obtained were analyzed for Ag, As, Au, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Sn, and Zn using atomic absorption spectrometric methods. The resulting data were subjected to simple statistical treatment and used in preparing distribution maps of the elements. With these, the spatial distributions of the elements in the area were discussed. The pH of the soils range from 4.70 to 7.59 and this reflects the geochemical distribution patterns of trace metals in the area. The spatial distribution maps of the elements showed similarity in the distributions of Co, Cr, Fe, Ni, Mn and Pb. This suggests close associations between these elements none of which showed any significant anomaly in the study. The associations might be due to the scavenging actions of Fe-Mn oxides on the elements. Only Ag, Au and Sn on one hand and Zn on the other hand showed significant anomalies, which are thought to be due to mineralization and anthropogenic activities respectively.

Keywords : distribution, metals, Gbongan, Nigeria, mineralization anthropogenic

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