

PETROLOGY, MINERALOGY AND GEOCHEMISTRY OF THE PRECAMBRIAN ROCKS AROUND IKERE-EKITI, SOUTHWESTERN NIGERIA

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ABSTRACT

The Petrology, Geochemistry and mineralogy of the Precambrian rocks around Ikere-Ekiti, southwestern Nigeria was carried out with the aim of assessing the mineral potentials of the rocks. The method of study includes field examination of the rocks, petrographic (thin section) studies, geochemical analysis of the rocks for its major, trace and rare earth elements and statistical evaluation of the geochemical data using Microsoft windows 10 with the objective of providing baseline geochemical information about the type of minerals and nature of mineralization in the studied area. A total of twenty six (26) rock samples were collected from different localities within the study area, while ten (10) fresh samples were selected and prepared for thin section studies using standard procedures while geochemical analysis was carried out on the rocks using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) technique. The result of field examination revealed the prominence of three main lithologic units in the study area namely- porphyritic-granites, charnockites and medium-grained migmatites all occupying strategic positions with well-delineated boundaries. Petrography revealed the dominance of quartz and feldspars (plagioclase, microcline and orthoclase), mymakite and biotite with significant amount of heavy minerals such as zircon, tantalite, tourmaline, hematite and topaz and opaque minerals such as cassiterite, chalcopyrite, sulphide and pyrrhotite. Geochemical and statistical results indicated high concentration of some major oxides such as SiO₂ (73.41-49.15%) and Al₂O₃ (15.73% - 14.70) respectively. The result also indicated high concentration of the following trace elements such as Ba (1591ppm), Mn (1252ppm), Ce (248ppm) and Sr (608ppm) respectively. Statistical evaluation of the raw geochemical data also revealed the preponderance of Cu, Pb, Zn, Ni, Co and Mn as anomalies in the rocks. The geochemical and ternary plots all confirmed the igneous origin of the rocks while the ternary plots for the rocks in the study area revealed trends comparable to those typical of calc-alkaline plutonic suites.

KEYWORDS: Ikere, Lithologic Units, Mineralization, Factor Analysis, Metal Ratio, Petrography

Original Article

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