

## Evaluation and Provenance Studies of Heavy Mineral Deposits in Recent Sediment of Ologe Lagoon, South Western, Nigeria

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**Abstract :** Heavy minerals studies were carried out on eighteen sediment samples from Ologe lagoon located at Lagos Barrier complex, with the aim of evaluating the heavy mineral deposits and determining the provenance of the sediments. The samples were subjected to grain analysis techniques in order to collect the finest grain size. Separation of heavy minerals from the samples was done with the aid of bromoform to enable petrographic analyses of the heavy mineral suite, under the polarising microscope. The data obtained from the heavy mineral analysis were used in preparing histograms and pie chart, from which the individual heavy mineral percentage distribution and ZTR index were derived. The percentage composition of the individual heavy mineral analyzed are opaque mineral 63.92%, Zircon 12.43%, Tourmaline 5.79%, Rutile 13.44%, Garnet 1.74% and Staurolite 3.52%. The calculated zircon, tourmaline, rutile index in percentage (ZTR) varied between 76.13 -92.15%, average garnet-zircon index (GZI), average rutile-zircon index (RuZI) and average staurolite-zircon index values in all the stations are 16.18%, 54.33%, 25.11% respectively. The mean ZTR index percentage value is 85.17% indicates that the sediments within the lagoon are mineralogically matured. The high percentage of zircon, rutile, and tourmaline indicates an acid igneous rock source for the sediments. However, the low percentage of staurolite, rutile and garnet occurrence indicates sediment of metamorphic rock source input.

**Keywords :** lagoon, provenance, heavy mineral, ZTR index

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