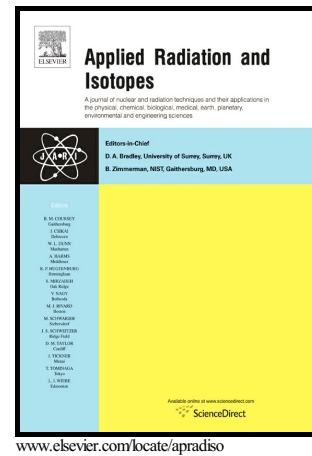


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Determination of rare earth elements concentration at different depth profile of Precambrian pegmatites using Instrumental Neutron Activation Analysis

*Abubakar Sadiq Aliyu^{1,2}, Yahaya Musa³, M. S. Liman^{1,2}, Habu T. Abba⁴, Mohammed S. Chaanda⁵, Nnamani C. Ngene⁶, N.N. Garba⁷

¹Department of Physics, Federal University Lafia, Nigeria

²Department of Physics, Nasarawa State University Keffi, Nigeria

³Nuclear Science and Technology Section, Centre for Energy Research and Training, Ahmadu Bello University, Zaria, Nigeria

⁴Department of Physics, Universiti Teknologi Malaysia, Skudai - 81310, Johor, Malaysia

⁵School of Geography, Earth and Environmental Sciences, Faculty of Science and Engineering, Plymouth University Drake Circus Plymouth Devon PL4 8AA United Kingdom

⁶Department of Mathematical Sciences, Ahmadu Bello University, Zaria, Nigeria

⁷Department of Physics, Ahmadu Bello University, Zaria, Nigeria

sadiq.abubakar@fulafia.edu.ng

abubakarsaliyu@nsuk.edu.ng

*Corresponding author

Abstract

The Keffi area hosts abundant pegmatite bodies as a result of the surrounding granitic intrusions. Keffi is part of areas that are geologically classified as North Central Basement Complex. Data on the mineralogy and mineralogical zonation of the Keffi pegmatite are scanty. Hence the need to understand the geology and mineralogical zonation of Keffi pegmatites especially at different depth profiles is relevant as a study of the elemental composition of the pegmatite is essential for the estimation of its economic viability. Here, the relative standardization method of instrumental neutron activation analysis (INAA) has been used to investigate the vertical deviations of the elemental concentrations of REEs. This investigation adopted the following metrics in investigating the vertical variations of REEs concentrations. Namely, the total contents of rare earth elements (Σ REE); ratio of light to heavy rare earth elements (LREE/HREE), which defines the enrichment or depletion of REEs; europium anomaly (Eu/Sm); La/Lu ratio relative to chondritic meteorites. The study showed no significant variations in the total content of rare

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