

## Rare Earth Elements and Radioactivity of Granitoid Rocks at Abu Marw Area, South Eastern Desert, Egypt

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**Abstract :** Abu Marw area is located in the southeastern part of the Eastern Desert, about 150km south east of Aswan. Abu Marw area is mainly covered by late Proterozoic igneous and metamorphic rocks. These basement rocks are nonconformably overlain by late Cretaceous Nubian sandstones in the western and northern parts of the areas. Abu Marw granitoid batholiths comprises a co-magmatic calc alkaline I type peraluminous suite of rocks ranging in composition from tonalite, granodiorite, monzogranite, syenogranite to alkali feldspar granite. The studied tonalite and granodiorite samples have  $\Sigma$ REE lower than the average REE values (250ppm) of granitic rocks, while the monzogranite, syenogranite and alkali feldspar granite samples have  $\Sigma$ REE above the average REE values of granitic rocks. Chondrite-normalized REE patterns of the considered granites display a gull-wing shape, characterized by large to moderately fractionated patterns and high LREE relative to the MREE and HREE contents. Furthermore, the studied rocks have a steadily decreasing Eu/Eu\* values from the tonalite to the alkali feldspar granite with simultaneous increase in the  $\Sigma$ REE contents. The average U contents in different granitic rocks.

**Keywords :** granite, rare earth element, radioactivity, Abu Marw, south eastern desert

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