

GEOLOGY, GEOCHEMISTRY AND RADIOACTIVITY OF GABAL KILKBAB AREA, SOUTH EASTERN DESERT, EGYPT.

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This article is concerned with the geology, geochemistry and radioactivity of the different granitic rocks that occur in Gabal Kilkbob area, South Eastern Desert, Egypt. The area of study is built up of a sequence of igneous and metamorphic rocks, dissected by three sets of faults which tend to follow the NW-SE, E-W and NE-SW trends in descending order. Petrographically, the granitic rocks mainly consist of granodiorites, monzogranites, syenogranites and alkali granites. The chemical analyses of the different granitic rock types revealed that these granites are of calc-alkaline nature and the granodiorite is metaluminous but the monzogranite, syenogranite and the alkali granite are of peralkaline. Geotectonically, the granodiorite fall within the volcanic arc field, while the monzogranite and the syenogranite and the alkali granite lie in the field of within-plate field, (A-type granite).

The relation between SiO₂ and Rb, Sr and Ba illustrates the trend of differentiation and reveals that the alkali granites are the more differentiated ones and possess high uranium content, Also, the normalized rock chondrite of REE indicates the same above result that the alkali granites are the more differentiated ones, while the granodiorites are the least ones. Also, the study reveals that the uranium content increases by the increase of differentiation. The relationship in general between the uranium and trace and REE in the different granitic rocks illustrate direct relation with Ni, Nb, Rb, Y, and Zr. The XRD study of the high anomalies reveals that the radioactive minerals are uranothorite, xenotime, allanite, zircon, and sphene.