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Petrogenesis of Granites, Sharm El-Sheikh Area, South Sinai,Egypt: Petrological Constrains and Tectonic Evolution

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Precambrian granites ($\sim$ 570 km2) of the Sharm El-Sheikh area, south Sinai represent an important component of successive multipulsal stages of a upper crust of the Sinai maasif; the earlier includes monzogranite and syenogranites while the later reflects the alkali feldspar granites and riebeckite-bearing granites.The study granites rank to a plutonic suite.Almost granitic plutons occur within shear and fault zones, in which most area was subjected to different phases of faulting and shearing during the magmatic-tectonic history. Numerous felsic and mafic dykes as well as quartz veins traverse the study granites. Petrographically, the granitic rocks mostly comprise different types of perthite,albitized plagioclase (in major), quartz, annitic biotite and riebeckite .

On the basis of geochemistry, the monzogranites display a calc-alkaline peraluminous characteristics and parallel to compressional trend, that was emplaced in island-arc setting, whereas syenogranites, alkali-feldspar granites and riebckite bearing-granites reveal an alkalic rocks of extensional suite, peralumonous-metaluminous nature and enriched in HFSEs. Multielement variation diagrams and geochemical characteristics reinforce their post-collision tectonic setting. In addition, the mafic enclaves within such granitic bodies play an important role in the tectono-magmatic evolution of these granites.

REEs geochemical modeling reveals that these rocks were formed due to partial melting and fractionation of lower crust basaltic magma giving rise to A2 and A1 subtypes granites in the final stage which typically emplaced within intraplate environment. at the end of Pan-African Orogen.