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**GEOCHEMISTRY AND PETROGENESIS OF THE PAN-AFRICAN
LATE- TO POST-OROGENIC YOUNGER GRANITOIDS AT SHALATIN-HALAIB DISTRICT, SOUTH EASTERN DESERT, EGYPT**

The younger granitoids of the Shalatin-Halaib district in the south Eastern Desert of Egypt are of syenogranite compositions. Based on petrological and geochemical studies, the syenogranites have been differentiated into two distinct types, namely biotite-hornblende subsolvus syenogranite (SGR I), showing I-type affinity and biotite-bearing hypersolvus syenogranite (SGR II) with A-type affinity. On the basis of REE patterns, the SGR II is further subdivided into SGR IIa and SGR IIb. The SGR I is characterized by low Rb/Sr ratios and HFSE concentrations (e.g. Nb, Ta and Y), fractionated LREE with flat HREE, high LREE/HREE ratios, presence of a negative Nb-Ta anomalies and lack of negative Ba and Eu anomalies. On the other hand, the SGR II is characterized by high Rb/Sr ratios and HFSE concentrations, slightly fractionated (SGR IIa) to unfractionated (SGR IIb) LREE with a positive slope for the HREE, absence of negative Nb-Ta anomalies and significant negative Ba, Ce, Zr and Eu anomalies. According to the field and geochemical characteristics, the late-tectonic SGR I may be produced by dehydrated partial melting of an amphibolitic source followed by high-pressure fractionation processes. The post-tectonic SGR II is probably formed directly from the residual magma by crystallization of biotite, plagioclase, K-feldspar and accessory phases such as monazite, allanite and titanite in a shallow-level magma chamber occurring along strike-slip faults at convergent margins. Generally, the syenogranites were generated during a period of rapid tectonic transition from crustal thickening during subduction (SGR I) to crustal thinning during extension (SGR II) which represent the final magmatic stage of an extensive arc system.

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