Journal of Applied Geochemistry
Vol. 20, No. 3 (2018). pp. 256-263

PETROLOGICAL AND GEOCHEMICAL STUDIES OF THE PRECAMBRIAN GRANITOIDS FROM THE ATKUR-GUNTIPALLY-MADANAPALLY AREA, PART OF GADWAL SCHIST BELT, EASTERN DHARWAR CRATON, SOUTH INDIA

[1]P. Ramakrishna and [2]M. Anjaneyulu

[1] *Department of Geology, Nagarjuna Govt. Degree College, Nalgonda, Telangana State, India.*

[2] *Department of Geology, Mahatma Gandhi University, Nalgonda, Telangana State, India.*

E-mail.ramraj027@gmail.com and geoanji2011@gmail.com

Abstract

The Archean granite-greenstone terrane exposed around Atkur-Guntipally and Madanapally area in Mahabubnagar District of Telangana is comprised of granitoids of Peninsular Gneissic Complex (PGC) and 2.7 Ga metavolcanics belonging to Gadwal schist belt, in Eastern Dharwar Craton (EDC). The granite-greenstone sequence of the study area is located around the northern part of Neoarchean Gadwal schist belt. The present study pertains to the coarse grained, mesocratic granitic rocks that occur on either side of narrow N-S trending metabasalt (0.8 to 1.6 km width) in the area. Petrographically the granitoids exhibit hypidiomorphic texture and are essentially composed of K-feldspar, quartz, plagioclase, biotite + hornblende and zircon, epidote, apatite and opaques are noticed as accessory minerals. Mafic rich microgranitoid enclaves (MME's) are widely noticed indicating magma mingiling phenomenon. These granitic rocks are peraluminous in nature and exhibit a cal-alkaline trend. Major oxide geochemistry indicates high SiO_2 (71.22 to 72-84%) and high $Na_2O + K_2O$ (8.19 to 9.0%) content. Positive correlation between SiO_2 vs alkalis (Na_2o, K_2O) and alumina (Al_2O_3) indicate normal differentiation trend characteristic of calc-alkaline plutonic felsic magmatism. Chondrite normalised REE plot of these granitoids exhibits conspicuous LREE enrichment, negative Eu anomaly and depleted HREE patterns indicating a crustal source.

Keywords: Peninsulr Gneissic Complex, Granites, Gadwal, Mylonite, Eastern Dharwar Craton.