

WHOLE ROCK GEOCHEMICAL CHARACTERIZATION OF CHINTALAPALLE LAMPROITE DYKE, NW MARGIN OF CUDDAPAH BASIN, EASTERN DHARWAR CRATON, SOUTH INDIA

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Abstract

We present here the whole rock geochemistry along with field and petrographical studies of recently reported Chintalapalle Lamproite Dyke (CHPL), NW margin of Cuddapah Basin, Eastern Dharwar Craton, South India. The CHPL is a fracture controlled E-W trending 90-meter in length isolated discontinuous body intruded into basement granitic gneiss. Texturally, CHPL is porphyritic to weakly porphyritic essentially comprising microphenocrysts of sanidine and potassic richterite, set in a groundmass rich in carbonate, and chlorite with rutile and titanate as accessory phases. Geochemically, CHPL samples are characterized by high MgO (16.06-19.44 wt.%), TiO₂ (1.56-3.29 wt.%), K₂O (3.69-4.71 wt.%), P₂O₅ (1.81-3.94 wt.%) and low Na₂O (1.21-1.40wt.%), Al₂O₃ (4.10-5.12 wt.%), SiO₂ (49.07-49.98 wt.%) exhibits silica undersaturated to slightly saturated compositions. All the samples are typical lamproites occupying their representative fields when plotted in Al₂O₃(wt%)- FeO^T(wt%)-MgO and MgO-K₂O Al₂O₃-diagrams. The high Nb/2 (78.6-99ppm) and low Hf (10.9-14.6ppm), Th (3.6-9.4ppm) concentrations conform the anorogenic origin of CHPL. Chondrite normalized rare earth elements show LREE enrichment and HREE depleted distribution patterns.

Keywords: Lamproite, Chintalapalle, Paleo-Mesoproterozoic, Cuddapah Basin.