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PETROLOGICAL STUDIES OF CHINTALAPALLE LAMPROITE FROM THE EASTERN DHARWAR CRATON OF SOUTHERN INDIA

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Abstract: Lamproites have a very limited distribution in Earth crust which makes them the most special rock types to study. The term lamproite was coined by Niggli (1923) for leucite bearing rocks from Spain and Wyoming which had unusual “Niggli” parameter. These rocks attract worldwide attention for their exotic mineralogy, enigmatic geochemistry and unique petrogenesis. Although the rare intrusives like Lamprophyres, Lamproites, Kimberlites and Orangeites are known for their rare distribution in the worldwide, they are conspicuously represented in India. India emerges into focus wherever the global distribution of these exciting rock types are studied.

An individual outcrop of a lamproite dyke is located ~1.5 km SW of Chintalapalle village at the NW margin of the Proterozoic Cuddapah Sedimentary Basin, Eastern Dharwar Craton, Southern India. This dyke was extended E-W and has emplaced within the granitic rocks belonging to the Peninsular Gneissic Complex (PGC). The lamproite dyke has a inequigranular i.e., porphyritic to weakly porphyritic texture composing microphenocrysts of sanidine and potassic (K) richterite set in a groundmass rich in carbonate, and chlorite with rutile and titanite as accessory mineral phases. This Chintalapalle occurrence of lamproite is located mid-way between the well-known Narayanpet Kimberlite Field (NKF) towards the west and the Ramadugu and Vattikod Lamproite Fields in east. The Chintalapalle lamproite dyke, together with those from Vattikod, Ramadugu, Krishna and Cuddapah Basin Lamproite Fields, constitute a wide spectrum of ultramafic and ultrapotassic magmatism emplaced in and around the Palaeo-Mesoproterozoic Cuddapah Basin in Southern India (Alok Kumar et al., 2016).

Although stream sediment sampling did not yielded any kimberlite/lamproite indicator mineral, the systematic close spaced ground search led to the finding of the lamproite dyke co-ordinates i.e., 16°49'57.32"N; 78°29'18.67"E located 1.5 km SW of Chintalapalle village. This lamproite emplacement is controlled by E-W trending fractures in the granite gneiss basement which is Peninsular Gneissic Complex. Lamproite body range in thickness from 1.5 to 2 mts and extend over a length of 90 mts as an isolated discontinuous outcrop. At some places the lamproite has either covered by soil or has been removed for agriculture purpose.

Key Words: Chintalapalle, Lamproite, Cuddapah Basin, Sanidine, Richterite.