

Alkaline Magmatism in Eastern Ghats Mobile Belt and related Tectonism

DAS, M. P.G. Department of Geology, Utkal University,
Bhubaneswar-4, India

Eastern Ghat Mobile Belt, extending over 900 kms along the eastern coast of India is a classic example of high grade metamorphic zone characterized by rifting, granitisation, alkaline magmatism, anorthositic plutonism and gem mineralization. The most remarkable feature of the Eastern Ghat Mobile Belt (EGMB) is the presence of shear zones along the margins and central region as evidenced by the presence of flattened folds, mylonites with or without brecciation and well developed stretching lineations. Most of the alkaline complexes of EGMB are linearly arranged along the Angul - Dhenkanal shear zone and Chilka Lake shear zone. Geochronologic study suggests that magmatism reflected by gem mineralization along shear zones continued for a long period (1450 - 850 Ma) and the rifting was initiated around 1500 Ma..

The present paper deals with a comparative study of the alkaline plutons of Khariar, Rairakhol, Baradangua, Koraput all of which are miaskitic in nature with average agpaitic index less than 1 and abundant microperthite (similar to the typical miaskites of Urals).

Interestingly the gem tracts are pegmatites which host very high quality garnets, topaz, sapphire, ruby, emerald, alexandrite and many other varieties intruding into alkaline country rock. All the major 22 gem stone belts of Orissa are confined to the Eastern Ghat Granulite Belt which are localised either in the alkaline complexes or in the mafic/ ultra mafic complexes. More petrochemical, geochronological investigation would definitely strengthen the reassembly of Gondwanaland.