

**Geochemistry and Petrogenesis of
Archaean Closepet Granites from
Bundelkhand Craton, India: Constraints
from Whole Rock Geochemistry and Zircon
Geochronology**

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The Archaean geological record corresponds to 1/3rd of our planetary history. This was also the time for the geodynamic evolution of the of Bundelkhand Craton. Bundelkhand TTG's evolved (3.3 to 2.5 Ga) in Paleo-Archaean paving the way for the genesis of compositionally variable, undeformed K-rich granites (2.57-2.52 Ga) in the Neo-Archaean, one among which are the Closepet Granites.

Geochemically they are characterized by moderate to high SiO₂, MgO, K₂O, HFSE, Ni, Ba+Sr and low Yb content. The Chondrite normalized REE plot are highly fractionated with a sharp (-) Eu anomaly whereas the multi-elemental plot shows sharp (+) U, Th and Pb anomalies acting as a proxy for continental crustal involvement.

U-Pb SIMS zircon ages gives younger crystallization age of 2560 ± 7 Ma. Closepet granites with a lower Mg content probably was formed by the mixing of anatectic melt with mantle-derived melts, which holds true for the closepet granites of Bundelkhand Craton. As the Bundelkhand TTG's have higher SiO₂, the magma produced by melting them would produce melt with higher silica indicating that the Closepet's are not the products of melting of an older TTG magma. Therefore, they are probably formed by mixing of high Mg Sanukititic magma with the older fragments of continental crust, generating magma which is lower in Mg content. This inference is in correspondence with their older inheritance age of 2842 ± 3 Ga.