

***In situ* U-Th-Pb_{total} analysis of monazites from Bundelkhand Craton, India and geodynamic significance**

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The chronology of crustal accretion processes due to magma emplacement are well constrained with the aid of high precision U-Pb geochronology for Singhbhum, Bastar, Bundelkhand, Dharwar and Aravalli cratons [1]. However, radiometric dating of the tectonic events related to the initiation and closing of a sedimentary basin in stabilized cratons are least explored. Monazite (APo₄) is an accessory phase in sedimentary rocks that can accommodate large quantities of U, Th, Pb and can be used for dating of low-temperature geological events [2].

The Bundelkhand craton, NW India, hosts lenticular units of Banded Iron Formation (BIF) that are associated with tonalite-amphibolite-volcanoclastic greenstone sequences [3]. Except for magnetite and hematite, orthopyroxene, amphibole, and garnet are the other dominant minerals present in the BIF. *P-T* pseudosection analysis implies the garnet formed via consuming plagioclase and pyroxene at temperature 550-600°C, between the pressure at 0.9-1.2 GPa. 10-30 µm sized monazite grains are present in the studied samples. U-Th-Pb_{total} age determination by electron probe microanalyzer yield four age clusters. The oldest ages, i.e., 3135±84 Ma is obtained from a group of 10-20 µm sized monazites having ThO₂ content < 6 wt%. The second group of monazites is relatively larger, and ThO₂ content is usually > 6 wt% in the central part. These groups of monazites yield an age of 2504±28 Ma. The third group of monazites yields ages between 2104±44 to 1932±54 Ma.

The presence of 3135±84 Ma monazite from the Bundelkhand craton implies the presence of older supracrustal rocks before the deposition of BIF at 2504±28 Ma. The 2104±44 to 1932±54 Ma age is correlated with the disintegration of Ur and subsequent assembly of Columbia supercontinent.

[1] Nasipuri *et al.* (2019) *Earth's Oldest Rocks* 793–817. [2] Williams *et al.* (2007) *Annu. Rev. Earth Planet. Sci.* **35**, 137–75. [3] Pati (1999) *Rec. Geol. Surv. India* **131**, 95–96.