

¹³C excursion in the Paleoproterozoic Bijawar dolostones, Bundelkhand craton, Central India

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The Paleoproterozoic Bijawar Group overlies the ca. 3.3 - 2.4 Ga Bundelkhand craton and is overlain by the sediments of the ca. 1.6 - 0.5 Ga Vindhyan Supergroup. The Bijawar Group is one of the least studied Paleoproterozoic successions in India. The Dargawan sill hosted in the lower Bijawar Group (Moli Subgroup) has yielded an Rb-Sr age of 1960 ± 160 Ma [1]. Hence, the sediments of the Moli Subgroup are considered to be older than ca. 1960 Ma. The Moli Subgroup consists of mafic lavas, stromatolitic dolostones, sandstone, and chert breccia. The unconformably overlying Gangau Subgroup consists of phosphorites and ferruginous shales, sandstones, breccia, and conglomerates. We studied the C and O isotope composition of stromatolitic dolostones of the Bajna Formation, Moli Subgroup. The dolostones contain domal and columnar stromatolites and chert bands, indicating deposition on a shallow-marine, carbonate platform. Stromatolitic dolostones contain microstructures with micrite lamina. The C and O isotope data for the dolostones range from +3.6 to +7.1 ‰ V-PDB and from -10.5 to -5.5 ‰ V-PDB, respectively. Such moderate-level ¹³C-enrichment calls for correlation with the global ca. 2.22-2.06 Ga Lomagundi carbon isotope excursion or shorter duration, large-amplitude C-isotope excursions between ca. 2.1 and 2.0 Ga [2]. The Bijawar Group is the second succession in India to host the Paleoproterozoic carbon isotope excursion after the Ghasiar dolostones of the Aravalli Supergroup on the Aravalli craton [3].

[1] Pandey et al. (2012), Journal Geological Society of India (79), 30-40.

[2] Bekker et al. (2016), Journal of the Geological Society (173), 689-700.

[3] Sreenivas et al. (2001), Precambrian Research (106), 277-290.