

FORAMINIFERAL BIOSTRATIGRAPHY & MICROFACIES ANALYSIS OF THE LOWER EOCENE CARBONATE SUCCESSION IN PARTS OF HAZARA, AZAD KASHMIR AND ISLAMABAD, PAKISTAN

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Abstract

In this study, the Eocene carbonate succession including Margalla Hill Limestone and Chorgali Formation representing the lower units of the Early Eocene Cherat Group have been investigated in the Margalla Hill Ranges and Hazara-Kashmir Basin. The field sections included, 1) Shahdara Section (Islamabad), 2) Khaira Gali Section (Galiat-Abbottabad) and 3) Yadgar Section (Muzaffarabad-Azad Jammu & Kashmir). Lithologically, these formations are comprised of predominant limestone units with occasional shale interbeds at places. Some notable fauna from the foraminiferal assemblage includes; *Assilina spinosa*, *A. subspinosa*, *A. dandotica*., *A. granulosa*, *Lockhartia conditi*, *L. tipperi*, *Nummulites atacicus*, *N. globulus*, *N. mamillatus*, *Discocyliina* sp., *Ranikothalia* sp. etc. Presence of all these biostratigraphically significant shallow benthic foraminifera confirms that the deposition of Margalla Hill Limestone and Chorgali Formation occurred in Shallow Benthic Zones (SBZ 5/6 - SBZ12) of Ypresian time. The integrated depositional environment for Early Eocene Margalla Hill Limestone and Chorgali Formation from the studied sections is interpreted to occur between restricted inner ramp and distal mid ramp settings of carbonate platform. Restricted inner ramp, shoal, proximal mid ramp and distal mid ramp are important facies types represented by varying depositional textures of the studied carbonate succession. A very preliminary approach towards establishing stable isotopic stratigraphy at Paleocene/ Eocene boundary in one of the studied sections i.e. Yadgar Section is initiated. This study encounters a decrease in $\delta^{18}\text{O}$ values along with pronounced decline in $\delta^{13}\text{C}$ indicating quiet abrupt global extinction phenomenon at Paleocene/ Eocene Boundary.