UNRAVELING THE LATE CRETACEOUS TO PALEOCENE RECORD OF TECTONOSTRATIGRAPHIC AND PALEOENVIRONMENTAL CHANGES IN THE NORTH-WESTERN SHELF OF THE INDIAN PLATE ALONG NAWANSHEHR SECTION, ABBOTTABAD, PAKISTAN

Noor Ullah[1], Suleman Khan[2], Muhammad Hanif[1], Imran Ud Din[1], and M. Sufyan Qazi[1]

[1] National Centre of Excellence in Geology, University of Peshawar, Peshawar, Pakistan
[2] Department of Geology, University of Peshawar, Peshawar, Pakistan
nooru398@gmail.com

Abstract

Detailed lithostratigraphic and biostratigraphic description of the Cretaceous-Paleocene succession (Nawanshahr Section) is documented in this thesis. Additionally, the microfacies data has been established for the studied stratigraphic section. All these informations are integrated for unravelling the tectonostratigraphy of the studied succession. The studied area exposes the Cretaceous Kawagarh Formation, Paleocene Hangu Formation, Lockhart Limestone and Patala Formation. The biostratigraphy of the Kawagarh Formation is based on the presence of dominant planktonic foraminifera. The biostratigraphic results from the age diagnostic foraminifera i.e. *Globotruncana ventricosa*, *Globotruncanita elevata*, *Dicarinella asymetrica* and *Rotalipora cushmani* suggest Middle-Late Cenomanian to Campanian age for the Kawagarh Formation. In the Lockhart Limestone Larger Benthic Foraminifera and dasycladacean green algae are recorded. The biostratigraphic results from the age diagnostic foraminifera i.e. Miscillena miscella, Lockhartia conditi, Lockhartia haimei and Ranikothalia sindensis revealed shallow Benthic Foraminiferal Zone SBZ 4 of Thanetian age for the Lockhart Limestone. The presence of deep marine planktonic foraminifera and radiolarians recorded in the MFK1-MFK4 microfacies within the Kawagarh Formation shows its deposition in outer shelf-deep marine settings. The petrographic studies of the Hangu Formation shows its quarzitic nature with hematite as cementing material and absence of any marine fauna suggesting deposition in marginal marine conditions. The larger benthic foraminifera, algae and millolids rich microfacies MFL1-MFL5 are recorded within the Lockhart Limestone, suggesting inner ramp lagoonal to distal middle ramp settings. The radiolarians rich microfacies MFP is reported from the Patala Formation, suggesting outer ramp to deep basinal settings.

Keywords: Tectonostratigraphy, planktonic foraminifera, Biostratigraphic zonation, paleoenvironments, Kawagarh Formation,