Litho-biostratigraphic analysis of the Tirah Maidan and part of the Orakzai Agency, NW Pakistan.

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Abstract

This study is aimed to establish a reliable stratigraphic frame work for the study area. The study area represents northwestern margins of Khyber Agency and covering part of northern Orakzai Agency. Under litho-biostraigraphic investigation the algal lamination, micritic origin, absence of any Mesozoic and Cenozoic fauna, and close resemblance with the Uch Khattak Formation revealed the rock unit as Khyber Limestone for the Paleozoic succession along the Rojgal and Dwatoi region. The monotonous shale and limestone sequence suggests the rock unit as Shinawari Formation. The planner thick bedded nature and ooilitic-peloidal shoals facies were consider to identify rock unit as Samana Suk Formation. Glauconitic sandstone and carbonaceous shale with occasional belemnite and ammonite were taken into account to mark the Chichali Formation. The white beech quartz arenite facies demarcated the Lumshiwal Formation. The age diagnostic fauna such as *Hedbergella delrioensis, Hedbergella trocoidea, Globigerinellodies bentonensis, Whiteinella paradubia, Rotalipora gandolfi, Rotalipora deekei, Rotalipora cushmani, Rotalipora greenhornensis, Rotalipora appenninica, Rotalipora ticinensis, Globotruncana renzi, Globotruncana linneiana, Gorbachikella sp, Rogotrancana subsicrunnidefer, constotrunc ana confishensis, Globotrancanita conica, Heterohelix reussi, Psudoguenbilina costulata, and Contosotruncana contosa* were taken into account to identify the unit as Kawagarh Formation. The lower laterite, reddish whitish sandstone and upper coal seam were key element to mark unit as Hangu Formation. The presence of the larger benthic foraminifera i.e. Miscellanea miscella, Miscellanea juliettae, Lockhartia haimei, Lockhartia conditi, Lockhartia tipper andLockhartia conica were identified from the Lockhart Formation. The lower carbonaceous shale and larger benthic foraminifera such as *Ranikothalia sindensis, Lockhartia haimei, Miscellanea miscella, Lockhartia conditi, Lockhartia tipperi, Assilina sub spinosa, and Nummulites globulus Leymerie* were identified from the Patala Formation. Reddish clays interbedded with sandstone and occasional limestone and gypsum patches were considered to mark the rock unit as Kuldana Formation. The thick cross bedded fluvial reddish grayish sandstone, red clays and occasional conglomerates bed at the base were consider to identify the rock unit as Murree Formation.