

Microfacies and diagenetic fabrics of Samana Suk Formation at Harnoi section, Abbottabad, Khyber Pakhtunkhwa

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A detailed geological investigation of the Samana Suk Formation in the Harnoi Section of Abbottabad District, Pakistan was carried out to elaborate its microfacies analysis and diagenetic pattern. Thirty three samples were studied from a 60m-thick unit of the Samana Suk Formation and three microfacies with five sub microfacies were identified. These microfacies included; Grainstone (ooid grainstone, Peloidal grainstone and Intra-ooid grainstone as sub microfacies), Mudstone (partially dolomitized mudstone and Dolomicrite as sub microfacies) and Bioclastic wackstone. The environment of deposition as depicted from the microfacies is beach, bars and shoal for Grainstone Microfacies, restricted lagoon for Mudstone Microfacies and inner to middle shelf for Bioclastic Wackstone Microfacies.

A variety of cement morphologies has been identified from early to late diagenetic phases. Micrite and spar have been developed in different diagenetic settings. Diagenetic features like stylolites, calcite veins, fractures, deformation and ferroan calcite formation are observed. Varying degree of dolomitization has been developed at various levels within the rocks.