

PALYNOSTRATIGRAPHY, LITHOFACIES AND PLAYNOFACIES ANALYSIS OF THE EARLY PERMIAN DANDOT FORMATION, SALT RANGE, PAKISTAN.

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Abstract

The current study focuses on the palynological and lithofacies aspects of the Dandot Formation which is the lower part of the Carboniferous-Permian Nilawahan Group in the Salt Range area, Pakistan. The palynostratigraphic and palynofacies analysis were carried for two sections i.e. Choa Saidan Shah Section and Pail Kata Section. Two Opper Biozones are recognized in the Dandot Formation i.e. the Praecolpites-Potonieisporites-Striatopodocarpites-Urmites spore-pollen Opper biozone and Lueckisporites-Alisporites-Scheuringipollenites spore-pollen Opper biozone, suggesting an Early Permian to Middle Permian age for the Dandot Formation. The Lithofacies analysis indicates seven lithofacies in the Dandot Formation i.e. 1: dark greenish shale lithofacies (L1), 2: bioturbated sandstone lithofacies (L2), 3: massive bedded sandstone lithofacies (L3), 4: cross bedded sandstone lithofacies (L4), 5: flaser bedded sandstone lithofacies (L5), 6: herringbone cross bedded sandstone lithofacies (L6), 7: lenticular bedded sandstone lithofacies (L7). The lithofacies analysis suggests shallow marine to intertidal environment for the Dandot Formation. The Dandot Formation shows two types of palynofacies associations namely, palynofacies 1 and palynofacies 2. The Palynofacies 1 is having high percentage of amorphous organic matter, reflecting deposition in marginal dysoxic-anoxic basin condition while palynofacies 2 is comprised of high amount of phytoclasts, showing deposition in distal suboxic-anoxic basin. The combination of lithofacies and palynofacies data represents that the Dandot Formation was deposited in shallow marine to intertidal environment.

Key words: Dandot Formation, Early Permian to middle Permian; Salt Range; Pakistan.