PALYNOLOGY OF THE RHYTHMITE DEPOSITS OF PESHAWAR BASIN, NW PAKISTAN

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Abstract

The preservation of organic matter (OM) in the rhythmite deposits of Peshawar Basin can be used as one of the important tools for determining the paleo-climatic conditions and the source of OM during the time of deposition as they are sensitive towards the fluctuations in the environmental conditions caused by climatic and/or anthropogenic sources. Conventionally, palynofacies are determined using the Tyson Ternary Chart which limits its applications to marine environments, and it is inadequate to apply the same model in order to develop terrestrial facies. Alternatively, we used the abundance of each particulate organic matter to carry out the palynofacies analysis of the studied sections. Composite samples from five different sections were prepared and processed for palynofacies analysis. The constituent Phytoclasts, Amorphous organic matter, pollen and spores were studied, and their respective percentages are used to assign depositional environment to these rhythmite deposits. Some important age diagnostic species are also identified which belong to the Pleistocene age. Based on the palynological correlation it is found that all these sediments were deposited in relatively calm environment preferably of lacustrine origin. The rhythmites present are also typical of low energy lacustrine deposits and burrowing activities were also observed during the field studies in two of the studied sections which are preserved in massive mudstone beds intercalated within the rhythmites.