

Palynostratigraphy, paleoclimatic reconstruction and palynofacies analysis of Jurassic Datta Formation, Nammal Gorge Pakistan.

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Abstract

This work documents palynofacies analysis, biostratigraphy, paleoclimate and thermal maturity of the early-middle Jurassic Datta Formation. The section is dominated by the sandstone and shale with minor siltstone, dolomite and latrites. A number of 10 samples were processed for palynological and palynofacies analysis. On the basis of palynofacies, fluvio-deltaic environment has been suggested for the formation. Thirty nine pollen and spore species were identified. Wood remains, AOM and cuticles were also recorded from the samples. Most of the species are long ranging however, a few stratigraphically important species (e.g. *Callialasporites microvelatus*, *Callialasporites turbatus*, *Cerebropollenites thiergartii* and *Quadreaculina anelleaformis*). These taxa suggest that, the age of Datta Formation is Hettangian-Early Bajocian (Early- Middle Jurassic). Various key environmental indices, *Gleicheniidites senonicus*, *Cyathidites*, *Classopollis* and *Callialasporites* suggest warm dry to warm humid paleoclimate. Thermal Alteration Index (TIA) and Spore Color Index (SCI) suggest that lower part is oil prone, middle part is gas prone and upper part is immature.