

Palynology of the Cretaceous Deposits of the Southeast Sirt Basin, Libya

Authors : Khaled Mahmud Gaddah

Abstract : Cretaceous deposits in the southeast of the Sirt Basin of Libya occur in several grabens that formed during a major phase of rifting related to the opening of the Tethys. They include continental deposits of Early Cretaceous age that belong to the Nubian Formation and marginal to fully marine deposits of Late Cretaceous age that belong to the Lidam Formation and transitional beds. The sequence was extensively sampled from twenty-two boreholes and palynologically analysed. Much of the sequence is barren. However, subordinate shales in all formations yield diverse assemblages of poorly to well preserved and thermally middle to post mature palynomorphs. Most of the assemblages contain non-marine palynomorphs (spores, pollen, and freshwater algae), although some contain rare marine elements (dinoflagellate cysts and acritarchs). The palynofloras enabled the recognition of six assemblage zones of the late Barremian-Turonian age based on the dominant and base/top occurrences of stratigraphically useful palynomorphs: AI (Afropollis spp.-Aequitriradites spinulosus) of late Barremian age; AIIa (Scenedesmus bifidus-S. sp.) of late Barremian?-early Aptian age; AIIb (Afropollis operculatus-A. zonatus) of Aptian age; AIII (Crybelosporites pannuceus-Afropollis jordinus) of early Albian age; AIV (Subtilisphaera sp.-Lophosphaeridium spp.) of Cenomanian?-Turonian age; AIV (Pediastrum bifidites-Leiosphaeridium spp.) of Cenomanian?-Turonian age. These assemblages are comparable to others from Northern Gondwana (particularly from Libya and Egypt) and correspond to established Cretaceous palynofloral provinces. Palynofacies analysis is used to interpret the depositional environments, and five palynofacies types are recognised that reflect increasing marine influence up section.

Keywords : palynology, palynomorphs, palynofacies, tethys, sirt basin

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