

Precambrian/Neoproterozoic Sediments of the Sirt Basin, Libya: New Palynological Evidence

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Abstract : Thick pre-Upper Cretaceous sandstones, sandstones intercalated with red/black shale or quartzitic sandstones, traditionally known to range in age from Cambrian to Early Cretaceous, mostly overlie the subsurface basement rocks of the Sirt Basin of Libya. These sediments known as Nubian, Sarir, Amal or Cambro-Ordovician sandstones. They are usually barren of any age datable palynomorphs and microfossils and represent the main hydrocarbon reservoirs in the basin. As a part of an ongoing regional project concerned with revision and updating of the stratigraphic nomenclature of the Sirt Basin and adjacent areas, sixteen core and ditch cutting samples from four wells penetrating the known Cambro-Ordovician sediments in the central and eastern parts of the basin were examined palynologically to investigate its age and the depositional paleoenvironment. The samples proved to be barren or yielded rare palynomorph assemblage, which dominated by dark grey to black small and large-sized sphaeromorph acritarchs assemblage of leiosphaerid types. The dominated species are *Kildinosphaera chagrinata*, *K. cf. chagrinata*, *Kildinella ripheica*, *Kilinella timanica*, *Leiosphaeridia asperata* and *Leiosphaeridia* spp. These leiosphaerides assemblage are comparable to those have been reported from the Late Precambrian, late Riphean age in Cyrenaica Platform, NE Libya, and would indicated shallow marine depositional environment. The age assignment suggests that this interval most probably equates to Mourizide, Bir Bayai and Wadi alHayt formations known in the Murzuq, Kufrah and Cyrenaica areas, respectively. This study proves the presence of Precambrian sediments in Jaghbub high and Amal Platform in the eastern part of Sirt Basin and probably in Maradah Trough and Aj Jahamah/Zoltun Platform northwestern part of the Sirt Basin.

Keywords : palynology, leiosphaerides, precambrian, sirt basin, libya

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