

## **Palynomorphs, Foraminifera and Calcareous Nannofossils Biostratigraphy of Campanian-Turonian Sediments in Bornu Basin, Northeastern Nigeria**

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Palynological, Foraminifera and Calcareous nannofossils biostratigraphy were carried out on the sedimentary sequences penetrated by Kemar-1 well located between latitudes 12° 15I and 13° 00I N and longitudes 12° 10I and 12° 20I E. This is with intention to delineate the biozones, ages and paleoenvironments through the environmentally and diagnostic species of pollen, spores, dinoflagellates, microfauna and calcareous nannofossils.

The high resolution biostratigraphy data yielded one hundred and thirteen (113) palynomorphs, eleven (11) microfaunas and one (1) nannofossil specie within the sequences penetrated. The sedimentary sequences delineated are silty mudstone, sandy mudstone, argillaceous sandstone, argillaceous siltstone and igneous intrusives.

Palynological analyses revealed four assemblage zones (A,B,C,D assemblage zone) which correlates with the *Droseridites senonicus* - *Auriculiidites reticulatus* zone and *Cretacaeiporites scrabratus* - *Droseridites senonicus* zone of Early Campanian-Santonian to Coniacian/Santonian - Turonian age and coastal to marginal marine environment based on identified marker species such as *Glecheniidites senonicus*, *Droseridites senonicus*, *Tricolporopollenites*, *Zlvisporites blanensis*, *Leioshaeridia* sp, *Auriculiidites reticulatus*, *Dinogymium* sp, *Proteacidites* sp and *Triorites* sp. The microfauna analyses yielded low occurrence of long ranging and non diverse foraminifera assemblages at the upper part and common to abundant occurrence at the lower part of mostly arenaceous forms dominated by *Ammobaculites*, *Heterohelix*; and *Ammobaculites bauchensis*, *Ammobaculites pindigensis* with low records of *Ammobaculites benuensis* and *Ammotium nkalagu*. Two biosequences (III and II) of three MFS and two sequence boundaries were identified respectively. The study yielded almost barren nannofossils except one specie at 1280metres *Uniplanarius sissinghii* which is not diagnostic enough for biozones delineation.

The presence of igneous intrusive at some intervals may be responsible for the near barren nannofossils species and sparse foraminifera abundance. The occurrence of *Araucariatites australis* pollen throughout the palynozones suggests prevailing drought to less humid climate.

Paleoenvironmental deductions were based on respective species abundance, diversities, and assemblages; palynomorphs marine index, planktic-benthic ratios which delineated the sedimentary sequences as deposited in coastal to shallow marine environment.