

PALYNOLOGICAL AND SEQUENCE STRATIGRAPHY CHARACTERIZATION OF THE EARLY-LATE CAMPANIAN NKPORO SHALE, OREKPEKPE-IMIEGBA AREA, ANAMBRA BASIN, NIGERIA

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ABSTRACT

Outcrop samples were collected at a road cut along Orekpekpe-Imiegba road in the western part of the Anambra Basin. These contain mainly of dark to black fissile shale, sandstone and claystone. The samples were processed using standard palynological procedure. The result shows that the entire sequence belong to *Milfordia* spp. acme zone dated Campanian based on the maximum development of *Milfordia jardinei*, *Milfordia* sp., in strong association with *Odontochitina costata*. The age of the Nkporo Shale was refined into epochs based on distinctive palynomorph assemblages and sedimentation processes. The lower section of the Shale dated Early Campanian is characterized by high quantitative occurrence of *Milfordia* spp., rare occurrence of *Longapertites* sp., *Cupanieidites reticularis*, *Constructipollenites ineffectus*, and *Longapertites* sp. 3 deposited in a deltaic to marginal marine setting. The middle section is dated Middle Campanian, marked by moderate abundance of *Milfordia* spp., continuous occurrence of earlier forms including *Periretisyncolpites* sp., *Syncolporites subtilis*, *Distaverrusporites* sp., and different forms of dinoflagellate cysts. Sedimentation process was by aggradation in marginal marine environment. The upper section is dated Late Campanian based on the maximum development of *Milfordia* spp. in strong association with moderate occurrence of *Odontochitina costata*. Other important forms present are *Periretisyncolpites giganteus*, *Monocolpites marginatus*, *Foveotriletes margaritae* and high occurrence of dinoflagellate cysts and microforaminiferal wall lining. This interval is further characterized by forestepping depositional mechanism, sediment starvation, and condensed section, within which is the location of maximum flooding surface (mfs). The paleoenvironment of deposition was based on the synthesis of the quantitative occurrence of land derived forms such as pollen and spores, fluviomarine forms (algae and fungal spores), marine living forms (organic walled microplankton, and microforaminiferal wall lining), gonyaulacaceans (*Senegalinium* sp., *Trichodinium* sp., *Andalusiella* spp.) and few peridinacean (*Cyclonephelium distinctum*) in combination with *Botryococcus braunii* which suggest of marginal marine setting for most of the studied lithofacies section of the Nkporo Shale.

Keywords: Lithofacies, Campanian, Acme zone, Forestepping, Maximum Flooding Surface.