



## Ichnology of "Argiles de Faïdja" Formation of Oxfordian-Kimmeridgian Age in Aïn Bezzez Area (Nador Mounts, Algeria)

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### Summary

The Nador mounts is part of the preatlasian or atlasico-tlemcenian realm. It corresponds to a NE-SW directional relief alignment spread over about forty kilometers. Aïn Bezzez study area is located in the extreme eastern part of this chain.

The lithostratigraphy of silicoclastic sedimentation in Aïn Bezzez area shows the establishment of "Argiles de Faïdja" formation. It is attributed to the Upper Oxfordian-Middle Kimmeridgian. This detrital material is disrupted from time to time, leaving space for the settlement of three carbonate episodes. This formation is built by three units :

- i. A basal sandy-clay unit, formed essentially by a tight alternation of clays and sandstones levels. From the ichnological point of view, several ichnogenera have been shown: *Aulichnites*, *Cardioichnus*, *Cylindrichnus*, *Helminthopsis abeli*, cf. *Hormosiroidea*, *Lockeia*, *Neonereites biserialis*, *Neonerites uniserialis*, *Nereites* isp, ?*Nereites*, *Nereites missouriensis*, *Ophiomorpha*, *Planolites*, cf. *Protovirgularia* isp, *Protovirgularia* cf *dichotoma*, *Scalartubia*, *Scolicia vertebralis*, *Strobilorrhapha pusilla*, *Thalassinoïdes*, *Treptichnus*, *Urhohemithoïda*. This unit corresponds to a relatively deeper environment from offshore inferior to offshore transition. The assemblage of these ichnogenera illustrate the *Cruziana* ichnofacies in its most distal part ;
- ii. A median clay-mare-limestone unit, is distinguished by the sudden appearance of carbonates in a relatively calm environment, protected from high hydrodynamism. The ichnological study of this unit reveals a remarkable impoverishment in trace fossils (weak ichnodiversity), and they are materialized by some dwelling and feeding traces (*Spongiliomorpha*, *Thalassinoïdes*, *Cylindrichnus*) and boring (*Entobia*) ;
- iii. A summit sandy-clay unit, illustrates the return of silicoclastic sedimentation. It is formed mainly of a dilated alternation of clays and sandstones. The development of these facies characterizes a very high hydrodynamic flow, favoring a shallow environment that extends from the medium to superior shoreface. The ichnofaciological study reveals very diverse trace fossils on the ichnogenetic and ichnospecific aspects such as *Chondrites*, *Mammillichnus*, *Ophiomorpha*, *O. rudis*, *O. nodosa*, *Palaeophycus*, *P. striatus*, *P. tubularis*, *P. heberti*, *Planolites*, *Protovirgularia*, *Thalassinoïdes*. This ichnoassociation correspond to the *Cruziana* ichnofacies in its proximal part.

The sedimentological study and the facies association of the "Argile de Faïdja" formation revealed an establishment in an open platform extending from the lower offshore to the upper shoreface with a bathydecreasing evolution corresponding to the *Cruziana* ichnofacies. This sequence reflects the filling and total healing of the preatlasian furrow.

**Key words:** Nador mounts, Preatasian realm, Aïn Bezzez, "Argile de Faïdja" Formation, Oxfordian-Kimmeridgian, offshore-shoreface, *Cruziana*.