

## Rugose corals from the Carboniferous of the eastern Tafilalt (Morocco): a progress report

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The Lower Carboniferous macrofauna of the eastern Anti-Atlas, with exception of the ammonoids, is poorly studied. Herein we present results from ongoing research of the rugose coral fauna of the eastern Tafilalt based on collections made during two short field campaigns in 2011 and 2013. Specimens have been collected from a series of surface outcrops in the Jebel Begaa, Hassi Nebech, Zrigat plain and Gara El Itima areas. Most corals are from carbonated horizons of the Merdani and Zrigat formations (late Tournaisian to late Viséan), fewer samples are from more detrital facies of the same formations.

The oldest assemblage representing a latest Tournaisian age is found in conglomeratic layers west of the Jebel Begaa. This diverse assemblage consists mainly of small and medium-sized solitary forms belonging to the genera *Rylstonia*, *Sychnoelasma*, *Siphonophyllia*, *Cyathoclisia* and *Merlewoodia* sp. Massive limestone blocks (scarp breccias?) from the bottom of Jebel Begaa contain *Sychnoelasma* sp. and *Siphonodendron scaleberense*. Higher up, in a supposed interval of green shales, large-sized siphonophyllids most likely indicate the late Viséan. However, the first late Viséan marker is *Dibunophyllum bipartitum* from the upper part of the Jebel.

A relatively rich assemblage has been recovered from the limestones forming the Hassi Nebech ridge. It contains small and large-sized solitary and colonial corals (e.g. *Amplexizaphrentis* ssp., *Rylstonia sguilmensis*, *Amygdalophyllum* sp., *Solenodendron horsfeldi*). This assemblage is late Viséan in age, most likely Asbian. Zaphrentids and caniniids occur below the limestones in greenish-brownish shales.

A very diverse Asbian assemblage has been found in the Zrigat plain. Small solitary corals are common in shaly facies, and represented by e.g. *Rylstonia benecompecta*, *Bradiphyllum* sp., *Cyathaxonia rushiana*. Large solitary corals are abundant in carbonate and siliciclastic facies, e.g. *Merlewoodia* sp., *Pseudozaphrentoides alloiteaui*, *Dibunophyllum bipartitum*, *Koninckophyllum* cf. *destitum*, *Pareynia* sp., *Axophyllum pseudokirsopianum*. Colonial corals are diverse and fasciculate forms dominate; *Siphonodendron irregulare*, *S. pauciradiale*, *S. martini*, *Solenodendron furcatum*, and *Lithostrotion decipiens*.

At the Gara El Itima, a late Viséan coral assemblage from the highest carbonate levels of the Zrigat Formation comprises a diverse range of forms including *Zaphrentites* sp., *Rylstonia laxocolumnata*, *Caninia* sp., *Dibunophyllum bipartitum*, *Clisiophyllum garwoodi*?, *Diphyphyllum* sp., and *Palaecis* sp. This assemblage lacks typical coral marker for the Brigantian, although Brigantian ammonoids have been found in this stratigraphic level.

The new data only partly confirm previous biostratigraphic work. Discrepancies exist in the vast area from the Jebel Begaa to the Zrigat plain. Here, previously only early Viséan was reported, but the coral assemblages clearly indicate younger ages. These new data result in the question for discrimination of the processes and sources responsible for the very thick and fast accumulation of fine-grained siliciclastic rocks during late Viséan times in the eastern Tafilalt basin.

The eastern Tafilalt assemblages are typical Viséan faunas of the western Palaeotethys. With nearby Viséan basins of the Sahara, they characterize the African northern margin of Gondwana. This margin is separated from the mobile Moroccan Variscan belt by a minor palaeobiogeographical barrier indicated in the Tafilalt by absence of colonial axophyllids in the basal Brigantian and presence of endemic taxa of the Béchar basin.