Viséan corals from the transverse Jebel Begaa to Gara El Itima (eastern Tafilalt, Morocco)

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The macrofauna from the Viséan succession of the Tafilalt is, with exception of ammonoids (e.g. Korn et al. 1999; Klug et al. 2006) and gastropods (Heidelberger et al. 2009), not well known, which is in sharp contrast to the well-known and intensively studied faunas of the surrounding Devonian strata. The record of Viséan corals for the eastern Tafilalt is generally restricted to faunal lists, often on the genus level (e.g. Wendt et al. 2001).

In 2011, more than 300 coral specimens have been collected in the eastern Tafilalt from a series of surface outcrops on a south-north orientated transverse starting at the Jebel Begaa and ending at the Gara El Itima. Corals have mainly been found in the carbonated horizons of the Merdani and Zrigat formations, fewer samples are from more detrital facies of the same formations. The recovered fauna is of high interest since it comes from a transitional palaeogeographical position between the faunas of the Saharan platform (e.g. Aretz 2011) and the faunas of the Moroccan Meseta (e.g. Aretz 2010, Said et al. 2012). Here we present the first results of an ongoing study of these specimens.

The oldest coral assemblage was found in a few meter-thick interval composed of a lower conglomeratic part and higher up bedded to massive limestone west and northwest of the Jebel Begaa. Lateral facies changes are relatively common in this interval. The fauna comprises a series of small solitary rugose corals like "*Pentaphyllum*" sp., *Rylstonia* sp., *Sychnoelasma* ssp. 1, *Zaphrentites* s.l. sp., and *Cravenia* ssp., but also medium-sized solitary rugose corals like *Siphonophyllia* sp., Caninomorpha indet., *Cyathoclisia* sp., *Koninckophyllum ?* sp., and *Merlewoodia* sp. The only colonial are tabulates corals belonging to the *Michelinia*. This coral assemblage is considered being of Early Viséan age.

An outcrop of massive limestones further towards the Jebel Begaa contains *Sychnoelasma* sp., for the first time colonial rugose corals (*Siphonodendron scaleberense* Nudds & Somerville, 1987) and large-sized siphonophyllids, provisionally attributed to *Siphonophylliasamsonensis*. This fauna is most likely late Viséan in age; *S. scaleberense* being a common taxa in the Asbian (Poty et al. 2006). The bedded limestones forming the upper part of the Jebel are very poor in corals, but they contain the late Viséan marker, *Dibunophyllum bipartitum* McCoy, 1849.

Further late Viséan corals were found on and along the ridge (Hassi Nebech) east of the Jebel Begaa. There, small and large-sized solitary and colonial rugose corals occur (*Zaphriphyllum* ssp.; *Cravenia* sp.; *Siphonophylliasamsonensis*?; *Siphonophyllia* sp. 1; *Rylstonia sguilmensis* Semenoff-Tian-Chansky, 1974; *Amygdalophyllum* sp.; *Siphonodendron* gr. *kleffense* Schindewolf 1927; *Solenodendron horsfeldi*(Smith & Yu, 1943) and tabulate corals (*Michelinia* ssp.).

Further towards the north, the detrital facies (dominantly sandstones and siltstones) of the Mougui Ayoun Formation is devoid of corals. It is in the lower part of the Zrigat Formation, the carbonate environments of which have been described as mud-mounds by Wendt et al. (2001), when corals reappear. This assemblage contains a diverse Asbian coral fauna. *Rylstonia benecompacta* Hudson & Platt, 1927, *Rylstonia* sp., *Rotiphyllum* sp., *Cyathaxonia cornu* Michelin, 1847, *Cyathaxoniarushiana* Vaughan, 1906, and *Zaphrentites* s.l. sp. have been identified among small solitary rugose corals. Large solitary corals are represented by *Merlewoodia* sp., *Siphonophylliasamsonensis*?, *Siphonophyllia*? sp., *Pseudozaphrentoidesalloiteaui* Semenoff-Tian-Chansky, 1974, Caninomorpha indet., *Dibunophyllum bipartitum* (McCoy, 1849), *Koninckophyllum* cf. *destitum*, *Clisiophyllum*? sp., *Archnolasma*? sp., *Pareynia*

sp., and *Axophyllumpseudokirsopianum* Semenoff-Tian-Chansky, 1974. Colonial rugose corals are *Siphonodendron irregulare* (Phillips, 1836), *Siphonodendronpauciradiale* (McCoy, 1844), *Siphonodendronmartini* (Milne-Edwards &Haime, 1851), *Lithostrotiondecipiens* (McCoy, 1849), and *Solenodendronfurcatum* (Smith, 1925). There are also abundant tabulate corals (*Michelinia* ssp., *Multithecopora* sp.).

The youngest faunal assemblage comes from the highest carbonate levels of the Zrigat Formation just south and east of the Gara El Itima. It again comprises a diverse range of forms and contains *Zaphriphyllum* sp., *Zaphrentites* sp., *Rylstonia sguilmensis* Semenoff-Tian-Chansky, 1974, *Rylstonia laxocolumnata* Semenoff-Tian-Chansky, 1974, *Caninia* sp., *Siphonophyllia* sp., *Dibunophyllum bipartitum* (McCoy, 1849), *Clisiophyllum garwoodi*?, *Axophyllum pseudokirsopianum* Semenoff-Tian-Chansky, 1974, *Axophyllum*? sp., *Diphyphyllum* sp., *Michelinia* ssp., and *Palaecis* sp. This assemblage lacks typical Brigantian markers, but Brigantian ammonoids have been found in this stratigraphic level (Klug et al. 2006).

The establishment of the original spatial distribution of the different coral morphologies and organizations is hard to make due to often poor to moderate outcrop conditions and coral specimens widely distributed as loose specimens on more or less flat surfaces. It seems reasonable that small and often undissepimented solitary corals are from the more marly or shaly parts of the succession, whereas the larger and colonial rugose corals are more often found in poorer and more massive carbonate facies.

From a palaeobiogeographical point, the coral assemblages are typical Viséan faunas of the western Palaeotethys. Our first results indicate that the eastern Tafilalt assemblages show not surprisingly strong similarities to the nearby Viséan basins of the Sahara characterizing the northern margin of Gondwana. This is well seen in the number of species, which have often been considered endemic to the Béchar Basin. These species are so far the main difference with the faunas of the mobile Variscan belt towards the north. The typical colonial axophyllid corals characterizing the basal Brigantian in Armorica (Central Europe and Iberia) have not been present in our assemblages. This may be the result of unfavorable regional facies, overall rareness of these forms in Northern Africa, or a bias in our sampling.

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