Remarks on the Scleractinian coral genus *Anisoria* Vidal, 1917

Hannes Löser *

Resumen

LÖSER, H. Precisiones sobre el género de coral escleractinio *Anisoria* Vidal, 1917. El coral escleractinio *Anisoria* Vidal, 1917 es un coral del Cretácico terminal (Campaniense superior – Maastrichtiense) endémico del norte de la península Ibérica. Aquí se reconsidera a partir de láminas delgadas obtenidas de uno de los sintipos de la especie tipo *Anisoria vidali* y de material adicional de la especie tipo procedente de la localidad tipo. Ello posibilita definir la estructura fina de este coral con mayor detalle así como fijar con mayor precisión su posición sistemática. El género es comparable a otros géneros denominados Meandrínidos tales como *Meandroria, Pachygyra* y *Orbignygyra*. La mayor afinidad se da con *Pachygyra* que posee una columela lamelar, ausente en *Anisoria*.

Palabras clave: Scleractinia, corales, España, Cretácico.

Abstract

The Scleractinian coral genus *Anisoria* Vidal, 1917 is a Late Cretaceous (Upper Campanian – Maastrichtian) coral endemic to the north of the Iberian Peninsula. Herein it is reconsidered on the basis of thin sections obtained from one of the syntypes of the type species *Anisoria vidali* and additional material of the type species from its type locality. This makes possible to define the fine structure of this coral in greater detail and to state more precisely its systematic position. The genus is comparable to other so-called Meandrininid genera such as *Meandroria, Pachygyra* and *Orbignygyra*. The closest relationship exists with *Pachygyra*, which has a lamellar columella that is lacking in *Anisoria*.

Key words: Scleractinia, corals, Spain, Cretaceous

INTRODUCTION

In 1892 Mallada mentioned a coral named *Maeandrina vidali* from the Barranc de la Posa (municipality Isona i Conca Dellà, comarca Pallars Jussà, Lleida [= Lérida] province). As a mere quotation without description and illustration, the species remained a *nomen nudum*. In 1917 Vidal created the new genus *Anisoria* for this material. The species *Anisoria vidali,* ascribed by Vidal to Mallada, was made the type species by monotypy. The type species was frequently mentioned in the literature, and another two species were added to the genus. Reig Oriol (1987) described the genus in greater detail, although his study was not carried out on the basis of thin sections. Thus, the fine skeletal structure of *Anisoria* was still unknown and its systematic position was only provisionally established. Thin sections that were recently prepared from one of the syntypes as well as additional material obtained from the type locality confirmed the diagnosis but altered the systematic position of the genus.

SYSTEMATIC DESCRIPTION

Abbreviations. Collection abbreviations are as follows: MB, Museum für Naturkunde der Humboldt-Universität Berlin, Germany; MGB, Museu de Geologia de Barcelona - Museu de Ciències Naturals de Barcelona, Spain; MGSB, Museu Geològic del Seminari de Barcelona, Spain; BSPG, Bayerische Staatssammlung für Paläontologie und Geologie München, Germany; MNHN, Muséum National d'Histoire Naturelle, Paris, France.

The following abbreviations are used to indicate the dimensions of the corals: crw, width of calicular rows; crd, distance of calicular rows; sd, density of septa; min, smallest measured value; max, largest measured value; μ, arithmetic mean of all measured values; σ, standard deviation of all measured values; n, number of measurements.

The abbreviations used in the synonymy lists follow Matthews (1973): *, earliest valid publication of the species name; non, the described material does not belong to the species concerned; v, the specimen was observed by the author. Quotations provided with neither a description nor an illustration are not cited here.

Order SCLERACTINIA Bourne, 1900
(?) Suborder MEANDRININA Alloiteau, 1952
(?) Family Meandrinidae Gray, 1847

Anisoria Vidal, 1917

Type species. *Anisoria vidali* Vidal 1917, by monotypy.

Diagnosis. Meandrinoid colony. Calicular rows elevated over the colony surface. Calicular rows short or long and bent. Calices indistinct. Calicular rows narrow. Septa compact, consisting of small trabeculae marked with a median dark line. Septa in cross section thin and getting slightly thinner towards the centre of the calicular rows. Symmetry of septa irregular. Septal generations differ in length and thickness. First septal generation reaches up to the calicular centre. Septa rarely connected with each other.

*Estación Regional del Noroeste, Instituto de Geología, Universidad Nacional Autónoma de México, Blvd. Luis Donaldo Col. Los Arcos, Colosio s/n y Madrid, 83250 Hermosillo, Sonora, México.
loeser@paleotax.de

Septal upper border smooth (probably due to preservation), lateral face with occasional small thorns, inner margin in places slightly swollen. Pali or paliform lobes absent. Costae present, subconfluent to nonconfluent, smooth on the surface (probably due to preservation). Synapticulae absent. Columella absent. Endotheca by thin tabulae. Wall present, compact, parathecal. Coenosteum broad, consisting of costae. Costae visible on the surface. Intracalicinal budding.

Systematic position. The genus was not mentioned by Vaughan & Wells (1943). Wells (1956) put it in synonymy with *Dictuophyllia* and Alloiteau (1957) in synonymy with *Gyrophyllia*. Thin sections from the topotypical material mentioned by Alloiteau (1957: 283) were studied; they are poorly preserved. Alloiteau (1952, 1957) assigned the genus to the Cyclophyllopsidae. The genus *Cyclophyllopsis* (type species *Cyclolites aptiensis* de Fromentel, 1863) is poorly defined. Its lectotype (MNHN M03597) is a small patellate coral in which skeletal substance is missing. It is impossible to draw any conclusions concerning its microstructure and systematic position. The family should not be used any more.

Reig Oriol assigned the genus to the Faviidae, probably on the basis of a written note by Alloiteau in the collections of the MGSB (see Reig Oriol 1987: 4). However, *Anisoria* cannot belong to the Faviidae in view of its microstructure, which differs from that of the Faviidae (and that of the Faviina suborder). The dark lines marking small centres of calcification are known in Caryophyllids and are ascribed to Meandrininids (see Löser *et al.,* 2010 for discussion).

In its fine structure the genus is comparable to other meandrinoid genera such as *Astrogyriopsis*, *Illerdogyra*, *Meandroria, Orbignygyra* and *Pachygyra*. Most of these genera are currently assigned to the Meandrinidae family. This family is poorly defined: the fine skeletal structure of the genus *Meandrina* is practically unknown. The type of the type species (*M. pectinata* Lamarck, 1801) is not available; the species is not even mentioned by Veron (2000). The characteristics ascribed to the genus (family, suborder) are entirely based on the concept presented by Alloiteau, not on any type material. The genera and families of the suborder are in need of a thorough revision based on type material. The genus *Anisoria* is therefore only provisionally assigned to the Meandrinidae family. It is closely related to the genus *Pachygyra*, which shows a lamellar columella.

Species. Three species are known: *A. vidali, A. linarii* and *A. batalleri.* As noted by Reig Oriol (1987), *Anisoria linarii* Bataller, 1936 does not belong to *Anisoria*. The species has a thin continuous columella. Reig Oriol (1987) proposes to place the species in the genus *Dictuophyllia*, which is based on a mould, its fine structures being unknown. It should not be used any more. *Anisoria linarii* is for the moment assigned to *Meandroria*.

Anisoria batalleri Reig Oriol, 1987 differs from the type species only in the calicular row distance; its calicular row width is in the range of *Anisoria vidali.*

Range. Upper Campanian

***Anisoria vidali* Vidal, 1917**

Fig. 1, 1-4

Types. Four syntypes: MGB 2121/1-4, which are conspecific. Two thin sections from syntype MGB 2121/1.

Synonymy

1892 *Maeandrina vidali* Mallada: 160 *[nomen nudum]*
*v 1917 *Anisoria vidali* sp. Mallada; Vidal: 5, pl. 1, figs. 1-4, pl. 2, fig. 6
1937 *Anisoria Vidali* Mallada sp. 1917; Bataller: 166, fig.
1947 *Anisoria Vidali* Mallada 1917; Bataller: 64, text-fig.
1952 *Meandrina vidali* Mallada; Alloiteau: 655
1956 *Anisoria Vidali* Mallada 1917; Bataller: 27, pl. 4, fig. 5
v 1957 *Anosoria Vidali* Mallada sp.; Alloiteau: figs. 198-199
1987 *Anisoria vidali* (Mallada, in Vidal, 1917); Reig Oriol: 5, pl. 1, figs. 1-5, pl. 2, figs. 2-3
2002 *Anisoria vidali* Vidal, 1917; Löser *et al.:* 74 (with full synonymy)

Dimensions. From the syntype MGB 2121/1: crw min = 1.7, max = 3.05, μ = 2.244, σ = 0.424 (n = 10); crd min = 2.6, max = 4.46, μ = 3.734, σ = 0.494 (n = 10); sd 7/2mm.

Remarks. Among the material used by Baron-Szabo (1998) to produce her paper, a single thin section of an *Anisoria vidali* was found (MB, unnumbered). The sample was not considered in the publication. It extends the range of the genus to include the Lower Upper Campanian.

Occurrence. Lower Upper Campanian: Torallola, municipality Pallars Jussà, Pobla de Segur, comarca Pallars Jussà (Lleida [= Lérida] province, Catalonia, Spain). This age is assigned after the occurrence (Gómez-Garrido, 1987) in this lithostratigraphic unit (Puimanyons Olisthostrome Mb. of the Vallcarga Fm.) of the *Globotruncanita calcarata* biozone (see Arz & Molina, 2002) index species.

Uppermost Campanian: Barranc de La Posa, municipality Isona i Conca Dellà, comarca Pallars Jussà, (Lleida [= Lérida] province, Catalonia, Spain). The age here is assigned after the correlation of the horizon representing the type locality of both the rudist *Hippuritella castroi* (Vidal, 1874) and *Anisoria vidali*, with the *Globotruncana aegyptiaca? - Gansserina gansseri* biozones (Vicens *et al.,* 2004; fig. 10).

ACKNOWLEDGEMENTS

I am grateful to Jaume Gallemí (Barcelona) for giving me access to the type collection of the Museu de Geologia de Barcelona-MCNB and allowing me to prepare thin sections from a syntype of *Anisoria vidali.* For English text correction I thank Traudel Moss (Dresden).

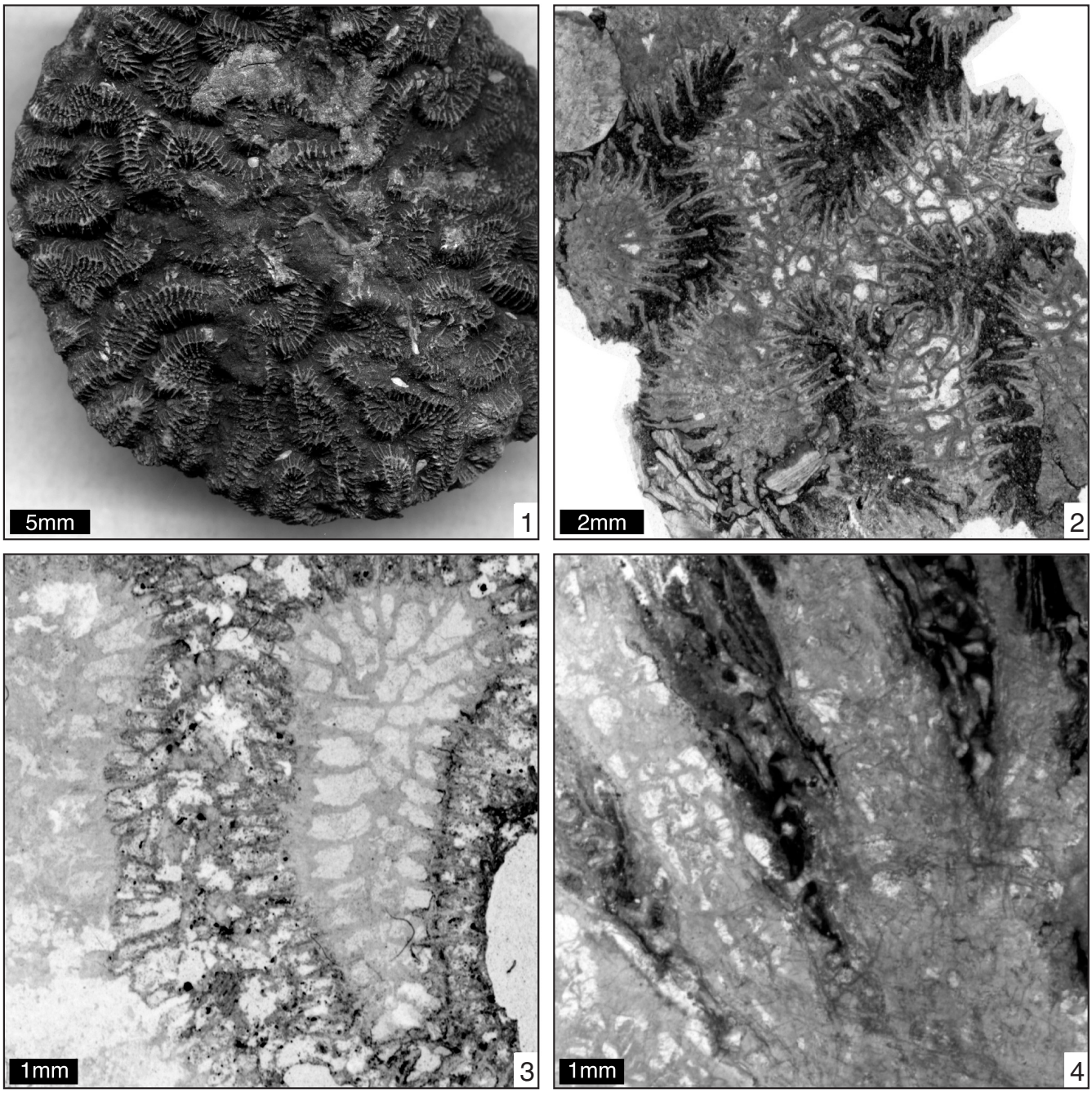

Fig. 1. *Anisoria vidali* Vidal, 1917. 1, MGB 2121/1, syntype, sample surface; 2, MGB 2121/1, syntype, transversal thin section; 3, BSPG 2003 XX 1606, transversal thin section; 4, BSPG 2003 XX 1606, longitudinal thin section.
Fig. 1. *Anisoria vidali* Vidal, 1917. 1, MGB 2121/1, sintipo, superficie del ejemplar; 2, MGB 2121/1, sintipo, lámina delgada transversal; 3, BSPG 2003 XX 1606, lámina delgada transversal; 4, BSPG 2003 XX 1606, lámina delgada longitudinal.

REFERENCES

Alloiteau, J. 1952. Embranchement des coelentérés. In «Traité de Paléontologie» (J. Piveteau, ed.), 1: 376-684, 10 pls. Masson Ed., Paris.

Alloiteau, J. 1957. Contribution à la systématique des Madréporaires fossiles: 1-462, 20 pls. C. N. R. S. éditions, Paris.

Arz, J.A. & Molina, E. 2002. Bioestratigrafía y cronoestratigrafía con foraminíferos planctónicos del Campaniense y Maastrichtiense de latitudes templadas y subtropicales (España, Francia y Tunicia). Neues Jahrbuch für Geologie und Paläontologie - Abhandlungen, 224(2): 161-195.

Baron-Szabo, R. C. 1998. A new coral fauna from the Campanian of northern Spain (Torallola village, Prov. Lleida). Geologisch-Paläontologische Mitteilungen, Innsbruck, 23: 127-191, pls. 1-12.

Bataller, J. 1937. La fauna coral·lina del Cretàcic de Catalunya i regions limítrofes. Arxius de l'Escola Superior d'Agricultura, (n. s.), 3(1): 1-299.

Bataller, J. 1947. Sinopsis de las especies nuevas del Cretácico de España. Memorias de la Real Academia de Ciencias y Artes de Barcelona, 3, 28(12): 279-392.

Bataller, J. 1956. La paleontología y Luis Mariano Vidal. Boletín del Instituto Geológico y Minero de España, 67: 1-50, pls.1-14.

Gómez-Garrido, D. 1987. Foraminíferos planctónicos del Cretácico superior del Surpirineo central. 135 pp., pls. 1-14. Doctoral Thesis, Universitat Autònoma de Barcelona, Bellaterra.

Löser, H. *et al*. 2002. Catalogue of Cretaceous Corals. 2, List of citations: 1-784. CPress Verlag, Dresden.

Löser, H., Castro, J. M. & Nieto, L. M. 2010. A small Albian coral fauna from the Sierra de Seguilí (Alicante province, SE Spain). Neues Jarbuch für Geologie und Paläontologie - Abhandlungen, 255(3): 315-326.

Mallada, L. 1892. Catálogo de las especies fósiles encontradas en España. Boletín de la Comisión del Mapa geológico de España, 18: 1-253.

Matthews, S.C. 1973. Notes on open nomenclature and on synonymy lists. Palaeontology, 16(4): 713-719.

Reig Oriol, J. 1987. Revisión y validez del género *Anisoria* (Escleractinia Cretácica). Trabajos del Museo Geológico del Seminario de Barcelona, 222: 3-9, 2 pls.

Vaughan, T. W. & Wells, J. W. 1943. Revision of the suborders, families and genera of scleractinia. Special Papers of the Geological Society of America, 44: 1-363, 51 pls.

Veron, J. E. N. 2000. Corals of the World. 3 volumes (463 + 429 + 490 p.). Australian Institute of Marine Science, Townsville, Queensland.

Vicens, E., Ardèvol, L., López-Martínez, N. & Arribas, M. E. 2004. Rudist biostratigraphy in the Campanian-Maastrichtian of the South-central Pyrenees, Spain. Courier Forschungsinstitut Senckenberg, 247:113-127.

Vidal, L. M. 1917. Nota paleontológica sobre el Cretácico de Cataluña. Congreso de la Asociación española para el Progreso de las Ciencias, Sevilla: 3-19, pls. 1-4.

Wells, J. W. 1956. Scleractinia. In Moore, R.C. (ed.): Treatise on Invertebrate Paleontology, F: 328-444. Lawrence, Kansas.