

NEW SPECIES OF BLACK CORAL (Cnidaria: Antipatharia) FROM THE NORTHERN GULF OF MEXICO

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ABSTRACT: A new species of black coral, *Antipathes expansa* (Cnidaria: Antipatharia) from the northeastern Gulf of Mexico is described. The species is distinguished from other western Atlantic flabellate species by having large, conical, tuberculate spines. *A. expansa* resembles the Indo-Pacific species *Antipathes cancellata* (Brook) but differs in having a non-reticulate corallum and slightly larger polyps.

In September, 1989 the second author participated in a cruise of the *Johnson-Sea-Link I* research submersible (stations 2582 - 2595) off the southeastern coast of Louisiana. While the purpose of the cruise was to investigate the geomorphology of authigenic carbonate hardgrounds associated with oil deposits, many benthic invertebrates were also collected from depths of 183 - 353 m and later deposited at the National Museum of Natural History. Among the specimens collected were eight species of Antipatharia, including one previously undescribed species. This new species is described herein. The other seven species, as well as the azooxanthellate Scleractinia, collected on that cruise will be reported in a separate paper (Cairns, Opresko, Hopkins, and Schroeder, in prep.).

Material Examined

JSL-I-2585, 27°44.62' N, 91°07.9'W (off southeastern Louisiana), 129 - 144 m, USNM 88340, holotype.

Diagnosis

Corallum small, generally flabellate (Fig. 1a), but not strictly in one plane; occasional short branches extending out of

front and posterior sides of corallum. Terminal branchlets short, most 5 - 9 mm long and 0.4 - 0.6 mm in diameter (0.2 - 0.3 mm excluding spines), arranged bilaterally, but not regularly alternate or opposite; adjacent branchlets on same or opposite sides of branch 0.1 - 2.0 mm apart (mostly 0.5 - 1.5 mm apart), and arising from all lower order ramifications including stem. Branchlets occasionally overlapping and anastomosing.

Spines relatively long, conical, and tuberculate on distal one-third to one-half of surface; unequal in size around circumference of branch axis (Fig. 2); polypar spines on branchlets usually 0.18 - 0.20 mm long (range: 0.14-0.23 mm), 0.04 - 0.05 mm wide at center; abpolypar spines mostly 0.09 - 0.13 mm long. Spines on branchlets spaced about 0.28 mm apart (4-5 per mm) and in 3-4 longitudinal rows (complete spines including base) as seen from a lateral view (with a total of 6 rows around the circumference of the axis).

Polyps in a single row, about 0.8 mm in transverse diameter (from proximal side of proximal lateral tentacles to distal side of distal lateral tentacles); interpolypar space between adjacent polyps variable, mostly 0.3 - 0.4 mm resulting in

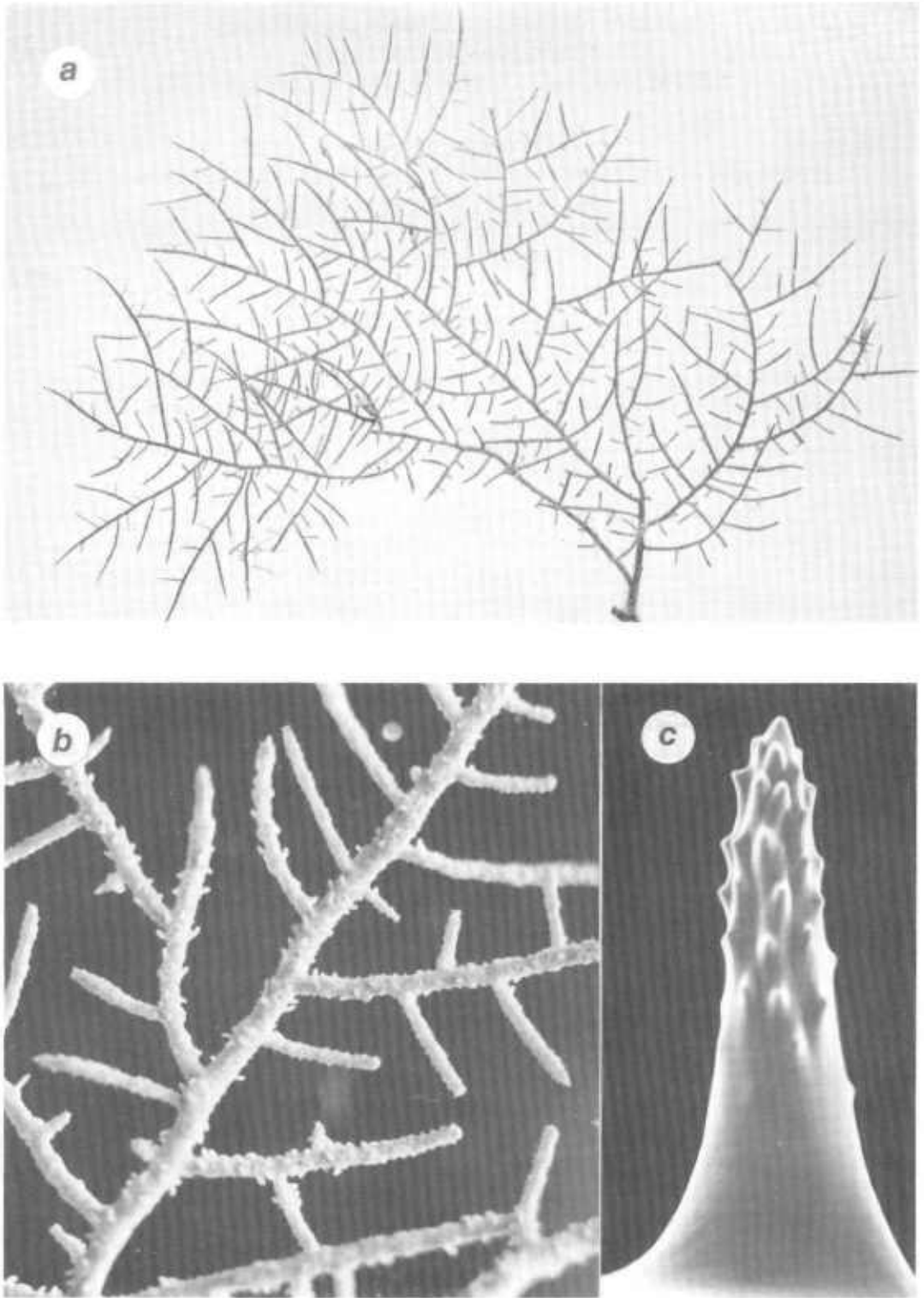


Figure 1. *Antipathes expansa*: a, Holotype colony, x 1.0; b, Branchlet polyps, x 6.0; c, Branchlet spine x 385.

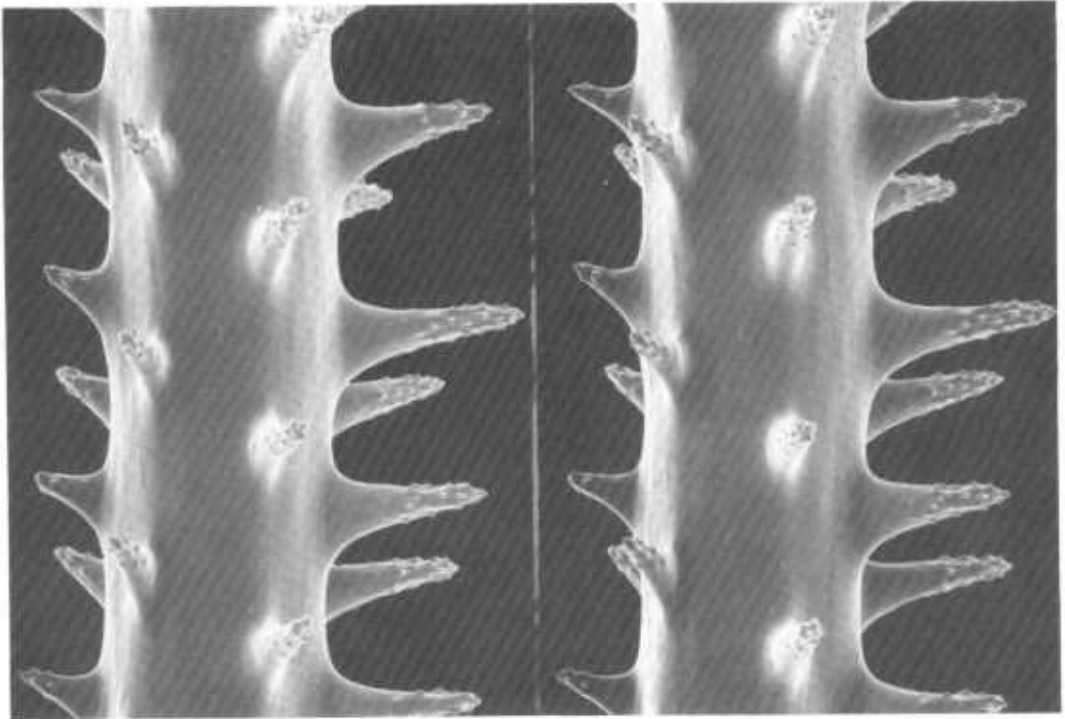


Figure 2. Stereo view of branchlet segment showing polypar spines on right and abpolypar spines to left, x 105.

8 or 9 polyps per cm (Fig 1b).

Description

The holotype is a small colony about 9.5 cm high and 13 cm wide. The diameter of the stem at the base is 1.7 mm. Larger branches are 0.9 - 1.3 mm in diameter at their point of insertion on the stem, spaced 3-5 mm apart (with smaller branchlets occurring in between), and extend $\frac{1}{2}$ to $\frac{3}{4}$ of the height of the corallum. Most of the smaller branchlets are relatively straight, some are slightly curved; the distal branch angle (angle formed by the distal or upper side of a branch and the adjacent lower order branch from which it arises) is generally $60^\circ - 75^\circ$, but it can be as small as 45° and as great as 90° . Branchlets are arranged bilaterally, but do not follow a regular alternate or opposite pattern. They are spaced 0.1 - 2.0 mm apart on the same or opposite sides of the branches. On the outer edges of the corallum, the terminal branches are

not as crowded as in the center, the mutual distance ranging up to 9 mm. The average length of the unbranched branchlets is 8.5 mm ($n = 8$) and the maximum length is 12 mm.

Spines are relatively tall (polypar spines up to 0.23 mm, abpolypar spines up to 0.13 mm), conical or very slightly compressed, and flared at the base in both proximal and distal directions (Figs. 1c, 2). On the smallest branchlets, and particularly near the tips of the branchlets, spines are smaller (0.06 - 0.12 mm for branchlet diameters of 0.12 - 0.18 mm) and more triangular than those on other parts of the corallum. Both polypar and abpolypar spines have small rounded protuberances scattered over their upper surface (Fig. 1c); however, abpolypar spines tend to be less tuberculate than the polypar spines. In general, spines are slightly inclined distally, but some are almost horizontal, particularly along their distal edge.

The density of spines on the stem and larger branches does not appear to be appreciably different from that on the branchlets; 3 or 4 very irregular rows of complete spines can be seen from one view, and there are 4 - 5 spines per mm in each row.

Polyps are situated primarily on one side of the corallum and arranged in a single row along the branchlets, although they occasionally occur on the opposite side of the corallum, particularly on larger branches and stem. In a well-preserved state, tentacles are up to 0.5 mm long. The peristome is about 0.4 mm wide in transverse diameter and equally wide or slightly smaller in sagittal diameter. Polyps that occur on the stem are equal in size to those on the branchlets (0.8 mm in transverse diameter).

Remarks

In superficial appearance this new species resembles a small colony of *Aphanipathes thyoides* (Pourtales, 1880); however, it differs in that its spines are not reduced in size below the center of the polyps and not more developed around the outer edges of the polyps, as is in the case in *A. thyoides*. It also differs in spination from the two common flabellate species known from the western Atlantic, *Antipathes atlantica* Gray, 1857 and *A. gracilis* Gray, 1860, in that the spines of these two species are small (mostly 0.04 - 0.10 mm on the smallest branches), triangular, compressed, and smooth. In *A. expansa* the spines are up to 0.23 mm tall on branchlets, conical, and tuberculate. In both the shape of its corallum and in the morphology of its spines, this species appears closest to the Pacific species *A. cancellata* (Brook, 1889). In that species, the corallum is flabellate and the spines are conical, tuberculate, up to 0.2 mm long (based on Brook's illustration), and about 0.3 mm apart (3 - 4 per mm). Brook

does not say, nor does his illustration indicate, whether the abpolypar spines of *A. cancellata* are distinctly smaller than the polypar spines, as in *A. expansa*; however, it is quite likely that they are. *A. cancellata* differs from *A. expansa* in that its corallum lacks major branches, is more densely branched (branchlets mostly 1 mm or less apart), and is extensively anastomosing. In addition, the polyps are smaller (about 0.55 - 0.65 mm in transverse diameter, based on Brook's illustration), with an interpolypar space of 0.3 - 0.4 mm or more, resulting in 9 - 11 polyps per cm along the branchlets. *A. expansa* also resembles the Indo-Pacific species *A. reticulata* van Pesch, 1914, a flabellate species with long, tuberculate spines. In that species, the spines are longer (up to 0.27 mm), narrower (about 0.03 mm near the center), with relatively fewer knobby protuberances, and not uniform in length on the polyp side of axis.

Considering only the morphology of the spines and polyps and not that of the corallum, it eventually may be shown that *A. expansa* is related to the western Atlantic species *A. pedata* Gray and *A. salix* Pourtales. Both of these species have relatively tall, conical, tuberculate spines and small distant polyps. In contrast, in both of the latter species the corallum is densely branched in all directions with straight and slightly curved ascending branches and branchlets.

Etymology

The name *expansa* (from the Latin *expansus*, spread out) refers to the spreading flabellate growth form of the colony.

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