Rev. Biol. Trop. 50(3/4): 1067-1077, 2002
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Black corals (Cnidaria: Anthozoa: Antipatharia): first records and a new species from the Brazilian coast

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Received 09-VII-2002. Corrected 04-XII-2002. Accepted 31-V-2002.

Abstract: A new species, C*irripathes secchini* (Cnidaria: Antipatharia) from the Abrolhos area (Bahia, Brazil) is described and constitutes the first record to this genus from Brazil. Two other species (*Antipathes hirta*, first record from the Southwestern Atlantic; and *Antipathes fernandezi*, first record from the Atlantic Ocean) are compared to the most recent redescriptions and new data on the size distribution of the characters is provided. To the present there are only two records of the order Antipatharia from Brazil.

Key words: *Corals, Cirripathes secchini* n. sp., *Antipathes hirta, Antipathes fernandezi,* Brazil.

The order Antipatharia (black corals) comprises approximately 200 recognized species. Several monographs (Brook 1889, Schultze 1896, Cooper 1909, Van Pesch 1914 and Pax 1918) dealed with the order's taxonomy and geographical distribution, many of them associated to long range expeditions (Challenger, Siboga, British Antarctic "Terra Nova" and Percy Sladen Trust). Van Pesch (1914) carried out the last revision of the group. Since then, efforts have been made to clarify the systematic status of the group, mainly by Opresko (1972, 1974).

Cooper (1909), mentions that the number of mesenteries, the presence of a branched or unbranched axis, and the continuity or partial spacing of the polyps, allow the specimens to be located in recognizable genera, like *Antipathes, Cirripathes* and *Stichopathes*. However, the characters in the species level are very poorly defined, and many species descriptions are not detailed enough to allow a positive identification. This, along with the lost of many type specimens (Opresko, pers. comm.), causes that "misidentifications are inevitable" (Grigg and Opresko 1977). Most of the descriptions were based in a single specimen or in a fragment, not considering intra-specific variation, which seems to be a very common feature in the antipatharians.

Large monographs dealing with the order were based mainly on collections from the Indo-Pacific (Brook 1889, Schultze 1896, Cooper 1909, Van Pesch 1914 and Pax 1918). Species from the Atlantic Ocean were poorly described in scattered papers, being discussed later in Brook (1889) and Van Pesch (1914) monographs without a conclusive result (Opresko 1972).

Opresko (1972) redescribed and reevaluated twelve Atlantic antipatharians previously described by L.F. de Pourtalès. Opresko mentions approximately 32 species from the Atlantic Ocean. In later works, several new species were described (Warner 1981, Opresko and Cairns 1992, Opresko 1993, 1996, Cairns *et al.* 1993 and Opresko and Sánchez 1997), resulting in approximately 39 recognized species from this area.

In the present paper a new species (*Cirripathes secchini*) is proposed. The description is based in a large number of measures in twenty specimens from the same locality, in order to deal with part of the intraspecifical variation of the species. Two species (*Antipathes hirta* Gray, 1857, first record from the Southwestern Atlantic and *Antipathes fer - nandezi* Pourtalès, 1874, first record from the Atlantic Ocean) are compared to the more recent redescriptions (Opresko 1972) and new data on the size distribution of the characters are provided. The studied material, including *C. secchini* holotype and paratypes, were deposited in the Cnidaria collections of the Museu Nacional do Rio de Janeiro–UFRJ. Acronym for Museu Nacional do Rio de Janeiro is MNRJ.

Family Antipathidae: *Cirripathes secchini* sp. nov. (Figs. 1-3, Table 1).

Holotype: MNRJ 2757, specimen 18, 1 colony wet / 18 august 1993 / C.A. Echeverría and C.B. Castro / 20 m depth.

Type locality: Recifes de Popa Verde, Abrolhos, Bahia, Brazil. 18º 00.2' S, 039º 03.1' W; 10 to 25 m depth.

Paratypes: MNRJ 2757, 19 colonies wet, same locality.

Other material: Type specimen of *Stichopathes luetkeni* Brook 1889, Zoologisk Museum, Denmark.

Diagnosis: Colonies unbranched, 1.55-2.92 m in height, showing a basal plate. Axis straight for 25 to 81% of the total length, then curving in regular, step, well defined spirals or in a sinuous stem. Spiral's height (when defined) 9-57 cm, diameter 5-22 cm; spiral's number 1 to 5.5. Axis diameter just above basal plate 3.7-9 mm; at tip of colony 0.7-2 mm.

Larger spines around stem; conical, laterally compressed, rounded at tip, forming a 90º angle with axis; showing small tubercles or protuberances (Fig. 1). Spines size 100 to 330 µm (individual colonies average 140-320 µm , n = 19 colonies). Distance between consecutive spines 310-930 µm.

Small spines distributed irregularly between large spines, with no apparent pattern (Fig. 1). Small spines conical, sharp, forming a 90º with axis, size 30-82 µm, with no tubercles or protuberances.

Polyps white, transverse diameter about 2-3 mm; longitudinal diameter 1-2 mm, arranged in multiple irregular rows, except in apical part of axis (apparently in a single row); one side of entire stem usually free of polyps. Sagittal tentacles about 1.3-2.15 mm; lateral tentacles 1.05-1.45 mm. Oral cone about 0.5-0.7 mm.

Description: Colonies unbranched, 1.55-2.92 m in height, attached to substrata (reef calcareous structure) via a basal plate. Colonies almost straight for a variable distance (about 0.8 to 2.15 m, or 25 to 81% of the total length), then recurving forming regular or irregular step spirals. Colonies total length (measured along the axis) about 1.68-4.37 m. Spirals sometimes not well defined, with distal part of colony only slightly sinuous (15% of colonies showed this pattern, n = 20). Spirals height about 9-57 cm, diameter about 5-22 cm; spirals per colony about 1 to 5.5. Axis diameter gradually tapering; diameter immediately above basal plate (basal diameter) about 3.7-9 mm; at end of straight part of axis about 2.8-5.5 mm; at middle point of curved part (spiraled) about 1.4-3.8 mm; at colony tip about

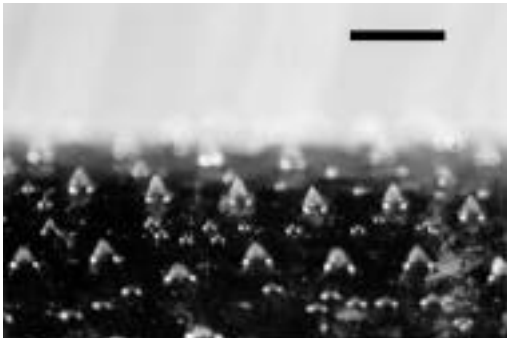

Fig. 1. Spines of *Cirripathes secchini* sp. n. Small spines occurs without a definite pattern between larger spines. Scale: 0.5 mm.

TABLE 1

Counts and measurements on specimens of Cirripathes secchini n. *sp. Fgt. Diam: diameter of the measured fragment of the colony*

	Colony (cm)						Axis diameter (mm)					Spines length in one side of the colony (μm)			Spines in the opposite side (μm)			Dist. between spines (μm)		Fgt. Diam.
Colony Nº	Total length	Height	Straight part	Spirals Nº	Spirals diameter	Spirals height	At the basis	Straight middle	Straight top	Straight middle	Tip	Large max.	Large average	Small average	Large max.	Large average	Small average	Min-Max.	Average	(mm)
1	178	-	130	1	19	-	6	4	3	-	2	240	220	-	290	216	72.8	520-700	598	3.5
2	252	-	80.5	3 _	8-11	27-52	6	6	5.1	3.8	1.4	150	137	51.15	130	118	57.7	340-420	390	2.5
3	301	178	106	4	11-16	9-27	4	4	3.2	1.7	0.7	200	172.6	55	200	183	60	390-650	542.1	2.8
4	437	264	155	5 _	11-16	18-32	8.4	6.6	3.8	2.2	1.5	170	161.3	42.6	200	180	58.75	370-560	439	3.4
5	335	240	215	1 _	16	15	6	4.5	2.9	1.7	1.6	170	142.6	58.6	130	120.3	60	420-530	483	2
6	168	155	-	0	-	-	3.7	-	3.2	-	1.7	200	178.4	64.4	210	182.2	53.75	370-560	440.5	3.75
7	342	220	136	3 _	8-17	20-36	5.8	4.3	2.8	2	1.2	140	129.5	42.3	130	119.5	48	310-580	412.5	1.5
8	389	198	97	4	17-21	9-57	6.1	4.4	3	2.1	1.5	150	130	77	120	112.5	82.2	450-560	508	2.2
9	306	281	200	1 _	8	50	9	6.3	5.5	3.4	1.5	180	163.7	54.1	210	180.2	60.76	430-820	550.7	3.9
10	302	225	172	1 _	22	33	7.6	4.4	2.8	1.8	1.3	320	289	-	270	233.8	-	410-900	574	4
11	232	198	-	0	-	-	6.1	-	4.1	-	1.2	250	218	80	210	175	60	410-600	521	3.2
12	289	220	150	2	12-16	23-44	6.7	5.8	4.5	3.7	1	160	147.6	60	170	151.7	41.7	310-400	368.6	3.4
13	321	195	90	4 _	6-13	18-37	5.7	4.5	4.3	2.8	1.3	170	147	-	200	171.5	-	370-930	512	2.95
14	358	292	205	2 _	8-12	32-33	7.2	5.6	3.4	2.6	1.7	300	248.7	-	250	223	-	370-650	511.6	3.4
15	312	285	215	1	8	46	7	4,7	3	2	1.2	220	178.23	59	240	195	56.7	480-600	552	2.4
16	235	196	144	1 _	12	35	4.7	4.1	3.7	1.5	0.8	230	204.8	60	210	202.6	43.8	430-630	521.3	2.3
17	322	206	145	4	6-14	8-24	6.7	4	3.2	1.4	1	150	136.2	-	150	126.4	54.1	300-750	426	3.2
18	200	166	112	1	14	46	5.7	4.6	3.4	2.2	1.5	220	194.6	-	180	109.7	-	450-850	426.6	3.6
19	204	190	166	1	5	22	6	4.6	4	1.8	1.2	-	-	-	-	-	-	-	-	-
20	161	152	-	0	-	-	4.6	-	2.8	-	1.3	220	194	50	210	176	30	500-550	534	2.8

0.7-2 mm. Colonies height / basal diameter average 0.465 (± 0.115, n = 20).

Spines (Fig. 1) showed two size classes: small (modal class: 50 µm); and large (modal class: 160 µm, n = 2 498; see Fig. 2). Size and distribution patterns of spines did not vary around the colony. Larger spines arranged in rows. Small spines distributed between larger ones (Fig. 1), not arranged in any particular fashion, showing no preferences for any side of colonies.

Larger spines mainly conical (Fig. 1), slightly laterally compressed, rounded at tip, forming a 90º angle with stem, covered with small tubercles from apex to middle of spines, and sometimes to its bases. Large spines colonies average variation about 140-320 µm (n = 2 498 spines in 19 colonies). Distance between consecutive spines in the same row about 310-930 µm (average per colonie range about 360-590 µm).

Small spines (Fig. 1) conical, sharp, forming a 90º angle with stem, length about 10-80 µm (colonies average about 30-82 µm, n = 579 spines, in 19 colonies). Few small spines, usually those in the upper size class distribution, showed tubercles or protuberances in its surface.

Polyps white (Fig. 3), about 2-3 mm in transverse (related to stem) diameter and 1-2 mm in longitudinal diameter (parallel to stem), measured between external basis of opposite tentacles. Polyps arranged in continuous multiple irregular rows, leaving one side of stem free of polyps along entire colony. Occasionally arranged in a single row in apical part of stem. Distance between consecutive polyps varied from imperceptible, with polyps "crowded" in younger parts of colony, to a distance of 7 mm at the older parts of colony. Common interpolypar distance approximately 2.5 mm. Sagittal tentacles long, about 1.3-2.15 mm in length. Proximal tentacles shorter, about 1.05-1.45 mm in length. Oral cone (Fig. 3) always present, about 0.5-0.7 mm in height.

Underwater observations of the polyps of *C. secchini* reveled that they are heavily contracted when fixed, resulting in less reliable measures. Warner (1981) also found a great polyp contraction in several species of the genus *Antipathes* during their fixation.

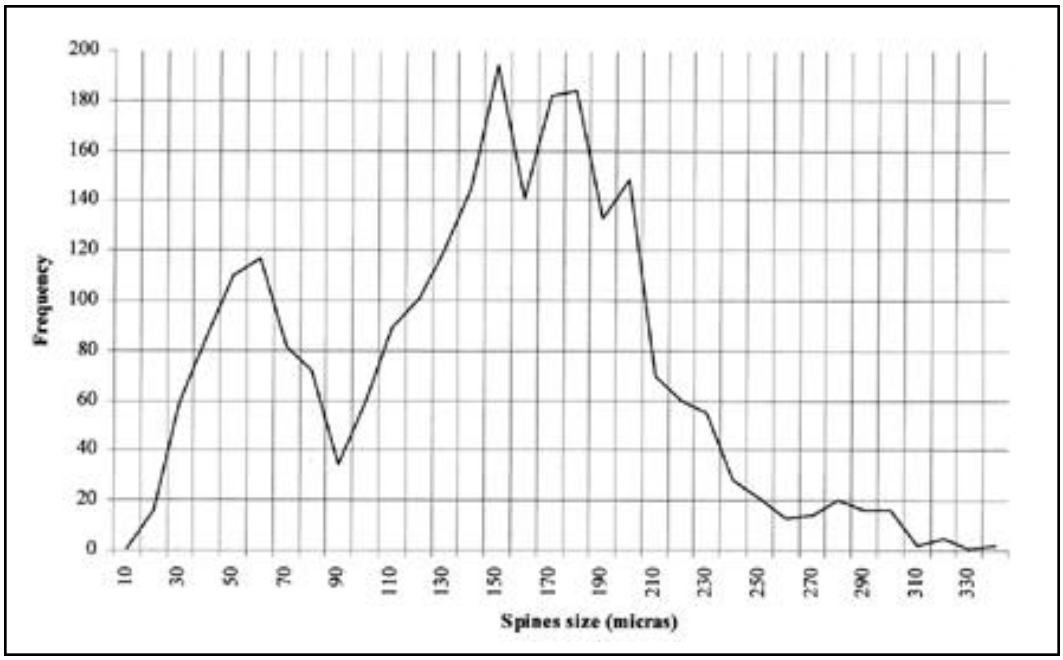

Fig. 2. Spines size distribution (µm) of *Cirripathes secchini* sp. n. (2 498 spines measured in 19 colonies).

Fig. 3. Polyp of *Cirripathes secchini* sp. n., showing the oral cone, proximal and sagittall tentacles. Scale 0.5 mm.

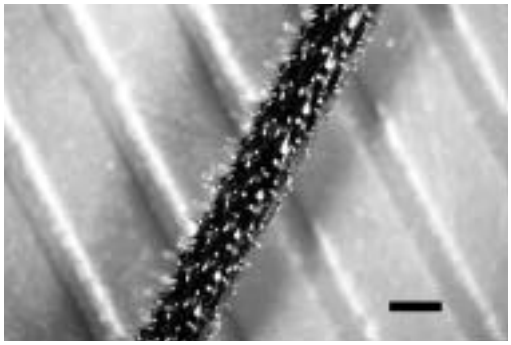

Fig. 4. Spines of the specimen of *Stichopathes luetkeni*. Larger and small spines occur in opposite sides of the stem. Scale: 1 mm.

Etymology: The specific name honors Dr. Paulo Secchin Young for his contribution to the knowledge of the marine fauna of Brazil.

Remarks: Van Pesch (1914) carried out the last revision of the genus *Cirripathes* and synomized several species. This author recognized as valid only four previously described species: *C. anguina* (Dana), *C. spiralis* (Linnaeus), *C. ? paucispina* Brook, and a species without name described by Simpson and Thompson in 1905 (see Van Pesch 1914). He also describes six new species: *C. nana*, *C. translucens*, *C. ramosa*, *C. contorta*, *C. mus - culosa* and *C. rumphii*. This author also proposed to include the two unbranched genus of antipatharians (*Cirripathes* and *Stichopathes*) as subgenus of *Cirripathes*, with the name of *Eucirripathes* and *Stichopathes*. In later works, authors (Pax 1918, Pasternak 1977, Opresko and Genin 1990) argued for retaining them as separate genera. This latter position is adopted here.

The main difference between *Cirripathes* and *Stichopathes* is the polyp arrangement. Several unbranched species were described only on the basis of colony growth form, not including polyps. Therefore, *Stichopathes luetkeni* type was compared to the *C. secchini* description.

The colony growth form in *C. secchini* is very similar to Brook's (1889) *S. luetkeni* description. Larger spines (Fig. 4) size (not included in Brook's description; checked by the author on the type specimen) are also very similar. The shape of the spines, however, differs in this species mainly by the fact that their are curved upwards in the type of *S. luetkeni*. Another differences between these species are:

1. The existence of two different kind of spines in opposite sides of *S. luetkeni* (Fig. 4). This is mentioned in Brook's description, and is typical of the antipatharians that bear polyps in only one side of the stem. Although Brook's description was based in a dry specimen and he does not mention polyps, he places this species in the genus *Stichopathes* (polyps unisseriately arranged in one side of the stem). In *C. secchini*, larger spines occur all around the axis, with the small spines between them (Fig. 1). It also shows the polyps distributed in several rows without a specific arrangement, which is a characteristic of the genus *Cirripathes.*
2. *Cirripathes secchini* shows larger and better defined spirals that *S. luetkeni*. It also shows a comparatively greater stem diameter. Although this can be related to the colonies development status, similar length specimens compared with the type of *S. luetkeni* also showed this difference. The type specimen of *S. luetkeni* is very similar to the *C. spiralis* description (Linnaeus 1758), and Van Pesch (1914)

suggested that they were synonymous. *C. spiralis*, however, is redescribed by Van Pesch as showing a great number of close spirals, about 1-2 cm in diameter. The type specimen of *S. luetkeni* shows spirals usually with larger diameter, but greatly varying in shape and size.

Another species bearing small secondary spines, although they are not from the Caribbean area, are compared here to *C. sec - chini*. Not all these species were considered valid by Van Pesch (1914). The genus is in a great need of revision.

***Cirripathes diversa* Brook 1889:** Brook mentions that the axis is "spiraled as in *Cirripathes spiralis*" (Van Pesch synomized both in 1914), with large spines with a blunt apex and small triangular spines between them. The poor description makes difficult any discussion, except by the fact that *C. spiralis* shows several small (diameter aprox. 2 cm) spirals, and *C. secchini* shows few spirals, but with a larger diameter.

***Cirripathes flagellum* Brook 1889:** Brook mentions secondary spines distributed between larger spines. The axis of this species is not spiraled. Summers (1910) suggested to place this species in the genus Stichopathes.

***Cirripathes gardineri* Cooper 1903**: A very poor and incomplete description. Van Pesch (1914) synomized this species with *Cirripathes anguina* Dana, that shows only primary spines. Opresko (1974) mentions that Cooper's (1903) descriptions are very abbreviated and, although they have figures, are insufficient to determine the validity of the species.

Family Antipathidae:
Genus *Antipathes* Pallas, 1766
Antipathes hirta Gray, 1857
(Fig. 5-7, Tables 2-3)

Synonims: *Antipathes hirta* Gray, 1857: 293.- Opresko, 1972: 979 - 984.

Antipathes picea Pourtalès, 1880: 115, Pl. 3. Figs. 9, 29.

Parantipathes? hirta •− Brook, 1889: 144, Pl. 2, Fig. 11, Pl. 11, Fig. 1.

Antipathes picea •− Brook, 1889: 161.

Parantipathes hirta •− van Pesch, 1914: 20.

Material examined: Recifes de Popa Verde, Abrolhos, Bahia, Brasil: MNRJ 3071, 1 colony; MNRJ 2577, 1 colony; MNRJ 2548, 8 colonies; MNRJ 2467, 2 colonies; MNRJ 2579, 1 colony; Recife de Timbebas, Abrolhos, Bahia, Brasil; MNRJ 2847, 1 colony.

Fig. 5. Colony of *Antipathes hirta*. Scale 5 cm.

Description: Colony (Fig. 5) sparsely branched to third or fourth order, branches arising laterally and at right angles to lower ramifications; stem and branches with four to six longitudinal rows of primary pinnules arranged bisserially and in alternating groups along the length of axis; posterior primaries 2.2-4.6 cm long (colonies average variation about 1.5-3.25 cm); secondary pinnules about 0.68-1.53 cm (colonies average variation), in a single series on basal half of posterior (abpolypar) side of primaries; tertiary pinnules few in number (one to tree) and restricted to posterior side of those secondaries nearest the base of each primary; quaternary pinnules rarely present.

Spines smooth, conical, with an acute apex; maximum polypar spine's length per colony 0.12-0.3 mm; colonies average variation 0.107-0.265 mm; maximum abpolypar spine's length per colony 0.08-0.16 mm length, colonies average variation 0.066-0.118 mm; strongly distally inclined (30º-45º) and hooked upward; arranged in eight to ten longitudinal rows.

Polyps 0.22-0.51 mm long (10-16 per centimeter) in a single series orientated perpendicular to primary dorsoventral axis of colony; tentacles 0.12-0.360 mm long; oral cone raised about 0.1-0.2 mm (Table 2); mouth usually sagittally elongated.

Geographic distribution: West Indies, Brazil.

Remarks: Warner (1981, p.151) proposed a new species (*Antipathes thamnea*) very similar to *A. hirta*, and mentions that "differences arise in details of pinnation and in the size of spines and polyps". This author mentions 0.52-0.64 mm for *A. thamnea* polyp's size. Opresko (1972) mentions 0.7-0.8 mm length to *A. hirta* polyps. The *A. hirta* specimens studied herein showed even smaller polyps (0.22-0.51 mm) than *A. thamnea* description (Table 3). This suggests that the polyp's size in *A. hirta* would be about 0.22-0.8 mm in length. Considering also the contraction of the polyps during fixation, polyp's size does not seem to be a very reliable character in order to separate these two species. Warner (1981), however, mentions that the measurements where carried out in fresh specimens, and that a great contraction (1/3 to half of the original size) occurs in this process. Taking this contraction into account, there seems to exist an overlying in polyp's size gradient between *A. thamnea* and *A. hirta*. Opresko (1972) also mentions a polypar spine's length of 0.07-0.13 mm to *A. hirta*. Warner mentions, 0.09-0.21 mm to *A. thamnea* polypar spines length and 0.05-0.19 mm

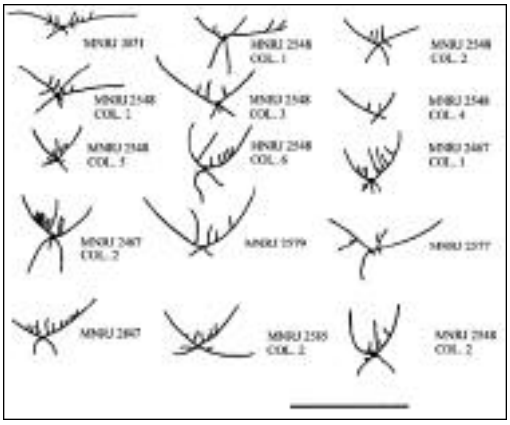

Fig. 6. Transversal slices of several colonies of *Antipathes hirta*, showing the variability in the number, size and arrangement of the pinnules. Colonies characteristics are showed in Table 2. Scale 5 cm.

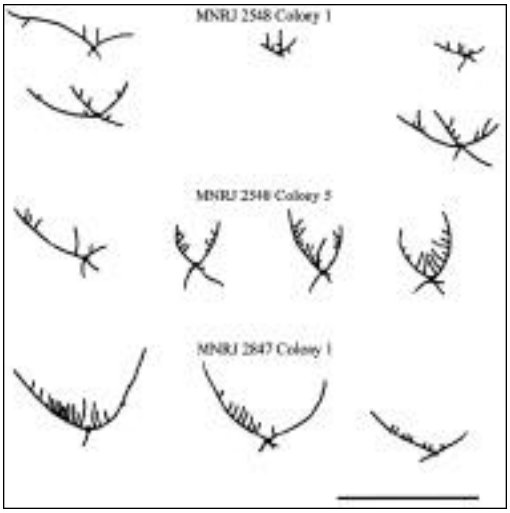

Fig. 7. Transverse slices of *Antipathes hirta* showing the variability in the number, size and arrangement of the pinnules in the same colony. Colonies characteristics are showed in Table 2. Scale 5 cm.

TABLE 2

Counts and measurements on specimens of **Antipathes hirta**. *Averages minimum n = 30*

Colony				Pinnules				Spines					Polyps			
MNRJ Nº	Height (cm)	øBasis (mm)	Rows Nº	Nº per cm in a row	Max. Length (cm)	Anterior Average (cm)	Posterior Average (cm)	Polypar Max. (µm)	Polypar Average (µm)	Abpolypar Max. (µm)	Abpolypar Average (µm)	Mutual distance (µm)	Average Diameter (mm)	Nº per cm	Oral Cone (µm)	Tentacles (µm)
3071 Col. 1	25	3.55	4	6	3.54	3	-	150	142	90	74.4	200-290	-	10/11	-	-
2548 Col. 1, Vd. 1	34	2	4/5	5/6	4.46	2.65	0.93	250	214	120	109	160-250	0.5	11	150	150
2548 Col.2, Vd. 1	32	1.9	4	5/6	3.1	2.05	0.82	300	265	130	118	110-220	0.515	12	120	212
2548 Col.3, Vd. 1	28	2.2	4	4/5	2.88	2.15	1	120	107	90	76.5	150-310	0.44	12/13	100	180
2548 Col.4, Vd. 1	18	1.6	4	4/5	1.81	1.49	0.48	130	113.42	80	66	170-260	0.34	15	140	200
2548 Col.5, Vd. 1	21.5	2.1	4	5/6	2.28	1.72	0.89	130	111.5	80	69.35	170-290	0.22	15/16	120	140
2548 Col.6, Vd. 1	25	2.1	4	5/6	2.81	1.94	1.09	160	137.7	110	90	150-250	0.42	12/13	100	240
2467 Col. 1	23.5	2.6	4/5	5/6	2.32	1.49	0.68	120	102.5	80	69	200	0.38	15/16	140	300
2467 Col. 2	14.5	1.3	4/5	6	2.6	1.93	1.53	150	121	100	84.3	160-180	0.36	13/14	200	360
2579 Col. 1	57	3.2	4	5	3.8	3.25	0.98	120	110.3	80	67.3	210-230	0.44	13	180	360
2577 Col. 1	32	2.5	4	5	3.6	2.3	0.7	160	128	100	95	240	0.5	11	160	300
2847 Col. 1	39	2.4	4	4/5	4.6	2.92	0.75	170	136.4	120	96	170-220	0.36	14/15	120	120
2548 Vd. 2 Col. 1	28	2.2	4	4/5	2.8	1.95	0.89	190	151.5	160	118.3	200-300	-	-	-	-
2548 Vd. 2 Col. 2	36	2.1	4/5	5/6	3	1.77	0.97	160	134.6	100	74.8	200-270	0.4	12	140	160

TABLE 3
Comparative spines size from Antipathes thamnea *(Warner 1981) and* Antipathes hirta *(this work).*

	Antipathes thamnea	*Antipathes hirta*
Polipar spines	0.09-0.21 mm; : 0.17 mm; n: 50	Colonies maximum: 0.12-0.3 mm. Colonie average variation: 0.107-0.265 mm Minimum n per colony: 30.
Abpolipar spines	0.05-0.19 mm; : 0.11mm; n: 50	Colonies maximum: 0.08-0.16 mm. Colonie average variation: 0.066-0.118 mm Minimum n per colony: 30.

to the abpolypar spines. The knew polypar spine's size distribution in *A. hirta* would be about 0.07 mm (Opresko 1972) to 0.3 mm (this work, see Table 1). Again, there appears to exist an overlying on the spine's length gradient between these two species.

I found a great variability in the characters size of the herein studied specimens (Fig. 6, Table 2) even in the same colony (Fig. 7). It is likely that the characteristics used to define *A. thamnea* could be included in the intraespecific variability observed in *A. hirta.* The great variability in spines size and pinnules arrangement seems to be a common feature in the order Antipatharia; therefore, a large number of measures in several specimens from diverse localities, are necessary to verify the variability of a species character. Unfortunately, most of species descriptions were based in fragments from dredgings, with soft tissues very damaged or lost.

Family Antipathidae:
Genus *Antipathes* Pallas, 1766
Antipathes fernandezi Pourtalès, 1874

Synonims: *Antipathes fernandezii* Pourtalès, 1874: 47.

Antipathes fernandezii •− Pourtalès, 1880: pl. 3, fig. 20.

Parantipathes? fernandezi •− Brook, 1889: 144.

Parantipathes? fernandezi •− Looser, 1926: 272, fig. 38.

Material examined: *Antipathes fernandezi*: one complete colony and several small fragments (MNRJ 3188) - off Rio Grande do Sul, between Rio Grande do Sul and Chuí. N/Oc Saldanha, Esta. 14, Sul II, March, 1972:

Description: Colony 4.86 cm height, mainly in one plane; axis diameter above basal plate 0.75 mm; stem and branches pinnate; pinnules simple and bilateral, arranged alternately along the axis; interpinnular distance 2-4 mm; pinnules average size 1.39 cm; pinnules diameter 0.20-0.25 mm.

Spines long, conical and acute, forming regular groups of longer spines alternating with relatively shorter spines groups along pinnules; slightly longer in one side of axis; maximum length on branches 0.24 mm, average 0.17 mm (n = 41; S: 0.04); pinnules spines maximum 0.31 mm, average 0.21 mm (n = 42; S: 0.06); arranged in eight longitudinal rows; 55-60 per centimeter in each row. These colonies bear no polyps.

Geographic distribution: Juan Fernandez Island (Chile), Rio Grande do Sul (Brazil).

Remarks: Opresko's (1972) diagnosis did not mention the spines size. In his redescription of the type specimen, however, this author mentions 0.13-0.17 mm in length. In the herein studied material, the maximum spine length is about 0.31 mm. This spine length is relatively uncommon, occurring mainly on some spines of the pinnules apex. Average length seems to be a most reliable character than maximun spines length.

The split of the Antarctic Convergence waters by the South-American continent in two branches (the Falklands current, that reaches southern coast of Brazil; and

Humboldt current, that reaches western coast of Chile and Juan Fernandez Island), may justify the occurrence of *A. fernandezi* in both sides of South America. Since antipatharians are common in the continental shelf and in deeper waters, it is unlikely the existence of a barrier to its distribution in both sides of southern south-American continent.

ACKNOWLEDGMENTS

I wish to thank Dennis M. Opresko, for suggestions and encouragement; Ole S. Tendal (Zoologisk Museum, Denmark), for his gently loan of the type specimen of *Stichopathes luetkeni*. Clovis B. Castro (Museu Nacional do Rio de Janeiro/UFRJ) for field and laboratory facilities. Thanks to three anonymous reviewers for comments and suggestions that greatly contributed to improve this manuscript.

RESUMEN

Se describe una nueva especie, *Cirripathes secchini* (Cnidaria: Antipatharia) proveniente de la región de Abrolhos (Bahia, Brasil), que constituye además el primer registro de este género en Brasil. Otras dos especies (*Antipathes hirta*, primer registro en el Océano Atlántico sur-occidental; *Antipathes fernandezi*, primer registro en el Océano Atlántico) se comparan a sus redescripciones más recientes y se agregan nuevos datos sobre la distribución de tamaño de sus caracteres taxonómicos. Hasta el momento existen apenas dos registros del orden Antipatharia en Brasil.

REFERENCES

Brook, G. 1889. Report on the Antipatharia – Rep. Sci. Results Voyage Challenger - Zool. 32: 5-222.

Cairns, S.D., Opresko, D.M., Hopkins, T.S. & Schroeder, W.W. 1993. New records of deep-water Cnidaria (Scleractinia & Antipatharia) from the Gulf of Mexico. Northeast Gulf Sci. 13: 1-11.

Cooper, C.F. 1903. Antipatharia. Fauna and Geography of the Maldive and Laccadive Archipelagoes. Vol. 2. pp. 761-796.

Cooper, C.F. 1909. Antipatharia. Rep. Percy Sladen Trust Exped. Indian Ocean 1905. Linnean Soc. London Trans., Ser 2a, 12 (17): 301-321.

Echeverría, C.A. & Castro, C.B. 1995. *Antipathes* (Cnidaria-Antipatharia) from southeastern Brazil. Bol. Mus. Nacional, Nova Série, Zool. 364: 1-7.

Gray, J.E. 1857. Synopsis of the Families and Genera of Axiferous Zoophytes or Barked Corals. Proc. Zool. Soci. London 25:278-294.

Grigg, R.W. & Opresko, D.M. 1977. Order Antipatharia: Black Corals. pp. 761-796. *In* Reef and shore fauna from Hawaii, Section 1: Protozoa through Ctenophora. B.P. Bishop Museum Special Publication.

Linnaeus, C. 1758. Systema Naturae, I. Editio decima, reformata. *Holmiae*: 819.

Opresko, D.M. 1972. Redescriptions and reevaluation of the Antipatharians described by L.F. de Pourtalès. Biol. Results Univ. of Miami Deep-Sea Exped. 97: 950-1015.

Opresko, D.M. 1974. A Study of the Classification of the Antipatharia (Coelenterata: Anthozoa) with Redescriptions of Eleven Species. Doctor of Phylosophy dissertation, University of Miami, Miami.

Opresko, D.M. 1993. A new species of *Sibopathes* (Cnidaria: Anthozoa: Antipatharia: Antipathidae) from the Gulf of Mexico. Proc. Biol. Soc. Washington 106: 195-203.

Opresko, D.M. 1996. New species of black coral (Cnidaria: Anthozoa: Antipatharia) from the Caribbean. Bull. Mar. Sci. 58: 289-300.

Opresko, D.M. & Cairns, S.D. 1992. New species of black coral (Cnidaria: Antipatharia) from the northern Gulf of Mexico. Northeast Gulf. Sci. 12: 93-97.

Opresko, D.M. & Sánchez, J.A. 1997. A new species of Antipatharian coral (Cnidaria-Anthozoa) from the Caribbean Coast of Colombia. Carib. J. Sci. 33: 75-81.

Opresko, D.M. & Genin, A. 1990. A new species of antipatharian (Cnidaria: Anthozoa) from seamounts in the eastern North Pacific. Bull. Mar. Sci. 46: 301-310.

Pax, F. 1918. Die Antipatharien. Zool. Jahrbucher, 41: 419-478.

Pasternak, F.A. 1977. Antipatharia. Scientific results of the Danish Deep-Sea Expedition round the world 1950-1952. pp. 157-164. *In* Galathea Report, Vol. 14, Scandinavian Sci. Copenhagen.

Pourtalès, L.F. de. 1874. Crinoids and Corals. Zoological Results of the "Hassler" Expedition. Illus Cat. Mus. Comp. Zool. Harvard Coll. 8: 25-50.

Pourtalès, L.F. de. 1880. Zoological Results of the "Blake" Expedition to the Caribbean Sea. Bull. Mus. Comp. Zool. Harvard Coll. 6: 113-118.

Schultze, L.S. 1896. Antipathiden von Ternate nach den Sammlungen Prof. W. Kukenthal's. Zool.Anz., Jena Xix: 89-92.

Summers, L. 1910. Antipatharians from the Indian Ocean. Royal Microsc. Soc. London: 273-281.

Van Pesch, A.J. 1914. The Antipatharia of the Siboga Expeditie. Monographe 17: 1-258.

Warner, G.F. 1981. Species descriptions and ecological observations of black corals (Antipatharia) from Trinidad. Bull. Mar. Sci. 31: 147-163.