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ORIGINAL ARTICLE

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A new species of *Hormathia* (Actiniaria, Hormathiidae) from the eastern Weddell Sea, Antarctica

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Abstract A new species of sea anemone in the genus *Hormathia*, is described and illustrated based on forty-two specimens collected during the *Polarstern* cruises ANT XV/3 and ANT XVII/3 in the Weddell Sea. The main features of the new taxon are the crown of flattened and hooked tubercles at the distal end of the scapus, the regular arrangement of pointed tubercles along the column and the cnidom. The new species shares the pointed tubercles, at least in the upper part of the scapus, with two other species of *Hormathia* in the southern hemisphere: *Hormathia spinosa* Hertwig 1882 and *H. pectinata* Hertwig 1882

Keywords *Hormathia* spp. · Sea anemone · Weddell Sea

Introduction

A large collection of more than 1400 specimens of sea anemones was collected during the recent EASIZ II and EASIZ III (Ecology of Antarctic Sea Ice Zone) *Polarstern* cruises to the Weddell Sea and Antarctic Peninsula. From this collection, 42 specimens of an undescribed species of the genus *Hormathia* Gosse 1859 were detected. This species is described, and compared to the type material of its most similar congeners, *H. spinosa* Hertwig 1882 and *H. pectinata* Hertwig 1882.

According to Fautin & Barber (1999), Hormathiidae is one of the richest families of deep-sea anemones. The family is represented in the Antarctic waters by a number of species, with *H. lacunifera* (Stepheson 1918) as the most dominant Antarctic sea anemone (Fautin-Dunn 1983).

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The genus *Hormathia* is one of the most distinctive genera of the Hormathiidae. It is characterized by 6 pairs of perfect and sterile mesenteries, and a similar number of mesenteries distally and proximally. The column is divisible into scapus and scapulus. The scapus is covered by a cuticle and provided with tubercles that may be arranged in rows. There are no cinclides, and there are never more than 96 tentacles (without thickenings on their aboral side),nor a cup-like pedal disc (Carlgren 1949; Manuel 1988; Tur 1993). Despite these characteristics, the variability between *Hormathia* species is high (Stephenson 1935; Riemann-Zürneck 1973, 1994; Grebelnyi 1980a, 1980b). Thus, the description of diagnostic characters for identifying the species ascribed to this genus have not been always satisfactory, resulting in many synonyms in the literature (see for example synonyms for *H. lacunifera* given by Fautin-Dunn 1983: 50). Incomplete descriptions or the examination of a few, if not single, specimens to propose a new species, creates mistakes. Therefore, the re-examination of the type material or recently collected specimens from the type locality are essential.

McMurrich (1893) proposed the genus *Chitonanthus* for those hormathiid species in which the scapulus bears longitudinal ridges and the scapus shows strong pointed tubercles not arranged in any definite order, particularly in its distal portion. He reserved the genus *Hormathia* for those forms with a smooth scapulus and only a coronal row of tubercles. McMurrich (1893: 189) included *Phellia pectinata* Hertwig 1882, *P. spinifera* Hertwig 1888, and *H. andersoni* Haddon 1888, within the genus *Chitonanthus*. Nevertheless, he expressed doubts about the generic diagnostic utility of the arrangement of these tubercles. According to Stephenson (1920: 512), the presence of capitular ridges should not be used as a generic character in hormathiids. Some genera such as *Chitonanthus*, *Chondractinia* Lütken 1860 and *Chitonactis* Fischer 1874, that were separated in the past by capitular features, are now considered synonyms of the genus *Hormathia*, using the diagnostic characters cited above (see Carlgren, 1949).

According to Fautin-Dunn (1983:54), six *Hormathia* species are currently recognisable in the southern hemisphere: *H. spinosa*, *H. pectinata*, *H. castanea* (McMurrich 1904), *H. lacunifera*, *H. georgiana* Carlgren 1927 and *H. bouvetensis* Carlgren 1928 (see Hertwig 1882a, 1882b; McMurrich 1904; Stephenson 1918; Carlgren 1927, 1928). Among these, only *H. pectinata* and *H. spinosa* share the character of pointed tubercles in the scapus with the new species here described.

Material and methods

The material studied was collected on the *Polarstern* cruises ANT XV/3 (EASIZ II) and ANT XVII/3 (EASIZ III), during the austral summer of 1998 and 2000, respectively, to the eastern Weddell Sea and Antarctic Peninsula.

Sea anemones were relaxed using menthol crystals and subsequently fixed in 10% formalin in seawater. Fragments of selected specimens were dehydrated in buthanol (Johansen 1940), and embedded in paraffin. Histological sections 6–10 µm thick were stained with Ramón and Cajal's Triple Stain (Gabe 1968).

Cnidom measurements were taken from capsules in squash preparations at 1000X magnification on a Nomarski interference contrast microscope. Despite frequencies given being subjective impressions based on squash preparations, they do give some idea of the relative abundance of the various types, varieties, and size-classes.

Specimens of the species studied in this article have been deposited in the Zoologisches Institut und Zoologisches Museum in Hamburg (ZMH), the Laboratorio de Biología Marina of the University of Seville in Spain (LBM), the Natural History Museum in London (NHM), the Nationaal Natuurhistorisch Museum, formerly the Rijksmuseum van Natuurlijke Historie, in Leiden (RMNH), and the Swedish Museum of Natural History in Stockholm (SMNH).

For purposes of comparison, the following material deposited at the NHM was also examined:

- *Cereus spinosus* Hertwig 1882 (NHM 1890.7.23.1). Syntype: Challenger cruise, stn. 157, 53°55'S 108°35'E, 1950 fathoms, 3 March 1874. This species is now ascribed to the genus *Hormathia*, as *H. spinosa* (Hertwig 1882) (see Carlgren 1949).

Remarks: Hertwig (1882a, 1882b) included as material examined for the description of his *Cereus spinosus* specimens from two widely separated stations, 157 and 237, from the Challenger Expedition. According to the biogeographical areas proposed by Longhurst (1998), the former station could be considered as SANT (Subantarctic Water Ring Province, off South Australia), while the latter one is included in KURO (Kuroshio Current Province, off East Japan). Our comparisons with the new species here described are based on the subantarctic material (stn 157) first mentioned in Hertwig's monograph. The Challenger stations are remarkably far apart, but the material is from the bathyal zone, where wide distributions are often recorded. Despite this, a comparative study based on this material is desirable to corroborate the distribution of *H. spinosa*, or split this material in two different species.

- *Phellia pectinata* Hertwig 1882 (NHM 1889.11.25.18). Type: Challenger cruise, stn. 307, 49°24'S 74°23'W, 147 fathoms, 4 January 1876. This species is now ascribed to the genus *Hormathia*, as *H. pectinata* (Hertwig 1882) (see Carlgren 1949).

Results

- Order Actiniaria Hertwig, 1882
- Family Hormathiidae Carlgren, 1925
- Genus *Hormathia* Gosse, 1859

Hormathia armata sp. nov

Figs. 1, 2, 3, 4, 5, Table 1.

Type Material Holotype: ZMH (C 11656), 1 specimen, *Polarstern* ANT XV/3, stn. 48/071, eastern Weddell Sea, 70°49.3'S 10°28.6'W, 281–301 m depth, 1 Feb 1998, bottom trawl. Paratypes: ZMH (C 11657), 3 specimens, *Polarstern* ANT XV/3, stn. 48/189, eastern Weddell Sea, 71°40.2'S 12°43.6'W, 244–248 m depth, 15 Feb 1998, Agassiz trawl; ZMH (C 11658), 2 specimens, *Polarstern* ANT XV/3, stn. 48/222, eastern Weddell Sea, 70°50.6'S 10°35.5'W, 234–267 m depth, 19 Feb 1998, bottom trawl; LBM (ANT-201), 1 specimen, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; NHM (2000.2907), 1 specimen, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; RMNH (Coel. 24700), 1 specimen, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000,

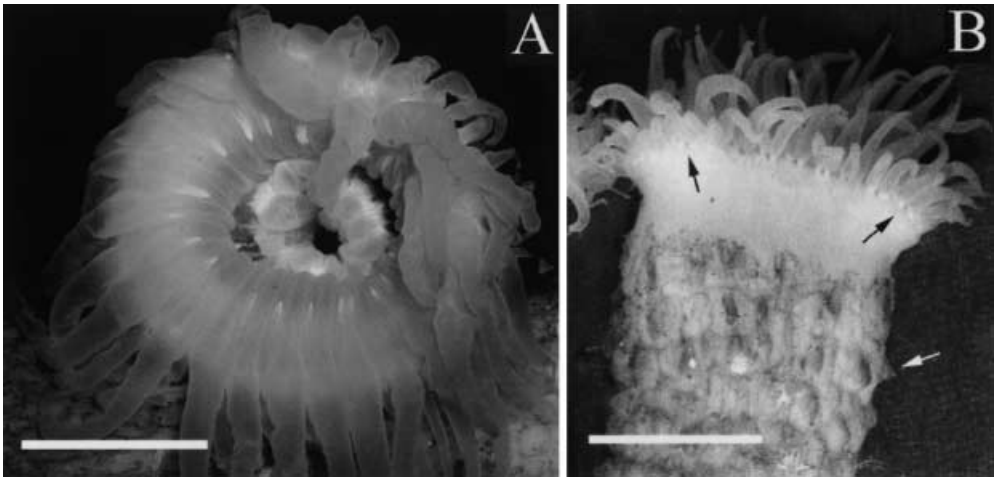

Fig. 1 *Hormathia armata* sp. nov. Living specimen after menthol anaesthesia. (A) Oral disc; notice the white V-shaped marks at the bases of the fourth cycle of tentacles. (B) Distal portion in lateral view; notice the flattened and hook-like pointed tubercles (white arrow); notice the small white marks at base on aboral side of the tentacles of the last cycles (black arrows). Scale bars: 20 mm

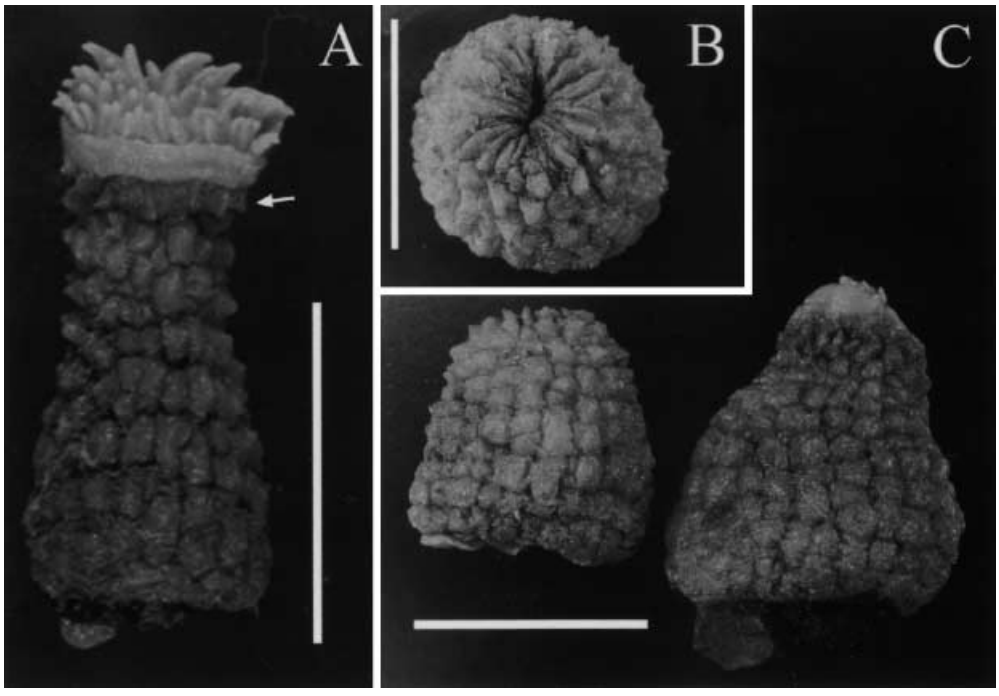

Fig. 2 *Hormathia armata* sp. nov. (A) Holotype (ZMH C 11656) in lateral view. White arrow indicates the flattened and hook-like pointed tubercles. (B) Paratype (ZMH C 11657) in oral view. (C) Paratypes (ZMH C 11657). Scale bars: 30 mm

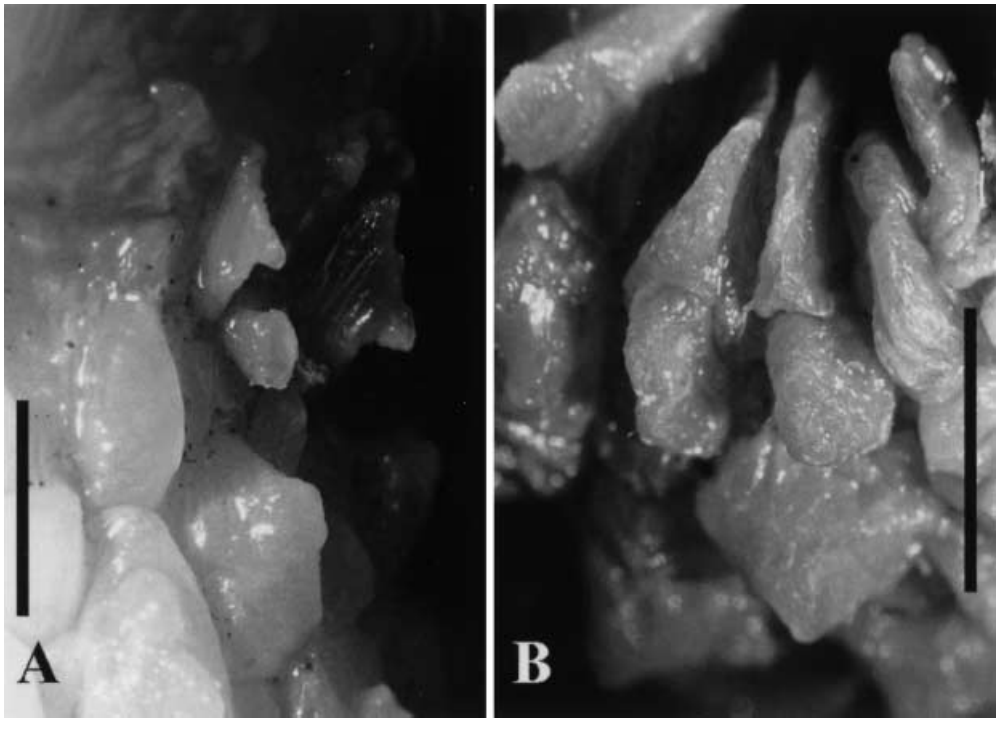

Fig. 3 *Hormathia armata* sp. nov. (A) Detail of the flattened and hook-like pointed tubercles from the holotype (ZMH C 11656). (B) Part of the crown of flatted and pointed pyramidal tubercles with square-shaped bases from the paratype (ZMH C 11657). Scale bars: A, 3 mm; B, 5 mm

bottom trawl; SMNH (Type n° 5263), 2 specimens, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl.

Additional Material LBM (ANT-195), 1 specimen, *Polarstern* ANT XV/3, stn. 48/209, eastern Weddell Sea, 71°7.3'S 11°28.4'W, 65 m depth, 18 Feb 1998, TVgrab; LBM (ANT-196), 2 specimens, *Polarstern* ANT XV/3, stn. 48/220, eastern Weddell Sea, 70°50.4'S 10°35.4'W, 236–272 m depth, 19 Feb 1998, bottom trawl; LBM (ANT-197), 1 specimen, *Polarstern* ANT XVII/3, stn. 111.7, eastern Weddell Sea, 71°07.50'S 11°27.70'W, 67–68 m depth, 5 Apr 2000, TVgrab; LBM (ANT-198), 1 specimen, *Polarstern* ANT XVII/3, stn. 111.18, eastern Weddell Sea, 71°07.50'S 11°28.00'W, 93–105 m depth, 5 Apr 2000, TVgrab; LBM (ANT-199), 1 specimen, *Polarstern* ANT XVII/3, stn. 111.18, eastern Weddell Sea,

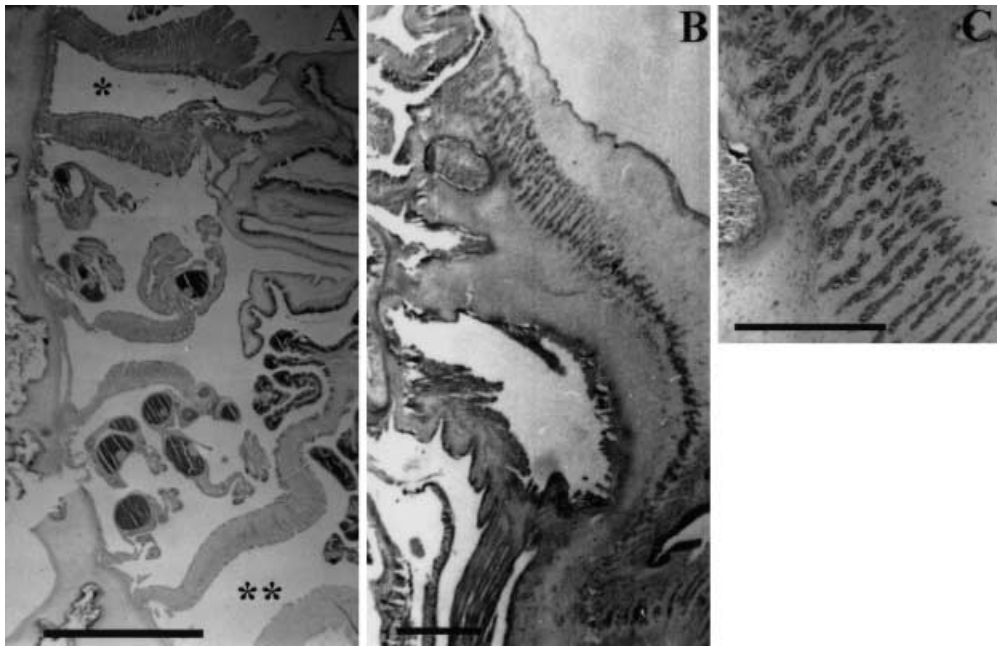

Fig. 4 *Hormathia armata* sp. nov. (ZMH C 11657). (A) Cross section through mesenteries at stomodaeum level; notice the gonads on third and fourth cycle of mesenteries. (*) indicates endocoel between directive mesenteries, (**) indicates endocoel between mesenteries of second cycle. (B) Longitudinal section through mesogloeal marginal sphincter; margin at top of the picture. (C) Detail of section through mesogloeal marginal sphincter. Scale bars: A, 2 mm; B, 1.5 mm; C, 0.6 mm

71°07.50'S 11°28.00'W, 93–105 m depth, 5 Apr 2000,TVgrab; LBM (ANT-200), 7 specimens, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; LBM (ANT-202), 2 specimens, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; LBM (ANT-203), 1 specimen, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; LBM (ANT-204), 1 specimen, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; LBM (ANT-205), 1 specimen, *Polarstern* ANT XVII/3, stn. 122–2, eastern Weddell Sea, 70°50.70'S 10°35.00'W, 233 m depth, 9 Apr 2000, TVgrab; LBM (ANT-206), 2 specimens, *Polarstern* ANT XVII/3, stn. 124–1, eastern Weddell Sea, 70°50.60'S 10°35.40'W, 247–269 m depth, 9 Apr 2000, bottom trawl; NHM (2000.2908–2909), 2 specimens, *Polarstern* ANT XV/3, stn. 48/050, eastern Weddell Sea, 70°51.6'S 10°24.3'W, 282–283 m depth, 30 Jan 1998, small bottom sampling gear; NHM (2000.2910–2911), 2 specimens, *Polarstern* ANT XV/3, stn. 48/100, eastern Weddell Sea, 73°36.4'S 22°7.0'W, 440–444 m depth, 5 Feb 1998, bottom trawl; RMNH (Coel 24699), 4 specimens, *Polarstern* ANT XVII/3, stn. 119.1, eastern Weddell Sea, 70°50.40'S 10°35.20'W, 226–266 m depth, 7 Apr 2000, bottom trawl; SMNH (General coll., n°30621), 1 specimen, *Polarstern* ANT XV/3, stn. 48/050, eastern Weddell Sea, 70°51.6'S 10°24.3'W, 282–283 m depth, 30 Jan 1998, small bottom sampling gear; SMNH (General coll., n°30620), 2 specimens, *Polarstern* ANT XV/3, stn. 48/194, eastern Weddell Sea, 71°14.1'S 12°27.7'W, 244–246 m depth, 16 Feb 1998, Agassiz trawl.

External anatomy Pedal disc to 40 mm diameter, well developed, 0.37–0.66 mm thick, broader than scapus. No mesenterial insertion visible. Slightly concave and commonly attached to rocks (Figs. 1, 2, 3).

Column thick and tough divided into scapus and scapulus. Scapus conical to globose in retracted specimens, cylindrical in expanded ones; to 30 mm diameter, 80 mm height in preserved specimens. Scapus tuberculate, with longitudinal and transverse ridges; tubercles almost rectangular (about 4–3.5 mm) in proximal half, pyramidal and pointed in distal half, becoming flattened and pointed at distal end of scapus. Twelve ridges beginning on distal part of the scapus constitute a crown of flattened and hooked tubercles. Scapus with well-developed brownish, thin cuticle. Scapulus about 6 mm height, smooth.

Oral disc flat, wider in diameter than base in living specimens, usually retracted in preserved ones. Mouth on a cone. Tentacles cover most of oral disc. Tentacles smooth, as long as diameter of oral disc in living specimens, pointed and short in preserved ones. Inner tentacles longer than outer ones, to 96 in number, arranged in 5 cycles (6+6+12+24+48).

Internal anatomy. Equal number of mesenteries distally and proximally. Mesenteries arranged hexamerously in four regular cycles: first cycle perfect and sterile; second and third cycles well developed, imperfect; fourth cycle poorly developed. Two pairs of directives connected with two well-developed siphonoglyphs. Gonads well developed on second, third, and fourth cycles in specimens collected in February; dioecious (Fig. 4).

Acontia few and coiled. Parietobasilar muscles well developed but without detached pennon. Retractor muscle diffuse and strong. Basilar muscles well developed with detached pennons. Mesogloeal marginal sphincter moderately strong, diffuse and long, transversely strati-

Table 1 *Hormathia armata* nov. sp. Size ranges of the cnidae (in µm) from four specimens, each one from the following lots: A = Holotype (ZMH C 11656); B = NHM (2000.2910–2911); C = SMNH (general coll., n0 30621); D = Paratype (ZMH C 11657). Frequency: +++ = very common, ++ = common, + = rather common, –– = sporadic. N = number of capsules measured.

Body part	Nematocyst Type	Lot	Range (in parentheses) of length and width of nematocyst capsules in µm	N	Frequency
Pedal disc	Basitrichs 2 (B)	A	(19.7–27.1)×3.3	20	++
		B	(21.3–27.1)×3.3	20	+/++
		C	(20.5–26.2)×3.3	20	+/++
		D	(22.9–28.7)×(3.3–4.1)	20	++
Scapus	Basitrichs 2 (B)	A	(18.0–22.0)×(3.3–4.1)	16	+
		B	(18.9–22.1)×3.3	10	+
		C	(17.2–22.1)×3.3	10	+
		D	(20.5–23.8)×(3.3–4.1)	7	+
Scapulus	Basitrichs 2 (B)	A	(23.8–29.5)×(3.3–4.1)	20	++/+++
		B	(18.9–28.7)×(2.5–4.1)	20	++
		C	(21.3–26.2)×(3.3–4.1)	20	++
		D	(24.6–29.5)×(3.3–4.1)	20	++
	Microbasic	A	–––––		
	p-mastigophores 2 (F)	B	(20.5–23.8)×(3.3–4.9)	15	+
		C	–––––		
		D	–––––		
Tentacles	Spirocysts (A)	A	(28.7–46.3)×(3.3–5.7)	20	+++
		B	(22.1–38.5)×(3.3–5.7)	20	+++
		C	(26.2–45.1)×(3.3–5.7)	20	+++
		D	(26.2–41.0)×(3.3–4.9)	26	+++
	Basitrichs 2 (B)	A	(23.9–31.2)×(3.3–4.1)	20	++/+++
		B	(22.1–30.3)×(2.5–3.3)	20	++
		C	(26.2–31.2)×3.3	20	++
		D	(22.1–28.7)×(2.5–3.3)	20	++/+++
Stomodaeum	Basitrichs 1 (D)	A	(30.2–38.5)×(3.3–4.1)	20	++/+++
		B	(23.0–38.5)×(3.3–4.9)	20	++
		C	(30.3–41.8)×(3.3–4.1)	20	++/+++
		D	(27.9–33.6)×(3.3–4.1)	20	++
	Microbasic	A	(30.2–38.4)×(4.9–5.7)	20	++
	p-mastigophores 1 (E)	B	(32.8–38.5)×(3.3–5.7)	20	++
		C	(27.9–36.1)×(4.1–5.7)	20	++
		D	(26.2–37.7)×(4.9–6.6)	20	++
Filaments	Basitrichs 1 (D)	A	(38.4–46.7)×(4.1–4.9)	20	+
		B	(27.9–54.9)×(2.5–4.9)	20	++
		C	(42.6–49.2)×(4.1–5.7)	20	++
		D	(37.7–50.0)×(4.1–5.7)	20	+
	Basitrichs 3 (C)	A	(13.8–20.5)×(1.6–2.5)	15	+
		B	(13.9–17.2)×(2.5–3.3)	8	+
		C	(16.4–18.0)×2.5	7	+
		D	(13.1–18.0)×(1.6–2.5)	7	+
	Microbasic	A	(23.0–28.7)×(3.3–4.9)	20	+/++
	p-mastigophores 2 (F)	B	(22.1–27.9)×(4.1–4.9)	17	+/++
		C	(22.1–28.7)×(4.1–4.9)	20	+/++
		D	(20.5–27.9)×(4.1–4.9)	20	+/++
Acontia	Basitrichs 1 (D)	A	(43.5–54.0)×(4.1–4.9)	20	+++
		B	(44.3–54.1)×(4.1–5.7)	20	+++
		C	(47.6–57.4)×(4.9–5.7)	20	+++
		D	(41.0–48.4)×(4.1–4.9)	20	+++
	Basitrichs 3 (C)	A	(13.0–19.7)×(1.6–2.5)	20	+
		B	(15.6–21.2)×(1.6–2.5)	12	+/––
		C	(15.6–18.7)×(1.6–2.5)	8	+/––
		D	(18.0–21.2)×2.5	9	+/––

fied and mostly in center of mesogloea (Fig. 4B). Longitudinal tentacle musculature ectodermal.

Column wall of similar thickness entire length. Mesogloea 0.10–0.58 mm thick, 1.56–2.92 mm at tubercles level; epidermis 0.03–0.10 mm thick, and gastrodermis 0.02–0.05 mm thick. Cuticle about 4–10 µm thick.

Cnidom. Spirocysts, basitrichs, and microbasic p-mastigophores. A survey of the cnidom is presented in Table 1 and Figure 5.

Colour. Oral disc and tentacles whitish in living material. White marks around mouth cone, and tentacles of fourth

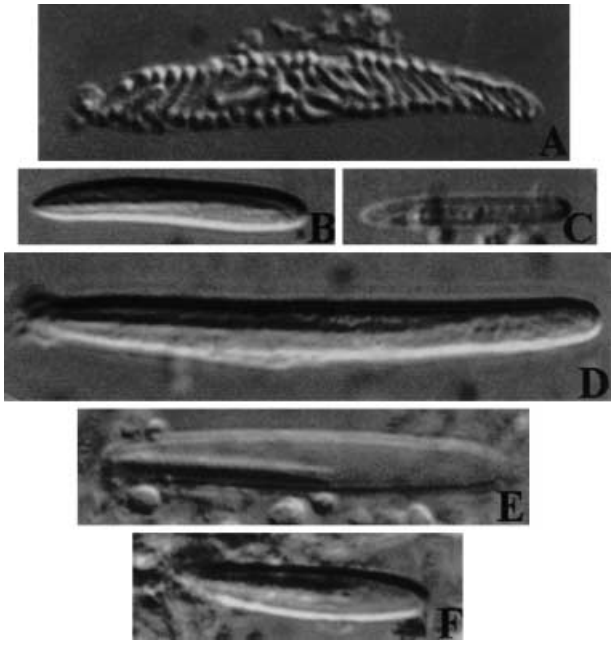

Fig. 5 *Hormathia armata*, sp. nov. Cnidom. (A) Spirocyst; (B) basitrich 2; (C) basitrich 3; (D) basitrich 1; (E) microbasic p-mastigophore 1; (F) microbasic p-mastigophore 2. See text and Table I for explanation

cycle with white V-shaped marks at base on oral side (Fig. 1A). Tentacles of the last cycles with small white marks at base on aboral side (Fig. 1B). Oral disc and tentacles brownish or yellowish in preserved material. Column and base of living and preserved material dirty brown or yellowish because of cuticle and foreign particles.

Geographic and depth distribution. *Hormathia armata* sp. nov. has been found only in the eastern Weddell Sea between 65 and 444 m, although most specimens were collected between 234 and 444 m.

Etymology. The specific name *armata* (armed in Latin) refers to the crown of flattened and hooked tubercles at the distal end of the scapus, a diagnosis feature of *Hormathia armata* sp. nov.

Discussion

Hormathia armata sp. nov. is compared here to the most similar species of *Hormathia* from the southern hemisphere, *H. pectinata* and *H. spinosa*.

Hormathia pectinata was described by Hertwig (1882a, 1882b) from a single specimen deposited in the NHM (Figs. 6 A, B; Table 2). Additional specimens from different localities were studied by McMurrich (1893), Carlgren (1959) and Riemann-Zürneck (1973). The most remarkable features of *H. pectinata* are its coronal row of tubercles in the distal part of the scapus and the cnidom, particularly the relatively short basitrichs in the acontia and pedal disc (Table 2).

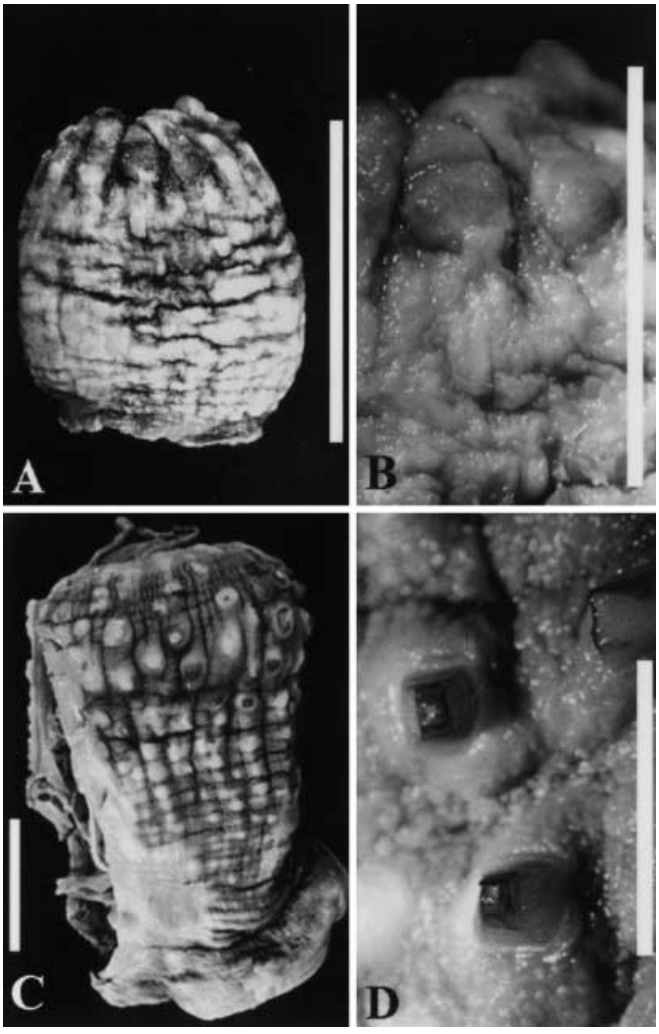

Fig. 6 *Hormathia pectinata* (Hertwig 1882) (Holotype, NHM 1889.11.25.18). (A) Lateral view of the column. (B) Detail of the rounded tubercles. *Hormathia spinosa* (Hertwig 1882) (Syntype, NHM 1890.7.23.1). (C) Lateral view of the column; note irregular arrangement of the tubercles on the scapus. (D) Detail of the pyramidal tubercles on hemispherical bases. Scale bars: A and C, 20 mm; B and D, 5 mm

Hormathia spinosa was collected during the Challenger expedition (Hertwig 1882a, 1882b) and, despite the precise description of external and internal anatomy, the type material has been re-examined (Figs. 6 C, D; Table 3).

The cnidom of the type material of *Hormathia pectinata* and *H. spinosa* is similar to that of other *Hormathia* species including spirocysts, basitrichs and microbasic p-mastigophores, although capsules of the last category have not been clearly detected in the filaments and stomodaeum where they are usually present. This is probably due to the preservation of this material. However, a complete view of the size ranges and distribution of the cnidae of *H. pectinata* based on specimens from both sides of Patagonia was reported by Riemann-Zürneck (1973).

Table 2 Size ranges of the cnidae (in µm) of *Hormathia pectinata*, holotype (NHM 1889.11.25.18). Frequency: +++ = very common, ++ = common, + = rather common, –– = sporadic. N = number of capsules measured.

Body part	Nematocyst Type	Range (in parentheses) of length and width of nematocyst capsules in µm	N	Frequency
Pedal disc	Basitrichs	(17.1–22.0)×2.5	6	+
Scapus	Basitrichs	(22.0–27.9)×(3.3–4.1)	8	+
Scapulus	Basitrichs	(18.9–27.1)×(2.5–3.3)	6	+
Tentacles	Spirocysts	(16.4–32.8)×(2.5–5.7)	20	+/++
	Basitrichs	(21.2–27.1)×(2.5–3.3)	20	++
	Basitrichs	(9.7–11.5)×(1.6–2.5)	6	––
Stomodaeum	Basitrichs	(29.4–34.3)×(3.3–4.1)	20	++
Filaments	Basitrichs	(17.2–21.3)×(3.3–4.1)	20	++
	Microbasic p-mastigophores?	(16.4–19.7)×(3.3–4.1)	12	+
Acontia	Basitrichs	(29.5–34.3)×3.3	20	+++

Table 3 Size ranges of the cnidae (in µm) of *Hormathia spinosa*, syntype (NHM 1890.7.23.1). Frequency: +++ = very common, ++ = common, + = rather common, –– = sporadic. N = number of capsules measured

Body part	Nematocyst Type	Range (in parentheses) of length and width of nematocyst capsules in µm	N	Frequency
Pedal disc	Basitrichs	(31.2–39.4)×(3.3–4.1)	20	++
Scapus	Basitrichs	(27.9–33.6)×4.1	20	++
	Basitrichs	14.8×(1.6–2.5)	3	––
Scapulus	Basitrichs	(31.2–38.5)×(3.3–4.9)	20	++
Tentacles	Spirocysts	(41.0–65.6)×(3.3–7.4)	20	++
	Basitrichs	(35.3–38.5) x (2.5–3.3)	7	+
Stomodaeum	Basitrichs	(32.8–41.8)×(3.3–4.9)	20	++
Filaments	Basitrichs	(40.2–43.5)×(3.3–4.1)	11	+
	Basitrichs	(27.9–35.3)×(4.1–4.9)	20	++
	Microbasic p-mastigophores?	(30.2–36.1)×(4.1–4.9)	5	––
Acontia	Basitrichs	(41.8–49.2)×(3.3–4.1)	20	+++

Hormathia pectinata and *H. spinosa* share with *H. armata* sp. nov. the pointed tubercles that cover at least the distal half of the scapus. *H. pectinata* shows these tubercles only at the end of twelve longitudinal combs, in the most distal part of the scapus. However, in *H. armata* sp. nov. and *H. spinosa*, the tubercles are distributed along the scapus, although they are more conspicuous and prominent on the distal third of the column. The tubercles are regularly arranged in *H. armata* sp. nov., but they are irregularly distributed in *H. spinosa*.

Although the tubercles of *Hormathia armata* sp. nov. and *H. spinosa* are pyramidal, their bases are different in shape, being hemispherical in *H. spinosa* (Fig. 6 D) and square in *H. armata* sp. nov. (Fig. 3 B). In *H. pectinata*, the pointed tubercles are rounded or slightly digitiform (see Fig. 6B; and McMurrich 1893: plate XXXII, fig. 98).

A diagnostic feature of *Hormathia armata* sp. nov. is the crown of longitudinally flattened and hooked tubercles, usually twelve, at the distal part of the scapus. While this crown is very conspicuous in *H. armata* sp. nov. (Fig. 3A, B), it is absent in *H. pectinata* (Fig. 6A) and *H. spinosa* (Fig. 6C).

The size ranges and distribution of the cnidae offer additional characters that distinguish the three species (Tables 1, 2, 3). *Hormathia pectinata* can be easily separated from *H. armata* sp. nov. and *H. spinosa* by its shorter basitrichs in the acontia, although Riemann-Zürneck (1973) found specimens from Argentinean coast with longer basitrichs as is usual in specimens of the Chilean coast (the type locality). Furthermore, the longest basitrichs (see Fig. 5 D), shared by *H. armata* sp. nov. and *H. spinosa* in the filaments, are absent in *H. pectinata*. *H. spinosa* has longer basitrichs in the scapulus, which clearly set it apart from the other two species. The basitrichs from the pedal disc of *H. armata* sp. nov. are longer than those observed for *H. pectinata* and shorter than those of *H. spinosa*. Finally, from the four studied specimens of *H. armata* sp. nov. (Table 1), only one had microbasic p-mastigophores in the

scapulus. This could be considered as singular, but the sporadic occurrence of this type of nematocyst in the column has been observed in other *Hormathia* species (Riemann-Zürneck 1973, 1994; den Hartog 1977).

Hormathia spinosa is considered present in subantarctic areas and off eastern Japan (Hertwig, 1882a, 1882b), *H. pectinata* has been found in both sides of Patagonia (Hertwig, 1882a, 1882b; McMurrich 1893; Carlgren 1959; Riemann-Zürneck 1973) and *H. armata* sp. nov. is known only from the eastern Weddell Sea. Voß (1998), studying the distribution of the macrozoobenthic communities in eastern Weddell Sea, established the limit of shelf community to 530 m depth. Thus, we could consider *H. armata* sp. nov. as a shelf sea anemone (65–444 m in depth), whereas *H. spinosa* and *H. pectinata* have been reported from abyssal (2812–2925 m) and bathyal waters (405–1220 m in depth) respectively.

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