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New species of *Clathria* (*Microciona*) (Poecilosclerida: Microcionina: Microcionidae) from the Tropical South-western Atlantic Ocean (Sergipe State, north-eastern Brazil)

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Clathria *is one of the most species-rich genera among Demospongiae, but only nine species have been recorded so far from Brazil. Here we describe a new species of* Clathria *(*Microciona*) collected by trawling in waters of Sergipe State (north-eastern Brazil). The new species is differentiated from other encrusting* Clathria *with a hymedesmioid skeleton by the possession of a combination of long thin subectosomal subtylostyles, two category sizes of acanthostyles, both erect and echinating the basal spongin skeleton, long slightly curved choanosomal principal subtylostyles with tuberculate spine heads and wing-shaped toxas as microscleres.*

Keywords: Porifera, Demospongiae, Western Atlantic, Brazil

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INTRODUCTION

The family Microcionidae Carter (1875) consists of nine genera, 12 subgenera and 484 described species (van Soest *et al.*, 2014). It is one of the most important, ecologically successful groups of Porifera, distributed worldwide (Hooper, 1996, 2002). *Clathria* Schmidt, 1862 is the richest genus within the family Microcionidae, with 355 described species (van Soest *et al.*, 2014). The definition of this genus is necessarily broad to encompass the seven subgenera included in it. Among them, *Clathria* (*Microciona*) Bowerbank, 1862 is characterized by the presence of encrusting growth form and hymedesmioid skeleton, with erect fibre nodes cored by plumose tracts of principal and echinating spicules standing erect on the substrate (Hooper, 2002). Despite the subgenus being composed of 99 species, only nine of them occur in the Tropical Western Atlantic Ocean (van Soest *et al.*, 2014). Two of these nine species are known from Brazil: *Clathria* (*Microciona*) *calla* (de Laubenfels, 1934) from Pernambuco State and São Pedro and São Paulo Archipelago, and *Clathria* (*Microciona*) *campecheae* Hooper, 1996 from Rio de Janeiro and São Paulo States (Muricy *et al.*, 2011). This paper describes a new species of *Clathria* (*Microciona*) from Sergipe State, north-eastern Brazil.

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MATERIALS AND METHODS

Samples were collected in 2003 at 20 m depth, on the continental shelf of Sergipe State, by trawling (Figure 1). In the laboratory, the specimens were fixed in 10% formaldehyde and thereafter preserved in 70% ethyl alcohol. Dissociated spicule mounts and skeletal sections were made using classical procedures for Demospongiae, observed through an optical microscope and scanning electron microscopy (SEM) (Hajdu *et al.*, 2011). Spicule measurements presented as minimum–*mean*–maximum, length/width and N = 30. The holotype of *Clathria* (*Microciona*) *achelata* sp. nov. is deposited in the Porifera collection of Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ) and the paratype is deposited in the Porifera collection of Universidade Federal de Sergipe (UFSPOR).

SYSTEMATICS

Order POECILOSCLERIDA Topsent, 1928
Suborder MICROCIONINA Hajdu *et al.*, 1994
Family MICROCIONIDAE Carter, 1875
Genus *Clathria* Schmidt, 1862
Subgenus *Clathria* (*Microciona*) Bowerbank, 1862

Definition: *Clathria* with persistently encrusting growth form, with hymedesmioid skeletal architecture consisting of a basal layer of spongin, typically with ascending, plumose, non–anastomosing spongin fibre nodes, and megascleres embedded and erect on basal layer (from Hooper, 2002).

Clathria (*Microciona*) *achelata* sp. nov.
(Figures 2 & 3; Table 1)

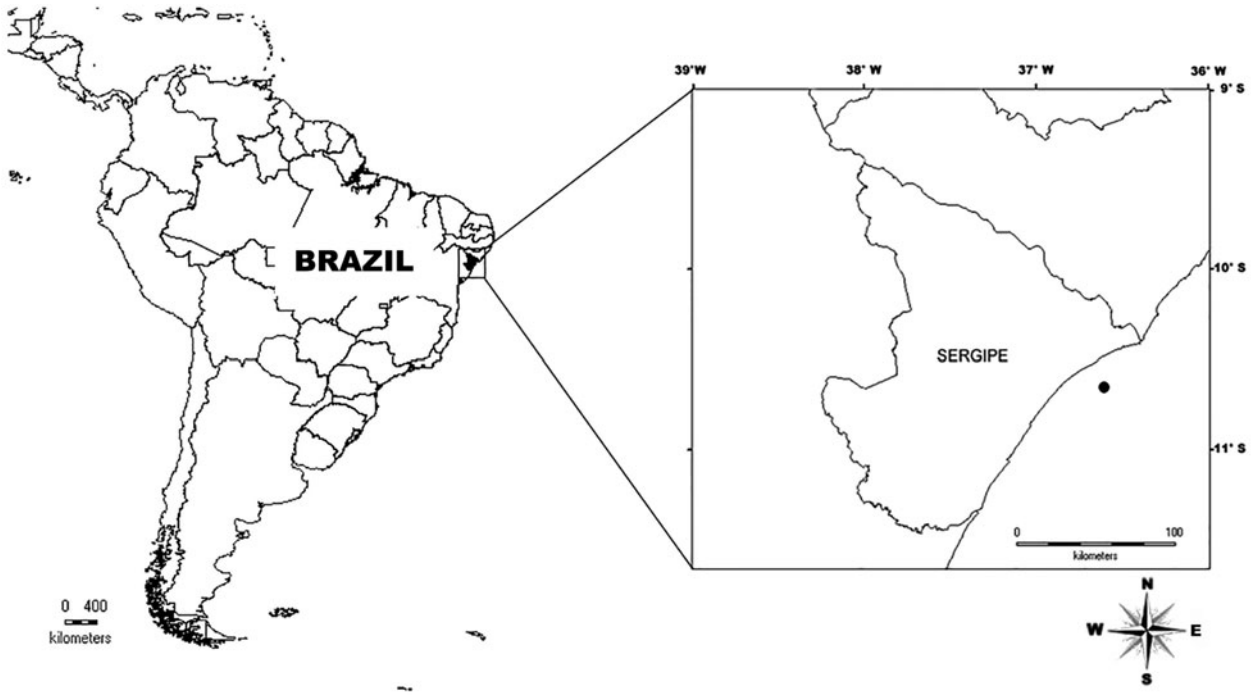

Fig. 1. Collection site (black dot) of *Clathria* (*Microciona*) *achelata* sp. nov. off Pirambu city, Sergipe State, Brazil (10°45′36″S 36°36′08″W).

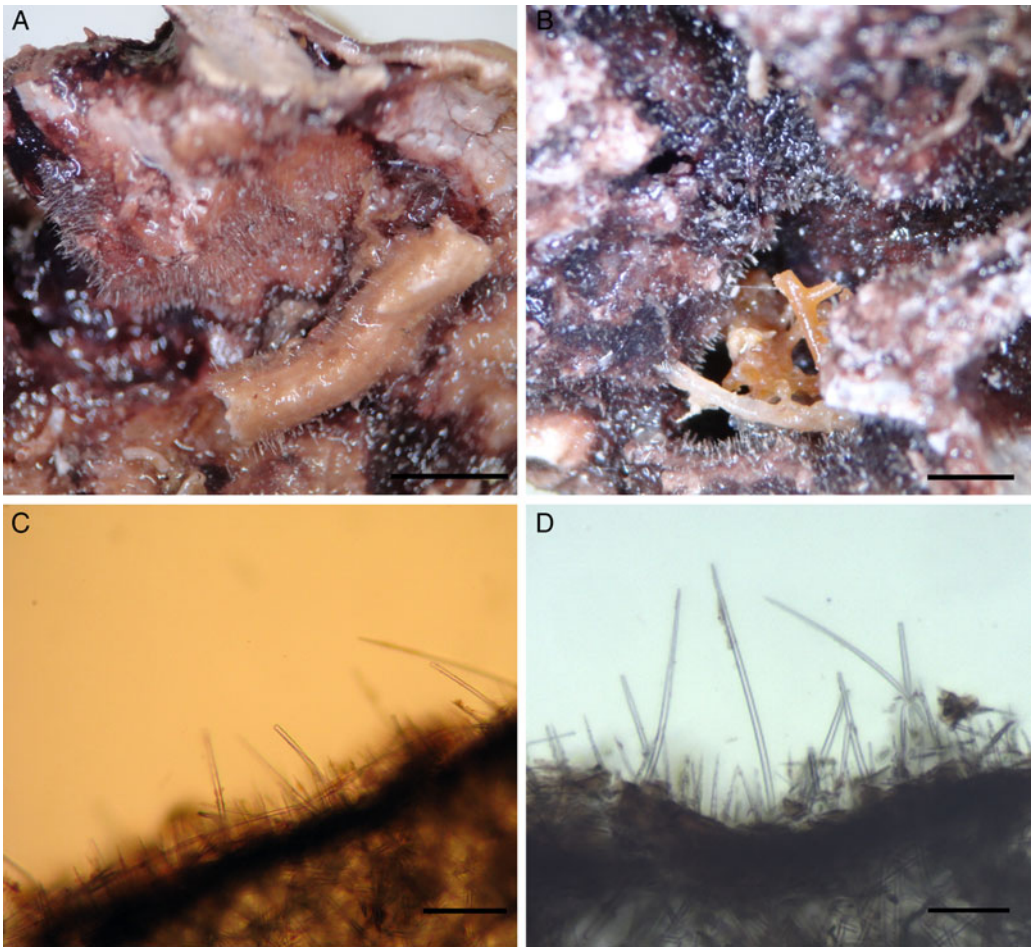

Fig. 2. *Clathria* (*Microciona*) *achelata* sp. nov. (A) Holotype (MNRJ17615); (B) Paratype (UFSPOR93); (C, D) Transverse section through skeleton (under the echinating spicules is the skeleton of *Haliclona* (*Halichoclona*) *dura*). Scale bars: A, 1600 μm; B, 750 μm; C, 120 μm; D, 82 μm.

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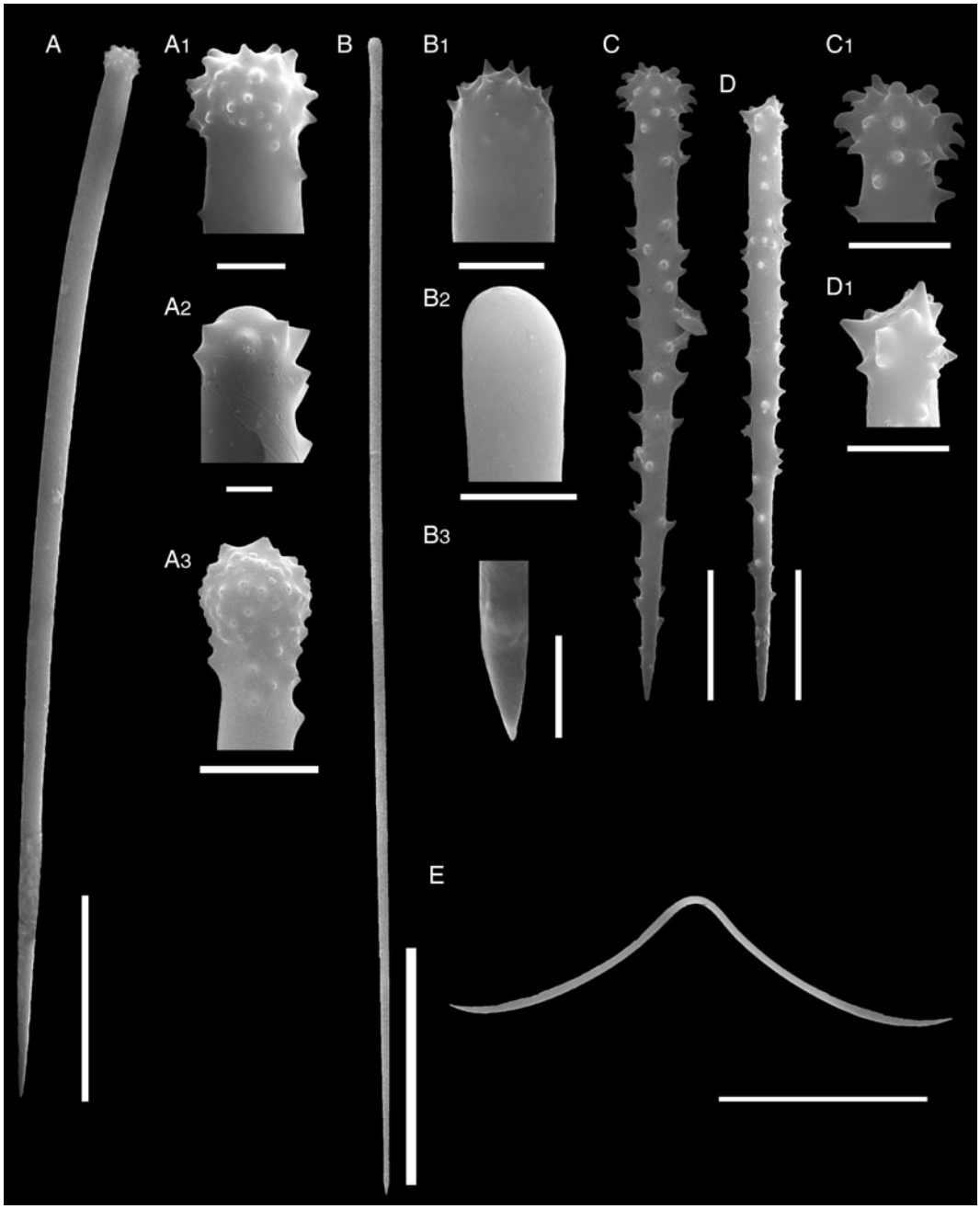

Fig. 3. *Clathria* (*Microciona*) *achelata* sp. nov., SEM images of spicules, (A–A3) Choanosomal principal subtylostyle and details of heads; (B–B3) Subectosomal auxiliary subtylostyle and details of heads and points; (C–C1) Acanthostyle I and detail of heads; (D–D1) Acanthostyle II and detail of heads; (E) Wing-shaped toxa I. Scale bars: A, B, E, 50 μm; A1–A3, B1, B3, 5 μm; C, D, 15 μm; C1–D1, 5 μm; B2, 3 μm.

TYPE MATERIAL

Holotype. MNRJ17615, off Pirambu (10°45′36″S 36°36′08″W), Sergipe State, Brazil, 20 m depth, coll. Cosme Assis & Damião Assis (VI/2003).

Paratype. UFSPOR93 (same data as the holotype).

DIAGNOSIS

Clathria (*Microciona*) *achelata* sp. nov. is the only *Clathria* (*Microciona*) in the Tropical Western Atlantic with two categories of true acanthostyles, long subectosomal subtylostyles, long choanosomal subtylostyles and wing-shaped toxas as microscleres. Chelae absent.

DESCRIPTION

A very thin encrusting sponge, less than 1 mm thick. The surface is optically hispid, but smooth to the touch. Its colour in ethanol is light brown to dark purple (Figure 2A, B).

Skeleton

Hymedesmioid, with single principal choanosomal subtylostyles surrounded by larger echinating acanthostyles I and smaller acanthostyles II all standing erect on the substrate with their heads embedded in the basal spongin skeleton and their points protruding through the surface. At the surface, subectosomal auxiliary subtylostyles are scattered

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Table 1. Comparative micrometric data of the spicules and skeletal organization of species of *Clathria* (*Microciona*) from the Atlantic Ocean. Values are in micrometres (μm), expressed as: minimum–maximum or minimum–*mean*–maximum; length or length/width. Data are from the original descriptions, or from references numbered in parentheses and listed below the table. Legends: Subtylo., Subtylostyle; Tylo, Tylostyle; Acant., Acanthostyle; Quasitylo, Quasitylote; Polytylo, Polytylote.

***Clathria* (*Microciona*) species (References)**	**Type locality**	**Depth (m)**	**Skeletal structure**	**Spicules (μm)**				
				Acanthostyle	**Ectosomal**	**Choanosomal**	**Palmate isochelae**	**Toxa**
C. (*M.*) *achelata* sp. nov.	Brazil, Sergipe State	20	Hymedesmioid	I: 65–*73.8*–98/ 3.7–*4.75*–6.5; II: 25–*47.3*–62/ 1–*2.1*–5	Subtylo: 122–*231*–380/1–*2.2*–4 (microspined head)	Subtylo: 130–*260*–350/5–*7.7*–13 (warty head)	Absent	I:22–*50*–75; II: 100–*117.5*–128 (both are wing-shaped)
C.(*M.*) *adioristica* (de Laubenfels, 1953)	Florida	14	Acanthostyles echinating tracts of tylostyles	82/8	Tylo: 330/15	Tylo: 330/15	12	Present, but unknown measurements
C.(*M.*) *affinis* (Carter, 1880) (1)	Azores	1360	Hymedesmioid	110–300	Subtylo: 730–750/ 5 (microspined head)	Style: 1600/18–20 (spined head)	18–19	10–215 (wing-shaped)
C. (*M.*) *africana* (Lévi, 1956)	Senegal	Not recorded	Tracts of acanthostyles perpendicular to surface and styles tangential to surface	250/13–14	Subtylo/style: 210/ 3 (microspined head)	Style: 250/13–14 (spined head)	11–12	I: 25–240 (accolada); II: 50–60 (wing-shaped)
C. (*M.*) *anancora* (Topsent, 1904) (1)	Azores	349	Hymedesmioid	110–300	Subtylo: 730–750/ 5 (microspined head)	Style: 1600/18–20 (spined head)	Absent	10–120 (wing-shaped)
C. (*M.*) *antarctica* (Topsent, 1917) (2)	Antarctica	70–92	Microcionid with hymedesmioid basal layer	53–*110.8*–214/ 2.5–*6.8*–10	Subtylo: 213–*424.9*–899/4–*10.5*–16 (microspined head)	Subtylo: 409–*519.9*–676/9–*13.8*–22 (smooth or microspined head)	Absent	31–*46.1*–84/0.8–*1.8*–3 (wing–shaped)
C. (*M.*) *armata* (Bowerbank, 1862) (1)	Celtic Seas	–	Microcionid	72–*117.1*–153/6–*7.5*–10	I: 225–350; II: 102–144 (both with microspined heads); overall 102–*217*–359/ 1.5–*2.8*–4.5	Style: 172–*296.9*–438/8–*11.6*–15 (warty/spined head)	12–*15.5*–18	45–*92.1*–144 (wing-shaped)
C. (*M.*) *ascensionis* van Soest, *et al.*, 2013	Ascension Island	18	Hymedesmioid	63–*77.6*–93/7–*8.2*–9	Subtylo: 186–*244.5*–309/ 1.5–*2.3*–3 (microspined head)	Style: 254–*328.1*–388/7–*8.2*–9 (spined/warty/ rugose head)	5–6	334–*373.2*–444 (raphidiform)

References: (1) van Soest *et al.* (2013); (2) Hooper (1996).

Continued

Table 1. Continued

Clathria (*Microciona*) species (References)	Type locality	Depth (m)	Skeletal structure	Spicules (μm)				
				Acanthostyle	Ectosomal	Choanosomal	Palmate isochelae	Toxa
C. (*M.*) *atoxa* Topsent, 1928	Cape Verde Islands	91	Hymedesmioid	66–*108.1*–209/5–*6.8*–10	Subtylo: 149–*190.3*–255/1.5–*1.9*–2 (microspined globular head)	Style: 192–*396.9*–660/7–*17.8*–26 (warty/spined head)	13–*14.3*–16	Absent
C. (*M.*) *atrasanguinea* (Bowerbank, 1862) (3)	Caltic Seas	–	Hymedesmioid	80–135	Subtylo: 225–355	Style: 220–*300*–470/10 (occasionally subtylo, rarely spined at the base)	8–12	I: 100–125; II: 18–40
C.(*M.*) *aurea* van Soest *et al.*, 2013	Cape Verde Islands	224–248	Hymedesmioid to Microcionid	65–*149.9*–198/8–*11.5*–13	Subtylo: 162–*354.7*–520/2–*4.6*–5 (microspined head)	Style: 418–*452.1*–660/18–*21.7*–25 (warty heads)	Absent	105–*263.2*–423 (strepsitoxa)
C. (*M.*) *bicleistochelifera* van Soest *et al.*, 2013	Cape Verde Islands	5–15	Microcionid to plumo-reticulate	Absent	Subtylo: 204–*283.9*–363/1–*1.9*–2.5	Style: 183–*370.2*–492/6–*8.2*–11	16–*19.3*–22; Cleistochelae: 22–*27.1*–31 (I); 13–*16.9*–20 (II)	Absent
C.(*M.*) *bitoxa* (Burton, 1930) (1)	Norway	–	Hymedesmioid	54–*95.3*–162/4–*5.4*–7	Subtylo: 275–*325.2*–360/2.5–*3.6*–4.5 (microspined head)	Style:868–*1111.2*–1234/14–*20.8*–25	Absent	Two types: 36–*49.5*–63/2–*3.1*–4 (oxihorn); 160–*195.1*–210 (accolada)
C. (*M.*) *boavistae* van Soest *et al.*, 2013	Cape Verde Islands	20–25	Microcionid	64–*110.9*–183/5–*6.8*–10 (some are echinating styles)	Subtylo: 132–*176.8*–204/1–*1.2*–1.5 (smooth head)	Style: 192–*295.4*–341/8–*10.5*–18 (predominantly smooth)	Absent	18–*30.9*–50 (wing-shaped)
C.(*M.*) *bulbotoxa* van Soest, 1984	Curaçao	20–25	Microcionid	Absent	(Sub–)tylo: 272–*330.5*–418/3–*4*–5 (microspined head)	Style: 284–*437.1*–608/9–*14.4*–17.5 (smooth or slightly roughened head)	11.5–*12.4*–14	I: 49–213; II: 15–50 (bulbous)
C. (*M.*) *calla* (de Laubenfels, 1934) (4)	Puerto Rico	36–72	Clathriid–dictyoclathriid	Absent	(Sub–)tylo: 186–*235.6*–266/2–*2.4*–3	Style: 114–*184.3*–228/5–*7.4*–12 (sometimes with spined heads)	16–*21.3*–25	I: 95–*121.2*–169; II: 27–*36.2*–42

Continued

Table 1. Continued

***Clathria* (*Microciona*) species (References)**	**Type locality**	**Depth (m)**	**Skeletal structure**	**Spicules (μm)**				
				Acanthostyle	**Ectosomal**	**Choanosomal**	**Palmate isochelae**	**Toxa**
C.(*M.*) *campecheae* Hooper, 1996 (4); (5)	Mexico (Bank of Campeche)	10–20 (4); 15 (5)	Hymedesmioid (4)	85–*91.7*–107/4.5–*5.3*–7 (4); 55–151 (5)	Subtylo: 342–*407.2*–538/3.5–*4.4*–5 (microspined head) (4); 150–492 (sometimes with microspined head) (5)	Style: 178–*415.4*–602/7.5–*10.9*–13 (microspined head) (4); Tylo: 151–653 (microspined head) (5)	18–*19.4*–20 (4); 12–18 (5)	114–*139.6*–190 (4); 70–143 (5)
C. (*M.*) *cancapseptima* van Soest *et al.*, 2013	Cape Verde Islands	60	Hymedesmioid or microcionid	75–*113*–168/4–*6.9*–11	Subtylo: 243–*363.5*–516/2–*4.7*–8 (smooth or microspined head); Quasitylo: 238–*288.6*–345/2.5–*3.8*–5	Style: 186–*369.7*–564/7–*12.6*–19 (spined or warty head)	13–*15.8*–19; Cleistochelae: 16–*21.3*–27	30–*108.6*–294 (wing-shaped)
C. (*M.*) *capverdensis* van Soest *et al.*, 2013	Cape Verde Islands	1.2	Reticulated	78–*99.4*–147/6–*8.4*–12	Subtylo: 177–*229.6*–285/1.5–*2.4*–3 (microspined head)	Style: 255–*351.4*–624/8–*13.4*–18 (sparingly spined head or smooth)	13–*14.8*–17	120–*215.5*–301 (accolada)
C. (*M.*) *cleistochela* (Topsent, 1925)	Gulf of Naples	Not recorded	Not recorded	115–175/7	Subtylo: 175–360/2.5–5 (microspined head)	Style: 475–570/17–18 (microspined head)	13–17	15–115/4
C. (*M.*) *conchicola* van Soest *et al.*, 2013	Mauritania	20	Hymedesmioid	57–*80.8*–111/3.5–*7.2*–13	Subtylo: 141–402; Quasitylo: 99–147 (both with microspined heads)	Style: 119–*306.7*–495/5–*14.7*–21 (warty or spined head)	12–*16.1*–19	141–*215.6*–321 (accolada)
C. (*M.*) *echinata* (Alcolado, 1984)	Cuba	10–13	Plumo-reticulated	Absent	Subtylo: 210–750/2–5	Style I: 270–920/9–31; Style II: 210–545/5–11	16–32	40–1084/0.5–5 (looks like oxea or raphide)

References: (1) van Soest *et al.* (2013); (2) Hooper (1996); (3) Bowerbank (1864); (4) van Soest (1984).

Continued

Table 1. Continued

Clathria (*Microciona*) species (References)	Type locality	Depth (m)	Skeletal structure	Spicules (μm)				
				Acanthostyle	Ectosomal	Choanosomal	Palmate isochelae	Toxa
C.(M.) ferrea (de Laubenfels, 1936) (4); (6)	Panamá	Not recorded	Leptocionid	Absent	Subtylo: 250/2 (minutely spined heads) (6); Subtylo. polytylo: 277–*373.3*–480/2–*2.92*–3.5 (4)	Style: 500–600/9 (6); 72–*312*–596/3.5–*8.7*–12 (roughened or microspines heads) (4)	10 (6); 11–12/1–15 (4)	35 (4); 29–*76.8*–114 (4)
C. (*M.*) *gorgadensis* van Soest *et al.*, 2013	Cape Verde Islands	0.5–1.5	Hymedesmioid	48–*75.1*–130/3–*4.4*–7	Subtylo: 182–*277.1*–345/2–*3.4*–4.5 (microspined head)	Style: 165–*305.3*–384/7–*11.4*–15	I: 10–*12.3*–14; II: 4–6	80–*166.3*–285 (accolada and raphidiform)
C. (*M.*) *gradalis* Topsent, 1925	Naples	–	Hymedesmioid	60–188	Subtylo: 160–344	Style: 192–656 (warty or slightly spined head)	12 a 14	40–160 (wing-shaped)
C. (*M.*) *haplotoxa* (Topsent, 1928) (1)	Madeira archipelago	–	Hymedesmioid	60–78/3	Strong: 180–210/2	Style: 110–190/4 (spined or warty head)	12.5–14	20–30 (wing-shaped)
C.(M.) hymedesmioides van Soest, 1984	Curaçao	10–20	Hymedesmioid	Absent	Subtylo: 340–*413.8*–473/3–*3.95*–4.5 (minutely roughened heads)	Style: 223–*437.7*–688/7.5–*9.8*–13 (prominent spinous or roughened heads)	12–*15.5*–19	23–*36.4*–52
C. (*M.*) *ixauda* (Lévi, 1969)	South Africa	–	Microcionid	Absent	Style: 150–200/4–5	Absent	Absent	Two types: 140 (raphidiform); 45 (wing-shaped)
C. (*M.*) *namibiensis* (Uriz, 1984) (7)	South Africa	160–269	Leptocionid	90–165/7–8	Subtylo I: 755–980/7–10; Subtylo II: 230–450 (spined head)	Acant: 515–2.350/16–28 (entirely smooth or spined heads)	Abent	I: 63–85; II: 180–1.5 (rare)
C.(M.) rarispinosa (Hechtel, 1965)	Jamaica	Not recorded	Fibre lack coring spicules but are echinated by stout subtylostyles	Absent	Subtylo I: 72–702/5–20 (echinating with microspined heads); Subtylo II: 116–608/2–5	Subtylo II: 116–608/2–5	12–20/3	16–23/2

References: (1) van Soest *et al.* (2013); (2) Hooper (1996); (3) Bowerbank (1864); (4) van Soest (1984); (5) Muricy & Hajdu (2006).

Continued

Table 1. Continued

***Clathria* (*Microciona*) species (References)**	**Type locality**	**Depth (m)**	**Skeletal structure**	**Spicules (μm)**				
				Acanthostyle	**Ectosomal**	**Choanosomal**	**Palmate isochelae**	**Toxa**
C. (*M.*) *sigmoidea* (Cuartas, 1992)	Argentina	80	Microcionid	I: 180–200/10; II: 100–120/8	Absent	Tylo: 260–300/4; Acanthostyles	Absent	60
C. (*M.*) *spinarcus* (Carter & Hope, 1889) (1)	England	–	Microcionid	*77–120.9–237/6–8.5–13*	Subtylo: 153–*237.6*–300/2.5–*3.6*–5.5 (microspined or smooth head)	Style: *237–319.8*–367/12–*13.7*–16 (ligthly spined all over)	*9–11.5*–16	*69–111.2*–132 (wing-shaped)
C. (*M.*) *spinosa* (Wilson, 1902)	Puerto Rico	20–23	Spicules tracts through the surface echinated by styles	Absent	Subtylo I: 280/3 (smooth); Subtylo II: 340/20 (echinating)	Subtylo I: 280/3 (smooth); Subtylo II: 340/20 (echinating)	12–14	64; 300 (raphid oxea-probably elongated toxas)
C. (*M.*) *stephensae* Hooper, 1996 (8)	South Africa	Not recorded	Microcionid	Absent	Style: 200–450/3–5 (microspined head)	Style: 110–600/10–30 (the largest is sometimes spined on the head and the smallest have a strongly spined head and few spines scattered along the shaft)	20	60–75/2
C. (*M.*) *strepsitoxa* (Hope, 1889) (1)	England	Not recorded	Hymedesmioid	78–136/5–8	Subtylo: 198–*285*–2.5–3 (microspined head)	Style: 225–478/6–12 (warty heads)	14–19	Two types: 273–390 (strepsitoxa); 28–156 (wing-shaped)
C. (*M.*) *tenuis* (Stephens, 1915)	South Africa	Not recorded	Plumose	Absent	Style: 140–250/3 (microspined head)	Style: 75–550/5–18 (spined head)	15	18/2.5 (wing-shaped)
C.(*M.*) *toxitenuis* Topsent, 1925 (1)	Gulf of Naples	–	Plumose	64–200 (slightly spined)	Subtylo: 192–412	Style: 184–720 (lightly spined head)	Absent	–
C. (*M.*) *urizae* Hooper, 1996 (7)	South Africa	–	Basal layer of upright acanthostyles and tylostyle surrounded by brushes of ectosomal oxeas	I: 125–175/9–12; II: 60–120/5–7 (with tylote head)	Oxea: 240–350/2–4	(Sub–)Tylo: 2.400–3.150/20–35 (entirely smooth)	Absent	Absent

References: (1) van Soest *et al.* (2013); (2) Hooper (1996); (3) Bowerbank (1864); (4) van Soest (1984); (5) Muricy & Hajdu (2006); (6) de Laubenfels (1936); (7) Uriz (1988); (8) Stephens (1915).
References: (1) van Soest *et al.* (2013); (2) Hooper (1996); (3) Bowerbank (1864); (4) van Soest (1984); (5) Muricy & Hajdu (2006); (6) de Laubenfels (1936); (7) Uriz (1988).

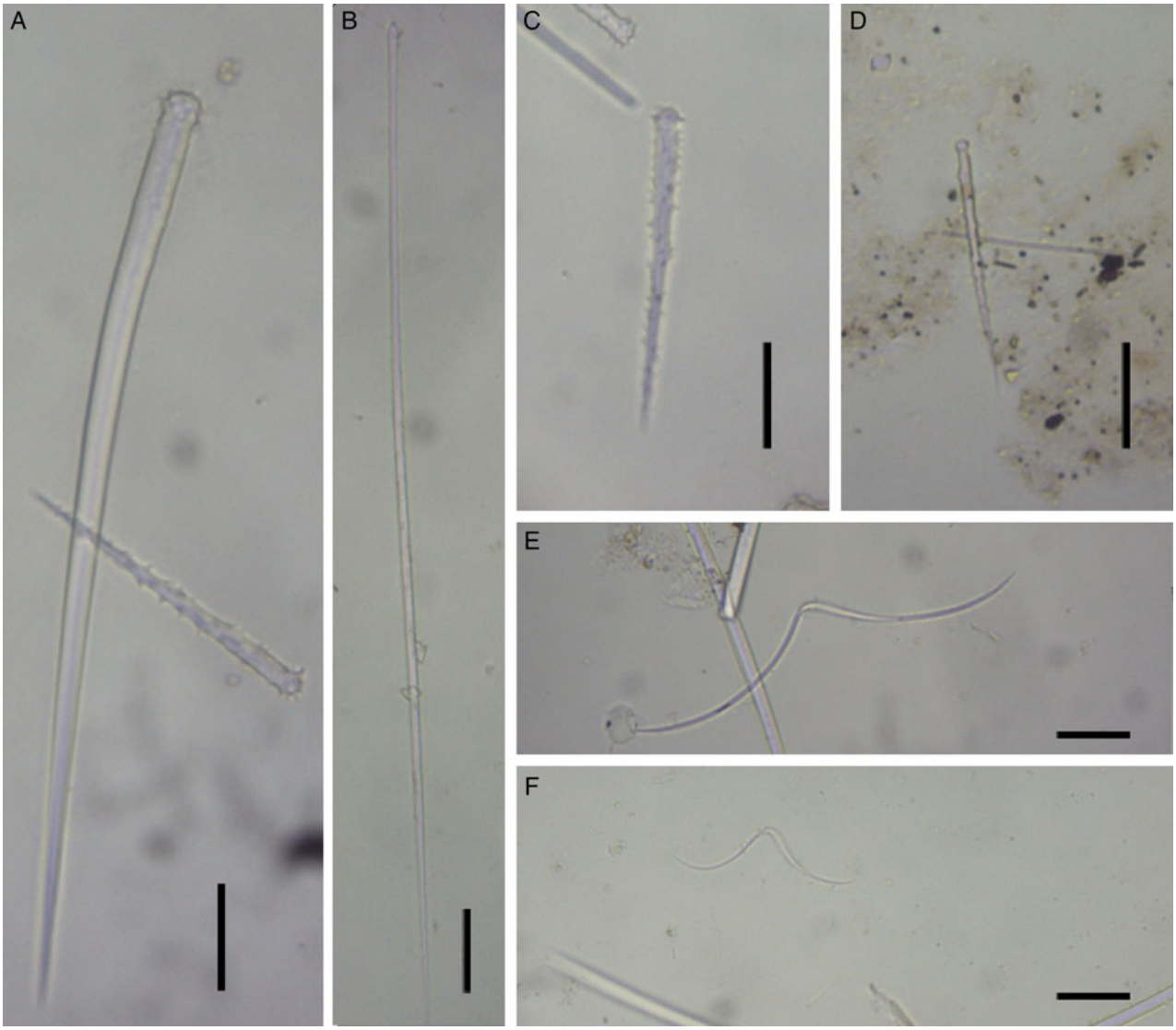

Fig. 4. *Clathria* (*Microciona*) *achelata* sp. nov., light microscope images of the spicules, (A) Choanosomal principal subtylostyle; (B) Subectosomal auxiliary subtylostyle; (C) Acanthostyle I; (D) Acanthostyle II; (E) Wing-shaped toxa I; (F) Wing-shaped toxa II. Scale bars: A–F, 21 μm.

below the ectosomal region, tangentially arranged (Figure 2C, D).

Spicules

Choanosomal principal subtylostyles – long, slightly curved, thick, sharply pointed with slightly swollen tuberculated heads (some variations occur – see Figure 3A1–A3), 130–*260*–350/5–*7.7*–13 μm (Figures 3A & 4A); Subectosomal auxiliary subtylostyles – long, straight, thin, with slightly subtylote microspined or rarely smooth heads, 122–*231*–380/1–*2.2*–4 μm (Figures 3B & 4B) Acanthostyles I – straight, heavily spined all over, with hook-like spines on the centre of the shaft and lobed/spined projections on the head, 65–*73.8*–98/3.7–*4.75*–6.5 μm (Figures 3C & 4C); Acanthostyles II – straight, heavily spined all over, smaller and thinner than acanthostyles I, 25–*47.3*–62/1–*2.1*–5 μm (Figures 3D & 4D); Toxas are rare, wing-shaped, with deeply arched centre and reflexed points, possibly divisible in a larger (100–*117.5*–128 μm) (Figures 3E & 4E) or smaller (22–*50*–75 μm) category (Figure 4F). Chelae absent.

ECOLOGY

The specimens were collected at 20 m depth. The paratype was observed encrusting another sponge, *Haliclona* (*Halichoclona*) *dura* Sandes *et al.*, 2014 (see Figure 2C) and the holotype was agglutinating coralline algae.

GEOGRAPHIC DISTRIBUTION

Tropical South-western Atlantic, north-eastern Brazil, Sergipe State.

ETYMOLOGY

The name refers to the absence of chelae in this species.

REMARKS

The new species is assigned to *Clathria* (*Microciona*) because of its encrusting growth form and hymedesmioid skeleton, consisting of single choanosomal principal subtylostyles erect on the basal layer of spongin surrounded by two categories of erect echinating acanthostyles, with subectosomal auxiliary subtylostyles tangentially arranged at the surface, and

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with only toxas as microscleres. Some species of *Clathria* (*Thalysias*) de Duchassaing & Michelotti, 1864 also have encrusting growth form and hymedesmioid skeleton, but in this subgenus there are two categories of ectosomal spicules with the smaller category of auxiliary styles or subtylostyles erected as bouquets of spicules surrounding larger protruding choanosomal spicules or forming a continuous palisade. Even the size of the subectosomal subtylostyles of the new species is within the range of the smaller category of some species of the subgenus *Thalysias* (see Galindo *et al.*, 2014, p. 584–586, table 1), *Clathria* (*Microciona*) *achelata* sp. nov. has only one category of ectosomal spicules tangentially arranged below the ectosome, suggesting allocation to *Microciona* is the best fit for the new species.

Clathria (*Microciona*) *sigmoidea* (Cuartas, 1992) and *Clathria* (*Microciona*) *urizae* Hooper, 1996 are the only species of this subgenus from the Atlantic Ocean that have two categories of acanthostyles, as observed in *C.* (*M.*) *achelata* sp. nov. However, *Clathria* (*M.*) *sigmoidea* differs from the new species in having smooth tylostyles, smaller toxas, allegedly lacking ectosomal spicules and possessing sigmas, but both latter require verification from re-examination of type material, and *Clathria* (*M.*) *urizae* differs from the new species in having larger acanthostyles, ectosomal oxeas, smooth choanosomal (sub-)tylostyles and lacking of toxas (Table 1).

Clathria (*Microciona*) *achelata* sp. nov. is the only species of *Clathria* (*Microciona*) from the Tropical Western Atlantic Ocean that does not have chelae. Only eight species of *Clathria* (*Microciona*) from the Atlantic Ocean lack chelae. Three of these species have hymedesmioid skeleton: *Clathria* (*Microciona*) *anancora* (Topsent, 1904); *Clathria* (*Microciona*) *aurea* van Soest *et al.*, 2013 and *Clathria* (*Microciona*) *bitoxa* (Burton, 1930). All these differ from *C.* (*M.*) *achelata* sp. nov. in having only one category of acanthostyle. In addition, *C.* (*M.*) *anancora* has ectosomal subtylostyles and choanosomal styles larger than the new species, *C.* (*M.*) *aurea* has strepsitoxas (accolada toxas with twisted median curvature) and *C.* (*M.*) *bitoxa* has toxas in two distinct morphologies (oxihorn and accolada types) (Table 1). All these characteristics differentiate these three species from *C.* (*M.*) *achelata* sp. nov.

In the Brazilian Coast, *Clathria* (*M.*) *achelata* sp. nov. differs from *Clathria* (*Microciona*) *campecheae* Hooper, 1996 and *Clathria* (*Microciona*) *calla* de Laubenfels, 1934 due to the presence of two categories of acanthostyles and absence of chelae. Besides that, *C.* (*M.*) *campecheae* has ectosomal and choanosomal spicules larger than new species, while *C.* (*M.*) *calla* does not have acanthostyle and its choanosomal and ectosomal spicules are smooth (Table 1).

The absence of chelae and the presence of two categories of acanthostyles are characteristic features delimiting the new species from other species of *Clathria* (*Microciona*) in the Atlantic.

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