Antarctic sponges (Porifera, Demospongiae) of the South Shetland Islands and vicinity. Part II. Poecilosclerida [1]

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ABSTRACT. In the present study 16 species are registered for the South Shetland Islands and vicinity: *Acanthorhabdus fragilis* Burton, 1929, *Iophon unicornis* Topsent, 1907, *Clathria (Axosuberites) flabellata* (Topsent, 1916), *Clathria (Axosuberites) nidificata* (Kirkpatrick, 1907), *Kirkpatrickia variolosa* (Kirkpatrick, 1907), *Myxodoryx hanitschi* (Kirkpatrick, 1907), *Iotroata somovi* (Koltun, 1964), *Tedania (Tedaniopsis) charcoti* (Topsent, 1907), *Tedania (Tedaniopsis) vanhoffeni* (Hentschel, 1914), *Tedania (Tedaniopsis) oxeata* (Topsent, 1916), *Isodictya kerguelenensis* (Ridley & Dendy, 1886), *Isodictya lankesteri* (Kirkpatrick, 1907), *Isodictya toxophila* Burton, 1932, *Isodictya bentarti* Ríos, Cristobo & Urgorri, 2004, *Latrunculia (Latrunculia) brevis* Ridley & Dendy, 1886 and *Latrunculia (Latrunculia) biformis* (Kirkpatrick, 1908). Amongst the identified species, five are new occurrences for the studied region, three have their bathymetric limit extended and the others are confirmed for the studied area.
KEY WORDS. Antarctica; new occurrences; PROANTAR; taxonomy.

RESUMO. **Esponjas Antárticas (Porifera, Demospongiae) das Ilhas Shetland do Sul e áreas próximas. Parte II. Poecilosclerida.** No presente estudo 16 espécies são registradas para as Ilhas Shetland do Sul e áreas próximas: *Acanthorhabdus fragilis* Burton, 1929, *Iophon unicornis* Topsent, 1907, *Clathria (Axosuberites) flabellata* (Topsent, 1916), *Clathria (Axosuberites) nidificata* (Kirkpatrick, 1907), *Kirkpatrickia variolosa* (Kirkpatrick, 1907), *Myxodoryx hanitschi* (Kirkpatrick, 1907), *Iotroata somovi* (Koltun, 1964), *Tedania (Tedaniopsis) charcoti* (Topsent, 1907), *Tedania (Tedaniopsis) vanhoffeni* (Hentschel, 1914), *Tedania (Tedaniopsis) oxeata* (Topsent, 1916), *Isodictya kerguelenensis* (Ridley & Dendy, 1886), *Isodictya lankesteri* (Kirkpatrick, 1907), *Isodictya toxophila* Burton, 1932, *Isodictya bentarti* Ríos, Cristobo & Urgorri, 2004, *Latrunculia (Latrunculia) brevis* Ridley & Dendy, 1886 e *Latrunculia (Latrunculia) biformis* (Kirkpatrick, 1908). Dentre as espécies identificadas, cinco são novas ocorrências para a região estudada, três têm seu limite batimétrico ampliado e as demais são confirmadas para a área de estudo.
PALAVRAS-CHAVE. Antártica; novas ocorrências; PROANTAR; taxonomia.

The order Poecilosclerida is the most species-rich in the antarctic and subantarctic regions. Most species recently recorded in the region belong to the above-mentioned order (Mothes & Lerner 1995, Calcinai & Pansini 2000, Ríos *et al*. 2004). In the present study, knowledge of the recorded species in the South Shetland Islands and vicinity was amplified through descriptions and illustrations, as well as new records for the geographical and bathymetric distributions of each species.

The descriptions were extended by means of Scanning Electron Microscopy photomicrographs (SEM), which were provided in only a few previous reports.

MATERIAL AND METHODS

The samples were collected through the Brazilian Antarctic Program (PROANTAR), at the South Shetland Islands and in the Bransfield Strait (Fig. 1). Biological sampling was carried out on board of the R/V "Professor Besnard," from 20 to 412 m depth, by beam-trawl, otter-trawl, scuba diving and others, unspecified collection methods. The specimens are preserved in 96° GL alcohol and deposited in the Porifera Collection of the Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, RS, Brazil.

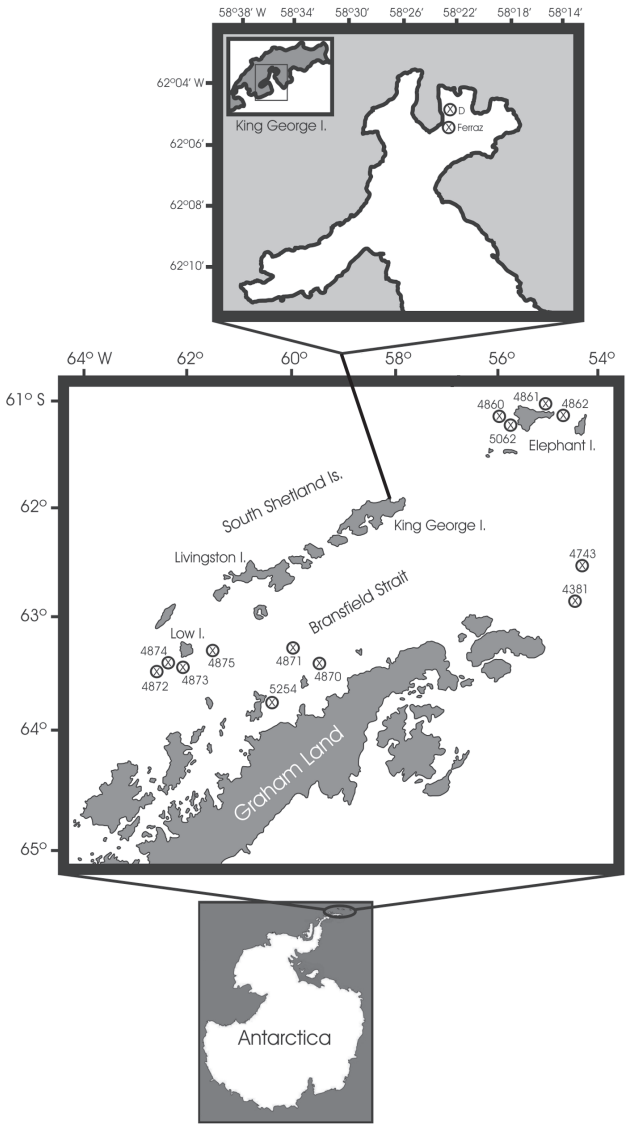


Figure 1. Map showing the collecting area.

Taxonomic study was based on the spicules, by dissociated spicule mounts and thick sections of the skeleton, following Mothes-de-Moraes (1978) and Mothes *et al*. (2004a), respectively. Preparations for SEM followed Silva & Mothes (1996). Spicule measurements comprised minimum, *mean*, and maximum sizes, width after the bar (/), N = 50.

Abbreviations used in the text are: BMNH (The Natural History Museum, London, England), MCNPOR (Porifera Collection, Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, RS, Brazil), ZIN (Zoological Institute, Russian Academy of Sciences, Saint Petersburg, Russia) and ZMB (Porifera Collection, Zoologische Museum für Naturkunde an der Universität Humboldt zu Berlin, Berlin, Germany).

RESULTS

Microcionina Hajdu, Van Soest & Hooper, 1994
Acarnidae Dendy, 1922
Acanthorhabdus fragilis Burton, 1929

Figs 2-9, Tab. I

Acanthorhabdus fragilis Burton, 1929: 432, pl. IV, fig. 2, text-fig. 5, 1932: 294, 1938: 11; Koltun, 1964: 58, pl. X, fig. 35-37; Barthel *et al*., 1990: 122, 1997: 48.

Studied material. MCNPOR 1968, St. 4871, Bransfield Strait: 63°16'S-59°55'W, 264 m, 08.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Acanthorhabdus fragilis* Burton, 1929, collected by the Antarctic Discovery Expedition, locality unknown, slide BMNH 1928.II.15.379.

Description. (Fig. 2) Massive, amorphous specimen; dimensions in cm: 8.6 length, 3.4 width, 2.5 thickness; conulose surface, hispid to the touch; superficial membrane partially broken. Oscules irregularly scattered over the surface, 0.3-0.5 cm diameter. Preserved material friable in consistency, colour dark brown with clearer regions.

Skeleton. Ectosome formed by a dense tangential arrangement of acanthorhabds (Fig. 3), with loose anisochelas. Choanosome composed of thick tracts of anisoxeas, 10-15 spicules, 350-800 µm thick (Fig. 4), which are interconnected by secondary tracts, 07-10 spicules, 220-400 µm thick. Acanthorhabds and anisochelas scattered along the choanosome.

Spicules. Megascleres: anisoxeas – smooth, slightly curved (Fig. 5); with acerate and conical/mucronate extremities (Fig. 6), in the latter the apical portion can be bifurcate and/or lightly curved; acanthorhabds – spines slightly curved towards the center of the spicule (Fig. 7); both the extremities are composed of 03-05 spines, 3.8-*5.2*-7.5 µm height (Fig. 8). Microscleres: anisochelas (Fig. 9) – palmate, with a spurred extremity. Measurements (Tab. I).

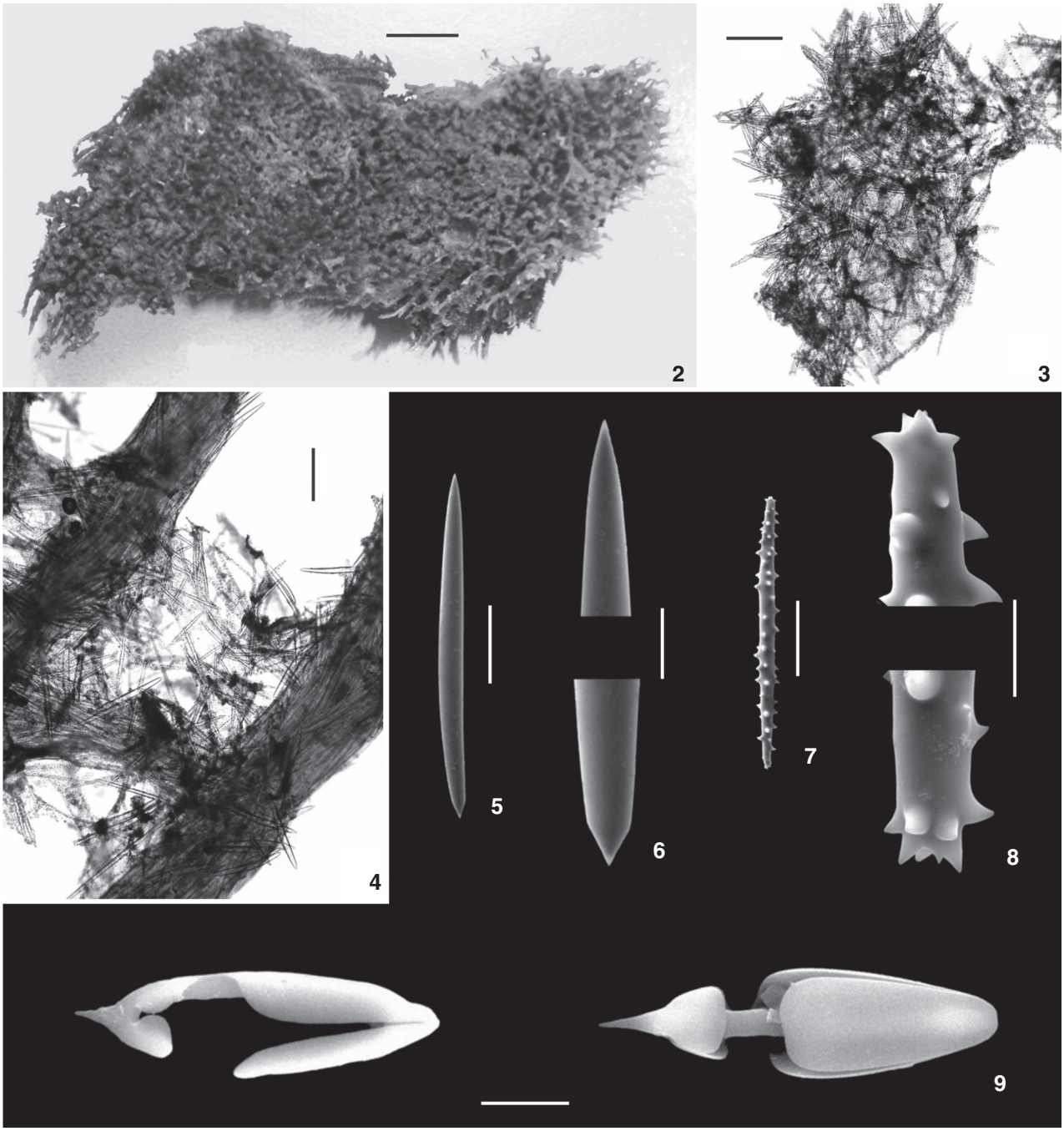
Remarks. Until now, *Acanthorhabdus fragilis* has been recorded only from Antarctica. This is the first record of the species for the studied area.

The genus *Acanthorhabdus* is atypical for the family Acarnidae, because of the morphology of the acanthorhabds and also the reticulation formed by these spicules; however, the presence of spurred chelas, which is shared with the genus *Iophon*, inserts the taxon in the Acarnidae (Hooper 2002).

The measurements of the spicules from our sample are very similar to those provided by Koltun (1964), differing only in respect to the presence of thicker anisoxeas. The comparative

Table I. *Acanthorhabdus fragilis*, spicules measurements.

MCNPOR	Anisoxeas	Acanthorhabds	Anisochelas
1968	380-*463.2*-500/ 25-*37.1*-50	280-*322.4*-380/ 12.5-*18.2*-25	20-*22.8*-27.5



Figures 2-9. *Acanthorhabdus fragilis*: (2) preserved specimen; (3) ectosomal arrangement of the skeleton; (4) choanosomal skeleton; (5) anisoxea; (6) detail of anisoxea extremities; (7) acanthorhabd; (8) detail of acanthorhabd extremities; (9) anisochelas. Scale bars: (2) 1 cm; (3) 300 µm; (4) 500 µm; (5) 100 µm; (6) 30 µm; (7) 80 µm; (8) 10 µm; (9) 5 µm.

material has slightly more-swollen anisoxeas, but in general the spiculation concords with the material of the present study.

Distribution. Antarctica: Victoria Land (Burton 1929, 1932, 1938); Wilhelm II Land (Koltun 1964); Weddell Sea (Barthel *et al*. 1990, 1997); Bransfield Strait (present study). Bathymetry: 72 to 560 m (Koltun 1964).

Iophon unicornis Topsent, 1907

Figs 10-17, Tab. II

Iophon unicornis Topsent, 1907: 72; Desqueyroux & Moyano, 1987: 49; Desqueyroux-Faúndez, 1989: 120, pl. III, fig. 17a-d, pl. XII, figs 68-70; Pansini *et al*., 1994: 75; Gutt & Koltun, 1995: 231; Cattaneo-Vietti *et al*., 1999: 540.

Iophon spatulatus Kirkpatrick, 1907: 276; Koltun, 1976: 182; Desqueyroux, 1975: 64, pl. III, figs 36-40; Sarà *et al*., 1990: 254; Barthel *et al*., 1997: 48.

Further synonym see Desqueyroux (1975) and Desqueyroux-Faúndez (1989).

Studied material. MCNPOR 1974, St. 4860, Elephant I.: 61º08'S-55º52'W, 112 m, 31.I.1986, PROANTAR IV, "beam-trawl" coll.; MCNPOR 3125, St. 'D', King George I.: 62º05'S-58º23'W, 21 m, 08.XII.1989, PROANTAR VIII, "scuba diving" coll.; MCNPOR 1991, 1994, St. 4871, Bransfield Strait: 63º16'S-59º55'W, 264 m, 08.II.1986, PROANTAR IV, "beam-trawl" coll.

Description. (MCNPOR 3125) (Fig. 10) Fragment partially broken; dimensions in cm: 2.3 length, 1.7 width, 0.8 height; slightly conulose surface, on magnifying glass it was observed the formation of small protruding spicule tracts; at apical portion there is an oscular opening (0.2 x 0.6 cm), in cylindrical form. Preserved material of fragile consistency, colour dark brown, with some regions in beige.

Skeleton. (Fig. 11) Ectosome without specialization. Choanosome formed by irregular multispicular tracts; between them megascleres are randomly distributed with loose microscleres and a little amount of spongin.

Spicules. Megascleres: styles – smooth, slightly curved, some straight (Fig. 12), basal extremity mucronate, apical extremity acerate (Fig. 13); acanthostrongyles – slightly curved (Fig. 14), one extremity with 07-11 small spines, the other with a well developed spine (Fig. 15). Microscleres: anisochelas (Fig. 16) – palmate, spurred at one extremity; bipocillas (Fig. 17) – generally in 'C'Shape, bearing curved spines in both the extremities. Measurements (Tab. II).

Remarks. Topsent (1907), in describing *I. unicornis*, found no bipocillas. This kind of spicule was observed by Kirkpatrick (1908) for *I. spatulatus*, in which their occurrence is rare. Based on the possibility that the two species are very similar, Topsent (1913) advanced the hypothesis that they would be so. This was corroborated by Desqueyroux-Faúndez (1989), who considered that the two are conspecific, and the name *I. unicornis* has priority.

Certainly the species shows intraspecific variation: in the present study, bipocillas were absent in one sample, and there was slight variation in the extremities of the acanthostrongyles. Accordingly, a generic revision to examine the real limits of this putative variation in the species diagnosis would be useful.

Distribution. Indian Ocean: Heard I. (Koltun 1976). South America: Chile (Desqueyroux & Moyano 1987); South Orkney I. (Topsent 1913). Antarctica: Graham Land (Topsent 1907, 1908, Desqueyroux-Faúndez 1989); Victoria Land (Kirkpatrick 1907, 1908, Sarà *et al*. 1990, Pansini *et al*. 1994, Cattaneo-Vietti *et al*. 1999); Wilhelm II Land (Hentschel 1914); Knox Land; Banzare Land; Princess Elisabeth Land; McRobertson Land; Princess Astrid Land (Koltun 1964); Enderby Land; Adelie Land (Vacelet & Arnaud 1972, Koltun 1976); Weddell Sea (Gutt & Koltun, 1995; Barthel *et al*. 1997); South Shetland I.: Deception I. (Desqueyroux 1975); King George I. (Koltun 1964, present study); Elephant I. (present study); Bransfield Strait (present study). Bathymetry: 0 m (Desqueyroux & Moyano 1987) to 623 m (Gutt & Koltun, 1995).

Microcionidae Carter, 1875

Microcioninae Carter, 1875

Clathria (Axosuberites) flabellata (Topsent, 1916)

Figs 18-25, Tab. III

Ophlitaspongia flabellata Topsent, 1916: 167.

Axociella flabellata; Koltun, 1964: 70, pl. XII, figs 12-14; Barthel *et al*., 1990: 123, 1997: 48; Gutt & Koltun, 1995: 230.

Clathria (Axosuberites) flabellata; Ríos *et al*. 2004:103, figs 4a-j.

Further synonym see Koltun (1964).

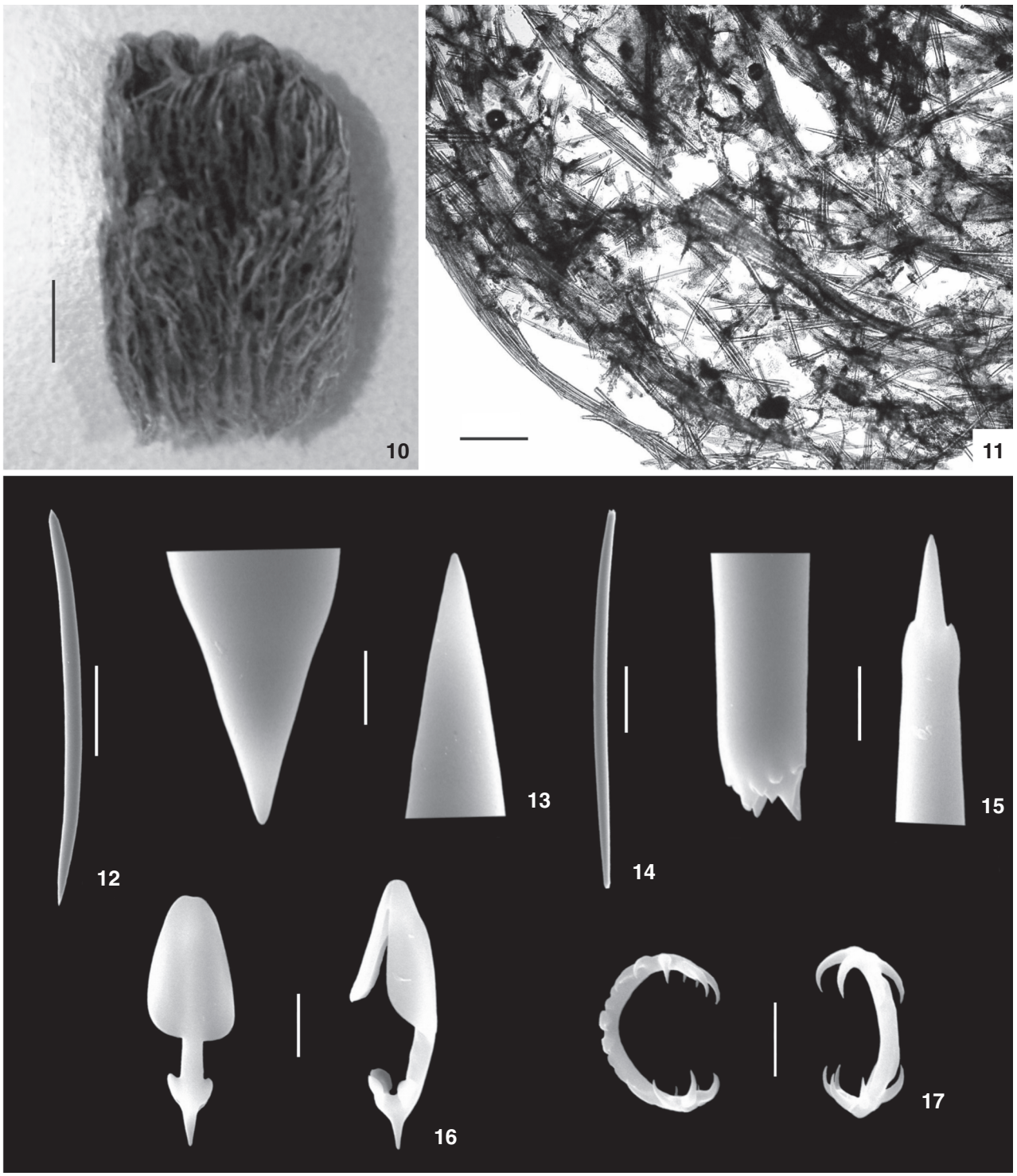
Studied material. MCNPOR 3118, St. Ferraz, King George I.: 62º05'S-58º23'W, 20 m, 03.II.1985, PROANTAR III, "trap" coll.; MCNPOR 1972, St. 4870, Bransfield Strait: 63º26'S-59º32'W, 135 m, 14.II.1986, PROANTAR IV, "beam-trawl" coll.

Description. (MCNPOR 1972) (Fig. 18) Flabellate specimen, with a longer and thin basal portion; dimensions in cm: 11.2 height, 4.7 width, 0.4 width at the basal portion; surface hispid to the touch, where on magnifying glass it can be observed some protruding spicules; only three oscular openings are present (0.1 cm diameter). Preserved material slightly elastic in consistency, colour greyish beige.

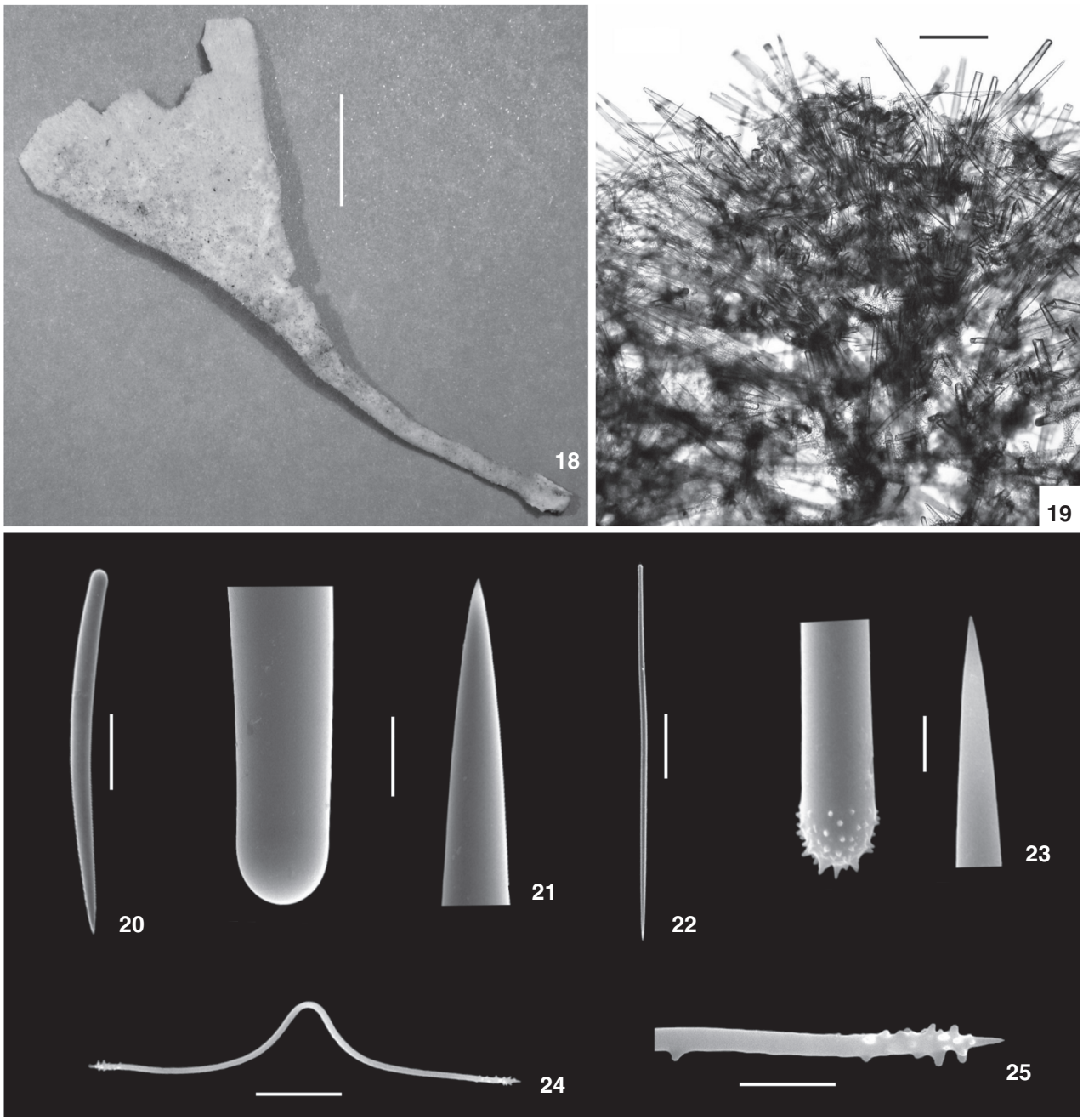
Skeleton. (Fig. 19) Ectosome formed by a crust of styles II in confusion, crust 560-800 µm thick. In such region it was also observed toxas and some amount of exogenous material.

Table II. *Iophon unicornis*, spicules measurements.

MCNPOR	Styles	Acanthostrongyles	Anisochelas	Bipocillas
1974	480-*535*-610/15-*20.6*-22.5	270-*310.8*-350/7.5-*11*-12.5	15-*19.6*-22.5	–
1991	450-*561.4*-620/12.5-*24.5*-27.5	260-*311*-380/8.8-*12.2*-15	16.3-*19.6*-23.8	8.8-*11.2*-12.5
1994	480-*553*-630/17.5-*24.9*-35	230-*250*-280/5.0-*7.6*-10	16.3-*18.6*-21.3	10-*11.4*-13.8
3125	390-*472.4*-540/11.3-*18.6*-22.5	250-*287.8*-330/5.0-*8.8*-11.3	18.8-*20.6*-23.8	10-*12.3*-13.8



Figures 10-17. *Iophon unicornis*: (10) preserved specimen; (11) skeleton; (12) style; (13) detail of style extremities; (14) acanthostrongyle; (15) detail of acanthostrongyle extremities; (16) anisochelas; (17) bipocillas. Scale bars: (10) 0.5 cm; (11) 500 µm; (12) 100 µm; (13) 5 µm; (14) 50 µm; (15) 10 µm; (16), (17) 5 µm.



Figures 18-25. *Clathria (Axosuberites) flabellata*:. (18) preserved specimen; (19) skeleton; (20) style I; (21) detail of style I extremities; (22) style II; (23) detail of style II extremities; (24) toxa; (25) detail of toxa extremity. Scale bars: (18) 2 cm; (19) 500 µm; (20) 100 µm; (21) 20 µm; (22) 100 µm; (23), 5 µm; (24), 20 µm; (25) 5 µm.

Choanosome made of styles I, condensed in an axial arrangement.

Spicules. Megascleres: styles I – smooth, curved, some sinuous (Fig. 20), apical extremity acerate (Fig. 21); styles II – straight (Fig. 22), basal portion bearing small spines (Fig. 23). Microscleres: toxas – opening angle varies slightly (Fig. 24); spined extremities (Fig. 25). Measurements (Tab. III).

Remarks. Based on the literature, the toxas show some differences in regard to size classes. Topsent (1917) and Koltun (1964) recorded only one size class; on the other hand, Ríos *et al*.

Table III. *Clathria (Axosuberites) flabellata*, spicules measurements.

MCNPOR	Styles I	Styles II	Toxas
1972	420-*688.4*-1050/ 25-*36.2*-53.8	380-*579*-750/ 2.5-*7.4*-12.5	80-*153.4*-220/ < 2.5
3118	470-*740.2*-1250/ 17.5-*32.1*-57.5	340-*579.4*-850/ 2.5-*7.9*-13.8	*75-133.6*-247.5/ < 2.5

(2004) reported toxas in three categories. In the present study, it was impossible to separate them into classes, because even though the size varied widely, there were no clear limits for categories. The presence of toxas in a wider size variation reported by Ríos *et al*. (2004) perhaps made possible this differentiation.

The synonymy with *C. nidificata* (Kirkpatrick, 1907), proposed by Koltun (1976) and Desqueyroux (1975), also including *C. rameus* Koltun, 1964, may not be confirmed by more detailed analysis of these species. Their spiculation clearly differs, in regard to the dimensions of the styles and mainly of the toxas. The external morphology of the three species also seems to characterize different groups: *C. flabellata* is flabellate, *C. nidificata* is arborescent with coalescent branches and *C. rameus* is composed of a single branch.

Distribution. South America: South Georgia (Burton 1932, 1934). Antarctica: Graham Land (Topsent 1916, 1917); Ross Sea (Burton 1929); Clarie Land; McRobertson Land; Victoria Land (Koltun 1964); Weddell Sea (Barthel *et al*. 1990, 1997, Gutt & Koltun 1995); Bransfield Strait (present study); South Shetland I.: Livingston I. (Ríos *et al*. 2004); King George I. (present study). Bathymetry: 20 m (Ríos *et al*. 2004, present study) to 700 m (Koltun 1964).

Clathria (Axosuberites) nidificata (Kirkpatrick, 1907)

Figs 26-35, Tab. IV

Ophlitaspongia nidificata Kirkpatrick, 1907: 274.

Axociella nidificata; Burton, 1940: 116; Koltun, 1964: 70, pl. XII, figs 7-11, 1976: 190; Desqueyroux, 1975: 67; Sarà *et al*., 1990: 254; Barthel *et al*., 1990: 123, 1997: 48; Pansini & Sarà, 1999: 205; Cattaneo-Vietti *et al*., 1999: 540.

Clathria (Axociella) nidificata; Mothes & Lerner, 1995: 159, figs 22-27, 55.

Further synonym see Burton (1940).

Studied material. MCNPOR 1969, St. 4874, Bransfield Strait: 63º25'S-62º19'W, 135 m, 14.II.1986, PROANTAR IV, "beam-trawl" coll.; MCNPOR 1993, St. 4872, Bransfield Strait: 63º28'S-62º31'W, 168 m, 13.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Clathria (Axosuberites) nidificata* (Kirkpatrick, 1907), collected by the Brazilian Antarctic Program, locality: Joinville I., MCNPOR 1144 (identified by B. Mothes & C. B. Lerner).

Description. (MCN 1969) (Fig. 26) Palmate specimen, constituted by three main branches, two of them bifurcated and anastomosed at the terminal portion; dimensions in cm: 8.4 height, 6.2 width, branches ranging from 1.2-1.5 diameter; surface hispid to the touch, with thin erect conules regularly distributed; oscules not visualized. Preserved material slightly hard, with incompressible consistency, colour beige with greyish regions.

Skeleton. (Fig. 27) Ectosome with no specialization, with a discrete agglomeration of toxas I and II. Choanosome with an axial condensation, originating from a 'center' Where megascleres are arranged in confusion; multispicular tracts runs towards the surface, 140-230 µm thick. Between the tracts there are free spicules and a little amount of spongin.

Spicules. Megascleres: styles I – smooth, straight to curved (Fig. 28), apical extremity acerate (Fig. 29); styles II – straight, tornote-like (Fig. 30), with rounded spined extremities (Fig. 31). Microscleres: toxas I – microspined extremities (Figs 32, 33), some of them slightly twisted; toxas II – similar to general morphology of toxas I (Figs 34, 35). Measurements (Tab. IV).

Remarks. In our samples, two size classes of toxas could be distinguished, mainly by the width and by the presence of well-developed spines at the extremities of toxas I. The measurements of styles I are larger than those given in previous records of the species. However, considering only one valid taxon rather than three (see remarks on *C. flabellata*), some records cannot supply the characteristics that truly belong to the species proposed here.

Distribution. South America: Argentina (Burton 1940); Magellan Strait (Pansini & Sarà 1999); South Georgia (Burton 1932). Antarctica: Victoria Land (Kirkpatrick 1907, 1908, Burton 1929, Sarà *et al*. 1990, Cattaneo-Vietti *et al*. 1999); Clarie Land, McRobertson Land (Koltun 1964); Enderby Land (Koltun 1976); Weddell Sea (Barthel *et al*. 1990, 1997); South Shetland I.: Greenwich I. (Desqueyroux 1975); Elephant I. (Mothes & Lerner 1995), King George I. (Koltun 1964); Bransfield Strait (present study); Joinville I. (Mothes & Lerner 1995). Bathymetry: 84 m (Burton 1940) to 540 m (Burton 1929).

Myxillina Hajdu, Van Soest & Hooper, 1994

Hymedesmiidae Topsent, 1928

Kirkpatrickia variolosa (Kirkpatrick, 1907)

Figs 36-41, Tab. V

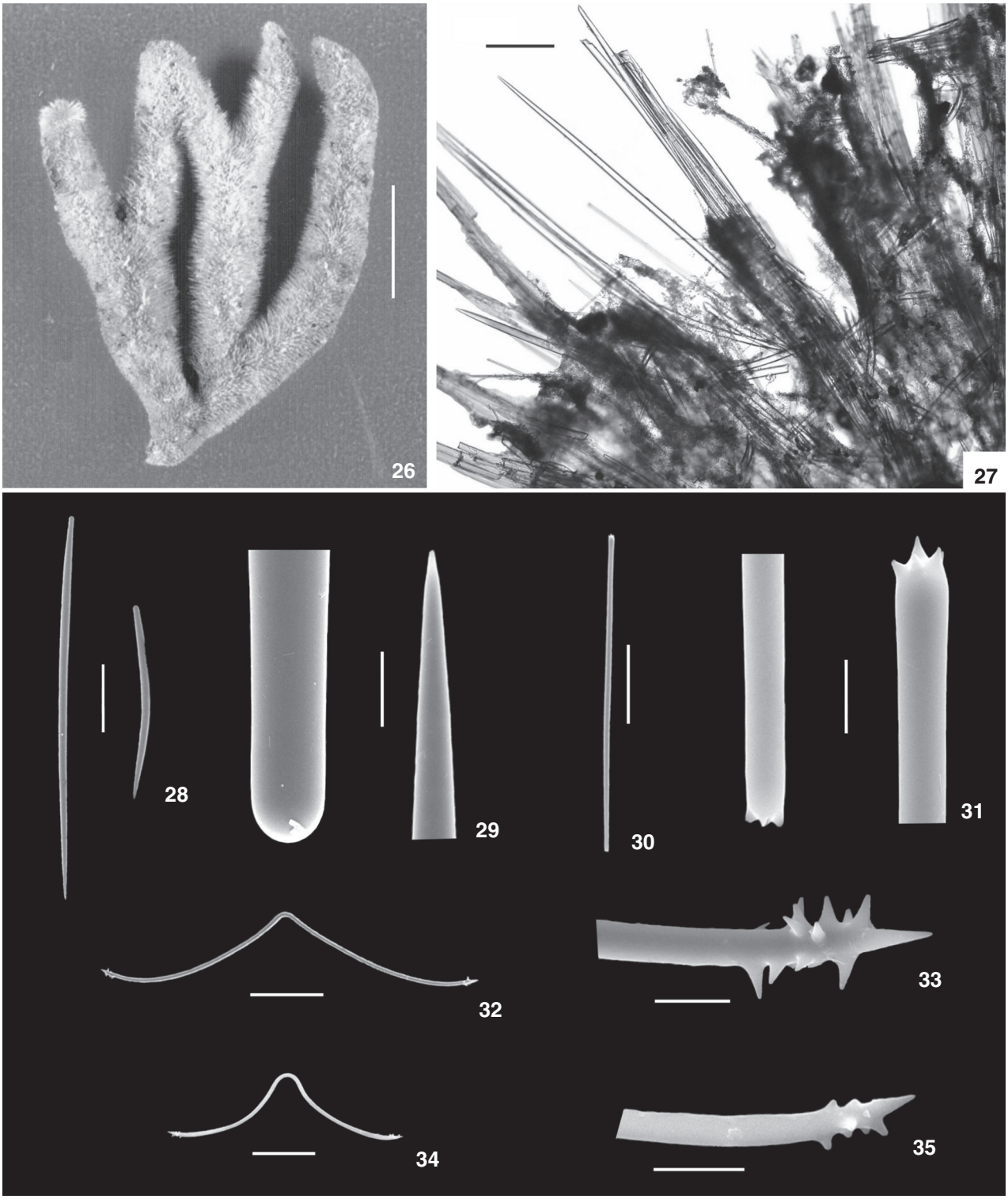
Tedania variolosa Kirkpatrick, 1907: 279.

Kirkpatrickia variolosa; Koltun, 1976: 182; Barthel *et al*., 1990: 122, 1997: 48.

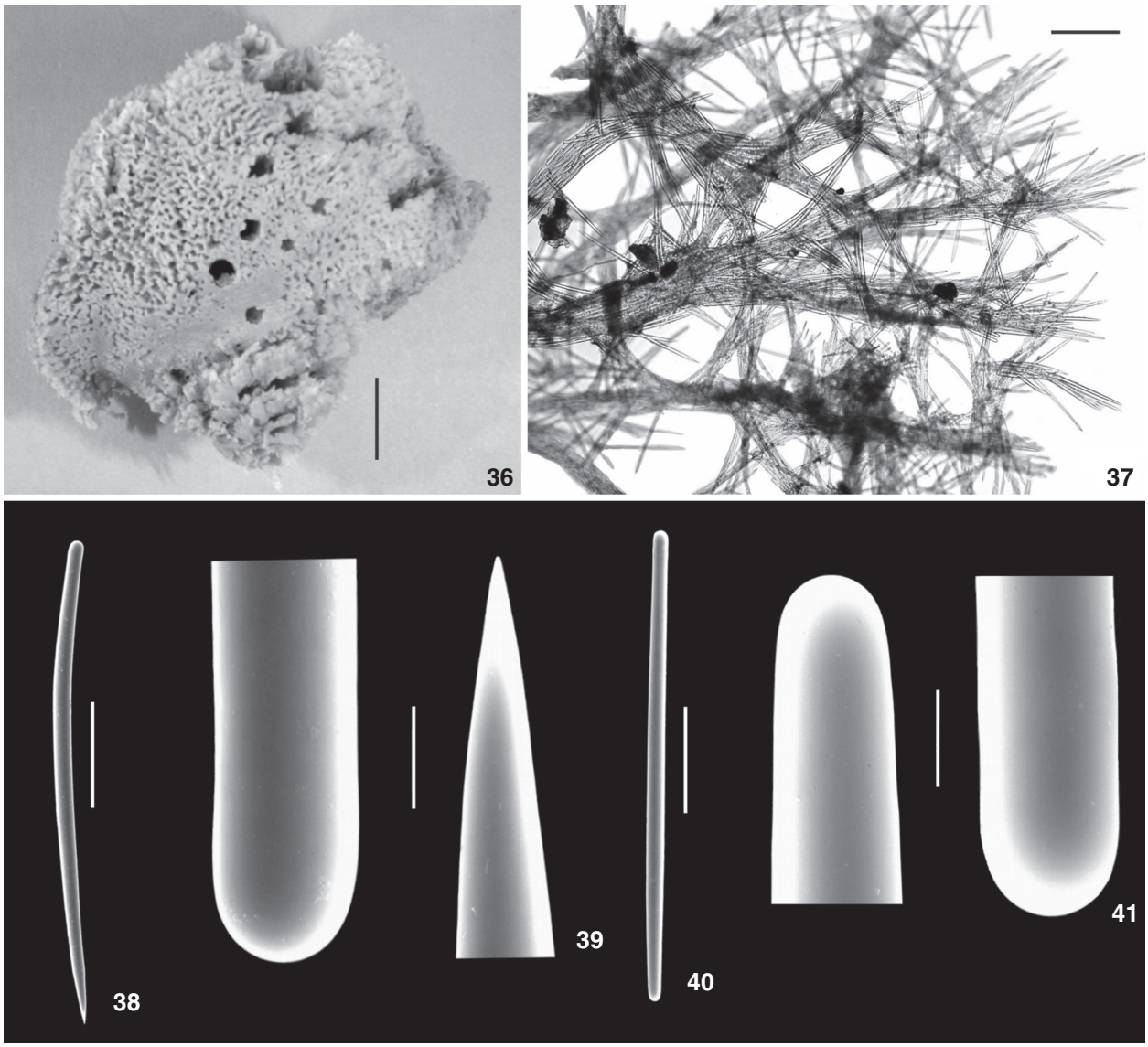
Further synonym see Koltun (1976).

Studied material. MCNPOR 1947, St. 4870, Bransfield Strait: 63º26'S-59º32'W, 135 m, 08.II.1986, PROANTAR IV, "beam-trawl" coll.; MCNPOR 3140, St. 5254, Bransfield Strait: 63º44'S-60º25'W, 108 m, 25.I.1988, PROANTAR VI, "otter-trawl" coll.

Description. (MCNPOR 1947) (Fig. 36) Globose specimen; dimensions in cm: 7.5 height, 10.2 length, 7.7 width; conulose surface, due to some skeletal features presented by spicule tracts;



Figures 26-35. *Clathria (Axosuberites) nidificata*: (26) preserved specimen; (27) skeleton; (28) style I; (29) detail of style I extremities; (30) style II; (31) detail of style II extremities; (32) toxa I; (33) detail of toxa I extremity; (34) toxa II; (35) detail of toxa II extremity. Scale bars: (26) 2 cm; (27) 500 µm; (28) 300 µm; (29) 20 µm; (30) 75 µm; (31) 7 µm; (32) 120 µm; (33) 10 µm; (34) 25 µm; (35) 5 µm.



Figures 36-41. *Kirkpatrickia variolosa*: (36) preserved specimen; (37) skeleton; (38) style; (39) detail of style extremities; (40) tornote; (41) detail of tornote extremities. Scale bars: (36) 2 cm; (37) 500 µm; (38) 100 µm; (39) 10 µm; (40) 50 µm; (41) 5 µm.

Table IV. *Clathria (Axosuberites) nidificata*, spicules measurements.

MCNPOR	Styles I	Styles II	Toxas I	Toxas II
1969	520-*1173.6*-2240/22.5-*37.5*-47.5	280-*392.8*-570/3.8-*6.0*-8.8	310-*564.2*-810/3.8-*5.7*-8.8	95-*164*-275/< 2.5
1993	580-*1276.4*-2740/27.5-*40.6*-53.8	280-*411*-600/3.8-*6.4*-8.8	285-*455.2*-712.5/2.5-*5.3*-9.2	78.2-*144.2*-230/< 2.5

Table V. *Kirkpatrickia variolosa*, spicules measurements.

MCNPOR	Styles	Tornotes
1947	380-*431.9*-475/ 12.7-*14.8*-18.4	209-*266.6*-304/ 6.9-*7.7*-9.2
3140	323-*397.7*-446.5/ 11.5-*15.7*-18.4	199.5-*249.5*-285/ 5.8-*7.2*-8.1

oscules amongst the conules (< 0.1-0.5 cm diameter). Preserved material compressible, slightly fragile, colour beige.

Skeleton. (Fig. 37) Ectosome with tornotes arranged in brushes, 12-18 spicules. Choanosome formed by multispicular ascending tracts of styles, 80-220 µm thick; tracts are irregularly connected, both by spicules (in such case perpendicular

to the surface) and by the bifurcation of the tracts.

Spicules. Megascleres: styles – slightly curved, some straight or slightly sinuous (Fig. 38); basal extremity sometimes with small lobular salience, apical extremity varying from acerate to conical (Fig. 39); tornotes – smooth, straight, some slightly curved (Fig. 40), one of the halves can be a little more swelled; blunt extremities (Fig. 41). Measurements (Tab. V).

Remarks. The spiculation of the specimens analysed shows almost no morphological variation in regard to previously published data (Kirkpatrick 1908, Koltun 1964).

The chemical composition of *K. variolosa* has stimulated important studies in this field. McClintock & Gauthier (1992) showed that an extract from *K. variolosa* inhibits the development of certain bacteria. Perry *et al*. (1994) isolated a compound (variolin B) that shows antitumor and antiviral properties. Trimurtulu *et al*. (1994) isolated other compounds (variolin A and N(3')-methyl tetrahydrovariolin B), the latter showing antifungal activity and moderate cytotoxicity. Jayatilake *et al*. (1995) examined this conspicuous red sponge, isolating and identifying a new stilbene derivative, which showed varied biological and pharmacological activity.

Distribution. South America: South Georgia (Burton 1932). Antarctica: Victoria Land (Kirkpatrick 1907, 1908); McRobertson Land (Koltun 1964); Adelie Land; Wilhelm II Land; Enderby Land (Koltun 1976); Weddell Sea (Barthel *et al*. 1990, 1997); Bransfield Strait (Burton 1932, present study). Bathymetry: 18 m (Kirkpatrick 1907) to 640 m (Koltun 1976).

Myxodoryx hanitschi (Kirkpatrick, 1907)

Figs 42-49, Tab. VI

Lissomyxilla hanitschi Kirkpatrick 1907: 336.

Myxodoryx hanitschi; Koltun, 1964: 76, 1976: 182; Desqueyroux-Faúndez, 1989: 115, pl. III, figs 13a-d, pl. X, fig. 57; Barthel *et al*., 1990: 123; Pansini *et al*., 1994: 76, pl. VII, figs 2a-c; Cattaneo-Vietti *et al*., 1999: 540.

Further synonym see Koltun (1964).

Studied material. MCNPOR 1956, St. 4875, Bransfield Strait: 63°17'S-62°30'W, 157 m, 14.I.1983, PROANTAR IV, "beam-trawl" coll.

Description. (Fig. 42) Flabellate specimen; dimensions in cm: 12.6 length, 9.5 width, 2.2 height; smooth surface; rounded oscular openings, 0.1-0.4 cm diameter, randomly distributed along the surface, some of them can be often obstructed by a thin dermal membrane. Preserved material slightly compressible, colour beige.

Skeleton. (Fig. 43) Ectosome with no specialization. Choanosome a dense arrangement of longitudinal multispicular tracts, irregularly connected by grouped spicules, together with abundant spongin, forming rounded openings. Tracts running toward the surface, where it forms the superficial hispidation together with free spicules. Equination of the tracts by the acanthostyles was not observed.

Spicules. Megascleres: styles – slightly curved, some straight or sinuous (Fig. 44), most of them with no spination or scarcely spined, varying along the shaft, more concentrated at the apical portion; apical extremity acerate (Fig. 45); acanthostyles – straight or slightly curved (Fig. 46), microspination more concentrated towards to both extremities; some with few spines (Fig. 47); tornotes – straight, some sinuous, central portion slightly swollen (Fig. 48); slightly unequal extremities, being one of them acerate and the other mucronate (Fig. 49). Measurements (Tab. VI).

Table VI. *Myxodoryx hanitschi*, spicules measurements.

MCNPOR	Styles	Acanthostyles	Tornotes
1956	350-*398.4*-460/ 15-*17.9*-21.3	128.8-*182.6*-225.4/ 4.6-*6.9*-9.2	260-*292*-330/ 7.5-*8.3*-10

Remarks. Until now, the species is endemic for Antarctica, with its distribution extended in that continent with the present record from the study area.

Its spicules show some differences in regard to previous records for the species; the three kinds of spicules have, in this study, lower limits with smaller values in comparison to published data (Kirkpatrick 1908, Hentschel 1914, Topsent 1917, Burton 1938, Koltun 1976, Desqueyroux-Faúndez 1989, Pansini *et al*. 1994). In regard to the morphology of the spicules, some styles bear spines, although most have a totally smooth shaft. Some acanthostyles have the spines regularly distributed along the shaft, but most bear spines mainly at their extremities; tornotes have slightly unequal extremities, but the mucronate pattern was also observed. Desqueyroux-Faúndez (1989) observed a discrete spination near the basal extremity.

Our SEM microphotographs of the spicules allowed better observation of details, aiding in emending the species diagnosis.

Distribution. Antarctica: Victoria Land (Kirkpatrick 1907, 1908, Pansini *et al*. 1994); Graham Land (Topsent 1917, Desqueyroux-Faúndez 1989); Wilhelm II Land (Hentschel 1914); Queen Mary Land (Burton 1938); Princess Elisabeth Land (Koltun 1976); Bransfield Strait (present study). Bathymetry: 20 m (Desqueyroux-Faúndez 1989) to 622 m (Burton 1938).

Iotrochotidae Dendy, 1922

Iotroata somovi (Koltun, 1964)

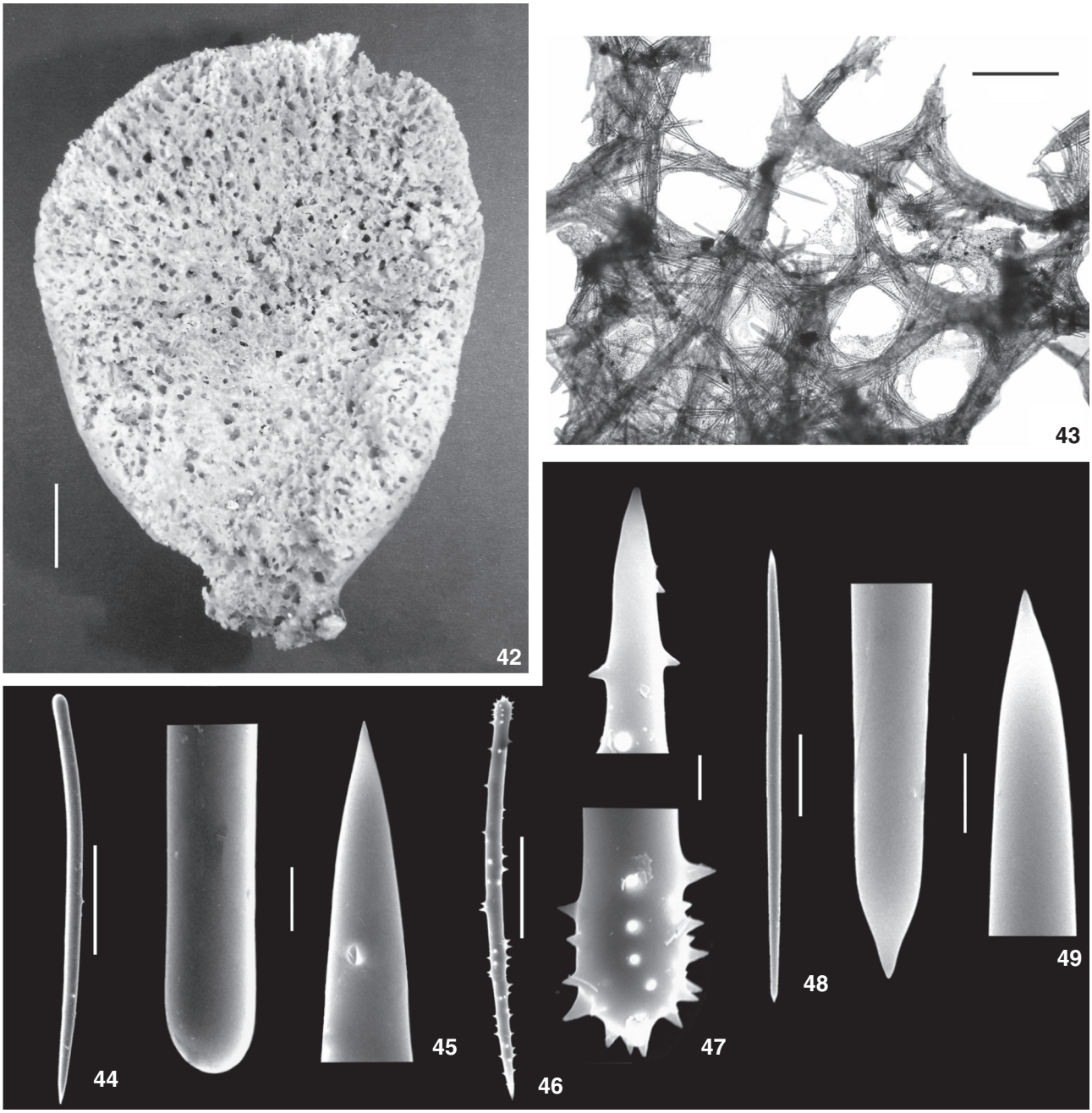
Figs 50-57, Tab. VII

Iotrochota somovi Koltun, 1964: 52, text-fig. 12; Barthel *et al*, 1990: 122; Gutt & Koltun, 1995: 231.

Iotaota somovi; Koltun, 1976: 182.

Studied material. MCNPOR 2018, St. 4861, Elephant I.: 61°02'S-54°55'W, 362 m, 01.II.1986, PROANTAR IV, "beam-trawl" coll.

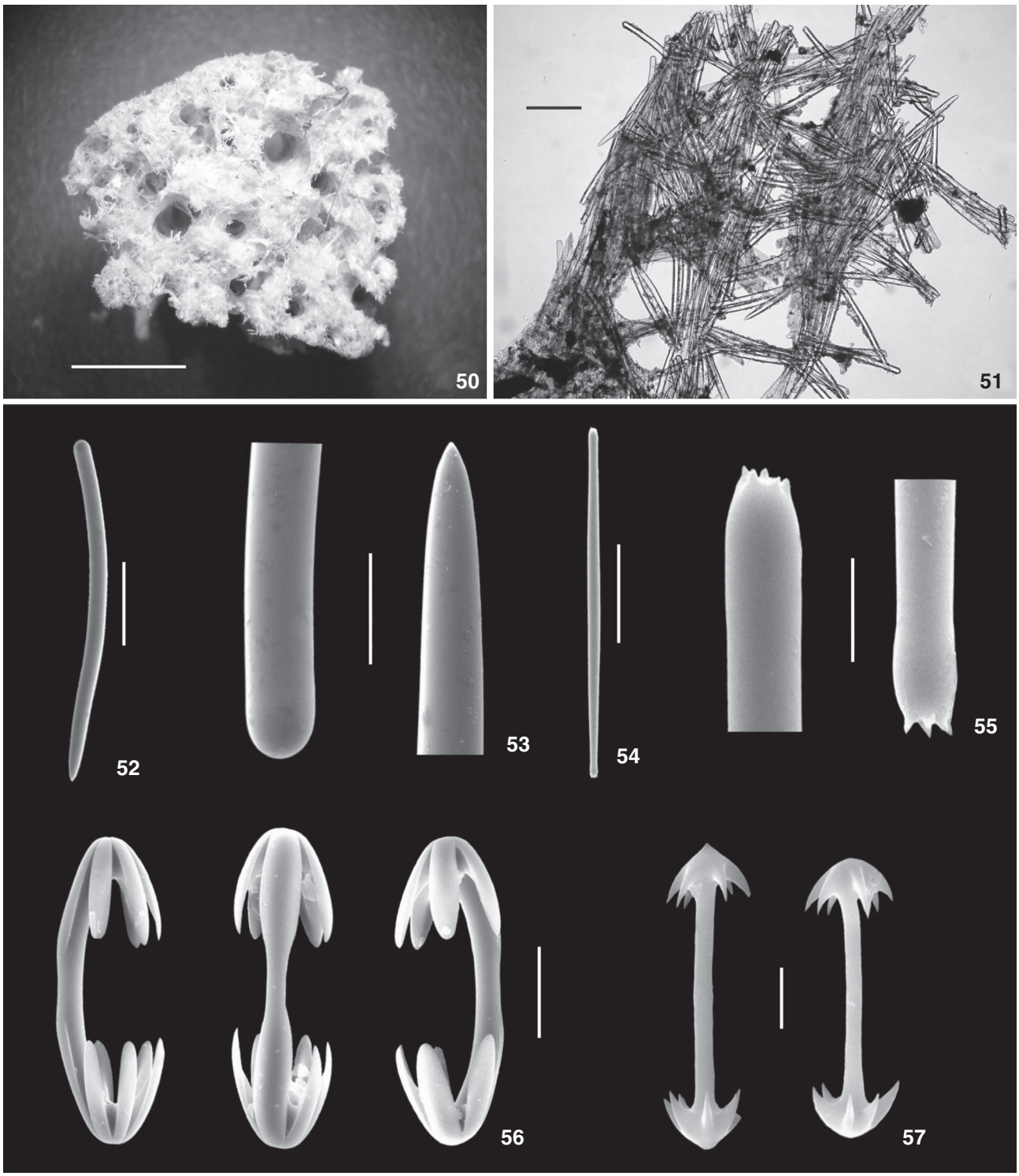
Examined material for comparison. *Iotroata somovi* (Koltun, 1964), collected by the Soviet Antarctic Expedition, locality: Banzare Land, Antarctica, slide ZIN 6350 (holotype).



Figures 42-49. *Myxodoryx hanitschi*: (42) preserved specimen; (43) skeleton; (44) style; (45) detail of style extremities; (46) acanthostyle; (47) detail of acanthostyle extremities; (48) tornote; (49) detail of tornote extremities. Scale bars: (42) 2 cm; (43) 500 µm; (44) 100 µm; (45) 10 µm; (46) 50 µm; (47) 5 µm; (48) 50 µm; (49) 5 µm.

Table VII. *Iotroata somovi*, spicules measurements.

	Styles	Tylotes	Isochelas	Birotulas
MCNPOR 2018	610-*662.6*-730/30-*36.7*-45	240-*307*-340/8.8-*10.2*-12.5	65-*79.1*-95	22.5-*29.9*-40
ZIN 6350	541.5-*611.8*-684/19.6-*25.3*-31.1	275.5-*335*-380/8.1-*10.2*-12.7	41.4-*52.3*-59.8	19.6-*23.9*-28.8



Figures 50-57. *Iotroata somovi*: (50) preserved specimen; (51) skeleton; (52) style; (53) detail of style extremities; (54) tylotes; (55) detail of tylote extremities; (56) isochelas; (57) birotulas. Scale bars: (50) 0.5 cm; (51) 500 µm; (52) 150 µm; (53) 50 µm; (54) 75 µm; (55) 10 µm; (56) 20 µm; (57) 5 µm.

Description. (Fig. 50) Fragment, dimensions in cm: 1.7 length, 1.5 width, 1.0 height; slightly hispid surface, on magnifying glass it can be observed some protruding spicules and conules, this latter bonded by spongin; pores and/or oscules distributed by all over the surface, 0.1-0.3 cm diameter. Preserved material firm in consistency, colour beige.

Skeleton. (Fig. 51) Ectosomal features were not observed. Choanosome with coarse longitudinal multispicular tracts, 7-11 spicules, 250-370 µm thickness. The tracts are interconnected by irregularly disposed spicules, forming openings at diverse angles. Spongin present mainly between the tracts; microscleres dispersed by the choanosome.

Spicules. Megascleres: styles – smooth, slightly curved, some straight or sinuous (Fig. 52); apical extremity conical, some rounded (Fig. 53); tylotes – smooth, straight (Fig. 54), slightly swollen extremities, presenting 05-08 small spines (Fig. 55). Microscleres: isochelas (Fig. 56) – anchorate, well developed free alae; birotulas (Fig. 57) – extremities bearing spines (05-07), curved and acerate ends. Measurements (Tab. VII).

Remarks. Up to the present, this species is considered endemic to the Antarctic continent. *I. somovi* does not have a wide geographic distribution; this record is the first for the study area. However, its bathymetric range is wide (for details, see distribution, below).

Spicule measurements were reported previously only by Koltun (1964). Comparative material is morphologically identical to the studied material (remeasurement: Table VII). The sample from the present study has larger dimensions for the styles, birotulas and isochelas, consequently amplifying the description of the spicules; SEM illustrations made it possible for the first time to observe details of the spicules, especially the microscleres.

Distribution. Antarctica: Banzare Land (Koltun 1964); Enderby Land; Sabrina Land (Koltun 1976); Weddell Sea (Barthel *et al*. 1990; Gutt & Koltun 1995); South Shetland I.: Elephant I. (present study). Bathymetry: 208 m (Gutt & Koltun 1995) to 2267 m (Koltun 1976).

Tedaniidae Ridley & Dendy, 1886

Tedania (Tedaniopsis) charcoti (Topsent, 1907)

Figs 58-68, Tab. VIII

Tedania charcoti Topsent, 1907: 69; Burton, 1940: 106; Lévi, 1964: 149, text-fig. 1, pl. I, fig. 1; Koltun, 1964: 60, pl. X, figs 31-34, 1976: 184; Desqueyroux, 1976: 103; Sarà, 1978: 49, 1991: 233; Cuartas, 1986: 46, 1992: 79: Desqueyroux & Moyano, 1987: 49; Desqueyroux-Faúndez, 1989: 121, pl. III, figs 18a-c, pl. XII, figs 71; Barthel *et al*., 1990: 122; Pansini *et al*., 1994: 76; Gutt & Koltun, 1995: 230; Desqueyroux-Faúndez & Van Soest, 1996: 55, figs 105-110; Cattaneo-Vietti *et al*., 1999; Ríos *et al*., 2004: 107, text-figs 7A-J.

Tedania armata Sarà, 1978: 51, text-figs 30-31; Pansini & Sarà, 1999: 205.

Further synonym see Koltun (1964) and Desqueyroux-Faúndez (1989).

Studied material. MCNPOR 3134, St. 5062, Elephant I.: 61°12'S-55°40'W, 98 m, 26.II.1987, PROANTAR V, "otter-trawl" coll.

Examined material for comparison. *Tedania (Tedaniopsis) charcoti* (Topsent, 1907), collected by the Brazilian Antarctic Program, locality: Joinville I., MCNPOR 1136 (identified by B. Mothes & C. B. Lerner).

Description. (Fig. 58) Massive, amorphous specimen; dimensions in cm: 8.2 length, 4.9 width, 3.8 height; smooth surface, characterized by a thin membrane, which is absent in some regions, but some ridges and grooves occur over the surface; only one oscule was observed (0.15 cm in diameter). Preserved material with compressible consistency, colour beige.

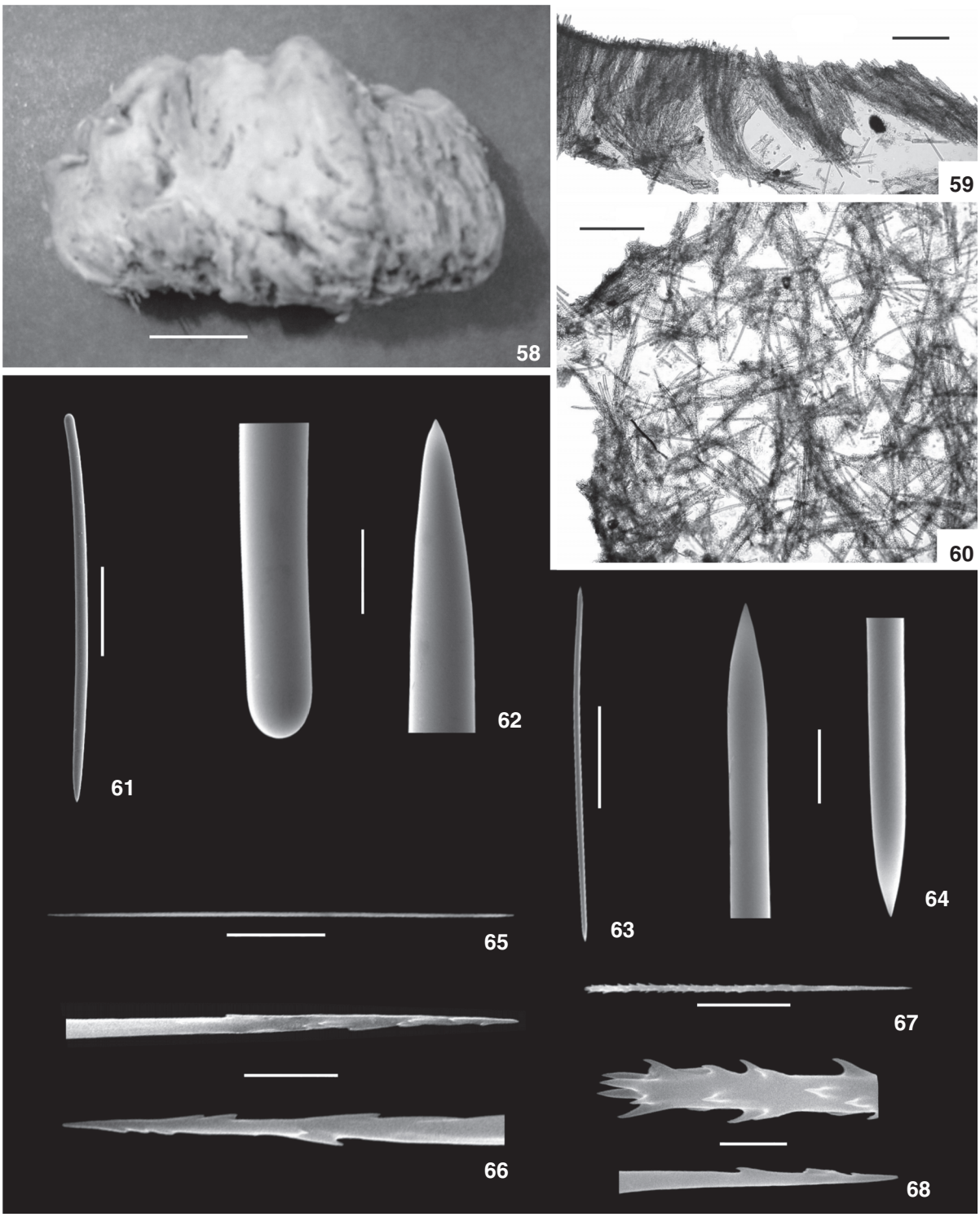
Skeleton. Ectosome composed of a palisade of tornotes, sometimes forming discrete bouquets (Fig. 59). Choanosome with a confuse reticulation, with irregular tracts of styles, connected by isolated spicules (Fig. 60); spongin abundant. Onychaetes dispersed along the choanosome.

Spicules. Megascleres: styles – of varied curvature and/or sinuous (Fig. 61); apical extremity acerate or slightly mucronate (Fig. 62); tornotes – straight or slightly curved (Fig. 63); conical to acerate extremities, slightly swollen at the terminal portion (Fig. 64). Microscleras: onychaetes I – poorly developed spines (Fig. 65), sharp-pointed extremities (Fig. 66); onychaetes II – well developed spines, thicker towards the basal extremity (Fig. 67); asymmetrical ends (Fig. 68). Measurements (Tab. VIII).

Remarks. The spicule measurements of our material are very similar to those previously reported for this species, with the exception of Desqueyroux-Faúndez (1989) and Sarà (1978), who reported smaller styles. In regard to the onychaetes, Desqueyroux-Faúndez (1989) and Sarà (1978) cited only one category of these spicules, instead of two as found in the present study.

Gaino *et al*. (1994) reported a constant association of this species with diatoms, supporting the notion that diatoms may be responsible for the presence of chlorophyll pigments and thus suggesting the existence of a different trophic strategy linked to the Antarctic environment. Capon *et al*. (1993) observed the occurrence of a high natural concentration of cadmium and zinc, with an extract being able to modulate protein phosphorylation and to inhibit the growth of several species of bacteria.

Distribution. Indian Ocean: Kerguelen I. (Lévi 1964; Boury-Esnault & Van Beveren 1982). South America: Chile (Desqueyroux 1976; Desqueyroux & Moyano 1987; Desqueyroux-Faúndez & Van Soest 1996); Argentina (Cuartas 1992); Magellan Strait (Sarà 1991; Pansini & Sarà 1999); Tierra del Fuego (Sarà 1978); Falkland I. (Cuartas 1986); South Georgia; Shag Rocks (Burton 1932); Burdwood Bank (Topsent 1913; Burton 1934). Antarctica: South Orkney I. (Burton 1940); Graham Land (Topsent 1907; 1908); Queen Mary Land; Adelie Land (Burton 1938); Wilhelm II Land (Koltun 1964); Enderby Land; McRobertson Land (Koltun 1976); Victoria Land (Pansini *et al*. 1994; Cattaneo-Vietti *et al*. 1999); Weddell Sea (Barthel *et al*. 1990; Gutt & Koltun 1995); South Shetland I.: Greenwich I. (Desqueyroux 1975); Livingston I. (Ríos



Figures 58-68. *Tedania (Tedaniopsis) charcoti*: (58) preserved specimen; (59) ectosomal arrangement of the skeleton; (60) choanosomal skeleton; (61) style; (62) detail of style extremities; (63) tornote; (64) detail of tornote extremities; (65) onychaete I; (66) detail of onychaete I extremities; (67) onychaete II; (68) detail of onychaete II extremities. Scale bars: (58) 2 cm; (59) 300 µm; (60) 500 µm; (61) 100 µm; (62) 15 µm; (63) 100 µm; (64) 10 µm; (65) 50 µm; (66) 3 µm; (67) 20 µm; (68) 2 µm.

Table VIII. *Tedania (Tedaniopsis) charcoti*, spicules measurements.

MCNPOR	Styles	Tornotes	Onychaetes I	Onychaetes II
3134	380-*457.2*-520/10-*12.8*-15	300-*348.4*-390/6.3-*7.6*-8.8	200-*228.6*-310/1.0-*1.8*-2.5	75-*90.1*-115/< 1.0

et al. 2004); Elephant I. (Desqueyroux-Faúndez 1989; present study). Bathymetry: 0 m (Desqueyroux-Faúndez 1989) to 728 m (Burton 1932).

Tedania (Tedaniopsis) vanhoffeni (Hentschel, 1914)

Figs 69-78, Tab. IX

Tedania vanhoffeni Hentschel, 1914: 90, pl. VI, fig. 13; Koltun, 1964: 60; Boury-Esnault & Van Beveren, 1982: 96, pl. XVI, fig. 62, text-figs 27a-f; Barthel *et al*., 1990: 122; 1997: 48.

Studied material. MCNPOR 3108, St. 4871, Bransfield Strait: 63º16'S-59º55'W, 264 m, 08.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Tedania (Tedaniopsis) vanhoffeni* Hentschel 1914, collected by the Deutsche Südpolar Expedition, locality: Gauss Station, Wilhelm II Land, Antarctica, slide ZMB 4844 (holotype). Additional material: *T. vanhoffeni*, collected by the REVIZEE – Sul Program, locality: off Rio Grande do Sul State coast, Brazil, slide MCNPOR 3694.

Description. (Fig. 69) Fragment; dimensions in cm: 0.9 length, 0.7 width, 0.3 height; hispid surface, with protruding spicules; oscules and/or pores not observed. Preserved material (?) stiff consistency, colour beige.

Skeleton. (Fig. 70) Ectosome absent (broken). Choanosome composed of multispicular tracts, reinforced by a certain amount of spongin and several free spicules. Other details of the skeletal architecture were not analyzed due to the fragment degree of the sample.

Spicules. Megascleres: styles – straight, slightly curved or sinuous (Fig. 71); apical extremity blunt, some conical or stepped (Fig. 72); tornotes – straight (Fig. 73), unequal extremities (acerate and mucronate) (Fig. 74). Microscleres: onychaetes I – asymmetrical extremities; one of them acerate and microspined, the other a little more swelled with a well developed terminal spine (Figs 75, 76); onychaetes II (Figs 77-78) – similar in morphology to onychaetes I, one extremity blunt with terminal spines and the other acerate with a larger spine. Measurements (Tab. IX).

Remarks. This is a species with few records; the present study provides a new occurrence of *T. vanhoffeni*. Illustration of spicules was improved by SEM analyses, mainly permitting detailed observation of the general morphology of the onychaetes.

Comparison with the holotype confirmed the identification of the sample (remeasurement: table IX). Subtle differences were noted in the holotype: thinner styles and onychaetes I, in addition to tornotes having swollen extremities with a slight microspination; on the other hand, both sets of material share certain characteristics, such as the sinuosity present in some styles, and mainly the details of the extremities of the two categories of onychaetes.

Barthel (1995) noted that individuals of this species are large and soft-bodied, and exude copious quantities of slime when disturbed. Barthel & Gutt (1992) observed that *T. vanhoffeni* is a very soft species, easily damaged in trawls.

Distribution. Indian Ocean: Kerguelen I. (Boury-Esnault & Van Beveren 1982). South America: off Rio Grande do Sul State coast, Brazil (Mothes *et al*. 2004b). Antarctica: Wilhelm II Land (Hentschel 1914; Koltun 1964); Weddell Sea (Barthel *et al*. 1990; 1997); Bransfield Strait (present study). Bathymetry: 46 m (Hentschel 1914) to 499 m (Koltun 1964).

Tedania (Tedaniopsis) oxeata (Topsent, 1916)

Figs 79-88, Tab. X

Tedania oxeata Topsent, 1916: 169; Burton, 1938: 15; Vacelet & Arnaud, 1972: 18; Desqueyroux, 1975: 65; Barthel *et al*., 1990: 122, 1997: 48; Gutt & Koltun, 1995: 230; Mothes & Lerner, 1995: 161, figs 33-41, 57.

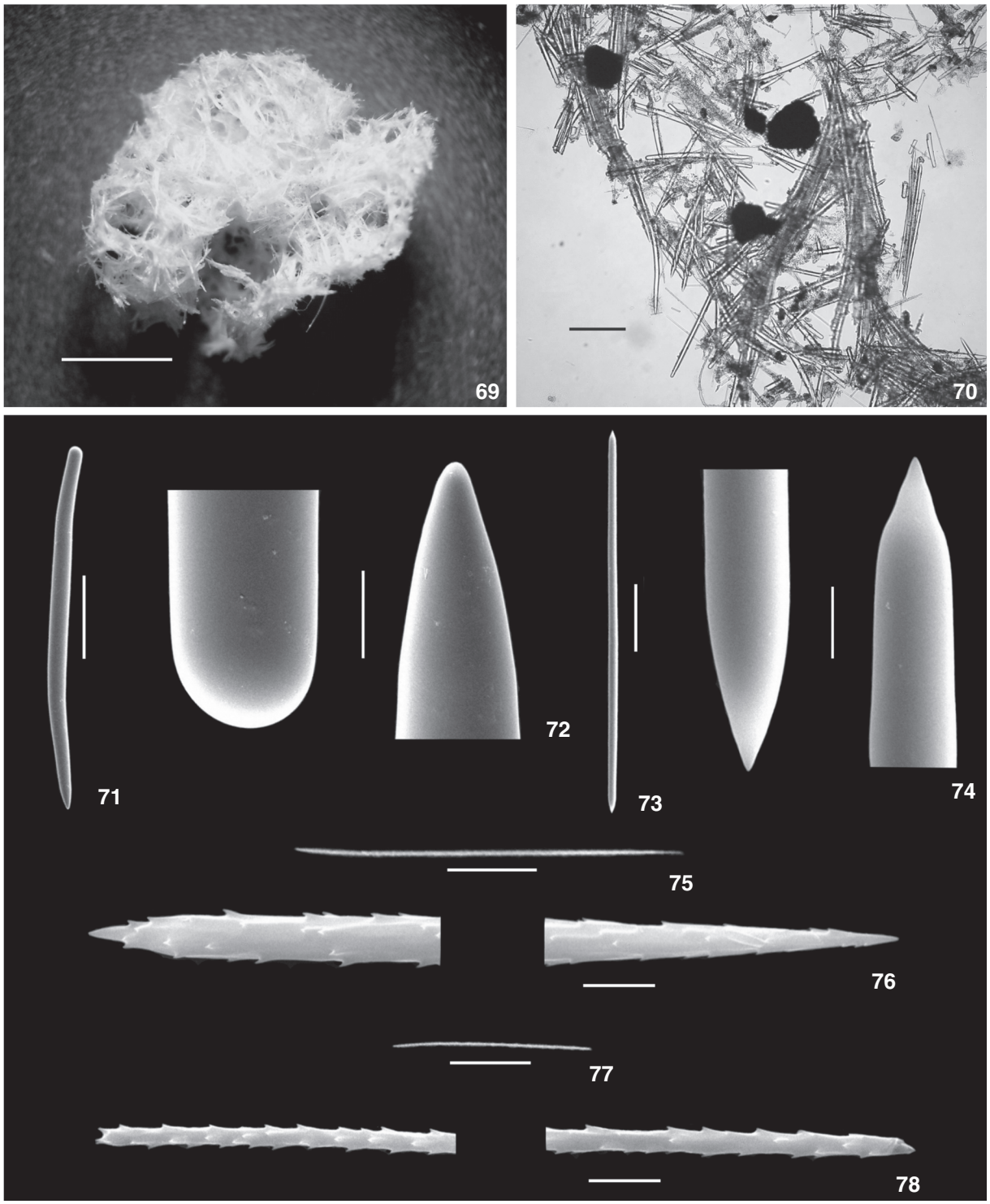
Further synonym see Desqueyroux (1975).

Studied material. MCNPOR 1566, St. 4381, Bransfield Strait: 62º48'S-54º20'W, 280 m, 18.I.1983, PROANTAR I, "beam-trawl" coll.; MCNPOR 2008, St. 4873, Bransfield Strait: 63º25'S-62º05'W, 66 m, 13.II.1986, PROANTAR IV, "beam-trawl" coll.

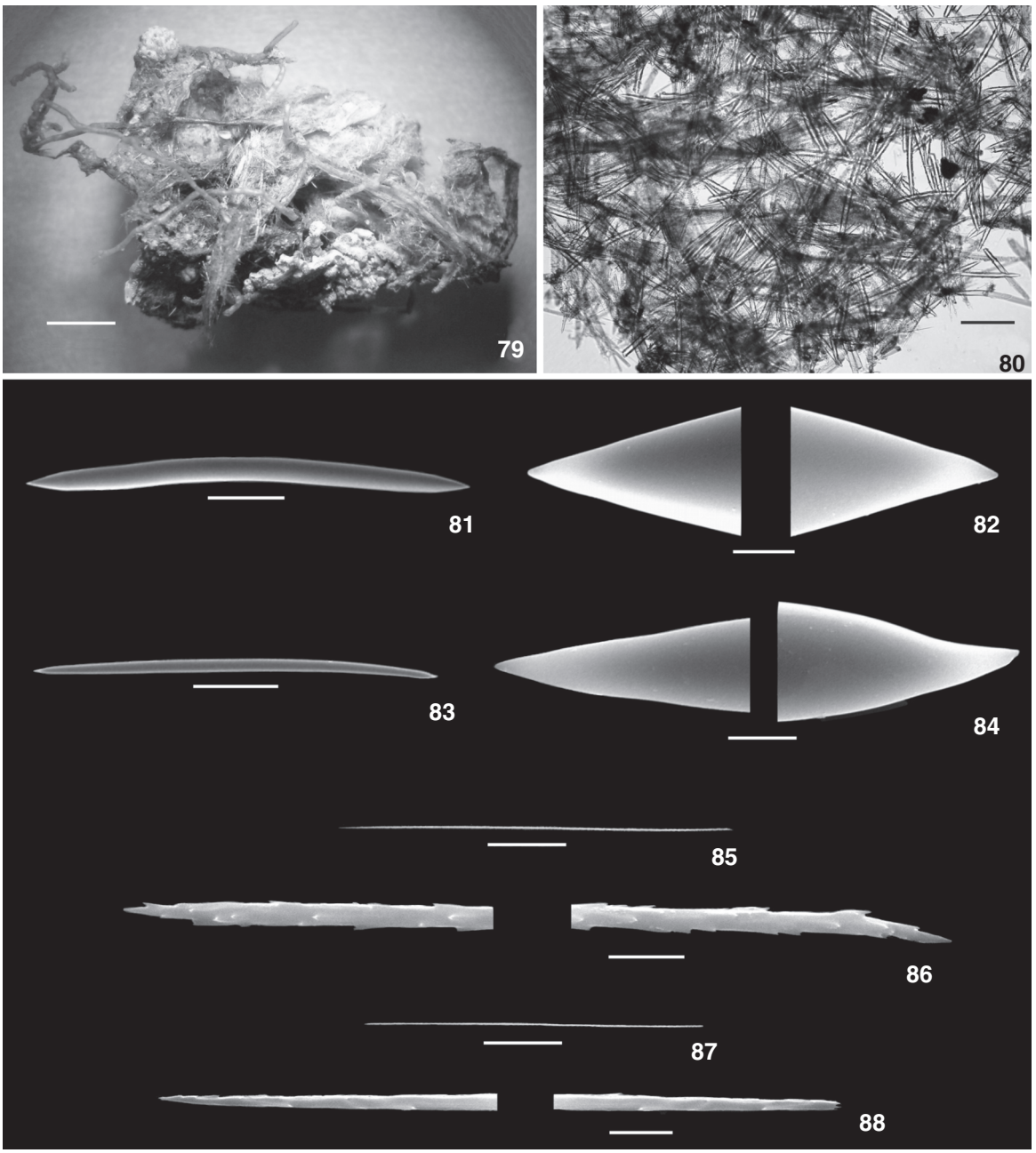
Examined material for comparison. *Tedania (Tedaniopsis) oxeata* (Topsent, 1916), collected by the Brazilian Antarctic Program, locality: Joinville I., MCNPOR 1134 (identified by B. Mothes & C. B. Lerner).

Table IX. *Tedania (Tedaniopsis) vanhoffeni*, spicules measurements.

	Styles	Tornotes	Onychaetes I	Onychaetes II
MCNPOR3108	590-*649.6*-720/26.3-*32.9*-40	290-*343.4*-390/6.3-*7.9*-10	389.5-*440.9*-513/3.5-*4.7*-5.8	87.4-*115.5*-154.1/2.5
MCNPOR3694	418-*471.4*-532/16.3-*20.3*-23.8	250-*269*-290/3.8-*5.3*-6.3	290-*338.2*-370/2.5	107.5-*138.6*-155/2.5-*3.5*-5.0
ZMB 3108	570-*639*-779/15-*20.4*-26.5	275.5-*329.7*-361/4.6-*5.8*-6.9	427.5-*510.7*-570/2.5	66.7-*90.1*-110.4/2.5



Figures 69-78. *Tedania (Tedaniopsis) vanhoffeni*: (69) preserved specimen; (70) skeleton; (71) style; (72) detail of style extremities; (73) tornote; (74) detail of tornote extremities; (75) onychaete I; (76) detail of onychaete I extremities; (77) onychaete II; (78) detail of onychaete II extremities. Scale bars: (69) 0.3 cm; (70) 500 µm; (71) 150 µm; (72) 15 µm; (73) 50 µm; (74) 5 µm; (75) 100 µm; (76) 5 µm; (77) 50 µm; (78) 5 µm.



Figures 79-88. *Tedania (Tedaniopsis) oxeata*: (79) preserved specimen; (80) skeleton; (81) oxea; (82) detail of oxea extremities; (83) tornote; (84) detail of tornote extremities; (85) onychaete I; (86) detail of onychaete I extremities; (87) onychaete II; (88) detail of onychaete II extremities. Scale bars: (79) 0.3 cm; (80) 500 µm; (81) 100 µm; (82) 5 µm; (83) 100 µm; (84) 5 µm; (85) 75 µm; (86) 5 µm; (87) 15 µm; (88) 5 µm.

Table X. *Tedania (Tedaniopsis) oxeata*, spicules measurements.

MCNPOR	Oxeas	Tornotes	Onychaetes I	Onychaetes II
1566	541.5-*596.2*-655.5/20.7-*25.1*-29.9	380-*458.9*-532/6.9-*11.7*-16.1	332.5-*377.5*-418	55.2-*71.5*-92
2008	541.5-*595.8*-655.5/27.6-*32.2*-36.8	418-*477.1*-541.5/11.5-*15.3*-17.3	323-*368.2*-418	59.8-*71*-98.9

Description. MCNPOR 1566 (Fig. 79) Fragment infested with briozoans and small coralline plates; dimensions in cm: 1.7 length, 1.2 width, 0.7 height; due to their conservation state, it was not possible to characterize surface, consistency and presence of oscules. Preserved material fragile in consistency, colour beige.

Skeleton. (Fig. 80) Ectosome not visualized. Choanosome with a dense and confuse reticulation, and multispicular tracts; spongin present. In the rest of the skeleton the spicules are dispersed, sometimes grouped in small tufts.

Spicules. Megascleres: oxeas – straight or slightly curved (Fig. 81), some sinuous or twisted, and rarely style-like; extremities varying from conical to acerate, or slightly mucronate (Fig. 82); tornotes – straight or slightly curved (Fig. 83); extremities vary between conical, hastate, acerate or mucronate forms (Fig. 84). Microscleres: onychaetes I – with reduced but well distributed spines along the shaft (Fig. 85); acerate extremities, one of them bearing larger spines (Fig. 86); onychaetes II – well developed spines (Fig. 87); unequal extremities, one acerate and the other blunt with terminal spines (Fig. 88). Measurements (Tab. X).

Remarks. *T. oxeata* is very conspicuous in the subgenus *Tedaniopsis*, because it is until the present the only species of this group that has oxeas, rather than styles, in its spiculation. In regard to this, measurements provided by Topsent (1917) and Koltun (1964) indicated larger and thicker styles and tornotes. The material studied for the present report has spicules with similar dimensions to those reported by Mothes & Lerner (1995).

Our samples are very fragmented, making it impossible to compare them in respect to external features. Barthel (1995) observed that *T. oxeata* has a hard, almost brittle consistency, in accordance with Topsent (1917), who described a sample of firm but fragile consistency. The present data extend the bathymetric distribution.

Distribution. Antarctica: Graham Land (Topsent 1916; 1917); Victoria Land (Burton 1929); Queen Mary Land; Knox Land; Clarie Land; McRobertson Land; Banzare Land (Koltun 1964); Adelie Land (Vacelet & Arnaud 1972); Weddell Sea (Barthel *et al*. 1990; 1997; Gutt & Koltun 1995); Joinville I. (Mothes & Lerner 1995); Bransfield Strait (present study); South Shetland I.: Greenwich I. (Desqueyroux 1975); Clarence I. (Burton 1932). Bathymetry: 66 m (present study) to 920 m (Koltun 1964).

Mycalina Hajdu, Van Soest & Hooper, 1994

Isodictyidae Dendy, 1924

Isodictya kerguelenensis (Ridley & Dendy, 1886)

Figs 89-93, Tab. XI

Homoeodictya kerguelenensis Ridley & Dendy, 1886: 346.

Isodictya kerguelenensis; Lévi, 1956: 27, text-fig. 2-3; Koltun, 1976: 175; Vacelet & Arnaud, 1972: 16; Desqueyroux-Faúndez, 1989: 113, pl. III, figs 11a-b, pl. IX, fig. 52; Barthel *et al*., 1990: 122; Cuartas, 1992: 75, text-figs 5, 6, 62; Ríos *et al*., 2004: 114, figs 14a-d.

Isodictya antarctica; Koltun, 1964: 42, pl. VIII, figs 17-18, 1976: 175; Desqueyroux, 1972: 51; Vacelet & Arnaud, 1972: 16, figs 3-4; Barthel *et al*., 1990: 122.

Further synonym see Koltun (1964) and Desqueyroux-Faúndez (1989).

Studied material. MCNPOR 1952, St. 4862, Elephant I.: 61º08'S-54º34'W, 240 m, 01.II.1986, PROANTAR IV, "beam-trawl" coll.; MCNPOR 3122, St. 4874, Bransfield Strait: 63º25'S-62º19'W, 135 m, 14.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Isodictya kerguelenensis* (Ridley & Dendy, 1886), collected by the Challenger Expedition, locality unknown, slide BMNH 1887.5.2.166a. Additional material: *Isodictya antarctica* (Kirkpatrick, 1908), collected by the Antarctic Discovery Expedition, locality unknown, slide BMNH 1928.ii.15.348a.

Description. (MCNPOR 1952) (Fig. 89) Massive, amorphous specimen; dimensions in cm: 11.8 length, 8.2 width, 1.8 height; conulose surface; oscules randomly scattered, at one side of the surface, in general at the apex of the conules, 0.1-0.4 cm diameter. Preserved material fragile but with incompressible consistency, colour beige.

Skeleton. (Fig. 90) Ectosome with no specialization. Choanosome formed by a dense and confuse reticulation, with multispicular tracts of oxeas (05-08 spicules, 100-150 µm thick) and a great amount of spongin and free spicules (including microscleres). Tracts tend to be thinner toward the surface.

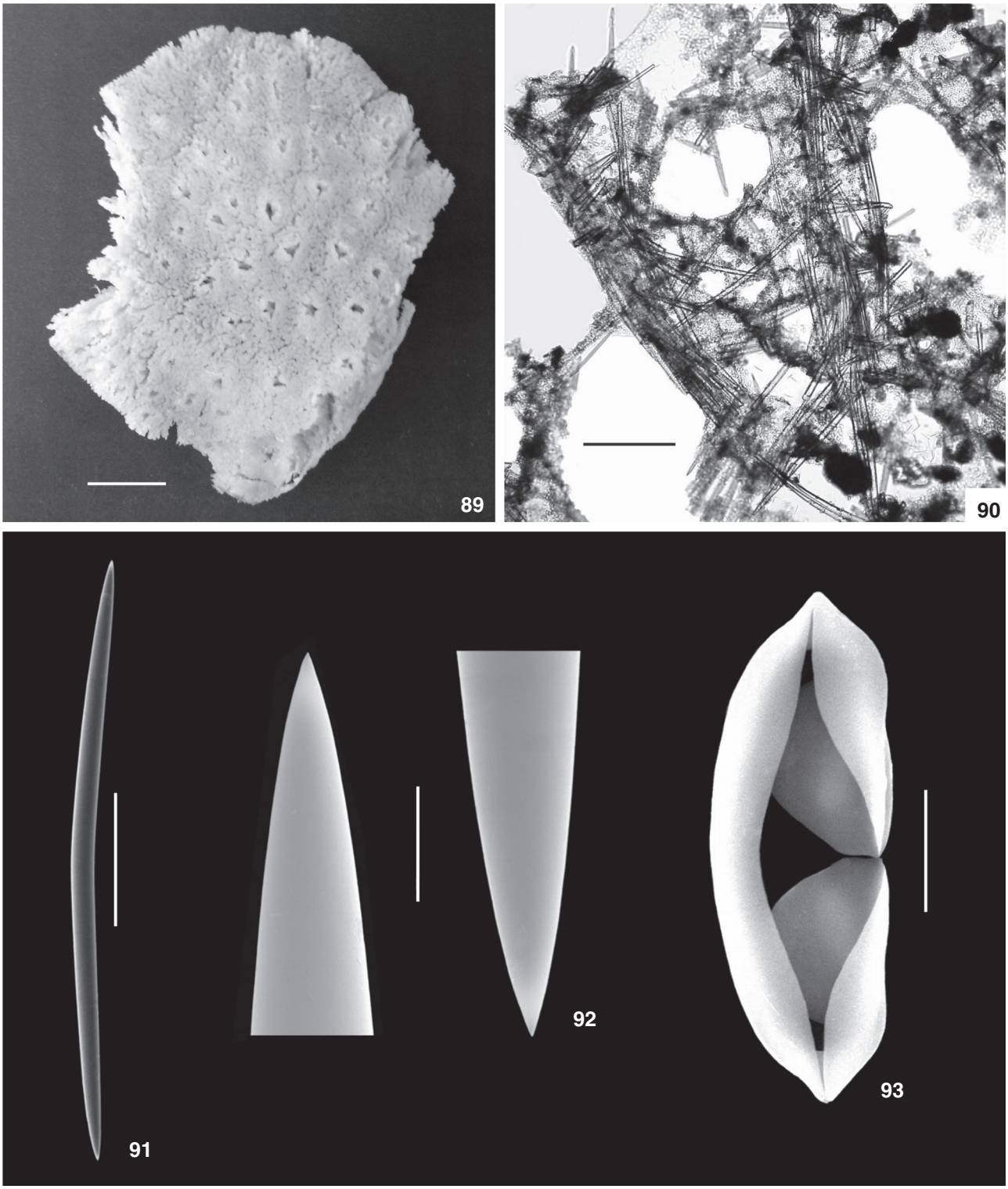
Spicules. Megascleres: oxeas – straight to slightly curved (Fig. 91); acerate extremities (Fig. 92). Microscleres: isochelas (Fig. 93) – palmate, lateral alae well developed. Measurements (Tab. XI).

Table XI. *Isodictya kerguelenensis*, spicules measurements.

MCNPOR	Oxeas	Isochelas
1952	400-*479.4*-560/22.5-*27.4*-32.5	20-*23.8*-25
3122	550-*658.2*-770/15-*21.6*-30	16.3-*19.9*-22.5

Remarks. Boury-Esnault & Van Beveren (1982) and Ríos *et al*. (2004) considered *I. antarctica* a junior synonym of *I. kerguelenensis*, which was previously noted by Koltun (1976). In the synonymy of *I. antarctica* are included two variations of *I. kerguelenensis* (*simillima* and *cactoides*), both proposed by Hentschel (1914).

Desqueyroux-Faúndez (1989) stated that *I. kerguelenensis* is a polymorphic species, in regard to the external morphology and spicules. A large morphological difference can be observed in the form of the isochelas, mainly in the alae contour; Ríos *et al*. (2004) observed several different growth stages in these spicules. In the samples from the present study, a certain variation in the dimensions of the oxeas was noted, whereas the isochelas are identical. The comparative material corroborates



Figures 89-93. *Isodictya kerguelenensis*: (89) preserved specimen; (90) skeleton; (91) oxea; (92) detail of oxea extremities; (83) isochela. Scale bars: (89) 2 cm; (90) 500 µm; (91) 150 µm; (92) 15 µm; (93) 5 µm.

this information, and it was possible to observe the variations related to the species.

Distribution. Indian Ocean: Kerguelen I. (Ridley & Dendy 1886; 1887; Lévi 1956; Koltun 1964; Boury-Esnault & Van Beveren 1982); Heard I. (Koltun 1976; Boury-Esnault & Van Beveren 1982). South America: Argentina (Cuartas 1992); Falkland I.; South Georgia (Burton 1932). Antarctica: Graham Land (Topsent 1908; 1917); Victoria Land (Kirkpatrick 1908; Burton 1929; 1938); Queen Mary Land (Burton 1938); Wilhelm II Land (Hentschel 1914); Adelie Land (Burton 1938; Vacelet & Arnaud 1972); Queen Mary Land; Knox Land; Princess Elisabeth Land (Koltun 1964); Enderby Land; McRobertson Land (Koltun 1976); Weddell Sea (Barthel *et al*. 1990); South Shetland I.: Deception I. (Desqueyroux 1975); Livingston I. (Ríos *et al*. 2004); Greenwich I. (Desqueyroux 1972); Elephant I. (Desqueyroux-Faúndez 1989; present study); Bransfield Strait (Desqueyroux-Faúndez 1989; present study). Bathymetry: 2 m (Topsent 1908) to 1266 m (Koltun 1976).

Isodictya lankesteri (Kirkpatrick, 1907)

Figs 94-98, Tab. XII

Cercidochela lankesteri Kirkpatrick, 1907: 284; Burton, 1932: 287, 1934: 21; Desqueyroux, 1975: 61, pl. II, figs 21-22; Barthel *et al*., 1990: 122, 1997: 48; Gutt & Koltun, 1995: 231.
Further synonym see Desqueyroux (1975).

Studied material. MCNPOR 3161, St. Ferraz, King George I.: 62º05'S-58º23'W, 20 m, 03.II.1985, PROANTAR III, "scuba diving" coll.; MCNPOR 3133, 3137, 3142, St. 4743, Bransfield Strait: 62º30'S-54º16'W, 412 m, 28.I.1985, PROANTAR III, "beam-trawl" coll.

Examined material for comparison. *Isodictya lankesteri* (Kirkpatrick, 1907), collected by the Antarctic Terra Nova Expedition, locality unknown, slide BMNH 1926.10.26.151a.

Description. (MCNPOR 3142) (Fig. 94) Massive, amorphous specimen; dimensions, in cm: 12.5 length, 5.0 width, 2.0 height; smooth surface, hispid to the touch; oscules in both the surfaces (larger 0.7 cm diameter), slightly elliptical. Under a magnifying glass it was observed, at the surface, the ends of spicule tracts; between them occur several rounded pores, 0.1-0.2 cm in diameter, randomly distributed along the surface. Preserved material extremely friable in consistency, colour white with marooned regions.

Skeleton. (Fig. 95) Ectosome with no specialization. Choanosome with longitudinal multispicular tracts of oxeas, 170-300 µm thick, running toward the surface and responsible for the superficial hispidation. Between the tracts free oxeas and spongin also occur. Microscleres abundant along the choanosome.

Spicules. Megascleres: oxeas – slightly curved, some straight (Fig. 96), acerate extremities (Fig. 97). Microscleres: canonochelas (Fig. 98) – some with swollen central salience, alae can be slightly twisted, overlapped or even fused. Measurements (Tab. XII).

Remarks. The presence of a very conspicuous spicule (canonochela) allows *I. lankesteri* to be well differentiated among the species of *Isodictya* found in the study area.

In the present study, the description of the surface openings is extended, because Burton (1929; 1934) only cited the presence of openings in one of the sides of the sponge. Details of spicules and skeletal architecture are identical to the material examined for comparison. The bathymetric limit of the species is extended.

Distribution. South America: Shag Rocks (Burton 1934). Antarctica: Victoria Land (Kirkpatrick 1907; 1908; Burton 1929); Palmer Archipelago (Burton 1932); Wilhelm II Land (Hentschel 1914); Knox Land (Koltun 1964); Enderby Land; McRobertson Land (Koltun 1976); Weddell Sea (Barthel *et al*. 1990; 1997; Gutt & Koltun 1995); Graham Land (Desqueyroux 1972); South Shetland I.: Greenwich I. (Desqueyroux 1975); King George I. (present study); Bransfield Strait (present study). Bathymetry: 20 m (present study) to 840 m (Koltun 1964).

Table XII. *Isodictya lankesteri*, spicules measurements.

MCNPOR	Oxeas	Canonochelas
3133	280-*382*-490/15-*21.1*-27.5	57.5-*63.1*-67.5
3137	270-*374.8*-500/15-*23.2*-35	55-*60.9*-67.5
3142	300-*396.6*-520/12.5-*22.5*-30	55-*61.6*-67.5
3161	290-*385.2*-520/17.5-*23.6*-30	57.5-*64.2*-70

Isodictya toxophila Burton, 1932

Figs 99-104, Tab. XIII

Isodictya toxophila Burton, 1932: 286, pl. LII, figs 2-3, pl. LIII, figs 1-2, text-fig. 18; Koltun, 1964: 43, pl. VIII, figs 19-22; Barthel, *et al*. 1990: 122, 1997: 48; Gutt & Koltun, 1995: 231.

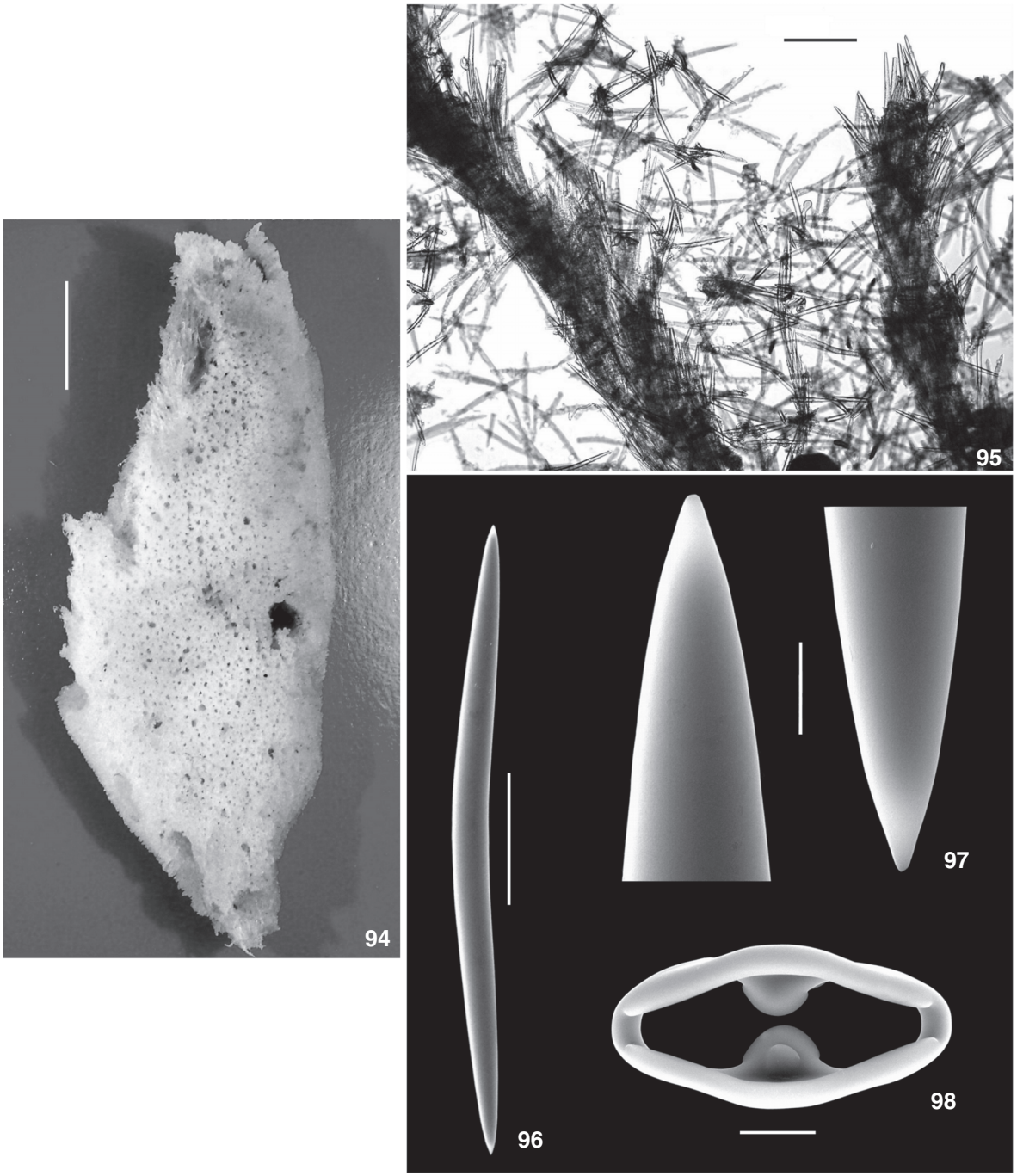
Studied material. MCNPOR 2016, St. 4874, Bransfield Strait: 63º25'S-62º19'W, 135 m, 14.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Isodictya toxophila* Burton, 1932, collector unknown, locality: South Georgia, slide BMNH 1936.1.13.23a.

Description. (Fig. 99) Conical erect specimen, fixed to a rock fragment; dimensions in cm: 4.2 height, 1.9 width, 1.3 thickness; surface hispid to the touch, under magnifying glass conules with spicules protraction were observed; abundant oscules, < 0.1-0.4 cm diameter. Preserved material firm in consistency, colour greyish beige.

Skeleton. (Fig. 100) Ectosome with abundant spongin and exogenous material. Choanosome composed of coarse multispicular tracts, 180-400 µm thick. Between the tracts spicules are irregularly distributed, in confusion.

Spicules. Megascleres: oxeas – slightly curved, rarely straight (Fig. 101), extremities varying from acerate to conical (Fig. 102). Microscleres: isochelas (Fig. 103) – palmate, alae with remarkably curved contour, overlapping the axis; toxas (Fig. 104) – reduced angle of opening, some almost straight. Measurements (Tab. XIII).

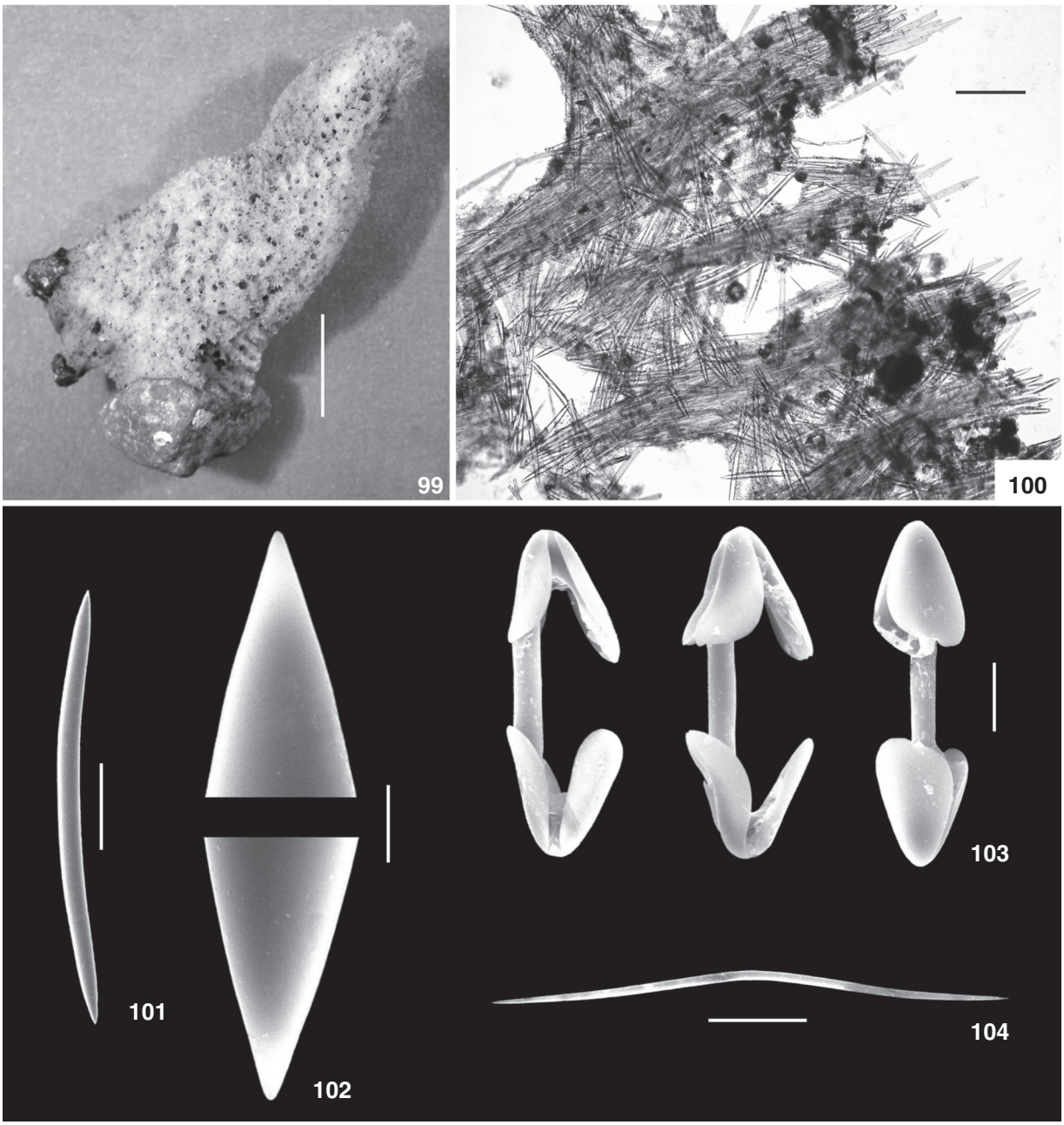


Figures 94-98. *Isodictya lankesteri*: (94) preserved specimen; (95) skeleton; (96) oxea; (97) detail of oxea extremities; (98) canonochelas. Scale bars: (94) 2 cm; (95) 500 µm; (96) 75 µm; (97) 7 µm; (98) 15 µm.

Table XIII. *Isodictya toxophila*, spicules measurements.

MCNPOR	Oxeas	Isochelas	Toxas
2016	530-*599.2*-660/ 18.8-*27.9*-35	60-*67.1*-75	170-*207.3*-237.5

Remarks. Up to the present, *I. toxophila* has a restricted geographic distribution, in South Georgia, South Shetland Is. and in some locations in the Weddell Sea, i.e., in an area with geographical continuity.



Figures 99-104. *Isodictya toxophila*: (99) preserved specimen; (100) skeleton; (101) oxea; (102) detail of oxea extremities; (103) isochelas; (104) toxas. Scale bars: (99) 1 cm; (100) 500 µm; (101) 100 µm; (102) 5 µm; (103) 10 µm; (104) 40 µm.

In the original diagnosis of the species, Burton (1932) supplied only the spicule dimensions, illustrating these in a simple form. Therefore, the present record enables us to provide better information on the spicules and consequently to improve the species diagnosis through SEM microphotographs.

Our sample is similar to that described by Burton (1932), as well as in the skeletal architecture. The spicules concord well with descriptions and measurements provided by Burton (1932) and Koltun (1964). The occurrence of toxas was not constant; Burton (1932) reported that their presence can vary, and they may even be rare or absent.

Distribution. South America: South Georgia (Burton 1932). Antarctica: Palmer Archipelago (Burton 1932); Weddell Sea (Barthel *et al*. 1990; 1997; Gutt & Koltun 1995); South Sh-

etland I.: King George I. (Koltun 1964); Bransfield Strait (Burton 1932; present study). Bathymetry: 93 m (Burton 1932) to 661 m (Gutt & Koltun 1995).

Isodictya bentarti Ríos, Cristobo & Urgorri, 2004

Figs 105-109, Tab. XIV

Isodictya bentarti Ríos *et al*., 2004: 111.

Studied material. MCNPOR 1942, 1945, 1953, St. 4873, Bransfield Strait: 63º25'S-62º05'W, 66 m, 13.II.1986, PROANTAR IV, "beam-trawl" coll.

Description. (MCNPOR 1945) (Fig. 105) Flabellate specimen; dimensions, in cm: 15 length, 10 width, 1.8 thickness; surface hispid to the touch; oscules aligned on the edges (0.1-0.6 cm diameter, equidistant 0.3-0.6 cm), elliptical contour. Dermis is broken in some areas; in one of the sides small proeminences can be observed. Preserved material of very compressible consistency, colour beige, darker internally.

Skeleton. (Fig. 106) Ectosome formed by the terminal portion of the tracts, organized in discrete brushes which causes the superficial hispidation. Choanosome formed by a dense reticulation, composed of longitudinal multispicular tracts. Between the tracts oxeas and isochelas are present, together with certain amount of spongin, in an arrangement with no clear orientation.

Spicules. Megascleres: oxeas – slightly curved, some straight (Fig. 107), acerate extremities (Fig. 108). Microscleres: isochelas (Fig. 109) – palmate, lateral alae well developed; at the terminal portion of each alae there is a rounded protuberance. Measurements (Tab. XIV).

Table XIV. *Isodictya bentarti*, spicules measurements.

MCNPOR	Oxeas	Isochelas
1942	370-*481.6*-580/17.5-*24.3*-33.8	55-*66.9*-77.5
1945	380-*472*-550/15-*26*-32.5	57.5-*65.1*-70
1953	370-*471.8*-560/17.5-*26*-32.5	55-*66.4*-77.5

Remarks. The species is endemic to the South Shetland Is.: it was originally described from Livingston Is., and is now confirmed from the Bransfield Strait near Low Is., which belongs to South Shetland Is. The bathymetric distribution of the species is extended.

Both the characteristics of the external morphology and the details of the spicules reported in the original description (Ríos *et al*., 2004) are here corroborated.

According to Ríos *et al*. (2004), another sympatric species of *Isodictya* which shows similar characteristics to *I. bentarti* is *I. grandis* (Ridley & Dendy, 1886). However, the latter has a different oscular pattern, besides differing in the morphology of the oxeas and isochelas.

Distribution. Antarctica: South Shetland I.: Livingston I. (Ríos *et al*. 2004); Bransfield Strait (present study). Bathymetry: 24 m (Ríos *et al*. 2004) to 66 m (present study).

Latrunculina Kelly & Samaai, 2002

Latrunculiidae Topsent, 1922

Latrunculia (Latrunculia) brevis Ridley & Dendy, 1886

Figs 110-115, Tab. XV

Latrunculia brevis Ridley & Dendy, 1886: 492; Topsent, 1915: 40, text-fig. 5

Further synonym see Samaai *et al*. (2006).

Studied material. MCNPOR 1985, St. 4861, Elephant I.: 61º02'S-54º55'W, 362 m, 01.II.1986, PROANTAR IV, "beam-trawl" coll.

Examined material for comparison. *Latrunculia (Latrunculia) brevis* Ridley & Dendy, 1886, collected by the Challenger Expedition, locality: off Rio de la Plata, Argentina, slide BMNH 1887.5.2.269 (holotype).

Description. (Fig. 110) Massive, amorphous specimen, dimensions in cm: 6.9 length, 3.5 width, 1.3 thickness; surface densely areolated, porefields measuring 0.2-0.8 cm diameter; some areas with smooth surface, with a slight spicule protraction. Oscular openings are visible inside the porefields (0.1-0.2 cm in diameter). Preserved material extremely fragile in consistency, colour dark brown.

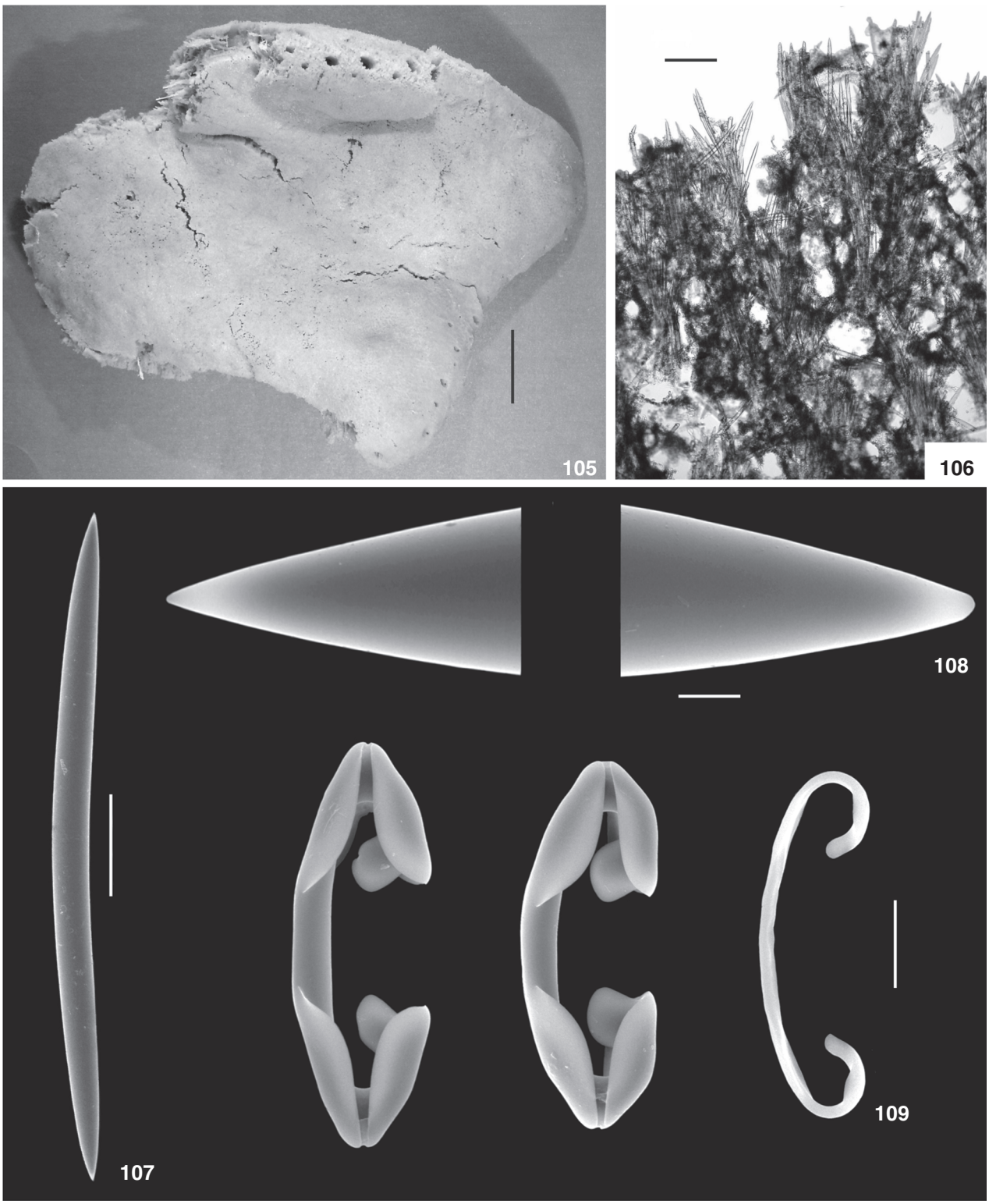
Skeleton. (Fig. 111) Ectosome formed by a palisade of microscleres and a certain amount of spongin. Subectosomal region composed of a compact layer of megascleres in confusion. Choanosome bearing a dense arrangement of megascleres, disposed in irregular multispicular tracts and forming irregular meshes. Free spicules were also observed.

Spicules. Megascleres: anisostyles – smooth, straight to sinuous (Fig. 112); apical extremity varying from conical to acerate (Fig. 113). Microscleres: anisodiscorhabds (Fig. 114) – between manubrium and median whorl the shaft is slightly swollen. Imature spicules also occur (Fig. 115). Measurements (Tab. XV).

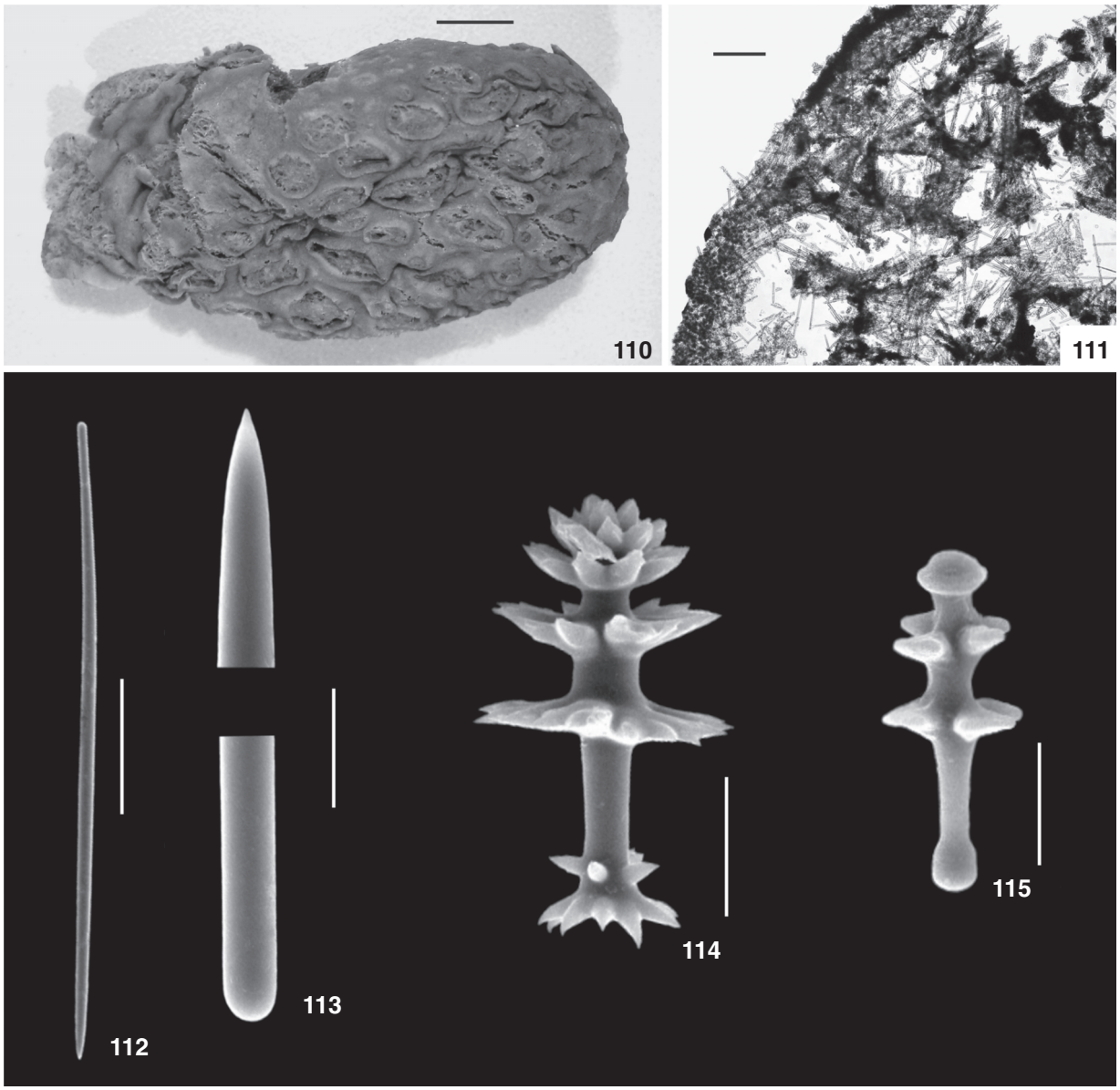
Remarks. Samaai *et al*. (2006) made a complete revision of the genus *Latrunculia*, designating the correct identifications for *L. brevis* and its respective synonymy, and giving the geographical and bathymetric distribution of the species.

Table XV. *Latrunculia (Latrunculia) brevis*, spicules measurements.

MCNPOR	Anisostyles	Anisodiscorhabds					
		Total lenght	Manubrium	Shaft	Median whorl	Subsidiary whorl	Apical whorl
1985	427.5-*475*-503.5/ 6.9-*10.3*-11.5	50.6-*60*-64.4	13.8-*18.7*-23	16.1-*18*-20.7/ 4.6-*5.7*-6.9	27.6-*32.7*-36.8	24.2-*29*-32.2	16.1-*21.2*-23



Figures 105-109. *Isodictya bentarti*: (105) preserved specimen; (106) skeleton; (107) oxea; (108) detail of oxea extremities; (109) isochelas. Scale bars: (105) 2 cm; (106) 500 µm; (107) 75 µm; (108) 5 µm; (109) 15 µm.



Figures 110-115. *Latrunculia (Latrunculia) brevis*: (110) preserved specimen; (111) skeleton; (112) anisostyle; (113) detail of anisostyle extremities; (114) anisodiscorhabd; (115) immature anisodiscorhabd. Scale bars: (110) 1 cm; (111) 500 µm; (112) 100 µm; (113) 15 µm; (114) 20 µm; (115) 15 µm.

The descriptions of some features, such as the external morphology, details of the skeleton and microscleres given by Samaai *et al*. (2006) concord with our material, which is quite similar to the holotype.

Distribution. South America: Uruguay (Burton 1940); Argentina (Ridley & Dendy 1886; 1887); Falkland I. (Burton 1932); Burdwood Bank (Topsent 1915). Antarctica: Samaai *et al*. (2006) (unknown locality); South Shetland I.: Elephant I. (present study). Bathymetry: 46 m to 1500 m (Samaai *et al*. 2006).

Latrunculia (Latrunculia) biformis (Kirkpatrick, 1908)

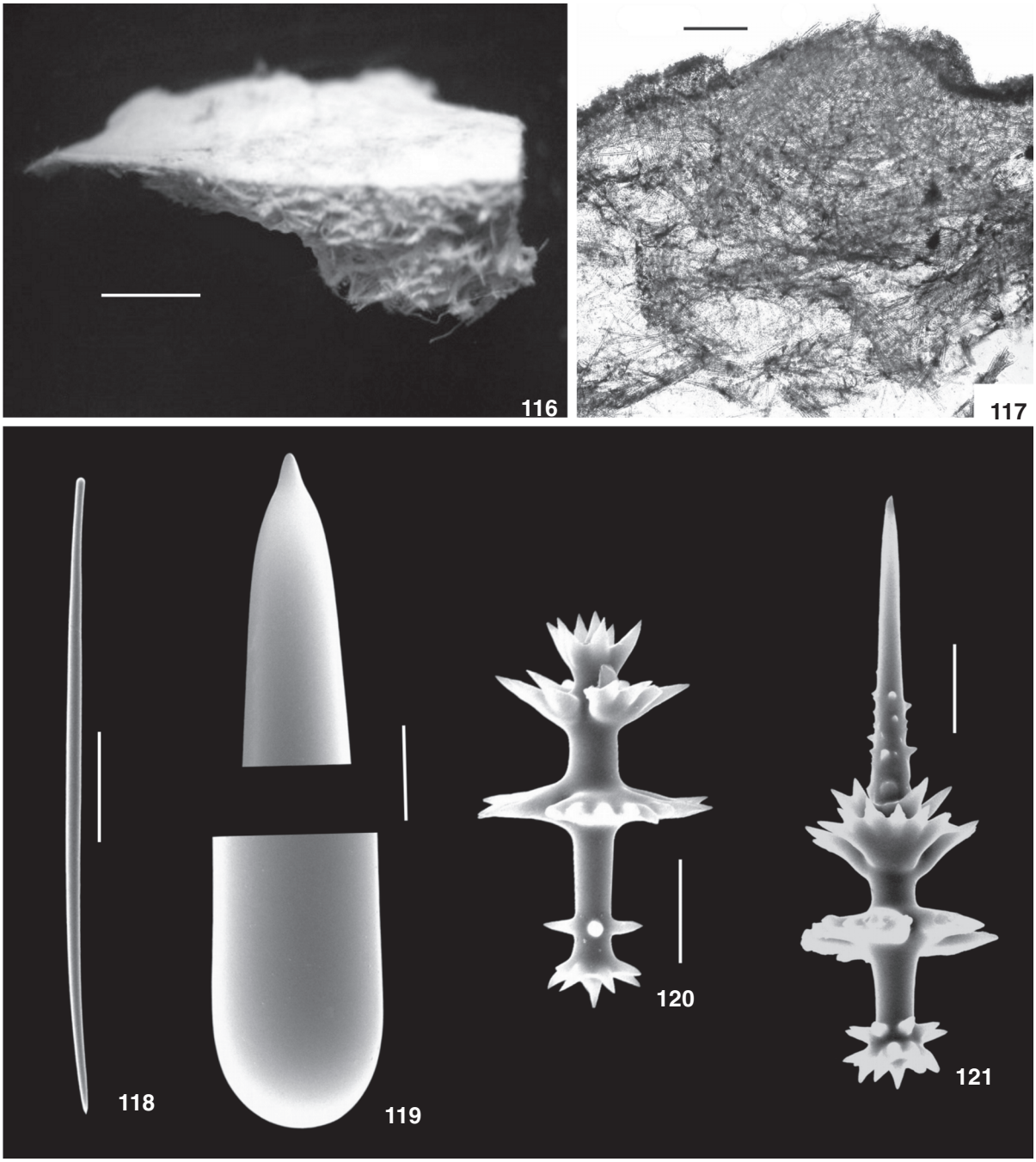
Figs 116-121, Tab. XVI

Latrunculia apicalis var. *biformis* Kirkpatrick, 1908: 14, pl. XV, figs 1-7.

Latrunculia biformis; Pansini *et al*., 1994: 69; Cattaneo-Vietti *et al*., 1999: 540; Ríos *et al*., 2004: 117, text-fig. 15A-J.

Further synonym see Samaai *et al*. (2006).

Studied material. MCNPOR 3128, St. 'D', King George I.:



Figures 116-121. *Latrunculia (Latrunculia) biformis*: (116) preserved specimen; (117) skeleton; (118) anisostyle; (119) detail of anisostyle extremities; (120) anisodiscorhabd; (121) Aciculodiscorhabd. Scale bars: (116) 0.2 cm; (117) 500 µm; (118) 100 µm; (119) 5 µm; (120), (121) 20 µm.

62º05'S-58º23'W, 25 m, 05.I.1990, PROANTAR VIII, "scuba diving" coll.

Examined material for comparison. *Latrunculia (Latrunculia) biformis* (Kirkpatrick, 1908), collected by the Antarctic Terra Nova Expedition, locality unknown, slide BMNH 1910.26.154a.

Description. (Fig. 116) Small fragment, dimensions in cm: 0.9 length, 0.6 width, 0.4 thickness; smooth surface, oscules

Table XVI. *Latrunculia (Latrunculia) brevis*, spicules measurements.

MCNPOR	Anisostyles	Anisodiscorhabds					
		Total lenght	Manubrium	Shaft	Median whorl	Subsidiary whorl	Apical whorl
3128	484.5-*541.9*-579.5/ 10.4-*12.3*-13.8	62.1-*67.1*-78-.2	16.1-*18.8*-23	15-*17.8*-21.9/ 6.9-*7.3*-8.1	35.7-*40.9*-46	*29.9*-*33.9*-39.1	16.1-*19.4*-23
MCNPOR	Aciculodiscorhabds						
	Total lenght	Manubrium	Shaft	Median whorl	Subsidiary whorl	Apical whorl	Apical projection
3128	105.8-*120*-133.4	17.3-*21*-25.3	20.7-*23.4*-26.5/ 6.9-*7.4*-9.2	36.8-*41.6*-46	*29.9*-*35.8*-39.1	18.4-*22.4*-25.3	39.1-*51.2*-64.4/ 5.8-*6.8*-8.1

not observed. Preserved material compressible but fragile consistency, colour light brown at the surface, being darker internally.

Skeleton. (Fig. 117) Characteristics of the ectosome, choanosome and subectosomal region identical to the description cited for *L. brevis*.

Spicules. Megascleres: anisostyles – smooth, straight to sinuous (Fig. 118); apical extremity conical/acerate (Fig. 119). Microscleres: anisodiscorhabds (Fig. 120) – presenting the same characteristics observed in *L. brevis*. Aciculodiscorhabds (Fig. 121) – in general very similar to anisodiscorhabds, only differing in having a well developed spined apical projection. Measurements (Tab. XVI).

Remarks. Because Samaai *et al*. (2006) made a complete revision of the genus, it is unnecessary to comment on the synonymy of the species and the corresponding identifications.

It was not possible to compare our sample to the external morphology described by Samaai *et al*. (2006), because the specimen is not entire. Other morphological features of the species, such as the skeletal patterns and spicules, concord with the specimen studied. Nevertheless, this species is considered to show a wide variation in the dimensions and structure of the discorhabds. The existence of such variation was confirmed by analysis of comparative material, in which were observed aciculodiscorhabds with a reduced apical projection.

Currently, the following species are valid for the Antarctic Faunistic Complex: *L. bocagei*, *L. apicalis*, *L. biformis*, *L. basilis* and *L. brevis*. Probably the morphology of the discorhabds is the character that best distinguishes these species.

Distribution. Indian Ocean: Kerguelen I. (Boury-Esnault & Van Beveren 1982). Africa: South Africa (Samaai *et al*. 2003). South America: Argentina (Ridley & Dendy 1886; 1887). Antarctica: Victoria Land (Kirkpatrick 1908; Burton 1929; Pansini *et al*. 1994; Cattaneo-Vietti *et al*. 1999); Princess Astrid Land; Queen Mary Land (Koltun 1964); South Shetland I.: Livingston I. (Ríos *et al*. 2004); King George I. (present study). Bathymetry: 18 m (Samaai *et al*. 2003) to 1097 m (Ridley & Dendy 1886).

ACKNOWLEDGEMENTS

We thank Clare Valentine (NHM), Alexander Plotkin (ZIN) and Carsten Lüter (ZMB) for the loan of comparative material; Eduardo Hajdu (Museu Nacional, Universidade Federal do Rio de Janeiro, Brazil) and Ruth Desqueyroux-Faúndez (Museum d'Histoire Naturelle de Genève, Geneva, Switzerland) for help in bibliography. We also thank CAPES and CNPq (Brazil) for research grants.

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Received in 01.XII.2006; accepted in 23.VIII.2007.