NEW SPECIES OF *ULOSA* AND *BIEMNA* (PORIFERA, DEMOSPONGIAE, POECILOSCLERIDA) FROM THE N-NE BRAZILIAN CONTINENTAL SHELF

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ABSTRACT

Two new species collected off the coast between Amapá and Maranhão state, NNE coast of the Brazilian shelf. Two new species are described, *Ulosa longimycalostylifera* sp.nov. and *Biemna microacanthosigma* sp.nov. The former can be distinguished by the possession of long and thin mycalostyles, and the latter sp.nov. is characterized by the presence of styles, two categories of sigmas with microspined ends, microxea and raphides.

KEY WORDS

Poecilosclerida, North-Northeast Brazilian coast, Taxonomy, *Ulosa, Biemna.*

INTRODUCTION

Knowledge of the Brazilian shallow-water poecilosclerid fauna ranging from the state of Amapá in the far north, to the state of Maranhão in the northeast is limited to a few records made by COLLETTE & RÜTZLER (1977), COELHO & MELLO-LEITÃO (1978), HAJDU & DESQUEYROUX-FAUNDEZ (1994) and MOTHES *et al.* (2000). TENDAL (1973) working on material gathered by the Albatross Swedish Expedition described *Chondrocladia albatrossi* from deep-water (4474 m - 4430 m) off the coast of the state of Ceará (02°26' N / 39°26' W to 02°24' N / 39°12' W).

Our specimens were collected by trawling, in the continental shelf between the latitudes 04°13'00" N and 02°17'00" S and the longitudes of 50°31'00" W - 41°37'00" W, off the coasts of the states of Amapá and Maranhão (Fig. 1), during the Federal Government Oceanographic Cruises: Comissão Pesca Norte I (DHNM, R/V "Almirante Saldanha") and Comissão Maranhão (SUDENE, fishing trawler "Barco Pesqueiro IV"), in 1968 and 1973.

MATERIAL AND METHODS

The collections methods for the samples are described in KEMPF (1972). The studied material has been deposited in the Porifera collections of Museu de Ciências Naturais (MCN), Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brazil and the Zoological Museum of Amsterdam (ZMA) University of Amsterdam, Netherlands (microscopic preparations only).

Fig. 1. Map of Brazil indicating the locations where the samples were collected.

Skeletal slides and dissociated spicules mounts were made following MOTHES-DE-MORAES (1978) and HAJDU (1994). Electron micrographs were taken following the methods

of MOTHES & SILVA (2002). Spicule micrometres given in the text refer to minimum-mean-maximum lenght/minimum-mean-maximum width, N = 50.

SYSTEMATIC DESCRIPTION

Class Demospongiae Sollas, 1885
Order Poecilosclerida Topsent, 1928
Suborder Mycalina Hajdu, van Soest & Hooper, 1994
Family Esperiopsidae Hentschel, 1923
Genus *Ulosa* de Laubenfels, 1936
Ulosa longimycalostylifera n. sp.
Figs 2-5

Material studied. Holotype, BRAZIL, Maranhão: MCN 1842, 02°12'00" S - 41°48'00" W, 56 m depth, Comissão Maranhão, Fishing Boat IV leg., 15/II/1973.

Diagnosis. *Ulosa longimycalostylifera* is characterized by the presence of particularly long (209 - 295 μm) and thin (1.2 - 3.5 μm) mycalostyles. Shape irregular, pink colour and consistency compressible in preserved material; spicules are mycalostyles arranged in a fibroreticulated skeleton.

Description. (Fig. 2) Sponge shape completely irregular, 2.1 x 1.7 x 0.5 cm. Surface slightly hispid with microconules. Oscules rare (diameter: 0.1 - 0.2 cm) located in depressions. Preserved material fragile, compressible and pinkish-coloured.

Skeleton. (Fig. 3) Fibroreticulate. Irregular rectangular fibre system, without ectosomal specialization. Choanosome with spongin fibres (diameter 9.5. - 66.5 μm) cored by megascleres (ca. 2 to 18 spicules); primary and secondary fibres are difficult to distinguish. Meshes are 90 - 540 μm in diameter; spicules are irregularly scattered between the fibres.

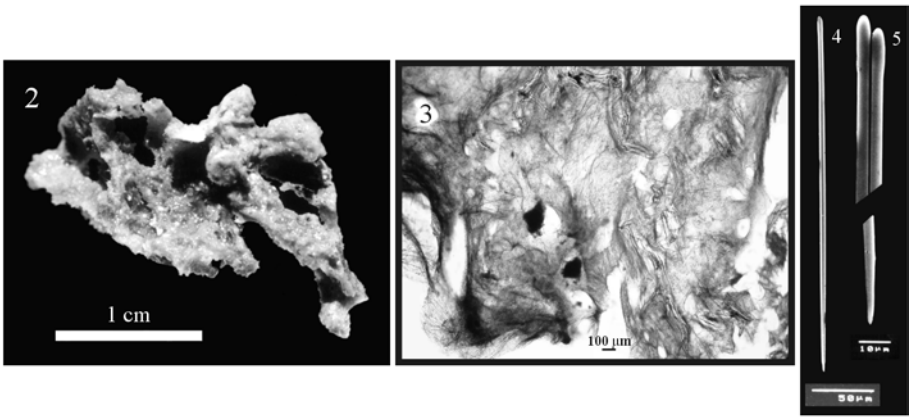

Fig. 2. Holotype MCN 1842 *Ulosa longimycalostilifera* n. sp. **Fig. 3.** Perpendicular section through peripheral region. **Fig. 4.** Mycalostyle. **Fig. 5.** Extremities of mycalostyle.

Spicules. (Figs 4-5) Megascleres: mycalostyles - straight, thin, apical end abruptly pointed or rarely stepped, basal end slightly inflated (head), axial filament usually visible; measuring: 209 - 266 - 295 μm/1.2 - 2 - 3.5 μm, head measuring 2.3 - 4.5 - 5.8 μm in diameter.

Etymology. The specific name refers to the long mycalostyles.

Remarks. The studied material was compared with the descriptions of *Ulosa angulosa* (Lamarck, 1814) [TOPSENT, 1930 as *Cacochalina angulosa* - styles and strongyles 125 - 180 μm / 5 μm; VAN SOEST, 1987 as *U. angulosa* - styles and strongyles 130 - 150 μm / 7 - 9 μm] and *Ulosa stuposa* (Esper, 1794) [VAN SOEST, 1987 - styles 125 - 170 μm / 2 - 8 μm]. The new species differs from *U. angulosa* by the possession of mycalostyles only and from both species by the possession of long mycalostyles.

The genus *Ulosa* is for the first time recorded from the Brazilian coast.

Family Desmacellidae Ridley & Dendy, 1886
Genus *Biemna* Gray, 1867
Biemna microacanthosigma n. sp.
Figs 6-16

Material studied. Holotype MCN 1898, Paratype MCN 1901, BRAZIL, Amapá: 02°57'00" N - 49°04'00" W, 76 m depth, Comissão Pesca Norte I, R/V "Almirante Saldanha"leg., 25/IX/1968.

Diagnosis. *Biemna microacanthosigma* is characterized by the presence of styles, two categories of sigmas with microspined ends, microxea and raphides, in a plumoreticulated skeleton. Shape irregular, preserved material dark brown with friable consistency.

Description. (Fig. 6) Irregular, massive fragment, 4.5 x 2.3 x 1.8 cm. Irregular surface, dermal membrane detachable from entire surface. Oscules not observed. Preserved material solid but friable; colour dark brown.

Skeleton. (Figs 7-8) Plumoreticulate. Ectosome with a single layer of paratangential megascleres and randomly distributed microscleres. Choanosome with megascleres in ascending tracts (7 to 10 megascleres), from 190 to 427.5 μm apart, connected occasionally by a single megasclere or by transverse tracts of 2 megascleres. Between the tracts are randomly distributed microscleres. Spongin only at the nodes of the megasclere tracts.

Spicules. (Figs 9-16) Megascleres: styles - with the basal region slightly curved, apical region abruptly pointed and stepped; measuring 418 - 448.3 - 494 μm / 9.2 - 12.8 - 1 μm. Microscleres: sigmas I - C and S shaped, microspined extremities; measuring: 75.7 - 92.2 - 112.8 μm / 4.5 μm; sigmas II- C shaped, microspined extremities; measuring: 18.4 - 20.7 - 27.6 μm / 2 μm; microxea - smooth, straight; measuring: 41.4 - 60.8 - 115 μm / 1 μm; raphides measuring: >90.5 μm.

Etymology. The specific name refers to the microspined extremities of the sigmas.

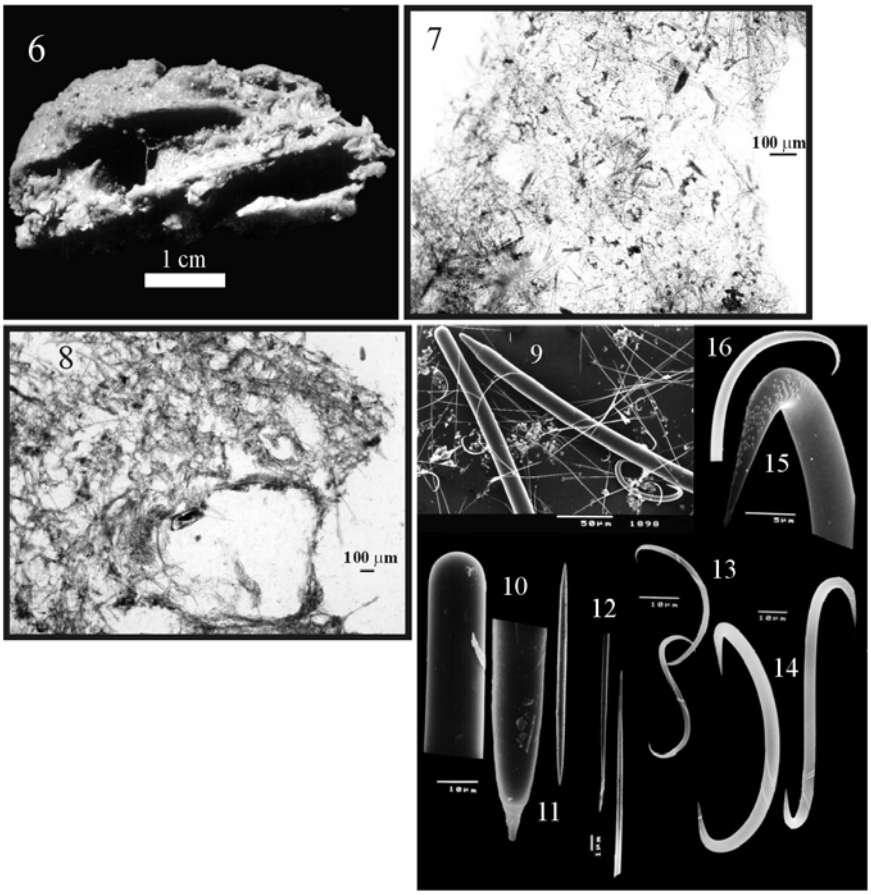

Fig. 6. Holotype MCN 1898 *Biemna microacanthosigma* n. sp. **Fig. 7.** Tangential view of ectosome. **Fig. 8.** Choanosomal skeleton. **Fig. 9.** Spicule complement. **Fig. 10.** Style extremities. **Fig. 11.** Microxea. **Fig. 12.** Raphide extremities. **Fig. 13.** Sigmas I. **Fig. 14.** Sigmas II. **Fig. 15.** Details of sigma II extremities. **Fig. 16.** Details of sigma I extremities.

Remarks. The studied material was compared with *Biemna tubulata sensu* van Soest, 1984, recorded from Bonaire and Porto Rico; *Biemna microstyla* Laubenfels, 1950 registered from the Bermuda Archipelago, *Biemna caribea* Pulitzer-Finali, 1986 cited from Porto Rico and *Biemna oxeata* van Soest & Stentoft, 1988, recorded from Barbados. *B. microacanthosigma* differs from *B. tubulata* by the possesssion of only one category of raphides and lack of toxiform raphides or commas (VAN SOEST, 1984). It is distint from *B. microstyla* by the possession of two categories of sigmas (DE LAUBENFELS, 1950). The new species is distinguished from *B. caribea* by the presence of raphides and lack of commas and microxeas (PULITZER-FINALI, 1986). It differs from *B. oxeata* by the presence of oxeas as megascleres in this species (VAN SOEST & STENTOFT, 1988).

The genus *Biemna* Gray, 1867 is from the first time recorded the Brazilian coast.

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REFERENCES

COELHO E. P., MELLO-LEITÃO A., 1978 - Placospongia carinata e sua ocorrência em costas brasileiras. *Cent. Estud. Zool. Univ. Brasil Avulso,* **29**: 1-12.

COLLETTE B., RÜTZLER K., 1977 - Reef fishes over sponge bottoms off the mouth of the Amazon River. *Proc. 3rd Internat. Coral Reef Symp., Miami*: 305-310.

HAJDU E., 1994 - A phylogenetic interpretation of hamacanthids (Demospongiae, Porifera) with a redescription of *Hamacantha popana* (de Laubenfels, 1935). *J. Zool.,* **232**: 61-77.

HAJDU E., DESQUEYROUX-FAUNDEZ R., 1994 - A synopsis of South American *Mycale* (*Mycale*) (Poecilosclerida, Demospongiae), with the description of three new species and a cladistic analysis of Mycalidae. *Rev. Suisse Zool.,* **101** (3): 563-600.

KEMPF M., 1972 - Prospecções de fundo realizadas na plataforma continental do Norte, Nordeste e Leste do Brasil pelo Laboratório de Ciências do Mar, UFPe, ou com sua participação. In Sociedade Brasileira de Geologia (eds), XXVI *Congresso Brasileiro de Geologia*. Belém: 245-259.

LAUBENFELS M.W. DE, 1950 - The Porifera of the Bermuda Archipelago. *Trans. Zool. Soc. London,* **27**: 1-154.

MOTHES B., HAJDU E., SOEST R.W.M. VAN, 2000 -*Tedania brasiliensis* n.sp. (Demospongiae, Tedaniidae) from Brazil, with some remarks about the genus *Tedania* in the tropical sputhwestern Atlantic. *Bull. Mar. Sci.,* **66** (1): 1-11.

MOTHES B., SILVA C.M.M., 2002 - *Stelletta ruetzleri* sp.nov., a new ancorinid from the Southwestern Atlantic (Porifera, Demospongiae). *Sci. Mar.,* **66** (1): 69-75.

MOTHES-DE–MORAES B., 1978 - Esponjas tetraxonidas do litoral sul-brasileiro: II. Material coletado pelo N/Oc. "Prof. W. Besnard" durante o Programa RS. *Bol. Inst. Oceanogr.,* **27** (2): 57-78.

PULITZER-FINALI G., 1983 - A collection of Mediterranean Demospongiae (Porifera) with, in appendix, a list of the Demospongiae hitherto recorded from the Mediterranean sea. *Ann. Mus. Civ. Stor. Nat. 'Giacomo Doria',* **84** (1): 445-621.

SOEST R.W.M. VAN, 1984 - Marine sponges from Curaçao and other Caribbean localities. Part III: Poecilosclerida. *Stud. Fauna Curacao Other Caribb. Isl.,* **66** (192): 1-167.

SOEST R.W.M. VAN, 1987- Biogeographic and taxonomic notes on some eastern Atlantic sponges. In W. Clifford Jones (ed.), *European Contributions to the Taxonomy of Sponges*. Publications of the Sherklin Island Marine Station, (1): 13-28.

SOEST R.W.M. VAN, STENTOFT N., 1988 - Barbados deep water sponges. *Stud. Fauna Curaçao Other Caribb. Isl.,* **70** (215): 1-175.

TENDAL O.S., 1973 - Sponges Collected by the Swedish Deep Sea Expedition. *Zool. Scr.,* **2**: 33-38.