

BEAUFORTIA

BULLETIN ZOOLOGICAL MUSEUM

UNIVERSITY OF AMSTERDAM

Vol. 51, no. 4

October 22, 2001

A NEW SPECIES OF *ERYLUS* GRAY, 1867 (PORIFERA, GEODIIDAE) FROM THE SOUTHEASTERN COAST OF BRAZIL

BEATRIZ MOTHES* & CLÉA LERNER**

* *Museu de Ciências Naturais, Setor de Porifera, Fundação Zoobotânica do Rio Grande do Sul, Caixa Postal 1188, 90001-970, Porto Alegre, RS, Brazil. E-mail: bmothes@portoweb.com.br*

** *Instituto de Biociências, Departamento de Zoologia, Universidade de São Paulo, SP, Brazil & Museu de Ciências Naturais, Setor de Porifera, Fundação Zoobotânica do Rio Grande do Sul, Caixa Postal 1188, 90001-970, Porto Alegre, RS, Brazil. E-mail: cblerner@portoweb.com.br*

ABSTRACT

A new species, *Erylus soesti* n. sp. is described from SE Brazil. This study is part of an ongoing revision of genus *Erylus* Gray, 1867 (Mothes, Lerner & Da Silva, 1999; Mothes & Lerner, 1999) and adds a further brazilian species to the genus. This new species can be distinguished by the possession of dichotriaenes, oxeas, and peculiar cushion-like aspidasters with extremely irregular outline, microspined microstrongyles and sphaeroxyasters. A key for identification of brazilian species is provided.

Keywords: Porifera, Geodiidae, *Erylus soesti* n. sp., Brazil, taxonomy

INTRODUCTION

A taxonomic revision of material recorded in Mothes-de-Moraes (1981) as *Erylus topsenti* Lendenfeld, 1903 resulted in the discovery of a new species: *Erylus soesti* n. sp. from southeastern Atlantic. The new species is described below and compared to related species from the Atlantic.

MATERIALS AND METHODS

The studied material was collected off southeastern brazilian coast (25°01'S 44°45'W) by the R/V 'Almirante Saldanha' on 07-I-1972, 918 m deep. Holotype MCNPOR 352 is deposited at

Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Brazil and slides deposited in the Zoölogisch Museum Amsterdam, Netherlands.

Skeletal slides and dissociated spicule mounts were made according to Mothes-de-Moraes (1978). Dissociated spicules were mounted on scanning stubs in the following way: a small fragment of the sponge was boiled in nitric acid inside test-tube. Suspensions were then washed with water and then centrifuged five times. Some drops of suspension were put on top of cover glass previously attached on the stub with colourless nail-polish. Then, it was dried under a lamp. Stubs were then vacuum coated in gold or plat-

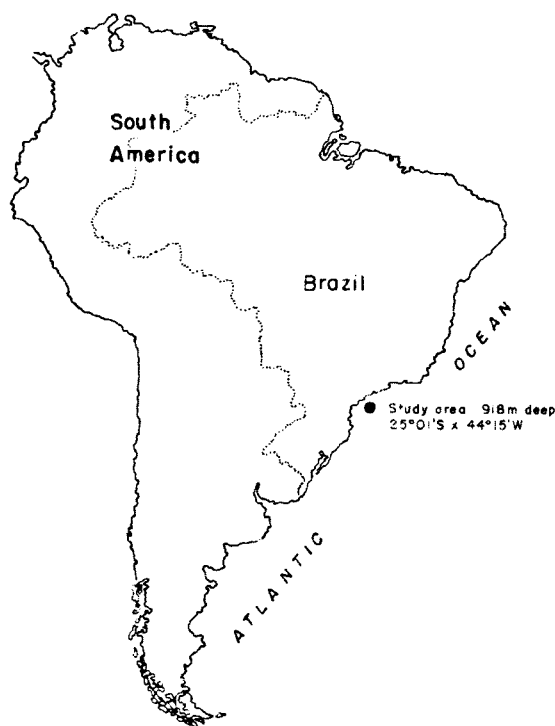


Fig. 1. Map of South America indicating the location where the sample was collected.

inum. The SEM study was made using a Jeol JSM-5200 Scanning Microscope. Spicule micrometres given in the text refer to minimum-mean-maximum length/minimum-mean-maximum width. Measures are given in μm . $N = 50$ for all the measurements, unless stated otherwise. The type locality is shown in Fig. 1. Abbreviations for institutions used in the text: FZB: Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brazil. MCN: Museu de Ciências Naturais, Porto Alegre, Brazil. MCNPOR: MCN, Porifera Collection. ZMA: Zoological Museum, University of Amsterdam, Amsterdam, Netherlands.

SYSTEMATICS

Class Demospongiae Sollas, 1885

Order Astrophorida Lévi, 1973

Family Geodiidae Gray, 1867

Genus *Erylus* Gray, 1867

Erylus soesti n. sp.

Figs. 2-15

Erylus topsenti sensu Mothes-de-Moraes (1981: 105-111)

MATERIAL

HOLOTYPE. - Museu de Ciências Naturais, MCNPOR 352, off São Paulo coast, 25°01' S 44°45' W, Brazil, slope, 918 m, January 1972, coll R/V 'Almirante Saldanha'. Microscopical slide is deposited in Zoologisch Museum Amsterdam.

DESCRIPTION (Figs. 2-4). - Small fragment with an inconspicuous lobated expansion, 1.5 x 0.5 x 0.4 cm. Surface slightly hispid. Oscules not visible. Uniporal openings randomly distributed at the surface. Colour of preserved material externally grey and internally beige. Consistency is externally hard and internally slightly compressible.

Skeleton: ectosome: with usual detachable cortex, microrhabds paratangentially to irregularly placed near the surface of sponge, sometimes they are mixed among the aspidasters, aspidasters internally disposed in the ectosome in several layers. Choanosome: radial architecture, dichotriaenes with subcortical clads paratangentially placed immediately under of the cortex, rhabds pointed to the interior of choanosome, oxeas isolated or in bundles with two or three spicules between the rhabds, sometimes oxeas cross the cortex and protrude at the sponge surface, sphaerocyasters randomly distributed inside the choanosome, sometimes aspidasters and microrhabds are also visible inside the choanosome.

Megascleres (Figs. 5-9): dichotriaenes with rhabd conical and straight with asymmetrical or slightly blunt distal extremity, 805-1105.8-1380 / 47.5-71.8-95; clads of cladome slightly rounded; protoclads slightly curved up and deuteroclads slightly curved down and horizontal, cladome 713-897.9-1058, length of protoclads 104.5-134.5-171, length of deuteroclads 256.5-321.1-408.5, oxeas long and strong, sharply pointed, rarely slightly rounded or mucronated, axial channel visible, 2093-2628.9-3220 / 33.3- 43.8-57. Rare plagiotriaenes, clads 506-920/57-71.3 ($n=4$).

Microscleres (Figs. 10-15): aspidasters very peculiar, with extremely irregular outline, rarely disc or elliptical-shaped, cushion-like (not flattened), hilum measures approximately 23 μm in diameter when visible, surface made up of groups of



Figs. 2-3. *Erylus soesti* n. sp., holotype (MCNPOR 352), preserved material. Each intermediate space in the scale = 1 mm.

five conical microspines disposed over a sphaerical base. It is possible to observe developing stages of aspidasters radially striated producing deeply serrated outline; sometimes the surface is lacking any ornament, length 46-92.9-128.8, width 39.1-64.6-92, thickness is difficult to measure because of the position of spicules; only rare ones could be measured 9.2-28.8 (n=5). Microstrongyles straight or slightly curved, slightly centrotylote, microspined surface, sometimes rare microspines at the middle of spicule, rare smooth, microspines are normally bifurcate, 36.8-59.6-75.9/4.6-6.9-9.2. Sphaerocyasters with more than 11 rays slightly microspined at the end of the axis, straight and sharply pointed spines, rare slightly curved, diameter 9.2-14.4-20.7, length of the rays 1-2.

ETYMOLOGY. - The name is in honour to Dr. Rob Van Soest, Zoological Museum, University of Amsterdam, for his relevant contributions to diversity studies of Caribbean sponges.

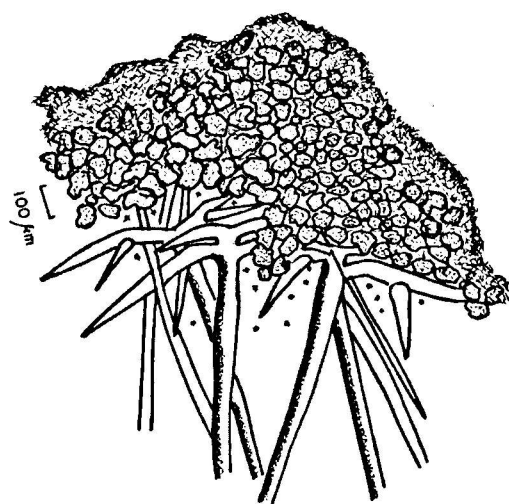


Fig. 4. *Erylus soesti* n. sp., tangential section of skeletal architecture.

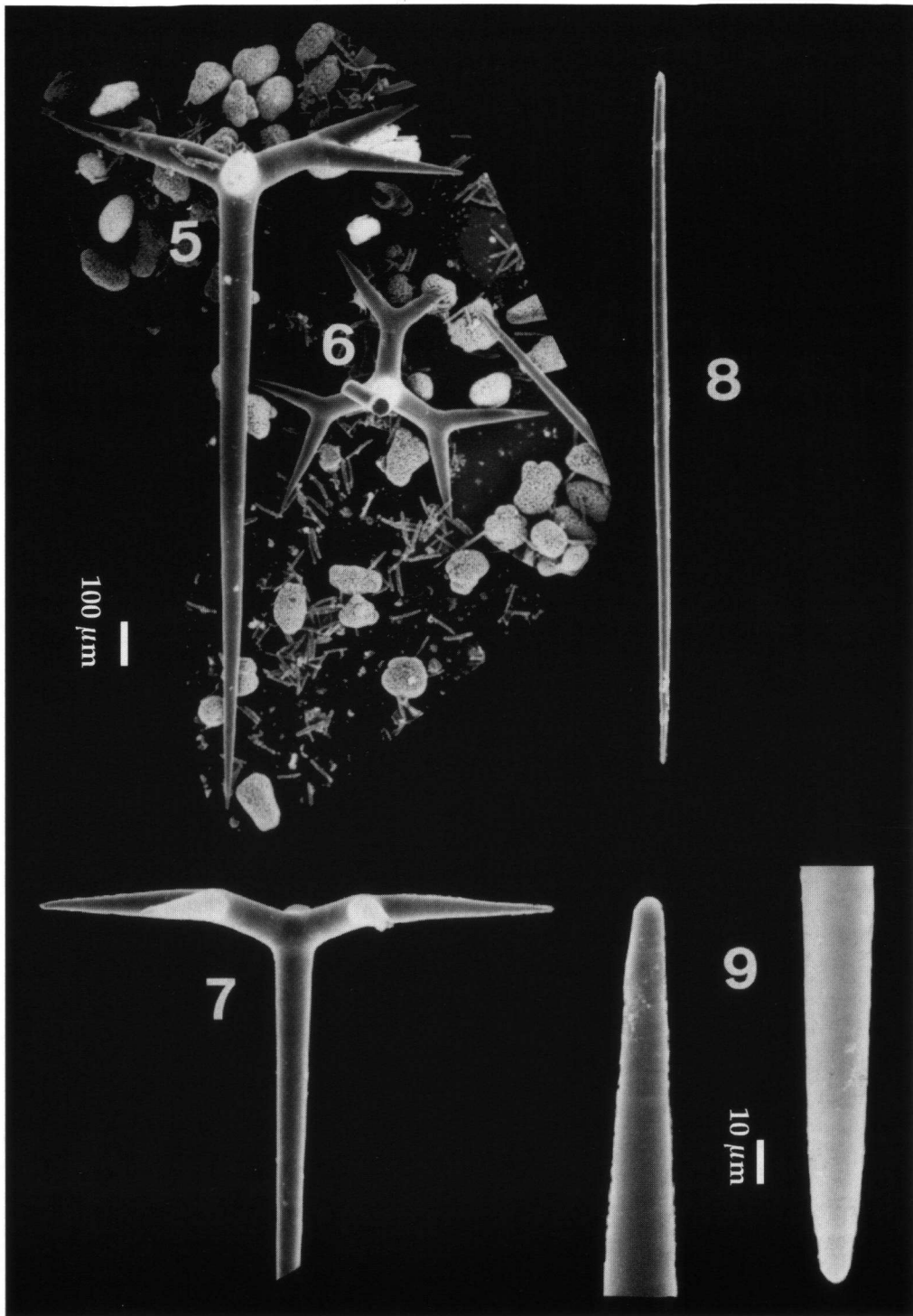
REMARKS

The taxonomic revision of material previously recorded by Mothes de Moraes (1981) and now under SEM revealed the presence of sphaerocyasters replacing oxyasters. Concerning Atlantic species *E. soesti* n.sp. resembles *E. topsenti* Lendenfeld, 1903 [= *E. mammillaris* sensu Topsent, 1892; not *E. mammillaris* (Schmidt) = *E. chavesi* Topsent, 1904 sensu Wiedenmayer, 1977] (from the Azores) by the possession of dichotriaenes, oxeas, and microspined microstrongyles. It differs, however, in having sphaerocyasters and peculiar cushion-like aspidasters with extremely irregular outline. Of the brazilian species, *E. soesti* n.sp. resembles *E. diminutus* Mothes et al., 1999 by the possession of dichotriaenes but differs in having microspined microstrongyles, sphaerocyasters and peculiar cushion-like aspidasters with extremely irregular outline.

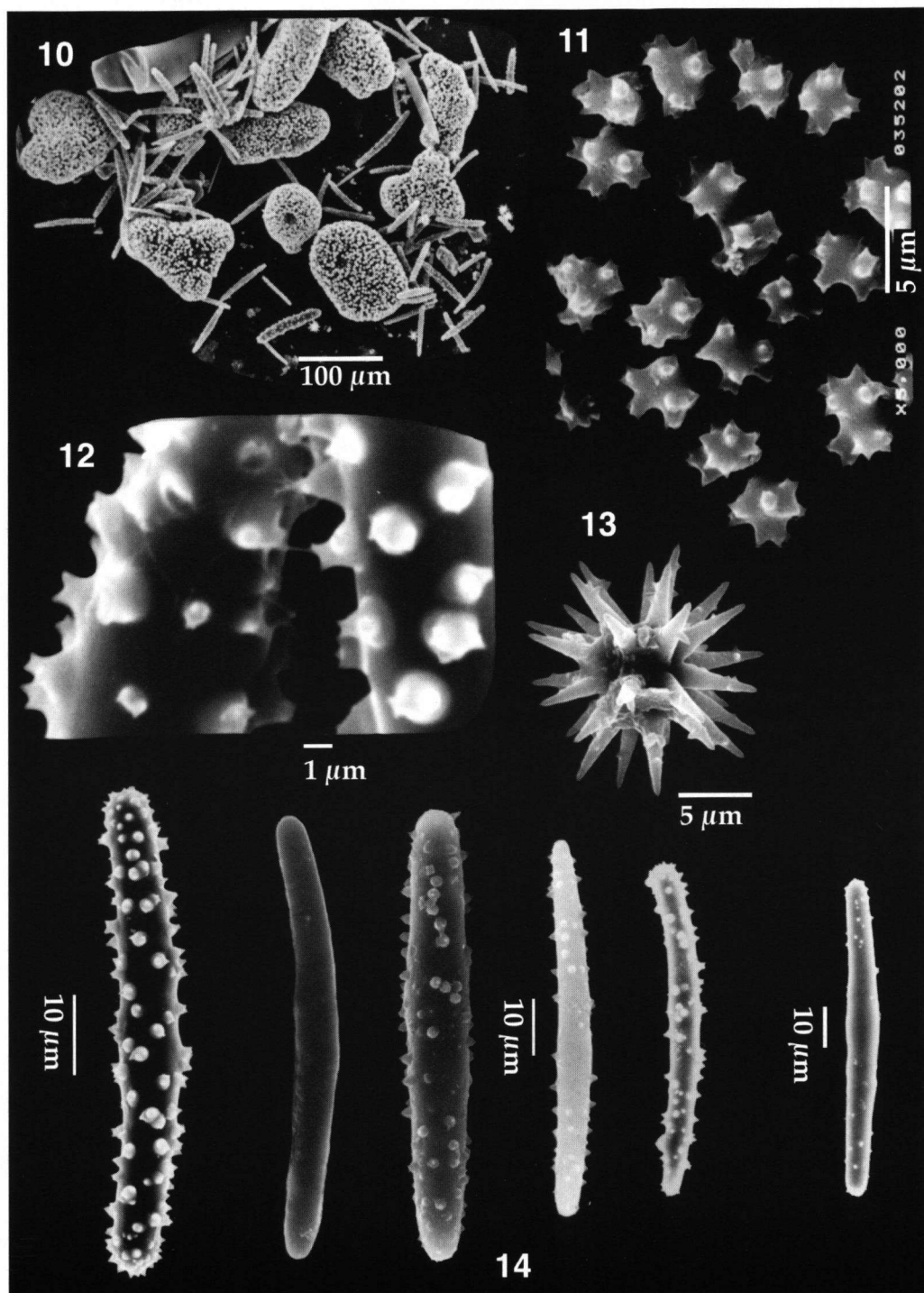
KEY TO THE SPECIES OF *ERYLUS* FROM BRAZILIAN COAST

(Modified from Mothes et al. (1999) and Mothes & Lerner (1999) to include a new species.)

- 1a. Orthotriaenes 3
- b. Dichotriaenes 2
- 2a. Dichotriaenes with short rhabd (cladome 285-418/38-57 μ m; rhabd 256.5 - 304/38 - 57 μ m), with



Figs. 5-9. *Erylus soesti* n. sp., SEM micrographs of spicules. 5, dichotriaene. 6, dichotriaene, overview. 7, dichotriaene, detail of cladome. 8, oxea. 9, oxea, extremities detail.



Figs. 10-14. *Erylus soesti* n. sp., SEM micrographs of spicules. 10, microscleres. 11, detail of aspider surface. 12, detail of microstrongyle surface. 13, sphaerocyaster. 14, microstrongyles variations.

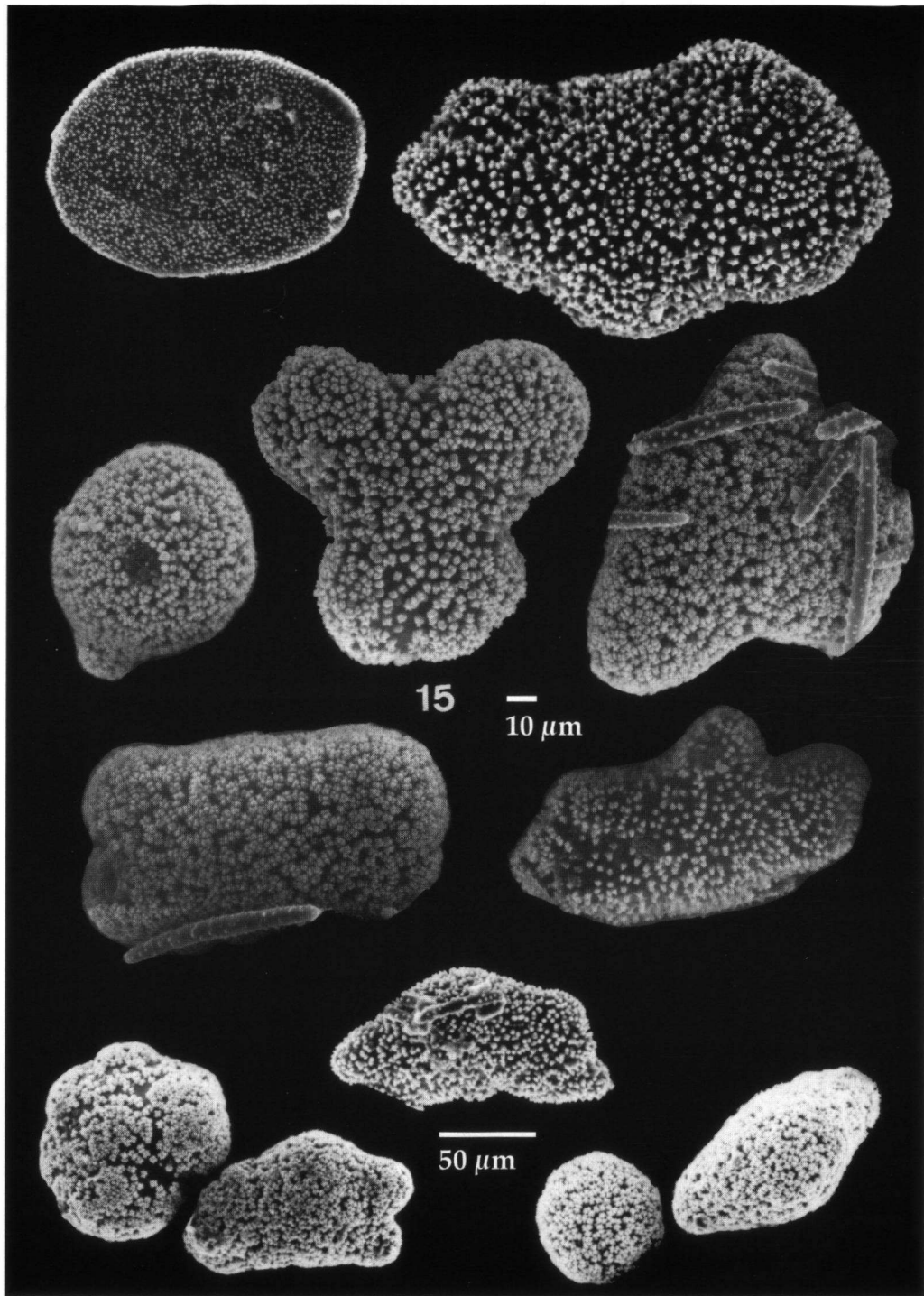


Fig. 15. *Erylus soesti* n. sp., SEM micrographs of aspidaster variations.

- strongyles varying to strongyloxeas (460-920/9.5-23.8 µm), flattened aspidasters with slightly irregular outline (159-228.8/105.8-151.8 µm) *E. diminutus*
- b. Dichotriaenes with long rhabd (cladome 713-1058 µm; rhabd 805-1380/47.5-95 µm) with oxeads (2093-3220/33.3-57 µm), not flattened aspidasters with strong irregular outline (46-128.8/39.1-92 µm) *E. soesti* n. sp.
- 3a. Atypical aspidasters, sterraster-like, disc-shaped and not flattened (207-506/184-414 µm), reduced toxas-like oxyasters (73.6-103.5 µm) *E. toxiformis*
- b. Typical aspidasters 4
- 4a. Elliptical flattened aspidasters 5
- b. Finger-shaped aspidasters (95-305/11.5-52.2 µm) *E. formosus*
- 5a. One category of oxyasters (9.2-23 µm) *E. corneus*
- b. Two categories of oxyasters (oxyaster I 23-57.5 µm/oxyaster II 8.1-27.6 µm) *E. alleni*

description of a new species. Mem. Queensland Mus. **44**: 369-380.

SCHMIDT, O., 1862. Die Spongien des Adriatischen Meeres. Engelmann, Leipzig: 1-88.

SOLLAS, W.J., 1886. Preliminary account of the tetractinelid sponges dredged by HMS 'Challenger' during the years 1873-76. Part I. The Chortistida. Sci. Proc. R. Dublin Soc. **5**: 177-199.

WIEDENMAYER, F., 1977. Shallow water sponges of the Western Bahamas. Experientia Suppl. **28**: 1-287.

Received: January 20, 2001

ACKNOWLEDGEMENTS

The authors are grateful to Dr Rob Van Soest (ZMA) for help in identification of material, to biology students Lisandra de Moura Umpierre and Lia Possuelo for making spicules mounts during their scholarship from FAPERGS. The senior author thanks CNPq for financial support.

REFERENCES

- BOURY-ESNAULT, N., 1973. Campagne de la Calypso au large des côtes atlantiques de l'Amérique du Sud (1961-1962). I, 29. Spongiaires. Rés. Sci. Camp. Calypso **10**: 263-295.
- LAUBENFELS, M.W. DE., 1934. New sponges from the Puerto Rican deep. Smithsonian. misc. Coll. **91** (17): 1-28.
- LENDENFELD, R.L. VON, 1903: Tetraxonia. Das Tierreich **19**: 1-168.
- MOTHES-DE-MORAES, B., 1978. Esponjas tetraxonidas do litoral sul-brasileiro: II-Material coletado pelo N/Oc. 'Prof. Besnard' durante o programa Rio Grande do Sul. In: Boletim Instituto Oceanográfico, São Paulo, **27** (2): 57-78
- MOTHES-DE-MORAES, B., 1981. Ocorrência de *Erylus topsenti* Lendenfeld, 1903 na costa do Rio de Janeiro (Porifera, Demospongiae). Iheringia (Zool.) **57**: 105-111.
- MOTHES, B. & LERNER, C.B., 1999. *Erylus toxiformis* (Porifera, Geodiidae), a new species from the southwestern Atlantic. Beaufortia **49** (4): 29-33.
- MOTHES, B., C.B. LERNER & C.M.M. DA SILVA, 1999. Revision of Brazilian *Erylus* (Porifera, Geodiidae) with