

# 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

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### 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 Zoologisch 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  $\mu\text{m}$ .  $N = 50$  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,  $25^{\circ}01' S$   $44^{\circ}45' W$ , Brazil, slope, 918 m, January 1972, coll R/V 'Almirante Saldanha'. Microscopical slide is deposited in Zoölogisch Museum Amsterdam.

DESCRIPTION (Figs. 2-4). - Small fragment with an inconspicuous lobated expansion,  $1.5 \times 0.5 \times 0.4$  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, sphaeroxyasters 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  $23 \mu\text{m}$  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 spherical 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. Sphaeroxyasters 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.

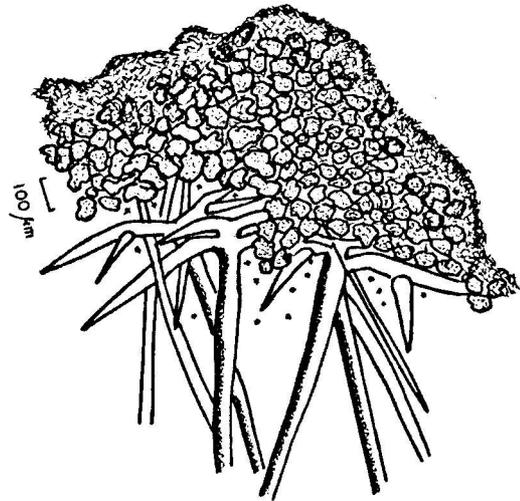


Fig. 4. *Erylus soesti* n. sp., tangential section of skeletal architecture.

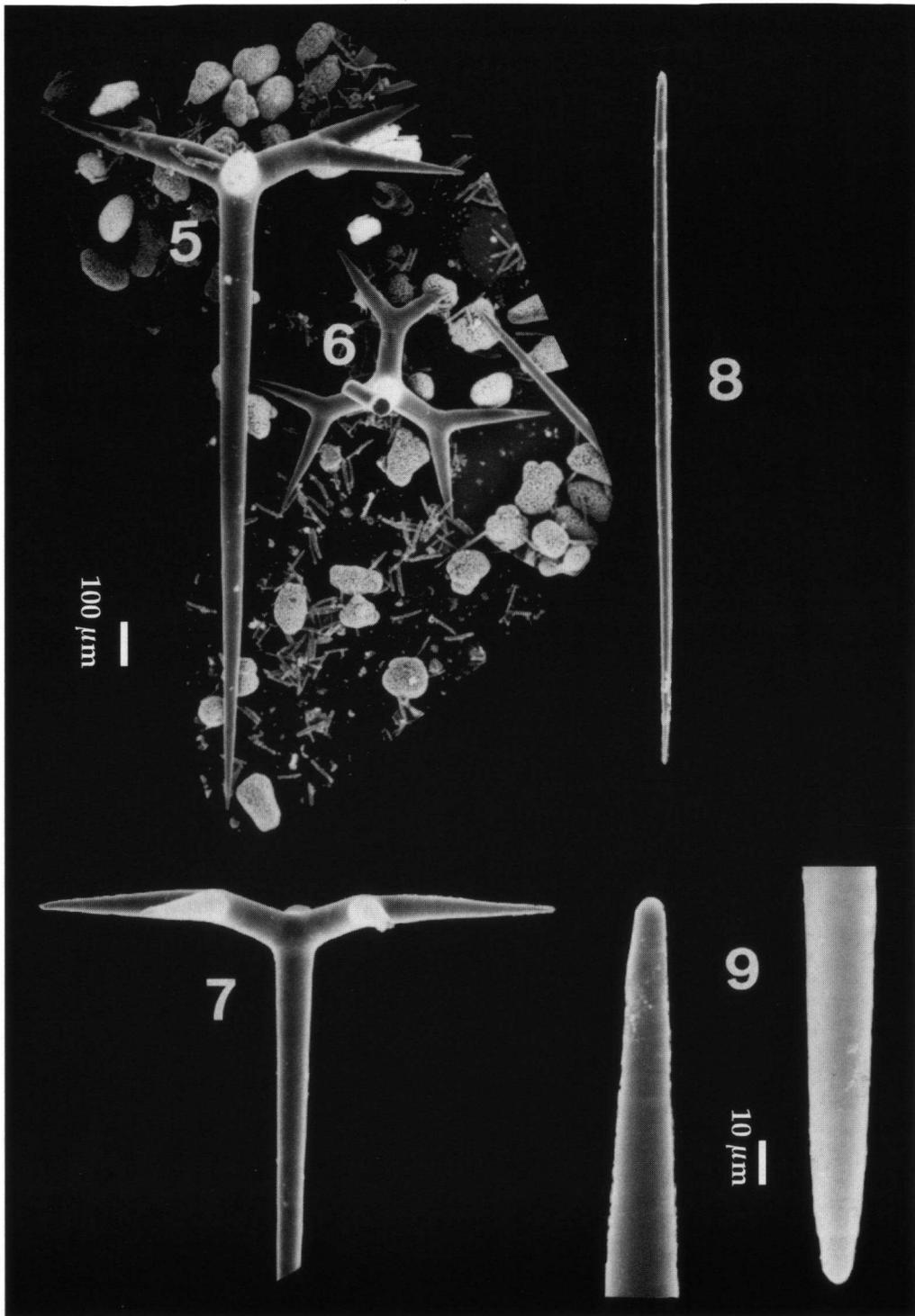
**REMARKS**

The taxonomic revision of material previously recorded by Mothes de Moraes (1981) and now under SEM revealed the presence of sphaeroxyasters 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 sphaeroxyasters 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, sphaeroxyasters and peculiar cushion-like aspidasters with extremely irregular outline.

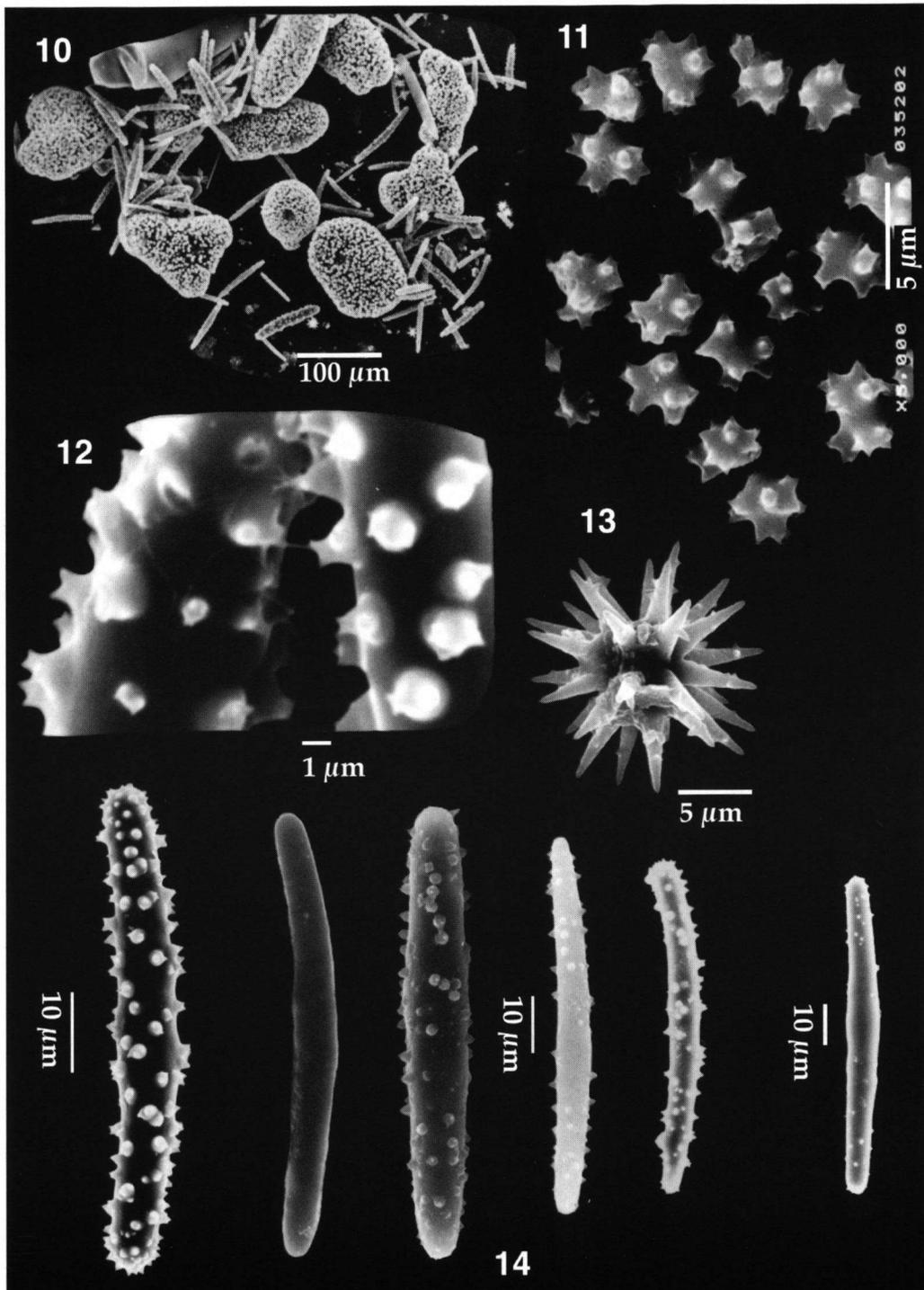
**KEY TO THE SPECIES OF ERYLUS FROM BRAZILIAN COAST**

(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 μm; rhabd 256.5 - 304/38 - 57 μm), 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 aspidasters surface. 12, detail of microstrongyles surface. 13, sphaeroxyaster. 14, microstrongyles variations.

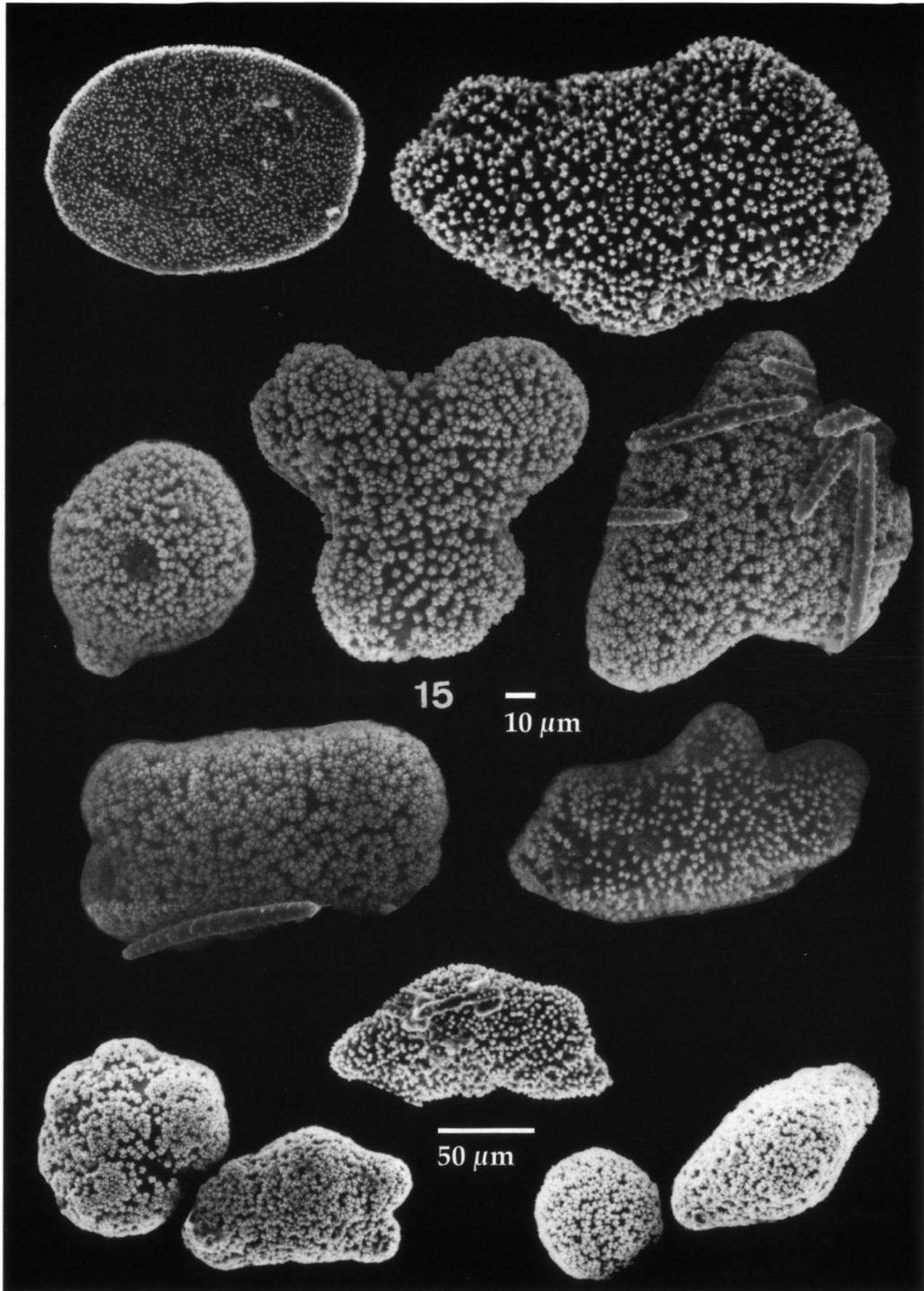


Fig. 15. *Erylus soesti* n. sp., SEM micrographs of aspidaster variations.

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

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