

Stelletta ruetzleri sp. nov., a new ancorinid from the Southwestern Atlantic (Porifera: Astrophorida)*

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SUMMARY: *Stelletta ruetzleri* sp. nov., a new ancorinid sponge from the Southwestern Atlantic (Porifera, Astrophorida), collected at 128 and 200 m depth off Rio Grande do Sul State coast, Brazil (31°20' -32°24'S/49°52' -50°15'W), is described and illustrated with SEM images of the spicules. The new species is based on the presence of one category of oxeas, dichotriaenes, oxyasters and spheroyasters.

Key words: Porifera, Ancorinidae, *Stelletta*, continental shelf, Southwestern Atlantic, taxonomy.

INTRODUCTION

The genus *Stelletta* was described by Schmidt (1862) and has the Adriatic species *Stelletta grubii* Schmidt, 1862 as type-species by subsequent designation (Burton and Rao, 1932).

Stelletta is represented from the Brazilian coasts by six species, with a single species from subtropical deep waters: *Stelletta hajdui* Lerner and Mothes, 1999, off Rio Grande do Sul State (Lerner and Mothes, 1999). The other four were recorded from tropical shallow waters: *Stelletta anancora* (Sollas, 1886) and *Stelletta crassispicula* (Sollas, 1886), both recorded from Bahia State (Sollas, 1888); *Stelletta gigas* Sollas, 1886, described from São Pedro and São Paulo archipelago (Sollas, 1888); *Stelletta pur-*

purea (Ridley, 1884) from Rio de Janeiro and Santa Catarina State (Mothes-de-Moraes, 1985; Mothes and Lerner, 1994 as *Myriastris purpurea*) was recently considered (Lerner and Mothes, 1999) as not-con-specific with *Stelletta purpurea* (Ridley, 1884).

A brief history of the genus *Stelletta*, including the Brazilian species, was reported in Lerner and Mothes (1999).

MATERIAL AND METHODS

The studied material was dredged by R./V. Atlântico Sul, of the Fundação Universidade do Rio Grande, during the Projeto Talude, at 128 and 200 m depth on the continental shelf off Rio Grande do Sul State coast, Brazil (31°20' -32°24'S/49°52' -50°15'W).

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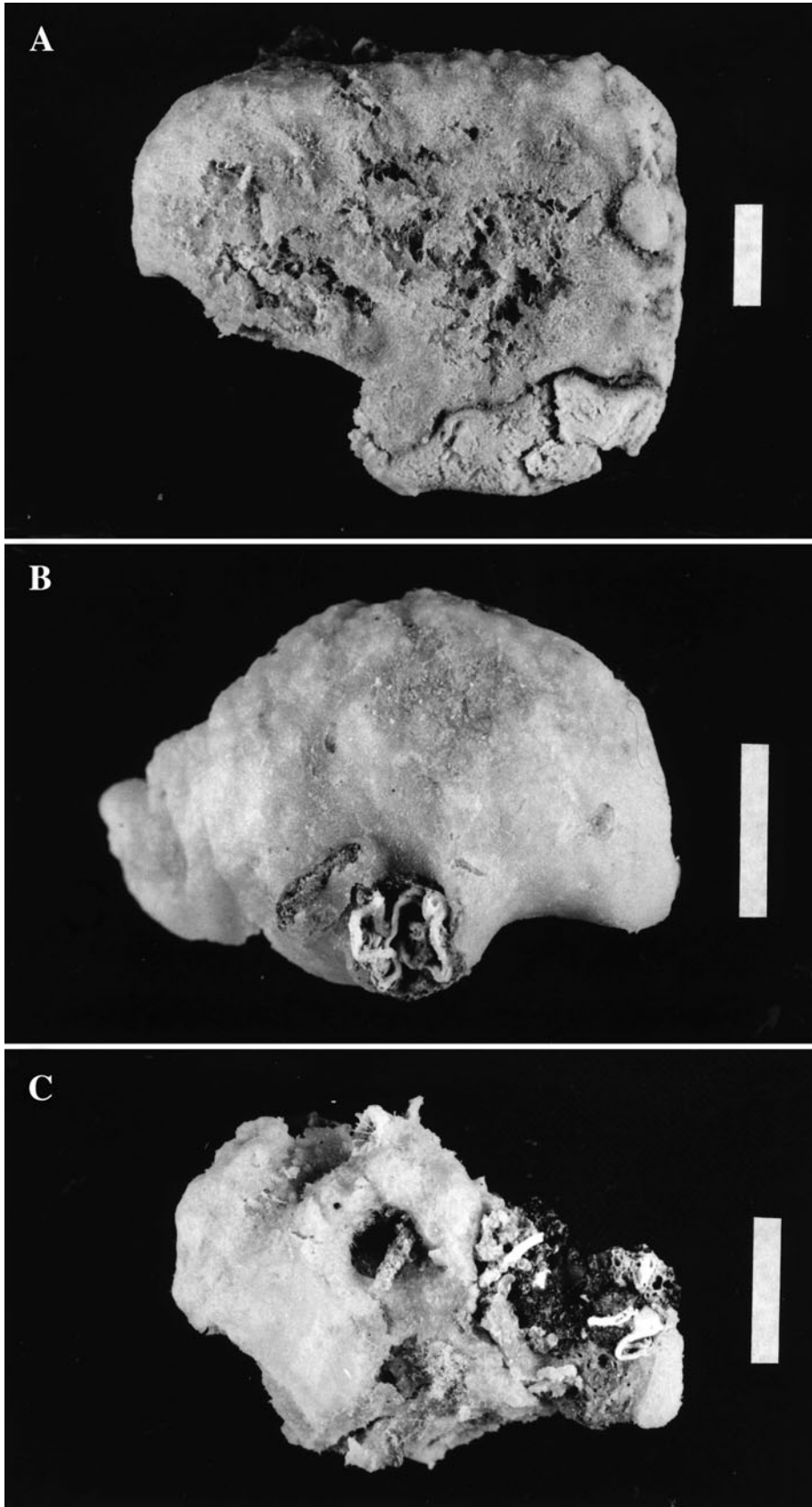


FIG. 1. – *Stelletta ruetzleri* sp. nov., habit: A, Holotype (MCN 2198) associated with sponge *Rhabderemia* sp. (arrow); B, Paratype (MCN 2201); C, Paratype (USNM 51559). Scale bar: 1 cm.

The holotype (schizoholotype in the Zoölogisch Museum Amsterdam, Netherlands [ZMA]) and paratype MCN 2201 are deposited in the Porifera Collection of Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul (MCN/FZB). The other paratypes are deposited in The Natural History Museum, London, (BMNH) and the National Museum of Natural History, Smithsonian Institution, Washington (USNM) Collections (schizoparatypes in the MCN/FZB and in the Museum of Comparative Zoology, Harvard University, Cambridge, USA [MCZ]).

The methodology used to prepare dissociated spicule slides follows Mothes-de-Moraes (1985). Thick sections of the cortex were made by removing a thin coat parallel to the cortex surface with pincers. It was placed it on a slide with xylene for clarification, and after drying of the skeleton section, the slide was mounted with Entellan and closed off with a cover slip. Electron micrographs were taken at MCN/FZB with a Jeol 5200 with an accelerating voltage of 25 kV and magnifications varying from 500 to 5.000 x. Spicule measurements comprised minimum, mean and maximum sizes in micrometers (μm) and were obtained by taking 50 measures of each type of spicule/specimen (unless stated otherwise).

RESULTS

Family ANCORINIDAE Schmidt, 1870 Genus *Stelletta* Schmidt, 1862

Diagnosis. Ancorinidae with radiate oxeas and triaenes, and two or three types of asters distributed both at the surface and in the choanosome, or only present in the choanosome. Cortex well-developed (sensu Van Soest and Stentoft, 1988; Desqueyroux-Faundez and Van Soest, 1997; Lerner and Mothes, 1999).

Stelletta ruetzleri sp. nov. (Figs. 1-3; Table 1)

Material examined. Holotype: MCN 2198 (with schizoholotype-slides at ZMA POR 16399); R./V. Atlântico Sul col.; 200 m depth; off Rio Grande do Sul coast, Brazil (32°24' S/50°15' W). Paratypes (all of the same locality): MCN/FZB 2201; BMNH 2000.12.14.1 (with schizoparatype – slides and stubs at MCN/FZB 1593); USNM 51559 (with schizoparatype – slides at MCN/FZB 2200; MCZ 32382); collected 5 August, 1988; R./V. Atlântico Sul col.; 128 m depth; off Rio Grande do Sul coast, Brazil (31°20' S/49°52' W)

Etymology. Dedicated to Dr. Klaus Rützler, for his important contributions to the study of marine sponges.

Description. Holotype (Fig. 1A). Massive to cushion shaped (5.5 x 4.5 x 1.5 cm). Growing on a substrate of coralline formations, stones and polychaete tubes. *Rhabderemia* sp. is epibiotic on the holotype of the new species. Surface optically smooth, microscopically hispid; rare oscules 0.1-0.2 cm in diameter, pores not visible; hard consistency; color in alcohol gray-white in the cortex and ochre-gray in the choanosome. Paratypes growing on a substrate of stones and polychaete tubes (Figs. 1B-C).

Skeleton. (Fig. 2). Ectosomal: a crust of about 0.3 cm in thickness, carrying a dense layer of spheroxyasters. A series of subcortical aquiferous cavities with 0.1-0.3 cm in diameter are visible.

Choanosomal: the usual radial arrangement of dichotriaenes and oxeas, single or in tracts (2-3 spicules), which are sometimes protruding beyond the sponge surface; dichotriaenes with the cladomes outwards and rhabdomes perpendicular to the surface; below the cladomes there are rare oxyasters. Oxyasters are abundant in the deeper part of the choanosome.

Megascleres (Measurements – Table 1).

Oxeas (Fig. 3A). Usually slightly curved or sometimes straight; with blunt ends, sometimes has-

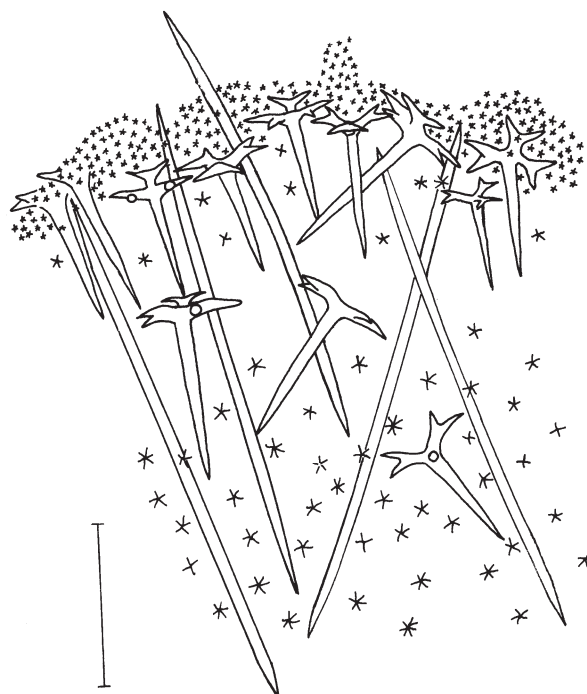


FIG. 2. – *Stelletta ruetzleri* sp. nov., skeletal arrangement. Scale bar: 500 μm .

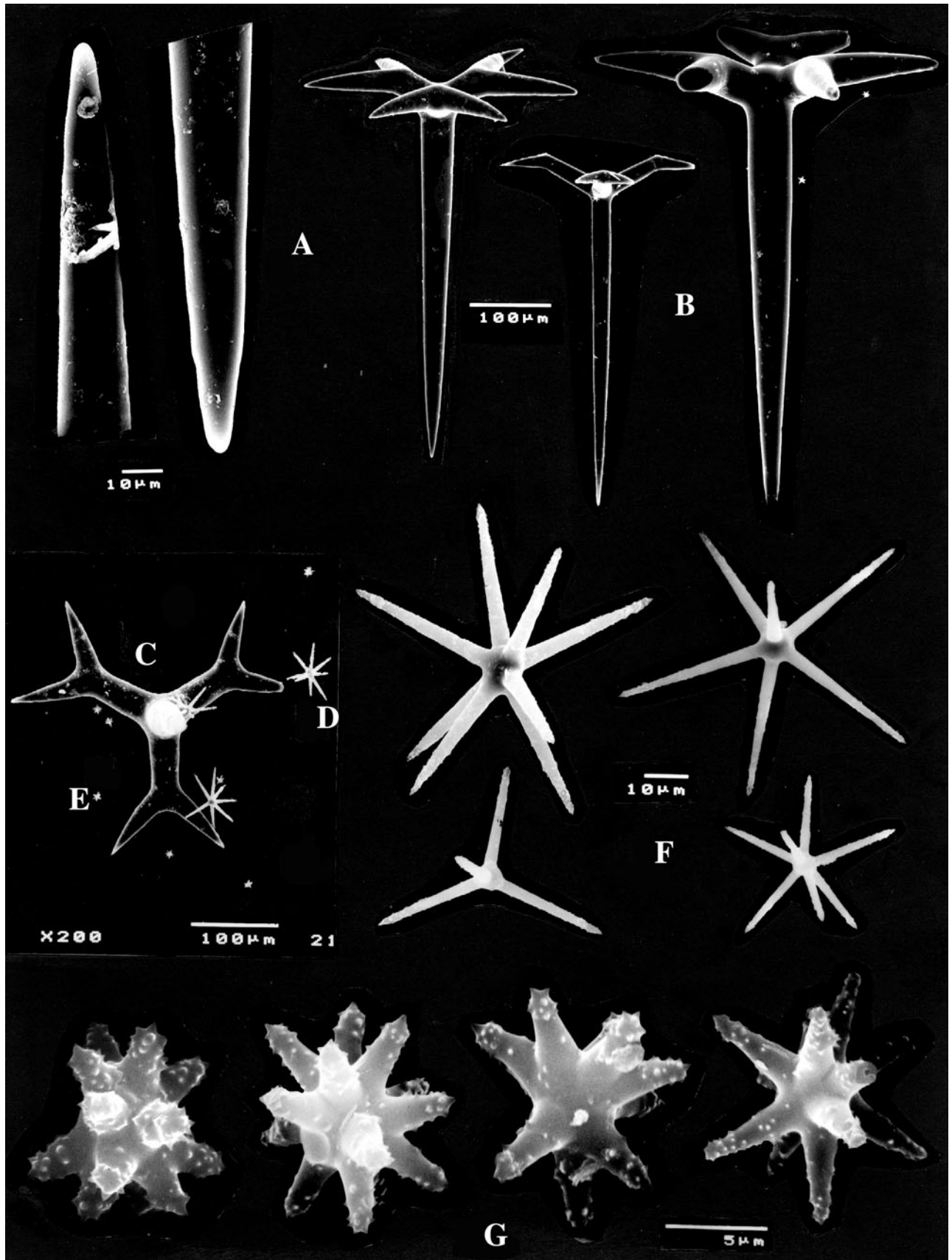


FIG. 3. – *Stelletta ruetzleri* sp. nov., spicules: A, oxea; B, dichotriaenes; C, dichotriaene cladome; D, oxyaster; E, spheroxyaster; F, oxyasters; G, spheroxyasters.

TABLE 1. – Comparative data on spicular micrometries of *Stelletta ruetzleri* sp. nov. Means are in italic. The width is given after bars (/). Dichotriaenes measurements are shaft length / shaft width / cladome length / protoclade length / protoclade width / deuteroclade length; euasters measurements are diameter of the entire spicule. N = 50. Measurements in µm.

Examined materials	Oxeas	Dichotriaenes	Oxyasters	Strongylasters
Holotype MCN 2198 (schizoholotype ZMAPOR 16399)	1587-2015.7-2760 / 16.1-33.9-46	218.5-381.3-589 / 19-38.5-66.5 / 171-358.2-579.5 / 28.5-64.6-104.5 / 19-34.5-57 / 38-101.4-171	34.5-63-92	4.6-7.8-11.5
Paratype MCN 2201	897-1407.6-1794 / 18.4-29.9-39.1	165.6-276.2-425.5 / 20.7-31.3-48.3 / 133.4-235.5-354.2 / 29.9-55.9-80.5 / 17.3-28.3-41.4 / 34.5-72.6-124.2	34.5-45.9-57.5	5.8-8.6-11.5
Paratype BMNH (schizoparatype MCN 1593)	1610-1915-2323 / 27.6-34.5-39.1	147.2-310.5-494.5 / 25.3-38.0-62.1 / 172.5-289.8-404.8 / 43.7-58.6-80.5 / 23-34.9-59.8 / 43.7-94.6-156.4	34.5-46.2-64.4	6.9-10.8-13.8
Paratype USNM (schizoparatype MCN 2200; MCZ 32382)	541.5-1146.5-1843 / 8.1-22.7-36.8	152-301.5-427.5 / 16.1-31.3-48.3 / 95-230.1-361 / 23.8-49.3-73.6 / 17.3-29.7-42.8 / 39.1-85.8-128.8	32.2-45.2-62.1	6.9-10.1-12.7

tate or acerate; rare styles and strongyloxeas.

Dichotriaenes (Figs. 3B-E). Short rhabdome; usually blunt or hastate ends, rarely acerate or mucronate; protoclade slightly curved upwards and deuteroclade curved downwards, both forming a slightly arched cladome; abruptly pointed ends. Some spicules with a slightly inflated region near to cladome.

Microscleres (Measurements – Table 1).

Oxyasters (Figs. 3C-G): 4-10 slender rays, microspined along their length, with gradually pointed ends.

Spheroxyasters (Figs. 3C-G): 6-13 stout rays, sharply spined, with blunt ends; spines more concentrated at the distal portion.

Remarks

Stelletta ruetzleri sp. nov., *S. hajdui* Lerner and Mothes, 1999, *S. phrissens* Sollas, 1886 and *S. clarella* De Laubenfels, 1930 (the last two recorded from Magellan Province); all of them are recorded from cold deep waters (Table 2).

S. phrissens differs from the new species in the presence of anatriaenes and strongylasters and *S. clarella* in the occurrence of anatriaenes, plagiotriaenes and strongylasters.

S. ruetzleri sp. nov. is close to *S. hajdui* in the presence of oxyasters and spheroxyasters, but the latter differs from the present species in the possession of plagiotriaenes, two categories of oxeas, smaller oxyasters and spheroxyasters which have more numerous rays (14-20) and slightly

microspined rays, with abruptly pointed ends. It is, nevertheless, a probable sister species of *S. hajdui*.

KEY TO THE BRAZILIAN SPECIES OF *STELLETTA*

(adapted from Lerner and Mothes, 1999)

- 1a. Megascleres oxeas and orthotriaenes 2
- 1b. Megascleres oxeas and plagio- or
dichotriaenes 3
- 2a. Only tylaster microscleres 4
- 2b. Tylaster and anthaster microscleres
..... *S. crassispicula* (Sollas, 1886)
- 3a. Plagiotriaenes; two categories of oxeas;
oxyasters smaller and smooth; spheroxyasters
with 14-20 thin, slightly spined rays, with
sharply pointed ends *S. hajdui*
Lerner and Mothes, 1999
- 3b. Dichotriaenes; one categorie of oxeas;
oxyasters microspined; spheroxyasters
with 6-13 stout, sharply spined rays,
with blunt ends *S. ruetzleri* sp. nov.
- 4a. With anatriaenes *S. purpurea* sensu
Lerner and Mothes, 1999 [not *S. purpurea*
(Ridley, 1884)]
- 4b. Without anatriaenes 5
- 5a. One categorie of oxeas *S. anancora*
(Sollas, 1886)
- 5b. Two categories of oxeas *S. gigas*
(Sollas, 1886)

TABLE 2. – Spicules, geographic and bathymetric distribution of the species of *Stelletta* Schmidt, 1862 recorded from cold waters in the South Brazilian coast and adjacent areas. Measurements in μm .

Species	Reference	Oxea I	Oxea II	Anatriaene	Protriaene	Dichotriaene	Plagiotraene	Oxyaster	Spheraster	Strongyloster = chiasster	Geographic and bathymetric distribution
<i>S. hajidui</i>	Lerner and Mothes, 1999	1840.0-2240.0-2599.0/19.0-27.1-38.0	920.0-1340.9-2001.0/57.0-76.5-95.0				Rares, Cladome 342.0-760.0/28.5-57.0; rhabdome 389.5-988.0/38.0-66.5	6-12 rays; diameter 27.6-43.4-55.2	Usually 10	14-20 rays; diameter 6.9-9.2-11.5	Off RS State coast, Brazil 32°24'S/50°15'W; depth 200 m
<i>S. phrissens</i>	Sollas, 1888	4650-4890 / 70-73		Rhabdome ; 8720-8100/ width along the shaft: 51-37-58-8		Rhabdome 3500-4190/118-120; protoclade 127-143/700; deuteroclade 254-303/286	Smooth or microspined Rays 19.8-27/ 3-4				Patagonia 50°08'30"S / depth 74°41'00"W; 171 fth (=320.25 m)
	Desqueyroux, 1976	4850		Rhabdome Approx. 9000		Rhabdome 3790	20-32		10-12		Patagonia 50°08'S/74°41'W depth not registered; east of South America - 41°S
	Desqueyroux and Moyano, 1987	not registered		not registered		not registered	not registered	not registered	not registered		Chilean localities 39-47°S/ 51-53°S, 0-25 m depth
<i>S. clarella</i>	Desqueyroux, 1972	1050-300/ 20-50		1000-2000/ Pro- to plagiotriaene and dichotriaene rhabdome max. 2500/15						Maximum diameter 15	0-95 m, Chile coast, Gulf Corcovado, 43°30'S/73°30'W Magellan Province (excl. Falkland)
	Desqueyroux, 1976	not registered		not registered		not registered				not registered	Chile coast : 43°40'S/ 73°30'W; San Pedro locality: 41°35'S/72°58'W
	Desqueyroux and Moyano, 1987	not registered		not registered		not registered				not registered	39-44°S, 0-25 m and 50-300 m depth
	Sarà <i>et al.</i> , 1992	not registered		not registered		not registered				not registered	Magellan area

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