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SPECIES OF *SYLLIS* SAVIGNY IN LAMARCK, 1818 (POLYCHAETA: SYLLIDAE) LIVING IN CORALS IN THE STATE OF SÃO PAULO, SOUTHEASTERN BRAZIL

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ABSTRACT

Eleven species of *Syllis* Lamarck, 1818 found in living coral heads of *Mussismilia hispida* (Verrill, 1868) in the State of São Paulo (Brazil) are reported and described, based on detailed analysis under stereo-, light, and scanning electron microscopes. Comments on the identity of each species are provided. The species are: *S. beneliahuae* (Campoy & Alquézar, 1982), *S. corallicola* Verrill, 1900, *S. glandulata* n. sp., *S. gracilis* Grube, 1840, *S. hyllebergi* (Licher, 1999), *S. lutea* (Hartmann-Schröder, 1960), *S. maryae* San Martín, 1992, *S. prolifera* Krohn, 1852, *S. pseudoarmillaris* n. sp., *S. truncata* Haswell, 1920, and *S. tyrrhena* (Licher & Kuper, 1998). *Syllis glandulata* n. sp. and *S. pseudoarmillaris* n. sp. are herein described. Except for *S. gracilis*, *S. prolifera*, and *S. corallicola*, this is the first report for all those species from Brazilian waters. *Syllis hyllebergi* is reported for the first time after the original description.

INTRODUCTION

Coral heads of *Mussismilia hispida* (Verrill, 1868) proved to support a very rich and diverse assemblage of polychaetes, dominated mainly by syllids and spionids (Nogueira, 2000).

A taxonomic analysis of this assemblage is currently being carried out and, until present, it has led to the description of several new taxa (Nogueira & Amaral, 2000, 2001; Nogueira & Ten Hove, 2000; Nogueira & Rizzo, 2001; Nogueira et al., 2001a, b, in press; Nogueira & Knight-Jones, 2002), some of them belonging to

Syllidae (Nogueira et al., 2001b), together with three redescriptions (Nogueira, 2002; Radashevsky & Nogueira, in press; Steiner et al., 2002).

Prior to the present study, ten species of *Syllis* had been reported for Brazilian waters, most of them, however, in dissertations and thesis not formally published, in the sense of the ICZN (see Table 1).

Besides not having been formally registered, most of the species reported by those studies have also not been fully described. On the other hand, taxonomists all around the world are presently coming to the conclusion that many of the old

Table 1: Species of *Syllis* previously reported for Brazilian waters, the localities in which they were found, and the main references; those references marked with * have not been formally published; those taxa marked with * are doubtful records (see 'Remarks' of *S. pseudoarmillaris* n. sp. for explanation).

Species	Localities (states)	References
<i>Syllis amica</i>	São Paulo	Souza, 1989*
<i>Syllis gracilis</i>	Rio de Janeiro	Attolini, 1997*
	São Paulo	Hansen, 1882 (as <i>Syllis brevicirris</i>); Morgado and Amaral, 1985; Rullier and Amoureux, 1979
	Espírito Santo, Rio de Janeiro, and Rio Grande do Sul	Rullier and Amoureux, 1979
<i>Syllis corallicola</i> [as <i>Syllis</i> (<i>Typosyllis</i>) <i>tigrinoides</i>]	Bahia	Augener, 1931
<i>Syllis proluxa</i> [as <i>Syllis</i> (<i>Typosyllis</i>) <i>proluxa</i>]	Rio Grande do Sul	Orensanz and Gianuca, 1974
<i>Syllis armillaris</i> (as <i>Typosyllis armillaris</i>)*	Rio Grande do Norte, Pernambuco, Alagoas, and Bahia	Rullier and Amoureux, 1979
<i>Syllis ehlersioides</i> (as <i>Typosyllis ehlersioides</i>)	Rio Grande do Sul	Borzone, 1988*
<i>Syllis fasciata</i> (as <i>Typosyllis fasciata</i>)	São Paulo	Souza, 1989*
<i>Syllis hyalina</i> (as <i>Typosyllis hyalina</i>)*	Rio Grande do Norte, Bahia	Rullier and Amoureux, 1979
	São Paulo	Paiva, 1996
	Paraná	Lana, 1981*, 1984*
<i>Syllis prolifera</i> (as <i>Typosyllis prolifera</i>)	Alagoas, Sergipe	Nonato and Luna, 1970
	Rio de Janeiro	Attolini, 1997*; Machado, 1989*
	São Paulo	Souza, 1989*
<i>Syllis variegata</i> (as <i>Typosyllis variegata</i>)	Rio Grande do Norte, Pernambuco, Bahia, Rio de Janeiro	Rullier and Amoureux, 1979
	Alagoas, Sergipe	Nonato and Luna, 1970
	São Paulo	Morgado and Amaral, 1985; Duarte and Nalesso, 1996
	Paraná	Lana, 1981*, 1984*

'well known species', priorly considered to be cosmopolitans, are in fact complexes of sibling species (for example, see Martín et al., (in press), review of '*Haplosyllis spongicola*'), which can only be distinguished if researchers have access to descriptions of the features of different populations.

In the present paper, all species of *Syllis* found in colonies of *M. hispida* are described, based on analysis under stereo-, light and scanning electron microscopes, except for *S. truncata* Haswell, 1920, which has not been analysed under SEM due to the shortage of specimens and their poor state of preservation. Intraspecific variation within all taxa was evaluated and information is incorporated in the descriptions.

Except for *S. corallicola* Verrill, 1900, *S. gracilis* Grube, 1840 and *S. prolifera* Krohn, 1852, this is the first report for Brazilian waters for all species

herein treated.

MATERIALS AND METHODS

Twelve colonies of *Mussismilia hispida* (Verrill, 1868) were collected in two islands off the coast of the State of São Paulo, Ilha dos Alcatrazes (26°06'S 45°42'W) and Laje de Santos (24°19'S 46°11'W), on 17 March 1996 and 4 December 1996 respectively, by means of SCUBA diving, in shallow water (3-10 m deep).

Corals were detached from the substrate with the aid of a chisel, put inside plastic bags and fixed with 4% formalin. In the lab, corals were decalcified with formaldehyde and formic acid solution, and the polychaetes sorted and stored in 70% ethanol, before identification.

Observations and measurements were made using Nomarsky interference-contrast optics.

Line drawings were made with a drawing tube, from specimens mounted on glycerine jelly permanent slides. Observations with scanning electron microscope (SEM) were made after critical-point drying and coating with 25 nm of gold, at Laboratório de Microscopia Eletrônica, Instituto de Biociências, Universidade de São Paulo (IB-USP) and Laboratório de Microscopia Eletrônica, Instituto de Biologia, Universidade Estadual de Campinas (IB-UNICAMP), both in Brazil.

Specimens are deposited at Museu de História Natural (MHN), Brazil, and Museo Nacional de Ciencias Naturales de Madrid (MNCNM), Spain, and, in case of the two new species here described, also at the Invertebrate Reference Collection of the Florida State Board of Conservation (FSBC I).

TAXONOMIC PART

Family Syllidae Grube, 1850

Subfamily Syllinae Grube, 1850

Genus *Syllis* Savigny in Lamarck, 1818

TYPE SPECIES. - *Syllis monilaris* Savigny in Lamarck, 1818

DESCRIPTION. - Body cylindrical, elongated, with large number of segments. Prostomium with one pair of palps, joined basally, projecting downwards. One median antenna and one pair of lateral antennae present; most of the species with eyes, two posterior pairs and commonly one additional pair of anterior ocular spots. Peristomium with two pairs of tentacular cirri, the superior usually longer. Antennae, tentacular, dorsal and anal cirri moniliform throughout. Ventral cirri usually shorter than parapodial lobes. Compound chaetae heterogomph, blades of falcigers of variable length, from lost or fused to the shaft (simple, thick chaetae), to very elongated (pseudospinigerous chaetae); some posterior parapodia with dorsal and ventral capillary simple chaetae. Acicula present, usually more than one in anterior chaetigers, progressively diminishing in number per parapodium towards pygidium, until, in most species, one single aciculum persists in each posterior parapodium (San Martín, 1984, 1992).

REMARKS. - *Syllis* is one of the most controversial genera among polychaetes. Based mainly on the morphology of the chaetae, it was split in four subgenera by Langerhans (1879), which were later raised to generic level: *Ehlersia* Langerhans, 1879, *Haplosyllis* Langerhans, 1879, *Syllis* Savigny in Lamarck, 1818, and *Typosyllis* Langerhans, 1879.

Ehlersia is characterized by having pseudospinigerous chaetae together with much shorter falcigers. According to San Martín (1992), the length of the blades of falcigers should be regarded as a specific character, instead of a generic one. Therefore, we do not accept *Ehlersia* as a valid taxon, and consider all of its species as belonging to *Syllis*, the only exception being *E. ferrugina* Langerhans, 1879, whose assignment to Syllinae was doubtful (see San Martín, 1992), and has been proposed as belonging to Eusyllinae by Núñez & San Martín (1996).

Haplosyllis is a clearly defined genus, with the autapomorphy of possessing only thick truly simple chaetae, together with the absence of capillary dorsal and ventral simple chaetae.

The major problems on the systematics of the group, however, arise when separating *Syllis* from *Typosyllis*. Some authors, such as Langerhans (1879), Kudenov & Harris (1995), and Licher (1999), among several others, consider *Syllis* as only having simple, thick chaetae, typical of *S. gracilis* Grube, 1840, in midbody chaetigers, and the remaining species, which do not present that particular type of chaeta, as *Typosyllis*, although sometimes they state that this separation is artificial but keep it for practical reasons, due to the large number of species of the group (see Kudenov & Harris, 1995: 82).

However, other characters show similarity between *S. gracilis*, *S. armillaris*, *S. hyalina* and the two new species herein described, such as the shape of dorsal cirri and the morphology of dorsal and ventral simple chaetae; besides this, at least *S. armillaris* and *S. hyalina* have the same kind of stolon as *S. gracilis* (Etapé & San Martín, 1991). Further, small specimens of *S. gracilis* have only true compound chaetae and the fusion of shafts and blades occurs progressively as the animals grow, leaving a very shallow sulcus, however true compound chaetae are always present, at least in anterior chaetigers (see 'Description' of *S.*

gracilis). Finally, there are species such as *S. magellanica* Augener, 1918, which present superior chaetae similar to those of *S. gracilis*, but with shaft and blade still distinct, together with true compound chaetae, in midbody chaetigers, clearly demonstrating that reduction of the blades followed by fusion of shafts and blades occurred progressively along the evolution of these species. Further discussions on the subject can be seen in San Martín (1992 and in press).

For all the above, we consider *Syllis* as derived from the same ancestral stock as the group named by Licher (1999) as 'Typosyllis armillaris complex', rendering *Typosyllis* paraphyletic if both genera are considered. Therefore, we see no reason to keep *Typosyllis* as a valid taxon at this moment, and consider *Syllis* as defined above, presenting compound chaetae as falcigers with variable length of the blades, which may be very long or reduced until the point of being lost or fused with the shaft.

Obviously, such statement requires further cladistic support, calling for an urgent analysis of the whole group, *Syllis* and *Typosyllis*. We believe that only after such study is performed, it will be possible to answer the question whether both taxa are valid or not.

KEY TO THE SPECIES OF SYLLIS FOUND IN LIVING CORALS IN THE STATE OF SÃO PAULO

- 1a. Pseudospinigerous chaetae present 2
- b. Pseudospinigerous chaetae absent 4
- 2a. Anterior parapodia with 2 acicula each; dorsal simple chaetae distally truncate, bifid; posterior chaetigers with acicula distally curved at right or subdistally inflated with short and oblique tip 3
- b. Anterior parapodia with 3-4 very thin acicula each; dorsal simple chaetae thin and curved, distally bidentate; posterior chaetigers each with aciculum subdistally inflated with short and oblique tip .. *S. beneliahuae*
- 3a. Tip of pseudospinigers clearly bidentate, with teeth close to each other and about the same size; falcigers with subdistal tooth shorter than distal one through out; posterior parapodia each with aciculum distally curved at right angle *S. maryae*
- b. Tip of pseudospinigers bidentate (appearing rounded, unidentate to subbidentate at highest magnification of light microscope), with teeth rounded; posterior falcigers with subdistal tooth larger and stronger than

- distal one; posterior chaetigers each with aciculum subdistally inflated, with short and oblique tip *S. hyllebergi*
- 4a. Simple, thick chaetae absent 5
- b. Adults only with simple, thick chaetae in midbody chaetigers; juveniles with some shafts partially fused to blades in some midbody parapodia *S. gracilis*
- 5a. From midbody, dorsal cirri alternating long and short, of which at least the longest exceeds body width 6
- b. From midbody, dorsal cirri about the same length, usually shorter than body width 8
- 6a. Posterior acicula subdistally inflated, with pointed oblique tip 7
- b. Posterior acicula distally inflated, rounded and hollow *S. prolifera*
- 7a. Anterior dorsal cirri with dark inclusions; blades of falcigers with both teeth about the same length, or subdistal tooth slightly shorter, and with large rounded gap in between; in large specimens, anterior dorsum with transversal dark red lines, leaving one pair of dorsal white circles per segment *S. corallicola*
- b. Anterior dorsal cirri with light, iridescent inclusions; blades of falcigers with long subdistal spines, reaching or surpassing the level of subdistal tooth; from midbody, subdistal tooth of falcigers larger than distal one *S. lutea*
- 8a. Posterior acicula subdistally inflated, with pointed oblique tip; dorsal simple chaetae bidentate 9
- b. Posterior acicula subdistally curved at right angle; dorsal simple chaetae straight, distally truncate 10
- 9a. Blades of falcigers with dorso-ventral gradation of the length of the blades conspicuous throughout; parapodia with dorsal glands, containing granular material *S. glandulata* n. sp.
- b. Blades of falcigers very short in midbody parapodia, with dorso-ventral gradation of the length of the blades reduced or absent; parapodia without dorsal glands *S. pseudoarmillaris* n. sp.
- 10a. Body long and very slender; appendages short throughout, except for antennae, tentacular and dorsal cirri of chaetiger 1; falcigers with sharp teeth *S. tyrrhena*
- b. Body thick; dorsal cirri slightly longer than body width, with dark inclusions; falcigers with blunt teeth *S. truncata*

Syllis beneliahuae (Campoy & Alquézar, 1982)

Figs. 1-2

Langerhansia beneliahui Campoy & Alquézar, 1982:

124, fig. 3.

Syllis beneliahuae; San Martín, 1984: 360-364, Pls. 90-91; Capa et al., 2001: 107.

Typosyllis beneliahuae; Licher, 1999: 47-48, figs. 17B, 22, see also for synonymy.

MATERIAL. - 21 specimens, all from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 02/1-3) and two specimens deposited at MNCNM (16.01/8725 and 16.01/8726). Six specimens examined under SEM not retained.

DESCRIPTION. - Body long and slender, without pigmentation patterns; the longest complete specimen examined counting on 98 chaetigers and measuring about 7.9 mm in length and 0.21 mm in width, at the level of proventriculum; longer incomplete specimens have also been studied.

Prostomium subpentagonal to ovate, broader than long, with four posterior eyes in wide trapezoidal arrangement (Fig. 1A). Lateral antennae on anterior border of prostomium, with 10-16 articles, median antenna originating on posterior prostomium, with 16-23 articles, about twice the length of lateral pair in most specimens (Fig. 1A). Palps longer than prostomium, ventrally directed (Figs. 2A-B). Peristomium dorsally reduced, superior pair of cirri slightly shorter than median antenna, inferior pair about half the length of superior cirri, with about 7-14 articles (Figs. 1A, 2A-B).

Dorsal cirri containing pairs of fibrillar spiral inclusions, dark in longer specimens; cirri of chaetiger 1 much longer than following cirri and median antenna, with 19-37 articles, depending on the size of the specimen. From midbody, parapodia alternating long and short cirri, the longest about twice the length of the shortest (Fig. 2H). Ventral cirri digitiform throughout, not exceeding parapodial lobes (Figs. 2A-B, H). Anal cirri with about 8-20 articles and one ventral papilla in between (Figs. 1B, 2I).

Pharynx long, extending through 8-11 segments, with one tooth on anterior margin. Proventriculum with about half the length of the pharynx, occupying 4.5-7 chaetigers and counting on 30-35 rows of muscle-cells (Fig. 1A).

Compound chaetae falcigers and pseudospinigers, both with bidentate blades, teeth about the same length, subdistal tooth triangular,

distal tooth hooked; cutting edges with spines all along their length, stronger in the basal half (Figs. 1D-E, G-H, 2C-G, J-L), with about four to nine chaetae, of which one to two are pseudospinigers and three to five falcigers; from midbody, fewer chaetae present on each parapodium: usually one pseudospiniger and three to five falcigers. Blades of pseudospinigers with teeth about the same size, distally pointed (Figs. 1E, G, 2F), blades increasing in length towards midbody, and measuring, on average, 31, 48, and 35 mm, on anterior, midbody and posterior chaetigers, respectively. Blades of falcigers with dorso-ventral gradation in length (Figs. 1D, H, 2G), not evident antero-posteriorly; blades measuring, on average, 22, 18, and 13 μ m on anterior parapodia; 23, 18, and 13 μ m, on midbody; and, on posterior parapodia, 20, 16, and 12 μ m. Pseudospinigerous chaetae absent in last chaetigers. Dorsal and ventral simple chaetae thin, bidentate, with subdistal spines, and about the same size, but ventral chaetae slightly thicker (Figs. 1F, J, 2M-N); both types of simple chaetae only present on posterior chaetigers. Acicula subdistally inflated, with short acuminate tip; three to four thin acicula present in each anterior parapodium (Fig. 1C), two acicula in each midbody parapodium (Fig. 1I), and single aciculum, with the same shape, but thicker, in each posterior parapodium (except for one specimen, which keeps two acicula per parapodium until pygidium).

REMARKS. - Our specimens differ from those examined by Licher (1999) by having blades of pseudospinigers remarkably shorter in midbody and posterior chaetigers. Another difference between our specimens and those studied by Licher (1999) is the presence of two acicula in each posterior parapodium, in the specimens examined by Licher, one of them is very thin and frequently hidden by the stouter aciculum (see Licher, 1999: 47), while in our specimens there is only one stout aciculum in each posterior parapodium, except for one specimen, as mentioned above. In regard to that particular specimen, it is worth to mention that, besides being the only one with two acicula in each posterior parapodia, it is also aberrant in the length of the blades of posterior falcigers, being very similar to those of midbody parapodia, and lacking dorsal and ven-

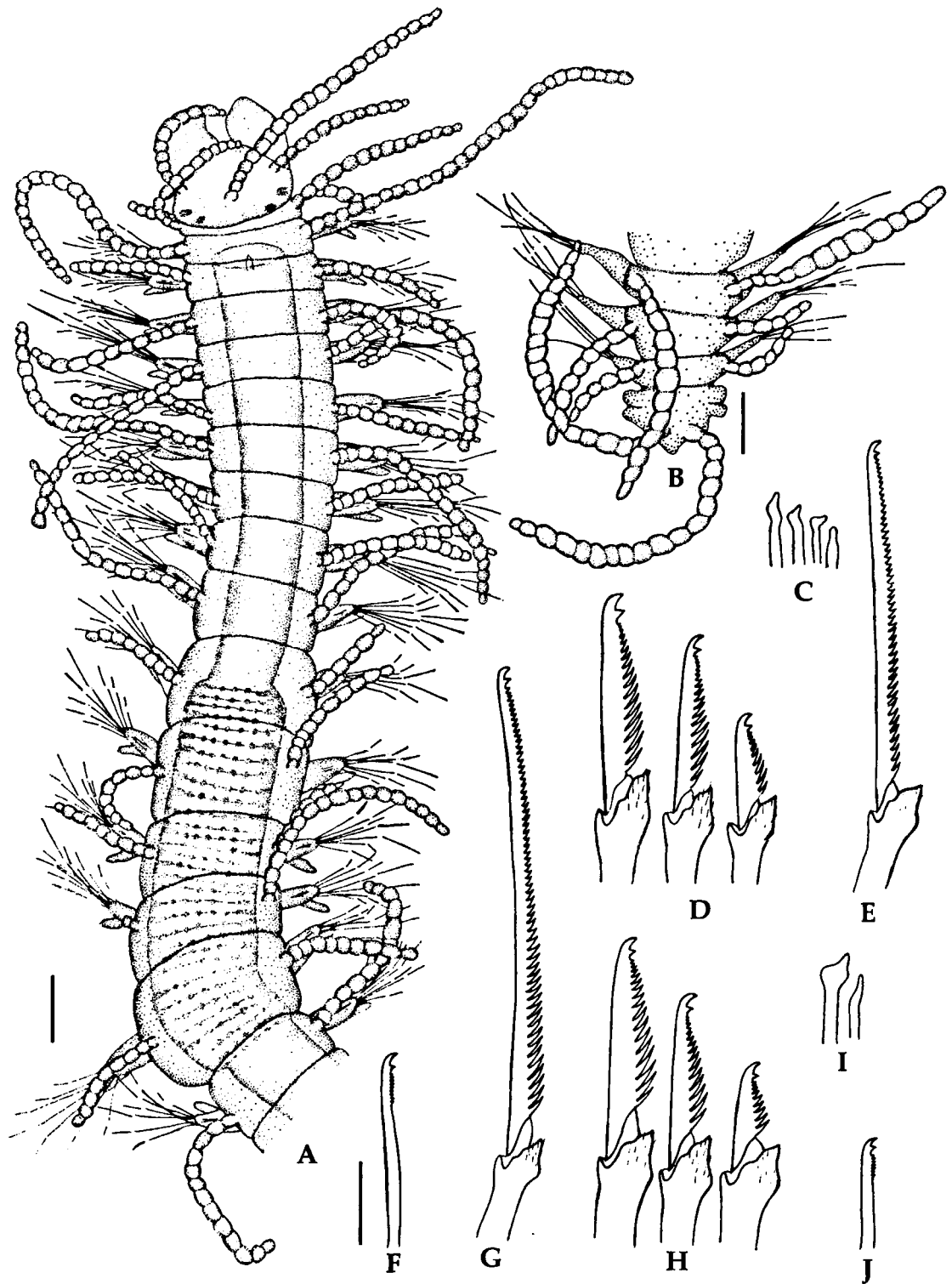


Fig. 1. *Syllis beneliahuae*. A, anterior end, dorsal view. B, posterior end. C, acicula, anterior chaetiger. D, falcigers, anterior chaetiger. E, pseudospinigerous chaeta, anterior chaetiger. F, dorsal simple chaeta. G, pseudospinigerous chaeta, midbody chaetiger. H, falcigers, midbody chaetiger. I, acicula, midbody chaetiger. J, ventral simple chaeta (scale bars: A = 250 μ m; B = 100 μ m; C-J = 10 μ m).

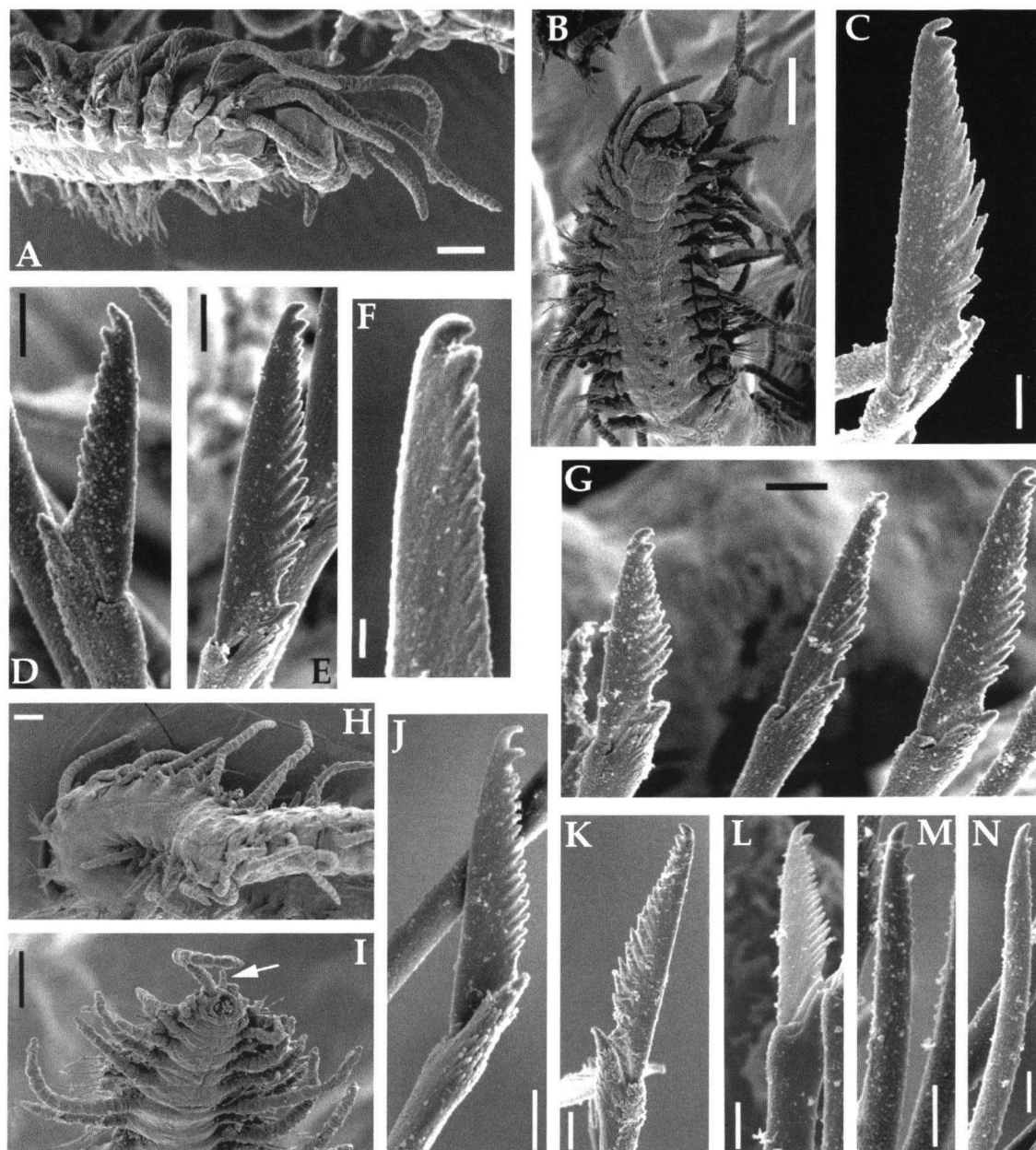


Fig. 2. *Syllis beneliahuae*, scanning electron micrographs. A, anterior end, lateral view. B, anterior end, ventral view. C-D, blades of superior and inferior falcigers, respectively, anterior chaetiger. E, blade of superior falciger, midbody chaetiger. F, detail of the tip of pseudospinigerous chaeta, midbody chaetiger. G, blades of intermediary falcigers, midbody chaetiger. H, midbody, ventral view. I, posterior end, arrow indicates papilla between anal cirri. J-L, blades of superior, intermediate and inferior falcigers, respectively, posterior chaetigers. M, dorsal simple chaeta. N, ventral simple chaeta (scale bars: A, F, I = 100 μ m; B = 200 μ m; C-D, J-N = 3 μ m; E = 4 μ m; G = 5 μ m; H = 1 μ m).

tral simple chaetae; it is possibly regenerating posterior end.

DISTRIBUTION. - Most probably circumtropical, with several records in the Atlantic and one in the

Pacific (Capa et al., 2001). Atlantic Ocean: Mediterranean Sea (Spain), Canary Islands, Caribbean (Cuba), and southeastern Brazil. Pacific Ocean: Panamá (Coiba Island). This is the first report for the Brazilian coast.

Syllis maryae San Martín, 1992

Figs. 3-4

Syllis maryae San Martín, 1992: 188-190, fig. 9.
Typosyllis maryae; Licher, 1999: 43-44.

MATERIAL. - 15 specimens, all from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 03/1-3), and 2 specimens deposited at MNCNM (16.01/8718 and 16.01/8729).

DESCRIPTION. - Body elongated, without distinct pigmentation; the longest complete specimen with 73 chaetigers and measuring about 5.4 mm in length and 0.16 mm in width, at the level of proventriculum.

Prostomium subrectangular, broader than long, with two posterior pairs of eyes in trapezoidal arrangement (Fig. 3A). Lateral antennae originating near anterior border of prostomium, with 7-11 articles; median antenna on posterior prostomium, between posterior eyes, with about 11-19 articles (Figs. 3A, 4A). Palps longer than prostomium, distally rounded (Figs. 3A, 4A-B). Peristomium dorsally narrower than following segments, superior pair of cirri about the same length as lateral antennae, or slightly longer, with 8-17 articles; inferior pair slightly shorter, with 8-11 articles (Figs. 3A, 4A-B).

Dorsal cirri of chaetiger 1 much longer than following cirri and antennae, with about 19-22 articles (Figs. 3A, 4A-B). Cirri containing fibrillar spiral inclusions throughout, iridescent. Midbody cirri shorter, with 5-14 articles; in some specimens, alternating long and short cirri for a short extension (Fig. 4J). Ventral cirri short and digitiform throughout, up to the same length as parapodial lobes (Fig. 4B). Anal cirri with about 10-12 articles and one papilla in between (Fig. 3B, 4M).

Pharynx long, extending for 6-11 segments, with one big tooth slightly posterior to the anterior margin, which is surrounded by a crown of about 10 soft papillae (Figs. 3A, 4B-C). Proventriculum extending through 4-7 chaetigers, with 17-26 rows of muscle-cells.

Anteriormost parapodia bearing only falcigers with blades of superior pair progressively more elongated (Figs. 4D-E), becoming pseudospinigerous chaetae from chaetiger 6 onwards. Anterior parapodia, from chaetiger 6, each with

4-10 compound chaetae, including 1-2 pseudospinigers; from midbody, parapodia each bearing 1-2 pseudospinigerous and 3-4 falcigers (Fig. 4H). Pseudospinigerous chaetae absent in last chaetigers; blades increasing in length towards posterior chaetigers, evidently bidentate, with teeth about the same size (Figs. 3D, G, 4E, G, H); blades measuring, on average, 40 μ m, in anterior parapodia, 59 μ m, in midbody, and 59 μ m in posterior segments. Falcigers with blades with conspicuous spines all along the cutting edge, spines thicker basally, progressively diminishing in size towards the tip; blades bidentate, distal tooth hooked and subdistal tooth triangular, teeth about the same size, or subdistal tooth shorter, and distinct gap in between (Figs. 3D, G, 4D-F, H-I, K-L, O-Q). Blades of falcigers measuring, on average, 19, 17, and 10 μ m, on anterior parapodia; on midbody, blades, on average, measuring 20, 15, and 9 μ m; on posterior body, blades width 18, 16, and 10 μ m. Dorsal and ventral simple chaetae usually present only in posteriormost chaetigers, dorsal chaetae distally truncated (Fig. 3F); ventral chaetae bidentate, with short subdistal spines (Figs. 3H, 4N), slightly shorter than dorsal chaeta. Anterior parapodia each with two acicula, thin, of two types: subdistally inflated, with short oblique tip, and distally curved at right angle, with short and acuminate tip (Fig. 3C); posterior parapodia each with single aciculum, thicker, of the second type (Fig. 3E).

REMARKS. - Our specimens differ from those described by San Martín (1992), and Licher (1999) by having: considerably shorter antennae and cirri throughout the body, not alternating long and short dorsal cirri, except for short extension in a few specimens; slightly longer pseudospinigers in midbody parapodia, and much shorter inferior falcigers; presence of dorsal simple chaetae far more posteriorly; and pharynx much longer.

Licher (1999) considers post-ventricular dorsal glands as the most characteristic feature of this species, however such structures were absent in all Brazilian specimens. Similar structures occur in several species, such as *S. amica* and *S. pulvinata* Langerhans, 1881 (San Martín, in press), but in all of them, including *S. maryae*, only a few specimens present this character. Therefore, we

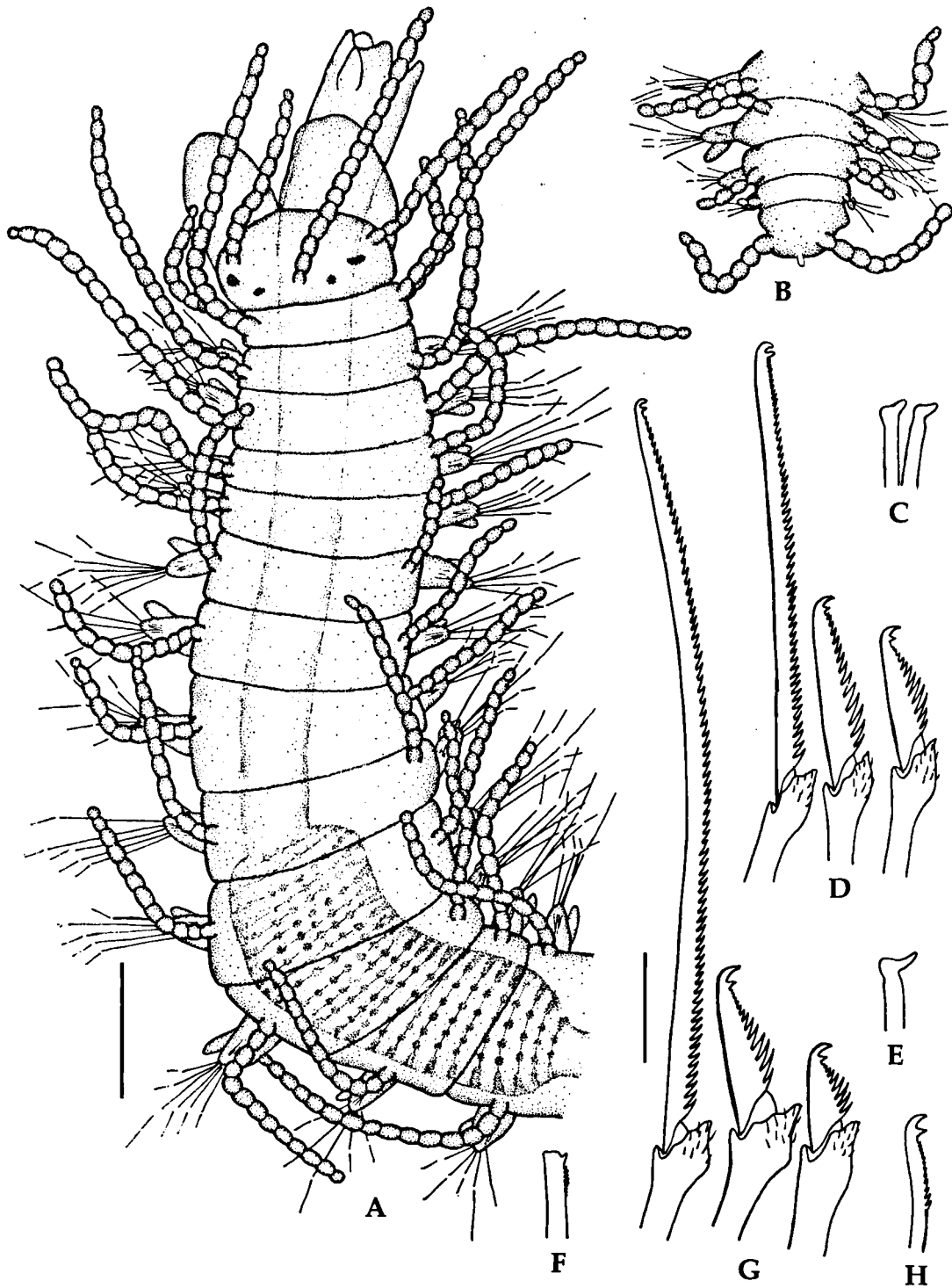


Fig. 3. *Syllis maryae*. A, anterior end, dorsal view. B, posterior end. C, acicula, anterior chaetiger. D, compound chaetae, anterior body. E, aciculum, posterior chaetiger. F, dorsal simple chaeta. G, compound chaetae, midbody. H, ventral simple chaeta (scale bars: A = 200 μ m; B = 50 μ m; C-H = 10 μ m).

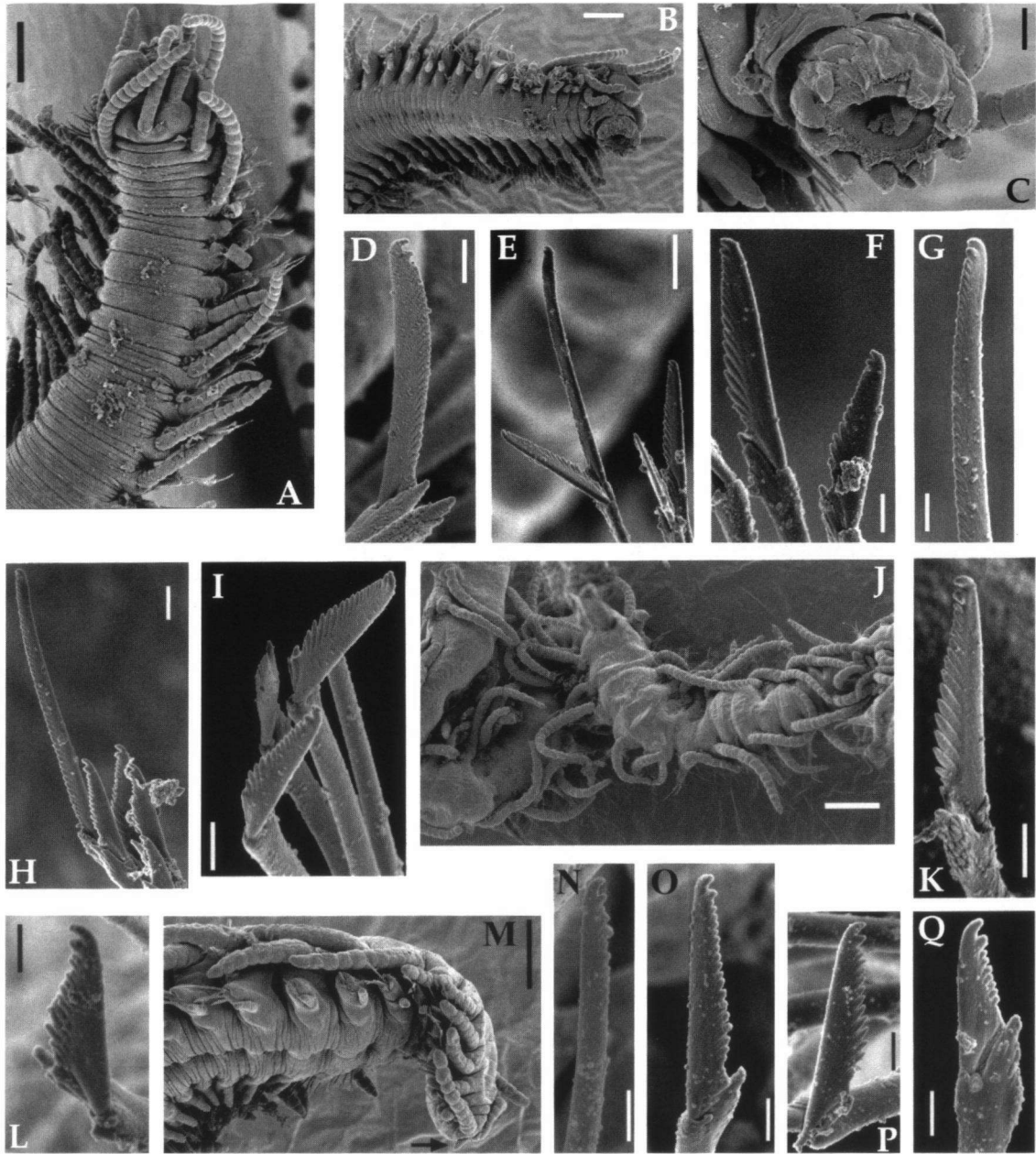


Fig. 4. *Syllis maryae*, scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, ventral view. C, detail of proboscis. D, blade of superiormost falciger, chaetiger 1. E, blades of compound chaetae, chaetiger 8. F, detail of the blades of falcigers, chaetiger 8. G, tip of pseudospinigerous chaeta, midbody chaetiger. H-I, blades of compound chaetae, midbody chaetigers. J, midbody, dorsal view. K-L, blades of superior and inferior falcigers, respectively, midbody chaetiger. M, posterior end, lateral view, arrow indicates papilla between anal cirri. N, ventral simple chaeta. O-Q, blades of superior, intermediate, and inferior falcigers, respectively, posterior chaetigers (scale bars: A, B and M = 100 μ m; C = 20 μ m; D, H and I = 5 μ m; E = 10 μ m; F and K = 4 μ m; J = 200 μ m; L = 2 μ m; G and N-Q = 3 μ m).

believe such a great importance should not be attributed to it.

Syllis maryae and *S. beneliahuae* are very similar at first glance, but they can be distinguished because *S. beneliahuae* has: (1) three to four thin acicula on

each anterior parapodia, in contrast to two in *S. maryae*, which are also thin, but much stronger than those of *Syllis beneliahuae*; (2) posterior acicula subdistally inflated with short and oblique tip, while in *S. maryae* acicula are bent at right angle;

(3) dorsal simple chaetae curved and bidentate in contrast to truncate condition in *S. maryae*; and (4) body more elongate and proportionally much thinner, with dorsal cirri containing pairs of dark inclusions in each article, and alternating cirri of different lengths throughout, of which the longest are about twice the length of the shortest.

DISTRIBUTION. - Western Atlantic: North Carolina, Caribbean Sea (Salazar-Valejo, 1996) and State of São Paulo. This is the first report for this species on the Brazilian coast.

Syllis hyllebergi (Licher, 1999) n. comb.
Figs. 5-6

Typosyllis hyllebergi Licher, 1999: 76-78, fig. 34.

MATERIAL. - 13 specimens, all from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 04/1-3) and 2 deposited at MNCNM (16.01/8730 and 16.01/8731). Two specimens examined under SEM not preserved.

DESCRIPTION. - Body short and proportionally robust, without remarkable colour patterns; longest specimen examined about 3.7 mm long, 0.24 mm wide, at the level of proventriculum, with 41 chaetigers.

Prostomium subpentagonal to ovate, broader than long, with four posterior eyes in wide trapezoidal arrangement, and two anterior eyespots. Antennae short, lateral pair originating in front of anterior eyes, with about 10 articles, and median antenna in the middle of prostomium, longer, with 14-15 articles (Fig. 5A). Palps longer than prostomium. Peristomium narrower than following chaetigers, superior pair of cirri about twice the length of inferior pair; superior cirri with 10-16 articles, inferior with 6-7 (Fig. 5A).

Dorsal cirri short and containing iridescent inclusions throughout the body, those of chaetiger 1 longer than following cirri, with 12-16 articles; remaining cirri with 6-13 articles, usually alternating long and short in midbody. Ventral cirri digitiform, about the same length as parapodial lobes (Figs. 5A, C). Anal cirri with about 10-12 articles (Fig. 5C).

Pharynx short, extending for 3-7 chaetigers, with one big tooth posterior to anterior margin,

and several terminal papillae (Fig. 5A). Proventriculum occupying 4-9 segments, with 29-35 rows of muscle-cells (Fig. 5A).

Each anterior parapodium with about 5-9 compound chaetae, midbody with 5-6, and posterior chaetigers with 4-5 each, including 1-2 pseudospinigerous chaetae, present in all but the posteriormost parapodia; in some specimens pseudospinigerous chaetae are absent for a long part of the body. Blades of falcigers bidentate, all with cutting edges conspicuously spinulated, with long spines basally, decreasing progressively in length towards the tip (Figs. 5D, E, 6A-E, H-J), pseudospinigerous chaetae with uniform fringe of spines all along their length (Figs. 5D, E). Blades of falcigers of anterior parapodia with teeth closely together, about the same size (Figs. 5D, 6A-B); from midbody, gap between teeth progressively increasing, while subdistal tooth becomes stronger, triangular, with large base (Figs. 5E, 6C-E, H-J). Falcigers with blades about the same length throughout the body, with slight dorso-ventral gradation; 15, 13, and 11 μm , on average, in each anterior parapodia, and 17, 13, and 11 μm from midbody. Blades of pseudospinigerous chaetae with distal tooth remarkably rounded throughout (Figs. 5D, E, 6F, G), blades increasing in length towards posterior midbody, measuring, on average, about 45 μm in anterior parapodia, 58 μm in midbody, and 60 μm in posterior parapodia. Dorsal simple chaetae present from midbody, shortly after proventriculum; thick, distally truncate and bifid, spinulated on distal third (Figs. 5F, 6L). Ventral simple chaetae only on posterior parapodia, distally curved, bidentate, with teeth well separated (Figs. 5H, 6K). Two acicula on each anterior parapodia, one of which thick, subdistally inflated, with oblique tip, the other straight with slightly oblique tip (Fig. 5B); posterior chaetigers each with single aciculum, with the same shape of anterior thicker aciculum (Fig. 5G).

REMARKS.- Brazilian specimens show slight variation from those described by Licher (1999) by having a shorter pharynx, fewer chaetae per parapodium, especially on anterior chaetigers, and by presenting one pair of anterior eyespots. Possibly, those features are all size-dependent, since our specimens are much shorter than those

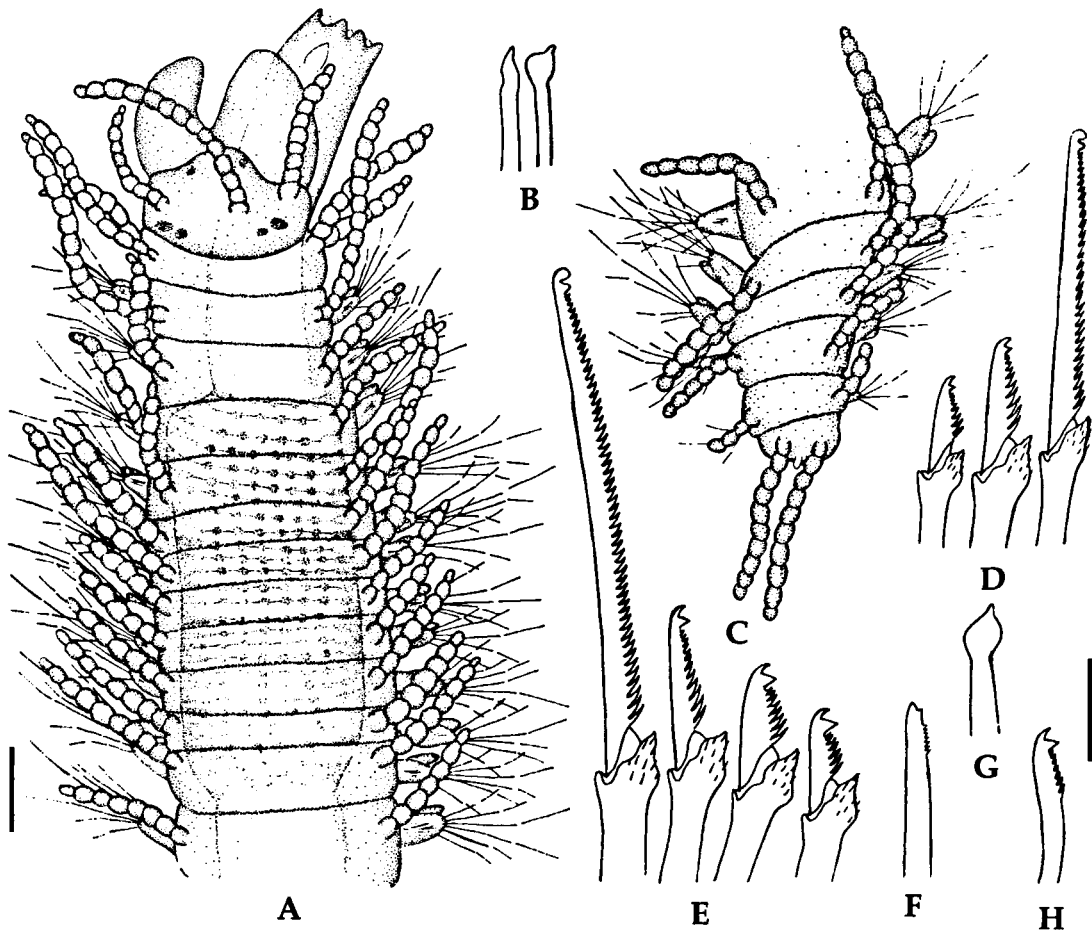


Fig. 5. *Syllis hyllebergi*. A, anterior end, dorsal view. B, acicula, anterior chaetiger. C, posterior end. D, compound chaetae, anterior chaetiger, from left to right, inferior to superior chaetae. E, compound chaetae, posterior chaetiger, from left to right, superior to inferior chaetae. F, dorsal simple chaeta. G, aciculum, posterior chaetiger. H, ventral simple chaeta (scale bars: A-C = 100 μ m; B and D-H: 10 μ m).

described by Licher; the holotype counts on 63 chaetigers and measures 8.8 mm in length and 0.35 mm in width.

In recent studies (Nogueira, in prep.), this species was common in samples from the intertidal zone, in rocky shores, in greater amount than sublitorally, in corals.

DISTRIBUTION. - Atlantic Ocean: Mediterranean Sea (Israel, Cyprus, and Suez Canal), and State of São Paulo. Indian Ocean: Red Sea (Gulf of Akaba). This is the first record for this species following the original description, and the first record for Brazil and southern Atlantic.

***Syllis gracilis* Grube, 1840**

Figs. 7-8

Syllis gracilis Grube, 1840: 77-78.

Syllis (Syllis) gracilis; Rullier & Amoureux, 1979: 162; Morgado & Amaral: 1985: 221.

MATERIAL. - 170 specimens, 43 from Laje de Santos and 127 from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 05/1-3) and 2 specimens deposited at MNCNM (16.01/8716 and 16.01/8717). Five specimens examined under SEM not preserved.

DESCRIPTION.- Body elongate and robust, usually with dorsal transversal bands of dark pigmentation until the end of proventriculum, two rows of

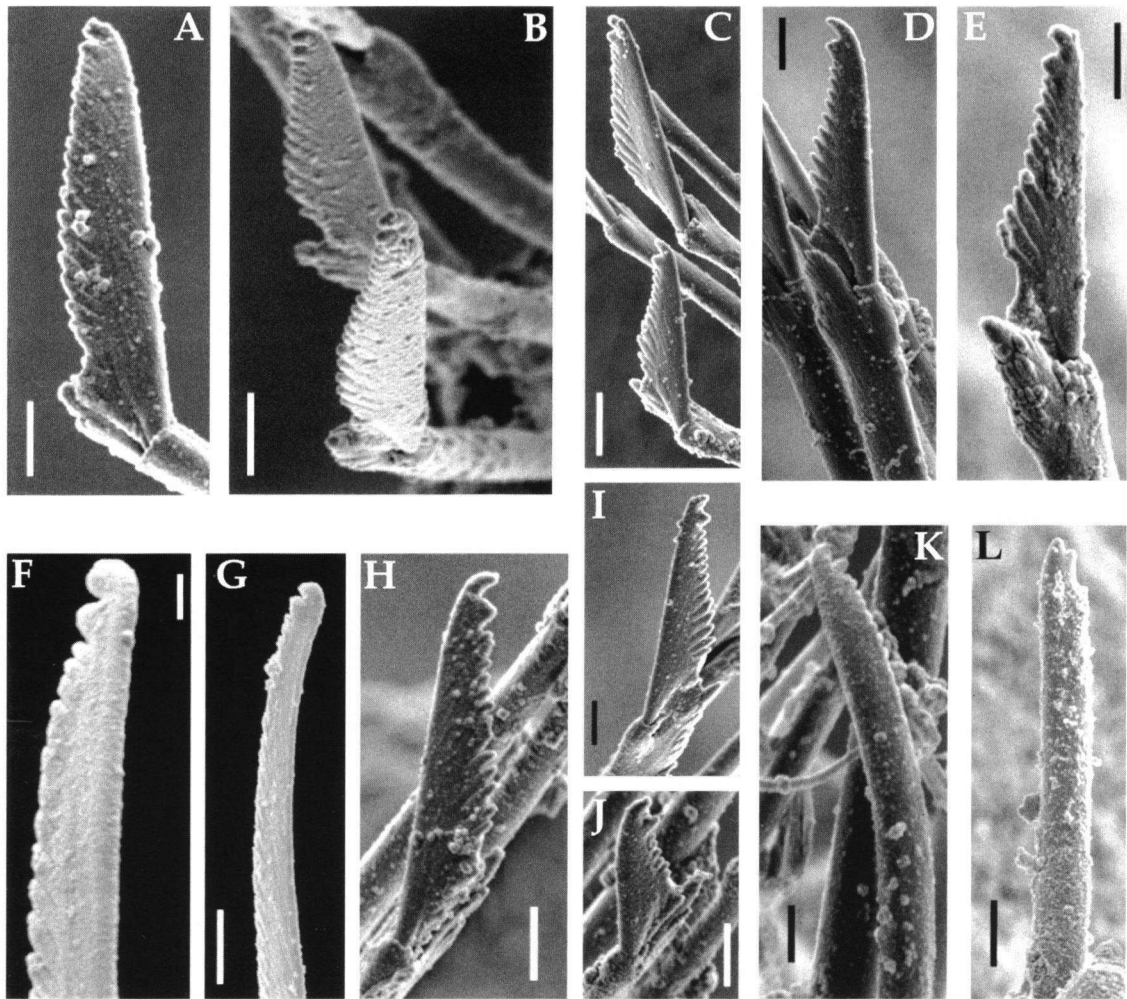


Fig. 6. *Syllis hyllebergi*, scanning electron micrographs. A-B, blades of falcigers, anterior chaetigers. C-E, blades of falcigers, midbody falcigers. F, tip of pseudospinigerous chaeta, midbody chaetiger. G, tip of pseudospinigerous chaeta, posterior chaetiger. H-J, blades of superior, intermediate, and inferior falcigers, respectively, posterior chaetigers. K, ventral simple chaeta. L, dorsal simple chaetae (scale bars: A and D-K = 3 mm; B and L = 4 μ m; C = 5 μ m).

pigmentation in each anterior chaetiger (Fig. 7B), and one row per chaetiger from the beginning of proventriculum (Fig. 7C). The longest specimen studied measuring 9.9 mm in length, by 0.33 mm in width, at the level of proventriculum, and with 72 chaetigers (longer and incomplete specimens were observed, but not studied in detail).

Prostomium subpentagonal, with four mid-posterior eyes in trapezoidal arrangement (Fig. 7A). Antennae short, lateral pair originating in front of anterior eyes, with 10-15 broad articles, and the median antenna originating near the posterior border of prostomium, slightly longer, with 14-20 articles. Peristomium dorsally slightly nar-

rower than following segments; superior peristomial cirri slightly longer than antennae, with about 12-18 articles, inferior cirri shorter, with 8-11 articles (Figs. 7A, 8A-B).

Dorsal cirri short throughout, those of chaetiger 1 about the same length as median antenna, or longer (Figs. 7A, 8A-B). From midbody, cirri shorter, with 6-9 articles, with broader articles basally and distally pointed (Fig. 8I). Ventral cirri very short throughout, about the same length as parapodial lobes in anterior body, tubercular from midbody (Fig. 8I). Anal cirri longer than dorsal cirri, with up to 16 articles and one soft ventral papilla in between (Figs. 7D, 8M).

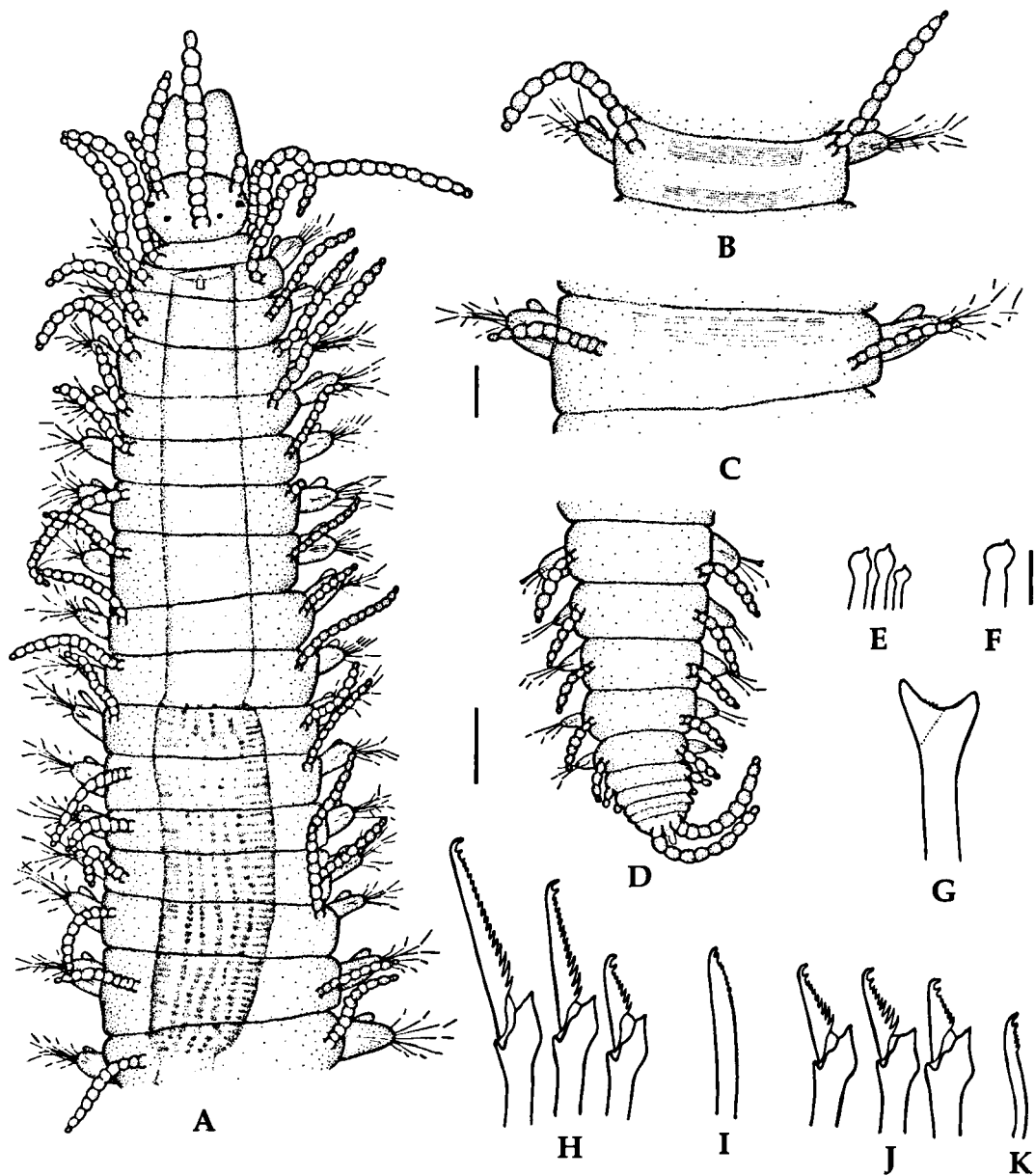


Fig. 7. *Syllis gracilis*. A, anterior end, dorsal view (dorsal pigmentation omitted). B, chaetiger 3, dorsal view, showing pigmentation. C, chaetiger 15, dorsal view, showing pigmentation. D, posterior end. E, acicula, anterior chaetiger. F, aciculum, posterior chaetiger. G, simple, thick chaeta. H, falcigers, anterior chaetiger. I, dorsal simple chaeta. J, falcigers, posterior chaetiger. K, ventral simple chaeta (scale bars: A and D [scale at the left of Fig. D] = 400 μ m; B-C [scale at the left of Fig. C] = 100 μ m; E-K [scale at the right side of Fig. F] = 10 μ m).

Pharynx long, extending through 7-14 segments, with large anterior tooth (Fig. 7A). Proventriculum shorter, occupying 4-10 segments and with 41-61 rows of muscle-cells (Fig. 7A).

Anterior parapodia bearing only compound falcigers, 5-7 per parapodium, blades bidentate, with accentuate dorso-ventral gradation in the

length of the blades and wide gap between distal and subdistal teeth; distal tooth of the blades hooked, subdistal tooth shorter; cutting edges with a fringe of numerous and short spines, diminishing in length towards tip (Figs. 7H, 8C-E). From midbody, two simple, thick chaetae per parapodium, originated by strong reduction of

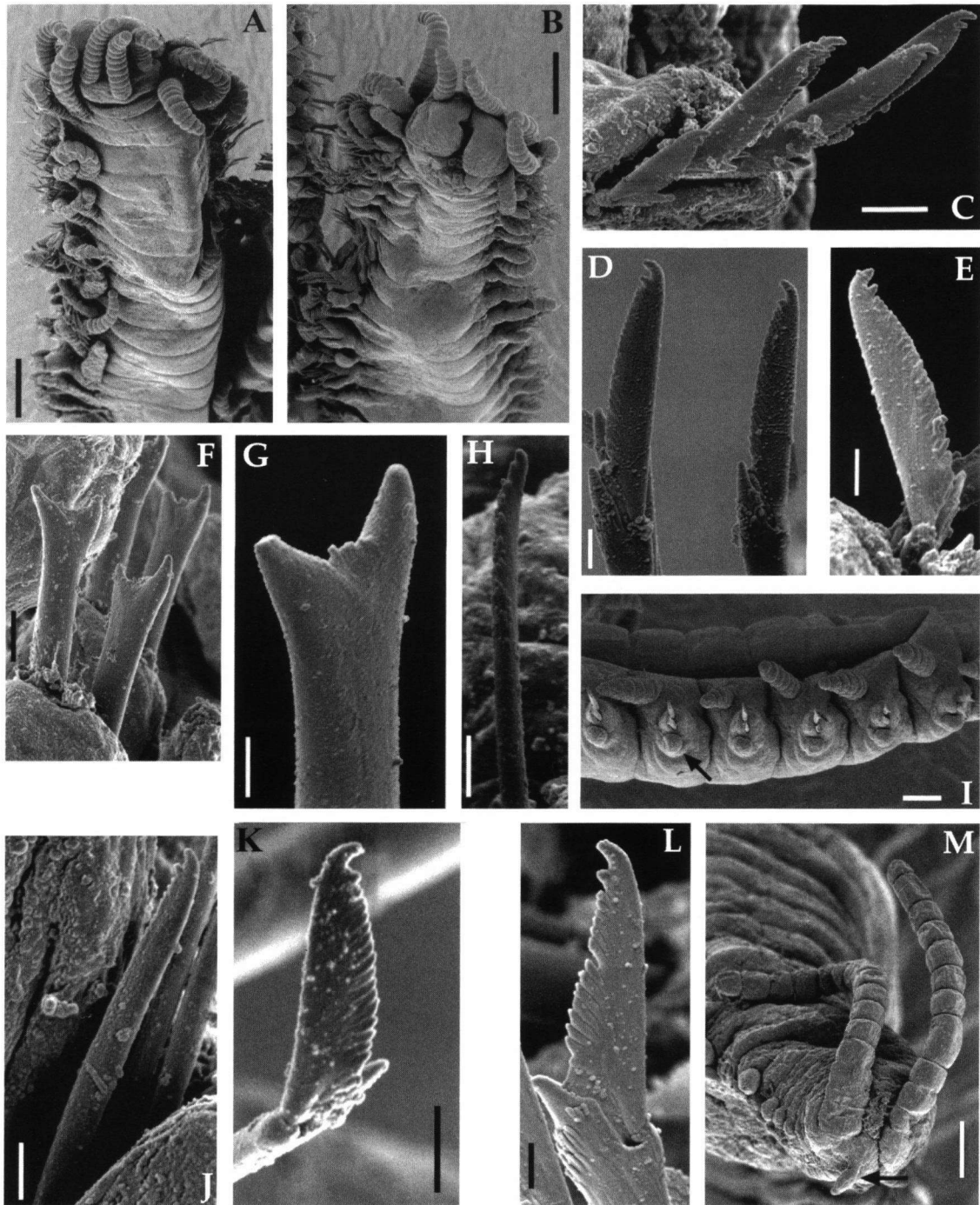


Fig. 8. *Syllis gracilis*, scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, ventral view. C, falcigers, anterior chaetiger. D, superior falcigers, anterior chaetiger. E, intermediate falciger, anterior chaetiger. F, G, simple, thick chaetae. G, tip of simple, thick chaeta. H, dorsal simple chaeta. I, midbody, lateral view. J, ventral simple chaeta. K, L, falcigers, posterior chaetigers. M, posterior end, arrow indicates the papilla between anal cirri (scale bars: A and B = 200 μ m; C and F = 10 μ m; D, E, G, H, J and L = 5 μ m; I = 100 μ m; K = 3 μ m; M = 60 μ m).

the blades and fusion to the shafts; chaetae with few and very short spines near the base of the fused blade, and shallow sulcus along the line of

fusion (Figs. 7G, 8F-G). Posterior parapodia with 2-4 compound falcigers, with blades bidentate, as on anterior parapodia, but shorter and with

dorso-ventral gradation in the length of the blades less pronounced, if present (Figs. 7J, 8K-L). Blades of falcigers measuring, on average, about 28, 21, and 14 μm , in each anterior parapodium, and 15, 13, 11 μm , in posterior body. Dorsal and ventral simple chaetae present on last chaetigers, dorsal chaetae subidentate, with short subdistal spinulation (Figs. 7I, 8H); ventral chaetae shorter, distinctly bidentate, with short spines (Figs. 7K, 8J). Anterior parapodia each usually with 2-3 acicula, subdistally inflated with very short oblique tip (Fig. 7E); posterior parapodia each with single aciculum, of the same shape, but stronger (Fig. 7F).

REMARKS. - This is a well known species, reported worldwide, recognised by the presence of simple, thick chaetae, originated by the fusion of shafts and blades (see San Martín, 1984, 1992; in press), and the very short and distally tapering dorsal cirri from midbody. Due to asexual reproduction followed by incomplete regeneration, specimens with simple, thick chaetae extending until posterior end are common.

DISTRIBUTION. - Cosmopolitan. Along the Brazilian coast, *S. gracilis* has been identified in the states of Espírito Santo (Rullier & Amoureux, 1979), Rio de Janeiro (Rullier & Amoureux, 1979; Attolini, 1997), São Paulo (Morgado & Amaral, 1985; Nogueira, 2000), and Rio Grande do Sul (Rullier & Amoureux, 1979).

***Syllis prolifera* Krohn, 1852**

Figs. 9-10

Syllis prolifera Krohn, 1852: 66-75, Pl. 3, fig. 1.

Typosyllis prolifera; Nonato & Luna, 1970: 69;

Licher, 1999: 135-140, figs. 17 S, 61, see also for synonymy.

MATERIAL. - 15 specimens, all from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 06/1-3), and 2 specimens deposited at MNCNM (16.01/8727 and 16.01/8728). Four specimens examined under SEM not preserved.

DESCRIPTION. - Body long and robust, without distinct colour patterns, except for dark inclusions inside dorsal cirri, and red pigmentation inside the pharynx of some specimens; the longest spec-

imen examined in detail with 55 chaetigers and measuring 56 mm in length, by 5.9 mm in width, at the level of proventriculum, but longer specimens have been collected.

Prostomium ovate, with four posterior eyes in trapezoidal arrangement and, in some specimens, two anterior eyespots (Fig. 9A). Lateral pair of antennae on the anterior border of prostomium, with 13-20 articles, median antenna longer, with 20-28 articles, inserted on posterior prostomium (Figs. 9A, 10A). Peristomium slightly narrower than following segments, superior pair of cirri longer than antennae, with 19-33 articles, inferior pair shorter, with 11-16 articles (Figs. 9A, 10A-C).

Dorsal cirri long throughout, those of chaetiger 1 longer than following cirri, with 23-32 articles (Figs. 9A, 10A-B). From midbody, cirri usually alternating long and short (Fig. 10E), the longest exceeding body width. Ventral cirri digitiform, up to the same length of parapodial lobes (Figs. 10B-C, Q). Anal cirri about the same length as dorsal cirri, with 10-24 articles (Figs. 10Q).

Pharynx short, usually with red pigmentation inside, and extending for 3-6 segments (Fig. 9A), with sharp tooth near the anterior margin, which is surrounded by a crown of ten soft and triangular papillae (Fig. 10D). Prostomium about the same length as pharynx, with about 25-29 rows of muscle-cells (Fig. 9A).

Compound chaetae all falcigers, blades bidentate, with distal tooth hooked, subdistal tooth shorter and with wide gap in between (Figs. 9B-C, F, 10F-N); cutting edges of the blades of superior chaetae with spines about the same thickness throughout, progressively diminishing in length towards the tip (Figs. 10F-G), intermediate and inferior chaetae with spines remarkably longer and coarser in proximal half (Figs. 10H-N). Anterior parapodia each with 6-10 chaetae, midbody parapodia each with 6-11, and posterior parapodia with 3-7. Blades measuring, on average, 32, 20, and 14 μm , in anterior segments, 30, 25, and 18 μm in midbody, and 24, 20, and 17 μm in posterior ones. Dorsal simple chaetae present from midbody, immediately after the proventriculum in some specimens, long and thick, distally bifid (Figs. 9E, 10O); ventral simple chaetae from posterior body, shorter and thinner than dorsal chaetae, distally curved, strongly bidentate,

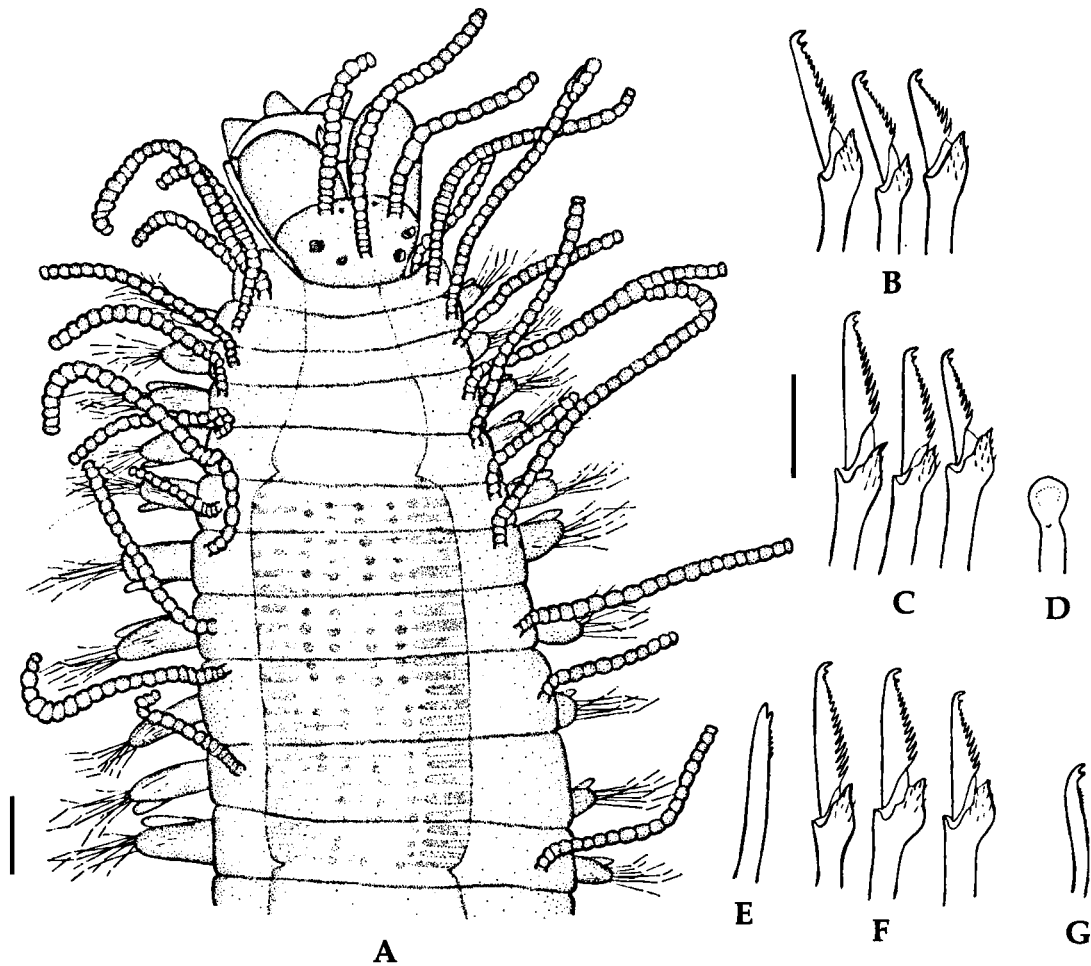


Fig. 9. *Syllis prolifera*. A, anterior end, dorsal view. B, falcigers, anterior chaetiger. C, falcigers, midbody chaetiger. D, aciculum, posterior chaetiger. E, dorsal simple chaeta. F, falcigers, posterior chaetiger. G, ventral simple chaeta (scale bars: A = 100 μ m; B-G = 10 μ m).

with teeth about the same size and short subdistal spines (Figs. 9G, 10P). Acicula distally inflated and hollow; up to three thin acicula in each anterior parapodium, decreasing in number towards posterior end until only a single aciculum persists in each posterior parapodium (Fig. 9D).

REMARKS. - This species is easily recognised by the short pharynx and proventriculum, the long and dark cirri, and, mostly, the shape of acicula. Our specimens agree with the descriptions already provided in other studies (San Martín, 1984; Licher, 1999), except for the length of the pharynx, which is much shorter than in the description by Licher (1999). However, San

Martín (1984) points out the fact that in *S. prolifera* this feature is highly dependent on the contraction of the body due to fixation.

DISTRIBUTION. - Cosmopolitan. In Brazil, it has been identified in the states of Sergipe and Alagoas (Nonato & Luna, 1970), Rio de Janeiro (Machado, 1989; Attolini, 1997), and São Paulo (Souza, 1989).

***Syllis corallicola* Verrill, 1900**

Figs. 11-12

Syllis (Typosyllis) corallicola Verrill, 1900: 603.

Typosyllis corallicola; Licher, 1999: 116-119, fig. 54, see also for synonymy.

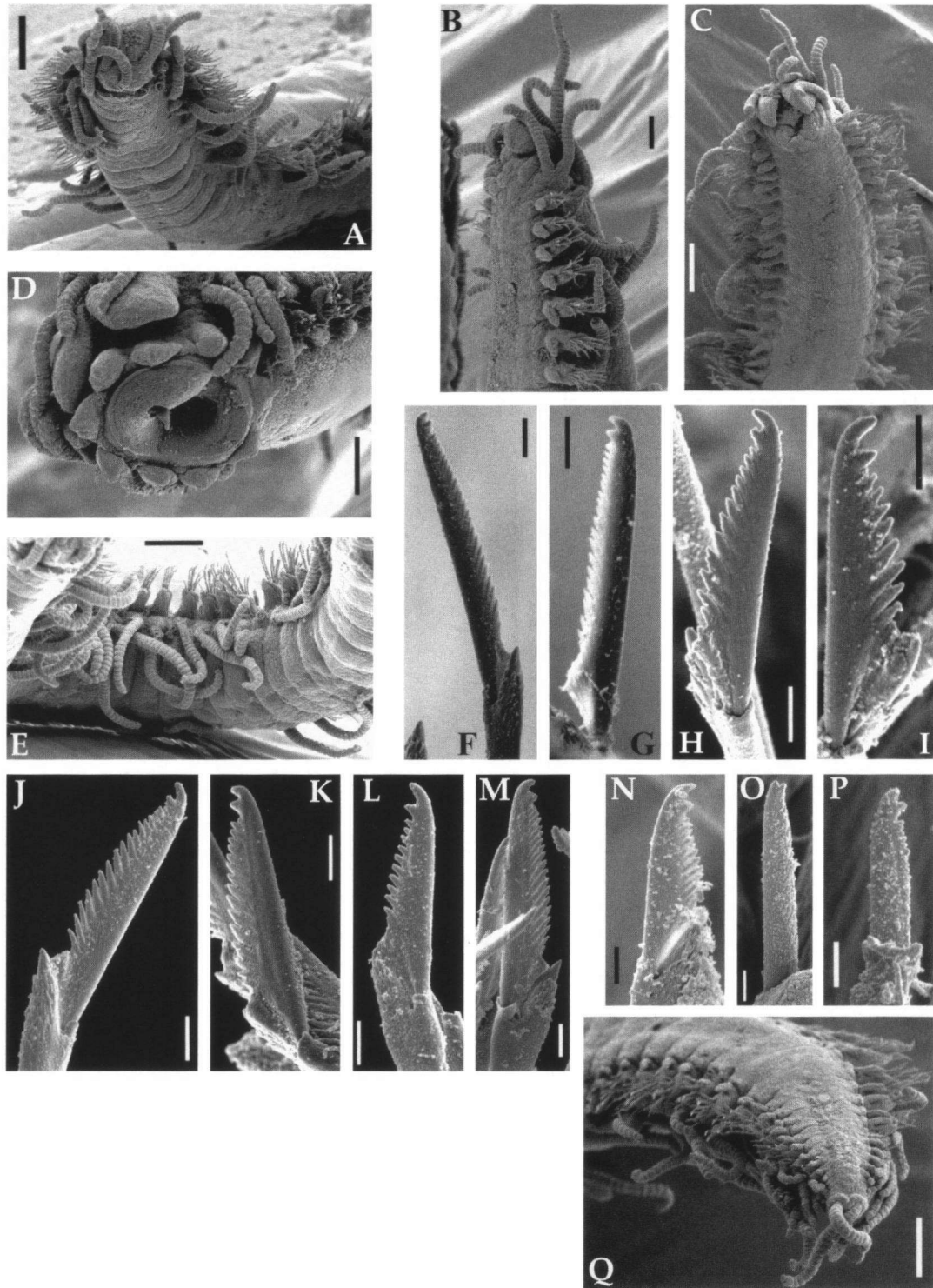


Fig. 10. *Syllis prolifera*, scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, lateral view. C, anterior end, ventral view. D, detail of proboscis. E, midbody, dorsal view. F-I, blades of superior, intermediates, and inferior falcigers, respectively, anterior chaetigers. J-L, blades of superior, intermediate and inferior falcigers, respectively, midbody chaetigers. M-N, blades of superior and inferior falcigers, respectively, posterior chaetigers. O, dorsal simple chaetae. P, ventral simple chaeta. Q, posterior end (scale bars: A, C and E = 200 μ m; B and D = 100 μ m; F-G, J-M and O = 4 μ m; H-I, N, O, P = 3 μ m; Q = 150 μ m).

MATERIAL. - 83 specimens, 10 from Laje de Santos, and 73 from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 07/1-3) and 2 specimens deposited at MNCNM (16.01/8713 and 16.01/8723). Five specimens examined under SEM not preserved.

DESCRIPTION. - Body long and robust, usually with pigmentation until near the end of proventriculum, as dark transversal bands, leaving one pair of unpigmented dorsolateral circles per chaetiger ('*variegata* type'; Fig. 11C); the longest specimen examined with 93 chaetigers, and measuring about 21 mm in length by 0.87 mm in width, at the level of proventriculum.

Prostomium subrectangular, with four eyes in trapezoidal arrangement. Antennae long, lateral pair inserted on anterior margin of prostomium, with about 14-20 articles, median antenna originating on posterior prostomium, between posterior eyes and with about 24-30 articles (Figs. 11A, 12A). Peristomium almost the same size as following segments, with one pair of dorsolateral ciliated pits on anterior margin (Figs. 12A-B); superior cirri with about 18-31 articles, inferior pair shorter, with 8-17 articles (Figs. 11A, 12A).

Dorsal cirri very long throughout, containing dark inclusions, those of chaetiger 1 much longer than following cirri, about the same length as median antenna, or longer, with 23-45 articles (Figs. 11A, 12A). From midbody, cirri alternating long, with about 19-33 articles, and short, with 12-24 articles, both types exceeding body width. Ventral cirri shorter than parapodial lobes, digitiform (Figs. 12C, O-P). Anal cirri longer than posterior dorsal cirri, with about 10-28 articles and one ventral soft papilla in between (Figs. 11B, 12O-P).

Pharynx long, extending through 7-15 segments (Fig. 11A); anterior border with big tooth and 5-6 dorsal papilla (Figs. 12C-D). Proventriculum about half the length of pharynx, with about 38-50 rows of muscle-cells (Fig. 11A).

Blades of falcigers bidentate, teeth triangular, about the same size and with large and rounded to triangular gap in between (Figs. 11H, 12E-I, K-L); cutting edges with fringe of numerous spines all along. Gradation of the length of the blades evident dorsoventrally and anteroposteriorly. Anterior parapodia each with 7-13 falcigers, midbody parapodia with 7-11, and posterior

parapodia each bearing 5-8 (Fig. 12G). In anterior parapodia, blades measuring, on average, 37, 28, and 18 μm ; in midbody, 31, 25, and 19 μm ; in posterior chaetigers, 29, 22, and 16 μm . Dorsal and ventral simple chaetae present on posterior-most chaetigers, dorsal chaetae subidentate, with short subdistal spines (Figs. 11G, 12J); ventral simple chaetae about the same length as dorsal chaetae, strongly bidentate, with short subdistal spines (Figs. 11F, 12 M-N). Acicula subdistally inflated, with short oblique tip, distally rounded; 4-6 thin acicula in anterior chaetigers (Fig. 11D), 2-4 in each midbody chaetiger, and one single aciculum in posterior body (Fig. 11E).

REMARKS. - Our specimens are much shorter than those studied by Jones (1962) and Licher (1999), among others, but agree very well with the descriptions provided for the species. Jones (1962) referred to the prostomium as being posteriorly indented, but, with the aid of the SEM, we could observe that indentation is actually on the anterior margin of peristomium, due to the dorsolateral ciliated pits (Figs. 12A-B), and, at least in our specimens, much less pronounced than represented in Jones (1962: 181, fig. 28). Licher (1999: 119; figs. 54G-I) points out to a 'knob' on the top of the shaft of posterior falcigers, however we did not observe it in Brazilian specimens, even with the aid of SEM.

In recent studies (Nogueira, in prep.), this species was very common in samples from the intertidal zone, in rocky shores, in greater amount than sublitorally, in corals.

DISTRIBUTION. - Atlantic Ocean: Mediterranean Sea, Bermuda, Caribbean Sea and Brazil. This is the second report for Brazilian waters, and the first for the State of São Paulo; the previous occurrence was detected by Augener (1931) from material collected in the State of Bahia, north-eastern Brazil, and described as *Syllis (Typosyllis) tigrinoides* (Table 1).

Syllis lutea (Hartmann-Schröder, 1960)
Figs. 13-14

Typosyllis lutea Hartmann-Schröder, 1960: 81, figs. 38-41; Licher, 1999: 177-179, figs. 17 H, 79, see also for synonymy.

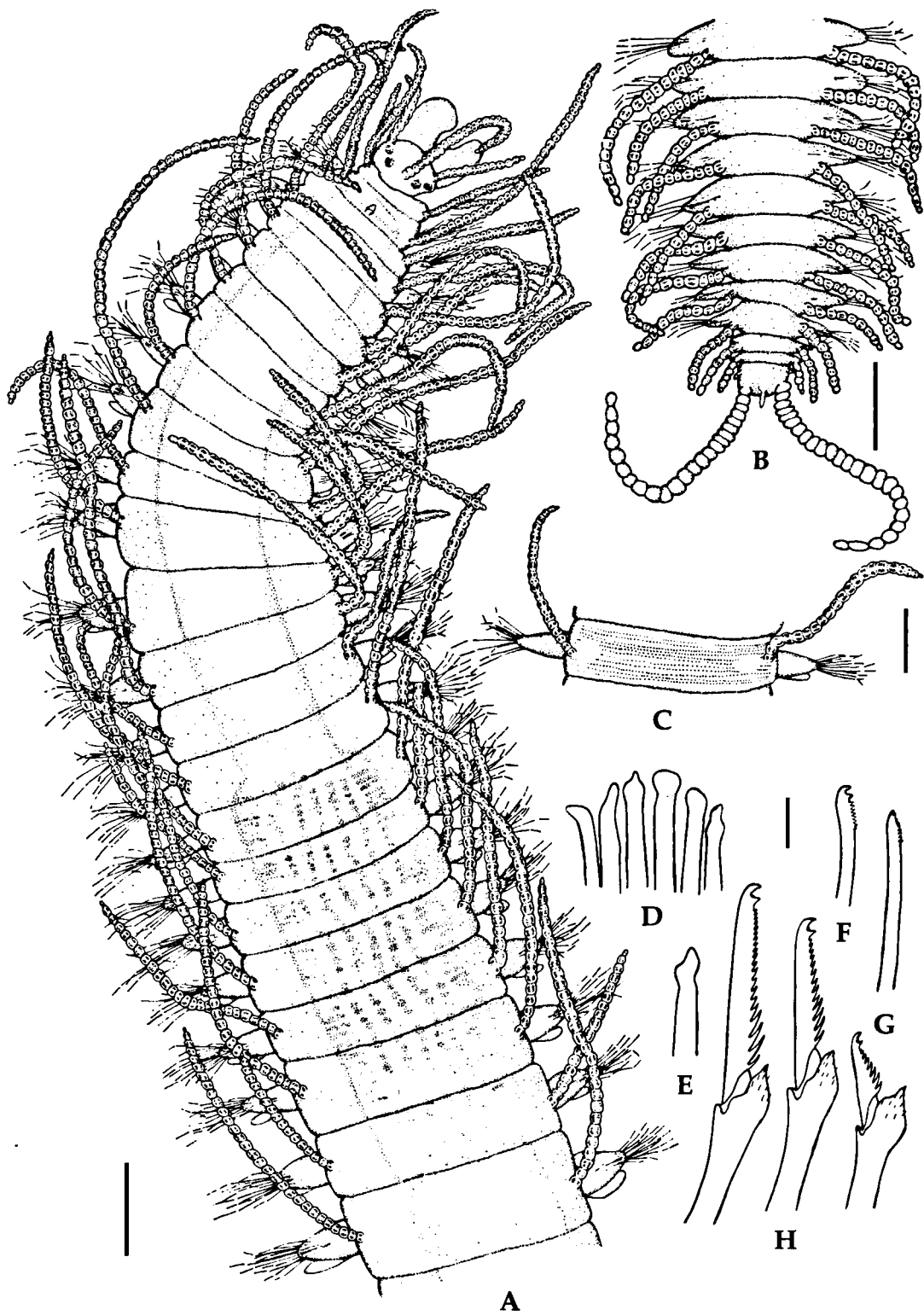


Fig. 11. *Syllis corallicola*. A, anterior end, dorsal view (dorsal pigmentation omitted). B, posterior end, dorsal view. C, chaetiger 14, dorsal view, showing pigmentation. D, acicula, anterior chaetiger. E, aciculum, posterior chaetiger. F, ventral simple chaeta. G, dorsal simple chaeta. H, falcigers, midbody chaetiger (scale bars: A = 300 μ m; B and C = 200 μ m; D-H = 20 μ m).

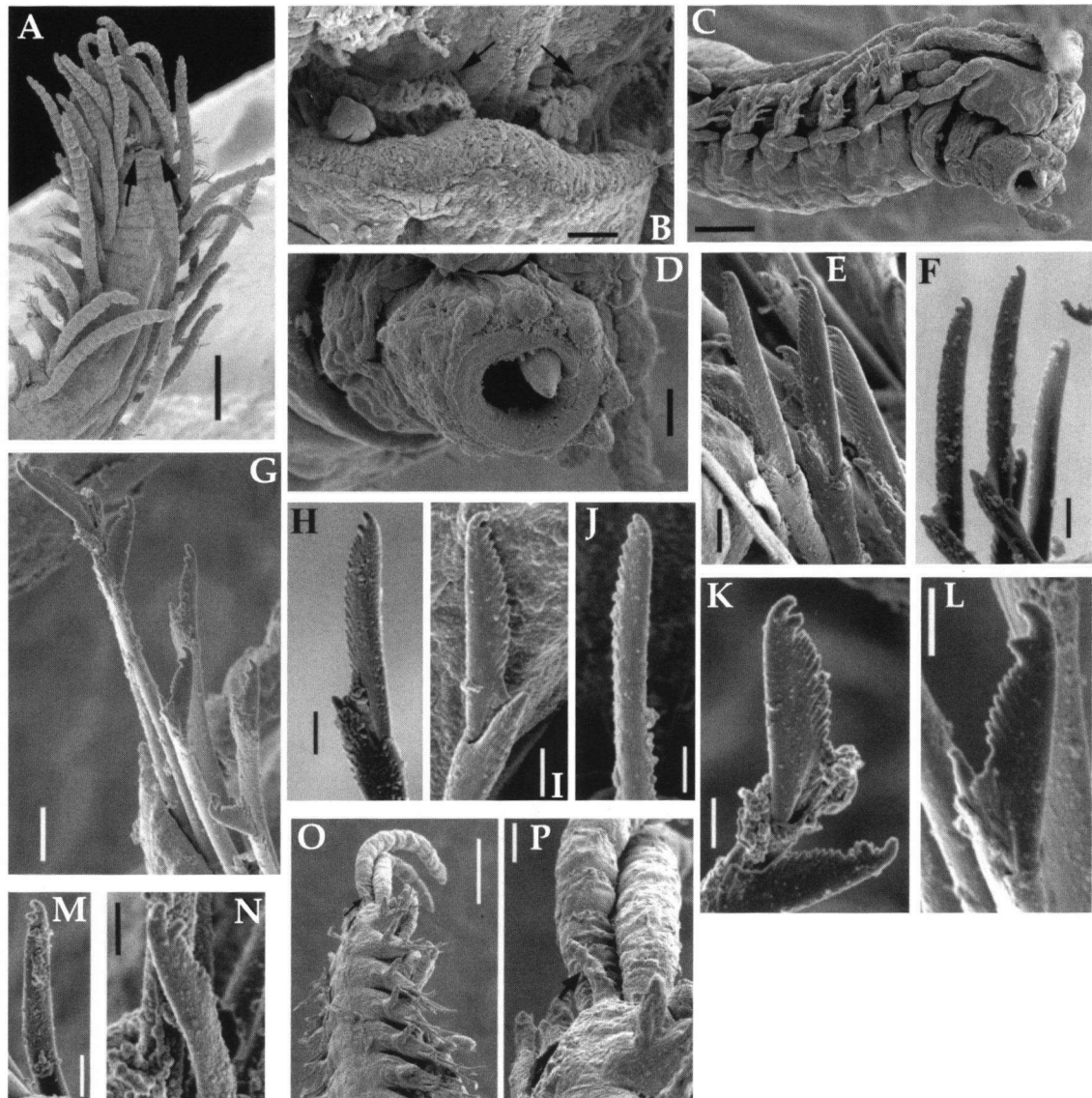


Fig. 12. *Syllis corallicola*, scanning electron micrographs. A, anterior end, dorsal view, arrows indicate nuchal organ. B, detail of nuchal organ, arrows indicate cilia. C, anterior end, lateral view. D, detail of proboscis. E-F, blades of superior and intermediate falcigers, respectively, anterior chaetiger. G, falcigers, posterior midbody chaetiger. H-I, blades of superior and intermediate falcigers, respectively, midbody chaetigers. J, dorsal simple chaeta. K-L, blades of inferior falcigers, posterior chaetigers. M-N, ventral simple chaetae. O-P, posterior end, arrows indicate papilla between anal cirri (scale bars: A = 150 μ m; B and G = 10 μ m; C = 60 μ m; D and P = 15 μ m; E = 8 μ m; F and H-M = 4 μ m; N = 2 μ m; O = 100 μ m).

MATERIAL. - 25 specimens, 11 from Laje de Santos and 14 from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN- BPO 08/1-3) and 2 specimens deposited at MNCNM (16.01/8721 and 16.01/8722); 6 specimens examined under SEM not preserved.

DESCRIPTION. - Body long and robust, without pigmentation; the longest complete specimen examined with 46 chaetigers and measuring

about 4.7 mm in length by 0.27 mm in width, at the level of proventriculum, but much longer incomplete specimens were also collected.

Prostomium subrectangular to ovate, broader than long, with two pairs of posterior eyes disposed in wide trapezoidal arrangement, nearly in line. Antennae short, lateral pair inserted on anterior border of prostomium, with about 12-19 articles; median antenna originating more poste-

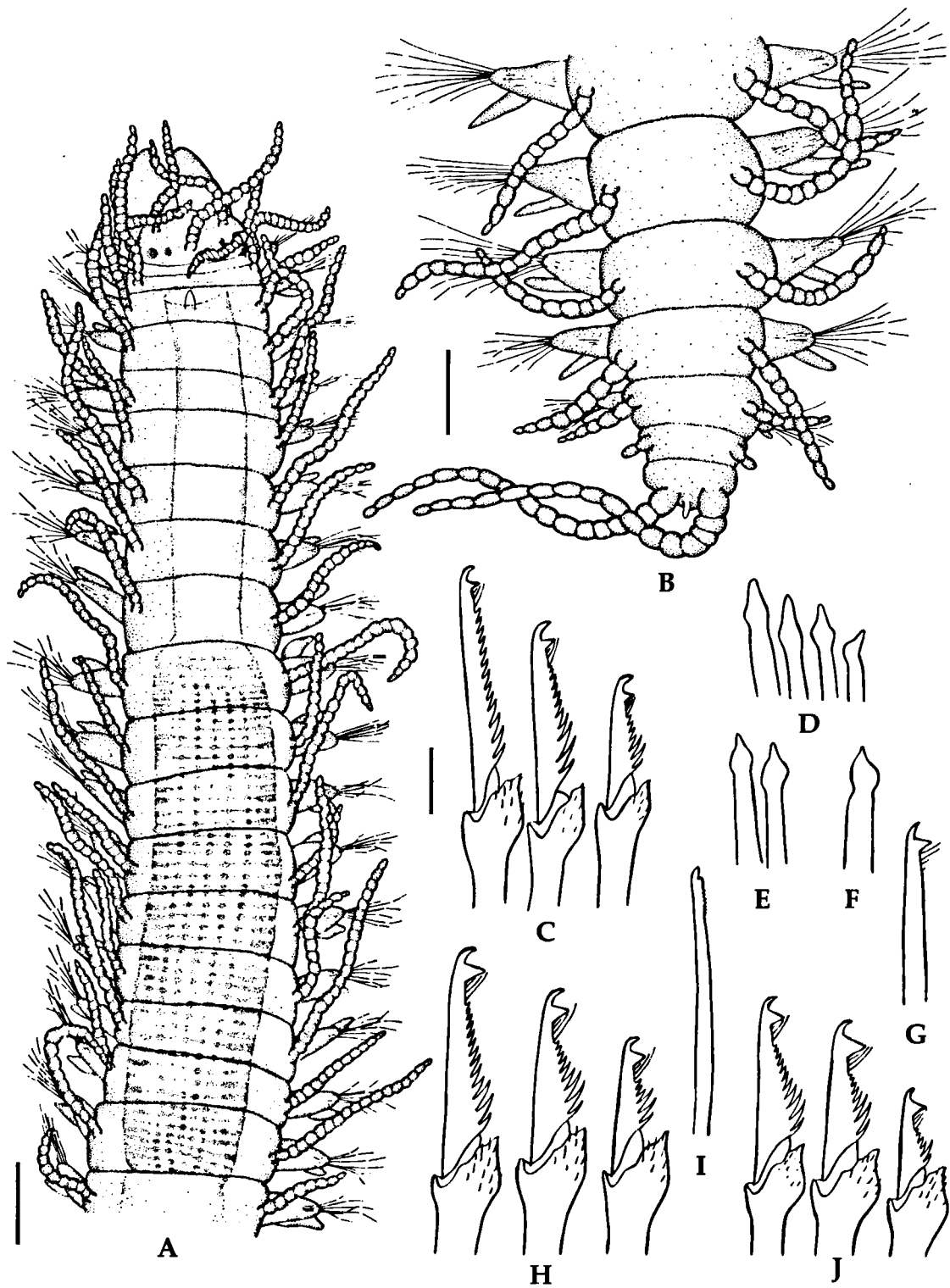


Fig. 13. *Syllis lutea*. A, anterior body, dorsal view. B, posterior end. C, falcigers, anterior chaetiger. D, acicula, anterior chaetiger. E, acicula, midbody chaetiger. F, aciculum, posterior chaetiger. G, ventral simple chaeta. H, falcigers, midbody chaetiger. I, dorsal simple chaeta. J, falcigers, posterior chaetiger (scale bars: A = 200 μm ; B = 100 μm ; D-J = 10 μm).

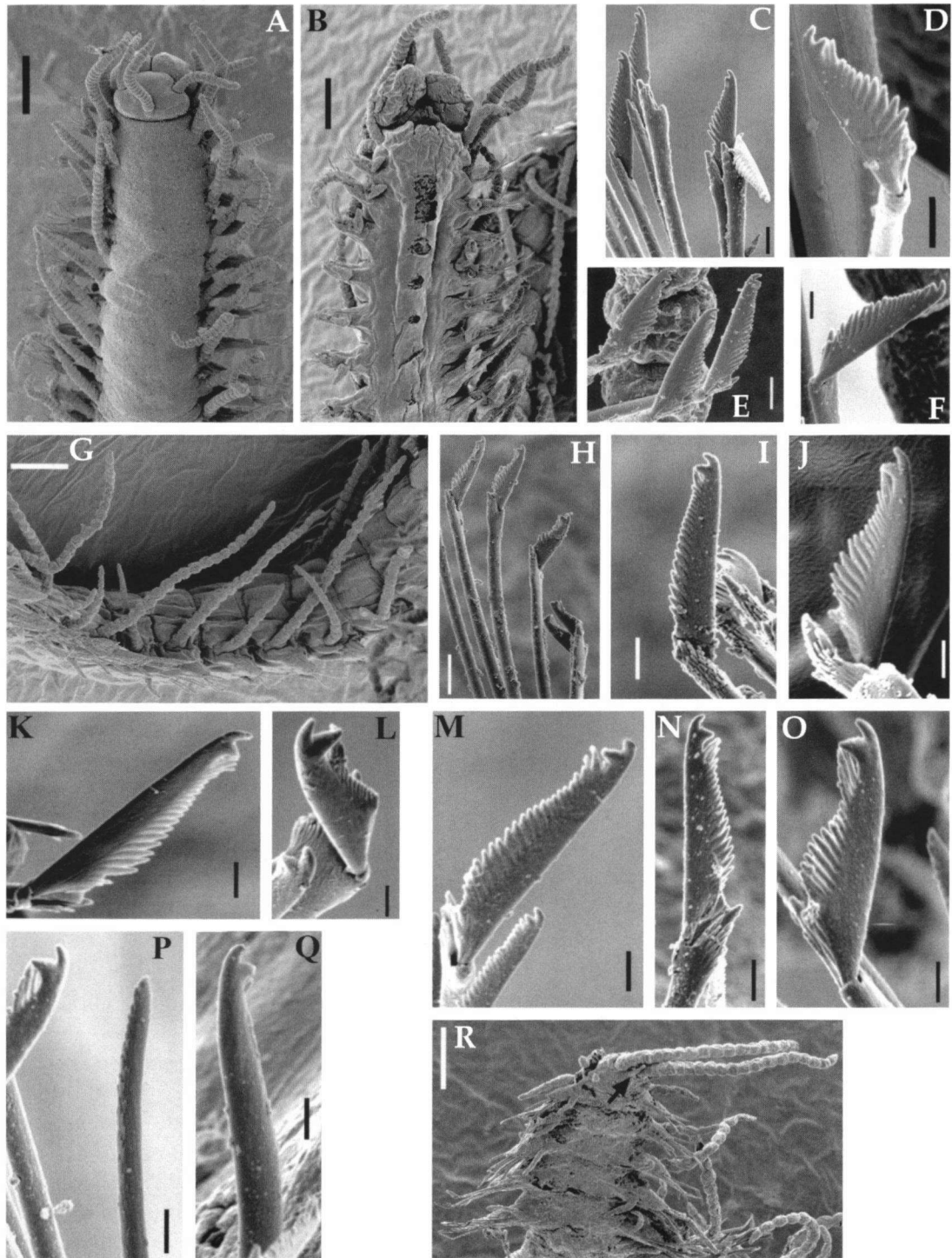


Fig. 14. *Syllis lutea*, scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, ventral view. C, falcigers, anterior chaetiger. D-F, blades of inferior, superior and intermediate falcigers, respectively, anterior chaetiger. G, midbody, lateral view. H, falcigers, midbody chaetiger. I, blade of superior falciger, midbody chaetiger. J-K, blades of intermediate chaete, midbody parapodia. L-M, blades of inferior and superior falcigers, respectively, posterior parapodia. N-O, blades of intermediate chaetae, posterior parapodia. P, dorsal simple chaeta. Q, ventral simple chaeta. R, posterior end, ventral view (scale bars: A = 150 μm ; B, G and R = 100 μm ; C and E = 5 μm ; D, F, J- M, O, Q = 3 μm ; H = 10 μm ; I, N = 4 μm ; P = 2 μm).

riorly, between eyes, longer than lateral antennae, with 18-33 articles (Figs. 13A, 14A). Palps short, broader than long, completely separated from each other (Figs. 14A-B). Peristomium dorsally reduced, superior pair of tentacular cirri about twice as long as inferior pair (Figs. 14A-B); superior cirri with 15-28 articles, inferior pair with 8-13 articles.

Dorsal cirri of chaetiger 1 longer than the following cirri, with 19-25 articles (Figs. 13A, 14A). Cirri long and thin throughout, containing iridescent inclusions. From midbody, alternating long and short dorsal cirri, the longest exceeding body width and with about twice the length of short cirri (Fig. 14G). Ventral cirri thin, up to the same length of parapodial lobes, broader basally in anterior chaetigers (Fig. 14B), more elongated and tapering from midbody onwards (Fig. 14H). Anal cirri longer than posterior dorsal cirri, with about 17 articles and one soft papilla in between (Figs. 13B, 14R).

Pharynx long, extending through 5-13 segments, with big tooth located on anterior margin (Fig. 13A). Proventriculum occupying 5-13 segments, with about 32-58 muscle-cells rows (Fig. 13A).

Blades of falcigers bidentate, cutting edges with spines thicker and longer basally, progressively diminishing in size distally; a few subdistal bristles extend until the level of subdistal tooth, or even surpass it (Figs. 13C, H, J, 14C-F, H-P). Blades of falcigers with distinct dorsoventral gradation in length (Figs. 13C, H, J, 14C, H), but without anteroposterior gradation. About 10 compound chaetae in each anterior parapodium, 5-6 from midbody. In anterior chaetigers, blades of falcigers with teeth about the same size, distal tooth hooked (Figs. 13C, 14C-F); blades measuring, on average, about 32, 21, 15 μm . From midbody onwards, subdistal tooth larger, strongly triangular, more evident on inferior chaetae (Figs. 13H, J, 14I-P); blades, on average, measuring about 32, 23, 18 μm , in median chaetigers, and 30, 23, 18 μm posteriorly. Dorsal simple chaetae present from posterior midbody, about the same length as the shafts of superior falcigers, or slightly shorter, subidentate, with short subdistal spinulation (Figs. 13I, 14P). Ventral simple chaetae present in posterior chaetigers, thicker than dorsal chaetae, and shorter than shafts of inferior falcigers; strongly

bidentate, with subdistal tooth larger and subdistal bristles (Figs. 13G, 14Q). Acicula subdistally inflated, with short and oblique tip; up to four thin acicula in each anterior chaetiger (Fig. 13D), two in midbody, thicker (Fig. 13E), and solitary aciculum in each posterior chaetiger (Fig. 13F).

REMARKS. - Our specimens agree with the redescription by Licher (1999), except for being slightly smaller in all measurements.

DISTRIBUTION. - Circumtropical. First report for the Brazilian coast.

***Syllis glandulata* n. sp.**

Figs. 15-16

MATERIAL. - 15 specimens, of which 13 from Laje de Santos (24°19'S, 46°11'W) and 2 from Ilha dos Alcatrazes (26°06'S, 45°42'W). Type series: 6 specimens, 4 from Laje de Santos and 2 from Ilha dos Alcatrazes; holotype and paratype 1 deposited at MHN (holotype: MHN-BPO 77/0; paratype 1: MHN-BPO 77/1); paratypes 3-4 deposited at MNCNM (16.01/8719 and 16.01/8720); paratypes 5-6 deposited at FSBC I (66261 and 66263). Holotype and paratypes 1, 4, and 5 from Laje de Santos; paratypes 2 and 3 from Ilha dos Alcatrazes. Four specimens examined under SEM not preserved.

DESCRIPTION. - Long species, without remarkable color patterns; holotype complete, in good conditions, measuring 15.4 mm in length, 0.33 mm in width, with 106 chaetigers.

Prostomium subpentagonal to ovalate, with four eyes in trapezoidal arrangement and three antennae about the same size, or median antenna slightly longer, with 10-14 broad articles (10-14 in holotype); lateral antennae inserted in front of anterior pair of eyes, median antennae between posterior pair of eyes, near posterior end of prostomium (Figs. 15A, 16A). Palps longer than prostomium, separate for most of the extension, except basally. Peristomium conspicuous, shorter than following segments; dorsal pair of tentacular cirri about the same size as antennae, or longer, ventral pair shorter (Fig. 15A).

Dorsal cirri with broad articles, especially basally, posteriorly tapering; those from chaetiger 1 much longer than antennae, and those from following chaetigers, with 11-23 articles (19 in holotype; Figs. 15A, 16A); from proventricular level,

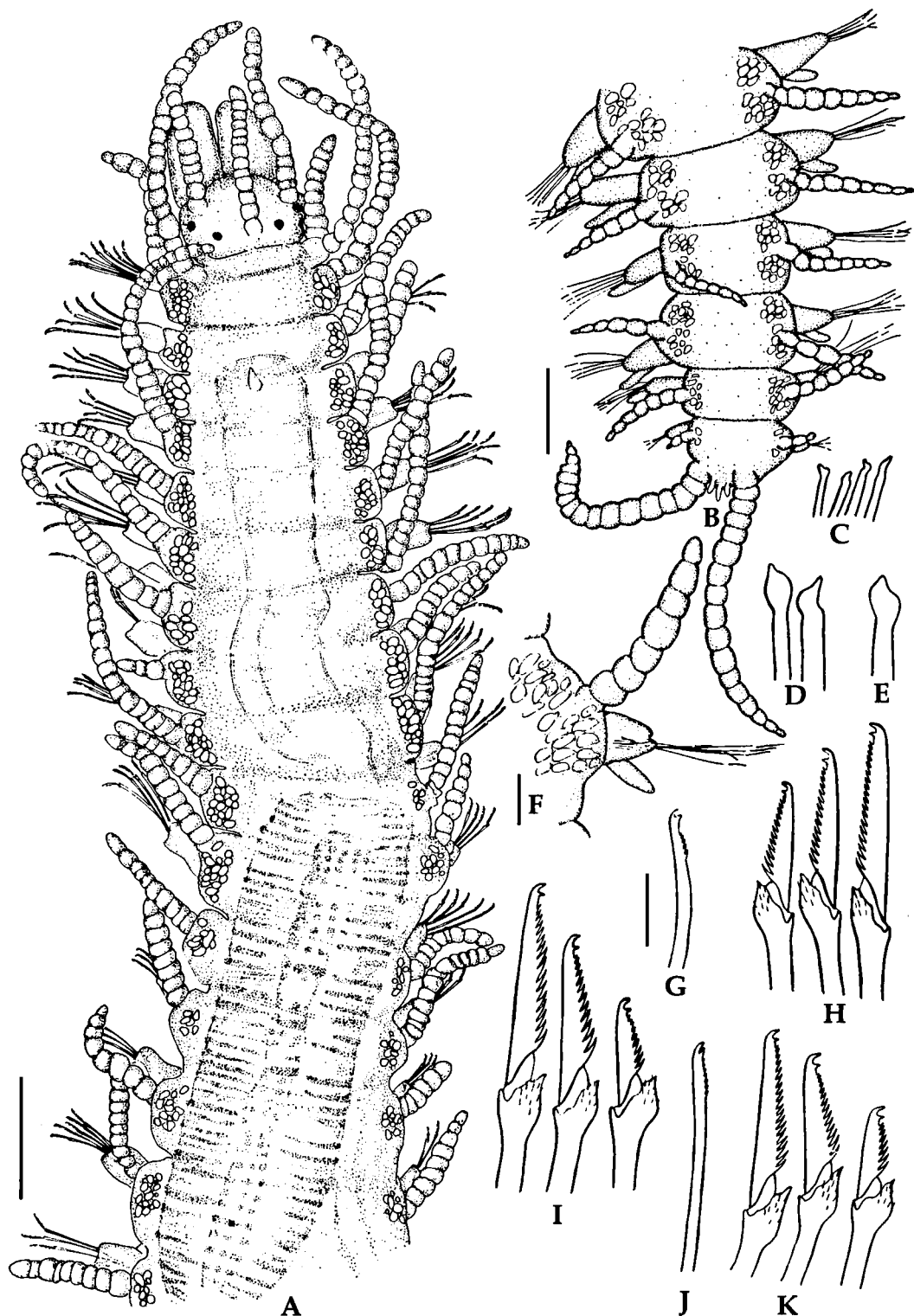


Fig. 15. *Syllis glandulata* n. sp. A, holotype, anterior end, dorsal view. B, holotype, posterior end. C, acicula, anterior chaetiger. D, acicula, midbody chaetiger. E, aciculum, posterior chaetiger. F, holotype, parapodium, chaetiger 80. G, ventral simple chaeta. H, falcigers, anterior chaetiger, from left to right, inferior to superior chaetae. I, falcigers, midbody chaetiger. J, dorsal simple chaeta. K, falcigers, posterior chaetiger (scale bars: A = 92 μ m; B = 200 μ m; C-E and G-K = 10 μ m; F = 50 μ m).

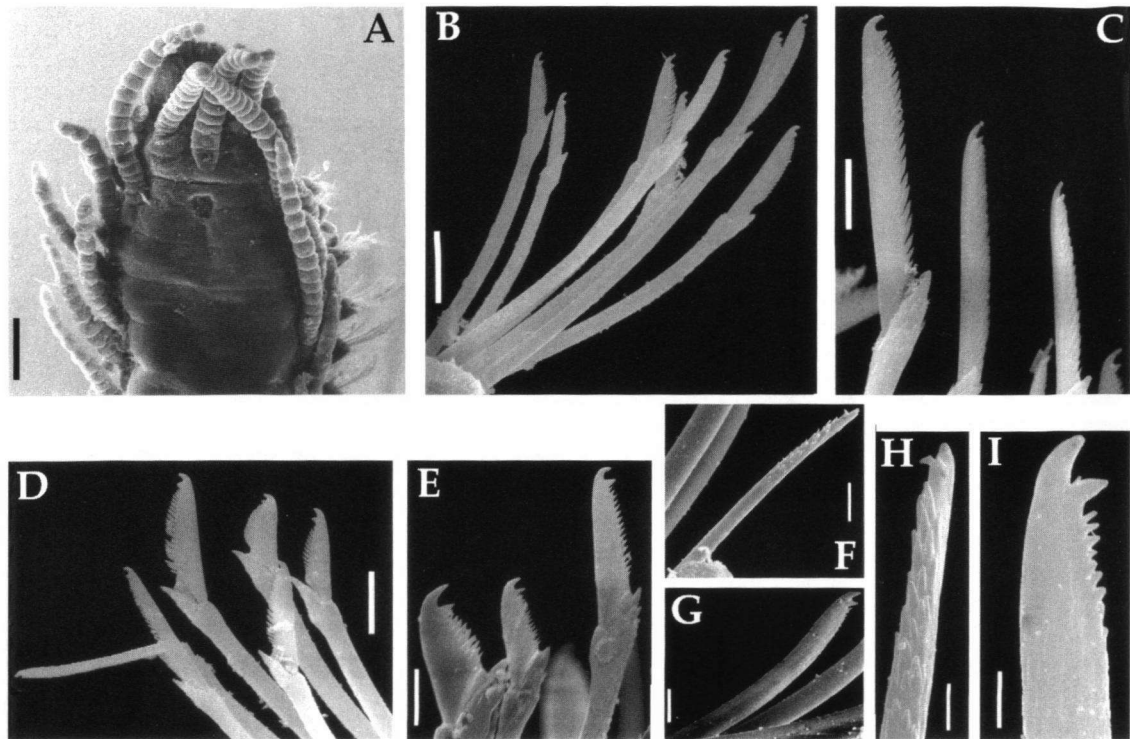


Fig. 16. *Syllis glandulata* n. sp., scanning electron micrographs. A, anterior body, dorsal view. B, falcigers, anterior chaetiger. C, superior falcigers, anterior chaetiger. D, falcigers, midbody chaetiger. E, falcigers, posterior chaetiger. F, dorsal simple chaeta. G, ventral simple chaeta. H, detail of the tip of dorsal simple chaeta. I, detail of ventral simple chaeta (scale bars: A = 150 μ m; B = 30 μ m; C = 10 μ m; D = 20 μ m; E, F = 8 μ m; G = 6 μ m; H and I = 3 μ m).

dorsal cirri short, distally tapering (Fig. 15F), with 5-12 articles (8-12 in holotype), not alternating in length. Pygidium semicircular, with two long anal cirri, with 8-16 articles (16 in holotype), and short papillae in between (Fig. 15B).

Pharynx extending through 5-10 segments (Fig. 15A), bearing a big tooth on anterior border, surrounded by a crown of soft papillae; proventriculum usually shorter than pharynx, with about 22-34 broad rows of muscle-cells (holotype with pharynx extending for 10 segments, proventriculum for 6 segments, with 33 rows of muscle-cells).

Parapodia along the whole body bearing conspicuous dorsal glands, with big and rounded cells containing granular material (Fig. 15A-B, F); articles of dorsal cirri with inclusions of similar material. Parapodial lobes triangular to subrectangular, with 5-8 compound chaetae anteriorly (Fig. 16B), 6-7 in midbody (Fig. 16D), and 3-5 posteriorly; strong gradation of size of the blades evident dorso-ventrally, but not antero-posteriorly (Figs. 15H, I, K, 16B-E), although some speci-

mens have posterior blades remarkably shorter; blades bidentate, with conspicuous spines, teeth about the same size and with wide gap in between (Figs. 15H, I, K, 16B-E); compound chaetae similar throughout. Blades of falcigers measuring, on average, in anterior parapodia, 32 μ m, 22 μ m and 15 μ m; in midbody, 34 μ m, 24 μ m and 15 μ m; and in posterior parapodia, 30 μ m, 21 μ m and 15 μ m (holotype with blades measuring 33 μ m, 23 μ m and 16 μ m in anterior chaetigers, 33 μ m, 25 μ m and 17 μ m in midbody, and 32 μ m, 23 μ m and 15 μ m in posterior chaetigers). Dorsal simple chaetae relatively long, with subdistal spines, subdistal tooth resembling an enlarged spine (Figs. 15J, 16F, H); ventral simple chaetae shorter, curved, with subdistal spines, bidentate, with teeth about the same size (Figs. 15G, 16G, I); both types of simple chaetae present only in posteriormost chaetigers. Anterior parapodia with 3-4 short and thin acicula, subdistally inflated, with acuminate, oblique tip (Fig. 15C); median parapodia each with two acicula,

about the same shape as anterior ones, but thicker (Fig. 15D), posteriormost parapodia with single aciculum (Fig. 15E).

VARIATION. - Specimens with parapodial glands poorly developed, or even inconspicuous, were also observed, and they were distinguished from *S. pseudoarmillaris* n. sp. (see below) by having longer and gently tapering dorsal cirri, conspicuous dorsoventral gradation of length of the blades of falcigers throughout the body, and by the number of acicula in anterior parapodia.

REMARKS. - *Syllis glandulata* n. sp. fits in a group of *Syllis* called by Licher (1999) as 'Typosyllis armillaris complex', characterized by falcigers short, bidentate, with secondary tooth shorter than distal one, and posterior acicula subdistally inflated, with oblique acuminate tip. This group comprises, according to Licher (1999) 10 species, besides *S. glandulata* n. sp.: *S. armillaris* (Müller, 1776); *S. crassicirrata* (Treadwell, 1925); *S. ehlersioides* (Marenzeller, 1890); *S. hyalina* Grube, 1863; *S. krohni* Ehlers, 1864; *S. neglecta* Grube, 1870; *S. stellaeopolaris* Hartmann-Schröder, 1993; *S. valida* Grube, 1857, and *S. violacea* Grube, 1870; although not included by Licher (1999), we believe *S. gracilis* and *S. magellanica* also belong to this group. *Syllis glandulata* n. sp. differs from all these species because of the parapodial glands, a character unknown in all other species of this genus.

The species most similar to *S. glandulata* n. sp. are *S. armillaris* and *S. hyalina*. *S. glandulata* n. sp. differs from *S. armillaris*, besides for the absence of parapodial glands in the latter, because *S. armillaris* has: (1) blades of midbody falcigers minutely bidentate, with subdistal tooth very reduced, resembling a spine, while in *S. glandulata* n. sp. both teeth are conspicuous, with nearly the same size; (2) dorsal cirri abruptly tapering near tip, instead of the gently tapering condition present in *S. glandulata* n. sp.; (3) tips of acicula rounded, while in *S. glandulata* n. sp. they are acuminate. *Syllis hyalina* differs from *S. glandulata* n. sp., besides the absence of parapodial glands, because it has: (1) more chaetae per parapodium; (2) falcigers bidentate, with subdistal tooth conspicuous, but much shorter than distal tooth; (3) dorsal cirri abruptly tapering near tip; (4) tips of

acicula rounded.

ETYMOLOGY. - The specific name *glandulata* refers to the parapodial glands, present in all chaetigers of most of the adults of this species.

***Syllis pseudoarmillaris* n. sp.**

Figs. 17-18

MATERIAL. - *Syllis pseudoarmillaris*: State of São Paulo: 40 specimens, 29 from Laje de Santos and 11 from Ilha dos Alcatrazes. Type series: 7 specimens, 3 from Laje de Santos, including the holotype, and 4 from Ilha dos Alcatrazes; holotype and paratypes 1-2 deposited at MHN (holotype: MHN-BPO 09/0; paratypes: MHN-BPO 09/1-2); paratypes 3-4 deposited at MNCNM (16.01/8858, both specimens together); paratypes 5-6 deposited at FSBC I (66260 and 66262). Holotype and paratypes 2 and 5 from Laje de Santos, paratypes 1, 3, 4, and 6 from Ilha dos Alcatrazes. Four specimens examined under SEM not preserved. *Syllis armillaris*: Spain: 20 specimens from the Mediterranean (Isla de Albóran, Almería) and 1 specimen from the Atlantic (Cabo de Finisterre, A Coruña).

DESCRIPTION. - Short species, without remarkable color patterns; holotype complete, in good condition, measuring 10.9 mm in length, 0.32 mm in width, at the level of proventriculum, with 96 chaetigers.

Prostomium subpentagonal to ovalate, with four eyes in wide trapezoidal arrangement and three antennae, of which the median antenna is longer, with 13-21 broad articles (21 in holotype); lateral antennae inserted in front of anterior pair of eyes, with 8-12 articles (10 in holotype), median antenna between posterior pair of eyes, near posterior end of prostomium (Figs. 17A, 18A). Palps longer than prostomium, separate for most of their length, except basally. Peristomium conspicuous, shorter than following segments; dorsal pair of tentacular cirri shorter than median antenna, ventral pair usually about the same size as lateral antennae (Figs. 17A, 18A-B).

Dorsal cirri with broad articles, especially basally, distally tapering; those from chaetiger 1 usually with the same length as median antennae, much longer than those from the following chaetigers, with 9-23 articles (22 in holotype; Figs. 17A, 18A); from proventricular level, dorsal cirri short, broader at midlength and abruptly tapering (Fig. 17B); cirri containing iridescent inclusions, initially with eight articles, shortly pos-

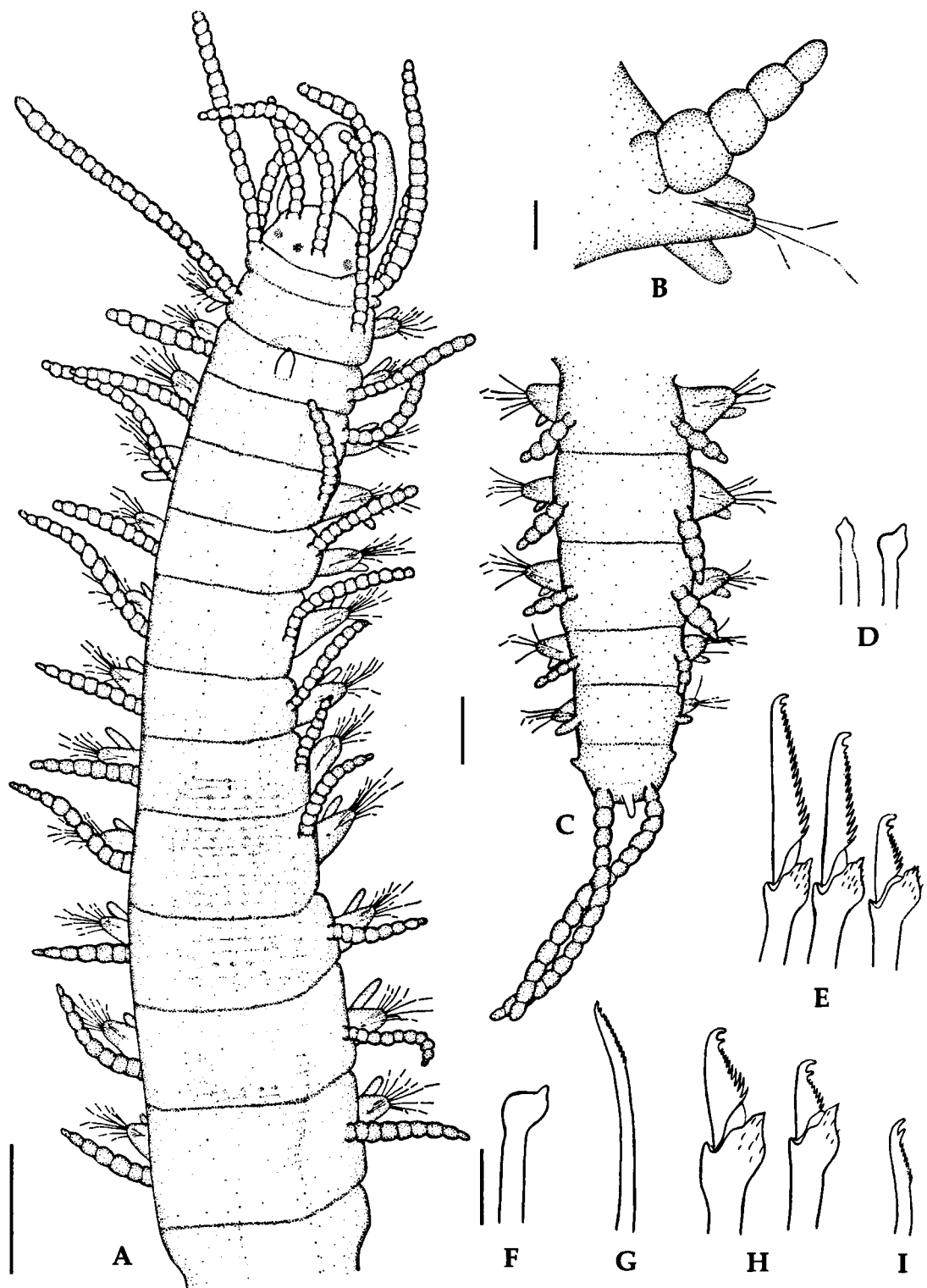


Fig. 17. *Syllis pseudoarmillaris* n. sp. A, holotype, anterior end, dorsal view. B, holotype, parapodium, chaetiger 21. C, holotype, posterior end. D, acicula, anterior chaetiger. E, falcigers, anterior parapodium. F, aciculum, posterior chaetiger. G, dorsal simple chaeta. H, falcigers, midbody. I, ventral simple chaeta (scale bars: A = 200 μ m; B = 25 μ m; C = 100 μ m; D-I = 10 μ m).

terior to proventriculum, decreasing in number of articles towards posterior body; posterior cirri with 3-5 articles (Fig. 17C). Pygidium semicircular, with two anal cirri, with 7-16 (16 in holotype) articles, and short papilla in between (Fig. 17C).

Pharynx extending through 5-9 segments (Fig. 17A), usually containing red pigmentation inside, bearing one big tooth at the anterior border, surrounded by a crown of soft papillae; proventriculum shorter, with around 40-50 rows of muscle-cells (holotype with pharynx extending for 6.5 segments, proventriculum for 4 segments, with 42 rows of muscle-cells).

Parapodial lobes triangular to subrectangular, with 6-8 compound chaetae anteriorly (Fig. 18C), 3-5 from midbody (Figs. 18D, F), last chaetigers with 2-5 falcigers, plus simple dorsal and ventral chaetae (Fig. 18F); strong gradation in the size of the blades evident only in anterior chaetigers (Figs. 17E, 18C), very slight from midbody (Figs. 17H, 18D, F); blades bidentate, with spines on the cutting edges, and subdistal tooth always conspicuous and only slightly shorter than distal tooth, with wide gap in between (Figs. 17E, H, 18C-F); falcigers with proportionally broader bases at midbody (Figs. 18D, E). Blades of falcigers measuring, on average, in anterior parapodia, 29 μm , 20 μm and 14 μm ; in midbody, 19 μm , 17 μm and 13 μm ; and in posterior parapodia, measuring 16 μm , 15 μm and 12 μm (holotype with blades measuring 31 μm , 23 μm and 15 μm in anterior chaetigers, 18 μm , 16 μm and 13 μm in midbody, and 17 μm , 15 μm and 11 μm in posterior chaetigers). Dorsal simple chaetae relatively long, with subdistal spines, subdistal tooth resembling an enlarged spine (Figs. 17G, 18F-G); ventral simple chaetae shorter, curved, with subdistal spines, bidentate, with teeth about the same size (Figs. 17I, 18F, H); dorsal and ventral simple chaetae present only on posterior chaetigers, usually appearing in the same chaetiger. Anterior parapodia with 2-3 short and thin acicula, subdistally inflated, with acuminate, oblique tip (Fig. 17D); median parapodia each with 1-2 acicula, about the same shape as anterior ones, but thicker, posterior parapodia with single aciculum (Fig. 17F).

REMARKS. - *Syllis pseudoarmillaris* n. sp. is characterized by the morphology of dorsal cirri from midbody, with broad articles at midlength, then

abruptly tapering, and blades of falcigers in midbody chaetigers, strongly triangular and bidentate, nearly without dorso-ventral gradation in length of the blades. The species most similar to *S. pseudoarmillaris* n. sp. is *S. armillaris* (Müller, 1776), but they can be distinguished because *S. armillaris* is larger, with dorsal cirri slightly longer and with blades of midbody falcigers unidentate or subidentate (San Martín, 1984; Licher, 1999), while in *S. pseudoarmillaris* n. sp. the secondary tooth of falcigers is well marked.

Syllis hyalina is another very similar species, however it has dorsal cirri even longer than *S. armillaris*, it has more chaetae per parapodium, and falcigers with blades much longer, 25-50 μm in anterior body, 20-25 μm in midbody, and 25-30 μm in posterior body (Licher, 1999).

Finally, *S. pseudoarmillaris* n. sp. shares similar morphology of dorsal cirri with *S. glandulata* n. sp., described above, but the latter has cirri slightly longer and gently tapering towards tip, dorsoventral gradation in length of the blades of falcigers well marked throughout, and more acicula per anterior parapodium, besides the parapodial glands, characteristic for *S. glandulata* n. sp.

Rullier & Amoureux (1979) identified *S. armillaris* and *S. hyalina* (as *Typosyllis armillaris* and *T. hyalina*, respectively) in northeastern Brazil (Table 1), however, in their very brief diagnosis for both species, the authors said the identifications were based mostly in the shape of dorsal cirri, short and fusiform in both taxa, and in the morphology of falcigers, clearly bidentate in *S. hyalina* and unidentate in *S. armillaris*, with some blades almost fused with the shaft (Rullier & Amoureux, 1979: 161). We suspect none of those species really occurs in Brazil. In the case of *S. hyalina*, the specimens examined by Rullier & Amoureux (1979) are possibly *S. glandulata* n. sp., while those identified as *S. armillaris* cannot belong to this species, due to the fusion between shafts and blades mentioned by the authors. Instead, they probably belong to the taxon named by Ben-Eliahu (1977: 9) as '*S. armillaris* type 3', which is possibly *S. magellanica*, a very common species in the State of São Paulo (Nogueira, pers. observ.).

ETYMOLOGY - The specific name *pseudoarmillaris* refers to the great similarity between this species and *S. armillaris*.

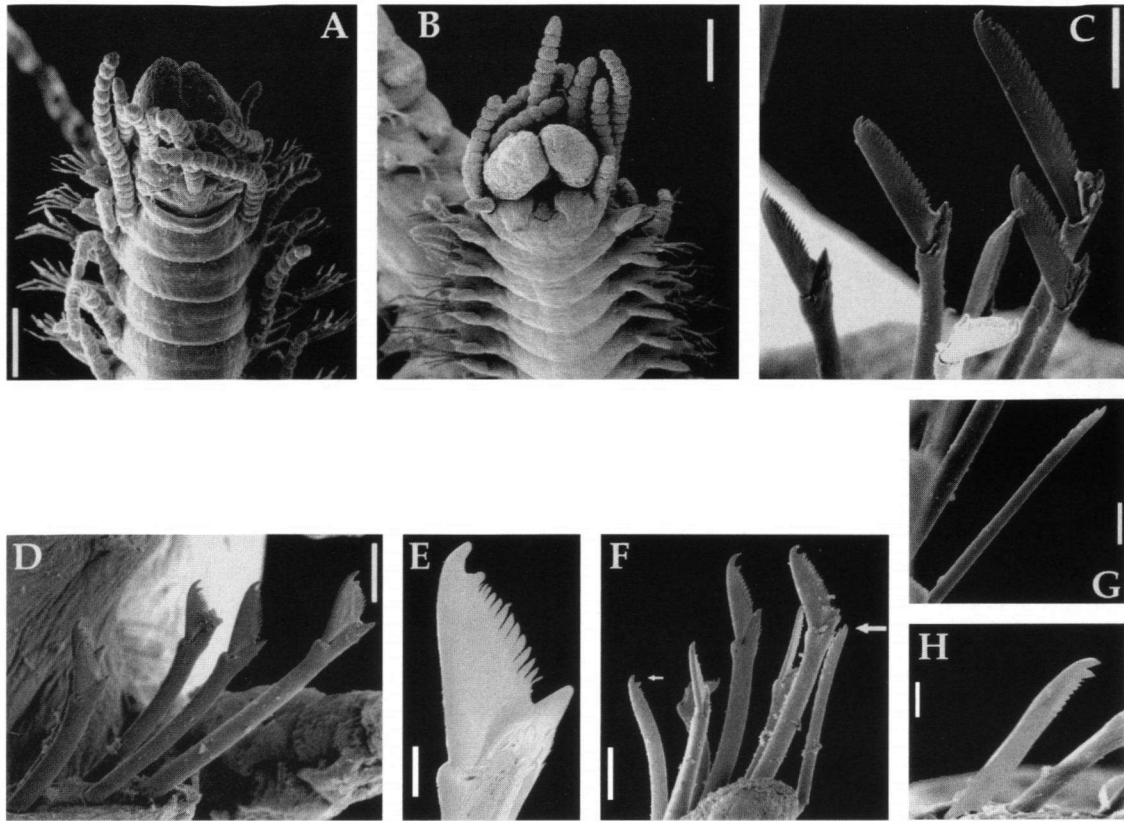


Fig. 18. *Syllis pseudoarmillaris* n. sp., scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, ventral view. C, falcigers, anterior chaetiger. D, compound chaetae, midbody parapodium. E, detail of the blade of superior falciger. F, chaetae, posterior parapodium, large arrow indicates dorsal simple chaeta, small arrow indicates ventral simple chaeta. G, dorsal simple chaeta. H, ventral simple chaeta (scale bars: A-B = 150 μ m; C, G-H = 10 μ m; D = 20 μ m; E = 5 μ m; F = 15 μ m).

Syllis tyrrhena (Licher & Kuper, 1998) n. comb.

Figs. 19-20

Typosyllis tyrrhena Licher & Kuper, 1998: 227-232, figs. 1-4; Licher, 1999: 140, 142-143, fig. 62.

MATERIAL. - Brazil: 40 specimens, 19 from Laje de Santos and 21 from Ilha dos Alcatrazes. Three specimens deposited at MHN (MHN-BPO 12/1-3) and 2 specimens deposited at MNCNM (16.01/8714 and 16.01/8715). Four specimens examined under SEM not preserved. Spain: 2 specimens, Mediterranean Sea, Isla de Albóran, Almería, deposited at MNCNM (16.01/6701 and 16.01/6702).

DESCRIPTION. - Body very elongated and thin, with long segments, lacking special pigmentation patterns; the longest specimen examined measuring about 7 mm in length by 0.1 mm in width, at the level of proventriculum, and counting on 49

chaetigers.

Prostomium subpentagonal to ovalate, broader than long (Figs. 19A, 20A), with two pairs of eyes disposed in trapezoidal arrangement; one pair of anterior eyespots may be present in short specimens. Antennae long, the lateral pair with about 7-13 articles, inserted in the anterior border of prostomium, and median antenna originated more posteriorly, between posterior eyes, and about twice the length of lateral pair in all specimens analysed, with 15-33 articles (Figs. 19A, 20A). Palps longer than prostomium, separated for most of their extension (Fig. 19A). Peristomium distinctly reduced dorsally (Figs. 19A, 20A), superior pair of tentacular cirri about the same length as lateral antennae, or slightly longer, and about twice the length of inferior pair; superior pair with about 8-17 articles, inferior pair with 5-9 articles (Figs. 19A, 20B).

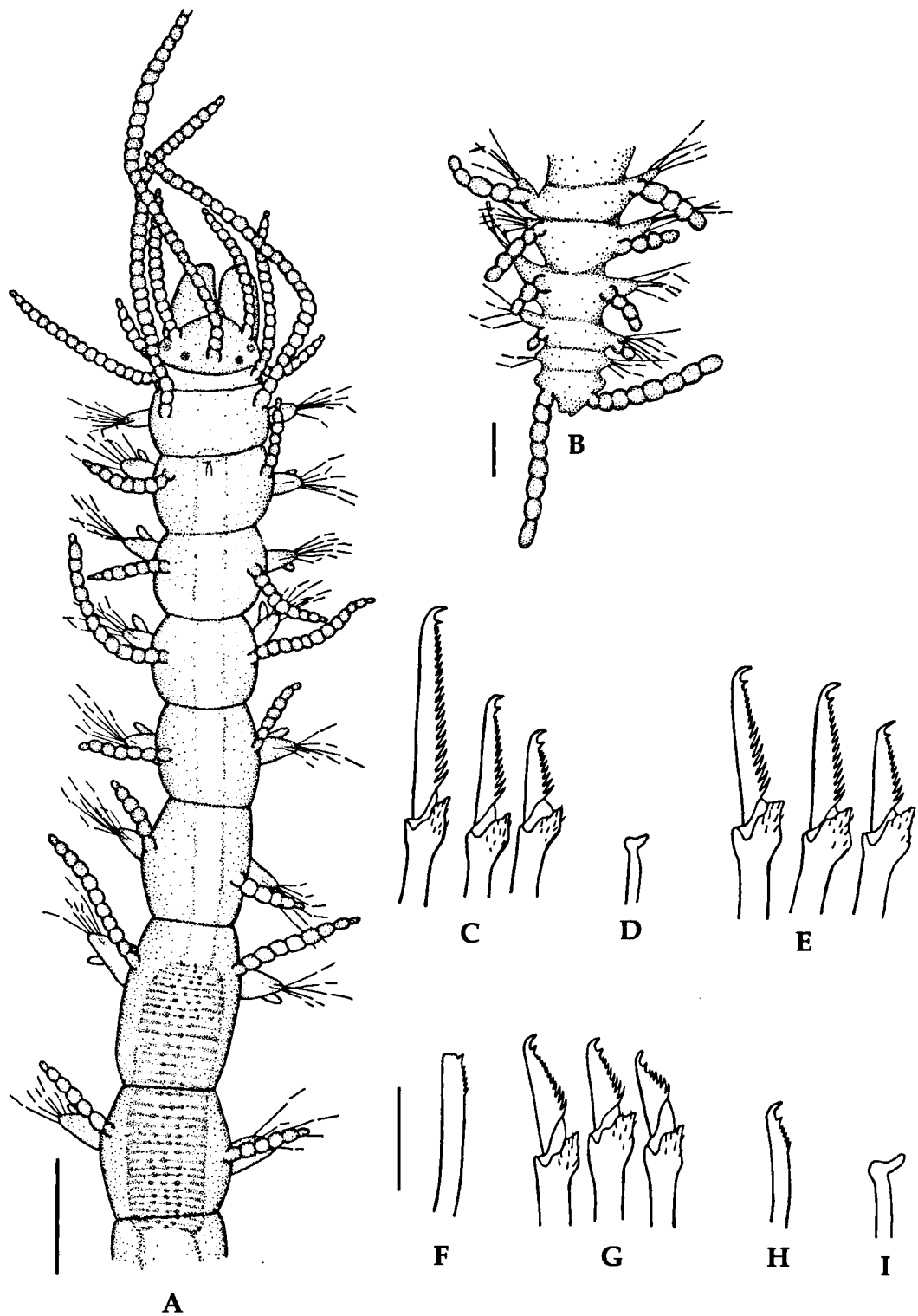


Fig. 19. *Syllis tyrrhena*. A, anterior end, dorsal view. B, posterior end. C, falcigers, anterior chaetiger. D, aciculum, anterior chaetiger. E, falcigers, midbody chaetiger. F, dorsal simple chaeta. G, falcigers, posterior chaetiger. H, ventral simple chaeta. I, aciculum, posterior body (scale bars: A-B = 140 μ m; C-I = 10 μ m).

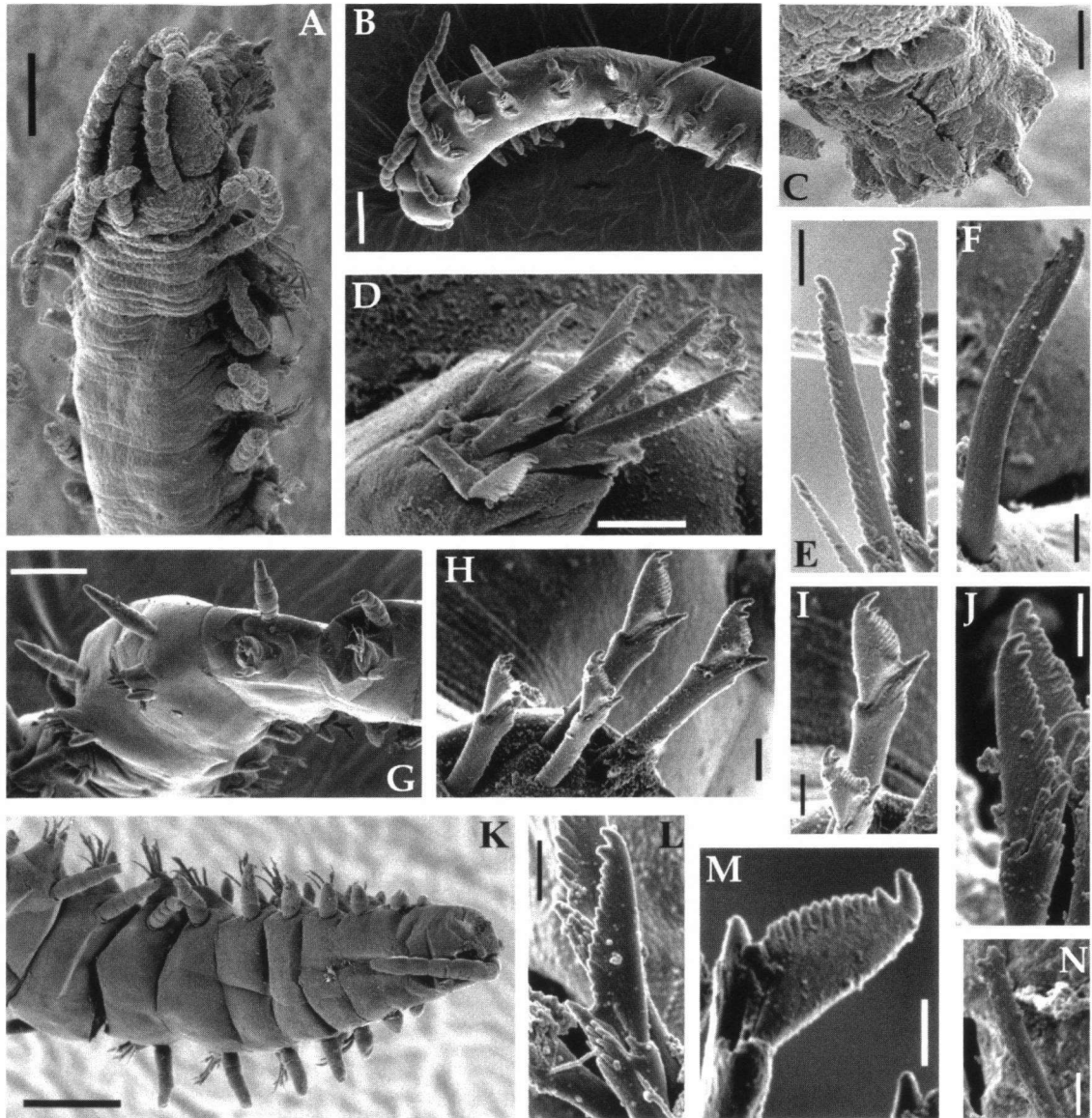


Fig. 20. *Syllis tyrrhena*, scanning electron micrographs. A, anterior end, dorsal view. B, anterior end, lateral view (superior peristomial cirri missing). C, detail of figure A, showing proboscis. D, falcigers, anterior chaetiger. E, blades of superior falcigers, anterior chaetiger. F, ventral simple chaeta. G, midbody, lateral view. H, falcigers, posterior midbody chaetiger. I, detail of posterior midbody chaetiger, showing intermediate and inferior falcigers. J, superior falcigers, midbody chaetiger. K, posterior end, dorsal view. L, superior falciger, posterior chaetiger. M, inferior chaeta, midbody chaetiger. N, dorsal simple chaeta (scale bars: A = 60 μ m; B, G, K = 100 μ m; C = 15 μ m; D = 10 μ m; E-F, J, L-N = 3 μ m; H = 5 μ m; I = 4 μ m).

Dorsal cirri of chaetiger 1 much longer than following cirri, with about the same length of median antenna, or slightly shorter (Figs. 19A, 20A-B). From midbody, dorsal cirri short throughout, distally tapering, with 6-8 articles, even shorter in posterior body in some specimens (Figs. 20G, K). Ventral cirri shorter than parapodial lobes, digitiform (Figs. 20B, G, K). Anal cirri longer than posterior dorsal cirri, with about 6-9 articles

and one soft papilla in between (Figs. 19B, 20K).

Pharynx long and thin, extending through about seven chaetigers (Fig. 19A), with sharp and thin tooth at the anterior margin, which is surrounded by a crown of short papillae (Figs. 19A, 20A, C). Proventriculum much shorter and broader than pharynx, occupying two chaetigers and with about 25-37 rows of muscle-cells (Fig. 19A).

Falcigers with bidentate blades and short spines all along the cutting edges; teeth sharp, subdistal one shorter (Figs. 19C, E, G, 20D-E, H-J, L-M). Length of the blades graded in both directions, dorso-ventral and antero-posterior (Figs. 19C, E, G, 20D, H), although less accentuated dorsoventrally from midbody (Fig. 20H). In anterior parapodia, blades, on average, measuring about 25, 18 and 11 μm ; in midbody, 18, 14 and 10 μm ; in posterior chaetigers, 14, 11 and 9 μm . Dorsal simple chaetae usually present from midbody chaetigers, immediately posterior to proventriculum in some specimens, distally truncate, with short subdistal spines (Figs. 19F, 20N); ventral simple chaetae present only in last chaetigers, shorter and thinner than dorsal chaetae, distally curved, bidentate, and with very short subdistal spines (Figs. 19H, 20F). One to two acicula per parapodium, distally curved at right angle, and with very short and sharp tip (Fig. 19D); single aciculum from midbody in all specimens, thicker (Figs. 19I).

REMARKS. - Our specimens differ from the descriptions by Licher & Kuper (1998) and Licher (1999) in some aspects. First of all, in our specimens dorsal cirri of chaetiger 1 are much longer than following cirri, while in the descriptions provided by those authors the difference is very slight; in contrast, dorsal cirri from midbody and posterior parts of the body are much shorter in Brazilian specimens, since Licher (1999) described midbody cirri with 13-16 articles, and posterior ones with 10-14 articles. Additionally, the blades of falcigers are much shorter in the specimens described by Licher & Kuper (1998) and Licher (1999), 9-16 μm on anterior body, 6-9 μm on midbody, and 6-12 μm on posterior chaetigers, according to Licher (1999).

However, we consider the general aspect of the body, very thin and with elongate segments, and the small number of chaetae per parapodium, as well as the morphology of the blades of falcigers, acicula, and dorsal and ventral simple chaetae, as the most characteristic features of this species, and our specimens fit with the descriptions provided. Moreover, we could see no morphological differences between our specimens and material collected in Spain, even in regard to cirri and length of the blades.

DISTRIBUTION. - Atlantic Ocean: Mediterranean Sea (Tyrrhenian Sea and Isla de Albóran, Spain), and State of São Paulo. This is the first report for Brazilian waters and for beyond the Mediterranean Sea.

Syllis truncata Haswell, 1920

Fig. 21

Syllis (Typosyllis) truncata Haswell, 1920: 94-96, Pl. X, figs. 7-14.

Typosyllis truncata; Licher, 1999: 160-162, fig. 71.

Typosyllis subterranea Hartmann-Schröder, 1962: 93-95, figs. 72-74.

MATERIAL. - Brazil: 3 specimens, all from Ilha dos Alcatrazes. Two specimens deposited at MHN (MHN-BPO 13/1-2), and 1 deposited at MNCNM (16.01/8724). Panamá: 2 specimens, from Coiba Island (Eastern Pacific).

DESCRIPTION. - Body robust, without distinct patterns of pigmentation; the largest complete specimen with 83 chaetigers and measuring about 5 mm in length by 0.22 mm in width, at the level of proventriculum.

Prostomium subrectangular, with two pairs of eyes in trapezoidal arrangement, and one pair of anterior eyespots; antennae short and relatively thick, the lateral pair originating on the anterior border of prostomium, with 12-13 articles, median antenna inserted in the center of prostomium, of about the same length, with 13-14 articles (Fig. 21A). Palps short, completely separated. Peristomium slightly shorter than following segments, superior pair of peristomial cirri almost twice as long as inferior pair, about the same length as antennae; superior pair with 12-16 articles, inferior pair with 7-8 articles (Fig. 21A).

Dorsal cirri thick, containing many iridescent inclusions. Those of chaetiger 1 much longer than following cirri, with 14-20 articles (Fig. 21A); from midbody, cirri not evidently alternating long and short, about the same length as body width, or slightly longer, and counting on 9-13 articles. Ventral cirri digitiform, about the same length as parapodial lobes. Anal cirri with about 11-14 articles.

Pharynx long, extending for 8-10 segments, with big tooth on the anterior margin. Proventriculum broader than pharynx, extending

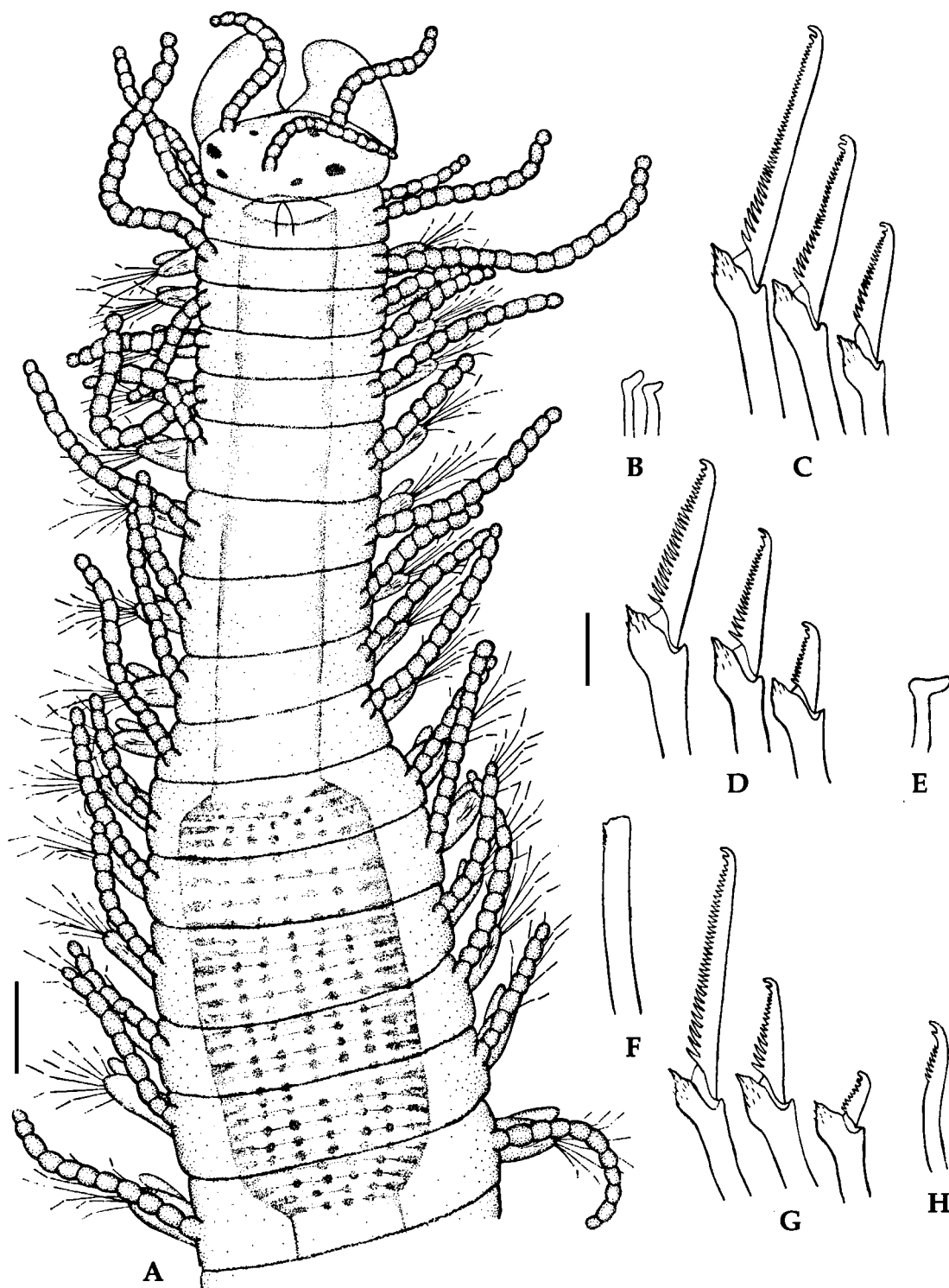


Fig. 21. *Syllis truncata*. A, anterior end, dorsal view. B, acicula, anterior chaetiger. C, falcigers, anterior chaetiger. D, falcigers, midbody chaetiger. E, aciculum, midbody. F, dorsal simple chaeta. G, falcigers, posterior chaetiger. H, ventral simple chaeta (scale bars: A = 130 μ m; B-H = 10 μ m).

through 5-6 chaetigers, and with about 20-30 rows of muscle-cells (Fig. 21A).

Falcigers with bidentate blades, subdistal tooth shorter; blades with short spines all along the cutting edge (Figs. 21C, D, G). Blades of falcigers with strong dorso-ventral gradation in length, but not antero-posterior (Fig. 21C, D, G). Blades of superior falcigers measuring about 27-29 μm , intermediate about 15-22 μm , and inferior falcigers about 9-12 μm ; blades posteriormost falcigers shorter, especially the superior chaetae. Simple chaetae only present in posteriormost chaetigers; dorsal simple chaetae distally truncate (Fig. 21F), ventral simple chaetae thinner, distally curved and bidentate (Fig. 21H). Anterior parapodia each with two very thin acicula, in all specimens, subdistally curved at right angle, with short and sharp tip (Fig. 21B); from midbody, single aciculum per parapodium, thicker (Fig. 21E).

REMARKS. - Our specimens differ from those described by Licher (1999) by having: (1) antennae and cirri shorter throughout, with fewer articles; (2) from midbody, dorsal cirri with nearly uniform length, not evidently alternating long and short cirri; (3) fewer chaetae per parapodium; and (4) two acicula in anterior parapodia, instead of one single aciculum throughout the whole body. However, our specimens are also much shorter than those of Licher (1999) and it is possible that these differences are due to size.

The analysis of species from the Pacific (Coiba Island, Pacific side of Panamá), revealed no significant differences to our specimens.

The reduced amount of specimens observed, and their poor state of preservation, prevented us from examining this species under SEM.

DISTRIBUTION. - Pacific Ocean: Australia and Chile; Atlantic Ocean: State of São Paulo. This is the first report for this species in Brazil, and, except for one doubtful identification in the Mediterranean Sea, the first occurrence in the Atlantic.

CONCLUSION

During the study of various species of *Syllis* found in living colonies of *Mussismilia hispida*, we discovered two new species, and provided more data to

emend the current diagnosis of *Syllis*, considering *Typosyllis* as a junior synonym. Furthermore, the geographic range of several species is enlarged, to include Brazil and, in some cases, southern Atlantic.

In regard to the extension of the geographical distribution of the species, we agree that it seems very unlikely that species from Pacific Ocean, or even from northern Atlantic can also be present in the southern Atlantic. However, after careful examination under stereo-, light, and scanning electron microscope, we could find no significant differences between our specimens and the descriptions provided in the literature (San Martín, 1984, 1992; Licher, 1999).

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