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A New Species of *Odontosyllis* Claparède, 1863 (Polychaeta: Syllidae: Eusyllinae), and Description of Brazilian Material of *Odontosyllis* cf. *fulgurans* (Audouin and Milne Edwards, 1834)

Marcelo Veronesi Fukuda and João Miguel de Matos Nogueira*

Departamento de Zoologia, Instituto de Biociências, Universidade de São Paulo (IB-USP), R. do Matão, travessa 14, n. 101, 05508-900, São Paulo, SP, Brazil. E-mail: lapol@ib.usp.br; nogueira@ib.usp.br

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Marcelo Veronesi Fukuda and João Miguel de Matos Nogueira (2005) A new species of *Odontosyllis* Claparède, 1863 (Polychaeta: Syllidae: Eusyllinae), and description of Brazilian material of *Odontosyllis* cf. *fulgurans* (Audouin and Milne Edwards, 1834). *Zoological Studies* **45**(2): 223-233. A new species of *Odontosyllis* is described herein, together with a description of Brazilian material of *Odontosyllis* cf. *fulgurans* (Audouin and Milne Edwards, 1834) collected along the coast off the State of São Paulo, southeastern Brazil, mostly from rocky shores. *Odontosyllis guillermoi* sp. nov. is characterized by its conspicuous pigmentation, consisting of a prostomial "mask" and 2 transverse bands per segment throughout, by the subdistal tooth of the blades of the falcigers being much shorter than the distal one, especially on the posterior chaetigers, and by anterior parapodia having up to 5 aciculae each. http://zoolstud.sinica.edu.tw/Journals/45.2/223.pdf

Key words: Polychaeta, Syllidae, Eusyllinae, *Odontosyllis*, Brazil.

The Eusyllinae Malaquin, 1893 is a highly heterogeneous, probably non-monophyletic group (San Martín 2003), composed of medium to small-sized syllids, whose palps are free or partially fused at their bases, and antennae and cirri are smooth to irregularly articulated. The pharynx may be either unarmed, or armed with a single tooth, 1 tooth and a trepan, or only a trepan. The genus *Odontosyllis* Claparède, 1863 is included in the latter group.

In Brazil, 9 species of eusyllines have been recorded to the present (Lana 1981 1984, Temperini 1981, Borzone 1988, Paiva 1990 1993a b, Sovierzoski 1991, Pires-Vanin 1995, Pires-Vanin et al. 1997, Maciel 1996, Attolini 1997, Nogueira 2000), three of which belong to *Odontosyllis*. Of those, *O*. cf. *fulgurans* was recorded from the states of Paraná (Sovierzoski 1991) and São Paulo (Nogueira 2000); another species, treated here as *Odontosyllis* sp., was described in a PhD thesis (Temperini 1981) and never formally published, although having been recorded in several posterior studies (Lana 1981 1984, Borzone 1988, Sovierzoski 1991, Maciel 1996, Attolini 1997, Pires-Vanin et al. 1997); unfortunately, material of this new species is not available and we cannot, at this point, proceed with its formal description. The 3rd species is a record of *O*. *polycera* (Schmarda, 1861), in a MSc thesis which focused on ecological aspects and was not formally published either (Attolini 1997); since those specimens were not deposited in any collection, no description was provided in that thesis and the type locality of *O*. *polycera* is in the Indian Ocean, we consider this a doubtful record.

In the present paper, a new species of *Odontosyllis*, *O*. *guillermoi* sp. nov., is described, and *O*. cf. *fulgurans* (Audouin and Milne Edwards, 1834), which is not only superficially similar to *O*. *guillermoi* sp. nov., but is also sympatric to it, is

*To whom correspondence and reprint requests should be addressed. Tel: 55-11-30917806 Fax: 55-11-30917513.
E-mail: nogueira@ib.usp.br

also described. As there are some slight differences between Brazilian and European material of *O. fulgurans*, according to the recent redescription provided by (San Martín 2003), we herein treated the Brazilian specimens as *O.* cf. *fulgurans* and refer to those differences in the "Remarks".

MATERIALS AND METHODS

The material for the present study came from 2 independent projects in which we are engaged. The 1st project is "BIOTA/FAPESP/Benthic Marine Biodiversity", and our participation is restricted to identifying previously collected material. The 2nd one is "Biodiversity of Intertidal Polychaetes (Annelida: Polychaeta) on Rocky Shores off the State of São Paulo, Brazil", which is totally under the responsibility of the Laboratório de Poliquetologia, IB - USP, to which we both belong.

For the project "Biodiversity of Intertidal Polychaetes (Annelida: Polychaeta) on Rocky Shores off the State of São Paulo, Brazil", collections were made from the intertidal zone, at the peak of low tide, on rocky shores off Ubatuba (Praia do Félix, Praia do Perequê Mirim, and Praia de Domingas Dias), São Sebastião (Praia da Baleia, Praia de Guaecá, Praia de São Francisco, Praia do Araçá, Praia Preta, and Praia de Barequeçaba), Guarujá (Praia Branca), São Vicente (Ilha Porchat and Praia das Vacas), and Itanhaém (Praia do Sonho).

Samples were obtained by scraping the rocks to extract small amounts of algae, colonies of sponges and ascidians, and similar substrata. The material was studied alive under a stereomicroscope; polychaetes were sorted, relaxed to death in a menthol solution (a few crystals in a Petri dish with seawater), fixed in a 4% formaldehyde solution, and finally washed and stored in 70% ethanol.

The type material, mounted in permanent glycerin jelly slides, was further analyzed under stereo and light microscopes. For the examination under scanning electron microscopy (SEM), 1 specimen of *Odontosyllis guillermoi* sp. nov. and another of *O.* cf. *fulgurans* were critical point-dried, covered with 25 nm of gold, and examined at the Laboratório de Microscopia Eletrônica, Instituto de Biologia, Univ. Estadual de Campinas (IB-UNICAMP).

Brazilian *Odontosyllis* cf. *fulgurans* was compared to 10 specimens of European material of that species kindly loaned from the Museo Nacional de Ciencias Naturales de Madrid, Spain.

The type material is deposited at the Museu de História Natural (MHN), IB-UNICAMP, Brazil, the Zoological Museum of the Univ. of Copenhagen (ZMUC), Denmark, and the Museo Nacional de Ciencias Naturales de Madrid (MNCN), Spain.

TAXONOMY

Genus *Odontosyllis* Claparède, 1863.

Type species: *Syllis fulgurans* Audouin and Milne Edwards, 1834.

Definition: Medium to large eusyllines, with smooth to irregularly articulated antennae and cirri throughout. Prostomium with 1 pair of palps fused at their bases, 3 antennae inserted centrally at the anterior margin, central antenna inserted slightly posteriorly in relation to lateral antennae, 2 pairs of eyes, and sometimes 2 anterior eyespots. Well-developed nuchal organs present between prostomium and peristomium. Peristomium with 2 pairs of tentacular cirri, sometimes forming a dorsal fold (occipital flap) extending above a part of prostomium, for a variable extension. Pharynx with an incomplete trepan, characteristically located away from margin of pharynx and with teeth directed to rear, without a middorsal tooth.

Remarks: *Odontosyllis* is readily recognized by the position of the antennae and the characteristic trepan, only present on a portion of the pharyngeal margin and with the teeth directed to rear. Diagnostic features, at the specific level, are the morphology of the occipital flap, when present, trepan and chaetae, and the extension of the pharynx. In Brazil, 3 species of the genus had been recorded prior to the present study (see above).

San Martín (2003) considers the occipital flap to originate from chaetiger 1, instead of the peristomium. However, our SEM study (see Description) showed that the peristomium is very narrow dorsally in both species of *Odontosyllis* treated in the present paper, almost totally covered by segment 1, but the occipital flap originates from its posterior border.

Reproduction: Reproduction in eusylline polychaetes, and particularly in *Odontosyllis*, has been studied by several authors (Huntsman 1948, Markert et al. 1961, Daly 1975, Fischer and Fischer 1995, Franke 1999). According to them, all eusyllines reproduce by epigamy, what means that during the reproductive season, benthic atokous forms undergo several changes, especially

regarding the sense organs and natatory capability, and become epitokous forms which assume a pelagic way of life for a short period, spawn, and return to their benthic habits, with most of the modifications which occurred during the breeding season reverting to the original state. In *Odontosyllis*, those modifications may be quite remarkable, and epitokous forms present much larger eyes and birramous parapodia on the mid-body chaetigers, with notoacicula and fans of long capillary notochaetae (Daly 1975, Franke 1999). Some species of the genus are known as "fire-worms" (although the "true" fire worms belong to the family Amphinomidae), such as the well-studied Bermudan fire-worm *O. enopla* Verrill, 1900, for the bioluminescence seen in their epitokous forms. At least in this species, the entire body of the female becomes bioluminescent, leaving light trails as it swims and sheds its eggs, while the male just flashes lightly, while swimming around the females; this usually occurs a few nights every month, about 55 min after sunset (Huntsman 1948). In other species of the genus, such as *O. polycera*, bioluminescence is also present during the spawning season, but this event occurs only once a year.

***Odontosyllis guillermoi* sp. nov.**
(Figs. 1, 2)

Material examined: State of São Paulo. Ubatuba - Praia de Picinguaba (23°22'S, 44°50'W), on rocky shore: 13 specimens (sp.), 9 May 2001; 5 sp., 10 May 2001; 8 sp., 17 Oct. 2001; on *Sargassum*: 2 sp., 8 June 2001; 19 sp., 18 Oct. 2001; Praia da Fazenda (23°21'S, 44°51'W), on rocky shore: 2 sp., 16 Oct. 2001; Praia do Félix (23°23'S, 44°58'W), on rocky shore: 2 sp., 4 Nov. 2002; 1 sp., 4 Jan. 2003; Praia de Domingas Dias (23°30'S, 45°08'W), on rocky shore: 2 sp., 2 Nov. 2002. Caraguatatuba - Praia de Martim de Sá (23°37'S, 45°23'W), on rocky shore: 10 sp.; on *Sargassum*: 4 sp., 16 Mar. 2001. São Sebastião - Praia de São Francisco (23°44'S, 45°24'W), on rocky shore: 1 sp., 19 Apr. 2003; Praia da Baleia (23°46'S, 45°39'W), on rocky shore: 3 sp., 12 Dec. 2001; 9 sp., 8 Apr. 2001; on *Sargassum*: 7 sp., 10 Apr. 2001; 3 sp., 14 Nov. 2001; Praia Preta (23°49'S, 45°25'W), on rocky shore: 2 sp., 18 July 2003; Praia de Barequeçaba (23°49'S, 45°26'W), on rocky shore: 6 sp., 20 Apr. 2003; Praia de Guaecá (23°49'S, 45°28'W), on rocky shore: 7 sp., 17 July 2003; Praia de Toque-Toque Grande (23°50'S, 45°30'W), on rocky shore: 6 sp., 10 Apr. 2001. Guarujá - Praia Branca (23°52'S, 46°08'W), on rocky shore: 1 sp., 25 June 2002. São Vicente - Ilha Porchat (23°59'S, 46°22'W), on rocky shore: 1 sp., 18 Nov. 2002; 4 sp., 16 Mar. 2003; 6 sp., 15 June 2003; Praia das Vacas (23°59'S, 46°23'W), on rocky shore: 1 sp., 18 Nov. 2002; 9 sp., 16 May 2003; 2 sp., 26 Aug. 2003. Itanhaém - Praia do Sonho (24°11'S, 46°48'W), on rocky shore: 1 sp., 14 June 2003.

Type series: Holotype and 3 paratypes deposited at the MHN, 3 paratypes deposited at the MNCN and 3 paratypes deposited at the ZMUC. *Holotype* (MHN-BPO 102/0): Praia Branca (23°52'S, 46°08'W), on rocky shore, 25 June 2002, atokous, 80 chaetigers, length 11.2 mm, width 0.8 mm. *Paratype* 1 (MHN-BPO 102/1): Praia da Fazenda (23°21'S, 44°51'W), on rocky shore, 16 Oct. 2001, atokous, 62 chaetigers, length 6.7 mm, width 0.6 mm. Paratype 2 (MHN-BPO 102/2): Ilha Porchat (23°59'S, 46°22'W), on rocky shore, 15 June 2003, female epitokous, 81 chaetigers, length 14.4 mm, width 0.9 mm. Paratype 3 (MHN-BPO 102/3): Praia de Guaecá (23°49'S, 45°28'W), on rocky shore, 17 July 2003, male epitokous, 78 chaetigers, length 11 mm, width 0.9 mm. Paratype 4 (MNCN 16.01/10320): Praia de Barequecaba (23°49'S, 45°26'W), on rocky shore, 20 Apr. 2003, atokous, 65 chaetigers, length 6.3 mm, width 0.6 mm. Paratype 5 (MNCN 16.01/10321): Praia de Barequeçaba, on rocky shore, 20 Apr. 2003, female epitokous, 46 chaetigers, length 9.7 mm, width 1 mm. Paratype 6 (MNCN 16.01/10322): Praia da Baleia (23°46'S, 45°39'W), on rocky shore, 14 Nov. 2001, male epitokous, 60 chaetigers, length 6.3 mm, width 1 mm. Paratype 7 (ZMUC Pol 1812): Praia das Vacas (23°59'S, 46°23'W), on rocky shore, 16 May 2003, atokous, 43 chaetigers, length 5.1 mm, width 0.7 mm. Paratype 8 (ZMUC Pol 1813): Praia das Vacas, on rocky shore, 18 Nov. 2002, female epitokous, 50 chaetigers (incomplete), length 13 mm, width 1.1 mm. Paratype 9 (ZMUC Pol 1814): Praia das Vacas, on rocky shore, 16 May 2003, male epitokous, 64 chaetigers, length 10.9 mm, width 0.9 mm.

Description: Large species, with body up to 19 mm long and 1.5 in width at the level of proventricle. Body characteristically with 2 black transverse bands per segment, prostomium with 1 black curved line at anterior border, with additional black lines between anterior eyes and below each of posterior eyes, and 1 straight middorsal longitudinal line from central antenna to posterior margin of prostomium (Fig. 1A). Pigmentation of body

very distinct in all specimens collected, extending along the entire body or until midbody and abruptly disappearing. Antennae originating middorsally at anterior border of prostomium; central antenna inserted slightly posteriorly in relation to lateral antennae, at midlength between anterior border and center of prostomium (Figs. 1A, 2A, C). Nuchal organs developed, as 1 pair of rows of cilia, originating dorsally at center of prostomium, just behind origin of central antenna and below occipital flap, running to rear toward posterior border of prostomium, and extending along its entire posterior border (Fig. 2C). Peristomium very narrow dorsally, forming a rounded occipital flap which reaches origin of central antenna and has a central diffuse black spot (Figs. 1A, 2A, C); 2 pairs of tentacular cirri, superior pair originating lateroventrally, inferior pair reduced and fused to lower lip, as 1 pair of "mouth appendages" (Figs. 1A, 2A, B). Antennae and cirri smooth throughout, with serial ciliated papillae, especially on antennae and anterior cirri (Fig. 2C, F). Dorsal cirri of chaetiger 1 longer than following cirri and originating dorsally in relation to peristomial superior cirri and dorsal cirri on following chaetigers. Midbody dorsal cirri alternately long and short; long cirri measuring about 2/3 body width, short cirri around 1/3 body width (Figs. 1A, 2A); ventral cirri rounded, slightly longer than parapodial lobes (Fig. 2B). Parapodial glands present in some specimens, usually from

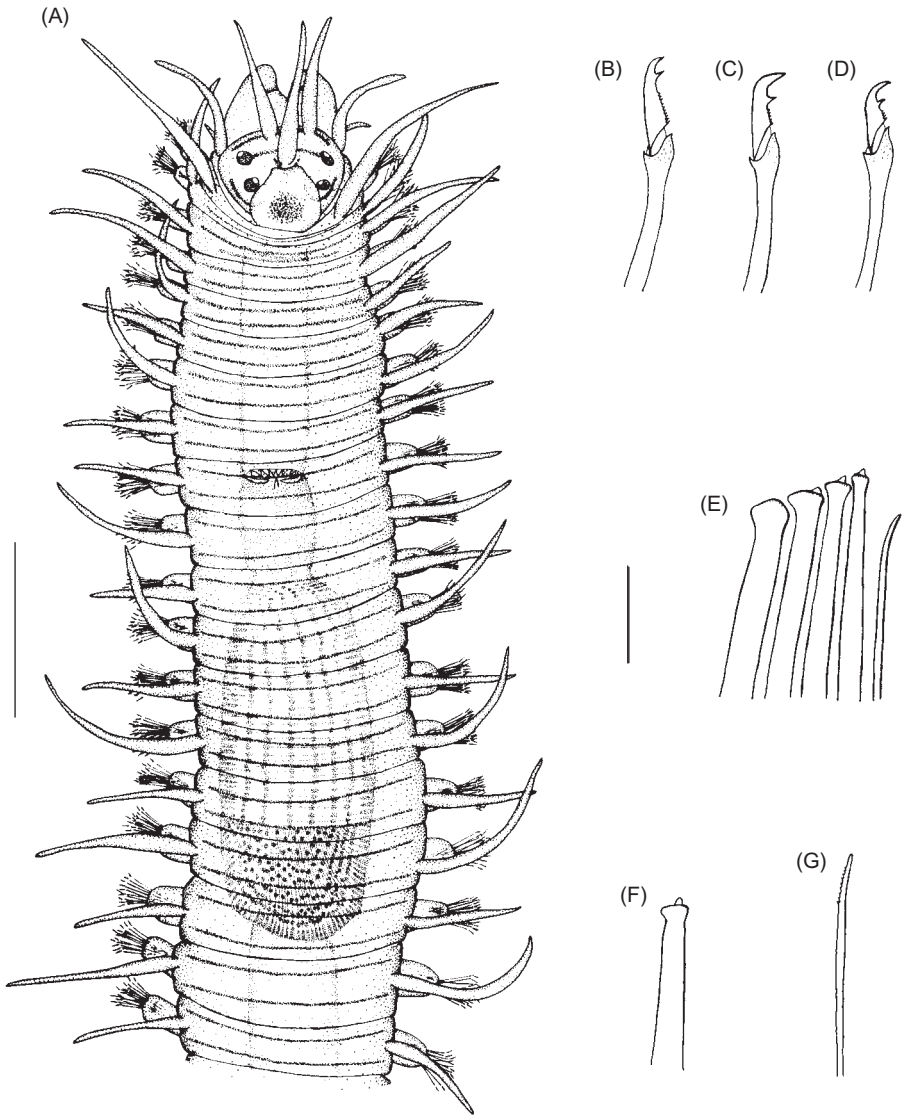

Fig. 1. *Odontosyllis guillermoi* sp. nov. (A) Anterior end, dorsal view; (B) anterior falciger; (C) midbody falciger; (D) posterior falciger; (E) anterior aciculae; (F) posterior acicula; (G) dorsal simple chaeta. Scale bars: A = 1 mm; B-F = 10 μm.

proventricular level, containing glandular cells, sometimes with dark inclusions. Anterior parapodia with up to 28 chaetae each, midbody parapodia with up to 20, posterior ones with up to 10 chaetae each. Falcigers with short, bidentate blades, with well-separated teeth, distal tooth hooked, subdistal tooth sharp and slightly shorter than distal tooth on anterior chaetigers, much shorter from midbody (Figs. 1B-D, 2E, G-I). Dorsal simple chaeta present on posterior chaetigers, short and thin, distally rounded, with few short subdistal spines (Figs. 1G, 2H); ventral simple chaeta rarely present, shorter and thicker than dorsal simple chaetae, sigmoid, with bidentate tip, distal tooth hooked and larger than subdistal one, resembling blades of falcigers (Fig. 2I). Anterior parapodia with 4 thick aciculae each, subdistally inflated, distally truncate or with short acuminate tip, asymmetrical in lateral view, together with a much narrower acicula, with pointed tip (Fig. 1E); 2 or 3 aciculae on each midbody parapodium, a single acicula per parapodium on posterior chaetigers (Fig. 1F), all with the same shape as anterior aciculae, but progressively thickening. Pharynx relatively long, usually extending through about 9 or 10 segments, trepan situated on posterior third, with 6

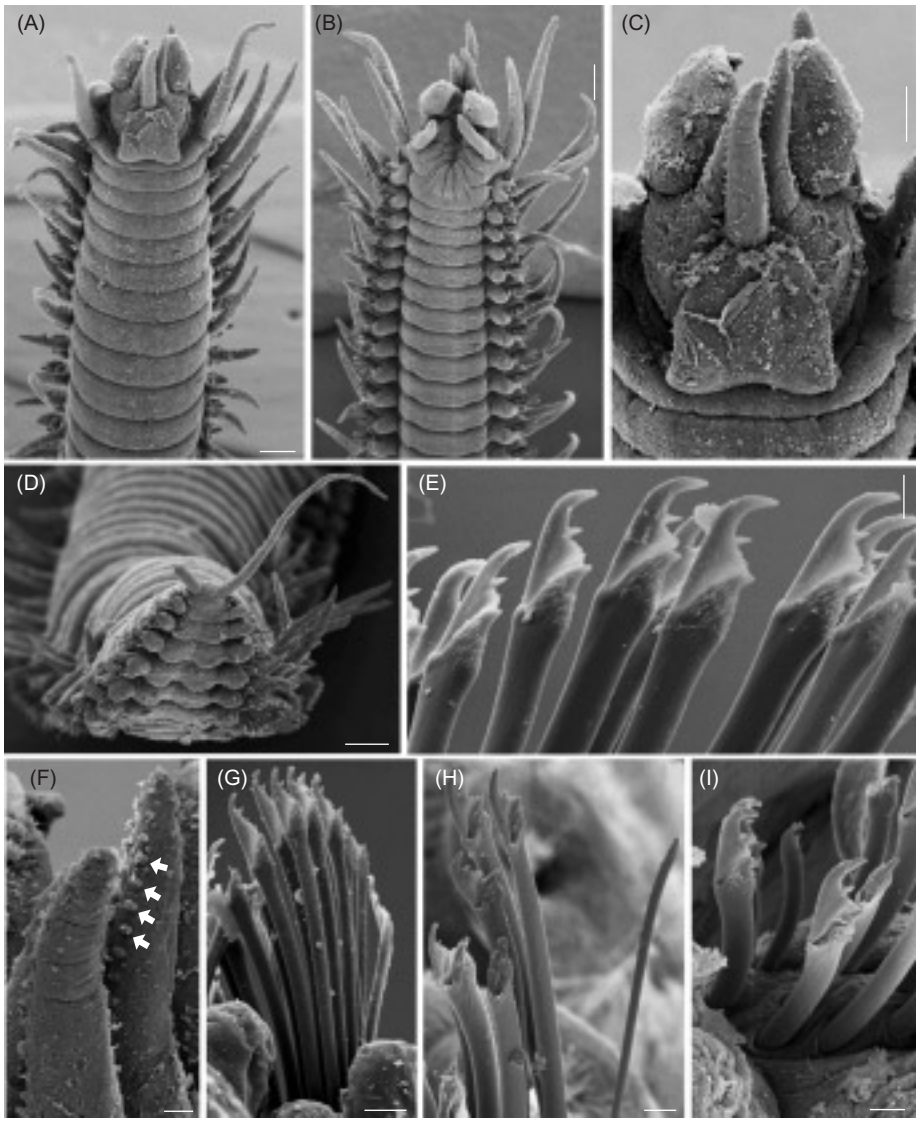

Fig. 2. *Odontosyllis guillermoi* sp. nov., SEM. (A) Anterior end, dorsal view; (B) anterior end, ventral view; (C) prostomium, dorsal view; (D) pygidium; (E) midbody falcigers; (F) detail of antennae, arrows indicate papillae; (G) anterior falcigers; (H) superior falcigers and dorsal simple chaeta, posterior chaetiger; (I) inferior falcigers and ventral simple chaeta, posterior chaetiger. Scale bars: A, B = 200 μm; C = 100 μm; D = 150 μm; E, I, H = 5 μm; F = 20 μm; G = 10 μm.

ventral teeth and 1 large curved tooth at each lateral (lateral plates). Proventricle long and robust, extending for 5-11 segments, with numerous narrow rows of muscle cells, either posterior or both anterior and posterior rows oblique (Fig. 1A).

Reproduction: As the present paper does not deal with behavioral aspects, and since all our collections were done in the morning, the presence of bioluminescent epitokous forms was not investigated; however, 1 female was incidentally observed shining about 1 h after sunset, while we were still sorting the material collected that morning.

Among the material collected for the present study, both epitokous and atokous forms of *O. guillermoi* sp. nov. were common. Characteristics of the epitokous and atokous forms of *Odontosyllis guillermoi* sp. nov. are listed in table 1.

Epitokous forms have much larger eyes, neuropodial chaetae and aciculae as in the atokous forms and notopodia bearing fans of very elongate capillaries and single acicula, with the same morphology of neuropodial aciculae, but slightly slimmer distally.

Etymology: *Odontosyllis guillermoi* was named in honor of Dr. Guillermo San Martín, for his great contribution to the taxonomy of the

Table 1. Morphological features of the type series of *Odontosyllis guillermoi* sp. nov

	Holotype MHN-BPO 102/0	Paratype 1 MHN-BPO 102/1	Paratype 2 MHN-BPO 102/2	Paratype 3 MHN-BPO 102/3	Paratype 4 MNCN 16.01/10320
Life stage; sex	Atokous	Atokous	Epitokous; female	Epitokous; male	Atokous
Number of chaetigers	80	62	81	78	65
Length of pharynx; position of trepan (chaetigers)	10; 6	10; 7	10; 6	3 (everted); prostomium	7; 3
Proventricle (chaetigers)	7	8	9	11	7
Total length x width at proventricle (mm)	11.2 x 0.8	6.7 x 0.6	14.4 x 1	11 x 0.9	6.3 x 0.6
Antennae: lateral; central (μm)	333; 496	242; 272	390; 589	280; 420	227; 393
Dorsal cirri of chaetiger 1 (μm)	918	465	439	580	551
Diameter of eyes: anterior; posterior (μm)	47; 38	39; 36	93; 86	127; 103	47; 39
Blades of falcigers: superior; intermediate; inferior (μm)					
Anterior chaetigers	19; 15; 15	18; 15; 13	15; 15; 13	13; 13; 13	13; 15; 13
Midbody chaetigers	15; 16; 16	18; 15; 15	10; 13; 13	18; 16; 16	15; 15; 13
Posterior chaetigers	15; 13; 11	12; 10; 7	10; 12; 15	15; 15; 13	10; 10; 9
Parapodial glands	Faded, from chaetiger 8	Nearly absent	Nearly absent	Faded; from chaetiger 12	Nearly absent

	Paratype 5 MNCN 16.01/10321	Paratype 6 MNCN 16.01/10322	Paratype 7 ZMUC Pol 1812	Paratype 8 ZMUC Pol 1813	Paratype 9 ZMUC Pol 1814
Life stage; sex	Epitokous; female	Epitokous; male	Atokous	Epitokous; female	Epitokous; male
Number of chaetigers	46	60	43	50 (incomplete)	64
Length of pharynx; position of trepan (chaetigers)	9; 6	12; 9	9; 6	5 (everted); 1	10; 7
Proventricle (chaetigers)	7	10	6	6	7
Total length x width at proventricle (mm)	9.7 x 1	6.3 x 1	5.1 x 0.7	13 x 1.1	10.9 x 0.9
Antennae: lateral; central (μm)	324; 393	242; 303	184; 307	270; 400	210; 246
Dorsal cirri of chaetiger 1 (μm)	878	333	407	600	484
Diameter of eyes: anterior; posterior (μm)	136; 124	72; 63	48; 39	71; 55	115; 96
Blades of falcigers: superior; intermediate; inferior (μm)					
Anterior chaetigers	18; 16; 16	15; 15; 15	15; 13; 15	12; 18; 15	16; 15; 18
Midbody chaetigers	16; 15; 16	16; 16; 16	16; 15; 15	17; 21; 21	18; 16; 15
Posterior chaetigers	18; 18; 16	10; 15; 13	10; 10; 9	18; 20; 15	12; 13; 12
Parapodial glands	Absent	Nearly absent	Nearly absent	Faded, from chaetiger 13	Faded, from chaetiger 20

Syllidae.

Remarks: *Odontosyllis guillermoi* sp. nov. belongs to a large group of species of *Odontosyllis* with falcigers bearing short and bidentate blades. This group also includes *O. australiensis* Hartmann-Schröder, 1979, *O. brachydonta* Verrill, 1900, *O. fulgurans*, *O. gymnocephala* Hartmann-Schröder, 1965a, *O. fragilis* Kudenov and Harris, 1995, *O. longigulata* Perkins, 1981, *O. luminosa* San Martín, 1990, *O. magnanuchalata* Hartmann-Schroder, 1965b, *O. parva* Berkeley, 1923, *O. phosphorea* Moore, 1909, *O. polycera*, *O. setoensis* Imajima, 1966, and *O. suteri* Benham, 1915. *Odontosyllis guillermoi* sp. nov. differs from all these species by the presence and extension of the occipital flap, the number of teeth of the trepan, the number of aciculae per parapodium, and especially by its pigmentation.

Odontosyllis phosphorea also bears dark dorsal pigmentation, but in a pattern different from that found in *O. guillermoi* sp. nov. *Odontosyllis phosphorea* has pigmented spots at every 3rd to 4th intersegmental groove or a black transversal line on each of the 20 anteriormost segments. The morphologies of the proventricle and trepan are also quite similar to those of *O. guillermoi* sp. nov., with the proventricle of both species extending through about 10 segments and with the trepan bearing 6 teeth. However, *O. phosphorea* differs from *O. guillermoi* sp. nov. by the following characters: it has 4 aciculae on each anterior parapodium; the distal and subdistal teeth on the blades of the falcigers are about the same size; the dorsal simple chaeta is narrower and has a more-pointed tip; and the ventral simple chaeta is not hooked and is bidentate, with both teeth about the same size.

Another species of *Odontosyllis* with dorsal pigmentation is *O. fragilis*, which has a middorsal pigmented patch on each segment and under the occipital flap. In addition to the different pattern of pigmentation, this species differs from *O. guillermoi* sp. nov. by having a trepan with 5 teeth, instead of 6, by the subdistal tooth of the blades of the superior falcigers being larger than the distal tooth, and by having only 2 aciculae per parapodium.

Odontosyllis fulgurans and *O. luminosa* deserve further attention because they inhabit the same or close (Caribbean) areas, respectively, and in the case of the latter species, by the presence of bioluminescent epitokous forms. Brazilian specimens of *O. fulgurans*, treated here as *O.* cf. *fulgurans*, are described below, and this is a much shorter species, with no pattern of pigmentation and with a shorter occipital flap. In addition, the teeth of the blades of the falcigers are more similar in length and originate closer to each other in *O. fulgurans* than in *O. guillermoi* sp. nov. Finally, *O. fulgurans* has 2 aciculae on each anterior parapodium, instead of up to 5, with a different tip morphology.

Odontosyllis luminosa differs from *O. guillermoi* sp. nov. by lacking the defined patterns of the dorsal pigmentation and by having much longer antennae and cirri throughout, by the teeth of the blades of falcigers being closer to each other, and by having a single acicula per parapodium from the proventricular level. In addition, epitokous forms of *O. luminosa* have neuropodia with characteristically modified chaetae, which are not present on *O. guillermoi* sp. nov.

Finally, there is 1 subspecies of *O. fulgurans* which differs from that species by presenting a characteristic pigmentation, a somewhat-different morphology of the tip of the acicula, and a longer proventricle. *Odontosyllis fulgurans* dolerens Westheide, 1974 has prostomial pigmentation similar to that shown by *O. guillermoi* sp. nov., but its body has a broad longitudinal dark (grey) bar, instead of 2 transverse black lines per chaetiger, as in our new species. Moreover, *O. fulgurans* dolerens has acicular tips similar to those of *O. guillermoi* sp. nov., but it has only 2 aciculae per parapodium on the anterior segments, as typical *O. fulgurans*, and both teeth of the blades of falcigers are about the same size.

***Odontosyllis* cf. *fulgurans* (Audouin and Milne Edwards, 1834)**

(Figs. 3, 4)

Odontosyllis fulgurans Nogueira, 2000: 89-90, fig. 20L-O.
?*Syllis fulgurans* Audouin and Milne Edwards, 1834
?*Odontosyllis fulgurans* Gardiner, 1976: 135, fig. 12a-c; San Martin, 1984: 93-97, lam. 14; 1990: 618; 2003: 104-106, figs. 46-47

Material examined: *Odontosyllis* cf. *fulgurans*: State of São Paulo. Ubatuba: Praia de Picinguaba (23°22'S, 44°50'W), on *Sargassum*: 5 sp., 8 June 2001; 4 sp., 8 Oct. 2001; 18 sp., 18 Oct. 2001; infralittoral habitat: 1 sp., 17 Mar. 2001; 1 sp., 19 Dec. 2001. Caraguatatuba - Praia de Martim de Sá(23°37'S, 45°23'W), on *Sargassum*: 9 sp., 27 Sept. 2001. São Sebastião: infralittoral, in sandy bottom, 5 m deep: 1 sp., 13 Feb. 2001; Praia da Baleia (23°46'S, 45°39'W), on *Sargassum*: 2 sp., 10 Apr. 2001; 12 sp., 14 Nov. 2001. São Vicente -

Ilha Porchat (23°59'S, 46°22'W): 1 sp., 9 Dec. 2003.

Odontosyllis fulgurans: Spain: NW of Cabo de Peñas, Asturias, 122-129 m deep: 1 sp. (MNCN 16.01/7570), 15 June 1991. E of Cabo del Pinar, N Isla de Mallorca, Islas Baleares, 56-59 m deep: 1 sp. (MNCN 16.01/7572), 26 June 1994. E of Isla del Congreso, Islas Chafarinas, 8 m deep: 8 sp. (MNCN 16.01/7582), 21 Feb. 1991.

Description: Short, unpigmented body, up to 5 mm long and 0.7 mm wide, at level of proventricle. Antennae originating midorsally at anterior border of prostomium; central antenna inserted slightly posteriorly in relation to lateral antennae, at midlength between anterior border and center of prostomium (Figs. 3A, 4A, B). Nuchal organs developed, as 1 pair of ciliary rows, which originate dorsally at center of prostomium, just behind origin of central antenna and below occipital flap, running to rear toward posterior border of prostomium, and extending along its entire posterior border (Fig. 4A, B). Peristomium narrow dorsally, forming rounded occipital flap which reaches 1/2 of extension of prostomium, ending before origin of central antenna (Figs. 3A, 4A, B); 2 pairs of tentacular cirri, superior pair originating lateroventrally, inferior pair shorter, lateral to lower lip (Figs. 3A, 4C). Dorsal cirri of chaetiger 1 longer than following cirri and originating dorsally in relation to peristomial superior cirri and dorsal cirri on following chaetigers (Fig. 3A); ventral cirri rounded, slightly longer than parapodial lobes (Fig. 4C). Anterior parapodia with up to 20 chaetae each, midbody parapodia with up to 12 chaetae, posterior ones

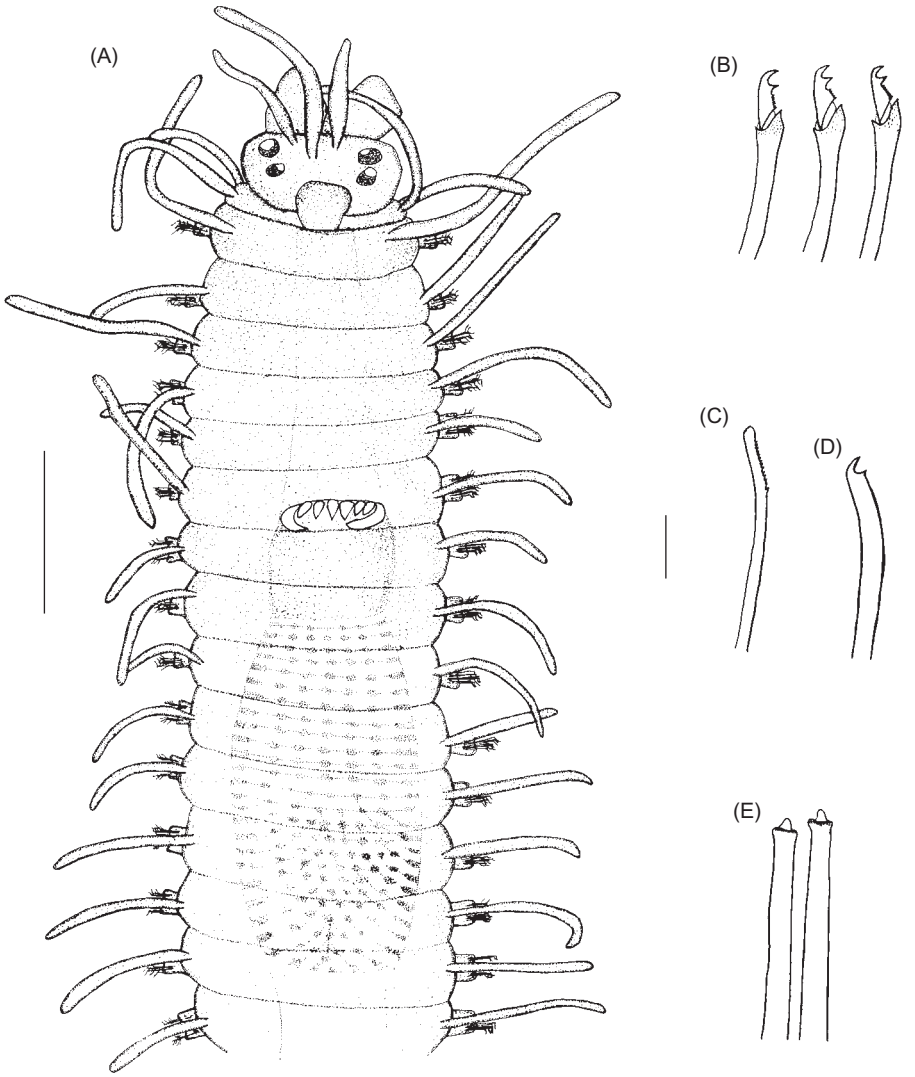

Fig. 3. *Odontosyllis* cf. *fulgurans*. (A) Anterior end, dorsal view (not all muscle cells in proventricle illustrated); (B) anterior falcigers; (C) dorsal simple chaeta, midbody; (D) ventral simple chaeta; (E) aciculae. Scale bars: A = 500 μm; B-E = 10 μm.

with up to 6 chaetae each. Falcigers with short, bidentate blades, distal tooth hooked, subdistal tooth sharp and about the same size as distal tooth (Figs. 3B, 4D, E, G, H). Dorsal simple chaeta short and thin, distally rounded, present on posterior chaetigers (Figs. 3C, 4F); ventral simple chaeta rarely present, shorter and thicker than dorsal simple chaeta, sigmoid, with bidentate tip and similar to blades of falcigers, with hooked distal tooth larger than subdistal one (Fig. 3D). Each anterior parapodia with 2 aciculae, each one thick, with subdistal crown of spines and short tip (Fig. 3E), single acicula from midbody, similar to anterior aciculae, but progressively thickening. Pharynx short, trepan with 6 ventral teeth and 2 lateral plates; proventricle extending for 6 segments, with up to 65 narrow rows of muscle cells, either posterior or both anterior and posterior rows oblique (Fig. 3A).

Remarks: Brazilian specimens of *O*. cf. *fulgurans* show some slight differences in relation to the redescription of *O*. *fulgurans* recently provided by (San Martín 2003), based on specimens from the Iberian Peninsula. For this reason, Brazilian specimens are treated here as *O*. cf. *fulgurans*.

According to (San Martín 2003), Iberian specimens of *O*. *fulgurans* have 1 pair of dorsal prostomial lobes bearing the eyes, a thin ciliary band per

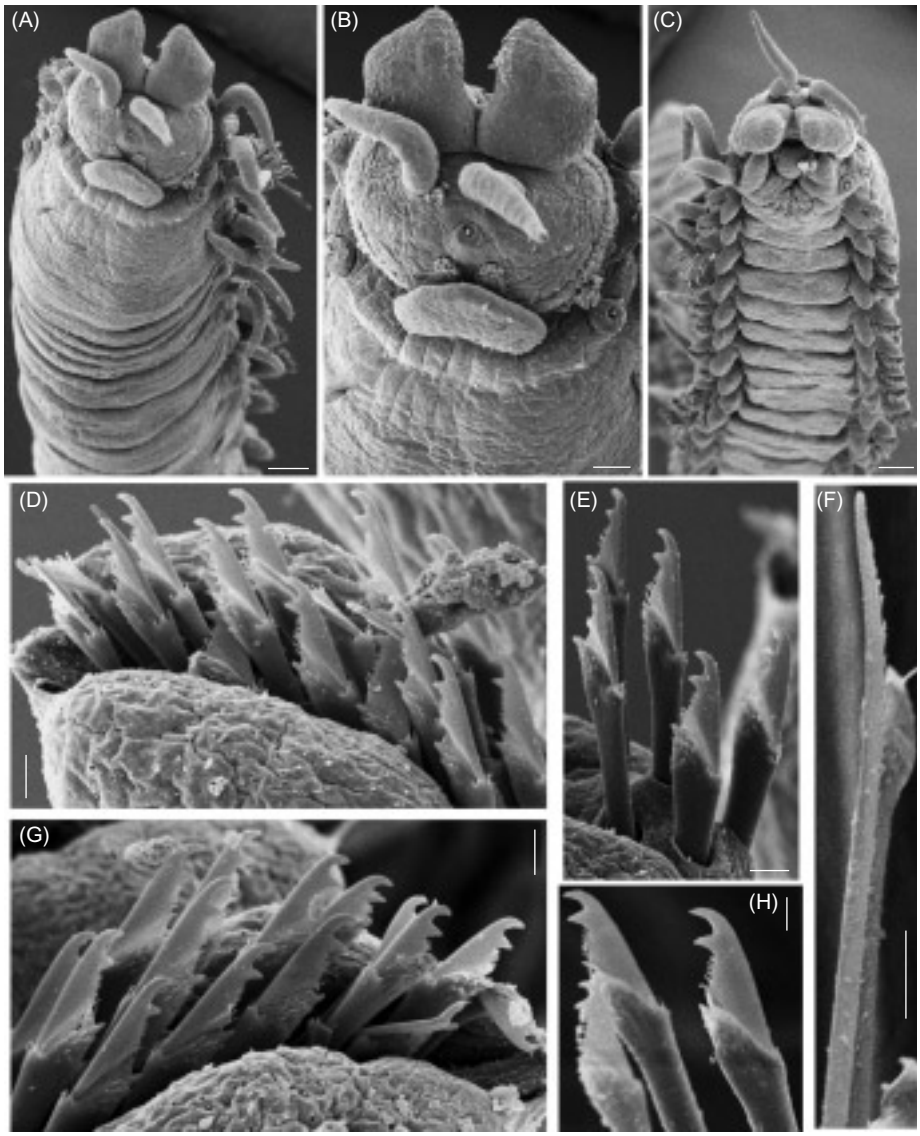

Fig. 4. *Odontosyllis* cf. *fulgurans*, SEM. (A) Anterior end, dorsal view; (B) prostomium, dorsal view; (C) anterior end, ventral view; (D) anterior parapodium; (E) inferior falcigers, posterior chaetiger; (F) dorsal simple chaeta; (G) midbody parapodium; (H) blades of falcigers. Scale bars: A, C = 100 μm; B = 50 μm; D, E, G = 5 μm; F, H = 3 μm.

segment, and a distally bifid dorsal simple chaeta, while Brazilian *O*. cf. *fulgurans* lacks such prostomial lobes and the ciliary segmental bands, and has a distally rounded dorsal simple chaeta. In addition, according to San Martín's figure 47B (2003: p. 106), nuchal organs of Iberian specimens of *O*. *fulgurans* are much larger than those of the Brazilian specimens, compared to our figure 4A, B.

In order to check those differences personally, we borrowed 10 Spanish specimens of *O*. *fulgurans*. However, either because of the size of the specimens, or because these differences were visible only under SEM, none of these differences was confirmed by comparing those European specimens to our material.

The differences between the Brazilian specimens described above and the redescription of *O*. *fulgurans* provided by (San Martín 2003) may seem too subtle to consider them as belonging to different species. However, if we consider that *O*. *fulgurans* was originally described from France, it may seem more prudent to maintain some restrictions to identifying Southern Atlantic specimens as belonging to the same species, if we find some differences between the populations of these localities.

Therefore, based exclusively on morphological data, it remains uncertain whether European and Brazilian specimens belong to the same species or not. This is a good area for future molecular work.

Distribution: According to (San Martín 2003), probably cosmopolitan, in tropical and temperate waters.

Biology: This species was rarely found in the present study, which sampled the intertidal zone, but was more common in the infralittoral (Nogueira 2000) and associated with algal tufts.

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