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Capitellidae (Annelida: Polychaeta) from Coiba National Park, Pacific Coast of Panamá, with a new species of the genus *Amastigos*

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Abstract: During a study carried out in Coiba National Park (Pacific coast of Panamá), several samples were collected from various substrata: dead coral heads, tidal flats, intertidal boulders and subtidal coarse sands. The results of the study of these samples regarding the family Capitellidae (Annelida: Polychaeta) are presented in this paper. Nine species are reported. A new species belonging to the genus *Amastigos* is described; it can be distinguished from the rest of the species within the genus by the shape of both thoracic and abdominal chaetigers. Another species, *Leiocapitella glabra* is reported for the first time in the Panamanian Pacific. Some specimens belonging to the genus *Dasybranchus* and *Leiocapitella* are partially described and figured showing their interesting morphological features, however, due to their poor preservation they have not been assigned to any described species.

Résumé : *Capitellidae (Annelida: Polychaeta) du Parc National de Coiba, côte Pacifique du Panamá, description d'une nouvelle espèce du genre* Amastigos. Au cours d'une étude réalisée dans le Parc National de Coiba, quelques échantillons ont été prélevés dans les substrats suivants: blocs de coraux, estrans, rochers intertidaux et sables grossiers subtidaux. Les résultats de l'étude de ces échantillons relatifs à la famille des Capitellidae (Annelida : Polychaeta) sont donnés. Neuf espèces ont été recensées. Une nouvelle espèce du genre *Amastigos* est décrite ; elle peut être distinguée des autres espèces du genre par la forme de ses segments thoraciques et abdominaux. Une autre espèce, *Leiocapitella glabra* a été rapportée pour la première fois sur la côte Pacifique du Panamá. Quelques spécimens du genre *Leiocapitella* sont partiellement décrits et illustrés de par leurs très intéressantes caractéristiques morphologiques. Cependant, elle ne sont assignées a aucune espèce connue à cause de leur mauvais état de conservation.

Keywords: Polychaeta, Capitellidae, Systematics, Pacific, Panamá

Introduction

The Capitellidae are burrowing polychaetes that can be found from low tidal to abyssal depths acting in most cases as non-selective subsurface deposit feeders, although some symbiotic species have been recorded (Buzhinskaja & Smirnov, 2000). Members of the family inhabit most of the soft bottom environments, even in estuarine and slightly brackish waters (Rouse, 2001). Some can tolerate high levels of environmental disturbance (Reish, 1979), and it has been customary to consider them as good pollution indicators. However, as dense populations of some species can occur even in undisturbed environments, they probably are opportunistic species that appear after perturbation (Rouse, 2001).

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The identification of members of the family is difficult since many of the characters (i.e. chaetal formula, number of thoracic chaetigers, position of branchiae and other soft structures) can vary during life history (Hutchings, 2000). Several species in the family have been recorded worldwide and are regarded as cosmopolitan species. Sometimes careful work by specialists has shown them to be sibling species complexes (Grassle & Grassle, 1976) but some other researchers failed and no appreciable differences were found between far separated populations (Hutchings & Rainer, 1984). Crucial contributions to the systematics of the family have been made by Hartman (1947), Ewing (1984a; 1984b), Gravina & Somaschini (1990), Warren (1991), Warren et al. (1994) and Blake (2000).

Between 1996 and 1998, a research project aiming to characterize the marine benthic fauna of Coiba National Park was conducted (López et al., 1997; San Martín et al., 1997). This protected area included several islets, small islands and a larger one which gives its name to the Park and is located off the Pacific coast of Panamá, between 7º10'4" and 7º53'27"N and between 81º32'35" and 81º56'15" W.

Materials and methods

Samples were collected during three expeditions carried out in June 1996, February 1997 and September 1998. Different substrata were sampled: tidal flats associated to mangrove systems, beneath boulders in the intertidal zone, blocks of dead coral (*Pocillopora* spp.) and subtidal coarse sand (Table 1). The subtidal samples were taken by SCUBA diving. All samples were washed through sieves of 1 mm gauge mesh, except the subtidal coarse sand, which was sieved through 0.1 mm.

Samples were fixed in a 10% formaldehyde-seawater solution and preserved in a 70% alcohol solution. For identification, an Olympus SZ30 stereomicroscope and Olympus CH30 optic microscope were used. The drawings were made to scale, with a drawing tube in a Nikon Optiphot optic microscope equipped with the interference contrast optics (Nomarsky). The scanning electron micrographs (SEM) were made using the standard procedure: the specimens in 70% alcohol were dehydrated in gradually more concentrated acetone solutions, and then they were dried at the critical point in carbon dioxide, coated with gold and viewed with a scanning electron microscope Phillips XL-30 system. The type-series of the new species was deposited at the Museo Nacional de Ciencias Naturales (MNCN) of Madrid, Spain, whereas the remainder of the specimens were deposited at the polychaete collection of Universidad Autónoma de Madrid.

Taxonomic results

Genus *Amastigos* Piltz, 1977

Amastigos delicatus sp. nov.

(Fig. 1)

Amastigos cf. *acutus* non Piltz, 1977: López et al., 2002: 240.

Table 1. Sample sites and substrata (TFAM: tidal flats associated to mangrove systems).
Tableau 1. Stations d'échantillonnage et substrats (TFAM: estrans associés aux mangroves).

Samples	Substrata	Station	Coordinates	Depth
M1CF97	TFAM. Fine sand	Santa Cruz	7º37'40"N 81º45'70"W	0
M2AF97	"	Santa Cruz	7º37'40"N 81º45'70"W	0
M2CF97	TFAM. Silty sand	Santa Cruz	7º37'40"N 81º45'70"W	0
M3AF97	TFAM. Fine sand	Santa Cruz	7º37'40"N 81º45'70"W	0
M3BF97	"	Santa Cruz	7º37'40"N 81º45'70"W	0
M4AF97	TFAM. Medium sand	El Gambute	7º37'40"N 81º44'40"W	0
M4BF97	TFAM. Silty sand	El Gambute	7º37'40"N 81º44'40"W	0
M4CF97	TFAM. Pebbles	El Gambute	7º37'40"N 81º44'40"W	0
M5AF97	TFAM. Medium sand	El Gambute	7º37'40"N 81º44'40"W	0
M5BF97	TFAM. Silty sand	El Gambute	7º37'40"N 81º44'40"W	0
M5CF97	TFAM. Medium sand	El Gambute	7º37'40"N 81º44'40"W	0
M6AF97	TFAM. Silty sand	El Gambute	7º37'40"N 81º44'40"W	0
M6BF97	TFAM. Coarse sand	El Gambute	7º37'40"N 81º44'40"W	0
M6CF97	TFAM. Coarse sand	El Gambute	7º37'40"N 81º44'40"W	0
BP1J96	Under boulders	Granito de Oro	7º35'50"N 81º42'30"W	0
BP4J96	"	Islote Santa Cruz	7º38'00"N 81º47'10"W	0
CM2S98	Dead coral samples	Uvas	7º49'00"N 81º46'00"W	-2 m
AR1S98	Coarse sand	Granito de Oro	7º39'20"N 81º42'20"W	-10 m

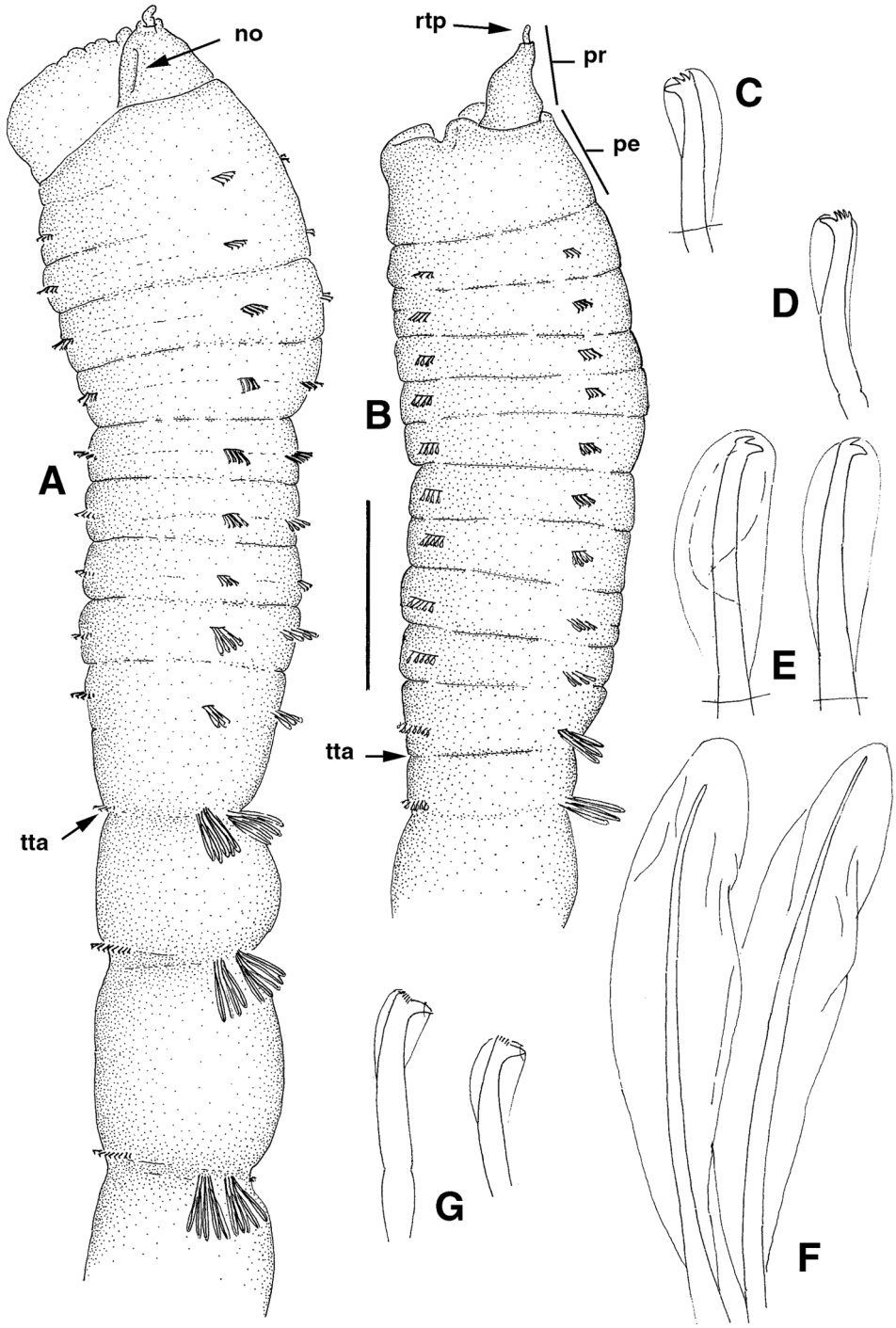

Figure 1. ***Amastigos delicatus*** sp. nov. **A.** Holotype, dorsolateral view. **B.** Paratype, lateral view. **C.** Notopodial thoracic hooded hook chaetiger 6. **D.** Neuropodial thoracic hooded hook, same chaetiger. **E.** Notopodial thoracic hooded hooks, chaetiger 10. **F.** Notopodial abdominal modified hooks. **G.** Neuropodial abdominal hooded hooks. **no:** nuchal organs. **pe:** peristomium. **pr:** prostomium. **rtp:** retractile terminal process. **tta:** transition from thorax to abdomen. Scale: A, B: 0.25 mm ; C, D, E, F, G : 20 μm.

Figure 1. ***Amastigos delicatus*** sp. nov. **A.** Holotype, vue dorso-latérale. **B.** Paratype, vue latérale. **C.** Crochet notopodial thoracique encapuchonné, segment sétigère 6. **D.** Crochet neuropodial thoracique encapuchonné, même segment. **E.** Crochet notopodial thoracique encapuchonné, segment sétigère 10. **F.** Crochets notopodiaux abdominaux encapuchonnés modifiés. **G.** Crochets neuropodiaux abdominaux encapuchonnés. **no :** organe nucal. **pe :** peristomium. **pr :** prostomium. **rtp :** élément terminal rétractile. **tta :** transition entre thorax et abdomen. Echelle: A, B: 0,25 mm ; C, D, E, F, G : 20 μm.

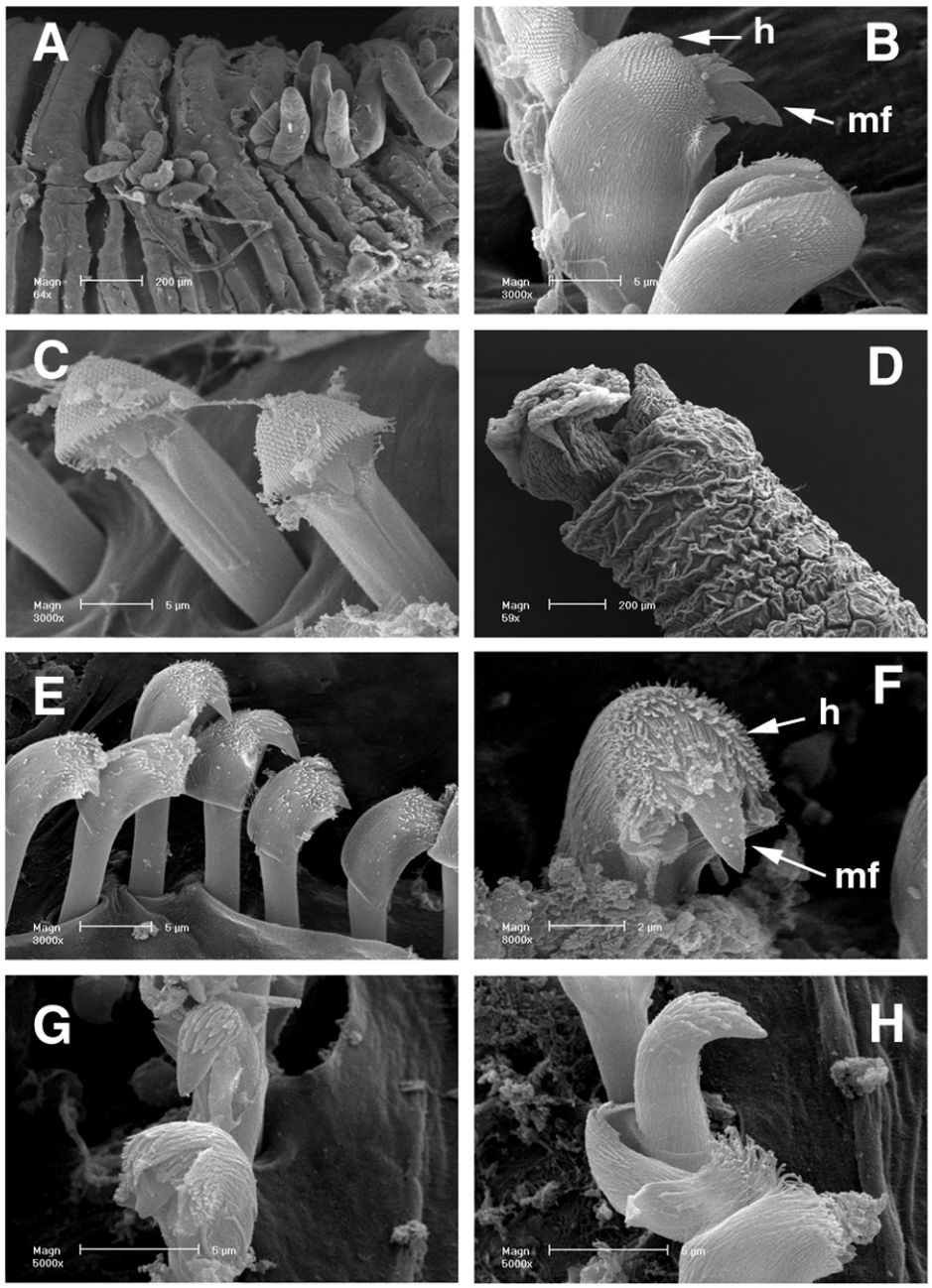

Figure 2. ***Dasybranchus lumbricoides*****.** SEM Micrographs. **A.** Abdominal chaetigers with retractile branchiae and bands of notopodial hooks. **B**. Abdominal hooded hooks, lateral view showing the teeth. **C.** Abdominal hooded hooks, frontal view. ***Dasybranchus*** sp. **D.** Anterior end dorsal view, prostomium and first chaetigers. **E.** Abdominal hooded hooks, lateral view. **F, G.** Hooded hook of abdominal chaetiger. **H.** Broken hooded hook showing the arrangement of teeth, lateral view. **h:** hood. **mf:** main fang.

Figure 2. ***Dasybranchus lumbricoides*****.** Micrographies MEB (Microscope électronique à balayage). **A.** Segments abdominaux avec les branchies rétractiles et les rangées de crochets dorsaux. **B.** Crochets encapuchonnés abdominaux, vue latérale montrant les dents. **C.** Crochets encapuchonnés abdominaux, vue frontale. ***Dasybranchus*** sp. **D.** Partie antérieure, prostomium et premiers segments, vue dorsale. **E.** Crochets encapuchonnés abdominaux, vue latérale. **F, G.** Crochet encapuchonné d'un segment abdominal. **H.** Crochet encapuchonné brisé montrant la disposition des dents, vue latérale. **h :** capuchon. **mf :** dent principale.

Material

Holotype: MNCN 16.01/10131, M3AF97. Paratypes: MNCN 16.01/10132, M3AF97 (14); MNCN 16.01/10133, M3BF97 (1); MNCN 16.01/10134, M2AF97 (6).
Additional material. AHF-POLY-1239 *Amastigos acutus* Piltz, 1977 (holotype), California.

Description

Holotype is the largest specimen; 8.5 mm long; 0.39 mm wide at chaetiger 7 level; 29 chaetigers. Body long and slender; whitish after fixation, usually concealed within a mucous tube of fine walls but obscured by stuck sediment particles; epithelium surface apparently smooth. Transition from thorax to abdomen defined by an abrupt change in the shape of chaetigers. Prostomium (Fig. 1 A, B) partially retractile, triangular, slightly depressed and short, bearing two nuchal organs in lateral position and an also retractile thin terminal process; eyespots not seen. Eversible pharynx (Fig. 1 A) with smooth surface, containing refringent spheres within muscular walls. Thorax (Fig. 1 A, B) somewhat inflated, composed of a long, achaetous peristomium plus ten short, biannulate chaetigers; both rami with hooded hooks only, capillaries absent. Notopodial thoracic hooks protruding, numbering four to six; gradually becoming more slender; on anterior chaetigers with a conspicuous main fang surmounted by an arc of small distal teeth and covered by a short hood (Fig. 1 C); on posterior thoracic chaetigers longer and extending further out of the body, with small main fang surmounted by indistinct terminal teeth, covered by a much larger hood (Fig. 1 E). Hooks of the last thoracic chaetiger even longer, with very small main fang, appearing as an almost unnoticeable button, transitional in shape between typical thoracic and abdominal ones; fascicles arising from posterior end of segment. Neuropodial hooded hooks resembling notopodial ones of anterior chaetigers (Fig. 1 D) throughout thorax, slightly more slender on posterior thorax; five or six on anterior chaetigers and up to eight on posterior ones. Abdominal chaetigers distinctly longer than thoracic ones, up to four times longer than wide on posterior ones; inflated and separated from the adjacent ones by well defined narrowings (Fig. 1 A); bearing the chaetae fascicles on posterior end. Notopodial abdominal tori short and inserted near mid-dorsal line; bearing five modified hooded hooks (Fig. 1 F), seeming very long bilimbate capillaries under low magnification, appearing as long spines covered by a very long hood with wrinkled margins under greater magnification. Neuropodial tori on a sub-ventral position, those of both sides nearly contacting in the mid-ventral line; with up to 15 hooded hooks (Fig. 1 G) very similar to posterior thoracic ones, with slightly shorter hoods; arranged in straight rows. Branchiae and lateral organs not observed. Pygidium not seen as all the specimens are broken.

Etymology

The specific name refers to the thin body of all of the studied specimens.

Discussion

The new species is referred to the genus *Amastigos* Piltz, 1977 because of the presence of the unique modified abdominal notochaetae and the lack of capillaries in both thorax and abdomen. Thus far, only two species have been described within the genus: *A. acutus* Piltz, 1977 (the type species) and *A. caperatus* Ewing & Dauer, 1981. *Amastigos acutus*, from California (Piltz, 1977), is a quite different species, with a very distinct shape of thoracic segments (the first two cylindrical and very elongated) which in addition are eight and change abruptly to the abdominal type in the shape of the notochaetae. Moreover, the abdominal chaetigers are more or less conical, giving the body a very different look, and two conspicuous apical teeth occur on the modified notochaetae. *Amastigos caperatus*, from the eastern coast of the United States (Ewing & Dauer, 1981), is a more similar species but it has a proportionately longer prostomium, thoracic chaetigers of varying lengths along the thorax; a thinner thorax composed of nine chaetigers (the last one also bearing transitional notochaetae) instead of ten, and cylindrical abdominal chaetigers joined by not so marked narrowings.

Genus *Dasybranchus Grube, 1850*

Dasybranchus lumbricoides Grube, 1878

(Fig. 2 A-C)

Dasybranchus lumbricoides: Monro, 1933: 1059; Hartman, 1947: 431-432, plate 6, figs. 3, 4; 1969: 373-374, figs. 1-3; Fauchald, 1972: 241; 1977: 52; Ewing, 1984a: 14-39-14-41, figs. 14-33, 14-34 a-f; Dean, 2001: 73, figs. 4-6; López et al., 1997: 66; 2002: 240.

Material

CM2S98 (1), BP1J96 (1), M6BF97 (1).
Additional material. AHF-POLY-1239 *Dasybranchus lumbricoides* Grube, 1878, California, Ten specimens.

Discussion

These specimens are smaller than the additional material or those described in the literature. The largest specimen from Coiba is broken in two fragments; the anterior one comprises the thorax plus 33 abdominal chaetigers and is 20 mm long and 3.5 mm wide at chaetiger 7 level; the other fragment is 30 mm long and comprises 108 chaetigers. Although this species was originally described from the Philippines, it has been reported many times from the Eastern Pacific (Hartman 1947, 1969; Fauchald 1972 & 1977; López et al., 1997 &

2002; Dean, 2001). The thorax is composed of peristomium and 13 biannulate chaetigers with capillary chaetae in both rami. The epithelium is areolated but not as conspicuously as in Californian specimens (additional material). The transition between thorax and abdomen is indistinct except for substitution of capillaries by hooded hooks. In one specimen (M6BF97) the last two thoracic chaetigers have enlarged neuropodial tori with a distinct pallid terminal projection that is also present in the anterior abdominal chaetigers, as in some specimens described by Ewing (1984a). The abdominal chaetigers bear hooded hooks in both rami forming an almost continuous band on the dorsum of the specimens, but the mid-dorsal gap is noticeable instead of being inconspicuous as described by Monro (1933). The hooded hooks are multidentate, with the main fang surmounted by a smaller tooth and a crown of little teeth not arranged in clear rows (Fig. 2 B). Hartman (1947, 1969) described the hooks with a strong and slightly curved main fang crowned by a single transverse row of three small teeth, whereas Ewing (1984a) described them bearing a main fang surmounted by up to 20 teeth in 3-4 crescentic rows. These different interpretations may be explained by the use of optic material with low resolution power, which does not permit the proper magnification for observing the microstructure of the hooks and the spatial arrangement of crown teeth. The hoods are made of fibrils regularly arranged in alternate rows near the opening and the apex of hood (Fig. 2 B, C). Retractile dendritic branchiae occur on some middle and posterior abdominal chaetigers and have less than 11 filaments, instead of 30 as reported by Hartman (1947) (Fig. 2 A). The last 30 chaetigers are strongly shortened and tapering to the pygidium, which is visible as a small papilla.

Type locality

Philippines.

Distribution

Atlantic Ocean (From North to Florida, Gulf of México, Cuba, Panamá) Pacific Ocean (from California to Galápagos, Philippines) (Ewing, 1984a; Ibarzabal, 1986; López et al., 2002).

Dasybranchus sp.
(Fig. 2 D-H)

Material

CM2S98 (1).

Description

Incomplete specimen; 15 mm long; 1.2 wide at chaetiger 7 level; 36 anterior segments. No pigmentation. Prostomium conical, without eyes; pharynx partially everted (Fig. 2 D). Thorax with peristomium and 13 biannulate chaetigers; with simple, smooth capillary chaetae in both rami. Transition from thorax to abdomen abrupt. Abdominal neuropodial tori not inflated superiorly. Abdomen with hooded hooks in both parapodial rami; forming large dorsolateral rows in notopodia, but not converging dorsally. Hooded hooks with main fang surmounted by a crown of little teeth, not arranged in clear rows, decreasing in size posteriorly (Fig. 2 E, G, H). Fibrillar hood with fibrils disposed irregularly (Fig. 2 E-H). Branchiae not observed.

Discussion

This specimen is similar to *D. lumbricoides* described above, but there are some characters that prevent an accurate identification. The dorsal gap between the notopodial rows of hooks is slightly wider and the neuropodial abdominal tori are not as well developed as in *D. lumbricoides*. Some differences in hood microstructure and teeth arrangement of hooks can be also mentioned. Whereas *D. lumbricoides* possesses hooks with the main fang surmounted by a smaller secondary tooth and a crown of little teeth, *Dasybranchus* sp. has the main fang surmounted by only a crown of little teeth; moreover, the hoods in *D. lumbricoides* are made of fibrils regularly arranged in alternate rows near the mouth whereas in *Dasybranchus* sp. they are disposed irregularly. Although usually overlooked, the importance that the microstructure of hoods could have in the identification of specimens at species level must be stood out. The rest of characters does not show major differences.

Genus *Heteromastus Eisig, 1887*
Heteromastus filiformis (Claparède, 1864)

Heteromastus filiformis: Fauvel, 1927: 150-152, fig. 53 a-i; Hartman, 1947: 427-428, pl. 52, figs. 1-4; 1969: 377, fig. 1-5; Day, 1967: 601, fig. 28.3 a-d; Hutchings & Rainer, 1984: 374-378; López et al., 2002: 240.

Material

M1CF97 (1), M2CF97 (4), M4BF97 (1), M5BF97 (1), M5CF97 (28), M6BF97 (16), M6CF97 (5).

Type locality

Port-Vendres, France. (Alexandria, Egypt, for neotypes)

Distribution

Cosmopolitan in cool and warm waters (Hutchings & Rainer, 1984).

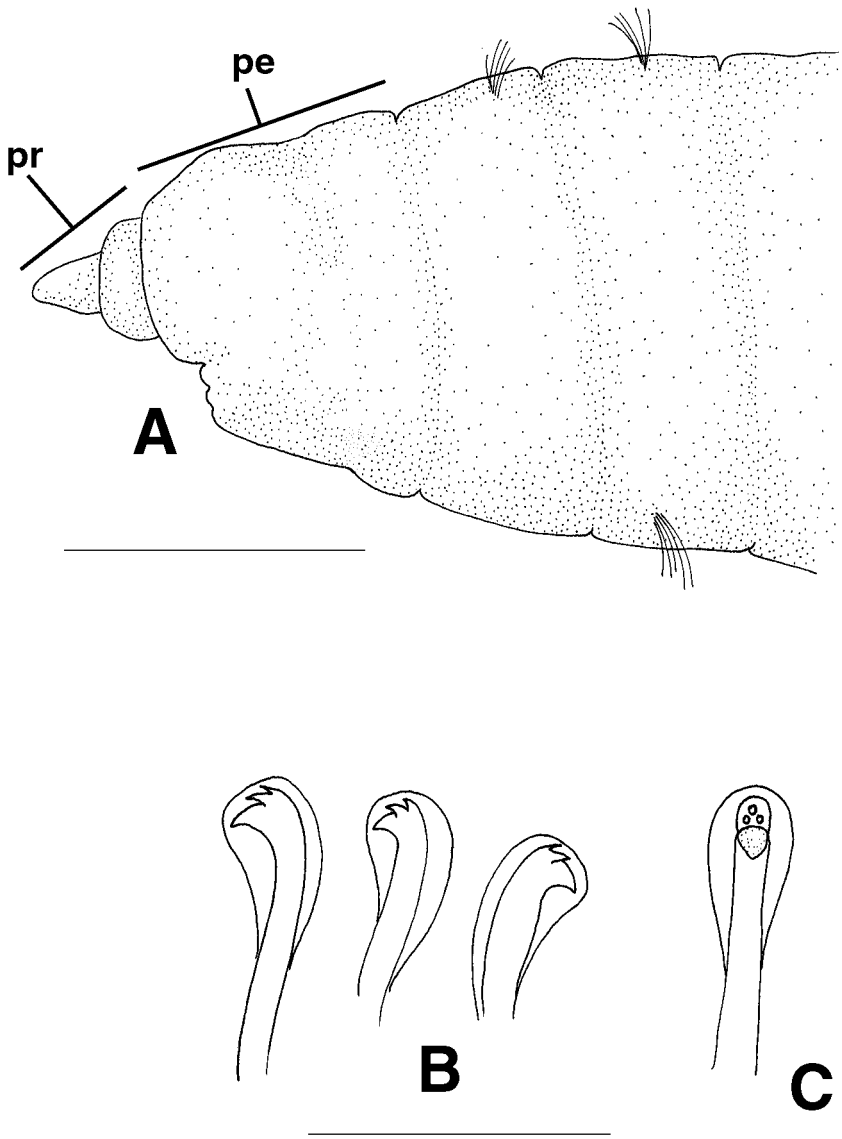

Figure 3. *Leiocapitella* cf**.** *glabra*. **A.** Anterior end, lateral view. **B.** Abdominal hooded hooks, lateral view. **C.** Abdominal hooded hook, frontal view. **pe:** peristomium. **pr:** prostomium. Scale. A: 0.375 mm; B, C: 20 μm.

Figure 3. *Leiocapitella* cf. *glabra*. **A.** Partie antérieure, vue latérale. **B.** Crochets encapuchonnés abdominaux, vue latérale. **C.** Crochet encapuchonné abdominal, vue frontale. **pe :** peristomium. **pr :** prostomium. Echelle. A: 0,375 mm; B, C: 20 μm.

Genus *Leiocapitella Hartman, 1947*
Leiocapitella cf. *glabra* Hartman, 1947
(Fig. 3)

Leiocapitella glabra Hartman, 1947: 438-439, pl. 54, figs. 1-3; Ewing, 1984a: 14.42, figs. 14.39-40; Hernández-Alcántara & Solís-Weiss, 1998: 709.

Material

AR1S98 (1).

Description

Specimen 15 mm long; 0.7 mm wide at chaetiger 5; 36 segments. Prostomium conical and biannulate, without eye-

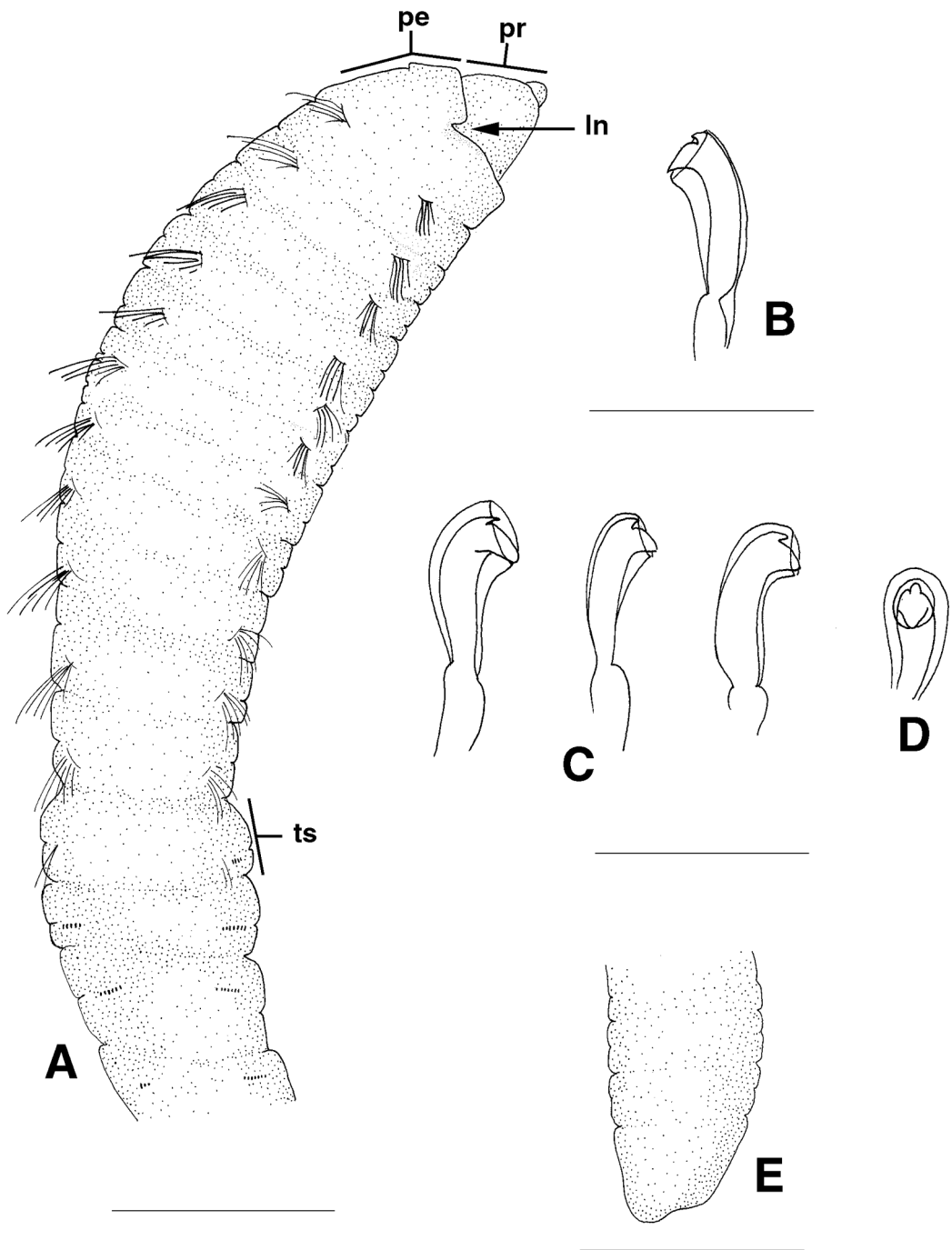

Figure 4. *Leiocapitella* sp. **A.** Anterior end, lateral view. **B.** Notopodial hooded hook, lateral view, abdominal chaetiger. **C.** Neuropodial hooded hooks, lateral view, abdominal chaetiger. **D.** The same, frontal view. **E.** Pygidium, lateral view. **ln:** lateral notch. **pe:** peristomium. **pr:** prostomium. **ts:** transitional segment (chaetiger 12). Scale. A: 0.375 mm; B-D: 20 μm; E: 0.375 mm.

Figure 4. *Leiocapitella* sp. **A.** Partie antérieure, vue latérale. **B.** Crochet encapuchonné notopodial, vue latérale, segment abdominal. **C.** Crochets encapuchonnés neuropodiaux, vue latérale, segment abdominal. **D.** Même, vue frontale. **E.** Pygidium, vue latérale. **ln :** échancrure latérale. **pe :** peristomium. **pr :** prostomium. **ts :** segment transitionnel (sétigère 12). Echelle. A: 0,375 mm; B-D: 20 μm; E: 0,375 mm.

spots. Nuchal organs at the posterior part of the prostomium. Thorax composed of achaetous peristomium, twice as long as the following segment (Fig. 3 A), and 12 chaetigers. Transition from thorax to abdomen only defined by change in the type of chaetae. Chaetiger 1 with capillary chaetae only on notopodium (fig. 3 A); chaetigers 2-11 with capillary chaetae on noto- and neuropodium; chaetiger 12 transitional with capillary chaetae and hooded hooks on notopodium and only hooded hooks on neuropodium. Hooded hooks on both rami from chaetiger 13 to the end of the body; with three denticles in a triangular arrangement surmounting main fang (fig. 3 B, C). Notopodial tori short and on a dorsal position; neuropodial tori longer and on a ventrolateral; both noto- and neuropodial tori increase in length towards posterior segments, becoming closer on flanks. Lateral organs as small papillae, on all segments, between noto- and neuropodia but closer to notopodia. Branchiae absent. Pygidium not seen.

Discussion

Leiocapitella glabra was originally described as having a thorax with 14 or 15 segments (Hartman, 1947), while the specimen from Coiba has 12 thoracic segments, the 13th being the transitional one. This difference could indicate that the specimen has not completed its development.

Type locality

Gulf of California and Cedros Island, Pacific.

Distribution

Atlantic Ocean (Massachusetts, Gulf of México). Pacific Ocean (South of California to México) (Hartman, 1947; Ewing, 1984a; Hernández-Alcántara & Solís-Weiss). First record for Panamá.

Leiocapitella sp.
(Fig. 4)

Material

AR1S98 (1).

Description

Specimen 5 mm long; 0.4 mm wide at chaetiger 5; 40 segments. Transition from thorax to abdomen defined by substitution of capillaries by hooks changes and widening of anterior abdominal chaetigers. Prostomium partially retractile, broad and conical, apparently with a distal process; nuchal organs at the posterior part of the prostomium; eyespots not seen (Fig. 4 A). All segments biannulate, short, gradually increasing in length. Thorax composed of an achaetous peristomium, with lateral notches and 11 thoracic chaetigers with five capillary chaetae on both noto- and neuropodia. Chaetiger 12 transitional; notopodium with two capillary chaetae; neuropodium with two capillary chaetae and four hooded hooks similar to abdominal ones (Fig. 4 A). Abdominal segments with 4-5 hooded hooks on notopodia (Fig. 4 B) and 7-9 on neuropodia (Fig. 4 C, D). Glandular tori slightly elevated, notopodial ones in dorsal position and neuropodial ones ventrolateral and longer; both with sickle shaped hooded hooks bearing only one distal tooth over main fang and one distinct incision in the manubrium (Fig. 4 B-D). Lateral organs as a small papillae occurring in some neuropodial segments, between notopodia and neuropodia but closer to neuropodia. Branchiae absent. Pygidium conical (Fig. 4 E).

Discussion

The genus *Leiocapitella* is characterized by an achaetous peristomium; the first chaetiger with capillary chaetae in notopodia only or in both rami; 13-16 thoracic chaetigers with capillary chaetae in both rami, including 1-2 transitional segments bearing capillary chaetae only, hooded hooks only or mixed chaetal fascicles; abdominal segments with only hooded hooks in both rami; and branchiae absent (Hartman, 1947; Ewing, 1984a). The studied specimen has capillary chaetae on both rami of chaetiger 1 as *Leiocapitella* sp. A Ewing, 1984, but there is a clear difference in the shape of the hooded hooks, being multidentate in *Leiocapitella* sp. A and unidentate in the specimen from Coiba. Besides in our specimen only the chaetiger 12 is transitional, whereas in *Leiocapitella* sp. A there are two transitional segments, chaetigers 13 and 14. The specimen does not fit the description of any known species. However, this small single individual may be a juvenile stage. To make an accurate identification of this taxon, more material is necessary.

Genus *Mastobranchus* Eisig, 1887
Mastobranchus variabilis Ewing, 1984

Mastobranchus variabilis Ewing, 1984b: 793-796, fig. 1 a-d; Hernández-Alcantara & Solis-Weiss, 1998: 710; Dean, 2001: 76, figs. 16-18; López et al., 2002: 240.

Material

M4AF97 (2), M5AF97 (1).
Additional material. AHF-POLY-1369, *Mastobranchus variabilis* Ewing, 1984 (3 paratypes), off Florida.

Type locality

Florida (U.S.A.).

Distribution

Western North Atlantic (Alabama to Gulf of México).

Eastern Pacific (from Gulf of California to Panamá).

Genus *Notomastus* Sars, 1850
Notomastus cf. *hemipodus* Hartman, 1945

Notomastus (*Clistomastus*) *hemipodus*: Hartman, 1947: 424, pl. 48, figs. 1-5; 1969: 393, figs. 1-5;
Notomastus hemipodus: Ewing, 1984a: 14.28, fig. 24 a-d; Dean, 2001: 80, figs. 24-26; López et al., 2002: 240.

Material

M4BF97 (7), M4CF97 (2), M5AF97 (2), M5CF97 (2), M6AF97 (1), M6BF97 (1).

Discussion

All the specimens examined are small and presumably juvenile stages; this renders the identification dubious.

Type locality

Beaufort, North Carolina (U.S.A.).

Distribution

Atlantic coast of North America (from North Carolina to Gulf of México). East Pacific (California, Panamá).

Notomastus tenuis Moore, 1909

Notomastus (Clistomastus) tenuis: Hartman, 1947: 420, pl. 47, figs. 1-5; 1969: 397, figs. 1-5.
Notomastus tenuis: López et al., 2002: 240.

Material examined

M4AF97 (1).

Type locality

San Diego, California (U.S.A.).

Distribution

East Pacific, from Canada to Panamá. The record from Gulf of México needs confirmation (Ewing, 1984a).

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