

Syllinae (Syllidae, Annelida, Polychaeta) from Chafarinas Islands (Alborán Sea, W Mediterranean)

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Syllinae (Syllidae, Annelida, Polychaeta) from Chafarinas Islands (Alborán Sea, W Mediterranean).— A study on the benthic invertebrate communities of the Chafarinas Islands was carried out recently, paying special attention to some groups, among them Polychaeta. In this work, the results of the study of subfamily Syllinae (Annelida, Polychaeta, Syllidae) are given, citing 34 species, three of which are described: *Haplosyllis chamaeleon* Laubier, 1960, *Syllis compacta* Gravier, 1900, and *Syllis pectinans* Haswell, 1920.

Key words: Polychaeta, Syllidae, Western Mediterranean.

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Introduction

The Chafarinas Islands are a small Spanish archipelago located near the Mediterranean coast of Morocco, between 35°10'33''-35°11'09''N and 2°24'57''-2°26'32''W. It is composed by three small

islands (from West to East: Congreso Island, Isabel II Island, and Rey Francisco Island) of volcanic rock in a bow disposition (fig. 1). The North-western coast of Congreso, the northern coasts of Isabel II, and the eastern coast of Rey Francisco are exposed and formed by high cliffs, reach-

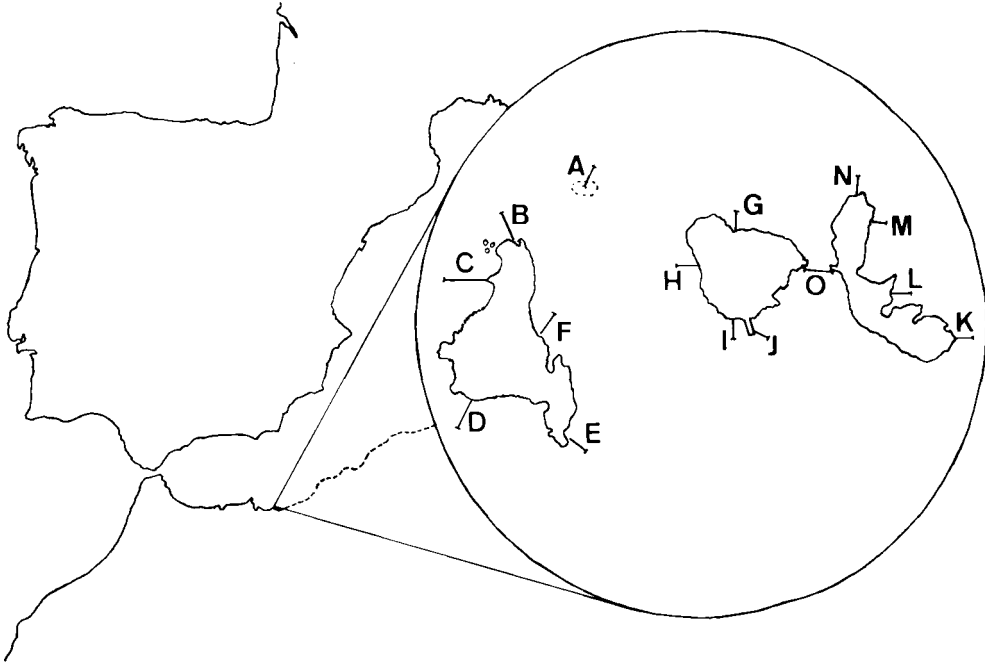


Fig.1. Map of the Chafarinas Islands showing sampling stations.
 Mapa de las islas Chafarinas mostrando las estaciones de muestreo.

ing great depth (up to 30 m) very near de coast with circalitoral biocoenosis, where a muddy bottom can be found. The inner coasts of the bow are shallower, reaching only 12 m deep, with a relict *Posidonia oceanica* meadow. Between Congreso and Isabel II, there is a reef, with the tip at 3 m deep and the exterior basis at 40 m deep. No works to date deal exclusively with their polychaete fauna other than that of LÓPEZ (1995).

From February 1991 to July 1993, a number of sampling expeditions were made by research staff from the Universidad de Alcalá de Henares, Universidad Autónoma de Madrid, and Universidad de Valencia. The objective was the study of benthic marine invertebrates. This is the first work of the series on polychaetous annelids dealing with the subfamily Syllinae (Syllidae, Polychaeta).

Material and Methods

All the samples were taken from hard substrata and collected by scuba diving. Each sample is characterized by a capital letter (that shows the sampling station) and, separated by a bar, a number (samples of standard area of 25 x 25 cm) or another capital letter (qualitative samples of different area).

The samples studied were:

Station A (35°11'10"N-2°26'03"W):
 A/1, 19 IX 92, *Udotea petiolata*, 25 m;
 A/2, 18 IX 92, *Cystoseira spinosa*, 15 m;
 A/A, 21 VII 93, *Eunicella verrucosa*, 20 m;
 A/B, 21 VII 93, *Pentapora fascialis*, 25 m.

Station B (35°11'01"N-2°26'16"W): B/1,
 10 IX 91, *Cystoseira spinosa*, 12 m; B/2,
 10 IX 91, *Peyssonnelia squamaria*, 6 m;
 B/A, 10 IX 91, *Aglaophenia* sp., 15 m;
 B/B, 15 VII 91, under stones, 3-4 m.

Station C (35°10'56"N-2°26'21"W): C/1, 20 IX 92, *Cystoseira spinosa*, 25 m; C/2, 20 IX 92, *Cystoseira spinosa*, 20 m; C/3, 20 IX 92, *Halopteris scoparia*, 20 m; C/4, 20 IX 92, *Corallina elongata* covered with *Asparagopsis armata*, 1 m.

Station D (35°10'38"N-2°26'06"W): D/1, 16 IX 92, *Halopteris scoparia*, 18 m; D/2, 16 IX 92, *Halopteris scoparia*, 7 m; D/3, 16 IX 92, *Cystoseira tamariscifolia*, 0 m; D/A, 16 IX 92, under stones, 3-20 m.

Station E (35°10'33"N-2°26'11"W): E/1, 9 IX 92, *Halopteris scoparia*, 1 m.

Station F (35°11'05"N-2°25'43"W): F/1, 21 II 91, mixed facies of photophilic algae, 8 m; F/2, 21 II 91, *Udotea petiolata*, 6 m; F/A, 21 II 91, concretions of calcareous algae, 12 m.

Station G (35°11'03"N-2°25'36"W): G/1, 15 IX 92, *Halopteris filicina*, 25 m; G/2, 15 IX 92, *Halopteris scoparia*, 10 m; G/3, 15 IX 92, *Corallina elongata*, 0.5 m; G/A, 15 IX 92, hydroids, 20 m; G/B, 15 IX 92, *Cladocora caespitosa*, 15 m; G/C, 15 IX 92, tube of *Cerianthus* sp., 15 m.

Station H (35°10'59"N-2°25'43"W): H/1, 10 IX 92, *Peyssonnelia squamaria*, 8 m; H/2, 10 IX 92, *Cystoseira tamariscifolia*, 0.5 m; H/A, 10 IX 92, under stones, 9-18 m; H/B, 10 IX 91, *Ircinia* sp., 3 m; H/C, 10 IX 92, concretions of calcareous algae on mud, 20 m; H/D, 10 IX 92, *Cladocora caespitosa*, 6 m; H/E, 22 IX 92, under stones, 3-6 m.

Station I (35°10'50"N-2°25'36"W): I/1, 8 IX 91, *Laurencia obtusa* covered with *Asparagopsis armata*, 0.5 m.

Station J (35°10'48"N-2°25'36"W): J/1, 18 II 91, *Posidonia oceanica* rhizomes, 8 m; J/1', 18 II 91, *Posidonia oceanica* leaves, 8 m; J/2, 22 II 91, *Corallina elongata*, 0 m; J/3, 22 II 91, *Cystoseira tamariscifolia*, 0 m; J/A, 11 IX 91, *Astroides calycularis* and algae, 3 m; J/B, 18 IX 92, *Pinna nobilis*, 8 m.

Station K (35°10'47"N-2°24'57"W): K/1, 12 IX 91, *Cystoseira spinosa*, 12 m; K/2, 12 IX 91, *Laurencia obtusa* covered with *Asparagopsis armata*, 0.5 m; K/3, 12 IX 91, *Corallina elongata*, 0 m.

Station L (35°10'53"N-2°25'09"W): L/1, 18 II 91, *Halopteris scoparia*, 6 m; L/2,

8 IX 92, *Laurencia obtusa* covered with *Asparagopsis armata*, 0.5 m; L/A, 18 II 91, concretions of calcareous algae, 22 m; L/B, 19 II 91, hydroids, 20 m; L/C, 19 II 91, hydroids, 7 m; L/D, 19 II 91, *Cladocora caespitosa*, 6 m.

Station M (35°11'04"N-2°25'11"W): M/1, 17 VII 93, *Laurencia obtusa*, 0.5 m.

Station N (35°11'08"N-2°25'14"W): N/1, 13 IX 92, *Cystoseira spinosa*, 12 m; N/2, 14 IX 92, *Halopteris scoparia*, 6 m; N/A, 13 IX 92, sponges, 25 m; N/B, 14 IX 92, *Paramuricea clavata*, 23 m.

Station O (35°10'57"N-2°25'21"W): O/1, 20 IX 92, *Udotea petiolata*, 3 m; O/A, 9 IX 91, under stones, 3-6 m; O/B, 9 IX 91, *Astroides calycularis* and algae, 1 m; O/C, 20 IX 92, under stones, 3 m; O/D, 16 VII 93, under stones, 3-6 m.

Some samples were taken out of sampling stations. All of them are of substrates of faunistic importance and sub-sampled in stations:

X/A, 8 IX 92, *Mesophyllum lichenoides* on a *Posidonia oceanica* bed, 6 m (35°10'44"N-2°25'06"W); X/B, 17 IX 92, concretions of *Lithophyllum tortuosum*, 0 m (35°11'02"N-2°25'27"W); X/C, 18 IX 92, mussels (*Perna picta*), 0 m (35°11'07"N-2°25'16"W); X/D, 22 VII 93, epibionthic fauna of *Ellisella paraplexauroides*, 24 m (35°10'46"N-2°26'34"W); X/E, 19 VII 93, under stones, 12 m (35°10'49"N-2°24'57"W).

Results

A total of 5,896 specimens were identified, belonging to 34 species of the subfamily Syllinae. For each species, the samples where specimens were collected and their number (between parenthesis). In described species, all measurements refer to the largest collected specimen and do not include appendix (cirri, antennae, parapodial lobes,...); all widths were measured at proventricular level. As descriptions of all species can be found in other works (DAY, 1967; WESTHEIDE, 1974; CAMPOY, 1982; SAN MARTÍN 1984A, 1991, 1992; SARDA, 1984; UEBELACKER, 1984; ALÓS,

1988; NÚÑEZ et al., 1992), only the more interesting species are described here, including a list of literature and known world distribution.

Family Syllidae Grube, 1850

Subfamily Syllinae Grube, 1850

Genus *Branchiosyllis* Ehlers, 1877

Branchiosyllis exilis (Gravier, 1900)

Material examined: F/1 (1).

Genus *Eurysyllis* Ehlers, 1864

Eurysyllis tuberculata Ehlers, 1864

Material examined: A/2 (2), B/1 (1), C/1 (1), C/3 (5), C/4 (2), D/1 (4), F/1 (18), F/2 (6), F/A (2), G/1 (1), G/2 (2), G/3 (5), G/B (4), H/2 (1), I/1 (18), J/1 (6), J/1' (2), J/3 (3), J/A (3), K/1 (1), L/1 (2), L/2 (24), L/A (1), L/C (3), L/D (1), M/1 (5), N/1 (1), O/1 (1), X/A (12).

Genus *Haplosyllis* Langerhans, 1879

Haplosyllis chamaeleon Laubier, 1960 nov. comb. (fig. 2)

Haplosyllis depressa chamaeleon Laubier, 1960.

LAUBIER (1960): 75, figs. 1-2; BARATECH & SAN MARTÍN

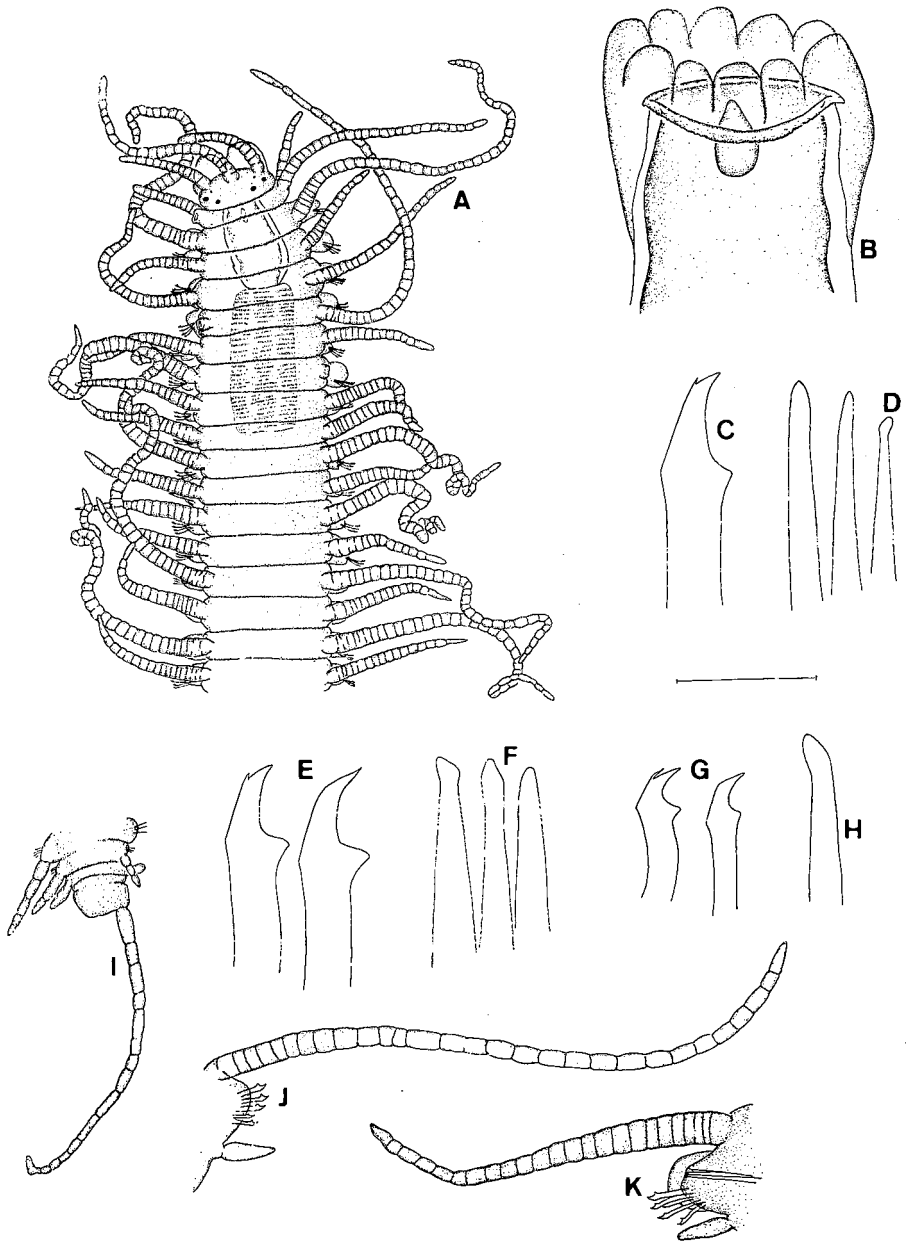
(1987): 45, figs. 8-9; ALÓS (1988): 359, figs. 71-72.

Material examined: N/B (74).

Length 14 mm, width 0.51 mm, 87 setigers. Body long and slender, very fragile, fragmented in most of the specimens; vio-

let marks across the dorsum, of variable shape and area, from only one mark covering the whole dorsum of the segment to two rows of coloured spots (one on the anterior end of the segment and the other in the middle and extending by dorsal cirri). Prostomium (fig. 2A) oval, about twice as wide as long; two pairs of eyes in very open trapezoidal arrangement, a pair of anterior eyespots; palps (fig. 2A) rather broad, united (without fusing) in proximal half; median antenna (fig. 2A) inserted in the middle of prostomium, twice the length of lateral antennae, slightly thinner than dorsal cirri, with about 19 articles (those closest to base of antennae and dorsal cirri are poorly defined); lateral antennae (fig. 2A) inserted near anterior margin of prostomium, about 11/2 times longer than prostomium and palps together, with 12-13 articles. Peristomium covered on posterior half by first setiger (fig. 2A); dorsal tentacular cirri about three times longer than ventral cirri, with 28 articles; ventral tentacular cirri similar in length to lateral antennae, ten articles. Anterior and median-anterior parapodial lobes (fig. 2K) rather long, provided with a well developed and rounded presetal lip; posterior lobes (fig. 2J) short, weakly protruding from body wall. Dorsal cirri alternating short (fig. 2K), slightly longer than body width and 12-15 articles, and long (fig. 2J), two or three times longer than the former and with 29-32 articles; ventral cirri similar in length to parapodial lobe. Only simple setae, with a triangular swelling near the tip, unidentate or bidentate; anterior setigers with three-

Fig. 2. *Haplosyllis chamaeleon* Laubier, 1960: A. Anterior end, dorsal view; B. Anterior end of pharynx; C. Seta, anterior parapodium; D. Acicula, same parapodium; E. Setae, median parapodium; F. Acicula, same parapodium; G. Setae, posterior parapodium; H. Aciculum, same parapodium; I. Posterior end, dorsal view; J. Median-posterior parapodial lobe with long dorsal cirrus; K. Anterior parapodial lobe with short dorsal cirrus. (Scales A: 0.47 mm; B, J, K: 0.12 mm; C-H: 25 µm; I: 0.37 mm.)



Haplosyllis chamaeleon Laubier, 1960: A. Extremo anterior, vista dorsal; B. Extremo anterior de la faringe; C. Seda, parapodio anterior; D. Acícula, parapodio anterior; E. Sedas, parapodio medio; F. Acícula, parapodio medio; G. Sedas, parapodio posterior; H. Acículas, parapodio posterior; I. Extremo posterior, vista dorsal; J. Lóbulo parapodial medio-posterior con cirros dorsales largos; K. Lóbulo parapodial anterior con cirros dorsales cortos. (Escala A: 0.47 mm; B, J, K: 0.12 mm; C-H: 25 μ m; I: 0.37 mm.)

four setae (fig. 2C) and three acicula, one with oblique and subdistally knobbed tip and the other, straight (fig. 2D); median setigers with four-five similar setae (fig. 2E) and three acicula of similar shape but thicker (fig. 2F); posterior parapodia with three setae (fig. 2G), similar in shape to former but thinner, and one acicula (fig. 2H) with oblique and subdistally knobbed tip. Pygidium (fig. 2I) squared, with two long anal cirri provided with 16 articles of variable length. Pharynx (fig. 2A) short and rather broad, extending throughout 3 1/2 segments; distal end provided with a small, piriform dorsal tooth and a crown of ten soft papillae (fig. 2B). Proventriculum (fig. 2A) cylindrical, extending throughout 6 1/2 setigers, with 28 muscle cell rows.

Remarks: there are enough reasons to raise *Haplosyllis depressa chamaeleon* Laubier, 1960 to species status, with the name *H. chamaeleon* Laubier, 1960. *H. depressa* Augener, 1913 (AUGENER, 1913), from Australia, has similar setae but there are significant differences of great importance. It has much shorter dorsal cirri, a very different prostomium with anterior notch, a very flattened body, and a pharynx provided with a trepan but not with dorsal tooth. All these features made *H. depressa* to be transferred to genus *Trypanosyllis* Claparède, 1868 by IMAJIMA (1966). FAUVEL (1933) described *H. depressa* var. *dollfusi*, from Red Sea; the description is incomplete, without drawing of body, but the shape of setae and dorsal cirri are more similar to those of *T. depressa* than to those of *H. chamaeleon*.

World distribution: Western Mediterranean, associated to *Paramuricea clavata*.

Haplosyllis spongicola (Grube, 1855)

Material examined: A/2 (1), B/1(1), B/2 (1), C/2 (1), C/3 (3), C/4 (19), E/1 (1), F/1 (1), F/2 (2), F/A (2), G/2 (1), G/3 (2), G/A (1), G/B (8), H/1 (5), H/D (12), I/1 (14), J/1 (5), J/2 (3), J/A (28), K/1 (2), K/2 (24), L/2 (26), L/A (7), N/1 (1), O/1 (8), X/A (40), X/C (18).

Genus *Opisthosyllis* Langerhans, 1879

Opisthosyllis brunnea Langerhans, 1879

Material examined: J/2 (1).

Genus *Pseudosyllides* Augener, 1927

Pseudosyllides balearica San Martín, 1982

Material examined: H/D (1).

Genus *Pseudosyllis* Grube, 1863

Pseudosyllis brevipennis Grube, 1863

Material examined: C/3 (4).

Genus *Syllis* Savigny in Lamarck, 1818

Syllis alternata Moore, 1908

Material examined: A/A (1), G/B (6).

Syllis amica Quatrefages, 1865

Material examined: X/B (3).

Syllis armillaris (Müller, 1771)

Material examined: A/1 (1), C/4 (3), E/1 (1), F/A (1), G/A (1), G/B (3), H/2 (7), I/1 (48), J/3 (1), K/3 (3), L/2 (3).

Syllis beneliahui (Campoy & Alquézar, 1982)

Material examined: H/D (1), O/1 (1).

Syllis compacta Gravier, 1900 (fig. 3)

Syllis (*Typosyllis*) *compacta* Gravier, 1900.

GRAVIER (1900): 165, text-fig. 35, pl. 9, fig. 11.

Typosyllis golfonovoensis Hartmann-Schröder,

1962. HARTMANN-SCHRÖDER (1962): 87, Abb. 60-62.

Syllis golfonovoensis. SAN MARTÍN (1984a): 395, lám. 104-105.

Material examined: A/1 (1), C/3 (2), C/4 (2), E/1 (16), G/1 (1), H/1 (1), H/2 (5), H/D (1), I/1 (138), J/A (1), K/2 (1), K/3 (32), L/2 (1), N/2 (1), O/1 (4). Type series of *Syllis compacta*.

Length 16 mm; 0.72 mm width, 88 setigers. Body cylindrical with well defined segments, without body markings. Prostomium (fig. 3A) oval, nearly twice as wide as

long; two pairs of eyes in open trapezoidal arrangement; median antenna (fig. 3A) inserted between posterior pair of eyes, twice the length of lateral antenna, with 28-31 articles; lateral antennae (fig. 3A) inserted near anterior margin of prostomium, with 15 articles; palps (fig. 3A) triangular, longer than the width of prostomium, united in the proximal end. Peristomium (fig. 3A) covered totally by the dorsal part of the first setiger, even reaching the posterior pair of eyes on prostomium; dorsal tentacular cirri 1 1/2 times longer than ventral cirri; 26 and 14-15 articles respectively. First pair of dorsal cirri (fig. 3A) very long, with 31-34 articles; following alternating long (figs. 3A, 3G), similar in length to body width and 24-28 articles, and short (figs. 3A, 3F), with 15-20 articles. Antennae, dorsal and tentacular cirri with articles usually rectangular, width greater than length, with rounded and very well defined margins; antenophores and cirrophores conspicuous, larger than basal articles of their respective appendix (figs. 3A, 3F, 3G). Ventral cirri (figs. 3F, 3G) digitiform, slightly shorter than parapodial lobe. Parapodial lobe with a dorsal papilla and eight or nine compound setae (up to ten in anterior); blades quite short and broad (not dorsalmost of anterior parapodia which are slightly elongated), with well developed serration, bidentate with secondary tooth conspicuous but smaller than principal; little gradation in length of blades; length of dorsalmost and ventralmost blades 30 μm and 18 μm in anterior parapodia (fig. 3C), 23 μm and 19 μm in median setigers (fig. 3D), and 20 μm and 15 μm in posterior parapodia (fig. 3E). Dorsal simple setae similar in width to shaft of compound setae, with bifid tip and fine subdistal serration (fig. 3K), appearing near posterior end of proventriculum level; ventral simple setae only in most posterior setigers, bidentate, secondary tooth smaller than principal (fig. 3L). Acicula of anterior parapodia (fig. 3H) numbering 3-4, one with oblique tip, the others are straight; two acicula in median parapodia (fig. 3I), one straight and the other with tip subdistally knobbed and pro-

vided with terminal mucro; posterior parapodia with solitary aciculum provided with subdistally knobbed tip (fig. 3J). Pygidium (fig. 3M) broad, provided with a small terminal filament and two long anal cirri with up to 39 articles. Pharynx long and narrow, extending throughout eight segments (fig. 3A), provided with a conical dorsal tooth near anterior end, with a double crown of papillae surrounding anterior margin. Proventriculum (fig. 3A) somewhat longer than pharynx, extending throughout ten segments, with 37 muscle cell rows.

Remarks: the type series of *Syllis compacta* Gravier, 1900 has been examined and the specimens are very similar in body shape, pharynx (also with a double crown of papillae), parapodial lobes, and cirrophores to those from Chafarinas. The compound setae are very similar, but, in type series, specimens show little bigger secondary teeth (as also happens in some specimens from Chafarinas) and slightly elongated blades on anterior parapodia. The original description of *S. golfonovoensis* (Hartmann-Schröder, 1962) (HARTMANN-SCHRÖDER, 1962) is very similar; both species could be considered as synonymous. Material from Western Mediterranean, reported by SAN MARTÍN (1984a) as *S. golfonovoensis* belongs, undoubtedly, to *S. compacta*.

World distribution: Western Mediterranean, Red Sea, South Atlantic (coast of Argentine).

Syllis columbretensis (Campoy, 1982)

Material examined: A/1 (1), A/2 (8), B/1 (3), B/2 (3), C/3 (2), C/4 (19), D/3 (6), E/1 (5), F/1 (4), F/2 (2), F/A (1), G/2 (2), G/3 (64), G/B (4), H/1 (1), H/2 (20), H/D (1), I/1 (12), J/2 (3), J/3 (4), J/A (4), K/2 (3), K/3 (7), L/2 (41), L/A (2), L/C (1), M/1 (4), N/2 (2), O/1 (6), O/B (1), X/A (4), X/C (3), X/D (1).

Syllis corallicola Verrill, 1900

Material examined: A/2 (1), C/4 (1), E/1 (1), F/1 (3), F/A (1), G/2 (2), G/3 (1), G/B (8), H/2 (1), H/D (2), I/1 (6), J/1 (3), J/A (5), K/3 (1), L/2 (5), N/1 (5), O/1 (8), X/A (26).

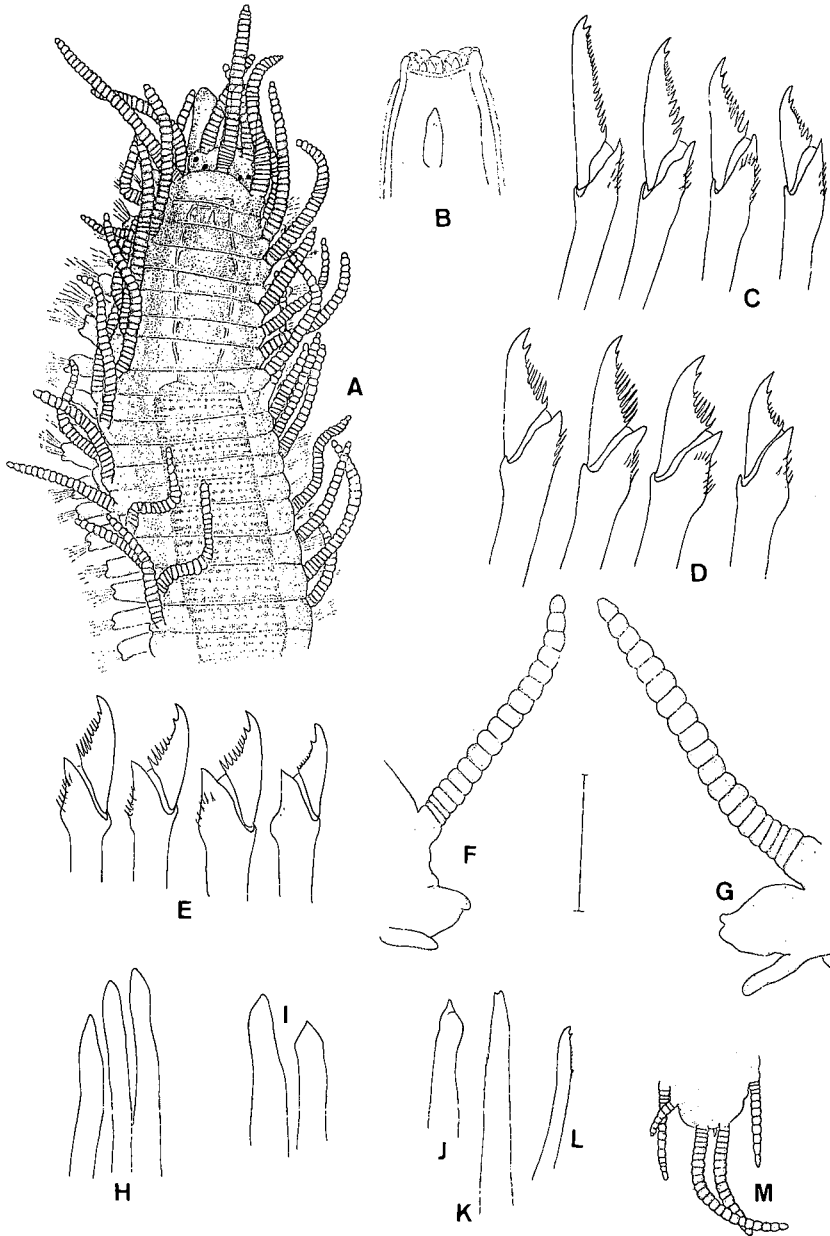


Fig. 3. *Syllis compacta* Gravier, 1900: A. Anterior end, dorsal view; B. Anterior end of pharynx; C. Compound setae, anterior parapodium; D. Compound setae, median parapodium; E. Compound setae, posterior parapodium; F. Median parapodial lobe with short dorsal cirrus; G. Median parapodial lobe with long dorsal cirrus; H. Acicula, anterior parapodium; I. Acicula, median parapodium; J. Aciculum, posterior parapodium; K. Dorsal simple seta; L. Ventral simple seta; M. Posterior end, dorsal view. (Scales A: 4.38 mm; B, M: 0.27 mm; C-E, H-L: 24 μ m; F-G: 0.15 mm.)

Syllis ferrani Alós & San Martín, 1987
Material examined: C/2 (1), F/A (1), G/B (26), H/B (1), H/C (1), H/D (1), X/A (1).

Syllis garciai (Campoy, 1982)
Material examined: E/1 (2), G/B (1), J/1 (17), J/1' (1), X/A (3).

Syllis gerlachi (Hartmann-Schröder, 1960)
Material examined: C/2 (1), X/A (1).

Syllis gracilis Grube, 1840
Material examined: A/1 (2), A/2 (1), A/B (1), B/1 (1), C/3 (1), C/4 (17), D/3 (9), E/1 (4), F/A (1), G/2 (3), G/3 (41), G/A (2), G/B (26), H/1 (1), H/2 (15), H/D (12), I/1 (22), J/1 (2), J/3 (1), J/A (8), K/3 (15), L/1 (2), L/2 (17), L/A (3), L/B (1), M/1 (6), N/1 (17), N/2 (3), N/B (1), O/1 (17), X/A (5), X/C (56), X/D (1).

Syllis hyalina Grube, 1863
Material examined: A/B (2), B/A (1), F/1 (2), F/A (2), G/A (1), G/B (3), I/1 (1), J/1 (2), J/A (2), K/3 (4), L/A (1), L/B (1), N/1 (1), N/B (1), X/A (33), X/B (1).

Syllis krohni Ehlers, 1864
Material examined: A/1 (1), A/2 (1), B/1 (1), B/2 (2), B/A (1), F/2 (1), G/1 (1), G/A (1), G/B (5), J/A (3), K/1 (2), K/2 (2), N/1 (1), N/2 (1), O/1 (3), X/A (3), X/D (1).

Syllis lutea (Hartmann-Schröder, 1960)
Material examined: A/1 (1).

Syllis pectinans Haswell, 1920 (fig. 4)
Typosyllis pectinans Haswell, 1920. HASWELL (1920): 93, pl. X, figs. 3-6.

Typosyllis pectinans. SAN MARTÍN et al. (1985): 33, figs. 7-8.

Opisthosyllis sp. CAMPOY & ALQUÉZAR, 1982. CAMPOY & ALQUÉZAR (1982): 127.

? *Opisthosyllis brunnea* (non Langerhans, 1879). IMAJIMA (1966): 230, text-fig. 42.

Material examined: X/B (5). Type series of *Syllis pectinans*.

Length 6 mm, width 0.45 mm, 37 setigers. Two dark transversal bands (on anterior and posterior margins) across the dorsum of anterior segments (fig. 4A). Prostomium (fig. 4A) oval, about 11/2 wider than long; palps (fig. 4A) rounded and slightly longer than prostomium; two pairs of eyes in very open trapezoidal arrangement; a pair of small anterior eyespots; median antenna originating near middle of prostomium (fig. 4A), slightly forward anterior pair of eyes, longer than prostomium and palps together, with up to 17 articles; lateral antennae (fig. 4A) inserted in anterior margin of prostomium, similar in length to median antenna, with 13-9 articles. Peristomium (fig. 4A) shorter than following segments; dorsal tentacular cirri similar in length to long dorsal cirri, 20 articles; ventral tentacular cirri somewhat shorter, 13-15 articles. Dorsal cirri moniliform; first pair longer (with 22 articles); following alternating long (with 17-18 articles) and short (with 10-12 articles). Ventral cirri digitiform, slightly longer than parapodial lobe. All parapodia provided with 10-11 setae, excepting most posterior, with fewer; unidentate blades (rarely with a well developed subdistal spine) and provided with short and straight serration; slight dorsoventral gradation in

Syllis compacta Gravier, 1900: A. Extremo anterior, vista dorsal; B. Extremo anterior de la faringe; C. Sedas compuestas, parapodio anterior; D. Sedas compuestas, parapodio medio; E. Sedas compuestas, parapodio posterior; F. Lóbulo parapodial medio con cirros dorsales cortos; G. Lóbulo parapodial medio con cirros dorsales largos; H. Acícula, parapodio anterior; I. Acícula, parapodio medio; J. Acículas, parapodio posterior; K. Seda simple dorsal; L. Seda simple ventral; M. Extremo posterior, vista dorsal. (Escala A: 4.38 mm; B, M: 0.27 mm; C-E, H-L: 24 µm; F-G: 0,15 mm.)

length of blades; length of dorsalmost and ventralmost blades respectively 24 μm and 15 μm on anterior parapodia (fig. 4B), 24 μm and 16 μm on median-anterior parapodia (fig. 4C), and 21 μm and 12 μm on median-posterior (fig. 4D). Solitary dorsal simple setae from setiger 25, thin and straight, with truncated and slightly engrossed tip (fig. 4G); solitary ventral simple seta only on most posterior setigers, with fine serration, bifid tip, and small secondary tooth (fig. 4H). First two setigers with three acicula per parapodium (fig. 4E) thinner than compound seta shafts, with rounded tip; from setiger 2 to setiger 34, two acicula (fig. 4F) per parapodium, one with rounded slightly hollow tip and the other with oblique subdistally engrossed tip, becoming thicker in posterior segments; from setiger 35 backwards, only one acicula per parapodium, with rounded and hollow tip. Pygidium squared, without terminal filament, with two anal cirri similar in length to dorsal cirri, with 17-18 articles. Pharynx (fig. 4A) longer than proventriculum, extending throughout five segments, with a thick tooth in a backward position but in the anterior third of length. Proventriculum (fig. 4A) cylindrical and somewhat short, extending throughout three setiger, 32 muscle cell rows.

Remarks: the first record of this species for Iberian coasts (CAMPOY & ALQUÉZAR, 1982) was as *Opisthosyllis* sp. due to the backward position of pharyngeal tooth. This tooth is not so backward as in true *Opisthosyllis* Langerhans, 1879 species and it resembles some species of *Syllis* Savigny in Lamarck, 1818 such as *S. prolifera* Krohn, 1852. Comparing specimens of the Chafa-

rinas Islands and type series of *S. pectinans* Haswell, 1920, some small differences can be observed. Haswell's material shows longer dorsal cirri, stronger serration in blades, and thicker simple setae with more acute tip. However, all specimens from the Chafarinas are juvenile which could cause these small differences. IMAJIMA (1966) cited from Japan *Opisthosyllis brunnea* Langerhans, 1879, describing the tooth located slightly forward of the median line of pharynx. As this description is very similar to type series of *S. pectinans*, as stated by SAN MARTÍN et al. (1985), the specimens collected by Imajima could belong to *S. pectinans* (of Pacific distribution) instead of to *O. brunnea* (an Atlantic species).

Syllis prolifera Krohn, 1852

Material examined: A/1 (24), A/2 (67), B/1 (17), B/2 (3), B/A (4), C/2 (18), C/3 (35), C/4 (177), D/2 (7), D/3 (25), E/1 (184), F/1 (83), F/2 (8), F/A (3), G/1 (38), G/2 (32), G/3 (120), G/B (2), H/1 (21), H/2 (184), H/D (4), I/1 (497), J/2 (286), J/3 (387), J/A (12), J/B (1), K/1 (11), K/2 (243), K/3 (853), L/1 (16), L/2 (202), L/A (20), L/C (3), L/D (1), M/1 (15), N/1 (28), N/2 (33), O/1 (85), X/A (42), X/C (1), X/D (1).

Syllis rosea (Langerhans, 1879)

Material examined: X/A (2), X/B (40).

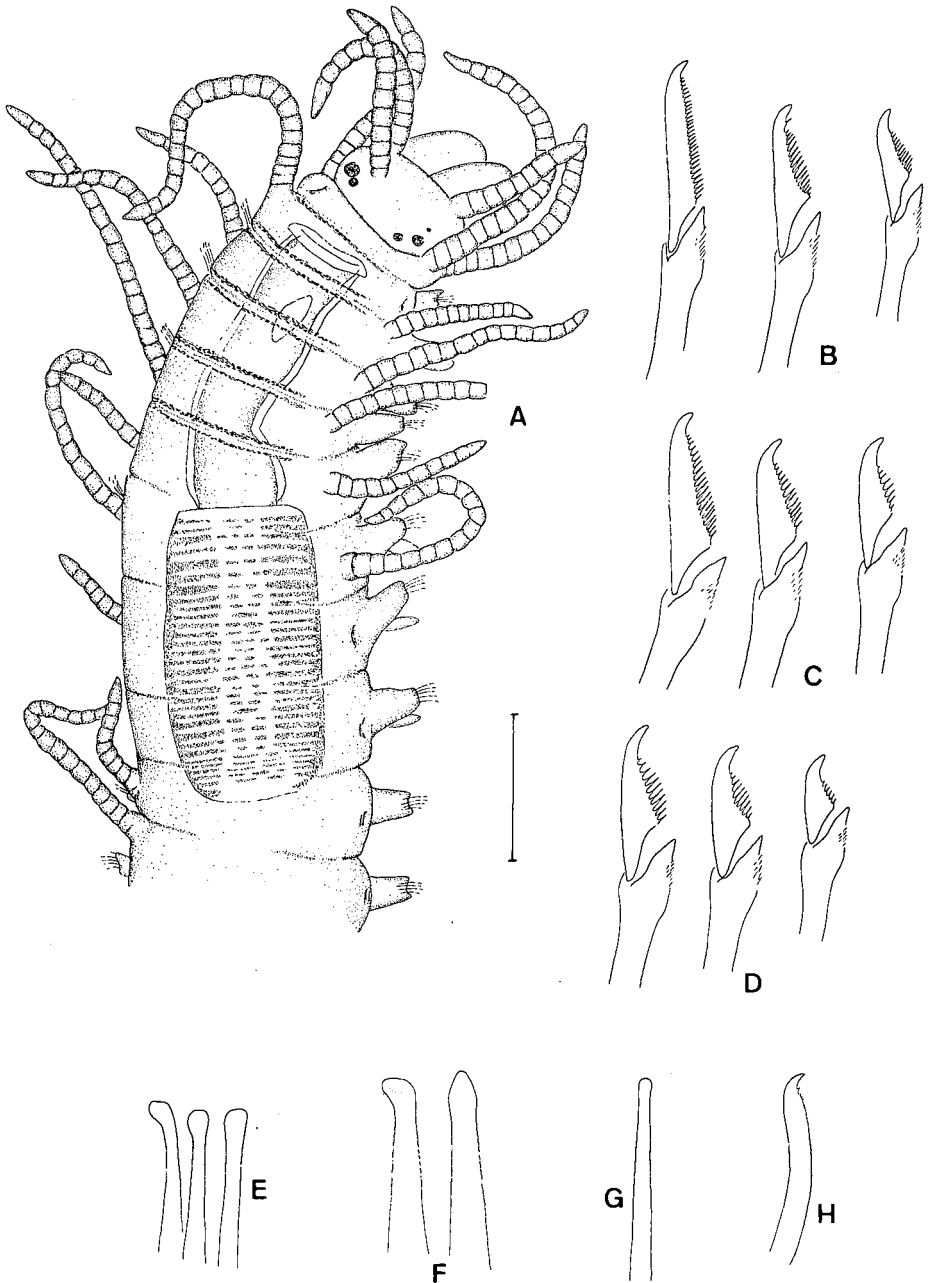
Syllis schulzi (Hartmann-Schröder, 1960)

Material examined: F/1 (1).

Syllis truncata cryptica Ben-Eliahu, 1977

Material examined: A/1 (5), A/A (1), B/1 (1), C/2 (2), F/1 (8), F/2 (2), F/A (13), G/2 (1), G/3 (2), G/A (3), G/B (50), J/1 (8), K/1 (1), L/A (10), L/B (1), L/C (1), N/1 (1),

Fig. 4. *Syllis pectinans* Haswell, 1920: A. Anterior end, dorsal view; B. Compound setae, anterior parapodium; C. Compound setae, median-anterior parapodium; D. Compound setae, median-posterior parapodium; E. Acicula, anterior parapodium; F. Acicula, median-posterior parapodium; G. Dorsal simple seta; H. Ventral simple seta. (Scales A: 0.18 mm; B-H: 20 μm .)



Syllis pectinans Haswell, 1920: A. Extremo anterior, vista dorsal; B. Sedas compuestas, parapodio anterior; C. Sedas compuestas, parapodio medio-anterior; D. Sedas compuestas, parapodio medio-posterior; E. Acicula, parapodio anterior; F. Acicula, parapodio medio-posterior; G. Seda simple dorsal; H. Seda simple ventral. (Escala A: 0.18 mm; B-H: 20 μ m.)

N/B (1), O/1 (1), X/A (11), X/B (12), X/D (1).

Syllis variegata Grube, 1860

Material examined: A/1 (1), B/1 (1), B/2 (2), B/A (1), C/1 (1), C/2 (2), C/3 (1), D/1 (1), E/1 (11), F/1 (11), F/2 (4), F/A (1), G/1 (5), G/2 (5), G/A (3), G/B (7), H/1 (3), H/D (1), I/1 (5), J/1 (19), J/3 (1), J/A (7), L/1 (1), L/2 (1), L/A (4), L/B (1), L/C (1), N/1 (2), N/B (2), O/1 (14), O/C (2), X/A (40).

Syllis vittata Grube, 1840

Material examined: C/4 (1), X/B (1).

Syllis westheidei San Martín, 1984

Material examined: A/2 (1), C/2 (1), E/1 (1), F/1 (3), G/B (2), L/A (1), N/2 (1), X/A (2).

Genus *Trypanosyllis* Claparède, 1868

Trypanosyllis aeolis Langerhans, 1879

Material examined: B/1 (1), F/1 (1), G/B (1).

Trypanosyllis coeliaca Claparède, 1868

Material examined: A/1 (1), A/2 (7), A/B (3), B/1 (1), B/A (1), C/2 (3), E/1 (1), F/1 (3), F/2 (1), F/A (4), G/1 (1), G/3 (1), G/B (4), H/1 (1), H/2 (1), H/D (3), I/1 (12), J/1 (2), L/A (1), N/1 (1), O/1 (3), X/A (14), X/D (1).

Trypanosyllis zebra (Grube, 1860)

Material examined: A/2 (5), B/1 (1), C/1 (2), C/2 (6), E/1 (1), F/1 (5), F/A (2), G/3 (2), G/B (5), H/D (4), I/1 (1), J/1 (4), J/A (4), K/2 (1), K/3 (1), L/2 (18), L/B (1), M/1 (1), N/1 (3), O/1 (9), O/D (1), X/A (23), X/C (2).

Trypanosyllis sp.

Material examined: B/2 (1), F/1 (1), G/1 (1).

Genus *Xenosyllis* Marion & Bobretzky, 1875

Xenosyllis scabra (Ehlers, 1864)

Material examined: A/1 (1), A/2 (1), A/B (1), B/1 (1), B/2 (1), D/1 (1), E/1 (1), F/1 (5), F/2 (1), F/A (4), G/1 (1), G/3 (2), G/A (1), G/B (8), J/1 (4), J/A (3), L/A (2), X/A (40).

Discussion

As most Syllinae species reported in this work are well known from the western Mediterranean, their presence could be expected.

These common species are rather abundant, but in different amounts, in rocky, specially algae, and nearest substrata, as organogenic calcareous concretions, *Posidonia oceanica* rhizomes, etc.; this has been recorded by many authors in works on polychaetous fauna in Mediterranean.

In this work, many epibionthic media have also been studied. Thus, as epibionthic of gorgoniaceans, are recorded for first time *Syllis alternata* (from *Eunicella verrucosa*), *Syllis columbretensis*, *Syllis krohni*, *Trypanosyllis coeliaca* (from *Ellisella paraplexauroides*), and *Syllis variegata* (from *Paramuricea clavata*). On the other hand, *Syllis ferrani* is recorded for first time as endobionthic of sponges (*Ircinia* sp.).

Most of the Syllinae species from the Chafarinas Islands have wide geographical distribution, with predominance of cosmopolitan or atlantic-mediterranean species (SAN MARTÍN, 1984b). Only a few species stand out because of their peculiar geographical distribution. *Branchiosyllis exilis*, *Opisthosyllis brunnea*, *Syllis compacta*, *Syllis lutea*, and *Syllis schulzi* are species of tropical distribution, rarely recorded in the Mediterranean Sea, and, always from southern areas. They probably do not exist in the northern Mediterranean, with colder waters.

Only three of the species recorded are known, nowadays, exclusively from western Mediterranean. *Pseudosyllides balearica* and *Syllis ferrani* have been cited recently and their records are scarce, so their presence in Chafarinas Islands is interesting in order to enlarge their known world distribution. The other, *Haplosyllis chamaeleon*, raised in this work to specific status, lives directly associated to *Paramuricea clavata*, so its geographical distribution is supposed to coincide with

that of the gorgoniacean.

Some species are interesting due to their taxonomical situation. This is the case of *Syllis columbretensis* and *Syllis corallicola*. CAMPOY (1982) described *S. columbretensis* on base to two different specimens, imputing their differences to intraspecific variability. Later, PARAPAR (1991) found, besides morphological differences, a different ecological distribution for both forms. Finally, SAN MARTÍN (1992) verified that type series of *S. corallicola* and specimens from Cuba were identical to paratype of *S. columbretensis*. For these reasons, in this work, *S. corallicola* and *S. columbretensis* are treated as different species, the first with amphiatlantic and western Mediterranean distribution and the other found only in the Iberian peninsula and, now, in northern Africa.

Syllis compacta and *Syllis pectinans* are also described. Both species were cited before in the Mediterranean Sea, but with different names. After consulting type series, correct names and detailed description are given for these poorly known species.

Resumen

Syllinae (*Syllidae*, *Annelida*, *Polychaeta*) de las islas Chafarinas (mar de Alborán, Mediterráneo O)

Recientemente se ha realizado un estudio de las comunidades bentónicas de invertebrados de las islas Chafarinas, prestando especial atención a algunos grupos, entre ellos los poliquetos (fig. 1).

En este trabajo se dan los resultados del estudio de la subfamilia Syllinae. Se citan 34 especies y se describen tres de ellas.

Haplosyllis chamaeleon Laubier, 1960 (fig. 2) es una especie poco conocida epibionte de gorgonias. *Syllis compacta* Gravier, 1900 (fig. 3) y *Syllis pectinans* Haswell, 1920 (fig. 4) son especies poco conocidas y frecuentemente citadas con otros nombres específicos.

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