

VIERAEA	Vol. 33	167-173	Santa Cruz de Tenerife, diciembre 2005	ISSN 0210-945X
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New records of free-living marine nematodes from the Canary Islands (I)

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RIERA, R., J. NÚÑEZ & M.C. BRITO (2005). Nuevos registros de nematodos marinos de vida libre de las Islas Canarias (I). *VIERAEA* 33: 167-173.

RESUMEN: Se citan por primera vez para el archipiélago Canario tres especies de nematodos marinos de vida libre *Enoplus communis* Bastian, 1865, *Enoplus* sp. y *Gerlachius novosetosus* Platt & Zhang, 1982. Se relacionan datos merísticos y descriptivos de cada una de las especies. Además, se presentan datos abióticos de las estaciones de muestreo.
Palabras clave: Islas Canarias, Tenerife, fondos blandos, Nematoda, Enoplida, *Enoplus*.

ABSTRACT: Three species of free-living marine nematodes (*Enoplus communis* Bastian, 1865, *Enoplus* sp. and *Gerlachius novosetosus* Platt & Zhang, 1982) are first recorded from the Canary Islands. Meristic and descriptive data of each species are reported. Moreover, abiotic data of the sampling stations are presented.
Key words: Canary Islands, Tenerife, soft-bottoms, Nematoda, Enoplida, *Enoplus*.

INTRODUCTION

During an ecological study of meiofaunal assemblages in soft-bottoms on the south coast of Tenerife, several specimens belonging to three species of marine free-living nematodes were recorded. These species are: *Enoplus communis* (Bastian, 1865), *Gerlachius novosetosus* (Platt & Zhang, 1982) and *Enoplus* sp.

MATERIAL AND METHODS

Samples were collected in the intertidal and shallow subtidal, at 3 m deep, soft-bottoms of Los Abrigos (SE Tenerife). PVC cores of 4.5 cm of inner diameter were taken to

a depth of 30 cm in the sediment. These samples were fixed with 10% formaldehyde in seawater for 24 hours and decanted through a sieve of 63 μm mesh size, and posteriorly preserved in 70% ethanol. Specimens were mounted in glycerine gel and drawings of these were done using a camera lucida on a Leica DMLB microscope equipped with Nomarski interference contrast. All measurements are in micrometers and curves structures are measured along the arc.

Abbreviations used in the text are: **a**, body length divided by maximum body diameter; **b**, body length divided by pharyngeal length; **c**, body length divided by tail length; **c'**, tail length divided by anal body diameter; **cbd**, corresponding body diameter; **s'**, spicule length divided by anal body diameter; **%V**, position of vulva as a percentage of body length from anterior.

SYSTEMATICS

SUBCLASS ENOPLIA Pearse, 1942

Order ENOPLIDA Chitwood, 1933

Suborder ENOPLINA Chitwood & Chitwood, 1937

Family ENOPLIDAE Dujardin, 1845

Genus *Enoplus* Dujardin, 1845

Enoplus communis Bastian, 1865 (Figure 1)

Enoplus communis Bastian (1865): 148, figs. 164-166; Gerlach (1965): 123, fig. 6; Palacín (1985): 40, figs. 4 i, 5 a.

Enoplus tenuicaudatus Allgen (1929): 438, fig. 4 a-c.

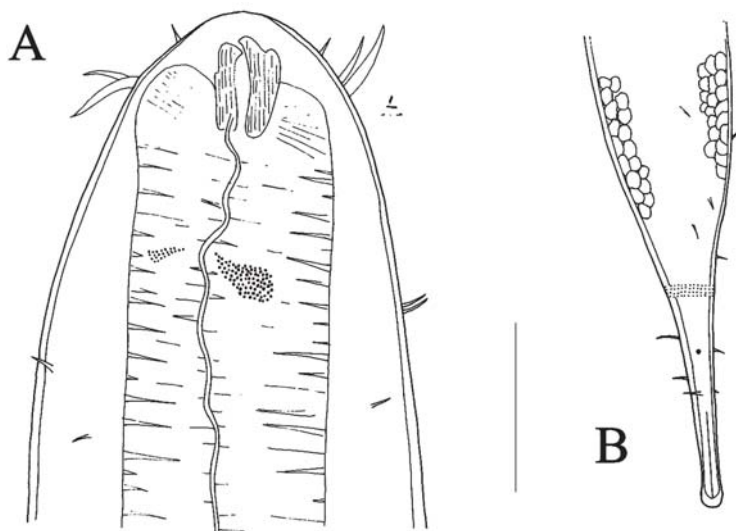


Figure 1. Female of *Enoplus communis*. A: Anterior end. B: Posterior end. Scale = 40 μm .

Meristic data and studied material:

Los Abrigos intertidal (coordinates: 28°08'34"N/16°26'10"W), November 2000, 1 female (♀1), December 2000, 1 female (♀2).

Description: Males not found.

Female. Body very slender (2.4-2.7 mm), tapering towards both ends. Head round and not set off (fig. 1A). Cuticle smooth. Amphids inconspicuous. Two eye spots located at 58 µm from the anterior end. Buccal cavity conical with two bifid mandibles in the anterior end, 23 µm long. Six inner labial setae 4 µm long and 6 outer labial setae 0.3 cephalic diameters long. Four cephalic setae 0.4 cephalic diameters long, situated at the posterior half of the head. Subcephalic setae 6 µm long, located at 68 µm from the anterior body end. Somatic setae more numerous in the posterior half of the body. Pharynx cylindrical and wide. Ventral gland and nerve ring not seen.

The reproductive system is didelphic, with two reflexed ovaries. Vulva not seen. Tail 2.7 anal diameters long, cylindrical with round posterior tip. Caudal setae lacking (fig. 1B). Spinneret poorly developed.

Discusión: *Enoplus communis* is characterized by having a tail longer than 2.5 anal diameters in females, eye spots and cephalic setae longer than 25% of the cbd. Canarian specimens lacking 3 caudal setae described by Bastian (1865) and are shorter than those described from other geographical areas, e.g. Mediterranean sea (3.9 mm) (Palacín, 1985) and North sea (6.9 mm) (De Coninck & Schuurmans-Stekhoven, 1933).

Ecology: This species was collected in medium sands ($Q_{50} = 0.39-0.42$), with a very good selection ($S_0 = 0.96-0.97$). The organic matter percentage varied between 1.07% in December and 1.33% in January, and carbonates content ranged from 4.44% in December and 6.67% in January.

Distribution: Amphiatlantic (Southern, 1914; Tietjen, 1969). Mediterranean sea (Gadea, 1960). This species is first recorded in the canarian archipelago.

***Enoplus* sp.** (Figure 2)

Meristic data and studied material: Los Abrigos subtidal (coordinates: 28°08'30"N/16°26'10"W), May 2000, 1 juvenil (Juvenil 1).

Description: Males and females not found.

	? 1	? 2
Total body length	2442.9	2678.9
a	17.1	17.1
b	4.2	4.4
c	11.4	11.4
Cephalic diameter	53.6	56.4
Inner labial setae	-	-
Outer labial setae	8.6	9.1
Cephalic setae	15.7	16.5
Subcephalic setae	-	-
Buccal cavity diameter	35.7	36.8
Amphid diameter	-	-
Amphid height	-	-
Amphid from anterior	-	-
Pharynx length	585.7	598.4
Pharynx cbd	128.6	132.6
Maximum body diameter	142.9	156.9
Vulva from anterior	nd	nd
% V	nd	nd
Spicule length		
Gubernaculum length		
s'	214.3	235.4
Tail length	82.1	84.2
Anal body diameter	2.6	2.8
c'		
Spicule length/Tail length		

Table I. Measurements of *Enoplus communis* in µm. nd, no discernible.

Juvenil. Body very slender (5 mm), tapering towards both ends. Head round and set off (fig. 2B). Cuticle smooth. Amphids inconspicuous. Buccal cavity large and conical, with 3 bifid mandibles in the anterior end, 14 μm long. Six inner labial setae 3 μm long and 6 outer labial setae 0.2 cephalic diameters long. Four cephalic setae 0.4 cephalic diameters long, situated at the median part of the head. Subcephalic setae 9 μm long, located at 18 μm from the anterior end. Pharynx cylindrical and slender. Ventral gland and nerve ring not discernible.

Reproductive system not developed. Tail 3.6 anal diameters long, cylindrical, with rounded posterior tip. Caudal setae lacking (fig. 2B). Spinneret developed.

Discussion: This species has been determined to genus level due to the presence of only one juvenile specimen. *Enoplus* sp can be differentiated of *E. communis* Bastian, 1865 in its longer body length and tail length and by the absence of eye spots. This species resembles *Enoplus littoralis* Filipjev, 1928 and *E. sphaericus* Kreis, 1928 in body shape and tail length, but can be separated in having the latter, outer labial and cephalic setae

	Juvenil 1
Total body length	5142.9
a	45
b	49.5
c	30.6
Cephalic diameter	47
Inner labial setae	4
Outer labial setae	13
Cephalic setae	18
Subcephalic setae	-
Buccal cavity diameter	21.4
Amphid diameter	-
Amphid height	-
Amphid from anterior	-
Pharynx length	104
Pharynx cbd	53.6
Maximum body diameter	114.3
Vulva from anterior	-
% V	-
Spicule length	-
Gubernaculum length	-
s'	-
Tail length	167.9
Anal body diameter	46.4
c'	3.6
<u>Spicule length/Tail length</u>	-

Table II. Measurements of *Enoplus* sp in μm .

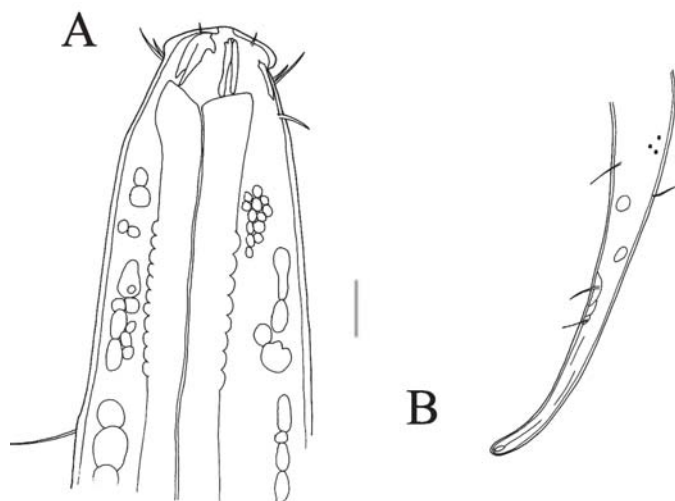


Figure 2. Juvenil of *Enoplus* sp. A: Anterior end. B: Posterior end. Scale A = 40 μm . B = 48 μm

less developed and a head set off. *E littoralis* presents hooked mandibles and inner labial setae and subcephalic ones are lacking.

Ecology: This species was collected in medium sands ($Q_{50} = 0.36$), with a very good selection ($S_0 = 0.86$). The organic matter content was 1.68% and carbonates percentage was 3.08%.

Subclass CHROMADORIA Pearse, 1942
 Order CHROMADORIDA Chitwood, 1933
 Suborder DESMOSCOLECINA Filipjev, 1934
 Family MEYLIIDAE De Coninck, 1965
 Genus *Gerlachius* Andrásy, 1976

Gerlachius novosetosus Platt & Zhang, 1982 (Figure 3)

Gerlachius novosetosus Platt & Zhang (1982): 229, fig. 1; Platt & Warwick (1988): 476, fig. 224.

Meristica data and studied material: Los Abrigos subtidal (coordinates: 28°08'30" N/ 16°26'10" W), November 2000, 1 male (σ^1).

Description: *Male.* Body short and wide (52 μ m), tapering towards both ends. Head attenuating abruptly and not set off (fig. 3A). Cuticle with transversal striations, lateral differentiation lacking. Amphids are 43% of the corresponding body diameter in width, simple and round, located at 10 μ m from the anterior end. Buccal cavity absent. Inner labial and outer labial setae lacking. 4 cephalic setae in peduncles, 0.8 head diameters long and situated at the median part of the head. Subcephalic setae not seen. Pharynx short and narrow, without posterior oesophageal bulb.

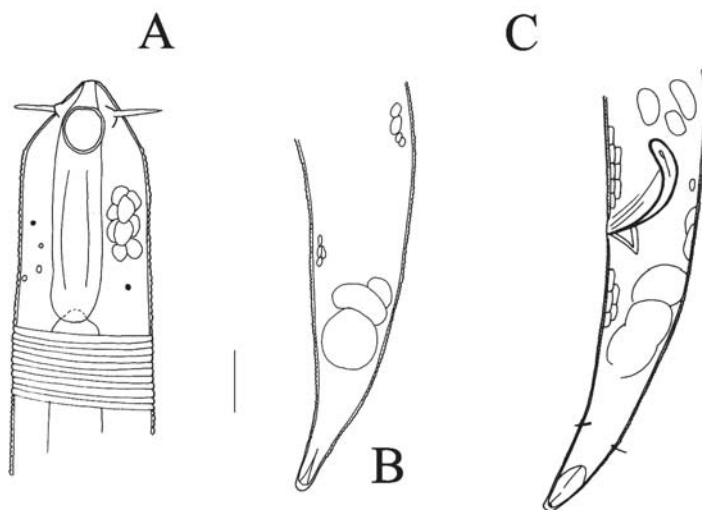


Figure 3. Female of *Gerlachius novosetosus*. A: Anterior end. B: Posterior end.

The reproductive system is diorchic with two opposed testes. Spicules 1.2 anal diameters long, equal, slender and slightly widened in the proximal end. Gubernaculum (fig. 3C) 0.3 anal diameters long, short and triangular with a dorsocaudally directed apophysis. Precloacals supplements lacking. Tail 2.1 anal diameters long, short and conical with truncated posterior end. Caudal setae absent (fig. 3B). Spinneret poorly developed.

Discussion: The two species of this genus: *Gerlachius lissus* and *G. novosetosus* can be differentiated in the amphid size and the number of cephalic setae. *G. novosetosus* has a larger amphid and 4 cephalic setae (2 cephalic setae in *G. lissus*). Pharynx and cephalic setae are shorter in *G. novosetosus* than in *G. lissus*. Our studied specimen agrees well with Platt & Zhang's description of *G. novosetosus*, although the canarian individual is two times larger (1.2 mm) than British specimens (0.5 mm).

Ecology: This species was collected in Los Abrigos subtidal in fine sands ($Q_{50} = 0.24$) with a very good selection ($S_0 = 0.73$). The organic matter content was 0.50% and carbonates percentage was very poor (1.54%).

Distribution: East Atlantic (Platt & Zhang, 1982). This species is first recorded from the Canary Islands.

Male. C. Posterior end showing spicule and gubernaculum.

Scale A = 20 μm , B, C = 23 μm .

	? 1
Total body length	1242.9
a	23.9
b	8.1
c	12.9
Cephalic diameter	25
Inner labial setae	-
Outer labial setae	-
Cephalic setae	20
Subcephalic setae	-
Buccal cavity diameter	-
Amphid diameter	18.6
Amphid height	18.6
Amphid from anterior	10
Pharynx length	153.6
Pharynx cbd	46.4
Maximum body diameter	52
Vulva from anterior	
% V	
Spicule length	47.1
Gubernaculum length	11.4
s'	1.2
Tail length	96.4
Anal body diameter	39.3
c'	2.5
Spicule length/Tail length	0.5

Table III. Measurements of *Gerlachius novosetosus* in μm .

ACKNOWLEDGEMENTS

Authors would like to thank Dr. P.J. Somerfield (Plymouth Marine Lab., United Kingdom) for providing laboratory facilities during the first author's stay. We are also grateful to Dr. C. Pastor de Ward (Centro Nacional Patagónico, Argentina) for her taxonomical advice.

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