



A new genus and three new species of free-living marine nematodes (Nematoda: Enoplida: Enchelidiidae) from the Yellow Sea, China

Yong HUANG^{1,2} and Zhinan ZHANG^{1*}

⁽¹⁾ College of Marine Life Sciences, Ocean University of China, 5, Yushan Road, Qingdao 266003, People's Republic of China ; *corresponding author ; E-mail: znzhang@ouc.edu.cn

⁽²⁾ Agricultural College, Liaocheng University, 34, Wenhua Road, Liaocheng 252000, People's Republic of China
Fax: +86(532) 2032716 ; E-mail: huangyong.ld@126.com

Abstract: A new genus, *Abelbolla* gen. nov. and three new species of free-living marine nematodes in this genus, *Abelbolla boucheri* sp. nov., *Abelbolla huanghaiensis* sp. nov. and *Abelbolla warwicki* sp. nov. from the Yellow Sea, China, are described and illustrated. *Abelbolla* gen. nov. is characterized by tapered anterior end of the body, buccal cavity divided in two parts, precloacal supplements more or less visible and the absence of differentiated oesophageal bulbs. *A. boucheri* can be separated from other species of *Abelbolla* by thin spicules with an elongated capitulum and rather short and massive gubernacular apophysis. *A. huanghaiensis* can be separated from *A. boucheri* by the presence of spicules with a small hook at distal end, and by gubernaculum with longer dorsal apophysis. *A. warwicki* is characterized by a large buccal cavity and no winged precloacal supplements. The types are deposited in the College of Marine Life Sciences, Ocean University of China.

Résumé : Un genre nouveau et trois espèces nouvelles de nématodes libres marins (Nematoda: Enoplida: Enchelidiidae) de la Mer Jaune, Chine. Un genre nouveau, *Abelbolla* gen. nov., et trois espèces nouvelles de nématodes libres marins de ce genre, *Abelbolla boucheri* sp. nov., *A. huanghaiensis* sp. nov. et *A. warwicki* sp. nov., récoltés en Mer Jaune (Chine), sont décrits et illustrés. Le genre *Abelbolla* est caractérisé par un diamètre corporel s'atténuant progressivement dans la partie antérieure, une cavité buccale divisée en deux parties, des suppléments précloacaux ailés et l'absence de bulbes oesophagiens individualisés. *A. boucheri* peut être séparé des autres espèces du genre par une paire de spicules relativement fins dotés de capitulum allongés et d'une extrémité plate. *A. huanghaiensis* peut être séparé des autres espèces du genre par des spicules dotés de capitulum plus courts et d'une extrémité plate. *A. warwicki* est caractérisé par la forme et la taille de la capsule buccale et des suppléments précloacaux réduits, en forme de poche allongée. Les types sont déposés au Collège des Sciences Marines, Université Chinoise de l'Océan.

Keywords: Free-living marine nematoda, *Abelbolla*, New genus, New species, Yellow Sea, China.

Introduction

In January 2003, sediment samples were taken at 23 stations in the Yellow Sea, China. Meiofaunal abundance va-

ried from 553 to 1400 individuals per 10 cm² (average 847 ± 254), with 81% to 93% (average 86%) of the specimens being nematodes. Up to now, twenty-nine species of marine nematodes have been recorded from the Yellow Sea (Zhang & Platt 1983, Zhang et al. 1994, Zhang & Ji 1994, Hope & Zhang 1995).

Abelbolla is a new genus of the family Enchelidiidae that

Reçu le 23 juin 2004 ; accepté après révision le 19 novembre 2004.
Received 23 June 2004; accepted in revised form 19 November 2004.

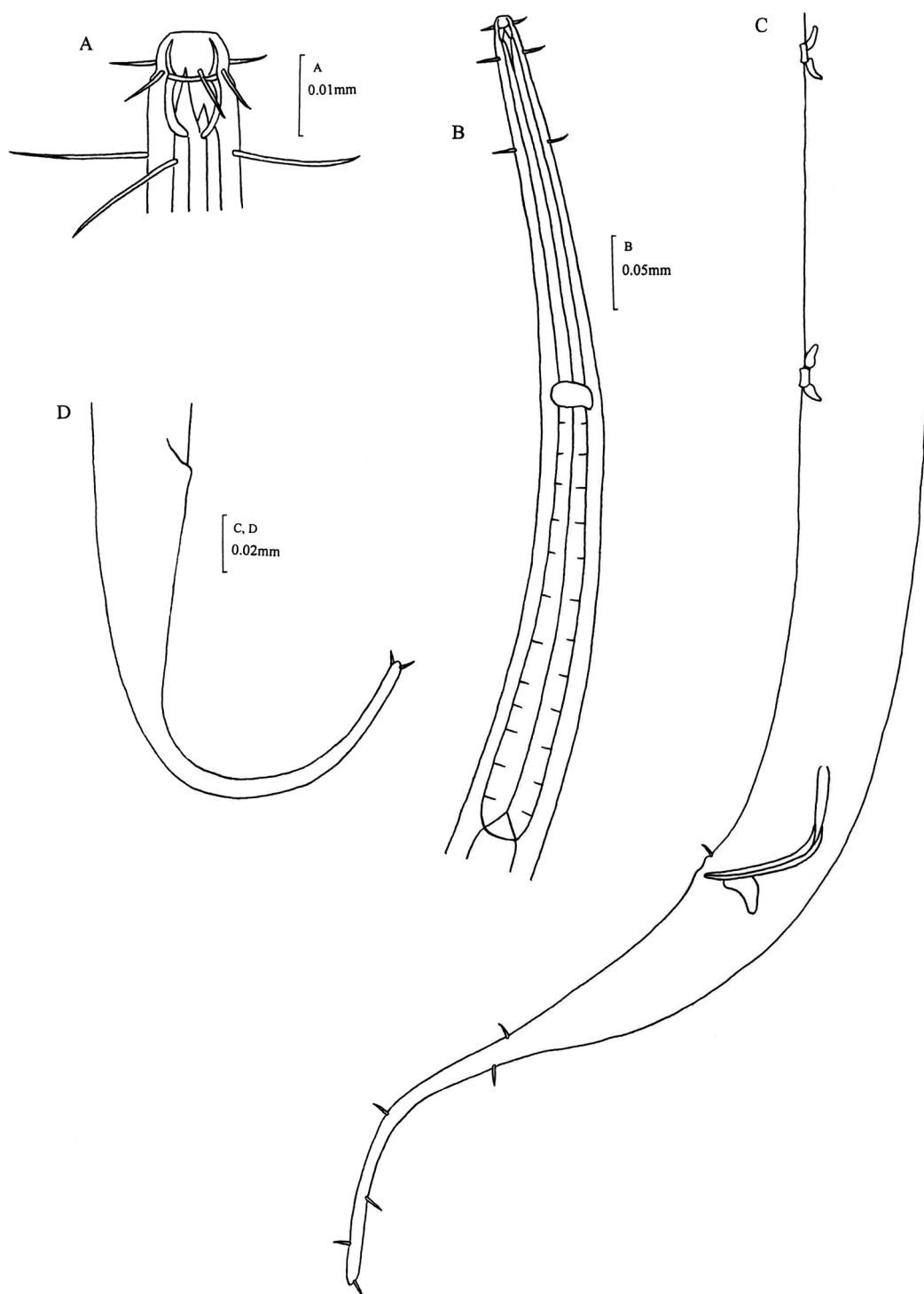


Figure 1. *Abelbolla boucheri* sp. nov. **A.** Lateral view of the male head. **B.** Lateral view of the male anterior part. **C.** Lateral ventral view of the male posterior part. **D.** Lateral view of the female tail.

Figure 1. *Abelbolla boucheri* sp. nov. **A.** Vue latérale de la partie distale de la tête du mâle. **B.** Vue latérale de la partie antérieure du mâle. **C.** Vue latérale ventrale de la partie postérieure du mâle. **D.** Vue latérale de la queue de la femelle.

belongs to the order Enoplida. We found three new species of this genus by investigation and study in the Yellow Sea, China. In this paper we describe the new genus and the three new species.

Material and Methods

Benthic sediment samples were taken using a 0.1 m² improved Gray-O'Hara box corer, and meiofauna subsamples were taken using sawn-off syringe tube with a 2.6 cm inner diameter, pushed into the sediment down to 8 cm depth whilst withdrawing the plunger to avoid core compression. Samples were stratified by 0-2, 2-5, 5-8 cm and fixed with 5% formalin in seawater respectively. All the samples were washed on a 31 μ m sieve to remove the formalin. LudoxTM was used to extract meiofauna from sediment by centrifugation. The descriptions have been made from glycerine mounts using interference contrast microscope. Drawing was made with the aid of a camera lucida. Morphometric data are presented using the modification of Filipjev's standard formula described by Platt (1973). The types are deposited in the College of Marine Life Sciences, Ocean University of China. The descriptions of the new species are based on the examination of samples taken in January 2003. Measurements are in μ m.

Abbreviations are as follows: a: body length/maximum body diameter; a.b.d.: anal body diameter; b: body length/oesophagus length; c: body length /tail length; c. d.: corresponding body diameter; h.d.: head diameter; L: body length; N%: nerve ring distance from the anterior end of body/oesophagus length; Sc: spicule length as chord; V: vulva distance from the anterior end of body; V%: V/total body length.

Genus description

Order Enoplida

Family Enchelidiidae

Genus *Abelbolla* gen. nov.

Description

The anterior end of the body is strongly attenuated. The buccal cavity displays a large right ventro-lateral tooth and two less prominent teeth (dorsal and left ventro-lateral in position). Ten cephalic setae are arranged in one circle. The cuticular ring separating the two buccal chambers is smooth (i.e. with no denticles). The oesophagus expands gradually and evenly but is not modified into bulbs. Two winged precloacal supplements present or absent.

Differential diagnosis

Abelbolla gen. nov. is characterized by absence of

oesophageal bulbs, tapered anterior end of the body, buccal cavity divided into two chambers and winged precloacal supplements. It is close to *Belbolla*, but differs from *Belbolla* by the absence of differentiated oesophageal bulbs, whilst *Belbolla* has 7-10 oesophageal bulbs. However, there is one species in this genus with precloacal supplements reduced, and not presenting a winged shape. The type species is *Abelbolla boucheri* gen. nov. and sp. nov.

Discussion

The name of the genus *Belbolla* was suggested by Andrassy (1973), instead of the previously used name *Bolbella* Cobb, 1920. *Belbolla* is a genus of the family Enchelidiidae that belongs to the Enoplida. Genera in this family usually have a divided buccal cavity and winged precloacal supplements. However, the characteristic feature of *Belbolla*, which distinguishes it from all other enoplids except *Polygastrophora*, is the presence of multiple oesophageal bulbs. *Polygastrophora* differs from *Belbolla* in having more than two buccal cavity chambers and no supplements (Platt & Warwick, 1983). *Abelbolla* gen. nov. is close to *Belbolla*, but the principal difference between the genera is the absence of oesophageal bulbs. Because the species of *Abelbolla* gen. nov. have no oesophageal bulbs, which is regarded as characteristic of the genus *Belbolla*, we propose *Abelbolla* as a new genus.

Species descriptions

Order Enoplida

Family Enchelidiidae

Genus *Abelbolla* gen. nov.

Abelbolla boucheri sp. nov.

(Figs. 1-2)

Type material

Holotype: one male (σ 1: ZB030101312); paratypes: three males (σ 2: ZB030114112, σ 3: ZB030115112, σ 4: ZB030108322) and two females (ϕ 1: ZB030114112, ϕ 2: ZB030115213).

Type localities

Sublittoral in the Yellow Sea. Station 7674: 37°00.56'N, 123°30.22'E, water depth 72 m, MD_Ø 3.79, organic matter 1.94%; Station 98194: 35°29.85'N, 124°30.52'E, water depth 89 m, MD_Ø 7.34, organic matter 2.65%; Station 118194: 34°29.77'N, 124°29.89'E, water depth 77 m, MD_Ø 3.85, organic matter 2.39%; Station 12494: 33°59.76'N, 122°59.85'E, water depth 68 m, MD_Ø 7.49, organic matter 2.77%.

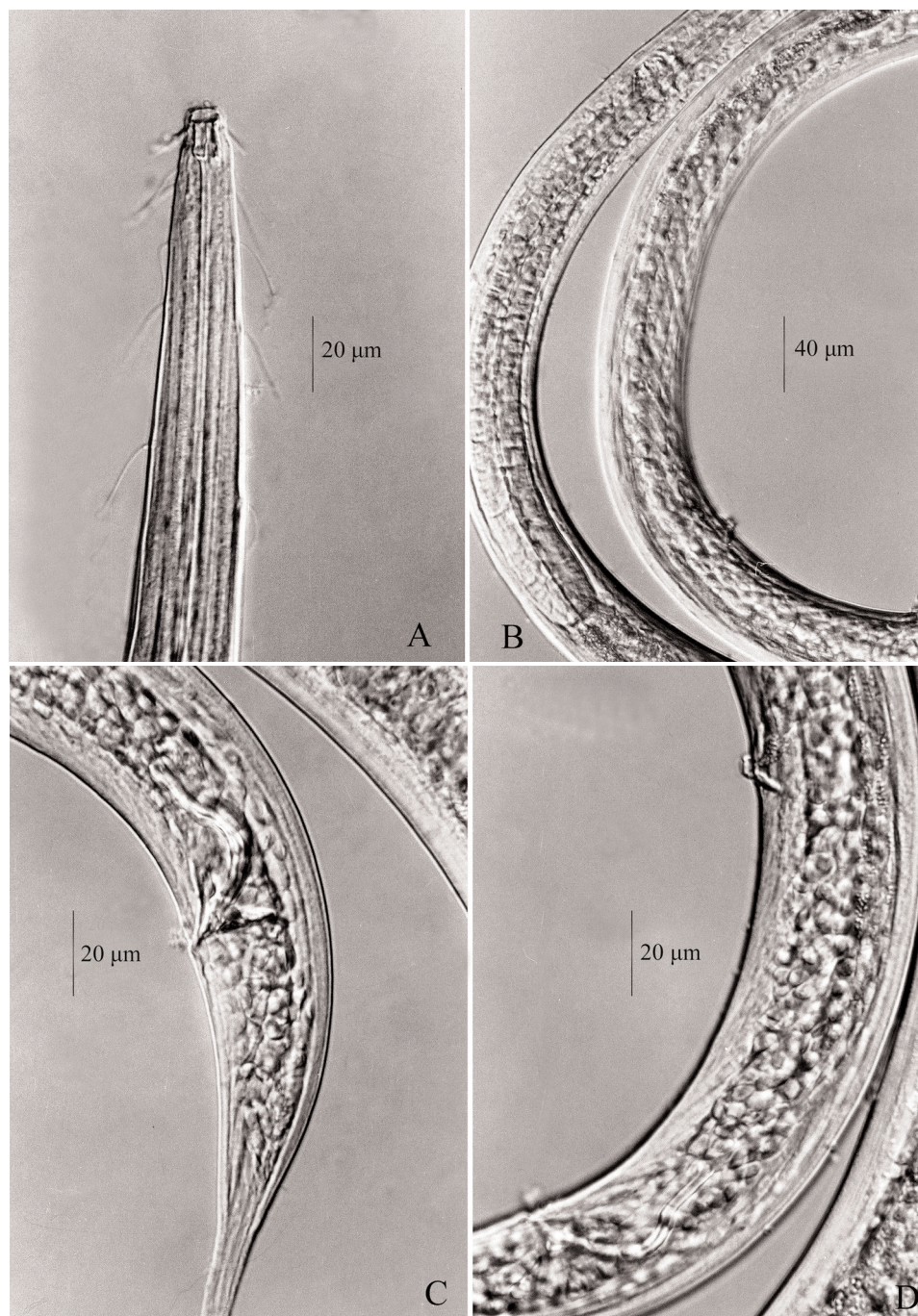


Figure 2. *Abelbolla boucheri* sp. nov. **A.** Lateral view of the male body anterior part. **B.** Oesophageal region and supplements. **C.** Lateral view of the male tail. **D.** Spicule and supplements.

Figure 2. *Abelbolla boucheri* sp. nov. **A.** Vue latérale de la partie antérieure du mâle. **B.** Région œsophagienne et suppléments. **C.** Vue latérale ventrale de la queue du mâle. **D.** Spicules et suppléments

Etymology

This species is named in honour of Dr. Guy Boucher, Muséum National d'Histoire Naturelle of Paris.

Measurements (table 1)

Holotype male 1: — 560 M 2014
10 42 47 33

2210 μm ; a = 46.9, b = 3.9, c = 11.3, Sc = 47

Paratype female 1: — 573 V 1961
12 43 50 25

2173 μm ; a = 43.5, b = 3.8, c = 10.3, V = 53%

Description

The anterior end of the body tapers to 23%-28% of the body diameter at the base of the oesophagus. The buccal

cavity presents a large right ventro-lateral tooth and two less prominent teeth (dorsal and left ventro-lateral in position). Ten cephalic setae (9-13 μm long) arranged in one circle. The anterior six cervical setae (17-22 μm long) are in one circle (about 16 μm from head-end), and longer than other cervical setae. The cuticular ring separating the two buccal chambers is smooth (i.e. with no denticles). The oesophagus expands rather gradually and evenly and is not modified into separated bulbs, a character which is regarded as characteristic of the genus. Nerve ring 42%-48% oesophagus length. Tail relatively slender and long, cylindro-conical, 5.6-8.5 a.b.d., over most of its length narrowing rather sharply in the posterior half. Anterior half is conical, posterior half is filiform.

Males: Spicules 56-62 μm (1.8-2.0 a.b.d.) are curved and slender, and identical in structure with rounded, sharp proximal ends. Gubernaculum with small dorsal apophysis, 10-14 μm long. The two precloacal supplements are well developed and lie close together relatively far from the cloacal opening. Anterior one 0.52-0.63 a.b.d. Posterior one 0.45-0.58 a.b.d..

Females: Ovaries paired, equal, opposed, reflexed. Vulva at 53%-55% of body length.

Differential diagnosis

Abelbolla boucheri sp. nov. is characterized by the anterior part of body, the shape and the length of the spicules and gubernacular apophysis, and the two winged precloacal supplements. It is close to *Abelbolla huanghaiensis* sp. nov. but the principal differences between the two species are the structure of the spicules and the length of the gubernacular apophysis. In this species, the spicules are thin and with an elongated capitulum and distal tip, the gubernacular apophysis is short (shorter than 14 μm). While, in species of *Abelbolla huanghaiensis*

Table 1. Measurements of *Abelbolla boucheri* sp. nov. (in μm)
Tableau 1. Mesures d'*Abelbolla boucheri* sp. nov. (en μm)

Characters	♂1	♂2	♂3	♂4	♀1	♀2
Total body length	2210	2130	2160	2168	2173	2172
Maximum body diameter	47	44	44	46	50	44
Head diameter	10	10	10	10	12	9.5
Buccal cavity length	14	13	13	14	14	14
Buccal cavity width	8	8	8	8	9	8
Length of cephalic setae	11	12	9	13	12.5	13
Length of cervical setae	17	20	17	19	21	22
Nerve ring from the anterior end of body	246	260	230	230	260	235
Nerve ring c.d.	35	39	35	36	39	38
N%	43.9	48.4	43.6	42.2	45.4	42.3
Oesophagus length	560	537	527	545	573	556
Oesophagus c.d.	42	43	40	42	43	41
Anal diameter	33	33	31	32	25	25
Tail length	196	186	184	188	212	200
Tail length / a.b.d.	5.9	5.6	5.9	5.9	8.5	8.0
Spicule length as chord	47	46	48	43	-	-
Spicule length as arc	59	60	62	56	-	-
Vulva from anterior	-	-	-	-	1158	1190
Vulva c.d.	-	-	-	-	50	44
V%	-	-	-	-	53	55
Length of gubernacular apophysis	14	11	12	10	-	-
Length of the wing of the posterior supplement	9	10	7.5	8	-	-
Length of middle part of the posterior supplement	7	6	6	5	-	-
Total length of posterior supplement	19	17	14	18	-	-
Length of the wing of the anterior supplement	7	9	8	9.5	-	-
Length of middle part of the anterior supplement	7	6.5	5	5	-	-
Total length of anterior supplement	17	18	17	20	-	-
Distance of the posterior pro-cloacal supplement from cloacal opening	158	132	120	120	-	-
Distance between supplements	102	108	93	124	-	-
a	46.9	48.4	49.1	47.1	43.5	49.4
b	3.9	4.0	4.1	4.0	3.8	3.9
c	11.3	11.5	10.3	11.5	10.3	10.9

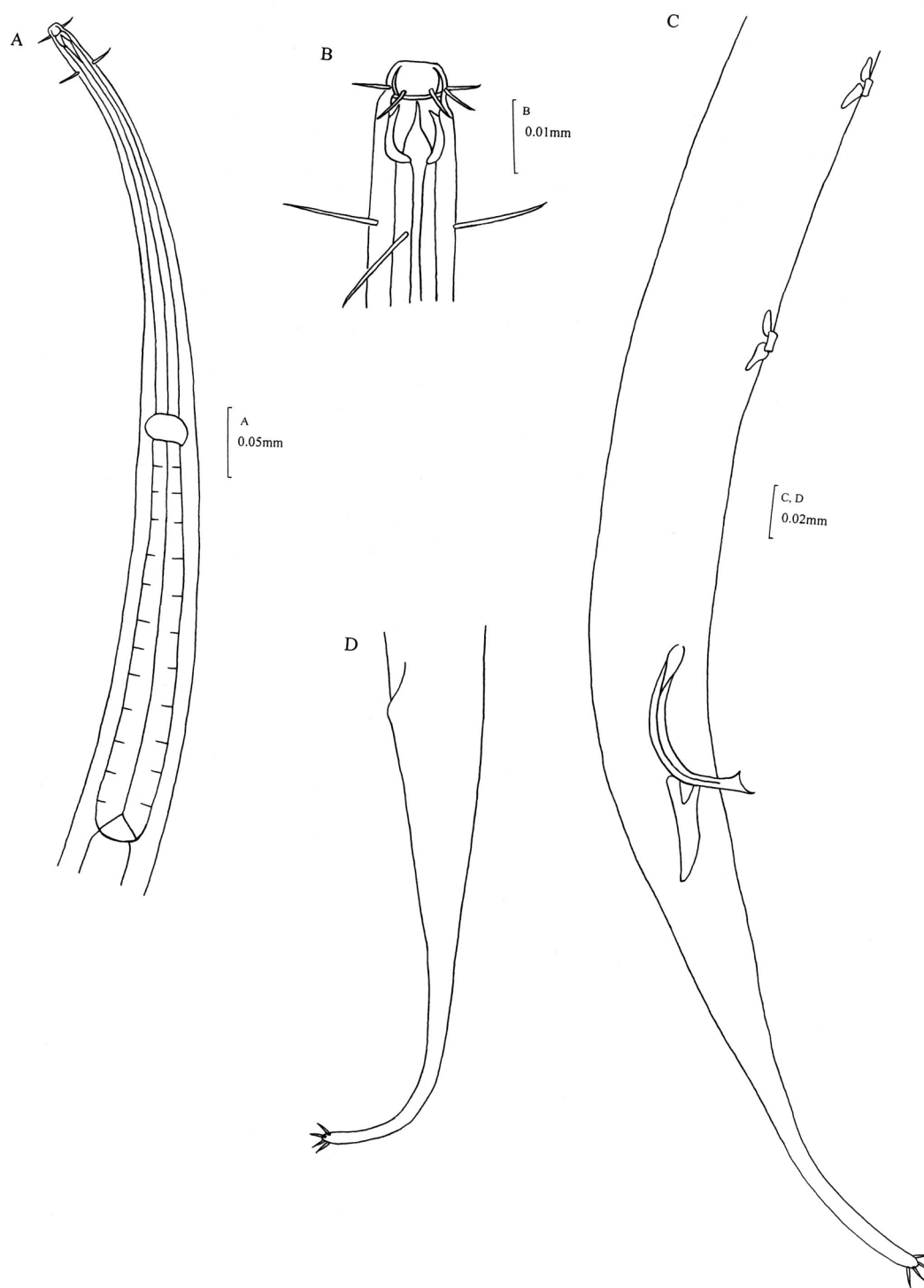


Figure 3. *Abelbolla huanghaiensis* sp. nov. **A.** Lateral view of the male anterior part. **B.** Lateral view of the male head. **C.** Lateral view of the male posterior body part. **D.** Lateral view of the female tail.

Figure 3. *Abelbolla huanghaiensis* sp. nov. **A.** Vue latérale de la partie distale de la tête du mâle et de la région cervicale. **B.** Vue latérale de la partie distale de la tête du mâle. **C.** Vue latérale de la partie postérieure du mâle. **D.** Vue latérale de la queue de la femelle.

sp. nov., there is a hook at the distal end of the spicule, and the gubernacular apophysis is relatively long (longer than 26 μm). This species is the type species of the new genus.

Order Enoplida

Family Enchelidiidae

Genus *Abelbolla* gen. nov.

Abelbolla huanghaiensis sp. nov.

(Figs 3-4)

Type material

Holotype: one male (δ 1: ZB030104212); paratypes: three males (δ 2: ZB0301209311, δ 3: ZB030109311; δ 4: ZB030106211) and three females (φ 1: ZB030104211, φ 2: ZB030117321, φ 3: ZB 030106221).

Type localities

Sublittoral in the Yellow Sea. Station 8794: 36°00.31'N, 123°00.53'E, water depth 70 m, MD₀ 8.79, organic matter 3.98%; Station 9594: 35°29.99'N, 122°29.47'E, water depth 59 m, MD₀ 8.53, organic matter 3.88%; Station 10494: 35°00.46'N, 122°00.37'E, water depth 50 m, MD₀ 4.94, organic matter 2.44%; Station 13294: 33°30.27'N, 123°30.25'E, water depth 63 m, MD₀ 7.07, organic matter 2.77%.

Etymology

This species is named after the name of survey sea area: The Yellow Sea, China

Table 2. Measurements of *Abelbolla huanghaiensis* sp. nov. (in μm)

Tableau 2. Mesures d'*Abelbolla huanghaiensis* sp. nov. (en μm).

Characters	δ 1	δ 2	δ 3	δ 4	φ 1	φ 2	φ 3
Total body length	2390	2228	2267	2327	2306	2377	2642
Maximum body diameter	44	45	50	50	53	54	65
Head diameter	10.5	10	9	10	10	10.5	11
Buccal cavity length	13	14	13	13	14	13.5	13.5
Buccal cavity width	8	7.5	7	8	8	9	9
Length of cephalic setae	7	8	8	7	6	5	4
Length of cervical setae	14	13	14	13	9	-	9.5
Never ring from the anterior end of body	340	310	320	320	330	320	350
Nerve ring c.d.	36	37	36	40	36	37	40
N %	47.8	49.0	54.2	50.0	48.5	45.3	47.9
Oesophagus length	712	633	590	640	680	707	730
Oesophagus c.d.	42	41	48	49	48	48	62
Anal diameter	35	33	35	35	31	29	32
Tail length	198	164	170	187	176	170	172
Tail length / a.b.d.	5.7	5.0	4.9	5.3	5.7	5.9	5.4
Spicule length as chord	60	51	42	50	-	-	-
Spicule length as arc	89	64	61	74	-	-	-
Vulva from anterior	-	-	-	-	1340	1295	1420
Vulva c.d.	-	-	-	-	49	54	65
V%	-	-	-	-	58	54	54
Length of gubernacular apophysis	33	26	27	30	-	-	-
Length of the wing of the posterior supplement	10.5	10	10	10	-	-	-
Length of middle part of the posterior supplement	8	9	6	8	-	-	-
Total length of the posterior supplement	21	19	20	18	-	-	-
Length of the wing of the anterior supplement	10.5	9.5	9.5	10	-	-	-
Length of middle part of the anterior supplement	6	7.5	6	6	-	-	-
Total length of the anterior supplement	23	18	17	24	-	-	-
Distance of the posterior pro-cloacal supplement from cloacal opening	208	165	135	170	-	-	-
Distance between supplements	90	70	72	70	-	-	-
a	54.3	49.5	45.3	46.5	43.5	44.0	40.6
b	3.4	3.5	3.9	3.6	3.4	3.4	3.6
c	12.1	13.6	13.2	12.4	13.1	14.2	15.4

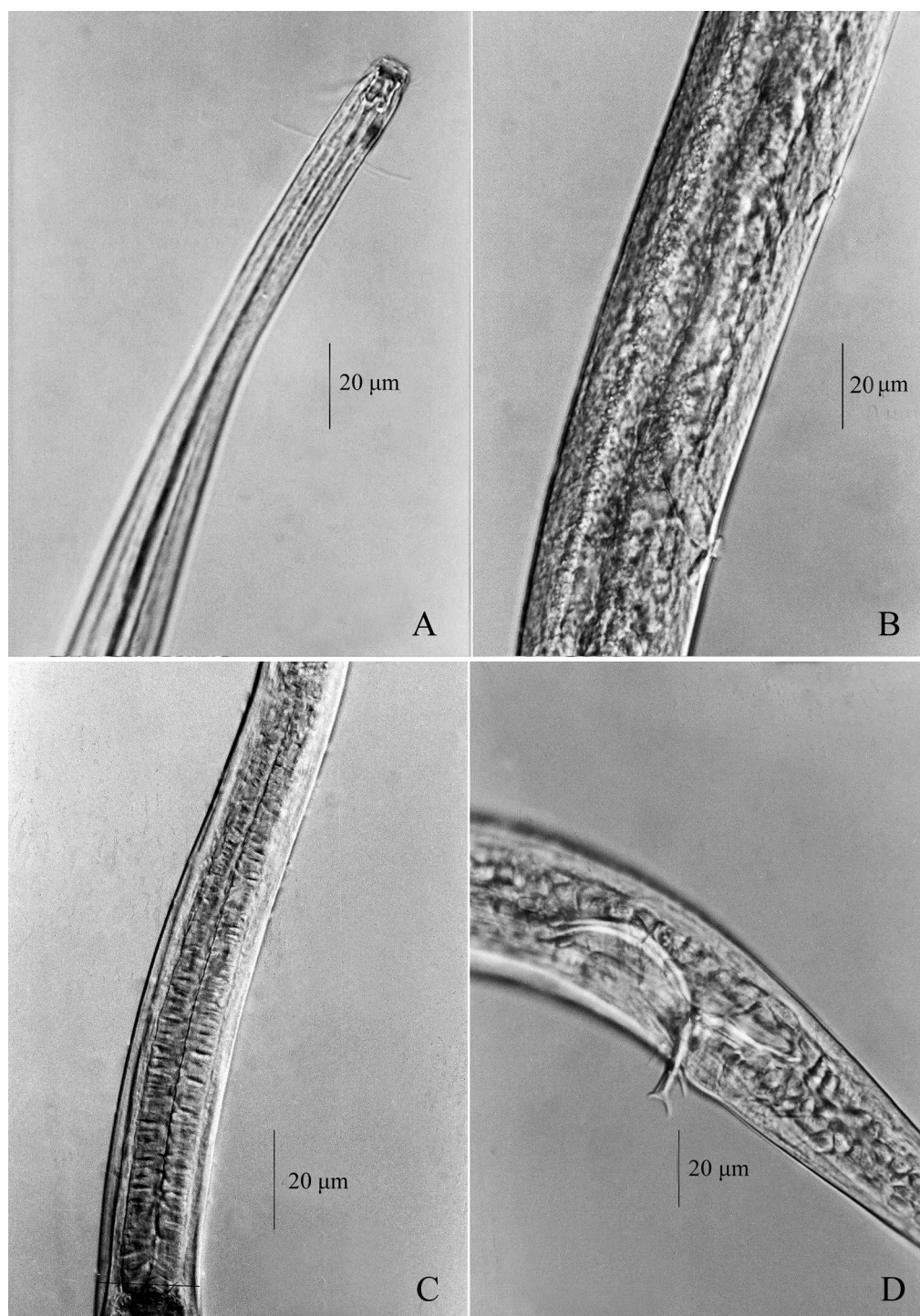


Figure 4. *Abelbolla huanghaiensis* sp. nov. **A.** Lateral view of the male body anterior part. **B.** Supplements. **C.** Œsophageal region. **D.** Spicules.

Figure 4. *Abelbolla huanghaiensis* sp. nov. **A.** Vue latérale de la partie antérieure du mâle. **B.** Suppléments. **C.** Région oesophagienne. **D.** Spicules.

Measurements (table 2)

Holotype male 1:	—	712	M	2192
	10.5	42	44	35
2390 μm ; a = 54.3, b = 3.4, c = 12.1, Sc = 60				
Paratype female 1:	—	680	V	2130
	10	48	49	31
2306 μm ; a = 43.5, b = 3.4, c = 13.1, V = 58 %				

Description

The anterior end of the body tapers to 18%-25% of the body diameter at the base of the oesophagus. Buccal cavity presents a large right ventro-lateral tooth and two less prominent teeth (dorsal and left ventro-lateral in position). The mouth is surrounded by six small papillae and there are ten cephalic setae (4-8 μm long) arranged in one circle. The anterior six cervical setae (9-13 μm long) are in one circle (about 23 μm from head-end). The cuticular ring separating the two buccal chambers is smooth (i.e. with no denticles). The oesophagus expands rather gradually and evenly and is not modified into bulbs, a character which is regarded as characteristic of the genus. Nerve ring 45%-54% of the oesophagus length. Tail conico-cylindrical, 4.9-5.9 a.b.d.,

gradually tapering at the distal third, then cylindrical with a slightly swollen tip.

Males: Spicules are equal in length and identical in structure with rounded, sharp proximal ends. Arc of spicules 61-89 μm long (1.7-2.5 a.b.d.), proximally cephalate, distally hooked. Gubernaculum with a pair of long dorsal apophysis, 26-33 μm long. The two pre-cloacal supplements are well developed and lie close together relatively far from the cloacal opening: anterior one 0.5-0.7 a.b.d., posterior one 0.5-0.6 a.b.d..

Females: Ovaries paired, equal, opposed, reflexed. Vulva at 54%-58% of body length.

Differential diagnosis

Abelbolla huanghaiensis sp. nov. is characterized by the shape and the length of the spicules and gubernacular apophysis. It is close to *Abelbolla boucheri* sp. nov. and the principal differences between the two species are the structure of spicule and the length of gubernacular apophysis. In this species, there is a hook at the distal end of the spicule, the gubernacular apophysis is relatively longer (longer than 26 μm), whilst in species *Abelbolla boucheri*, there is no hook at the distal end of the spicule, and apophysis of gubernaculum are short (shorter than 14 μm).

Table 3. Measurements of *Abelbolla warwicki* sp. nov. (in μm).**Tableau 3.** Mesure d'*Abelbolla warwicki* sp. nov. (en μm).

Characters	♂ 1	♂ 2	♂ 3	Juvenile 1	Juvenile 2
Total body length	3037	3642	2315	2461	1662
Maximum body diameter	70	119	52	68	44
Head diameter	18	29	13	16	14
Buccal cavity length	23	31	16	22	21
Buccal cavity width	16	23	10	14	13
Length of cephalic setae	16	14	12	10	9
Length of cervical setae	32	35	9	15	15
Never ring from the anterior end of body	320	412	260	242	225
Nerve ring c.d.	60	80	42	50	37
N %	37	31	45	30	35
Oesophagus length	869	1340	575	810	637
Oesophagus c.d.	68	107	49	63	40
Anal diameter	49	65	33	42	29
Tail length	177	212	135	191	157
Tail length / a.b.d.	3.6	3.3	4.1	4.5	5.4
Spicule length as chord	88	102	42	-	-
Spicule length as arc	100	130	56	-	-
Length of gubernacular apophysis	16	23	12	-	-
Length of the anterior supplement	29	23	-	-	-
Length of the posterior supplement	36	30	-	-	-
Distance of the posterior pro-cloacal supplement from cloacal opening	230	60	-	-	-
Distance between supplements	79	70	-	-	-
a	43.4	30.6	44.5	37.9	37.8
b	3.5	2.7	4.0	3.2	2.6
c	17.2	17.2	17.1	13.5	10.6

Order Enoplida

Family Enchelidiidae

Genus *Abelbolla* gen. nov.*Abelbolla warwicki* sp. nov.

(Figs 5-6)

Type material

Holotype: one male (δ 1: ZB02080181); paratypes: two males (δ 2: ZB030114111, δ 3: ZB030108311) and two juveniles (Juvenile 1: ZB030101113, Juvenile 2: ZB030101312).

Type locality

Sublittoral in the Yellow Sea. Station CS02: 33°48.94'N, 124°30.06'E, water depth 82 m, MD ϕ 5.54, organic matter 3.08%; Station 98194: 35°29.85'N, 124°30.52'E, water depth 89 m, MD ϕ 7.34, organic matter 2.65%; Station 118194: 34°29.77'N, 124°29.89'E, water depth 77 m, MD ϕ 3.85, organic matter 2.39%; Station 11594: 34°29.74'N, 122°30.21'E, water

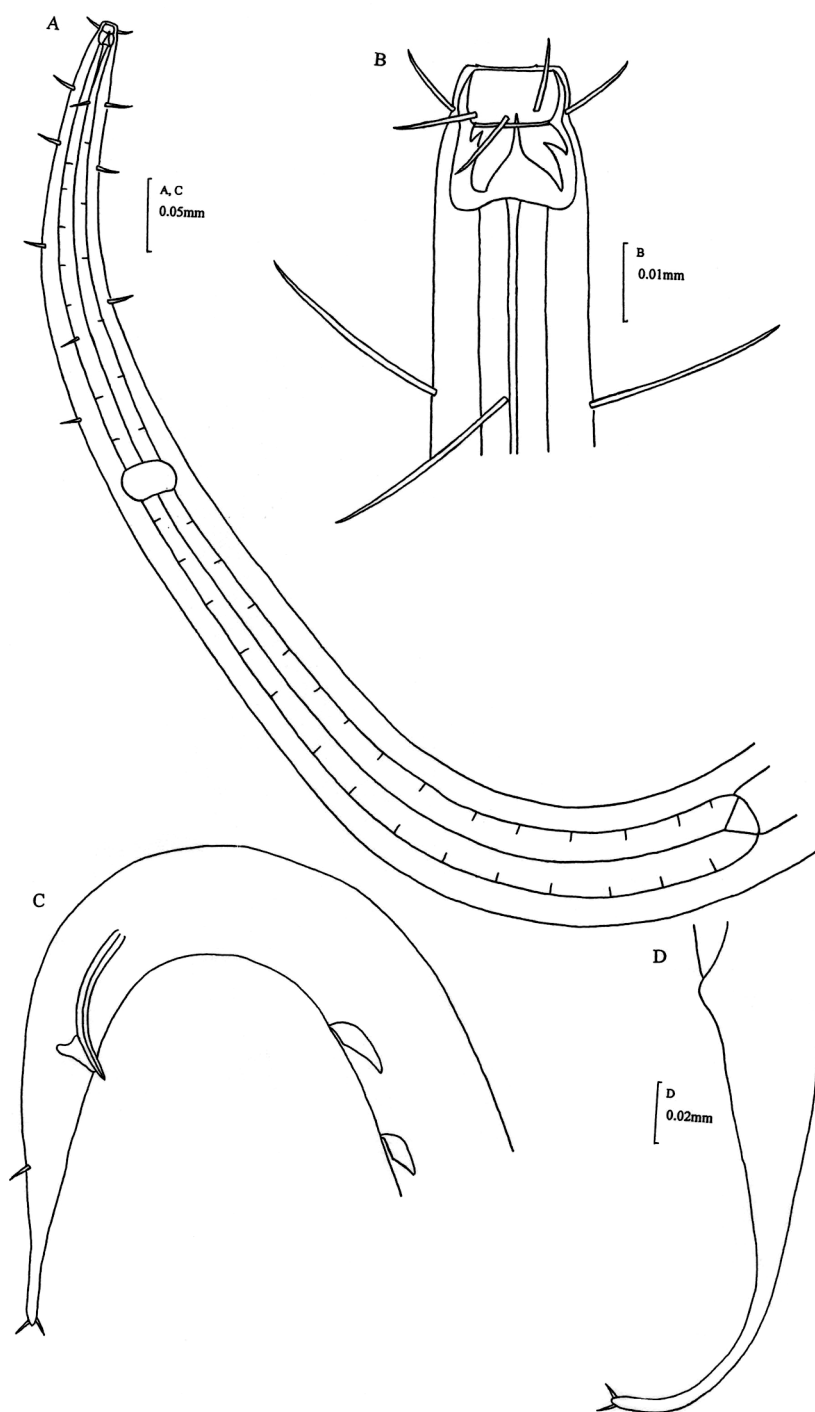


Figure 5. *Abelbolla warwicki* sp. nov. **A** Lateral view of the male anterior part. **B**. Lateral view of the male head. **C**. Lateral view of the male posterior part. **D**. Lateral view of the juvenile tail.

Figure 5. *Abelbolla warwicki* sp. nov. **A**. Vue latérale de la partie antérieure du mâle. **B**. Vue latérale de la partie distale de la tête du mâle. **C**. Vue latérale de la partie postérieure du mâle. **D**. Vue latérale de la queue du juvénile.

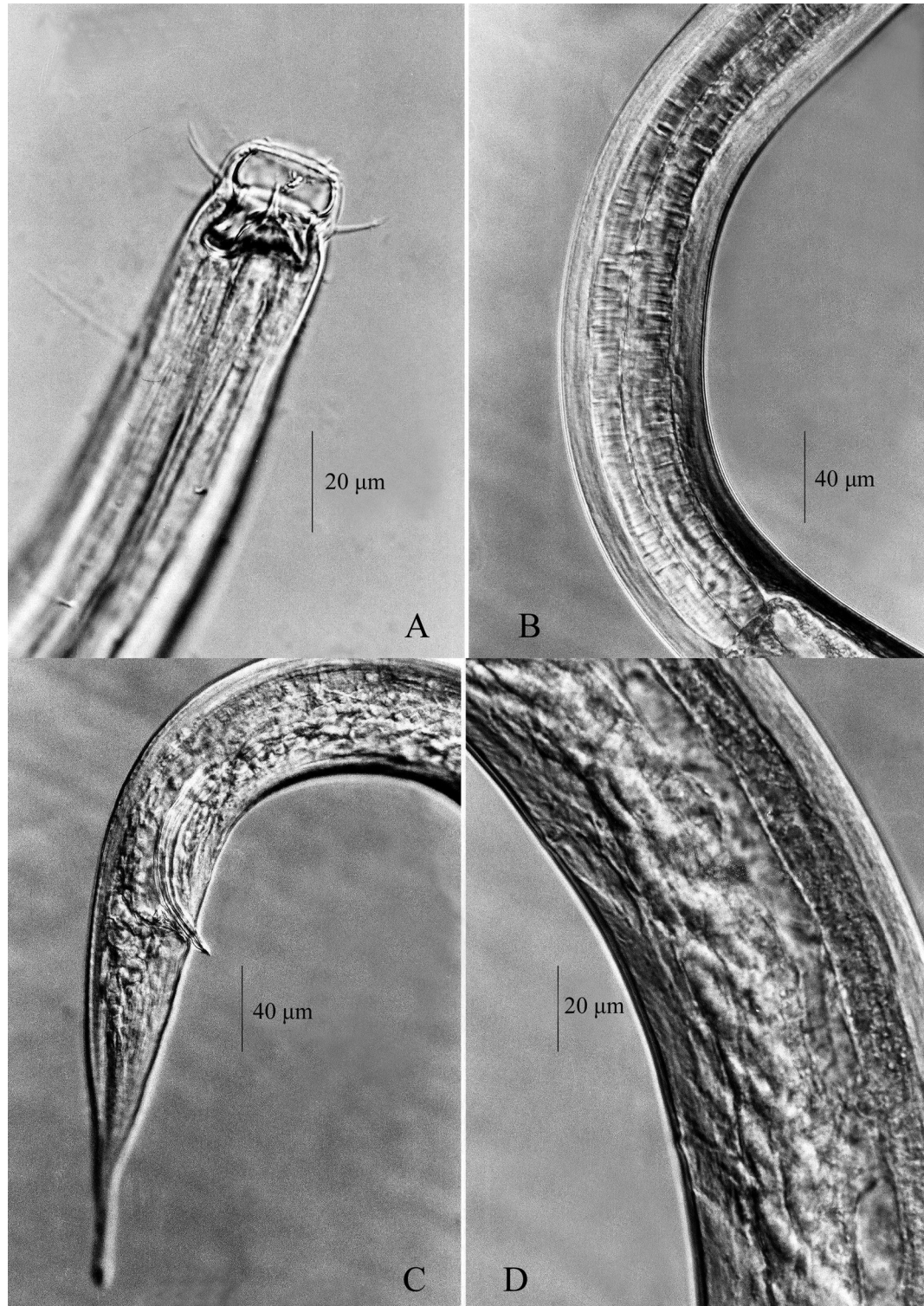


Figure 6. *Abelbolla warwicki* sp. nov. **A.** Lateral view of the male head-end and cervical region. **B.** Oesophageal region. **C.** Lateral view of the male tail. **D.** Two supplements.

Figure 6. *Abelbolla warwicki* sp. nov. **A.** Vue latérale de la partie distale de la tête du mâle et de la région cervicale. **B.** Région oesophagienne **C.** Vue latérale de la queue du mâle. **D.** Suppléments.

depth 63 m, MD_Ø 5.57, organic matter 1.85%; Station 7674: 37°00.56'N, 123°30.22'E, water depth 72 m, MD_Ø 3.79, organic matter 1.94%; Station 12494: 33°59.76'N, 122°59.85'E, water depth 68 m, MD_Ø 7.49, organic matter 2.77%.

Etymology

This species is named in honor of professor R. M. Warwick. (Plymouth Marine laboratory, UK)

Measurements (table 3)

Holotype male 1: $\frac{— 869 \text{ M } 2860}{17.5 \text{ } 68 \text{ } 70 \text{ } 49}$
3037 μm ; a = 43.4, b = 3.5, c = 17.2, Sc = 88

Paratype juvenile 1: $\frac{— 810 \text{ M } 2270}{16 \text{ } 63 \text{ } 66 \text{ } 42}$
2461 μm ; a = 37.9, b = 3.2, c = 13.5

Description

The anterior end of the body tapers gradually to 26%–28% of the body diameter at the base of the oesophagus. The buccal cavity presents a large right ventro-lateral tooth and two less prominent teeth (dorsal and left ventro-lateral in position). The mouth is surrounded by six small papillae and there are ten cephalic setae (9–16 μm long) arranged in one circle. The cuticular ring separating the two buccal chambers is smooth. The oesophagus expands gradually and evenly, and is not modified into bulbs. Nerve ring 31%–46% of the oesophagus length. Tail 3.3–5.4 a.b.d., conico-cylindrical. Male tail tapers at the anterior two thirds, the distal third is thin and cylindrical with two terminal setae; juvenile tail is long and filiform and tapers at two thirds of the total length.

Males: The slender spicules 56–130 μm (1.7–2.0 a.b.d.) long, measured as an arc. Guberculum with small two dorso-caudal apophysis, 12–23 μm long. Precloacal supplements reduced, appearing pocked like or disappearance, not presenting winged shape.

Females: Mature females were not found.

Differential diagnosis

Abelbolla warwicki sp. nov. distinguishes from all other species in this genus by the large buccal cavity (more than 10 μm width) and no winged precloacal supplements.

Acknowledgements

We are very grateful to professor R. M. Warwick, Dr. M. C. Austin and D. J. Somerfield for help in a variety of ways. Present work is jointly funded by the National Key Basic Research Program from the Minister of Science and Technology, P. R. China (G 19990437 and 2002CB412400), and National Science Foundation of China (Project No: 40176033). Two anonymous referees made a great work and provided timely and valuable comments.

References

- Andrássy I. 1973.** Über vier homonym Nematodengattungen. *Nematologica*, **19**: 403–404.
- Cobb N.A., 1920.** One hundred new nemas (Type species of 100 general. *Contr. Sci. Nematol.*, **9**: 217–343.
- Hope W.D. & Zhang Z.N. 1995.** New nematodes from the Yellow Sea, *Hopperia hexadentata* sp. nov. and *Cervonema deliensis* sp. nov. (*Chromadorida: Comesomatidae*), with observations on morphology and systematic. *Invertebrate Biology*, **114**: 119–138.
- Platt H.M. 1973.** Free-living marine nematodes from Strangford Lough, Northern Ireland. *Cahiers de Biologie Marine*, **14**: 295–321.
- Platt H.M. & Warwick R.M. 1983.** Free-living marine nematodes (Synopsis of the British Fauna No. 28, part I: British Enopliids), *Cambridge: Cambridge University press*. 248 p.
- Wieser W. 1953.** Free-living marine nematodes I. Enoploidea. *Acta Universita Lundensis*, **49**: 1–155.
- Zhang Z.N. & Platt H.M. 1983.** New species of marine nematodes from Qingdao, China. *Bulletin of the British Natural History Museum*, **45**: 253–261.
- Zhang Z.N. & Ji R.B. 1994.** The first record of *Terschellingia longicaudata* DE MAN, 1907. *Journal of Ocean University of Qingdao, Suppl.*: 215–219.
- Zhang Z.N., Lin X. & Yu Z.S. 1994.** Preliminary study on the phytal meiofauna from the rocky beach at Shicao Dalian, China. *Journal of Ocean University of Qingdao*, **24**: 373–383.