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Nematodes from the Strait of Magellan and the Beagle Channel (Chile): the genera *Cervonema* and *Laimella* (Comesomatidae: Nematoda)

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Abstract

Five species of *Cewonema* and four species of *Laimella* are described from the Strait of Magellan and the Beagle Channel, Chile, six species of which *are* new to science. *Cewonema chilensis* n. sp. and *Cewonema hermani* n. sp. are separated from other known species of *Cewonema* by a short cervical region (less than one head diameter from the front end to the anterior border of the amphids). *Cewonema chilensis* n. sp. is characterised by a tail length of 5 anal diameters with posterior half filiform; *Cewonema hermani* n. sp. is characterised by a tail length of 6-9 anal diameter and posterior part (75%) cylindrical. *Cewonema shiae* n. sp. is characterised by the cephalic seta 4 μm long, amphids 9-10 μm in diameter; spicules 16 μm long and 0.8–0.9 abd; tail 4.7-5.4 anal diameter and 50% posterior part filiform; 4-5 minute precloacal supplements. *Laimellu subterminata* n. sp. is characterised by the subterminal position of the buccal cavity which separates it from the other species of the genus. *Laimella annae* n. sp. is characterised by the head diameter 9-11 μm, cephalic setae and external labial setae 9 + 5 μm long, respectively, amphids 7 μm in diameter; spicules 28-30 μm long; tail 14-17 anal diameter and posterior part (75%) filiform; 5 precloacal supplements. *Laimella sandrae* n. sp. is very close to *Laimella annae* n. sp. in having similar cephalic sensilla, amphids and spicules. *Laimella sandrae* n. sp., however, can be separated from *L.annae* n. sp. by the shape of head and the structure of sperm cells, the total body length and the cylindrical part of tail. *Cewonemapapillatum* Jensen, *1988, C. tenuicauda* (Stekhoven, 1950) and *L. longicauda* Cobb, 1920 are found in this area as well. The key of all known species of *Cewonema* and *Laimellu* is presented.

Abbreviations: a – body length divided by maximum body diameter; abd – anal body diameter; abe – anterior body end; amph D – amphid diameter; amph-abe – distance from anterior border of amphid to anterior body end; b – body length divided by pharyngeal length; BL – body length; c – body length divided by tail length; c' – tail length divided by anal body diameter; cbd – corresponding body diameter; CSL – cephalic setae length; CV% – coefficient of variation; E-abe – distance of excretory pore from anterior body end; gub L – gubernacular apophysis length; HD – head diameter; M – maximum body diameter; NR – distance of nerve ring from the anterior body end; ph L – pharyngeal length; ph ebd – pharyngeal end body diameter; s' – spicule length divided by anal body diameter; SD – standard deviation; spic – spicule length; TL – tail length; V – vulva distance from the anterior end of body; V% – position of vulva as percentage of body length from anterior end

Formula: Values above the line indicate the body length from abe to the measured organ.

$$\frac{\text{level of cephalic setae} \quad \text{end of the pharynx} \quad \text{M(V)} \quad \text{anus}}{\text{cbd}} \qquad \text{total body length}$$

All measurements are in μm and measured along the arc for curved structures.

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Introduction

The genera *Cewonema* and *Luimella* belong to the subfamily Sabatieriinae Filipjev, 1934 and are characterised by a small buccal cavity, fine transverse cuticular striations without punctuation, which are different from the other genera (except *Setosabatieru)* in this subfamily (Jensen, 1979; Platt, 1985).

The genus *Cervonema* was erected by Wieser in 1954 and 8 species are known to date: *C. allometricum* Wieser, 1954, *C. brevicauda* Gourbault, 1980, C. *gourbaulti* Muthumbi et al., 1997, *C. jenseni Gourbault,* 1980, *C. macramphis* Jensen, 1979, C. *papillatum* Jensen, 1988, and *C. tenuicaudu* (Stekhoven, 1950). It is characterised by a narrow and elongated cervical region; external labial setae and cephalic setae almost equal in length; spicules simple and weekly sclerotized. The two new species, *Cervonema chilensis* n. sp. and C. *hermani* n. sp. described in this paper, however, show that the cervical region could be both short or long in *Cervonema.*

The genus *Laimella* was erected by Cobb in 1920 and has 4 valid species, i.e. *L. jilipjevi* Jensen, 1979, *L. minuta* Vitiello, 1970, *L. longicauda* Cobb, 1920 and *L. vera* Vitiello, 1970. *Laimella* is characterised by a tubular buccal cavity with three small teeth, second and third rows of 'head' sensilla very close together, cephalic setae are normally much longer than external labial setae; spicules stout and short, gubernaculum with caudal apophyses; tail long, conical with a filiform posterior portion. The species *Laimella subterminata* n. sp. described here shows the buccal cavity can be in a subterminal position.

Five species of *Cervonema* and four species of *Laimella* are described in this paper, among them, *Cewonema chilensis* n. sp., C. *hermani* n. sp., C. *shiae* n; sp., *Luimella subterminata* n. sp., *L. annae* n. sp. and *L. sandrae* n. sp. are new to science. A key of all known species of *Cewonema* and *Laimella* is presented.

Materials and methods

The study area and sampling method, as well as the specimens treatment are described by Chen & Vincx (1998). Table 1 shows the stations at which the specimens were collected during the joint Chilean-German-Italian Magellan 'Victor Hensen' Campaign during 17 October – 25 November, 1994 (Arntz & Gorny, 1996). Type specimens are deposited in the collection of the Marine Biology Section of the University of Gent (MBRUG) (slide numbers 10560-10581).

Results

Cervonema chilensis n. sp. (Figure IA-C)

Materialfound: One male collected on 25 October, 1994.

Holotype: ♂1 on the slide number MBRUG 10560.

Type locality and habitat: Station 864 in the Strait of Magellan; Lat. S. 53" 42'6, Long. W. 70" 48'7; water depth 550 m; muddy sediment, median grain size 17 μm (Table 1).

Etymology: The species is named after the country Chile.

Measurements:

Holotype: ♂1 $\frac{-\quad 140 \quad M \quad 1072}{9 \quad 25 \quad 34 \quad 25}$ 1192

a:35.1, b:8.5, c:9.9, c/:5.0, s/:1.0; spic:23

Description

Male: Body cylindrical, tapering towards both extremities. Head is 9 μm in diameter, or 36% of the diameter of posterior end of pharynx. Cuticle is finely striated throughout the whole body length (without drawing in the figure). Somatic setae 3 μm long and scattered in the cervical and anal region.

The internal labial sensilla are indistinct, six external labial setae and four cephalic setae are in two circles, equal in length, 7 μm long or 75% of head diameter. Amphids spiral with 5.5 closely spaced turns, 10 μm in diameter, 89% of corresponding body diameter; anterior border of amphid located at 7 μm behind front head end, i.e. less than one head diameter.

Buccal cavity tubular and narrow. The pharynx is cylindrical, with a terminal bulb. Nerve ring located at 80 μm (57%) of the pharyngeal length from the anterior. The excretory pore posterior of nerve ring while the excretory gland cell is located posterior of the small Cardia.

The reproductive system is diorchic, testes opposed and outstretched, anterior testis (286 μm long) to the left, posterior testis (210 μm long) to the right of intestine. Spermatozoa are irregularly long oviform. Spicules simple, slightly bent, slightly less then one anal diameter. There is one precloacal seta, 3 μm in

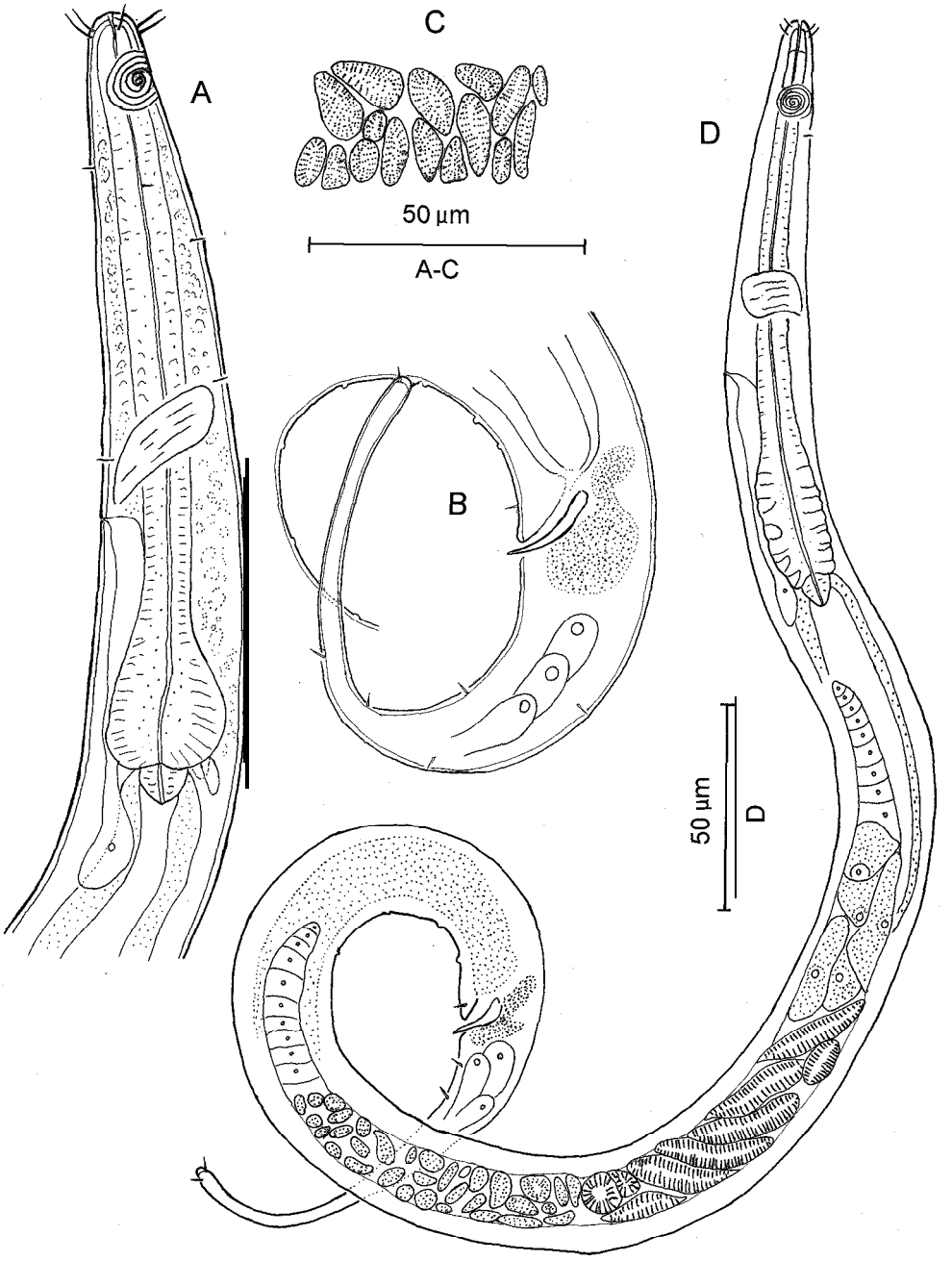

Figure 1. *Cervonema chilensis* n. sp. (A) ♂ 1 Pharyngeal region; (B) ♂ 1 Copulatory apparatus and tail; (C) ♂ 1 Spermatozoa; (D) *Cervonema* ***shiae*** n. sp. ♂ 2 Total view.

length, and 7 minute precloacal supplements; the two posteriormost supplements are more close together than the others.

The tail is conical with 53% of the posterior part filiform. Tail length is 120 μm, or 5 anal diameters. Tail tip is enlarged with three short terminal setae.

Female: not found.

Differential diagnosis and discussion

Cervonema chilensis n. sp. is characterised by the position of the amphid close to the anterior body end

Table 1. The location of sampling stations and some environmental features in the Strait of Magellan and the Beagle Channel

Station no.	Date	Lat. S	Long. W	Depth (m)	Median grain size (μm)	sand (>63 μm) (%)	silt (4-63 μm) (%)	clay (< 4 μm) (%)
840	23-Oct-94	53° 08 8	70" 38' 4	123	28.5	22.3	59.4	18.3
846	23-Oct-94	53° 21' 6	70° 43' 3	195	65.4	51.0	39.9	9.2
864	23-Oct-94	53° 42' 6	70" 48' 7	550	17.2	20.2	57.9	22.0
954	31-Oct-94	52° 59' 7	70" 33'0	79	149.6	77.0	13.4	9.6
956	31-Oct-94	52" 59' 9	70° 32'9	80	195.2	83.5	12.5	4.0
977	01-Nov-94	53° 33' 0	70" 39' 2	459	8.6	2.0	67.8	30.2
1033	01-Nov-94	54° 52′ 7	69" 55' 2	309	8.0	1.0	72.3	26.7
1135	07-Nov-94	54" 55' 0	68° 49' 9	257	7.0	0.0	67.5	32.5
1139	07-Nov-94	54° 55' 0	68" 39' 2	255	11.0	6.6	71.8	21.6
1144	08-Nov-94	55° 08' 4	66° 54' 5	110	7.5	0.0	66.2	33.8

(8 μm); cephalic seta 7 μm long; spicules 23 μm in curve, 7 precloacal supplements; tail 5 anal diameter and 53% posterior part filiform.

Cewonema chilensis n. sp. is close to *C. papillatum* Jensen, 1988, both having similar spicules and supplements, as well as having the similar ratios of a, b and c. One can distinguish *Cewonema chilensis* n. sp. from *C. papillatum* by the distance anterior body end – amphid (8 μm vs. 20-22 μm); the cephalic setae length (7 μm vs. 3 μm), and the tail shape (53% of filiform part vs. 30–40% of filiform part).

Cewonema hermani n. sp. (Figure 2A–F)

Materials and type specimens: Three males and three females collected from stations 954 and 956 on 31 October, 1994. Holotype: ♂$_1$ on the slide number MBRUG 10561. Allotype: ♀$_1$ is on the slide number MBRUG 10562. ♂$_2$–♂$_3$ on the slides MBRUG 10563 and 10564; ♀$_2$ – ♀$_3$ on the slides MBRUG 10565 and 10566.

Type locality and habitat: Station 954 in the Strait of Magellan; Lat. S: 52" 59'7; Long. W: 70" 33'0. Water depth: 79 m; Sandy sediment, Median grain size: 149.6 μm.

Etymology: The species is named after Dr Rudy Herman who collected the materials during the Magellan Campaign.

Measurements:

Holotype: ♂$_1$ $\frac{-\quad 154 \quad M \quad 1459}{13 \quad 24 \quad 26 \quad 24}$ 1641

a:63.1, b:10.7, c:9.0, c′:7.6, s′:1.0; spic:24

Allotype: ♀$_1$ $\frac{-\quad 174 \quad 809 \quad 1428}{13 \quad 34 \quad 41 \quad 27}$ 1677

a:40.9, b:9.6, c:6.7, c′:9.2; V%=48.2
Other measurements see Table 2.

Description

Males: Body cylindrical, tapering towards both ends. Head 12-13 μm in diameter, or 40–50% of the body diameter of posterior end of pharynx. The distance from anterior body end to anterior border of amphid is 8 μm and only slightly narrowing. Cuticle is finely striated (without drawing in the figure). Somatic setae 5-6 μm long, the first pair of somatic setae located at 29 μm of the front end.

The internal labial sensilla are indistinct, six external labial setae and four cephalic setae are equal in length, almost at the same level and 8-10 μm long or 75% of head diameter. Amphids spiral with 5.5 turns, 13 μm in diameter, 83% of corresponding body diameter; anterior border of amphids located 8-9 μm behind front end, i.e. less than one head diameter.

Buccal cavity tubular and narrow. Pharynx cylindrical, 154-173 μm long with an elongated terminal bulb, about one fifth of pharyngeal length. The nerve ring is located at 87-100 μm (57%) of the pharyngeal length from the anterior. The excretory pore is just posterior of the nerve ring. The renette cell is obvious and located posterior of the small Cardia.

The reproductive system is diorchic, testes opposite and outstretched, anterior testis to the left, posterior

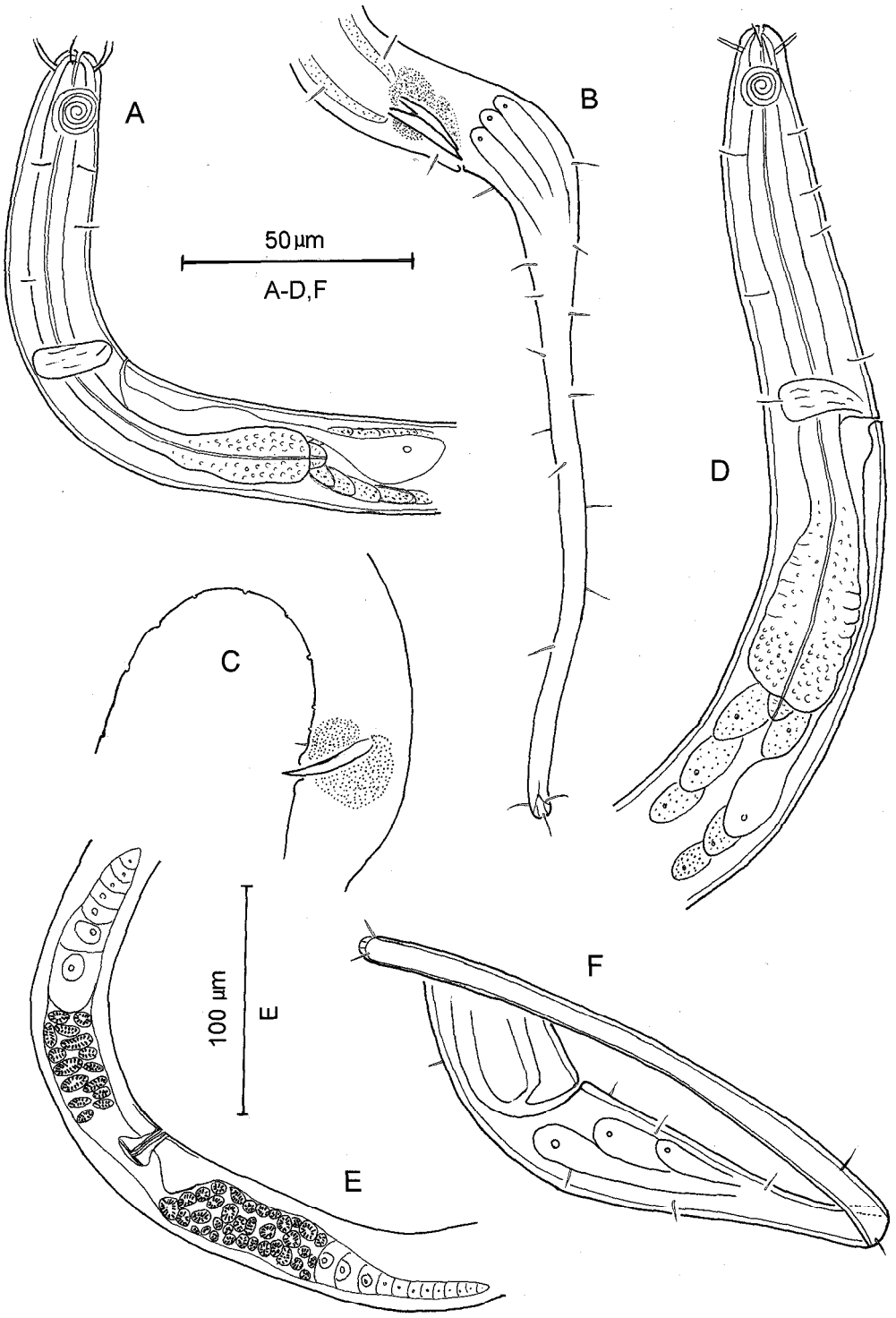

Figure 2. *Cervonema hermani* n. sp. (A) ♂1 Pharyngeal region; (B) ♂1 Copulatory apparatus and tail; (C) ♂ 1 Spicule and precloacal supplements; (D) ♀1 Pharyngeal region; (E) ♀1 Reproductive system; (F) ♀1 Tail and rectal region.

Table 2. Measurements of Cewonema ***chilensis*** n. sp. and Cervonema *hermani* n. sp. from the Strait of Magellan and the Beagle Channel

Cewonema	Male: *n*=3			Female: *n*=3			Cervonema
hermani n. sp.	male 1	male 2	male 3	female 1	female 2	female3	***chilensis*** n. sp.
BL	1641	1577	1607	1677	1798	1907	1192
a	63.1	52.6	64.3	40.9	47.3	46.5	35.1
b	10.7	9.1	9.9	9.6	9.4	10.3	8.5
c	9.0	9.6	7.5	6.7	7.5	7.7	9.9
HD	13	12	12	13	14	13.4	9
Hd/ph ebd (%)	54.2	40.0	41.4	38.2	38.9	40.6	36.0
CSL	10	8	9	7.4	8	10	7
amph-abe	9	8	9	10	10.5	11	8
amph D	13.4	13	13	11.4	11.4	11.7	10
amph/cbd (%)	83	80	80	63	70	80	88.5
NR	87.1	100		103	114	106	80.5
NR/ph L (%)	56.6	57.8	56.0	59.2	59.7	57.3	57.5
ph L	154	173	163	174	191	185	140
ph ebd	24	30	29	34	36	33	25
ph L/ph ebd	6.4	5.8	5.6	5.1	5.3	5.6	5.6
M	26	30	25	41	38	41	34
V				809	902	912	
V%				48.2	50.2	47.8	
spic	23.5	25.4	23.5				23.4
s′	1.0	0.9	1.0				1.0
TL	182	165	213	249	240	249	120
abd	24	29	23	27	36	29	24
c′	7.6	5.7	9.3	9.2	6.7	8.6	5.0

testis to the right of intestine. Spicules simple, slightly bent, 23-25 μm long, equal one anal diameter. There is one precloacal seta, 5-6 μm in length. There are 9 precloacal supplements; the two most posterior supplements are more closely spaced than the others are.

The tail is 165-213 μm long, 5.7-9.3 abd; 25% conical with 75% of posterior part cylindrical. The tail tip is not enlarged, three terminal setae 6 μm.

Females: Very similar to the males in general morphology, but spiral amphids with less turns (4-5 vs. 5.5 turns). The de Man's ratio 'a' is smaller than in the males (41–47 vs. 53-64). Reproductive system is didelphic, ovaries opposite and outstretched, anterior branch (203 μm long) to the left and posterior ovary (193 μm long) to the right of the intestine. The vulva is at 48–50% of the body length from the anterior; the tail 6.7-9.2 abd.

Differential diagnosis and discussion

Cewonema hermani n. sp. is characterised by a short distance from the front end to the anterior border of amphids (less than one head diameter); cephalic setae 8–10 μm long, amphids 13 μm in diameter; spicules 23-25 μm, 6-9 precloacal supplements; tail 6-9 anal diameter and cylindro-conical.

Cewonema hermani n. sp. can be easily distinguished from all other known species of *Cewonema* by the short cervical region, a character state which is shared with *Cewonema chilensis* n. sp. These two species can be separated by the following characters: the somatic setae of *Cewonema hermani* n. sp. are longer (5-6 μm vs. 3 μm) than in *C. chilensis;* the shape of the pharyngeal bulb and of the tail are different, the conical portion of the tail is shorter in *Cewonema hermani* n. sp. (25% vs. 47%).

Cervonema papillatum Jensen, 1988 (Figure 3A–G)

Materials studied: Three males and two females.

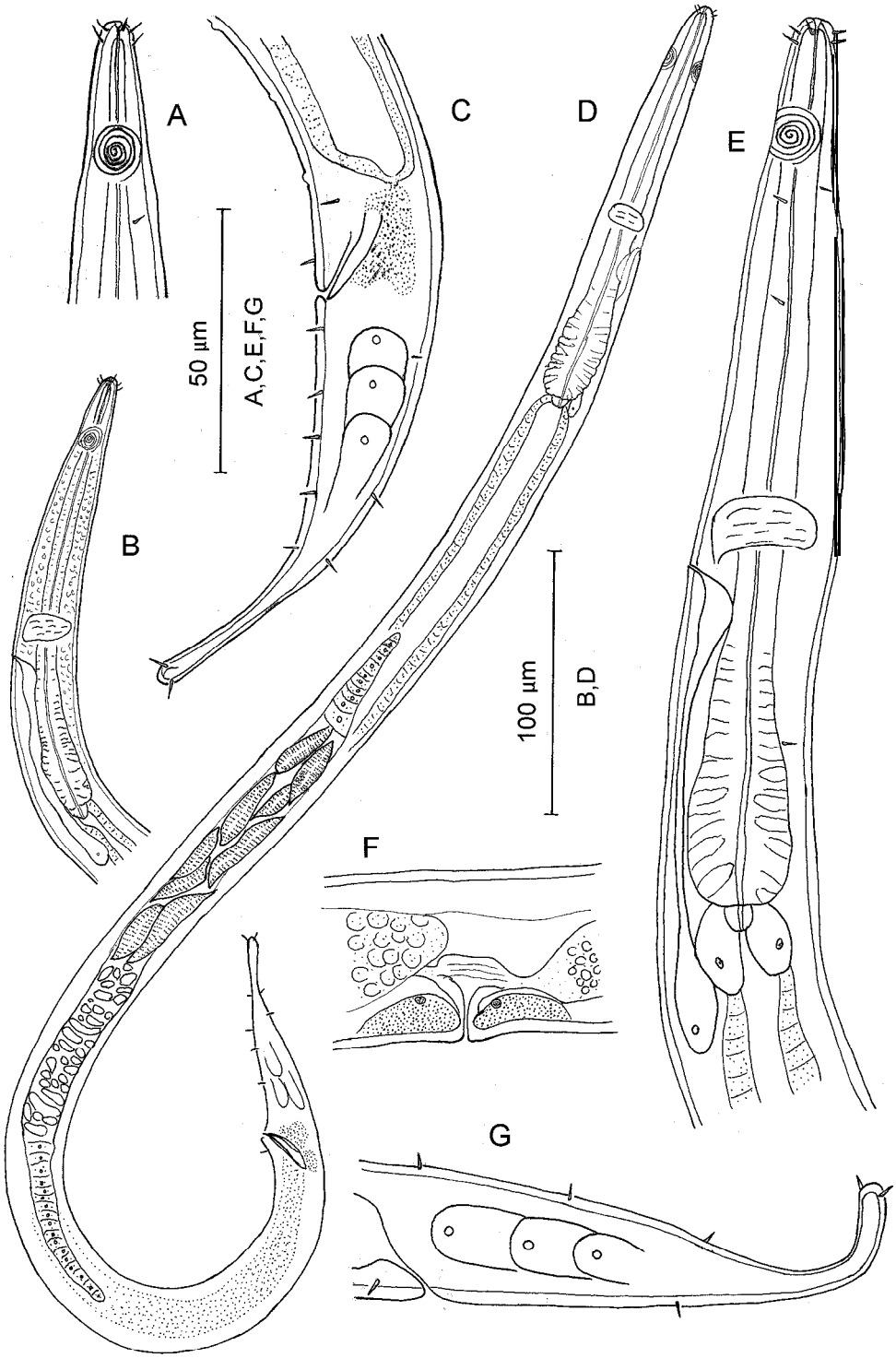

Figure 3. Cervonema *papillatum* Jensen, 1988. (A) ♂$_1$ Anterior body region; (B) ♂$_1$ Pharyngeal region; (C) ♂$_1$ Copulatory apparatus and tail; (D) ♂$_2$ Total view; (E) ♀$_1$ Pharyngeal region; (F) ♀$_1$ Vaginal region; (G) ♀$_1$ Tail.

Table 3. Measurements of *Cervonema papillatum* Jensen, 1988 from the Strait of Magellan and the Beagle Channel

	Male: *n*=3			Female: *n*=2	
	male 1	male 2	male 3	female 1	female 2
BL	873	765	762	1040	962
a	30.1	30.6	30.5	30.6	24.1
b	5.2	4.8	4.6	6.1	5.8
	10.2	10.2	10.9	10.8	8.9
HD	7	7	7	8	7
Hd/ph ebd (%)	24.9	30.4	33.3	25.8	23.3
CSL	4	3	3	4.7	4.5
amph-abe	19	17.4	16	17	18.7
amph D	10.7	10	9.4	11.4	11.4
amph/cbd (%)	89	81	80	85	85
NR	100	88	95	102	108
NR/ph L(%)	59.5	54.7	51.6	59.6	65.1
E-abe	112	105	106	110	106
E-abe/ph L (%)	66.7	65.2	64.2	64.3	63.9
ph L	168	161	165	171	166
ph ebd	26	23	21	31	30
ph L/ph ebd	6.5	7.0	7.9	5.5	5.5
M	29	25	25	34	40
V				533	516
V%				51.3	53.6
spic	20.1	20.8	16.7		
s′	0.9	1.0	1.0		
TL	86	75	70 96	108	
abd	23	21	17	26	24
	3.7	3.6	4.1	3.7	4.5

Locality and habitat: Collected from stations 840, 1033 and 1139. Water depth 123-309 m, muddy sediments (see Table 1).

Measurements:

$$\male_1 \quad \frac{-\quad 168 \quad M \quad 787}{7 \quad 26 \quad 29 \quad 23} \quad 873$$

a:30.1, b:5.2, c:10.2, c′:3.7, s′:0.8; spic:19

$$\female_1 \quad \frac{-\quad 171 \quad 533 \quad 944}{8 \quad 31 \quad 34 \quad 26} \quad 1040$$

a:30.6, b:6.1, c:10.8, c′:3.7; V%=51.3
Other measurements see Table 3.

Description

Males: Body cylindrical, tapering at both ends. Head is 7 μm in diameter, or 25–33% of the diameter of posterior end of pharynx. Cuticle is finely striated (without drawing in the figure). Somatic setae 2-3 μm long; one or two setae at 8 μm behind of the posterior border of the amphids and more numerous somatic setae in the region of the tail.

The internal labial sensilla are indistinct, six external labial setae and four cephalic setae in two separate circles but equal in length, 3-4 μm long or 50% of head diameter. Amphids spiral with 5-6 closely spaced turns, 9-l 1 μm in diameter, 80–89% of corresponding body diameter; anterior border of amphids located 16-19 μm behind head end, about 2.5 head diameter.

Buccal cavity tubular and narrow, 7 μm deep. Pharynx cylindrical, 161-168 μm long, with an elongated posterior bulb (one fifth of pharyngeal length). Nerve ring located at 88-100 μm (55-60%) of the pharyngeal length from the anterior. The excretory pore is behind the nerve ring and the renette cell posterior of the small Cardia. First set of intestinal cells always swollen.

The reproductive system is diorchic, testes opposite and outstretched, 310 μm long. Anterior testis to the left, posterior testis to the right of intestine. Spicules simple and short, slightly bent, 17-21 μm long or 1.0 anal diameter. There is one precloacal seta, 2 μm in length. There are six small equally spaced precloacal supplements, the anteriormost is at 120 μm before the cloacal opening.

The tail is conical with 30% of its posterior part cylindrical (filiform). Tail 70-86 μm long, or 3.6-4.1 anal diameter. Somatic setae more numerous on the ventral side than at the dorsal side. Tail tip is enlarged with three terminal setae (4 μm long). Three caudal gland cells.

Females: The body size is longer than in the males (962-1040 μm vs. 762-873 μm). Amphids spiral with 5.5-6.0 turns, 11 μm in diameter or 85% of cbd. Six external labial sensilla and four cephalic setae 4 μm long. Reproductive system didelphic, ovaries opposite and outstretched, anterior branch to the left and posterior ovary to the right of the intestine. Tail shape is the same as in the male. The vulva is at 51–54% of the body length from the anterior.

Discussion

Cewonema papillatum was first described by Jensen in 1988 from the deep Norwegian Sea. The present specimens fully agree with Jensen's description, except that the body length is shorter than that of type

specimens (762-873 μm vs. 1140-1230 μm in males; 962-1040 μm vs. 1240-1350 μm in females).

Cervonema papillatum is similar to *C. minutus* Muthumbi et al. 1997 in both having a longer cervical region and short and simple spicules. One can easily distinguish *Cervonema papillatum* from *C. minutus* by the presence of the precloacal supplements which are absent in *Cervonema minutus.* Furthermore, tail shape and tail length are different as well (filiform part: 30% vs. 50%; de Man ratio c: 3.6-4.1 vs. 4.9-5.2 in males, 3.7-4.5 vs. 6.5 in females).

Cervonema shiae n. sp. (Figures 1D and 4A–F)

Materials and type specimens: Three males and one female collected from stations 840, 977, 1135 and 1139. Holotype: ♂1 on the slide number MBRUG 10567. Allotype: ♀1 on the slide MBRUG 10568. ♂2-♂3 on the slides MBRUG 10569 and 10570.

Type locality and habitat: the Beagle Channel; Holotype from station 1135; Lat. S: 54” 55’0; Long. W: 68” 49’9; Water depth 257 m; Muddy sediment, median grain size 7 μm. Allotype from station 1139; Lat. S. 54” 55’0; Long. W. 68” 39’2; Water depth 255 m; Muddy sediment, median grain size 11 μm.

Etymology: The species is named after the first author’s wife Shi Guangchun from Hangzhou, China.

Measurements:

Holotype: ♂1 $\frac{-\quad 151 \quad M \quad 662}{6 \quad 20 \quad 20 \quad 18}$ 749

a:37.5, b:5.0, c:8.6, c′:4.8, s′:0.9; spic:17

Allotype: ♀1 $\frac{-\quad 190 \quad 502 \quad 779}{7 \quad 25 \quad 29 \quad 19}$ 882

a:30.4, b:4.6, c:8.6, c′:5.4; V%=56.9

Other measurements see Table 4.

Description

Males: Body cylindrical, tapering from mid-body to both extremities. Head is 6-7 μm in diameter, or 30% of the diameter of posterior end pharynx. Cuticle is finely striated (without drawing in the figure). Somatic setae 3–4 μm long and scattered, shorter at the cervical region and longer at the anal region.

The internal labial sensilla are indistinct, six external labial setae 3 μm and four cephalic setae 4 μm in length, or 50% of head diameter. Amphid is spiral with 5.5-6 closely spaced turns, 9-10 μm in diameter, 80–95% of corresponding body diameter; anterior border of amphid located 14-17 μm behind front end, about 2.5-3 head diameter.

Buccal cavity cup-shaped and small. Pharynx cylindrical, 136-l 5 1 μm long and gradually expanded to the posterior end (one third of the pharyngeal length). Nerve ring is located at 71-84 μm (52-58%) of the pharyngeal length from the anterior. The excretory pore is behind the nerve ring. The cardia is well developed.

The reproductive system is diorchic, testes opposite and outstretched, anterior testis to the left, posterior testis to the right of intestine. Spicules simple and short, slightly bent, 15-17 μm long or 0.8-0.9 anal diameter. There is one precloacal seta and 4-5 precloacal supplements, the distance between the supplements is increasing from posterior to anterior.

The tail is conical gradually tapering in a cylindrical part, with 50% of posterior part filiform. Tail

Table 4. Measurements of ***Cervonema*** *shiae* n. sp. from the Strait of Magellan and the Beagle Channel

	Male: *n*=3			Female: *n*=1
	male 1	male 2	male 3	female 1
BL	749	612	644	882
a	37.5	26.6	29.3	30.4
b	5.0	4.5	4.5	4.6
c	8.6	6.9	7.3	8.6
HD	6	7	6	7
Hd/ph ebd (%)	30.0	31.8	28.6	28.0
CSL	3	3	3	3.5
amph-abe	14	17	15	18.8
amph D	10	8.7	10	9.4
amph/cbd (%)	100	80	94	78
NR	84	71	82	88
NR/ph L (%)	55.6	52.2	57.6	46.3
E-abe	90	88	80	98
E-abe/ph L (%)	65.6	64.5	66.5	51.6
Ph L	151	136	142	190
ph ebd	20	22	21	25
ph L/ph ebd	7.6	6.2	6.8	7.6
M	20	23	22	29
V				502
V%				56.9
spic	16.7	14.7	15.1	
s′	0.9	0.8	0.8	
TL	87	89	88	103
abd	18	19	18	19
c′	4.8	4.7	4.9	5.4

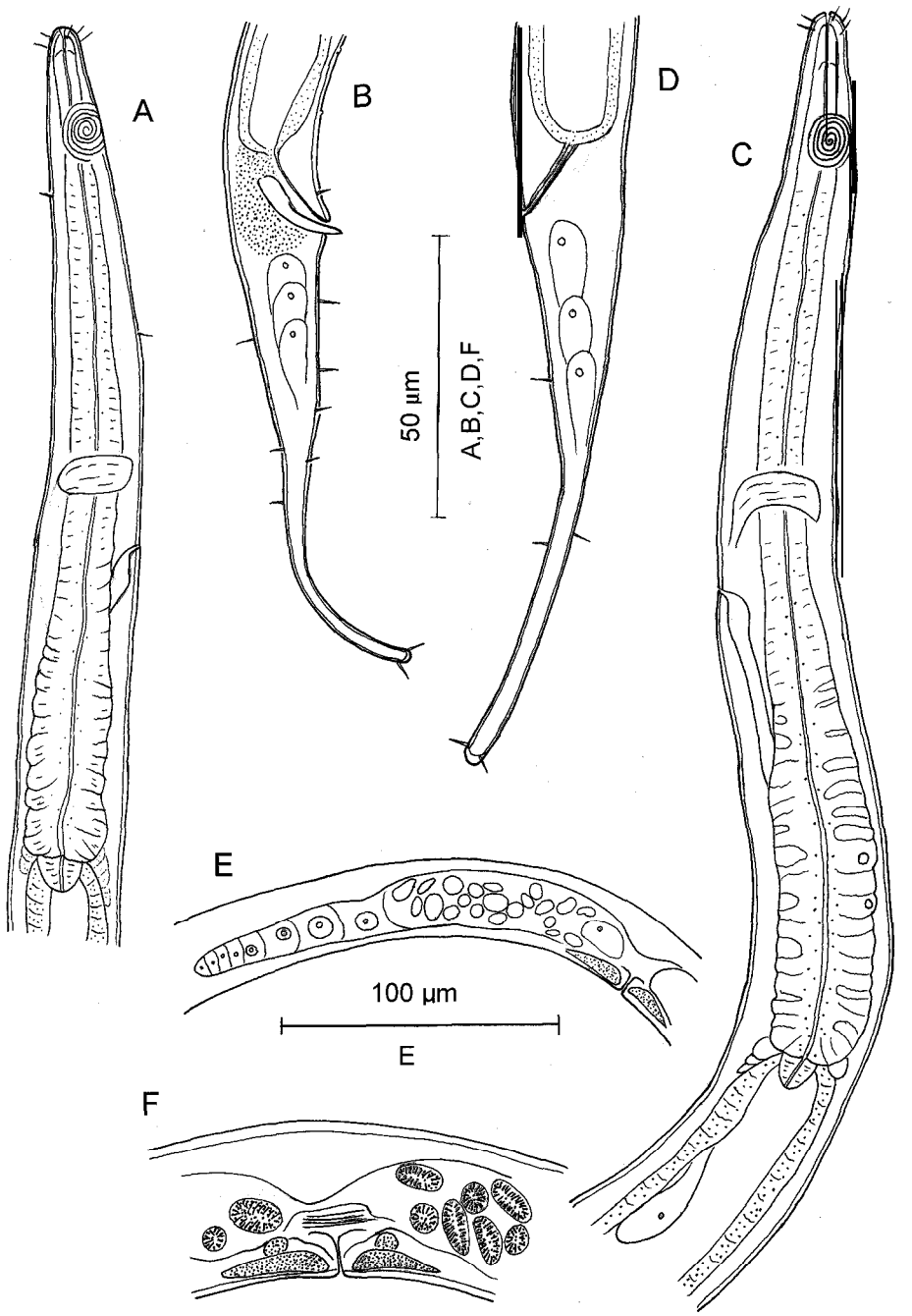

Figure 4. *Cervonema shiae* n. sp. (A) ♂1 pharyngeal region; (B) ♂1 Copulatory apparatus and tail; (C) ♀1 Pharyngeal region; (D) ♀1 Rectal region and tail; (E) ♀1 Anterior part of ovary; (F) ♀1 Vaginal region.

is 88 μm long, or 4.8 anal diameter. The terminal setae are 3 μm long.

Females: Similar to the male in general morphology, but the nerve ring located in a more anterior position than in the males (46.3% of the pharynx length). Reproductive system didelphic, ovaries opposite and outstretched, anterior branch (162 μm) to the left and posterior ovary to the right of intestine.

The vulva is at 57% of the body length from the anterior: the tail is 5.4 abd.

Differential diagnosis and discussion

Cervonema shiae n. sp. is characterised by the four cephalic setae 4 μm long, amphids 9-10 μm in diameter or 80–95% cbd; spicules 16 μm long and 0.8-0.9 abd; tail 4.7-5.4 anal diameter and 50% posterior part filiform; there are 4-5 minute precloacal supplements.

Cervonema shiae n. sp. is similar to C. *macramphis* Jensen, 1979 and *C. papillatum* Jensen, 1988 in their general body shapes. *Cervonema macramphis,* however, has long spicules (42-43 μm vs. 15-17 μm) and has no supplements. One can distinguish *Cervonema shiae* n. sp. from *Cervonema papillatum* by the precloacal supplements (4-5 preanal papillae with space increasing between them vs. 6-7 equal spaced preanal papillae), and the shape of tail (50% conical part in *Cervonema shiae* n. sp. vs. 60–70% conical part in *Cervonema papillatum).*

Cervonema tenuicaudu (Stekhoven, 1950) (Figure 5A–H)

Material studied: five males and five females.

Locality and habitat: Collected from station 1139, one male and two females collected from the sediment depth >5 cm layer.

Measurements:

$$\male_1 \quad \frac{- \quad 215 \quad M \quad 1187}{8 \quad 40 \quad 40 \quad 27} \quad 1378$$

a:34.5, b:6.4, c:7.2, c′:7.1, s′:1.1; spic:30

$$\female_1 \quad \frac{- \quad 233 \quad 642 \quad 1144}{9 \quad 43 \quad 42 \quad 31} \quad 1370$$

a:32.6, b:5.9, c:6.1, c′:7.3; V%=49

Other measurements see Table 5.

Description

Male: Body cylindrical, tapering at both ends. Head is 8-9 μm in diameter, 20–23% of diameter at posterior end of pharynx. Cuticle is finely striated (without drawing in the figure). Somatic setae 3 μm long and scattered over the body.

The internal labial sensilla are indistinct, six external labial setae 3 μm or 38% of head diameter, four cephalic setae 4 μm long, or 44% of head diameter. Amphids are spiral with 5.5-6.0 closely spaced turns, 10 μm in diameter, 75% of corresponding body diameter; anterior border of amphids located 15-20 μm behind the front end, about twice head diameter.

Buccal cavity is cup-shaped and small, 10 μm deep. Pharynx cylindrical, 211 μm (198-228 μm) long and gradually expanded posteriorly to form an elongated bulb. Nerve ring located at 115 μm (54%) of the pharyngeal length from the anterior. The excretory pore behind the nerve ring, at 61% of the pharyngeal length. The cardia is prominent, width larger than length.

The reproductive system is diorchic, testes opposite and outstretched, anterior testis to the left, posterior testis to the right of intestine. Spicules almost straight, 30 μm long or 1.0 anal diameter. Gubernaculum is a small and weekly sclerotized plate at the distal part of the spicule. There is one precloacal seta, and 7-8 minute precloacal supplements, but the supplements were only observed in two specimens.

The tail is cylindro-conical, with 62% of posterior tail part filiform. Tail 172-194 μm long, or 6.0-7.1 anal diameter. Three terminal setae are 4 μm long.

Females: Similar to the males in general morphology, but the external labial setae (4.0 μm) and the cephalic setae (4.5 μm) are longer than in the males. Reproductive system is didelphic, ovaries opposite and outstretched, anterior branch (183-256 μm) to the left and posterior ovary (198-244 μm) to the right of the intestine. The vulva is at 49% of the body length from the anterior; the tail is 199-244 μm long and 7.0 (6.2-8.1) abd.

Discussion

Specimens described here are very similar to the *Cervonema tenuicauda* described by Stekhoven in 1950 from the Mediterranean. However, some variations could be seen. The body length is longer in our specimens (1334-1478 μm vs. 820 μm in female); the position of vulva differs (49% vs. 54%) and the filiform part of tail (62% vs. 52%). Vitiello (1970) and Muthumbi et al. (1997) report *Cervonema tenuicauda* from the Mediterranean and the Indian Ocean separately.

Discussion on the genus *Cervonema*

Cervonema Wieser, 1954 is characterised by a small buccal cavity without teeth, cuticle fine transversely striated, punctuations absent; the six external labial

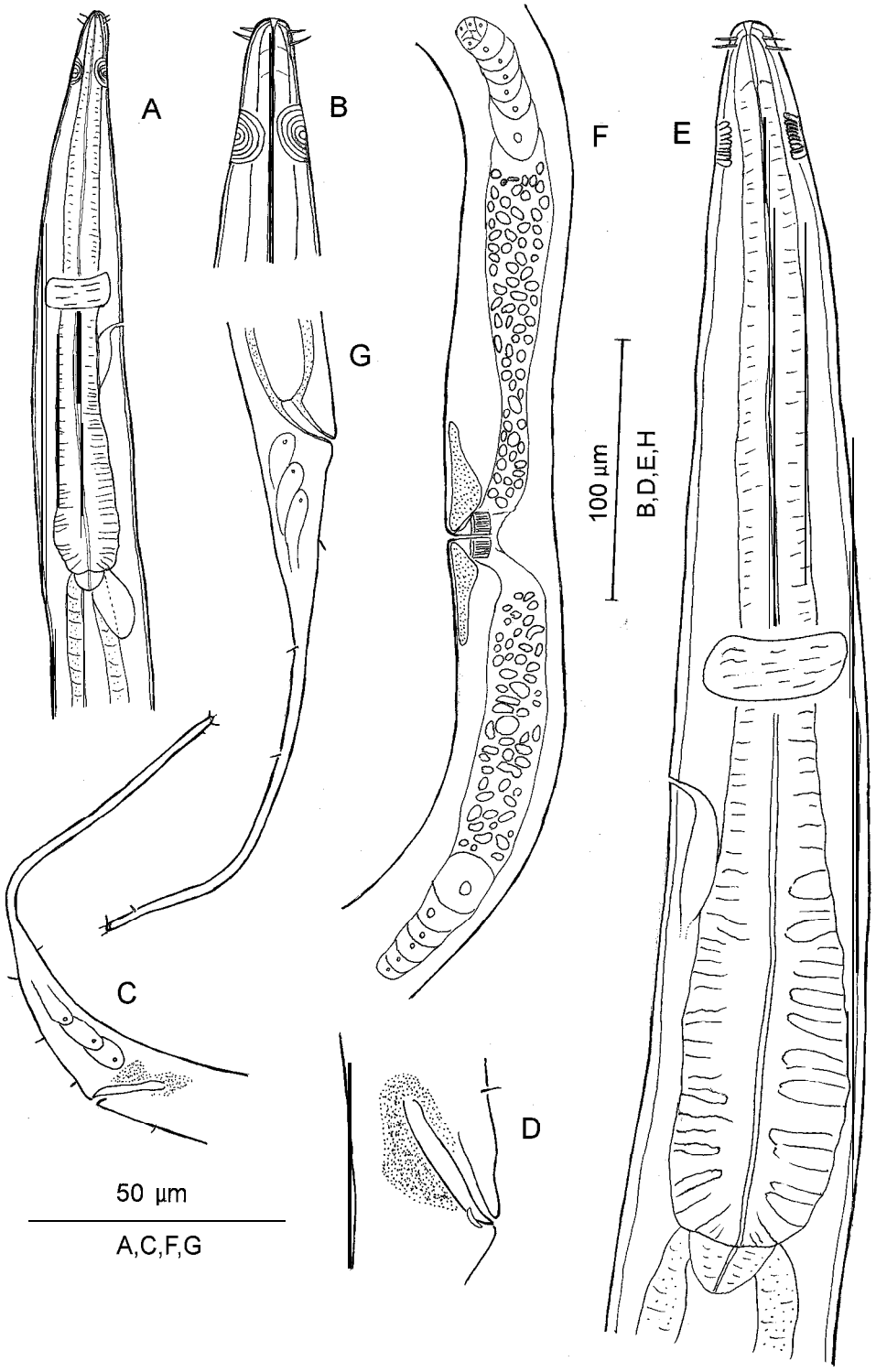

Figure 5. *Cervonema tenuicauda* (Stekhoven, 1950). (A) ♂1 Pharyngeal region; (B) ♂1 Anterior body region; (C) ♂1 Copulatory apparatus and tail; (D) ♂1 Spicule; (E) ♀1 Pharyngeal region; (F) ♀1 Reproductive system; (G) ♀1 Tail and rectal region.

Table 5. Measurements of ***Cervonema tenuicauda*** (Stekhoven, 1950) from the Strait of Magellan and the Beagle Channel

	Male: *n*=5					Feamle: *n*=5				
	Min	Max	mean	SD	CV%	Min	Max	mean	SD	CV%
BL	1233	1400	1346.0	58.5	4.3	1334	1478	1407.2	51.0	3.6
a	30.8	38.7	34.0	2.7	8.0	28.8	32.6	31.2	1.3	4.3
b	6.1	6.7	6.4	0.2	3.0	5.9	6.6	6.3	0.2	3.7
c	7.1	7.9	7.4	0.3	3.8	5.9	7.0	6.5	0.4	6.4
HD	8.	9	8.4	0.6	7.5	8.7	10	9.4	0.5	5.6
Hd/ph ebd (%)	20.0	22.5	21.2	0.9	4.2	19.6	23.8	21.5	1.4	6.5
CSL	4+3	4+3	4+3			4	4.5	4.3	0.2	5.7
amph-abe	14.7	20	17.7	1.8	10.3	17	20	18.8	1.3	6.9
amph D	10	107	10.2	0.3	3.0	10	11	10.5	0.5	4.8
amph/cbd (%)	71	76	73.8	1.9	2.6	60	70	65.0	5.0	7.7
NR	111	119	115.0	2.9	2.5	98	131	115.2	10.9	9.5
NR/ph L (%)	51.6	57.6	53.8	2.3	4.3	46.1	56.2	51.4	3.2	6.3
E-abe	122	141	130.3	7.9	6.1	129	140	135.3	4.6	3.4
E-abe/ph L (%)	59.3	61.8	60.9	1.2	1.9	58.6	62.6	60.1	1.8	2.9
ph L	198	228	211.8	10.7	5.1	210	237	223.8	9.9	4.4
ph ebd	35	44	39.8	2.9	7.2	42	46	43.8	1.8	4.2
ph L/ph ebd	5.0	5.8	5.3	0.3	5.1	4.8	5.4	5.1	0.2	4.2
M	35	44	39.8	2.9	7.2	42	50	45.2	3.0	6.6
V						654	719	685.8	22.1	3.2
V%						48.4	49.1	48.7	0.3	0.5
spic	27.7	31.5	29.6	1.3	4.2					
s'	1.0	1.1	1.0	0.0	4.1					
TL	191	180	182.0	9.1	5.0	199	244	218.2	16.3	7.5
abd	27	30	28.4	1.6	5.7	29	33	31.2	1.6	5.1
c'	6.0	7.1	6.4	0.4	6.4	6.2	8.1	7.0	0.7	9.5

sensilla are almost equal in length with the four cephalic setae. Cervical region elongated or short, amphids 4-7 closely spaced turns. Spicules simple and weekly sclerotized, gubernaculum small or absent; minute precloacal supplements present or absent. Male reproductive system diorchic, female reproductive system didelphic; ovaries and testes are opposite and outstretched, anterior part to the left and posterior one to the right of the intestine. Tail conical with filiform posterior part. Eleven species of *Cervonema* have been described (including 3 new species in the this paper). Following key is proposed: updated from Gourbault, 1980.

Key to all known species of *Cervonema*

1. Distance from anterior border of amphids to front of anterior body end less than one head diameter 2
   Distance from anterior border of amphids to front of anterior body end larger than 1.5 head diameter 3
2. Somatic setae 3 μm, pharyngeal bulb approximately circular; tail 40% conical or 60% posterior part filiform ..... *C. chilensis* n. sp.
   Somatic setae 5-6 μm, pharyngeal bulb elongate; tail 25% conical or 75% posterior part filiform ..... *C. hermani* n. sp.
3. Tail posterior filiform part more than 30% 4
   Tail posterior filiform part less than 50% 5

4. Spicules 13-16 μm long, no precloacal supplements. ..... *C. brevicauda* Gourbault, 1980
   Spicules 20-22 μm long, 6-7 precloacal supplements ..... *C. papillatum* Jensen, 1988
5. Amphids diameter larger than 7 μm 6
   Amphids diameter less than 6 μm ..... .
6. Amphids 7 μm in diameter ..... .
   Amphids 9-10 μm in diameter, 4-5 precloacal supplements, spicules 14-17 μm, c′ = 4.5-5.7 ... C. *shiae* n. sp.
7. Cephalic setae shorter than 5 μm 9
   Cephalic setae 9 μm long, c' = 5.5-6.0, spicules 1.0 abd ..... *C. allometricum* Wieser, 1954
8. Cephalic setae 2.5 μm, amphids 92-96% of cbd; spicules 1.4-1.5 abd ..... *C. macramphis* Jensen, 1979
   Cephalic setae 4 μm, amphids 65-80% of cbd; spicules 0.9 abd ..... C. *jenseni* Gourbault, 1980
9. Tail posterior filiform part 50–60% 10
   Tail posterior filiform part 80%, c' = 7.4-l 1, amphids 5 turns. .... *C. gourbaulti* Muthumbi, Soetaert & Vincx 1997
10. Amphids 54-77% of abd; spicules 24-32 μm long, c' = 6.0-8.0 ..... *C. tenuicauda* (Stekhoven, 1950)
    Amphids 80–100% of abd; spicules 17-19 μm, c' = 4.9-5.2 ... *C. minutus* Muthumbi, Soetaert & Vincx 1997

Laimella annae n. sp. (Figure 6A–H)

Materials and type specimens: Two males and two females.

Holotype: ♂$_1$ on the slide number MBRUG10571. Allotype: ♀$_1$ on the slide number MBRUG10572. *male2* on the slide MBRUG10573, *female2* on the slide MBRUG 1574

Locality and habitat: Collected from station 846 in the Strait of Magellan; Lat. S. 53" 21'6; Long. W. 70" 43'3; Water depth 195 m; 51% sand, 40% silt and 9% clay; median grain size 65 μm.

Etymology: The species is named after Dr Ann Vanreusel in Marine Biology Section, University of Gent, Belgium.

Measurements:

Holotype: ♂$_1$ $\frac{-\quad 144 \quad M \quad 1033}{9 \quad 21 \quad 21 \quad 19}$ 1303

a:62.0, b:9.0, c:4.8, c': 14.2, s': 1.5; spic:28

Allotype: ♀$_1$ $\frac{-\quad 135 \quad 603 \quad 1010}{11 \quad 20 \quad 21 \quad 16}$ 1285

a:61.2, b:9.5, c:4.7, c′:17.2; V%=46.9
Other measurements see Table 6.

Description

Males: Body cylindrical, tapering towards both extremities. Head end rounded, 9 μm in diameter or 44% (43–45%) of the diameter of posterior part of pharynx. Cuticle with transverse striations. Somatic setae in the cervical region not observed.

Table 6. Measurements of *Laimella annae* n. sp. from the Strait of Magellan and the Beagle Channel

	Males: *n*=2		Female: *n*=2	
	male 1	male 2	female 1	female 2
BL	1303	absent	1285	1944
a	62.0	absent	61.2	47.4
b	9.0	absent	9.5	13.3
c	4.8	absent	4.7	4.0
HD	9	9	11	12
Hd/ph ebd (%)	42.9	45.0	55.0	34.3
CSL	9+5	9+5	11+5	absent
amph-abe	5	5.4		
amph D	7.4	7		
amph/cbd (%)	69	70		
NR	60	72.3	64.3	85.8
NR/ph L (%)	41.1	53.4	47.6	58.8
E-abe	63	77		
E-abe/ph L (%)	43.8	55.8		
ph L	144	138	135	146
ph ebd	21	20	20	35
ph L/ph ebd	6.9	6.9	6.8	4.2
M	21	20	21	41
V			603	766
V%			46.9	39.4
spic	28.8	30.1		
s′	1.5	1.6		
gub L	12	12.7		
TL	270	absent	275	489
abd	19	19	16	25
c'	14.2	absent	17.2	19.6

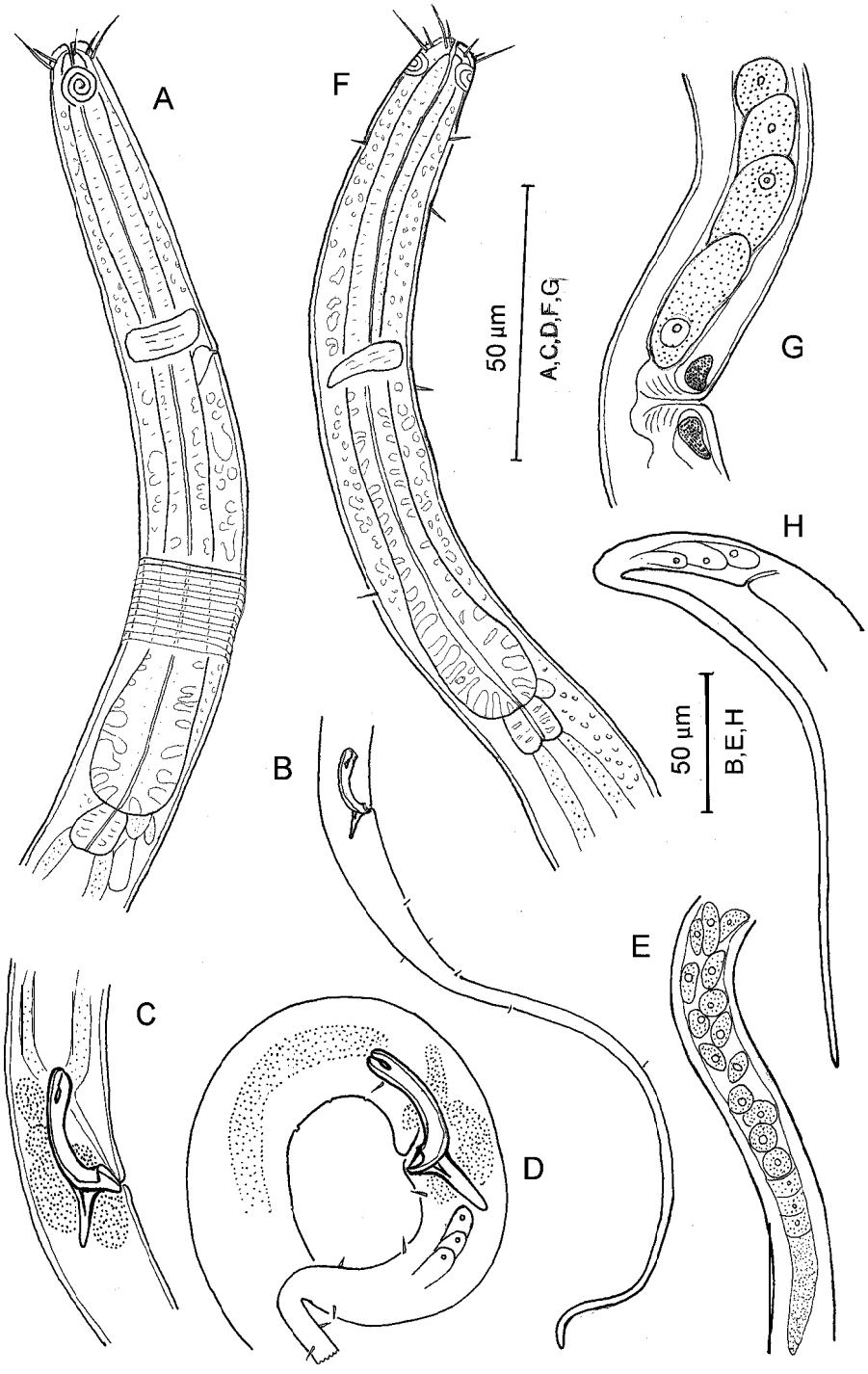

Figure 6. Laimella annae n. sp. (A) ♂$_1$ Pharyngeal region; (B) ♂$_1$ Tail; (C) ♂$_1$ Copulatory apparatus; (D) ♂$_2$ Copulatory region (Tail broken); (E) ♂$_1$ Anterior part of testes; (F) ♀$_1$ Pharyngeal region; (G) ♀$_1$ Vaginal region; (H) ♀$_1$ Tail.

The six internal labial sensilla are papilliform, six external labial setae (5 μm long) andfour cephalic setae (9 μm or one head diameter long) close together. Amphids spiral with 3.2 turns, 7 μm in diameter, 70% of corresponding body diameter; anterior border of amphids located 5 μm behind front end, i.e. less than one head diameter.

Buccal cavity tubular and narrow. Pharynx cylindrical, 138-144 μm long and expanded posteriorly to form a slightly elongated bulb. Nerve ring located at 60-72 μm (47%) of the pharyngeal length from the anterior. The excretory pore is behind the nerve ring. The renette cell is small and located at the level of the Cardia. The cardia is prominent; the first intestine cells connect with the end of Cardia.

The reproductive system is diorchic, testes opposite and outstretched; anterior testis to the left, posterior testis to the right of intestine; sperm cells are round (10–12 μm in diameter) or more elongated (14-20 μm long). Spicules strongly sclerotized, 29-30 μm long, 1.5 anal diameter. The gubernaculum with a pair of dorso-caudally directed apophyses, 12 μm long. There are five precloacal supplements, the distance between the posteriormost two is shorter than that of others.

The tail 270 μm long, 14.2 abd. 25% conical portion with 75% of posterior part cylindrical. There are a few somatic setae on the tail, but no terminal setae observed.

Females: Females are very similar to the males in general morphology, but the cephalic setae are 11 μm long. Reproductive system didelphic, ovaries opposite and outstretched, anterior branch to the left and posterior ovary to the right of intestine. The vulva at 47% of the body length from the anterior; the tail 17.2 abd.

Differential diagnosis and discussion

Laimella annae n. sp. is characterised by the head diameter 9-l 1 μm; the cephalic setae and external labial setae 9 + 5 μm long; amphids 7 μm in diameter or 70% cbd; spicules 28-30 μm long and 1.5 abd; tail 14-17 anal diameter and 75% posterior part filiform; 5 precloacal supplements.

Luimella annae n. sp. is similar to *Laimella filipjevi* Jensen, 1979 in general body shapes. However, *Laimella annae* n. sp. has short spicules (30 μm vs. 40 μm) with a different shape (tapering towards both ends in *L. filipjevi*); furthermore, the head diameter is smaller in *Luimella annae* n. sp. (9-l 1 μm vs. 12-13 μm).

Table 7. Measurements of ***Laimella longicauda*** Cobb, 1920 from the Strait of Magellan and the Beagle Channel

	Male: *n*=1	Female= 1
BL	1834	1520
a	53.9	38.0
b	11.5	8.3
	5.3	3.1
HD	18	16
Hd/ph ebd (%)	52.9	40.0
CSL	16+6	16+6
amph-abe	7	
amph D	13.4	8
amph/cbd (%)	65	40
NR	90	108
NR/ph L (%)	56.6	58.7
E-abe	99	121
E-abe/ph L (%)	62	65.8
ph L	159	184
ph ebd	34	40
ph L/ph ebd	4.1	4.6
M	34	40
		669
V%		44.0
spic	40.9	
	1.2	
gub L	19.8	
TL	346	408
abd	34	34
	10.2	12.0

Laimella longicauda Cobb, 1920 (Figure 7A–E)

Materials studied: One male and one moulting female collected from stations 954 and 1144.

Locality and habitat: See Table 1.

Measurements:

$$\sigma^{1}\ \frac{-\quad 159\quad M\quad 1489}{18\quad 34\quad 34\quad 34}\quad 1834$$

a:53.9, b:11.5, c:5.3, c′:10.2, s′:1.2; spic:41

$$\varphi_{1}\ \frac{-\quad 184\quad 669\quad 1112}{16\quad 40\quad 40\quad 34}\quad 1520$$

a:38.0 b:8.3, c:3.7, c′:12, V%=44
Other measurements see Table 7.

Description

Mule: Body cylindrical, tapering at the two extremities. Head 18 μm in diameter or 53% of the

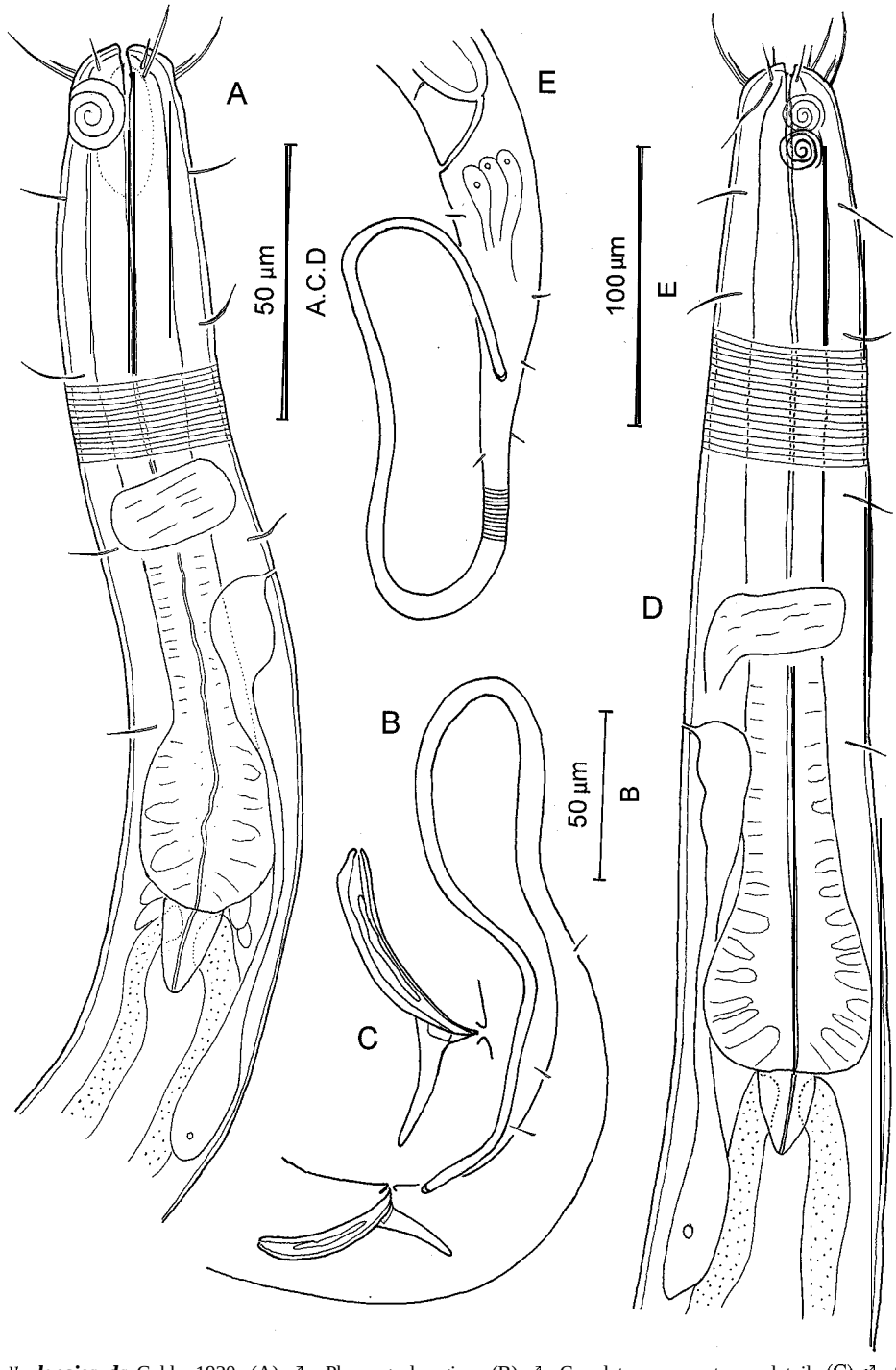

Figure 7. *Laimella* ***longicauda*** Cobb, 1920. (A) ♂1 Pharyngeal region; (B) ♂1 Copulatory apparatus and tail; (C) ♂1 Spicule; (D) ♀1 Pharyngeal region; (E) ♀1 Tail and rectal region.

diameter of posterior pharyngeal end. Cuticle striated throughout. Somatic setae 10 μm long especially prominent in the pharyngeal region; first circle of somatic setae located 24-28 μm from the front head end.

The internal labial sensilla are indistinct; six external labial setae are 6 μm long, and very closely followed by the cephalic setae, 18 μm in length or one head diameter. Amphids spiral with 3.2 turns, 13 μm in diameter, 59% of corresponding body diameter.

Buccal cavity is tubular and narrow, with three small teeth. The pharynx is cylindrical with a posterior expanded bulb. Nerve ring is located at 57% of the pharyngeal length from the anterior. The excretory pore is behind the nerve ring. The renette cell is obvious and located posterior of Cardia. The cardia is elongated (the length is 1.5 width).

The reproductive system is diorchic, testes opposite and outstretched, anterior testis to the left, posterior testis to the right of intestine. Spicules slightly bent and 6 μm in width, 41 μm in length or 1.2 anal diameter. The gubernaculum with a pair of long dorsocaudal apophyses, 22 μm long. No precloacal seta observed. There is 11 minute but equal spaced precloacal supplements. The tail is 28% conical with 72% of posterior part filiform, with a few somatic setae; terminal setae not observed.

Female: The specimen is moulting from juvenile 4 to adult. The morphology is in general similar to male,' but amphids are smaller, maximum body size is larger and tail is longer (408 μm, c′=12.0).

Discussion

Laimella longicauda was first described by Cobb in 1920 from one female, and Hopper (1967) described the males of this species; Jensen (1979) treated *Laimella filicauda* Ward, 1974 as synonymous with *L. longicauda.* The present specimens agree well with the above description, however, the cuticular striations are not resolvable into fine dots, and striations are more obvious in the female than in the male. Eleven precloacal supplements are present compared to 6-9 mentioned by Hopper (1967) and Ward (1974).

Laimella sandrae n. sp. (Figure 8A–G)

Materials and type specimens: One male and two females. Holotype:♂$_1$ collected from station 1139 (slide number MBRUG10575); Allotype: ♀$_1$ collected from station 864 (slide MBRUG10576); ♀$_2$ collected from station 977 (slide MBRUG10577).

Locality and habitat: Stations 1139, 864 and 977 in the Beagle Channel and the Strait of Magellan; Mud sediment, water depth 255-550 m.

Table 8. Measurements of *Laimella sandrae* n. sp. from the Strait of Magellan and the Beagle Channel

	Male: *n*=1	Female: *n*=2	
	male 1	female 1	female 2
BL	776	831	893
	40.8	39.6	38.8
b	6.1	6.5	6.8
c	6.9	6.6	6.5
HD	9	9	9
Hd/ph ebd (%)	50.0	47.4	39.1
CSL	9.4+4.5	10+5	11+5
amph-abe	3.4	3.4	3.5
amph D	6.7	6.7	6.7
amph/cbd (%)	65	67	66
NR	81.8	71	59.4
NR/ph L (%)	63.9	55.9	45.0
E-abe		72	
E-abe/ph L (%)		56.7	
ph L	128	127	132
ph ebd	18	19	23
ph L/ph ebd	7.1	6.7	5.7
M	19	21	23
V		426	413
V%		52.3	46.2
spec	24.8		
	1.5		
gub L	10.7		
TL	112.6	125	138
abd	17	14	16
	6.6	8.9	8.6

Etymology: The species is named after Dr Sandra Vanhove in the Marine Biology Section, University of Gent, Belgium.

Measurements:

Holotype: ♂$_1$ $\frac{-\quad 128 \quad M \quad 667}{9 \quad 18 \quad 19 \quad 17}$ 776

a:40.8, b:6.1, c:6.9, c′:6.6, s′:1.5; spic:25

Allotype: ♀$_1$ $\frac{-\quad 127 \quad 426 \quad 706}{9 \quad 19 \quad 21 \quad 14}$ 831

a:39.6, b:6.5, c:6.6, c′:8.9; V%=51.3
Other measurements see Table 8.

Description

Mules: Body cylindrical, tapering towards both ends. Head is square in outline, 9 μm in diameter

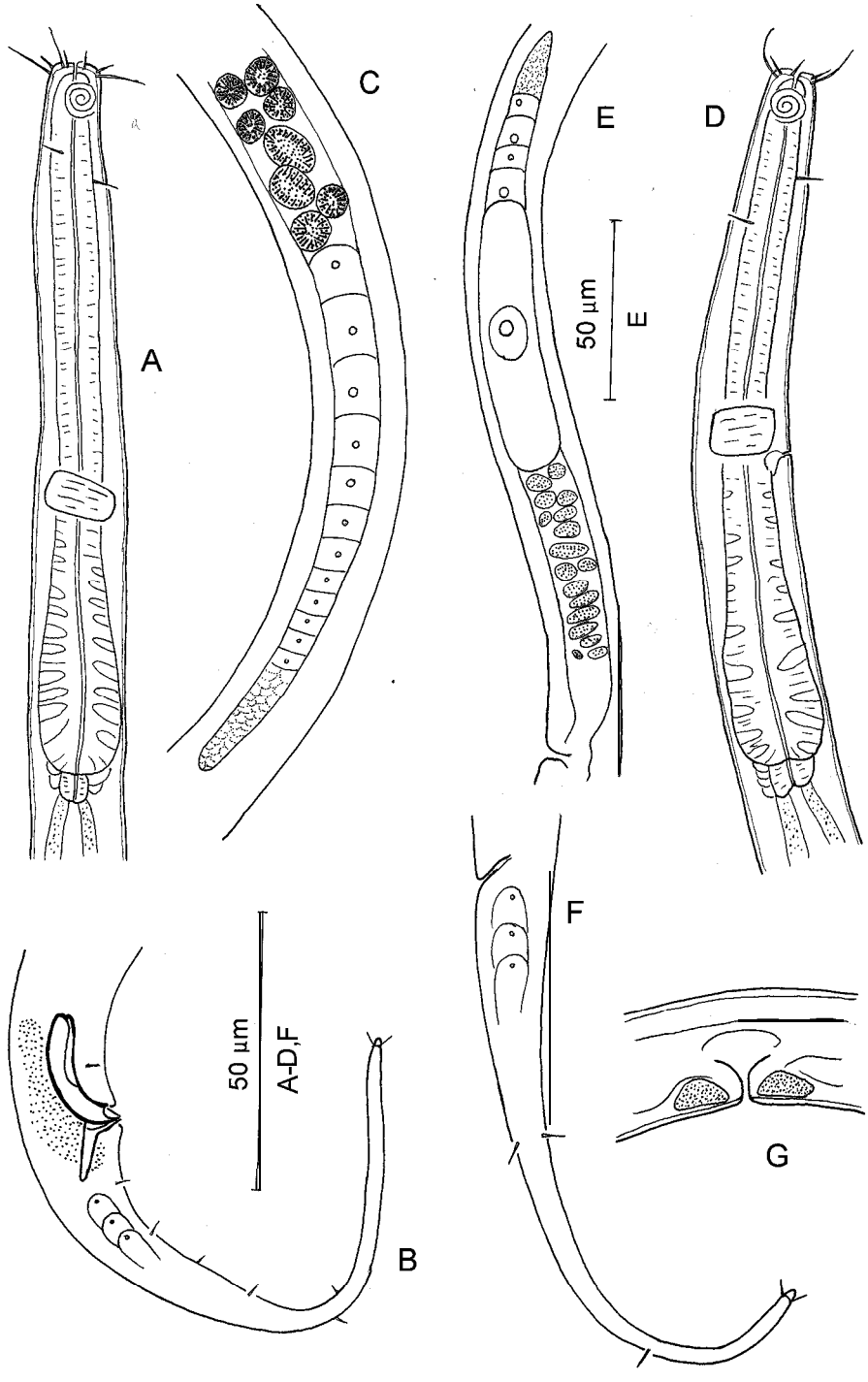

Figure 8. *Laimella sandrae* n. sp. (A) ♂$_1$ Pharyngeal region; (B) ♂$_1$ Copulatory apparatus and tail; (C) ♂$_1$ Anterior part of testes; (D) ♀$_1$ Pharyngeal region; (E) ♀$_1$ Anterior part of ovary; (F) ♀$_1$ Tail; (G) ♀$_1$ Vaginal region.

or 50% of the diameter of posterior pharyngeal end. Cuticle with fine transversely striations throughout the body. Two prominent somatic setae (4 μm long) posterior of the amphids, 16-20 μm from the front head end.

The six internal labial sensilla are indistinct, six external labial setae (4.5 μm long) and four cephalic setae (9.5 μm or one head diameter long) at the same level. Amphids spiral with 3.0 turns, 6.7 μm in diameter, 65% of corresponding body diameter; anterior border of amphids located 3–4 μm behind front end.

Buccal cavity tubular and narrow. Pharynx cylindrical, 128 μm long and expanded posteriorly to form an elongate bulb, one fourth of pharyngeal length. Nerve ring is located at 64% of the pharyngeal length from the anterior. The excretory pore and renette cell was not observed. The cardia is small, intestine not surrounding the whole Cardia.

The reproductive system is diorchic, testes opposite and outstretched. Anterior testis to the left, posterior testis to the right of intestine; the sperm cells round (5-6 μm in diameter) to oval shaped (X-10 μm long), without any internal granular layer. Spicules are thick and bent, 25 μm long, 1.5 anal diameter. The gubernaculum with a pair of dorsocaudally directed apophyses, 11 μm long. No supplements observed; one sub-ventral seta at 10 μm anterior of the cloacal opening.

The tail 112 μm long, 6.6 abd, 50% conical portion with 50% of posterior part cylindrical. There are few somatic setae on the tail, two terminal setae 3 μm long.

Females: Females are very similar to the males in general morphology, only cephalic setae a little longer (10–11μm) and ratio of c' is larger (8.6-8.9). Reproductive system is didelphic, ovaries opposite and outstretched, anterior branch (200 μm long) to the left and posterior ovary to the right of intestine; one egg 76 x 16 μm in size. The vulva at 49% (46-51%) of the body length from the anterior.

Differential diagnosis and discussion

Laimella sandrae n. sp. is characterised by anterior body end being square in outline, head diameter 9 μm; the cephalic setae and external labial setae 10 + 5 μm long, amphids 3 turns; spicules 25 μm long and 1.5 abd; tail 6.6-8.9 anal diameter and 50% conical portion and 50% posterior filiform part; spinneret protruded, with terminal setae 3 μm long.

Laimella sandrae n. sp. is very close to *Laimella annae* n. sp. in having similar cephalic sensilla, amphids and spicules. *Laimella sandrae* n. sp., however, can be separated from *L. annae* n. sp. by the head shape, the sperm cells without internal granular layer; the small ratio of a and c′(a = 40 vs. 62; c' = 6.6-8.9 vs. 14.2-19.6); furthermore, the cylindrical part of tail is shorter *(50% vs. 75%)* in *L. sandrae* n. sp.

Laimella subterminata n. sp. (Figure 9A–F)

Materials and type specimens: one male and three females. Holotype: ♂ 1 collected from station 1135 (slide number MBRUG10578). Allotype: ♀1 collected from station 864 (slide MBRUG10579); ♀2 – ♀3 from station 1139 (slidesMBRUG10580-10581).

Type locality and habitat: Stations 1135, 1139 and 864 in the Beagle Channel and the Magellan Strait; Mud sediment, water depth 255-550 m.

Etymology: The species is named with reference to the subterminal position of the buccal cavity.

Measurements:

Holotype: ♂ 1	–	133	M	947	1162
	11	25	25	21	

a:46.5, b:8.7, c:8.5, c′:5.4, s′:1.7; spic:36

Allotype: ♀1	–	131	569	1035	1305
	10	25	32	20	

a:40.8, b:10.0, c:4.8, c′:13.5; V%=43.6
Other measurements see Table 9.

Description

Male: Body cylindrical, tapering from mid-body towards two ends. Head 11 μm in diameter, or 44% of diameter of posterior end of pharynx. Cuticle is clearly and transversely striated throughout. The first set of somatic setae 5 μm long and 20 μm from the front head end.

The internal labial sensilla are indistinct, six external labial setae are 7 μm long, four cephalic setae are 12 μm long and very closed behind the labial setae. Amphids spiral with 4.0 turns, 8 μm in diameter, 63% of corresponding body diameter; anterior border of amphids located 6 μm behind front end, i.e. less than one head diameter.

Buccal cavity is subterminal shifted to the ventral side with three small teeth. The pharynx evenly cyl-

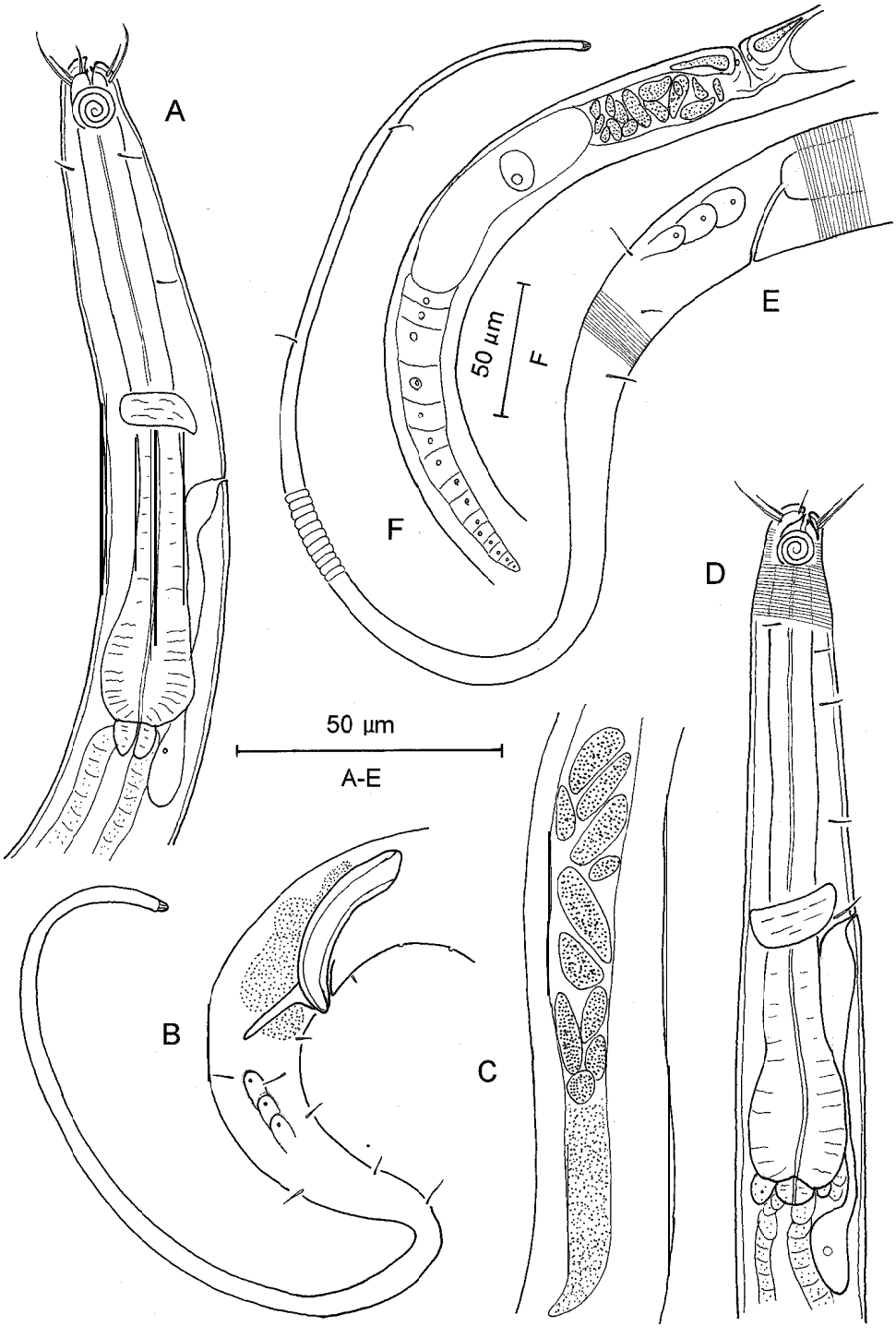

Figure 9. Laimella subterminata n. sp. (A) ♂$_1$ Pharyngeal region; (B) ♂$_1$ Copulatory apparatus and tail; (C) ♂$_1$ Anterior part of testes; (D) ♀$_1$ Pharyngeal region; (E) ♀$_1$ Tail and rectal region; (F) ♀$_1$ Anterior part of ovary.

Table 9. Measurements of ***Laimella subterminata*** n. sp. from the Strait of Magellan and the Beagle Channel

	Male: *n*=1	Female: *n*=3		
	male 1	female 1	female 2	female 3
BL	1162	1305	1172	1068
a	46.5	40.8	37.8	36.8
b	8.7	10.0	8.7	9.0
c	5.4	4.8	4.8	4.8
HD	11	10	10	10
Hd/ph ebd (%)	44.0	40.0	38.5	38.5
CSL	12+7	12.7+7	12.7+6	13+6
amph-abe				7
amph D	8	7.4	8	7.4
amph/cbd (%)	63	64.7	60	60
NR	67		74	75
NR/ph L (%)	50.4		55.2	63.0
E-abe	86	79	81	79
E-abe/ph L (%)	64.4	60.3	60.4	66.4
ph L	133	131	134	119
ph ebd	25	25	26	26
ph L/ph ebd	5.3	5.2	5.2	4.6
M	25	32	31	29
V		569	526	480
V%		43.6	44.9	44.9
spic	36.2			
s'	1.7			
gub L	14			
TL	215	270	243	222
abd	21	18	21	20
c'	10.2	15.0	11.6	11.1

indrical, and expanded at the end to form a bulb. Nerve ring is located at 67 μm of the pharyngeal length from the anterior. The excretory pore is behind the nerve ring, 64% of pharyngeal length. The renette cell is located at the position of Cardia. The cardia is obvious, 6 μm in length and 8 μm in width.

The reproductive system is diorchic, testes opposite. Outstretched anterior testis to the left, posterior testis to the right of intestine, the sperm cells are 17-20 μm long. Spicules stout (6-7 μm in diameter) and slightly bent, 36 μm long in curve, 1.7 anal diameter. Gubernaculum with dorso-caudally directed apophyses, 14 μm long. There is one precloacal seta, 2 μm in length and 8 μm to the cloacal pore. There are 6 minute precloacal supplements.

The tail is 215 μm long, 10.2 abd; 25% conical with 75% of cylindrical posterior part. There are obvious somatic setae on the first part of the tail, but no terminal setae observed.

Females: Females are similar to the male. The buccal cavity is also in subterminal position. The external labial setae are 6-7 μm and the cephalic setae are 13 μm. Tail 222-270 μm long, 12.6 (11-15) abd. Reproductive system is didelphic, ovaries opposite and outstretched, anterior branch (270 μm long) to the left and posterior ovary (297 μm long) to the right of intestine; one egg is 8 x 90 μm in size. The vulva at 44.5% (43.6–44.9%) of the body length from the anterior.

Differential diagnosis and discussion

Laimella subterminata n. sp. is characterised by the subterminal buccal cavity which separates it from all known species of this genus. The external labial setae and cephalic setae are 7+12 μm in males and 7+13 μm in females. Amphids 8 μm in diameter. Spicules 36 μm in curve, 6 precloacal supplements.

Discussion about the genus *Luimella*

Luimella Cobb, 1920 belongs to the same subfamily Sabatieriinae as does *Cervonema* does. It is characterised by a small tubular buccal cavity with three weekly developed teeth. Cuticle has transverse striations. External labial setae close to much longer cephalic setae. Amphids spiral less than 4 turns and situated at the level of cephalic setae. Spicules strongly sclerotized, short and stout; gubernaculum with long caudal apophyses. Precloacal supplements minute, present or absent. The reproductive system is the same type as that of *Cervonema.* The key of 7 species (including 3 new species in this paper) is given (adapted after Jensen, 1979).

Key to all known species of *Luimella*

1. Buccal cavity subterminal and ventral; cephalic setae 12-13 μm; spicules 1.7 abd, c' = 10–15 .... *L. subterminata* n. sp.

Buccalcavitynotsubterminal .....
2. Cephalic sensilla papilloid; spicules 1 .O abd; *c'* = *7* ..... *L. minuta* Vitiello, 1970
Cephalic sensilla setose .....
3. Cephalic setae 7–13 μm .....
Cephalic setae 16-20 μm, cervical setae 10–14 μm; spicules 41-56 μm, s' = 1.2-1.6 .....
..... *L. longicaudu* Cobb, 1920
4. With precloacal supplements .....
Without precloacal supplements; cephalic setae 7-8 μm; amphids 11-12 μm in diameter; spicules 29-34 μm (tip-tip), s' = 1.4 ..... *L. vera* Vitiello, 1970
5. Spicules 40–46 μm long, s' = 1.3-l .6; c' = 14-19 ..... *L. filipjevi* Jensen, 1979
Spicules shorter than 30 μm .....
6. Body length 776-893 μm; a = 39–41; b = 6.1-6.8, c = 6.5-6.9; c' = 6.6-8.9; tail 75% posterior part filiform ..
..... *L. annae* n. sp.
Body length 1285-1944 μm; a = 47-62; b= 9-13, c = 4.0–4.8; c' = 14.2-19.6; tail 50% posterior part filiform
..... *L. sandrae* n. sp.

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References

Arntz, W. & M. Gorny, 1996. Cruise report of the Joint Chilean-German-Italian Magellan 'Victor Hensen' Campaign in 1994. Ber Polarforsch 190: 113 pp.

Chen, G. & M. Vincx, 1998. Nematodes from the Strait of Magellan and the Beagle Channel (Chile): Description of four new species of the Comesomatidae. Hydrobiologia 379: 97-l 10.

Cobb. N. A., 1920. One hundred new nemas (Type species of 100 genera). Contr. Sci. Nematol. 9: 217-343.

Gerlach, S. A. & F. Riemann, 1973. The Bremerhaven checklist of aquatic nematodes. A catalogue of Nematoda Adenophorea excluding the Dorylaimida. Veröff. Inst. Meeresforsch. Bremerh. Supplement 4: 1–404.

Gourbault, N., 1980. Nematodes abyssaux (Campagne Walda du N/O 'J. Charcot'). II. Espèces et genres nouveaux de Comesomatidae. Bull. Mus. Natn. Hist. Nat. Paris, 3: 737-749.

Hopper, B. E., 1967. Free-living marine nematodes from Biscayne Bay, Florida, I. Comesomatidae: the male of *Laimella longicauda* Cobb, 1920, and description of *Actarjania* n. g. Mar. Biol. 1(2): 140–144.

Jensen, P., 1979. Revision of Comesomatidae (Nematoda). Zool. Scr. 8: 81–105.

Jensen, P., 1988. Four new nematode species, abundant in the deep-sea benthos of the Norwegian Sea. Sarsia, 73: 149-155.

Muthumbi, A. W., K. Soetaert & M. Vincx, 1997. Deep-sea nematodes from the Indian Ocean: new and known species of the family Comesomatidae. Hydrobiologia 346: 25-57.

Stekhoven, J. H. S., 1950. The freeliving marine nema of the Mediterranean. I. The Bay of Villefranche. Mém. Inst. Sci. Nat. Belg. 2 (37): l-220.

Vitiello, P., 1970. Nematodes libres marins des vases profonds du golfe du Lion. II. Chromadorida. Téthys 2 (2): 449–550.

Vitiello, P., 1971. Nematodes nouveaux des vases terrigènes cotières des côtes provencales. Téthys 2 (4) 1970 (1971): 859-875.

Ward, A. B., 1974. Three new species of free-living marine nematodes from sublittoral sediments in Liverpool Bay. Mar. Biol. 24: 93-96.

Wieser, W., 1954. Free-living marine nematodes. II. Chromadoroidea. Reports of the Lund University Chile Expedition 1948-49. Acta Univ. N.F., Avd. 2, 50 (16): 1-148.