

## New and little known Nematodes (Monhysteroida, Nematoda) from the Strait of Magellan and the Beagle Channel (Chile)

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### Abstract

Six species of Monhysteroida are described from the Strait of Magellan and the Beagle Channel, Chile. Three species of which, *Sabatieria heipi* n. sp., *Paramonhystera geraerti* n. sp. and *Siphonolaimus smetti* n. sp., are new to science. *Sabatieria heipi* n. sp. is characterised by a body length of 1529-1934  $\mu\text{m}$ , cuticle punctuations with lateral differentiation; cephalic setae 5  $\mu\text{m}$  long, amphids spiral with 4.0-4.2 turns, 10-11  $\mu\text{m}$  in diameter; spicules 76  $\mu\text{m}$  (2.1 anal body diameter), with a 6  $\mu\text{m}$  projection in the ventral distal extremity, 11 minute preloacal supplements; tail 3.7-4.7 anal body diameter (abd) long with enlarged tip. *Paramonhystera geraerti* n. sp. is characterised by a body size of 705-767  $\mu\text{m}$ ; head diameter 12  $\mu\text{m}$ , the cephalic setae 6  $\mu\text{m}$ ; amphids circular, 9-10  $\mu\text{m}$  in diameter; spicules slender 108-116  $\mu\text{m}$  (5.6 abd) long, 5 preloacal supplements; and tail 4.0-5.2 abd. *Siphonolaimus smetti* n. sp. is characterised by the long spear (40-45  $\mu\text{m}$ ), head diameter 11-12  $\mu\text{m}$ , amphids circular, 12-13  $\mu\text{m}$  in diameter or 50-57% of corresponding body diameter; the spicules 55  $\mu\text{m}$  and 1.5 abd; tail conical, 2.8 abd (males) and 4.0 abd (females) long. Three other species, i.e. *Metacomesoma cyatholaimoides* Wieser, 1954, *Paramonhystera biforma* Wieser, 1956 and *I. megacephala* (Steiner, 1916) are redescribed. A key of all known species of *Paramonhystera* is proposed.

**Abbreviations:** a – body length divided by maximum body diameter; abd – anal body diameter; abe – anterior body end; amph D – amphid diameter; 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 – excretory pore from anterior body end; gub L – gubernacular apophysis length; HD – head diameter; M – maximum body diameter; NR – 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 measured organ. level of cephalic setae end of the pharynx M(V) anus —————total body length cbd

All measurements made in  $\mu\text{m}$  and measured along arc for curved structures.

### Introduction

*Metacomesoma* Wieser, 1954 is a rare genus (only one valid species) and some diagnostic characters are still questionable (Jensen, 1979; Platt, 1985). *Meta-*

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*comesoma* is characterised by 10 cephalic setae in one single circle; spicule long and slender, gubernaculum without apophysis and no precloacal supplements (Wieser, 1954). *Metacomomesoma cyatholaimoides* re-described here shows that this species has four precloacal supplements.

Three species of the genus *Paramonhystera* Wieser, 1956, are found in the Magellan area. *Paramonhystera megacephala* (Steiner, 1916) is very abundant and accounted for more than 30% of individuals in the shallow water station of the Strait of Magellan. *Paramonhystera* has some characters which are extremely variable; however, head diameter and length of the spicules are relatively stable within the species. Therefore, a key of all valid species of *Paramonhystera* based on the male's character is proposed. *Sabatieria heipi* n. sp. could be easily distinguished by the outstanding ventral projection at the distal extremity of the spicules from all other species in *Sabatieria*.

*Sabatieria heipi* n. sp., *Paramonhystera geraerti* n. sp. and *Siphonolaimus smetti* n. sp. are described here as new to science. This work is a part of the joint Chilean-German-Italian Magellan 'Victor Hensen' Campaign in 1994 (Arntz & Gorny, 1996).

## Materials and methods

The study area and sampling method, as well as the specimen treatment are described by Chen & Vincx (1998). Type specimens and described materials are deposited in the collection of the Marine Biology Section of the University of Ghent (MBRUG), slide numbers MBRUG 10582-10595.

## Results

### *Sabatieria heipi* n. sp. (Figure IA-G)

*Materials and type specimens*: one male and two females collected from stations 872 and 877 on 25 October, 1994. Holotype: ♂<sub>1</sub> on the slide number MBRUG 10582. Allotype: ♀<sub>1</sub> on the slide number MBRUG 10583. Paratype ♀<sub>2</sub> on the slide number 10584.

*Type locality and habitat*: the Strait of Magellan, Lat. S. 53° 43'5, Long. W. 70° 56'5; Water depth: 227-351 m; Mud sediment; Median grain size 17.3-55.6 μm.

*Etymology*: The species name is given in honour of Prof. Dr Carlo Heip, the Director of the NIOO-CEMO, the Netherlands.

### Measurements:

Holotype : ♂<sub>1</sub>  $\frac{-236 \text{ M } 1380}{13 \text{ 40 } 45 \text{ 37}}$  1529

a : 34.0, b : 6.5, c : 10.3, c' : 4.0, s' : 2.1; spic : 76.4

Allotype : ♀<sub>1</sub>  $\frac{-239 \text{ 712 } 1424}{14 \text{ 42 } 54 \text{ 37}}$  1576

a : 29.2, b : 6.6, c : 10.4, c' : 4.1; V = 45.2% Paratype ♀<sub>2</sub>: BL: 1934, a:31.2, b:7.5, c: 11.7, c':4.7; V=49%

## Description

*Male*: Body cylindrical with rounded head end, head diameter 13 μm and 33% of diameter at end of pharynx.

Cuticle with transverse rows of punctuations, which reach the anterior border of the amphids; close spaced dots in regular transverse rows up to the tail end. Lateral differentiation appearing behind the amphids with irregular larger and more widely spaced dots. Presence of few short somatic setae (2-3 μm) in the cervical region. Amphids spiral with 4.2 turns, 11 μm in diameter or 70% of corresponding body diameter (cbd), anterior border of amphids at the level of cephalic setae.

Six internal labial sensilla papilliform, six external labial cephalic setae 2.5 μm long and followed by four cephalic setae (5 μm). Buccal cavity cup-shaped with weakly sclerotized walls. Pharynx cylindrical, with a slightly enlarged end. Nerve ring at 147 μm from the front end, 62% of the pharyngeal length, excretory pore at the same level of nerve ring. Renette cell small, beside the Cardia. Cardia prominent.

Reproductive system diorchic, testes opposite and outstretched. Spicules paired, stout and slightly curved, 76 μm long measured as a curve, or 2.1 anal body diameter (abd). There is a distinct ventral projection near the distal extremity of spicules, about 6 μm in length. The proximal part of spicules only slightly enlarged. Gubernaculum with a pair of straight caudal apophysis, 3 1 μm long. Cloacal gland cells surrounding the posterior portion of spicules and gubernaculum apophyses. Presence of 11 minute tubular precloacal supplements and one short seta anterior of the cloacal opening.

The tail is conical and cylindrical, with enlarged tail tip, 149 μm long and 4.0 abd. Few somatic setae

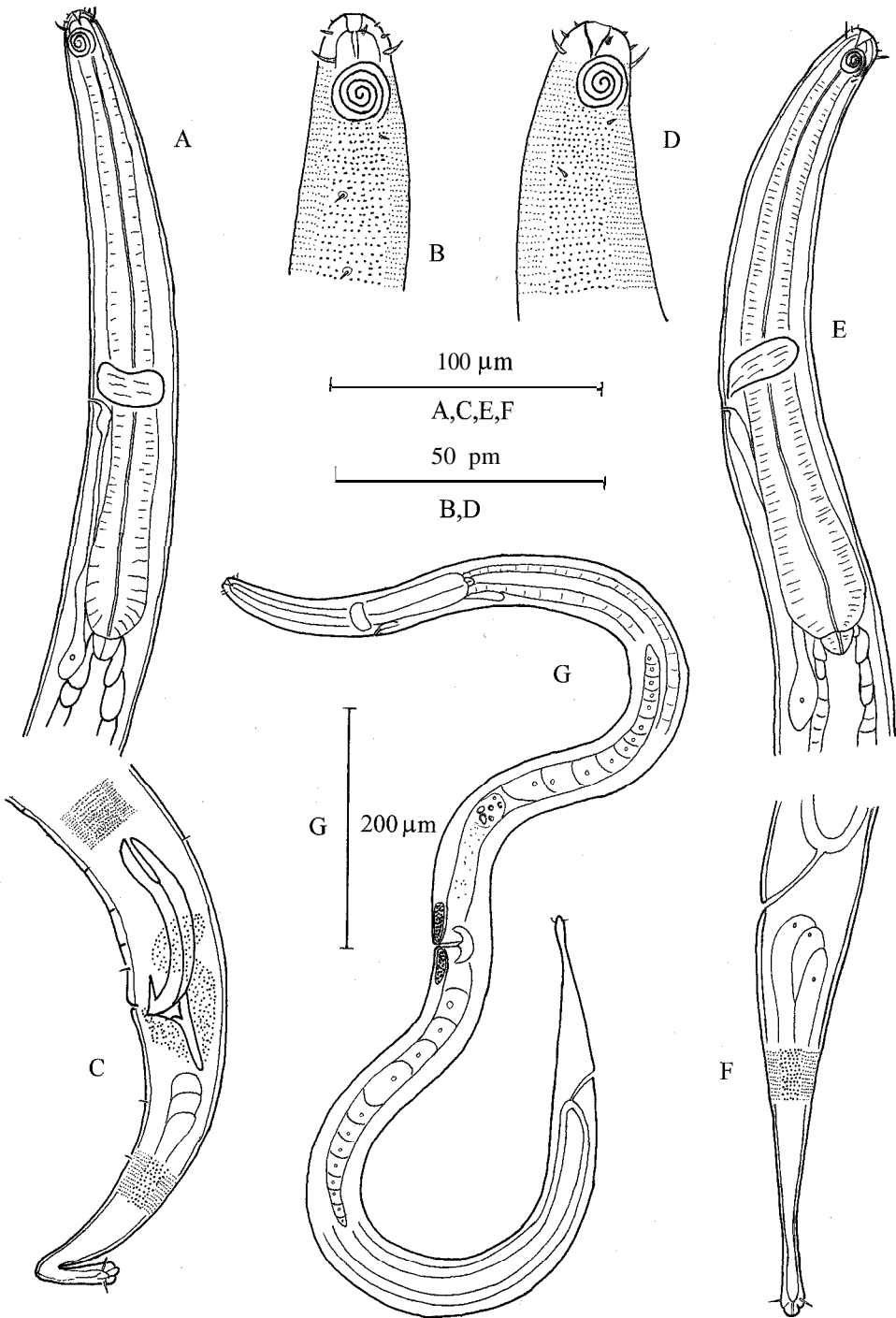


Figure 1. *Sabatieria heipi* n. sp. (A) ♂<sub>1</sub> Pharyngeal region; (B) ♂<sub>1</sub> Left side of anterior body region; (C) ♂<sub>1</sub> Copulatory apparatus and tail; (D) ♀<sub>1</sub> Left side of anterior body region; (E) ♀<sub>1</sub> Pharyngeal region; (F) ♀<sub>1</sub> Tail and rectal region; (G) ♀<sub>1</sub> Total view.

on the tail. Three terminal setae are 5  $\mu\text{m}$  long. Three caudal glands are restricted to the tail.

*Females:* The females are similar to the male. The head diameter 14  $\mu\text{m}$ , the amphids spiral with 4.0 turns, 10  $\mu\text{m}$  in diameter and 60% cbd. Nerve ring 139  $\mu\text{m}$  from the front body end and 58% of pharyngeal length.

Reproductive system didelphic-amphidelphic, ovaries opposite and outstretched, 669  $\mu\text{m}$  long and 42% of body length. Spermathecae present, vulva at 44% (4549%) of body length. The tail 152-166  $\mu\text{m}$  long and 4.14.7 anal body diameter (abd).

#### Differential diagnosis and discussion

*Sabatieria heipi* n. sp. is characterised by the cephalic setae 5  $\mu\text{m}$ , amphids 4.0-4.2 turns, 10-11  $\mu\text{m}$  in diameter; spicules 76  $\mu\text{m}$  (2.1 abd), with a 6  $\mu\text{m}$  ventral projection at the distal extremity. Cuticle with transverse rows of punctuation and lateral differentiation; tail tip enlarged, 3.74.7 abd.

*Sabatieria heipi* n. sp. could be easily distinguished by the outstanding ventral projection at distal extremity of the spicules from all other species in *Subatieia*, although *S. alata* Warwick, 1973 and *S. dodecapapillata* (Kreis, 1929) show such kind of projection, which are much shorter than that of our new species. This character, however, is more close to that of *Actarjania* (Hopper, 1967), while *Acturjania* is characterised by the lateral differentiation of irregular longitudinal rows. Jensen (1979) supposed that *Actarjania* was synonymous to *Sabatieria*, as the thorn like projection at the spicules distal ends can also be found in *S. furcillata* and *S. alata*. Furthermore, the prominent lateral differentiation cannot be used to separate between them, but only separate between the species of *Sabatieria*. However, Platt (1985) considered there is no species with this cuticular punctuation in *Sabatieria*, and he re-established the genus *Actarjania*. The new species, *Sabatieria heipi* n. sp. does show the special projection in the ventral distal extremity of the spicules, which may support Jensen's suggestion that *Sabatieria* may have such kind of ventral projection at the distal end of the spicules. However, we also did not find clear longitudinal rows in its lateral cuticular differentiation.

*Metacomesoma cytholaimoides* Wieser, 1954 (Figure 2 A-D)

*Material studied:* one male collected from station 1234 on 18 November, 1994 (slide number MBRUG 10585).

*Locality and habitat:* The Beagle Channel, Lat. S. 55° 00'4; Long. W. 66° 56'6. Water depth: 100 m. 70.2% of slit, 29.8% of clay. Median grain size: 8.9  $\mu\text{m}$ .

*Measurements:*

$$\sigma_1 \frac{-245 \text{ M } 1503}{11414732} 1607$$

a:34.2, b:6.6, c:12.8, c':3.9, s':3.2; spic:103

Wieser's (1954): BL:1370-1480, a:30.0, b:6.5, c:12-13; s': 3.0, spic: 104

#### Description

*Male:* Body cylindrical with rounded head end, head diameter 11  $\mu\text{m}$  and 27% of diameter at end of pharynx.

Cuticle with fine transverse rows of punctuations. Punctuation starts at the anterior border of amphids and continues to the tail end without lateral cuticular differentiation. There are only two short somatic setae in the cervical region. Amphids spiral with 3.0 turns, 7  $\mu\text{m}$  in diameter or 53% of cbd, anterior border of amphids at the level of cephalic setae.

Buccal cavity small. Six internal labial sensilla papilliform; six external labial cephalic setae and four cephalic setae are very close together. These ten cephalic setae are same in length (5  $\mu\text{m}$ ). Pharynx cylindrical (245  $\mu\text{m}$  long) with posterior 36% strongly expanded, forming an elongated bulb. Nerve ring at 126  $\mu\text{m}$  from the front end, 51% of the pharyngeal length. Excretory pore behind the nerve ring, 57% of pharyngeal length. Renette cell not seen. Cardia small and surrounded by the intestine.

The reproductive system diorchic. Testes opposite and outstretched, 709  $\mu\text{m}$  long or 44% of body length. Spicules paired and very slender, 103  $\mu\text{m}$  long measured as a curve, 3.2 abd. The proximal part of spicules with capitulum. Gubernaculum is a median piece without apophysis, 18  $\mu\text{m}$  long. Five cloacal gland cells are surrounding the posterior portion of spicules and gubernaculum. There are 4 minute pre-cloacal supplements and one short pre-cloacal seta; the spaces between supplements are increasing from the posteriormost to the anteriormost one, which is 120  $\mu\text{m}$  anterior to cloacal opening.

Tail conical and cylindrical, 125  $\mu\text{m}$  long and 3.9 of anal diameter with the posterior fifth cylindrical.

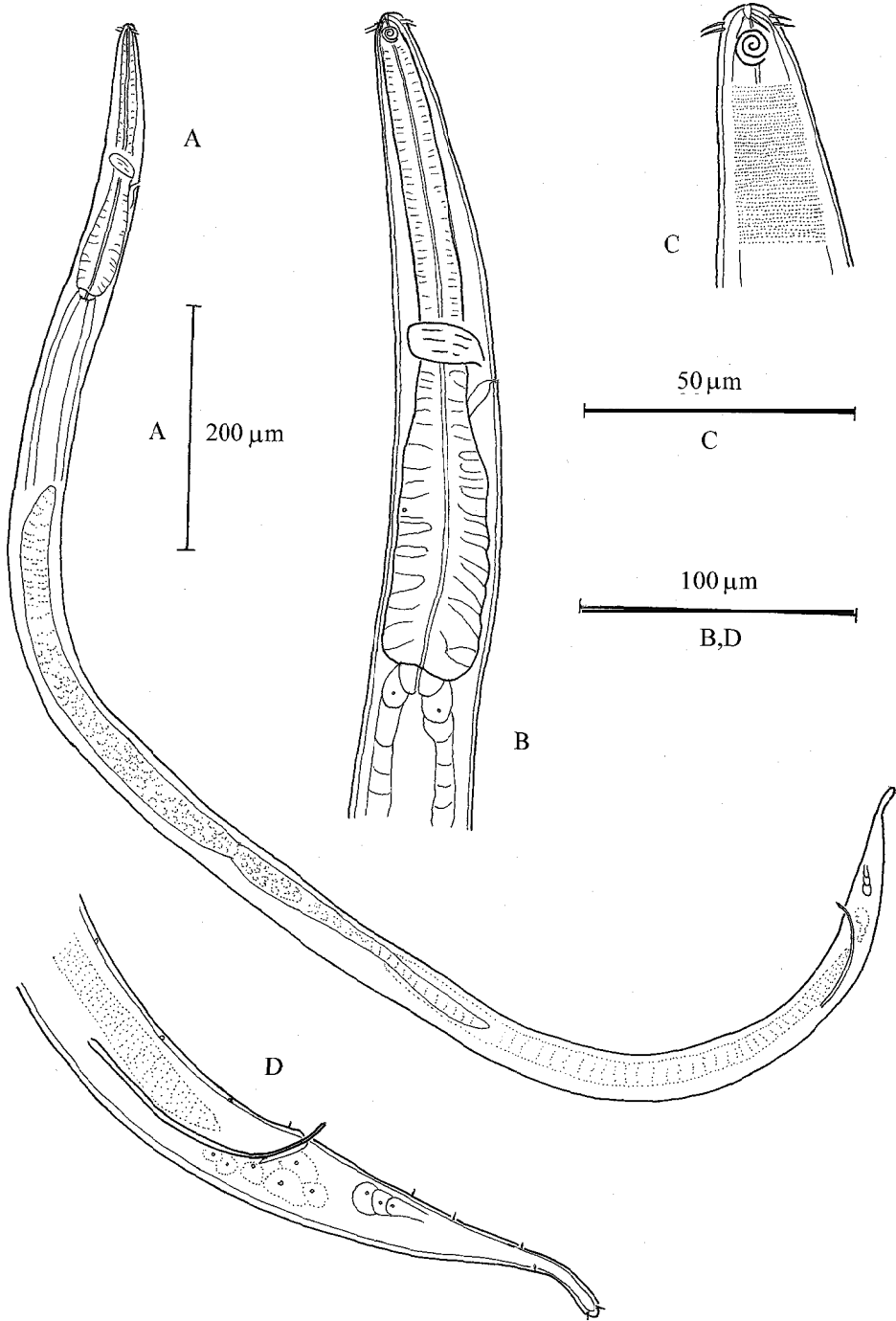


Figure 2. *Metacomesoma cyatholaimoides* Wieser, 1954. (A) ♂<sub>1</sub> Total view; (B) ♂<sub>1</sub> Pharyngeal region; (C) ♂<sub>1</sub> Anterior body region; (D) ♂<sub>1</sub> Copulatory apparatus and tail.

Few somatic setae on the ventral side of tail. Terminal setae 2.5  $\mu\text{m}$  long. Females are not found.

### Differential diagnosis and discussion

*Metacomesoma cyatholaimoides* Wieser, 1954 is the type species and also the only valid species of this genus. The main diagnosis of *Metacomesoma* is that the internal labial sensilla papilliform, whereas six external labial sensilla and four cephalic setae are same in length, and they are very close together almost forming a single circle; Spicules paired and slender; with supplements. Our specimen corresponds to Wieser's description except for two characters: the cephalic setae are shorter (5  $\mu\text{m}$  vs. 7–9  $\mu\text{m}$ ), and four supplements are found in our specimen. *Metacomesoma* is a rather poorly known genus (Platt, 1985). According to our specimen, there are two very short setae in the cervical region, the gubernaculum without apophysis. The four precloacal supplements of *M. cyatholaimoides* could have been overlooked by Wieser (cf. also comment in Platt, 1985).

*Paramonhystera geraerti* n. sp. (Figure 3A–D)

**Materials and type specimens:** Two males and two females collected from station 872.

**Holotype:** ♂<sub>1</sub> on the slide number MBRUG 10586; Allotype: ♀<sub>1</sub> on the slide number 10587. ♂<sub>2</sub> on the slide number 10588, ♀<sub>2</sub> on the slide number 10589.

**Type locality and habitat:** The Strait of Magellan, Lat. S: 53° 43'5; Long. W: 70° 56'5. Water depth: 351 m; Mud sediment; Median grain size: 17.3  $\mu\text{m}$ .

**Etymology:** The species name is given in honour of Prof. Dr E. Geraert, the Dean of the Faculty of Science, Ghent University, Belgium.

#### Measurements:

$$\text{Holotype : } \sigma_1 \frac{-154 \text{ M } 621}{12 \text{ 25 } 26 \text{ 20}} 705$$

a:29.7, b:4.4, c:8.5, c':4.7, s':4.5; spic:76.4

$$\text{Allotype : } \sigma_1 \frac{-157 \text{ 438 } 633}{12 \text{ 26 } 33 \text{ 17}} 722$$

a:24.1, b:4.6, c:8.1, c':5.2; V=60.7%

Other measurements see Table 1.

#### Description

**Males:** Body cylindrical with rounded head end, tapering both to the tail part and also toward anterior

Table 1. Measurements of *Paramonhystera geraerti* n. sp. from the Strait of Magellan and the Beagle Channel

	Male: n=2		Female: n=2	
	male 1	male 2	female 1	female 2
BL	705.0	767.0	722.0	743.0
a	27.1	30.7	24.1	25.6
b	4.5	5.1	4.6	4.8
c	8.4	10.3	8.1	7.7
HD	12.0	11.0	12.0	12.0
Hd/pb ebd (%)	48.0	44.0	46.2	41.4
CSL	6.0	6.0	6.0	6.0
amph D	9.4	10.0	9.4	9.5
amph/cbd (%)	78.0	83.0	70.0	60.0
NR	64.7	67.3	71.0	72.6
NR/ph L (%)	41.7	45.2	45.0	47.1
ph L	155.0	149.0	157.0	154.0
ph ebd	25.0	25.0	26.0	29.0
ph L/ph ebd	6.2	6.0	6.0	5.3
M	26.0	25.0	30.0	29.0
V			438.0	437.0
V%			60.7	58.8
spic	108.0	116.6		
s'	5.4	5.8		
gub L	12.6	12.0		
TL	83.8	74.4	89.0	96.4
abd	20.0	20.0	17.0	18.0
c'	4.23	3.7	5.2	5.4

body part. Head diameter 11–12  $\mu\text{m}$  and 44–48% at the end of the pharynx.

Cuticle with very fine annulation. Lips well developed, buccal cavity large and with a cuticular ring in the middle portion. Six internal labial sensilla papilliform, six external labial setae and four cephalic setae are very close, 5 and 6  $\mu\text{m}$  long. There are numerous short (2  $\mu\text{m}$ ) and long (6  $\mu\text{m}$ ) somatic setae in the cervical region, more numerous setae before the nerve ring. Amphids round but indistinct, 9–10  $\mu\text{m}$  in diameter or 80% of cbd, posterior border of amphids almost at the base of buccal cavity.

The pharynx cylindrical, slightly swollen at posterior end. Nerve ring 64–67  $\mu\text{m}$  from the anterior body end, 42–45% of the pharyngeal length. Excretory pore and renette cell not seen. Cardia elongated, 12 x 8  $\mu\text{m}$  in size, surrounded by the intestine.

The reproductive system diorchic, testes opposite and outstretched, 193  $\mu\text{m}$  long or 27% of body length, the anterior testis is equal to the posterior one. Spicules paired and slender, 112 (108–116.6)  $\mu\text{m}$  long,

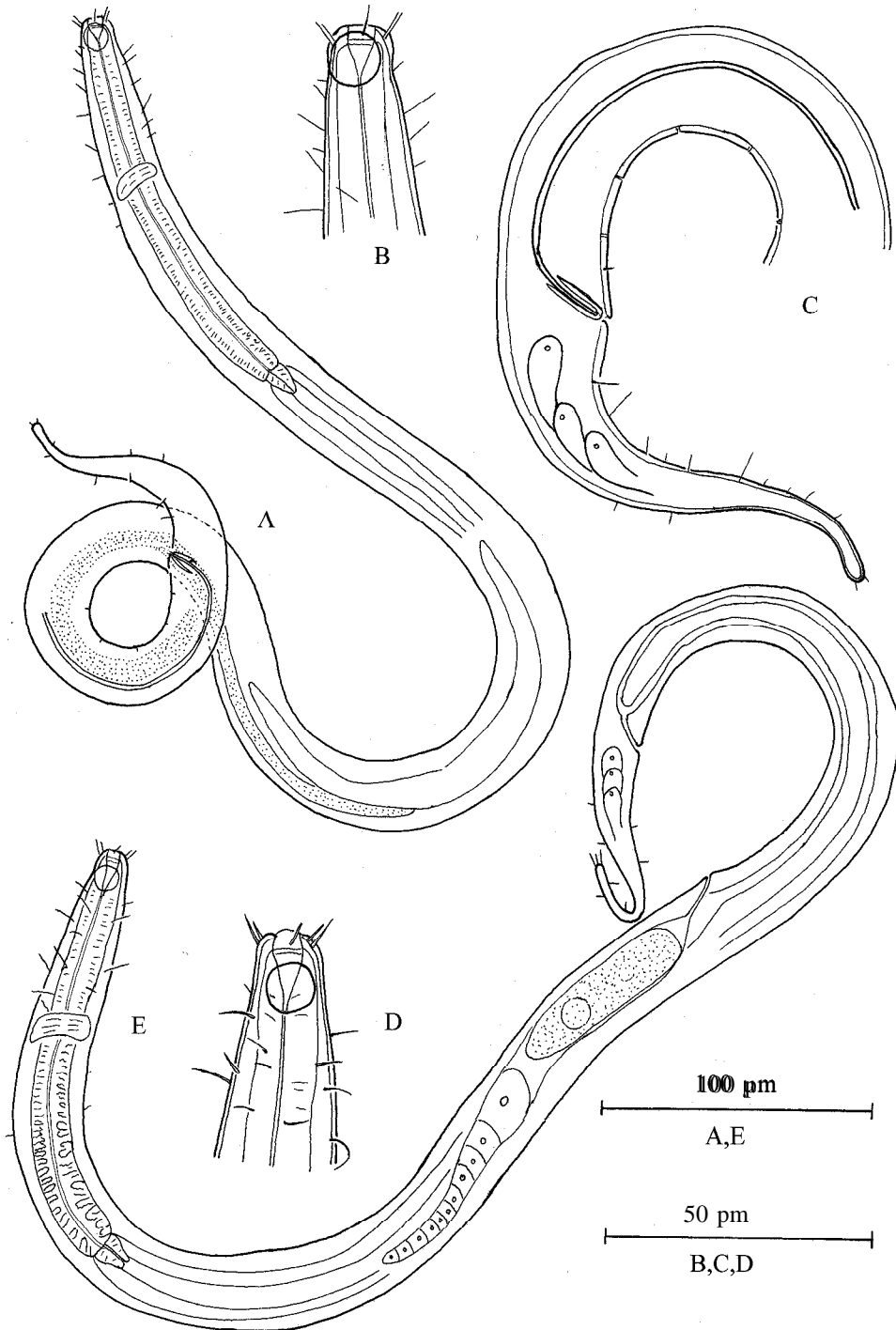


Figure 3. *Paramonhystera geraerti* n. sp. (A) ♂<sub>1</sub> Total view; (B) ♂<sub>1</sub> Anterior body region; (C) ♂<sub>1</sub> Copulatory apparatus and tail; (D) ♀<sub>1</sub> Anterior body region; (E) ♀<sub>1</sub> Total view.

5.6 (5.4-5.8) abd. Gubernaculum tubular, 12  $\mu\text{m}$  long. Five precloacal supplements.

The tail is conical and cylindrical, 74-84  $\mu\text{m}$  long or 4.0 (3.7-4.2) anal body diameter, with a slightly swollen tip. Some somatic setae on the tail. Terminal setae 6  $\mu\text{m}$  long in male 2, but only 2  $\mu\text{m}$  in male 1, which might be broken. Three caudal glands are restricted to the tail.

*Females:* The females are similar to males. The amphids are 9.5  $\mu\text{m}$  in diameter and 60–65% cbd. Cervical setae arranged in 6-8 longitudinal rows till the nerve ring. Reproductive system monodelphic, ovary outstretched, 169  $\mu\text{m}$  long or 23.4% of the body length. One egg is 70 x 16  $\mu\text{m}$  in size. Vulva at 60% of body length. The tail is similar with that of male, 86-89  $\mu\text{m}$  long and 5.2-5.4 abd.

#### Differential diagnosis and discussion

*Paramonhystru geraerti* n. sp. is characterised by the length of the cephalic setae (6  $\mu\text{m}$ ), amphids 9-10  $\mu\text{m}$  in diameter; spicules slender 108-1 16  $\mu\text{m}$  and 5.6 abd long, and tail 3.74.2 abd (in males).

*Paramonhystru geraerti* n. sp. is close to *Paramonhystru proteus* Wieser, 1956 in both having similar de Man's ratios and general morphology. *P. proteus*, however, is larger (1150-1500  $\mu\text{m}$  vs. 705-767  $\mu\text{m}$  in males; 1230-1920  $\mu\text{m}$  vs. 722-743  $\mu\text{m}$  in females); the head diameter is twice as wide (24-27  $\mu\text{m}$  vs. 12  $\mu\text{m}$ ); the cephalic setae are much longer (20  $\mu\text{m}$  vs. 6  $\mu\text{m}$ ); but the spicules are similar in length (120  $\mu\text{m}$  vs. 108-1 16  $\mu\text{m}$ ). Furthermore, no precloacal papillae were detected in *P. proteus*, whereas *P. geraerti* n. sp. has five precloacal supplements; these differences clearly distinguish our new species.

*Puramonhystru biforma* Wieser, 1956 (Figure 4 A-C)

*Material studied:* One male collected from station 872 on 25 October, 1994 (slide number 10589).

*Locality and habitat:* The Strait of Magellan, Lat. S: 53° 43'5; Long. W: 70° 56'5. Water depth: 351 m; Mud sediment; Median grain size: 17.3  $\mu\text{m}$ .

*Measurements:*

$$\sigma_1 \frac{-165 \text{ M } 718}{19303321} 816$$

a:24.7, b:4.9 c:8.3, c':4.7, s':1.6; spic:33

Wieser's small form (1956): BL: 760, a:20.0, b:5.0 c:8.0, c':3.7-4.8; spic:38-40

#### Description

*Male:* Body cylindrical, tapering at the tail part. Head is not set off from body.

Cuticle with very fine annulation. Buccal cavity is large and conical, with weakly sclerotized walls. Presence of a cuticular ring in the buccal portion. Six internal labial sensilla papilliform but conspicuous; six external labial setae and four cephalic setae are at same level, 3 and 5  $\mu\text{m}$  long, respectively. There are somatic setae (3-7  $\mu\text{m}$  long) in the cervical region. Amphids are almost rounded, 10  $\mu\text{m}$  in diameter or 53% of cbd, with posterior border at the base of buccal cavity. The pharynx 165  $\mu\text{m}$  long, cylindrical and evenly sized to the end. Nerve ring at 77  $\mu\text{m}$  from the front end, and 46% of the pharyngeal length. Excretory pore and renette cell not observed. Cardia conical and elongated, 17  $\mu\text{m}$  in length, surrounded by the intestine.

Reproductive system diorchic; testes opposite and outstretched, 320  $\mu\text{m}$  long or 39% of body length. Spicules are paired and slender, 33  $\mu\text{m}$  or 1.6 abd. Gubernaculum is a tubular structure with two pieces, 13  $\mu\text{m}$  long; two precloacal setae, indistinct.

The tail is conical with one-sixth cylindrical, 99  $\mu\text{m}$  long or 4.7 of anal diameter; tail tip swollen. Numerous somatic setae on both dorsal and ventral sides of the tail. Three terminal setae 6  $\mu\text{m}$  long. Three caudal glands are restricted to the tail.

#### Discussion

Wieser (1956) described *Paramonhystru biforma* as two forms, i.e. 2 large and 5 small specimens. Our specimen is similar with the small form of *P. biforma* in many ways, such as total body length, the De Man ratios and spicule length; however, some difference could be seen. The head of the small form is not set off comparing the set off head of large form, the cephalic setae and terminal setae are shorter than in the type specimens. Wieser (1956) pointed out that some characters of *Paramonhystru* are extremely variable, and therefore, we treat this specimen as *l? biforma*.

*Paramonhystru megacephala* (Steiner, 1916) (Figure 5 A-G)

*Materials studied:* Five males and five females collected from station 818 on 19 October, 1994 (slide numbers MBRUG10590 and 10591).



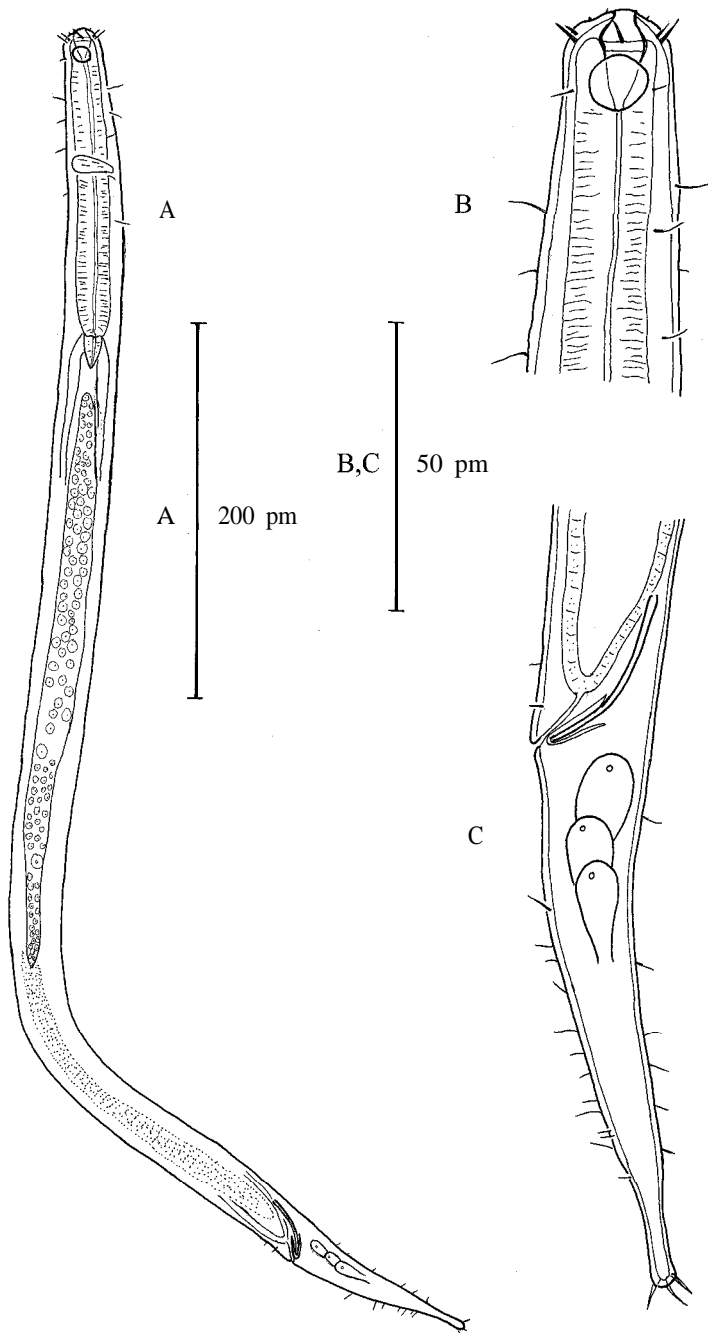


Figure 4. *Paramonhystera biforma* Wieser, 1956. (A) ♂<sub>1</sub> Total view; (B) ♂<sub>1</sub> Anterior body region; (C) ♂<sub>1</sub> Copulatory apparatus and tail.

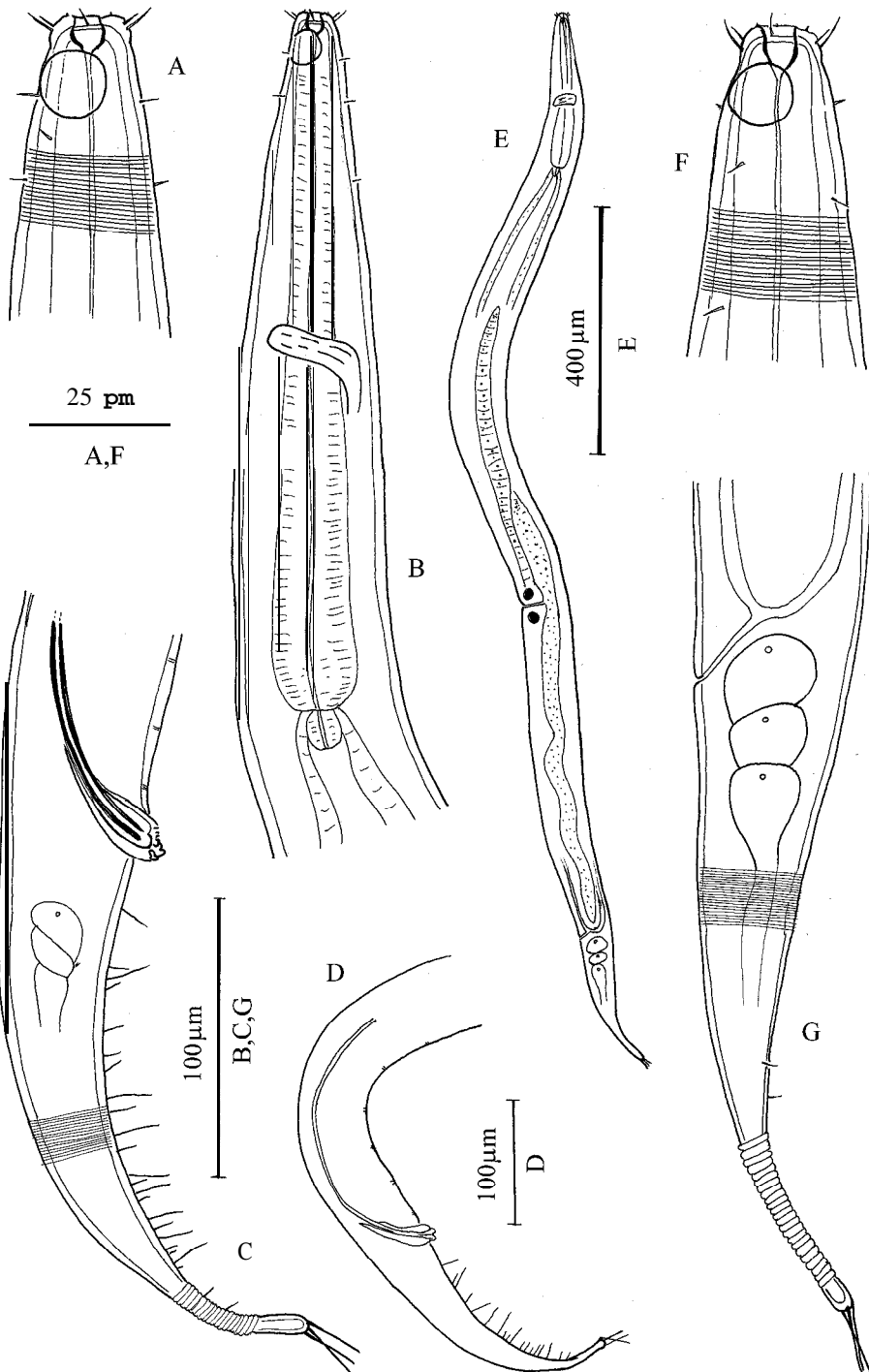


Figure 5. *Paramonhystra megacephala* (Steiner, 1916). (A) ♂<sub>1</sub> Anterior body region; (B) ♂<sub>1</sub> Pharyngeal region; (C) ♂<sub>1</sub> Copulatory apparatus (Gubernaculum) and tail; (D) ♂<sub>1</sub> Posterior body region (Spicules and supplements); (E) ♀<sub>1</sub>. Total view; (F) ♀<sub>1</sub> Anterior body region; (G) ♀<sub>1</sub> Tail and rectal region.

Table 2. Measurements of *Paramonhystera megacephala* (Steiner, 1916) from the Strait of Magellan and the Beagle Channel

	Male: n=5					Female: n=5				
	mean	Min	Max	SD	CV%	mean	Min	Max	SD	CV%
BL	1769.8	1676.0	1894.0	75.2	4.3	2001.8	1926.0	2055.0	44.6	2.2
a	22.5	21.8	22.9	0.4	1.7	24.7	22.6	26.4	1.5	6.3
b	6.6	6.3	6.9	0.2	3.4	7.0	6.8	7.1	0.1	2.0
c	7.8	7.3	8.1	0.3	4.2	7.8	7.0	8.4	0.4	5.5
HD	15.2	14.0	16.0	0.7	4.9	15.6	14.0	17.0	1.0	6.5
Hd/ph ebd (%)	24.6	21.2	29.6	2.9	11.6	24.1	20.5	27.1	2.4	10.1
amph D	11.4	10.7	12.0	0.5	4.7	11.5	10.7	2.7	0.7	5.8
amph/cbd (%)	66.3	63.0	72.0	4.0	6.1	63.0	55.0	70.0	5.5	8.8
NR	139.0	125.0	149.0	10.2	7.3	145.0	143.0	147.0	1.7	1.2
NR/ph L (%)	50.3	50.0	51.0	0.5	0.9	50.5	49.2	52.1	1.0	2.0
ph L	269.0	246.0	293.0	18.7	7.0	287.4	280.0	299.0	7.3	2.5
ph ebd	62.6	54.0	66.0	4.9	7.9	65.2	59.0	73.0	4.6	7.0
ph L/ph ebd	4.3	4.1	4.6	0.2	3.1	4.4	3.8	4.7	0.3	7.5
M	78.8	74.0	84.0	3.3	4.2	81.4	73.0	88.0	5.4	6.7
V						1084.0	1040.0	1127.0	31.2	2.9
V%						54.2	52.0	56.3	1.4	2.5
spic	276.0	260.0	303.0	16.4	5.9					
s'	5.1	4.7	5.5	0.3	5.4					
TL	226.8	215.0	240.0	8.4	3.7	258.8	239.0	290.0	17.6	6.8
abd	54.2	50.0	57.0	2.5	4.6	52.4	48.0	55.0	3.0	5.8
c'	4.2	4.0	4.5	0.2	4.2	5.0	4.3	5.3	0.4	7.0

*Locality and habitat:* The Strait of Magellan, Lat. S: 53° 02'6; Long. W: 70° 17'2. Water depth: 8 m; 8.2% sand, 8.% silt and 11.7% clay; Median grain size: 33.9  $\mu\text{m}$ .

*Measurements:*

$$\sigma_1 \frac{-250 \ M \ 1501}{15597750} 1727$$

a:22.4, b:6.9, c:7.6, c':4.5, s':5.2; spic:260

$$\sigma_1 \frac{-280 \ 1127 \ 1762}{1573 \ 8655} 2001$$

a:23.3, b:7.1, c:8.4, c':4.3; V=56.3%

Other measurements see Table 2.

*Description*

*Males:* Body cylindrical and tapering from mid-body to both ends. Head set off from the cervical region, 15  $\mu\text{m}$  in width, and 25% of diameter at end of pharynx.

Cuticle with fine annulation. Buccal cavity is large and cup-shaped with weakly sclerotized cavity walls. Presence of a cuticular ring in the middle buccal

portion. Six internal labial sensilla papilliform but conspicuous, six external labial setae and four cephalic setae are at same level, 4 and 6  $\mu\text{m}$  long. There are a few somatic setae (3  $\mu\text{m}$  long) in the cervical region. Amphids round, 11-12  $\mu\text{m}$  in diameter or 66% (63-72%) of cbd, anterior border of amphids almost at the base of buccal cavity. Pharynx 246-293  $\mu\text{m}$  long, cylindrical and slightly enlarged to the end, but without forming a pharyngeal bulb. Nerve ring at 139  $\mu\text{m}$  (125-149  $\mu\text{m}$ ) from the front end, at the middle of the pharyngeal length. Excretory pore and renette cell not seen. Cardia small, surrounded by the intestine.

Reproductive system diochic, testes opposite and outstretched. Spicules are paired, very long and slender, 276 (260-303)  $\mu\text{m}$  and 5.1 (4.7-5.5) abd. or a little longer than one tail length. Gubernaculum is a tubular structure with two pieces, the distal part expanded and with a teeth-like protrusion. Five to six minute preloacal supplements.

The tail is conical with cylindrical end part, 215-240  $\mu\text{m}$  long and 4.2 (4.0-4.5) of anal body diameter. Numerous somatic setae on the Subventral side of the tail. Three terminal setae 22  $\mu\text{m}$  long. The annulation

is more strongly and widely spaced in the cylindrical part of the tail.

*Females:* The females are similar to males. The head diameter 16  $\mu\text{m}$ , 24% of the end of pharynx. Cephalic setae and external cephalic setae 6  $\mu\text{m}$  and 4  $\mu\text{m}$  long. Amphids round with 11.5  $\mu\text{m}$  in diameter and 63% (55–70%) cbd. Reproductive system monodelphic, ovary outstretched. Vulva at 54% (52–56.3%) of body length. The tail is similar to male, but only has few somatic setae, 239–290  $\mu\text{m}$  long and 5.0 (4.3–5.3) abd. Three caudal glands are obviously restricted to the tail.

## Discussion

*Paramonhystera megacephala* was first described by Steiner (1916) based only on a female. Wieser (1954) redescribed this species using many specimens from Chile. Our specimens are in full agreement with Wieser's description, but the spicules are longer (260–303  $\mu\text{m}$  vs. 195  $\mu\text{m}$ ) in the present specimens.

The genus *Paramonhystera* has been erected by Wieser in 1956. It is characterised by circular or elliptical amphids, slender and elongate spicules, tubular gubernaculum without apophysis. The reproductive system of male is diorchic, testes opposite and outstretched. Reproductive system of female is monodelphic, ovary outstretched. Ten species of *Paramonhystera* have been described to date: *P. biforma* Wieser, 1956, *P. breviseta* Juario, 1974, *P. canicula* Wieser & Hopper, 1967, *F! concinna* Lorenzen, 1977, *P. levicula* (Lorenzen, 1973), *P. longicaudata*, Timm, 1963, *P. megacephala* (Steiner, 1916), *P. micramphis* Stekhoven, 1950, *P. proteus* Wieser, 1956 and *F! wieseri* Ott, 1977. Of them, *P. canicula* has been transferred to the genus *Metadesmolaimus* (see Gerlach & Riemann, 1973); and *P. micramphis* is known from females and juvenile only and considered as a *species inquirenda* (Wieser & Hopper, 1967).

Table 3. Measurements of *Siphonolaimus smetti* n. sp. from the Strait of Magellan and the Beagle Channel

	Male: n=2		Female: n=2	
	male 1	male 2	female 1	female 2
BL	2414.0	1787.0	2732.0	2106.0
a	52.5	44.7	50.6	45.8
B	12.7	10.1	12.9	11.3
c	20.8	18.6	25.5	21.5
HD	12.0	11.0	12.0	11.0
CSL	7.4+1.5	6.6+1.0	7+2	6+1.5
CSL/HD (%)	61.7	60.0	58.3	54.5
sub-CSL	6.0	5.3	6.0	5.5
sub-CSL/HD (%)	50.0	48.2	50.0	50.0
amph-abe	15.4	18.5	14.1	15.8
amph D	13.4	12.0	10.7	10.6
amph cbd	25.1	23.8	23.5	18.5
amph/cbd (%)	57.0	50.5	45.7	57.1
NR	103.0	95.0		106.0
NR/Ph (%)	54.2	53.7	0.0	57.0
ph L	190.0	177.0	211.0	186.0
pb cbd	42.0	38.0	43.0	43.0
ph L/ph cbd	4.5	4.7	4.9	4.3
E-abe	124.0	115.0		
M	46.0	40.0	54.0	46.0
V			1718.0	1386.0
V%			62.9	65.8
spic	55.4	54.1		
s'	1.4	1.6		
TL	116.0	96.0	107.0	98.0
abd	41.0	34.0	26.0	25.0
c'	2.8	2.8	4.1	3.9

Although Wieser (1956) pointed out that some characters of *Paramonhystera* are extremely variable, we found the head diameter and the spicules length are relatively stable within species. A key of all valid species of *Paramonhystera* is given based on the male's characters.

## Key of all known species of *Paramonhystera* Wieser, 1956

1. Spicules longer than 60  $\mu\text{m}$ ,  $s' \geq 3.4$  abd ..... 2
- Spicules shorter than 40  $\mu\text{m}$ ,  $s' \leq 2.1$  abd ..... 3
2. Head diameter smaller than 18  $\mu\text{m}$  ..... 4
- Head diameter 25  $\mu\text{m}$ , cephalic setae 20–23  $\mu\text{m}$ ,  $s'=3.7$ ,  $c'=4.2-5.5$  ..... *l? proteus* Wieser, 1956
3. Head diameter more than 15  $\mu\text{m}$  ..... .
- Head diameter 7.2  $\mu\text{m}$ , spicules 1.4–2.1 abd ..... *P. breviseta* Juario 1974
4. Spicules 60–120  $\mu\text{m}$  long ..... .
- Spicules 200–300  $\mu\text{m}$ ,  $c'=4-6$ , cephalic setae 6–7  $\mu\text{m}$  ..... *P. megacephala* (Steiner, 19 16)

5. Cephalic setae 47-50 $\mu\text{m}$ .....	<i>wieseri</i> Ott, 1977
Cephalic setae 9-16 $\mu\text{m}$ .....	
6. Spicules 60-75 $\mu\text{m}$ , tail 140 $\mu\text{m}$ , $c'=7.4$ , $s'=3.4$ .....	<i>P. levicula</i> (Lorenzen, 1973)
Spicules 90-120 $\mu\text{m}$ , $c'=3.8-5.3$ .....	.8
7. Amphids circular, $c'=3.7-4.8$ .....	<i>P. biforma</i> Wieser, 1956
Amphids elliptical, $c'=10$ .....	<i>P. longicaudata</i> Timm, 1963
8. Amphids 1.5 HD to $abe$ , $s'=2.8$ .....	<i>P. concinna</i> Lorenzen, 1977
Amphids close to $abe$ , $s'=5.6$ .....	<i>P. geraerti</i> n. sp.

*Siphonolaimus smetti* n. sp. (Figure 6 A-F)

*Materials and type specimens:* Two males and two females collected from station 1076 on 5 November, 1994.

*Holotype:*  $\sigma_1$  on the slide number MBRUG 10592; Allotype:  $\varphi_1$  on the slide number MBRUG 10593; Paratypes:  $\sigma_2$  on the slide numbers 10594;  $\varphi_2$  on the slide numbers 10595.

*Type locality and habitat:* The Beagle Channel, Lat. S. 54° 53'6; Long. W. 69° 30'3. Water depth: 346 m. 7.2% of sand, 75% of slit, 17.8% of clay. Median grain size: 15.1  $\mu\text{m}$ .

*Etymology:* The species name is given after Mr Guy De Smet of the Marine Biology Section, University of Ghent, Belgium.

*Measurements:*

*Holotype:*  $\sigma_1$   $\frac{-190 \text{ M } 2298}{12 \ 42 \ 46 \ 41} 2414$

a:52.5, b:12.7, c:20.8,  $c':2.8$ ,  $s':1.4$ ; spic:55

*Allotype:*  $\varphi_1$   $\frac{-211 \ 1718 \ 2625}{12 \ 43 \ 54 \ 26} 2732$

a:50.6, b:12.9, c:25.5,  $c':4.1$ ; V%=62.9

Other measurements see Table 4.

Description

*Males:* Body slender, total body length  $2100 \pm 3 \ 13 \ \mu\text{m}$ , head diameter 11-12  $\mu\text{m}$  and 29% of diameter at end of pharynx.

Cuticle is marked by very fine annulation. Head with six short (1-2  $\mu\text{m}$ ) and four long (6-7  $\mu\text{m}$ , 60% of head diameter) cephalic setae. Circle of six sub-cephalic setae 6  $\mu\text{m}$  long, at the level of the anterior border of amphids.

Amphids circular, 12-13  $\mu\text{m}$  diameter or 51-57% of corresponding body diameter, 15-19  $\mu\text{m}$  from anterior body end. Amphidial nerve is prominent. The buccal cavity is typical of the genus, containing a long

cuticularized axial spear, 40-45  $\mu\text{m}$  or 22-24% of pharynx length. The spear enlarged gradually to the posterior end.

The pharynx is 177-190  $\mu\text{m}$  long and swollen posterior into a long bulb, maximum width 24  $\mu\text{m}$ ; the middle part of pharynx is constricted (8  $\mu\text{m}$  in diameter) and surrounded by the large nerve ring and by a number of loose cells, the anterior part before the nerve ring is enlarged again and connected with the spear. Nerve ring at 95-103  $\mu\text{m}$  from the anterior body end or 54% of the pharynx. Renette cell behind the Cardia. Excretory pore 115-124  $\mu\text{m}$  from anterior end at 65% of the length of the pharynx. Cardia small.

The reproductive system with a single outstretched testis. The spicules are paired and curved, with a slightly enlarged capitulum, distal arcuate, 54-55  $\mu\text{m}$  long in curve and 1.4-1.6 of the anal diameter. The gubernaculum with triangular median piece and well developed dorsal apophyses, 20-24  $\mu\text{m}$  long; 5-8 minute setose precloacal supplements.

Tail conical, 96-116  $\mu\text{m}$  and 2.8 anal diameter. Presence of 5-8 short setae on the posterior part of tail.

*Females:* The female is similar to the male. The reproductive system is monodelphic with a single anterior outstretched ovary, 874  $\mu\text{m}$  long. Posterior uterus with five large eggs; their size varies from  $92 \pm 46$  to  $86 \pm 33 \ \mu\text{m}$ . Vulva at 63-66% of body length. The ratio of 'c' is larger than that of male (4.0 vs. 2.8).

Differential diagnosis and discussion

*Siphonolaimus smetti* n. sp. is characterised by its rather long spear (40-45  $\mu\text{m}$ ), head diameter 12  $\mu\text{m}$ , amphids 12-13 or 50-57% of cbd; the spicules (54-55  $\mu\text{m}$ ) or 1.4-1.6 abd and minute setose precloacal supplements; and a conical tail 2.8 (male) and 4.0 (female) abd.

*Siphonolaimus smetti* n. sp. is very close to *S. auratus* Wieser, 1956 and *S. profundus* Warwick, 1973

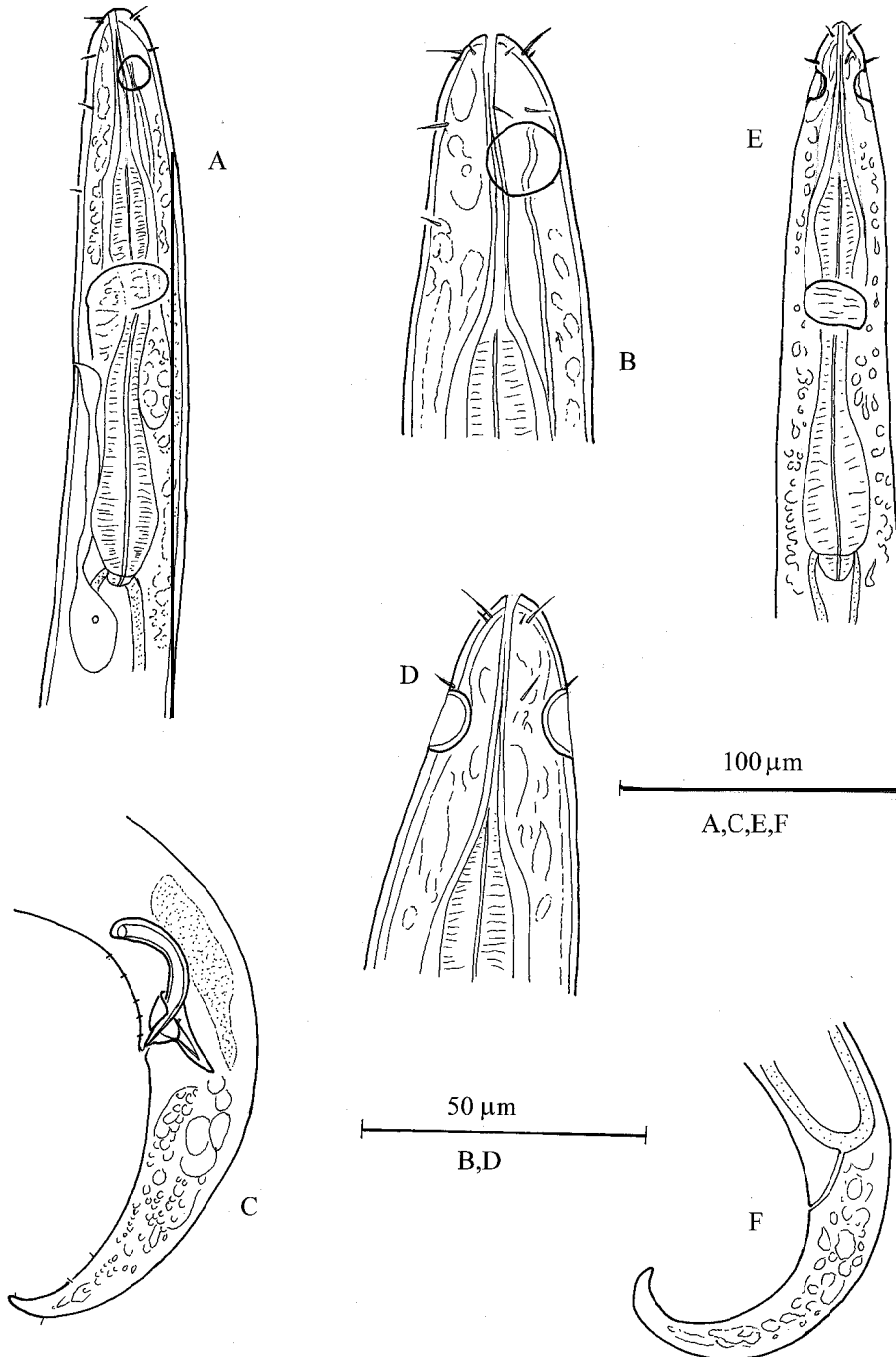


Figure 6. *Siphonolaimus smetti* n. sp. (A) ♂<sub>1</sub> Pharyngeal region; (B) ♂<sub>1</sub> Anterior body region; (C) ♂<sub>1</sub> Copulatory apparatus and tail; (D) ♀<sub>1</sub> Anterior body region; (E) ♀<sub>1</sub> Pharyngeal region; (F) ♀<sub>1</sub> Rectal region and tail.

in having a similar cephalic setae pattern, the amphid size, the head diameter, the long spear, as well as the shape of the tail and spicule. However, *Siphonolaimus smetti* n. sp. can only be distinguished from *S. auratus* by the appearance of supplements. As Wieser (1956) states that *Siphonolaimus auratus* has 26-30 supplements, the 10 posteriormost are placed close to each other, the more anterior ones are more spaced and shallower. Whereas there are only 4-8 setose pre-cloacal supplements in *Siphonolaimus smetti* n. sp. *S. profundus* has a much longer body length (4680-5980  $\mu\text{m}$  vs. 1787-2414  $\mu\text{m}$  in males), large 'a' value (61.1-85.4 vs. 44.7-52.5 in males) and longer spicule (79-83 vs. 54-55  $\mu\text{m}$ ), which could separate it from *Siphonolaimus smetti* n. sp.

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