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Article

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Four new species of *Syringolaimus* De Man, 1888 (Nematoda: Ironidae) from the Southeast Atlantic (Brazil), with redefinition of valid species and the proposal of a new key*

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Abstract

Syringolaimus is the most abundant and diverse genus of the family Ironidae (Nematoda) found in the Campos Basin, off Rio de Janeiro, Brazil. In this article, four new species of this genus are described. *S. annae* sp. n. is characterized by a conical-cylindrical tail without a spinneret. *S. magdae* sp. n. possesses a pair of ejaculatory glands located in the precloacal region, and a spinneret, which comprises 21.2% of the total tail length. In *S. smolae* sp. n. the spicule is setiform. *S. taniae* sp. n. has the anterior region of the tail rounded, with its terminal portion cylindrical-filiform.

Key words: marine nematodes, deep sea

Introduction

The genus *Syringolaimus* De Man, 1888 was first recorded from the deep sea in the Cabo Basin off the African coast, between the 3700 and 4180 m isobaths (Gourbault & Vincx 1985). Netto *et al.* (2004, 2005) recorded this genus from the South Atlantic, on the slope of the Campos Basin, between the 870 and 950 m isobaths.

The taxonomic position of *Syringolaimus* was doubtful for a long time. The genus was assigned to the Rhabdolaimidae Chitwood, 1951 because of the presence of a true basal bulb in the pharynx (Riemann 1970; Gerlach & Riemann 1973). However, this is an uncommon feature for Enoplia (Lorenzen 1981), and therefore the genus was transferred to the Ironidae by Lorenzen (1981) based on the structures of the buccal cavity and the existence of replacement teeth, which are placed slightly behind the functional teeth (Coomans & Van der Heiden 1979).

Platonova & Mokievsky (1994) proposed an emended diagnosis for Ironidae, which had been previously based on a single freshwater genus. This posed a challenge for the taxonomy of *Syringolaimus* as well as for other marine genera of this family. These authors also provided an identification key for the nine species of *Syringolaimus* that were recognized at that time.

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Material and Methods

The Campos Basin is located on the continental shelf and slope of Rio de Janeiro, Brazil, between 21° 30' N and 23° 30' S. The study area, field methodology and laboratory methods were described by Botelho *et al*. (2007).

The holotypes and allotypes were deposited at the National Museum of Rio de Janeiro (MNRJ), Brazil. The paratypes are deposited in Meiofauna Laboratory of the Zoology Department, Universidade Federal de Pernambuco.

Abbreviations used in the text:

The name of the body regions followed Coomans (1979). All the measurements are expressed in micrometers. All curves are measured along the cord.

Abbreviations used in the text:

a, b, c: ratio's of De Man (1880).

a: body length divided by maximum body diameter

b: body length divided by pharyngeal length

c: body length divided by tail length

c': tail length divided by body width at level of anus or cloaca opening

abd: anal body diameter

amph dist: amphidial fovea distance from the anterior end

amph wid: width amphidial fovea

amph (%): amphid diameter as percentage of the corresponding body diameter

buc cav l: buccal cavity length

bulb d: pharyngeal bulb diameter

bulb %: bulb diameter as percentage of corresponding body diameter

cbd: corresponding body diameter

cil / t (%): proportion of the cylindrical portion of the tail in relation to the total length

con / t (%): proportion of the conical region of the tail in relation to the total length

ex pore: position of the secretory-excretory pore from the anterior end

ex pore/ ph (%): position of the secretory-excretory pore as percentage of pharynx length

gub: gubernaculum length

hd: head diameter

L: body length

mbd: maximum body diameter

n.a.: not applied

n.v.: not visible

ner ring: distance of the nerve ring from the anterior end

nr /ph (%): position of the nerve ring as percentage of pharynx length

ph: pharynx length

spic: spicule length measured along the cord

spin: spinneret length

spin / t (%): spinneret proportion in relation to the tail length

V%: position of vulva as a percentage of body length from the anterior end

v: vulva distance from the anterior end

Taxonomy (after Smol & Coomans, 2006)

Enoplida Filipjev, 1929
Ironina Siddiqi, 1983
Ironoidea De Man, 1876
Ironidae De Man, 1876
Thalassironinae Andrássy, 1976
***Syringolaimus* De Man, 1888**

Type species: Syringolaimus striatocaudatus De Man, 1888

Diagnosis (after Platonova & Mokievsky 1994 and Lorenzen 1994). Smooth cuticle. Lips not developed. Labial and cephalic sensilla generally absent or papillae-like when present (except *S. renaudae* with well developed cephalic setae). Teeth of variable shapes: entire, divided in the anterior end, or chelae shape. Pharynx with a true oval or rounded basal bulb. Long tail, of conical or conical-cylindrical shape with a filiform tip. Caudal glands present. Narrow spicules with *capitulum* and *vellum* well evident. Females didelphic with reflected ovaries.

Syringolaimus annae sp. n. (Figs. 1 and 2)

Type Material: Five males and five females collected from stations 61, 73, 74, 75, 76, 77 and 78 (Appendix). Holotype ♂1: slide number MNRJ 330 station 71; paratypes**:** ♂2 e ♂3, slide number 107–108 NM LMZOOUFPE Station 73 and 74 respectively; ♂4, and ♂5 slide number 109–110 NM LMZOOUFPE Station 75. Allotypes: ♀1 slide number MNRJ 331 Station 77; paratypes: ♀2, ♀3, ♀4 and ♀5; slide number 111–114 NM LMZOOUFPE Station 61, 74, 76 and 78 respectively.

Type locality: Campos Basin (Rio de Janeiro, Brazil). Holotype ♂1: found at 1350 m depth (D) in silt-clay sediments. Surface layer (SL) between 2–5 cm. Allotype ♀1: D: 1650 m, SL:2–5 cm.

Other localities: Campos Basin (Rio de Janeiro, Brazil), found at 750 m, 1050 m and 1950 m depth (D) in silt-clay sediments. Surface layer (SL) between 0–2 and 2–5 cm.

Measurements: see table 1.

Etymology. The specific epithet honors Professor Ann Vanreusel from Ghent University, Belgium.

Description. Male holotype: Body 1891 µm long**,** maximum diameter 31.2 µm. Cuticle with delicate, almost imperceptible striations on tail region. Six small, outer labial papillae and four cephalic papillae in two different circles. Head diameter 10.8 µm. Amphideal fovea pocket-like, occupying 40% of corresponding body diameter. Buccal cavity cylindrical, sclerotized and deep, 52.2 µm long (19.6% of total pharynx length), surrounded by oblique pharynx muscles. Three asymmetrical bifid teeth of equal size, one dorsal and two subventral, arrow-shaped. Pharynx strongly muscular with an elongated basal bulb, 50.4 µm long (19% of total pharynx length), 28.2 µm in diameter (78.3% of corresponding body diameter). Secretory-excretory pore situated at 33.2% of pharynx length from anterior end in relation to total length of pharynx. Nerve ring placed slightly posterior to mid-pharynx. Cardia rounded. Ventral gland located slightly after cardia. One testis lying on right side of intestine, with a marked glandular part in its anterior region, separating cells in different stages of maturation. Vas deferens relatively short, with sperm cells forming. Spermatozoids fusiform. Spicule with lateral punctuations, strongly sclerotized. Vellum present. Gubernaculum blade-shaped. Tail conical-cylindrical, filiform in terminal region and without spinneret. Cylindrical-filiform portion comprising 74% of tail length. Three caudal glands present.

Female Allotype: Generally similar to males. Amphidelphic-didelphic, ovaries reflexed and ventral to intestine. Vulva at 52.3% of body length.

TABLE 1: Measurements (μm) of *Syringolaimus annae* sp. n. (males and females).

	Holotype	Paratype (male)				Allotype	Paratype (female)			
	Male 1	2	3	4	5	Female 1	2	3	4	5
L	1891	1535.4	1618.2	1182	1218	1910.9	849	1659	1020	1012.6
hd	10.8	11.4	10.2	7.8	12.6	13.8	9	13.2	12.6	10.8
amph wid	6.6	5.4	4.8	n.v.	4.2	6.0	3.0	4.8	4.2	n.v.
cbd	15	16.2	14.4	–	13.8	16.2	10.2	15.6	13.2	–
amph %	40	33.3	33.3	–	30.4	37	2.4	30.8	32	–
amph dist	6.9	10.8	14.4	8.4	6.0	9.0	7.2	10.2	6.6	–
buc cav l	52.2	54.6	54.4	28.2	51	53.4	27.6	57	48.6	43.2
ph	265.6	219	265.6	130.2	208.8	259.4	147.6	245.4	184.8	168
buc cav/ph (%)	19.6	24.9	20.5	21.6	24.4	20.6	18.7	23.2	26.3	25.7
bulb l	50.4	52.8	47.4	29.4	45	54	37.2	55.8	40.2	39.6
bulb l /ph (%)	19	24.1	17.8	22.5	21.5	20.3	25.2	22.7	21.7	23.6
bulb d	28.2	26.4	21	13.2	22.2	33.6	17.4	27	25.2	22.8
cbd	36	33	25.8	16.8	30	40.2	21	33.6	34.8	27.6
bulb (%)	78.3	80	81.4	78.6	74	83.5	82.2	80.3	72.4	82.6
mbd	31.2	29.4	25.8	16.2	30	37.2	19.8	32.4	39.2	27.6
abd	28.2	28.2	20.4	15.6	29.4	25.8	16.8	24	28.8	22.8
t	206.4	207.6	184.2	139.8	220.8	256.2	158.4	260.4	212.4	195.6
con/t (%)	26	26.9	27.3	20.5	21.5	23.1	19.3	17.3	19.2	15.2
cil/t (%)	74	73.1	72.7	71.8	78.5	76.9	80.7	82.7	80.8	84.8
spic	34.2	30.6	26.4	17.4	33.6	n.a.	n.a.	n.a.	n.a.	n.a.
gub	13.8	14.4	9.6	10.8	16.2	n.a.	n.a.	n.a.	n.a.	n.a.
V	n.a.	n.a.	n.a.	n.a.	n.a.	989.1	444	943.5	570	561.2
v%	n.a.	n.a.	n.a.	n.a.	n.a.	51.8	52.3	56.9	55.9	55.4
a	60.6	52.2	62.7	73	40.6	51.4	42.9	51.2	35.4	44.4
b	7.1	7	6.1	9.1	5.8	7.4	5.7	6.8	5.5	6
c	9.1	7.4	8.8	5.1	5.5	7.4	5.3	6.4	4.8	5.1
c´	7.3	7.4	9	8.9	7.5	9.9	9.4	10.8	7.3	8.5

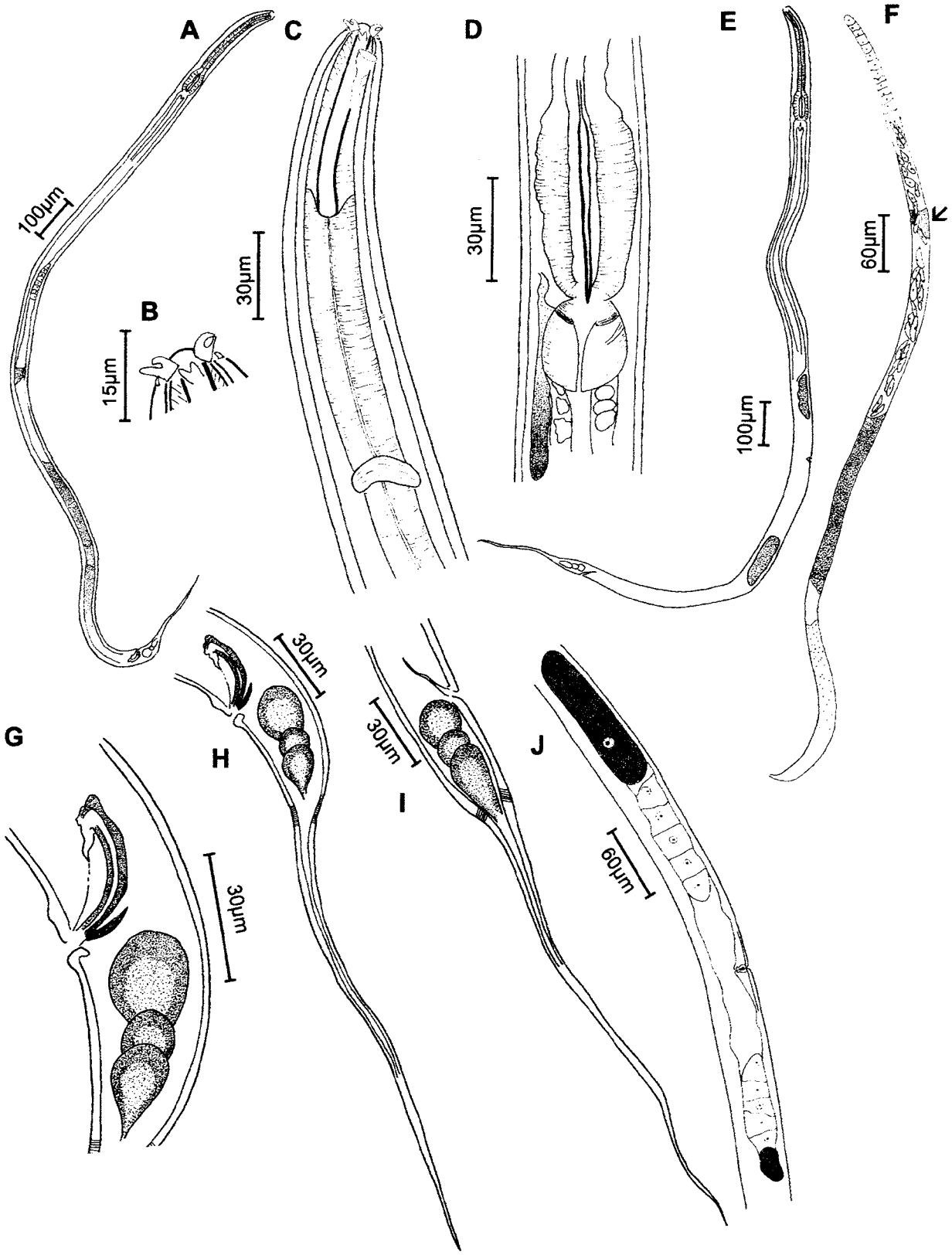

FIGURE 1. *Syringolaimus annae* sp. n.. A. Total view of male, B. Anterior end of male showing tooth, C. Anterior region body of female, D. Pharyngeal bulb, E. Total view of female, F. Testis (arrow indicate porção gland), G. Spicule, gubernaculum and vellum, H. Tail region of male, I. Tail region of female, J. Female reproductive system.

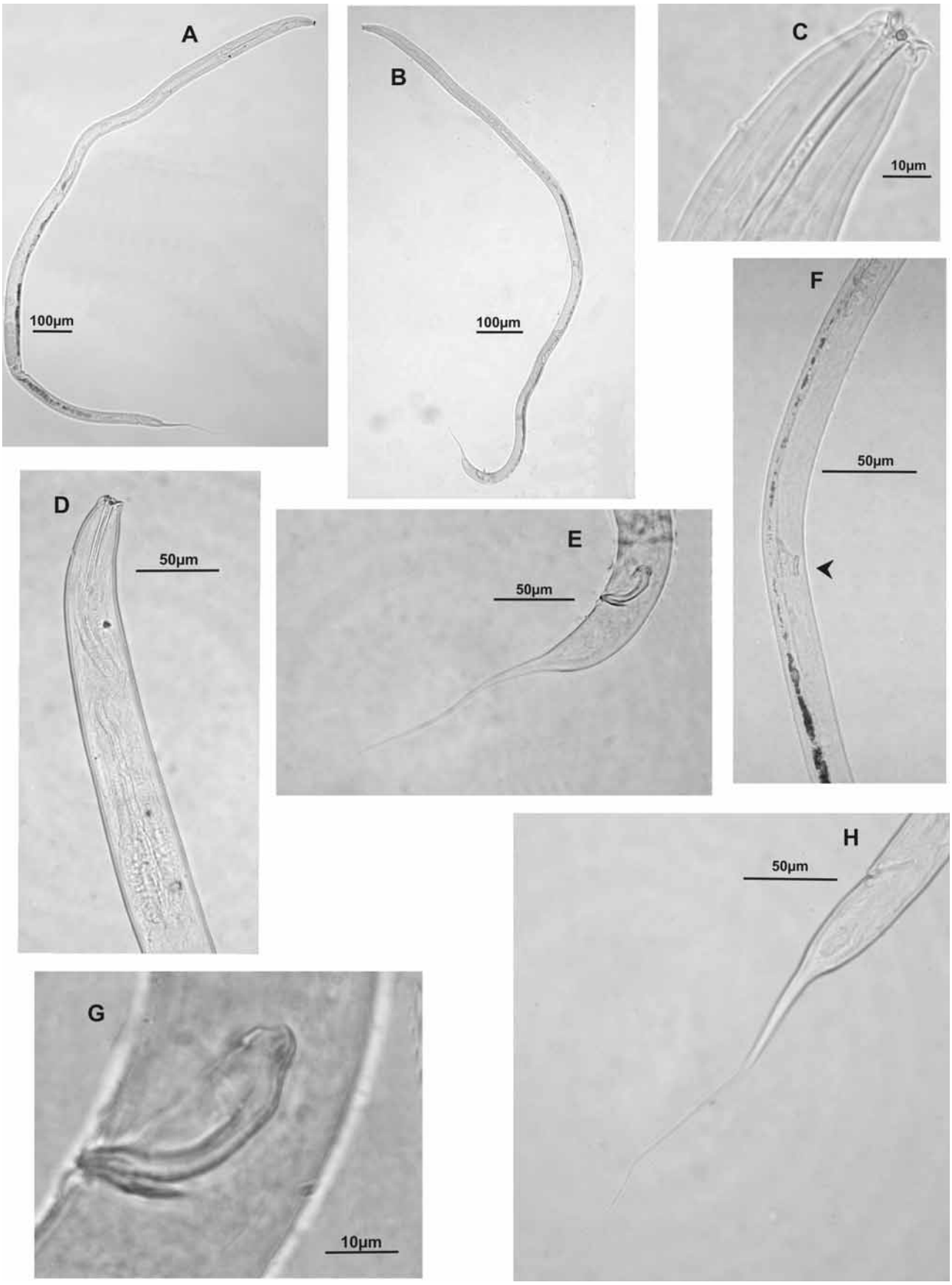

FIGURE 2. *Syringolaimus annae* sp. n.. A. Male, B. Female, C. Anterior region body of male, D. Pharyngeal region of male, E. Tail of male, F. Testis (arrow indicate glandular part), G. Copulatory apparatus, H. Tail of female.

Diagnosis. This species is characterized by a conical-cylindrical tail without a spinneret, and the presence of outer and cephalic labial papillae.

Relationships. *S. annae* sp. n. shares with *S. filicaudatus* Vitiello, 1970 the presence of bifid teeth, but they are asymmetrical in the new species; and the conical-cylindrical tail shape with a filiform final portion. The new species does not have a spinneret. The spicule and the *gubernaculum* have different shapes, and cephalic papillae are present only in *S. annae* sp. n.

S. annae sp. n. is closely related to *S. renaudae* Gourbault & Vincx, 1985 because of the presence of outer labial papillae and cephalic papillae. The two species differ in the absence of the spinneret in *S. annae* sp. n., and the spicule shape. The secretory-excretory pore is situated more posteriorly in the new species, and there are no flagellate spermatozoids as observed in *S. renaudae*.

S. annae sp. n. resembles *S. marisalbi* Platonova & Mokievsky, 1994 in the teeth and tail shape. However, the new species does not have a spinneret. The conical portion of the tail occupies 1/4 and 1/5 of the total tail length, whereas in *S. marisalbi* this portion represents 1/3 of the total tail length. Labial and cephalic papillae are absent in *S. marisalbi*. The spicules of the species differ in shape, and the *gubernaculum* in *S. marisalbi* is divided at the distal end.

Syringolaimus magdae sp. n. (Figs. 3 and 4)

Type material: One male collected from station 84 (Appendix). Holotype ♂1: slide number MNRJ 332 station 84.

Type locality: Campos Basin (Rio de Janeiro, Brazil), found at 1050 m depth, in silt-clay sediments in the layer of 2–5 centimeters.

Etymology. The species epithet honors Professor Magda Vincx from Ghent University, Belgium.

Description. Measurements: Holotype ♂1**:** L: 1674; hd: 11.4; amph wid: 6.6; cbd: 15; amph (%): 44; amph dist: 10.2; buc cav l: 50.4; ph: 234.7; buc cav 1/ph (%): 21.5; nr/ph (%): 56.2; ex pore/ph (%): 35.2; bulb l: 48.3; bulb l /ph (%): 20.6; bulb d: 23.4; cbd: 29.4; bulb (%): 79.6; mbd: 33; abd: 25.5; t: 153; con/t (%): 35; cil/t (%): 65; spin: 32.4; spin/t (%): 21.2 spic: 31.5; gub: 11.4; a: 51; b: 7.1; c: 11; c': 6.0.

Male Holotype: Body 1674 µm long, maximum diameter 33 µm. Striations not easily observed. Outer labial papillae present. Head diameter 11.4 µm. Amphideal phovea pocket-like, occupying 44% of corresponding body diameter. Buccal cavity cylindrical, sclerotized and deep, 50.4 µm long corresponding to 21.5% of pharynx. Three bifid asymmetrical teeth of equal size, one dorsal and two subventral. Pharynx muscular, slightly dilated in base of buccal cavity, and with elongated basal bulb 48.3 µm long, occupying 79.6% of corresponding body diameter. Secretory-excretory pore situated 35.2% from anterior end. Nerve ring placed posterior to mid-pharynx (56.2%). Rounded cardia. Ventral gland placed slightly posterior to cardia. Testis lying on right side of intestine. Anterior portion of testis with well-marked glandular portion. Short deferent duct with sperm cells in beginning of duct. Sperm cells fusiform. Two ejaculatory glands anterior to spicule. Spicule 31.5 µm long, arch-shaped, with dorsal region hook-shaped and containing strongly sclerotized punctuations. Gubernaculum slender (11.4 µm). Tail conical-cylindrical, with spinneret; the cylindrical portion comprises 65% of tail length. Spinneret long and sharp (32.4 µm), beginning in a dilated region and corresponding to 21.2% of tail length. Three caudal glands present.

Diagnosis. The presence of one pair of pre-cloacal ejaculatory glands and a large pointed spinneret, corresponding to 21.2% of the tail length, are the main features that characterize this new species.

Relationships. *S. magdae* sp. n. resembles *S. filicaudatus* due to the presence of labial papillae, absence of cephalic sensilla, base of the buccal cavity dilated, and bifid teeth. However, the tail of the new species does not have a filiform portion, and the spinneret is relatively longer (21.2%). The index c of De Man indicates a smaller tail in *S. magdae* sp. n. (c–11) than in *S. filicaudatus* (c–5). The conical portion of the tail also has different proportions in the two species, 35% in *S. magdae* sp. n. and 20% in *S. filicaudatu*s.

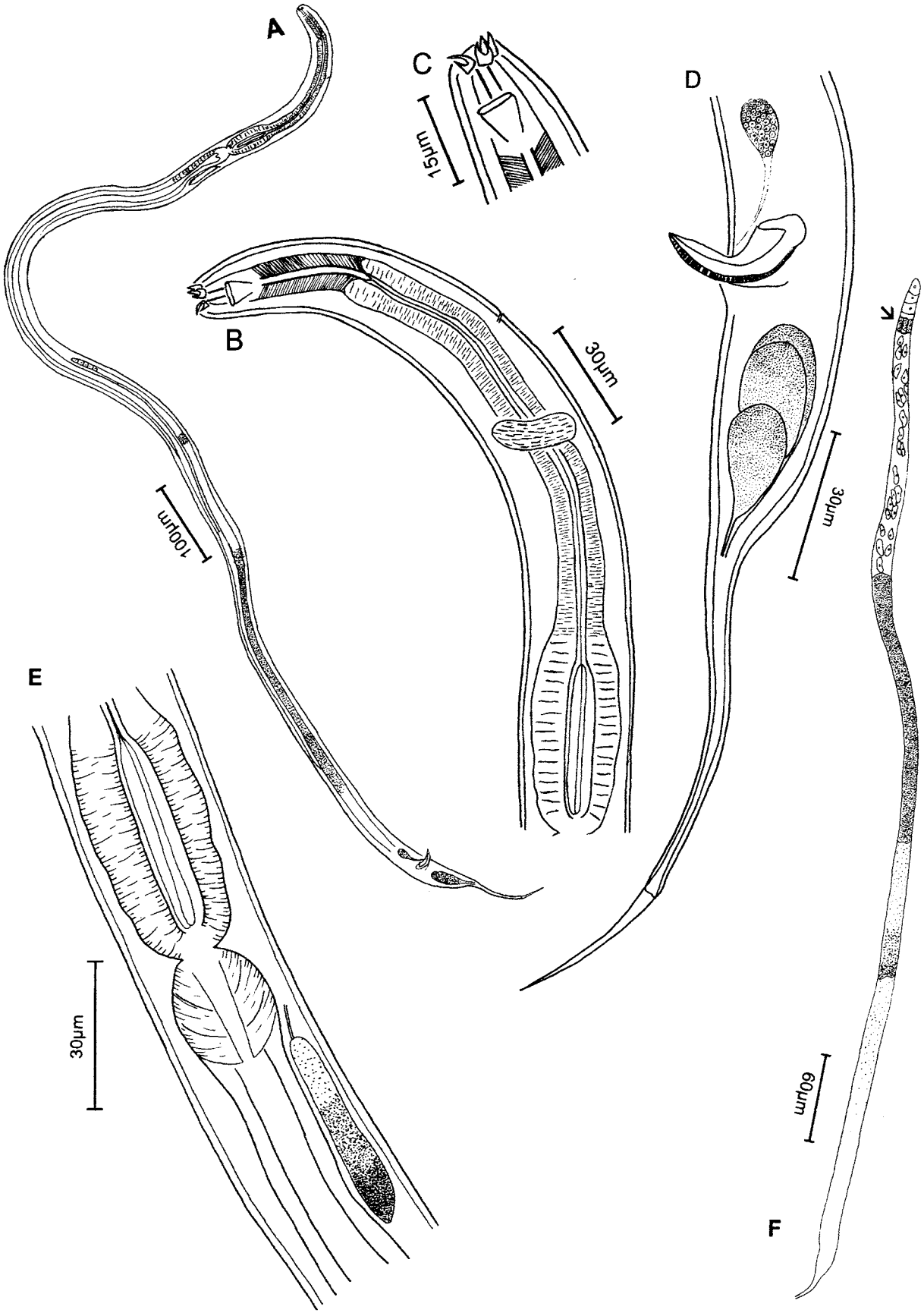

FIGURE 3. *Syringolaimus magdae* sp .n.. A. Male; B. Anterior region body of male, C. Anterior end of male showing buccal cavity and tooth; D. Tail showing showing ejaculatory gland, copulatory apparatus, caudal glands and spinneret; E. Pharyngeal bulb; F. Testis (arrow indicate glandular part).

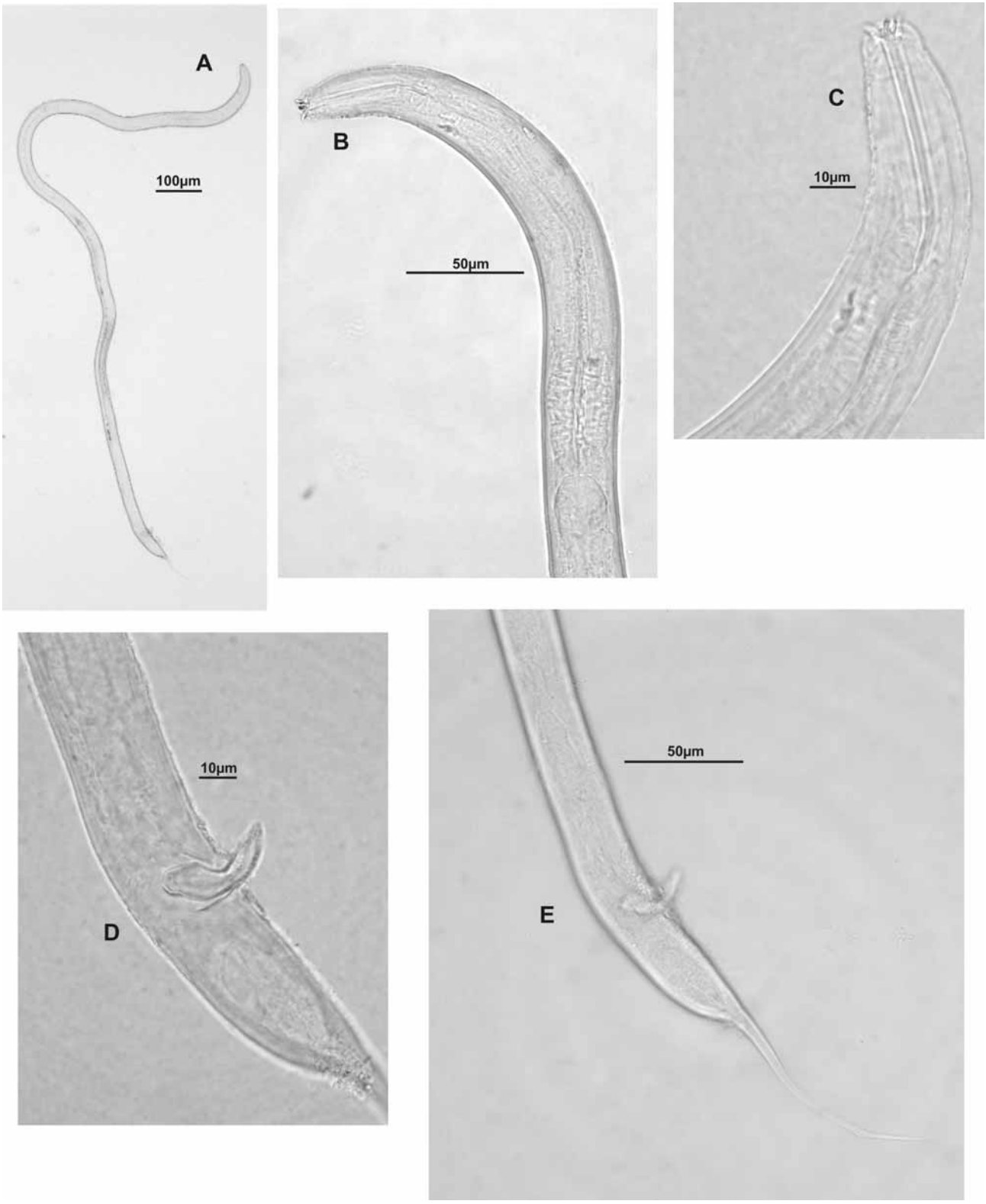

FIGURE 4. *Syringolaimus magdae* sp. n. (male) A. Total view, B. Pharyngeal region of male, C. Anterior region body, D. Copulatory apparatus, E. Tail.

Syringolaimus smolae sp. n. (Figs. 5 and 6)

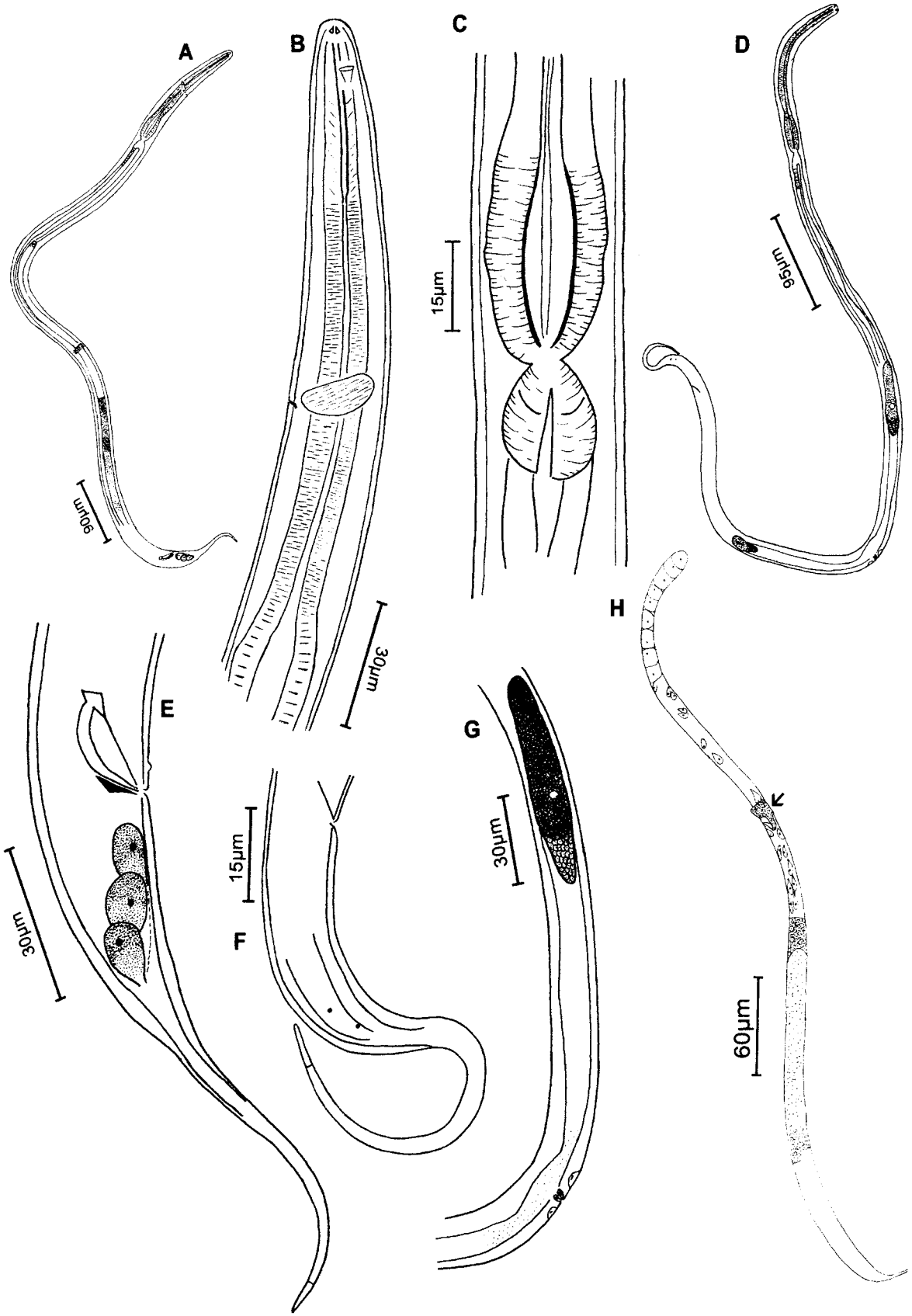

FIGURE 5. *Syringolaimus smolae* sp. n.. A. Total view of male, B. Pharyngeal region of male, C. Pharyngeal bulb, D. Total view of female, E. Tail region showing copulatory apparatus, F. Tail region of female, G. Anterior ovary, H. Testis (arrow indicate glandular part).

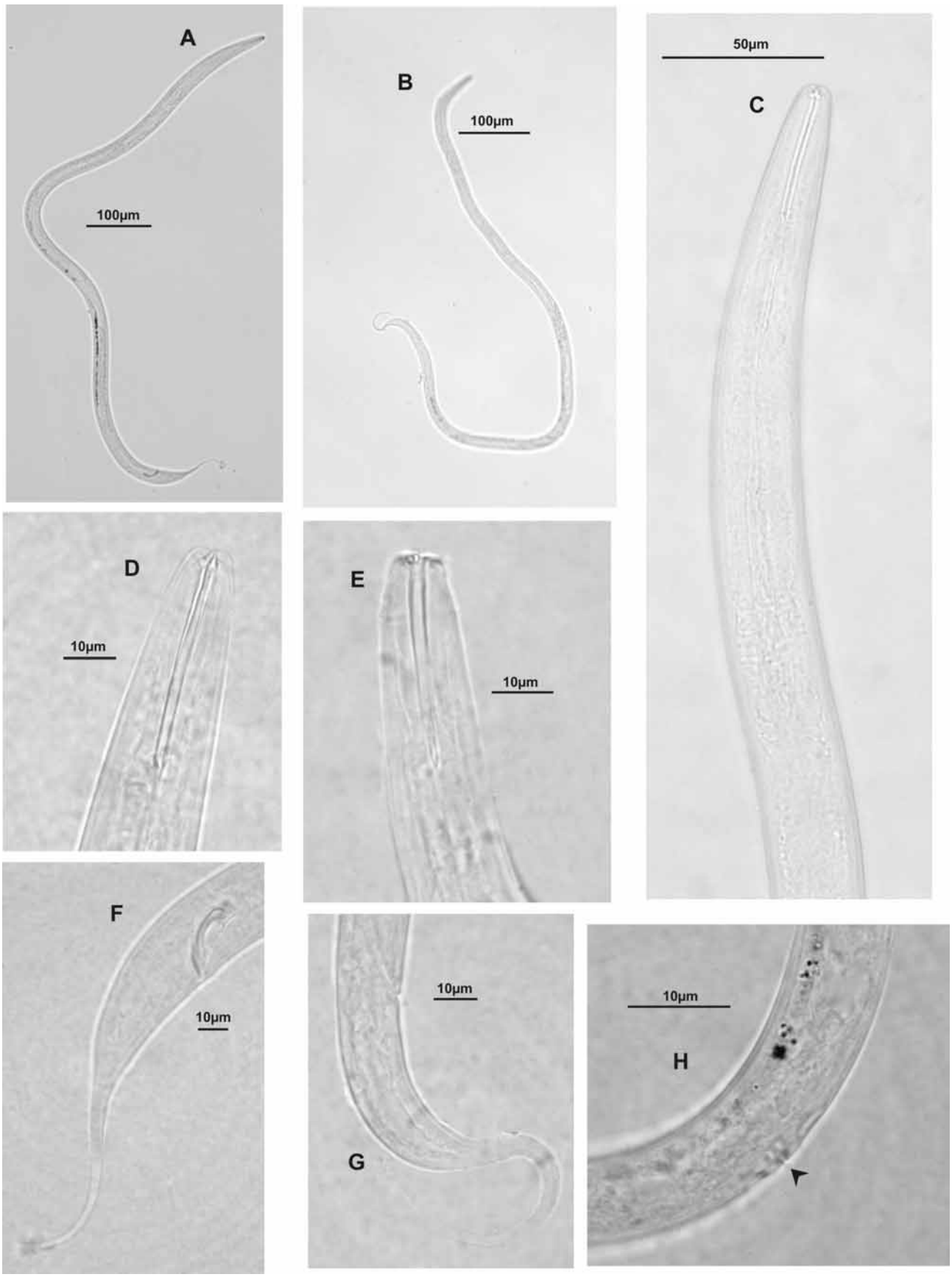

FIGURE 6. *Syringolaimus smolae* sp.n.. A. Male, B. Female, C. Pharyngeal region of male, D. Anterior region body of male showing buccal cavity, E. Anterior region body of male showing buccal cavity of female, F. Tail region showing copulatory apparatus, G. Tail region of female, H. Vulva region.

Type material: One male and one female collected from Stations 74 and 85 (Appendix). Holotype ♂1: slide number MNRJ 333 station 74; allotype ♀1 slide number MNRJ 334 station 85.

Type locality: Campos Basin (Rio de Janeiro, Brazil). Holotype ♂1 found at 750 m depth in silt-clay sediments, layer between 0–2 centimeters. Allotype ♀1: found at 1350 m depth in silt-clay sediments, vertical profile: between 2–5 centimeters.

Etymology. The specific epithet honors Nicole Smol, Coordinator of the Nematology course at Ghent University, Belgium.

Description. Measurements: Holotype ♂1: L: 1036.5; hd: 7.8 ; amph wid: 3.6; cbd: 13.2; amph (%): 27.3; amph dist: 7.2; buc cav l: 37.2; ph: 175.5; buc cav 1/ph (%): 21.2; nr/ph (%): 51.3; ex pore/ph (%): 51.3; bulb l: 35.4; bulb l/ph (%): 20.2; bulb d: 18.6; cbd: 24; bulb(%): 77.5; mbd: 22.8; abd: 21; t: 112.2; con/t (%): 44.9; cil/t%: 55.1; spin: 6; spin/t (%): 5.3; spic: 28.2; gub: 13.8; a: 45.4; b: 5.9; c: 9.9; c': 5.3. Allotype ♀1: L: 992; hd: 9.0; amph wid: 3.6; cbd: 10.8; amph %: 33.3; amph dist: 7.8; buc cav l: 33; ph: 158.4; buc cav 1/ph (%): 20.8; nr/ph (%): not visible; ex pore/ph (%): 41.7; bulb l: 30.6; bulb l/ph/ (%): 19.6; bulb d: 13.2; cbd: 17.1; bulb (%): 77.2; mbd: 17.4; abd: 13.8; t: 115.8; con/t (%): 42; cil/t (%): 58; spin: 6.0; spin/t (%): 5.1; a: 57; b: 6.3; c: 8.6; c': 8.4.

Male Holotype: Body 1036.5 µm long, maximum body diameter 22.8 µm. Cuticle faintly striated. Six outer labial papillae and four cephalic papillae. Amphideal phovea occupying 27.3% of corresponding body diameter. Head diameter 7.8 µm. Cylindrical, sclerotized, buccal cavity, weakly involved by pharynx muscles, 37.2 µm long, 21.2% of pharynx length. Three bifid teeth of equal size, one dorsal and two subventral. Delicate pharynx with an oval basal bulb, 35.4 µm long and 18.6 µm wide, corresponding to 77.5% of body diameter and 20.2% of total pharynx length. Secretory-excretory pore and nerve ring at same level, situated 51.3% from anterior end. Rounded cardia. Single testis lying on right side of intestine, with glandular part splitting duct into regions of cells of varying degrees of maturity. Short deferent duct with sperm cells in beginning of duct. One precloacal papilla present. Spicule setiform, *vellum* present. *Gubernaculum* triangular. Conical-cylindrical tail with spinneret (6 µm), corresponding to 5.3% of tail length. Cylindrical region corresponding to 55.1% of tail length. Three caudal glands present.

Female Allotype: Body slender, amphidelphic-didelphic, with reflexed ovaries located ventrally to intestine. Vulva situated at 57% of total body length, with two glands on each side of vulva.

Diagnosis. *Syringolaimus smolae* sp. n. is characterized by the setiform spicule, the triangular gubernaculum, the position of the secretory-excretory pore at the same level of the nerve ring, and the presence of two glands located posterior and anterior to the vulva.

Relationships. *S. smolae* sp. n. resembles *S. loofi* Gourbault & Vincx, 1985; both species share the presence of inner labial papillae, bifid teeth, and precloacal papillae; the equal value of De Man ratios b and c; and the proportion of the small spinneret in relation to the total tail length. However, the secretory-excretory pore in *S. smolae* sp. n. is situated in the middle region of the pharynx, whereas in *S. loofi* the pore is situated at the base of the buccal cavity. Other differences observed are the spicule, *gubernaculum*, and the tail shapes (conical in *S. loofi* and conical-cylindrical in *S. smolae* sp. n.). The female of the new species possesses two glands, one on each side of the vulva. The presence of a glandular portion in the testis is not observed in *S. loofi*.

Syringolaimus taniae sp. n (Fig. 7 and 8)

Type material: Two males and one female collected from stations 50, 71 and 76 (Appendix). Holotype: ♂1 slide number 335 MNRJ station 76; paratype ♂2: slide number 115 NM LMZOOUFPE station 71; allotype ♀1: slide number 336 MNRJ station 50.

Type locality: Campos Basin (Rio de Janeiro, Brazil). Holotype ♂1: found at 1350 m depth in silt-clay sediments. Layer between 2–5 centimeters. Allotype ♀1: found at 1050 m depth in silt-clay sediments. Layer between 0–2 centimeters.

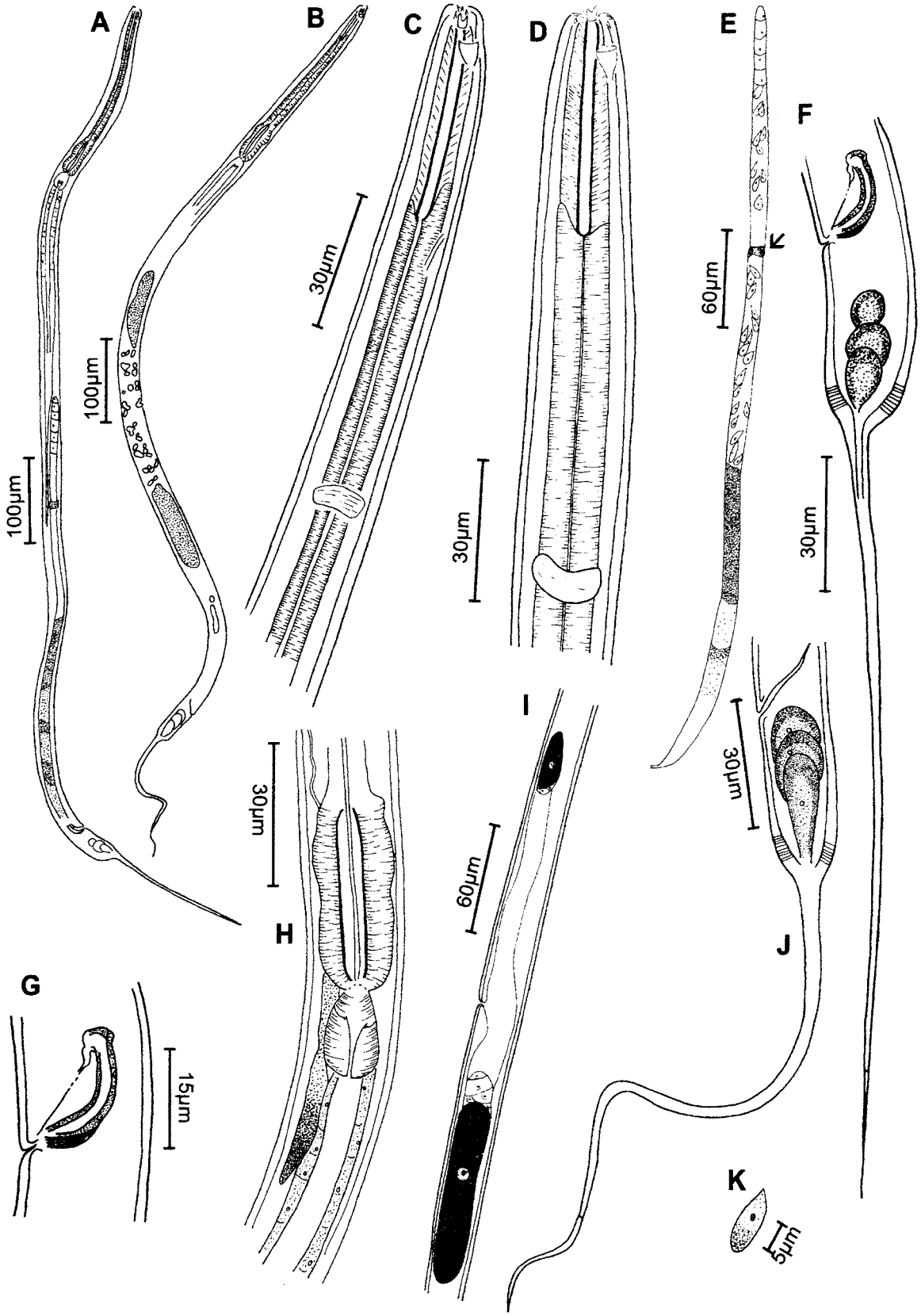

FIGURE 7. *Syringolaimus taniae* sp. n.. A. Total view of male, B. Total view of female, C. Anterior region body of female, D. Anterior region body of male, E. Testis (arrow indicate glandular part). F. Tail region of male showing caudal glands and spinneret, G. Copulatory apparatus, H. Pharyngeal bulb, I. Female reproductive system, J. Tail region of female showing caudal glands and spinneret, K. Spermatozoids.

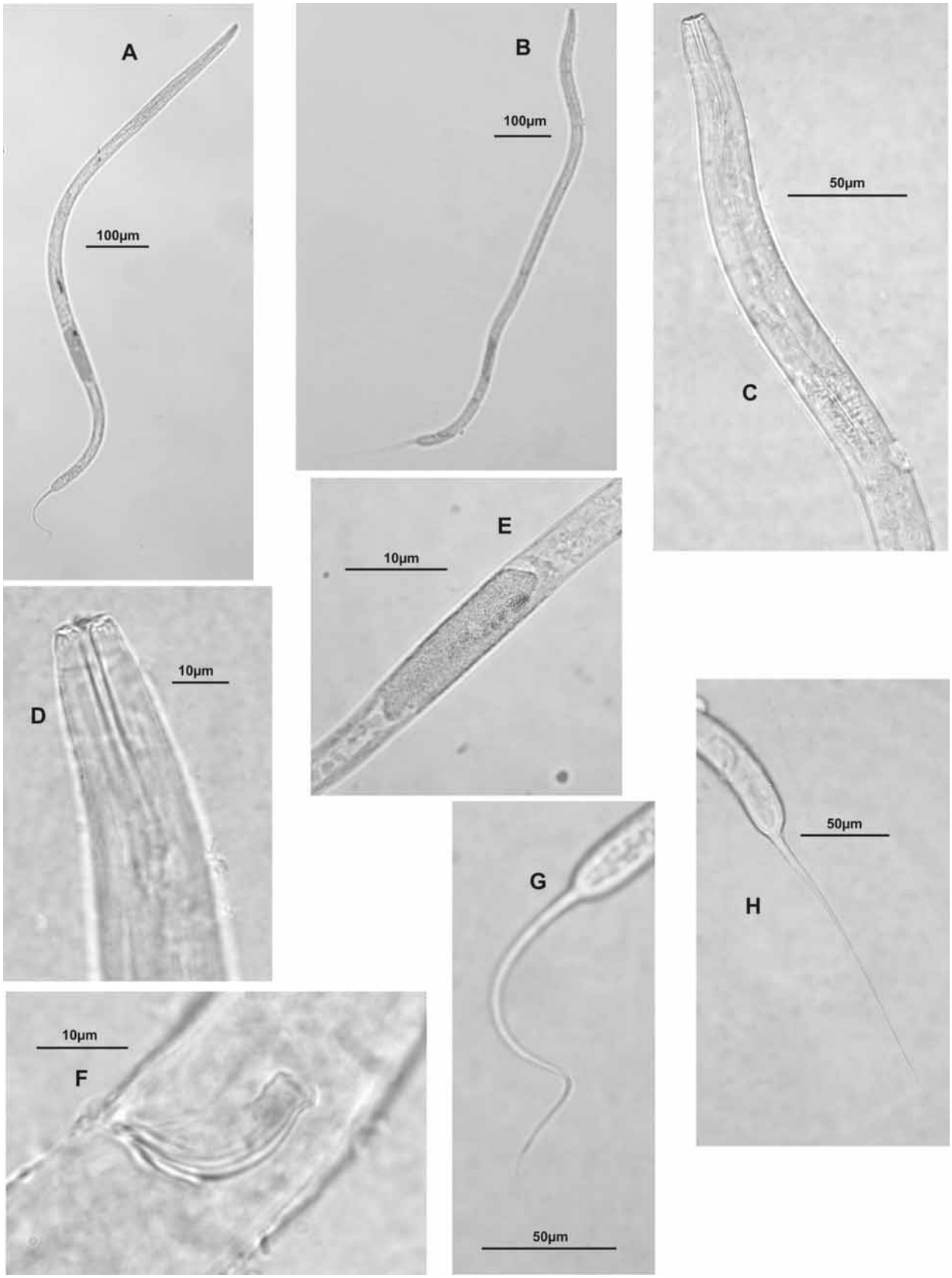

FIGURE 8. *Syringolaimus taniae* sp.n.. A.Total view of female, B. Total view of male, C. Pharyngeal region of male, D. Anterior region body of male showing buccal, E.Posterior ovary, F. Copulatory apparatus, G. Tail region of female, H. Tail region of male.

Other localities: Campos Basin (Rio de Janeiro, Brazil). Paratype ♂2: D: 1350 m, SL: 2–5 centimeters.
Etymology. The specific epithet honors Tânia Nara Bezerra, who initiated studies of free-living marine nematodes at the Universidade Federal de Pernambuco, Brazil.

Description. Measurements: Holotype ♂1: L: 1041; hd: 10.2; amph wid: 4.8; cbd: 13.8; amph (%): 34.8; amph dist: 7.8; buc cav l: 46.8; ph: 193.5; buc cav 1/ph (%): 24.1; nr/ph (%): 62;ex pore/ph (%): not visible; bulb l: 44.4; ph/bulb l (%): 22.9; bulb d: 19.2; cbd: 24; bulb(%): 80; mbd: 21.6; abd: 21; t: 219; con/t (%) : 20.5; cil/t (%): 79.5; spin: 28.2; spin/t (%) : 12.9; spic: 22.8; gub: 9.6; a: 48.2; b: 5.4; c: 4.7; c': 10.4. Paratype ♂1: L: 1087.5; hd: 9.6; amph wid: 5.4; cbd: 12; amph (%): 45; amph dist: 7.8; buc cav l: 45.6; ph: 207; buc cav 1/ph (%): 22; nr/ph (%): not visible; ex pore/ph: not visible; bulb l: 45; ph/bulb l (%): 21.7; bulb d: 18.6; cbd: 24; bulb (%): 77.5; mbd: 24; abd: 19.8; t: 219.6; con/t (%): 21.3; cil/t (%): 78.7; spin: 24; spin/t (%): 10.9; spic: 22.2; gub: 12; a: 45.3; b: 5.2; c: 4.9; c': 11. Allotype ♀1: L: 1113; hd: 10.2; amph wid: 4.8; cbd: 12; amph (%): 40; amph dist: 7.8; buc cav l: 45; ph: 220.5; buc cav 1/ph (%): 20.4; nr/ph (%): 50.9; ex pore/ph (%): 22.3; bulb l: 47.1; ph/bulb l (%): 21.4; bulb d: 18.6; cbd: 26.4; bulb %: 70.4; mbd: 26.4; abd: 20.4; t: 208.8; con/t (%): 20.2; cil/t (%): 79.8; spin: 31.2; spin/t (%): 14.2; v: 579; v%: 52; a: 42.1; b: 5.0; c: 5.3; c': 10.2.

Male Holotype: Slender body, with faint striations that are not easily detected. Body 1041 µm long and 21.6 µm wide. Inner labial papillae not detected; six outer labial papillae; and cephalic sensilla absent. Head diameter 10.2 µm. Amphideal fovea pocket–like, occupying 34.8 µm of corresponding body diameter. Buccal cavity cylindrical and well sclerotized, 46.8 µm deep, occupying 24% of total pharynx length. Three small, bifid and asymmetrical teeth, one dorsal and two subventral, equal in size. Pharynx muscular, with elongated terminal bulb corresponding to 22.9% of total pharynx length and occupying 80% of corresponding body diameter. Secretory–excretory pore situated just after buccal cavity. Nerve ring at 62% of total pharynx length. Rounded cardia. Ventral gland at level of cardia. Testis lying on right side of intestine, glandular part splitting testis into regions of cells of varying degrees of maturation. Short deferent duct with sperm cells in beginning of duct. Spicules with sclerotized punctuations, *vellum* present. Sclerotized *gubernaculum*. Tail with anterior portion rounded. Posterior region cylindrical–filiform, representing 79.5% of tail length. Spinneret 28.2 µm, representing 12.9% of tail length. Three caudal glands present.

Female Allotype: Female amphidelphic-didelphic; ovaries reflexed and situated ventrally in relation to the intestine. Vulva situated in middle of body, 52% from anterior end.

Diagnosis. *S. taniae* sp. n. is caracterized by the rounded shape of the proximal portion of the tail and the location of the secretory-excretory pore immediately after the buccal cavity.

Relationships. *S. taniae* sp. n. shares with *S. annae* sp. n. and *S. filicaudatus* the presence of bifid teeth and the cylindrical-filiform tail shape. In *S. taniae* sp. n. the proximal portion of the tail has a rounded outline before becoming cylindrical-filiform, with a spinneret; whereas the tail begins conically in *S. annae* sp. n. and in *S. filicaudatus*. The position of the secretory-excretory pore is more anterior in *S. taniae* sp. n. (situated immediately after the buccal cavity) than in the other two species. The spicule and *gubernaculum* shapes are different in *S. taniae* sp. n. and *S. filicaudatus*. The absence of cephalic papillae distinguishes *S. taniae* sp. n. from *S. annae* sp. n..

S. taniae sp. n. resembles *S. renaudae* in the presence of bifid asymmetrical teeth, and the cylindrical-filiform portion of the tail ending in a spinneret. However, in *S. renaudae* the proximal portion of the tail is conical. The two species diverge in the absence of cephalic papillae in *S. renaudae*; the shape of the spermatozoids, which are flagelliform in *S. renaudae* and fusiform in *S. taniae* sp. n.; and the spicule shape.

S. taniae sp. n. also resembles *S. marisalbi* because of the asymmetrical chela-like bifid teeth. The body is more slender in *S. taniae* sp. n. (a= 48.2) than in *S. marisalbi* (a= 19.7). The proximal portion of the tail in *S. marisalbi* comprises 1/3 of the total tail length, and the spinneret is 5.8% of the total tail length; in *S. taniae* sp. n. these values are 1/5 and 12.9%, respectively. The presence of labial papillae and the different shapes of the spicules and *gubernaculum* also distinguish the two species.

Discussion

According to Platonova & Mokievisky (1994), *S. caspersi* Gerlach, 1951, *S. tenuicaudatus* (Allgen 1932), and *S. brevicaudatus* Micoletzky, 1922 are poorly described. The description of *S. caspersi* is brief and imprecise, and only the female is known. The description of *S. tenuicaudatus* was problematic from the beginning: it was placed as *Dolicholaimus tenuicaudatus* by De Man (1888) and eventually transferred by Gerlach & Riemann (1974) to *Syringolaimus*. Even Platonova & Mokievisky (1994) agreed that the description is insufficient and the drawing is vague. The need to transfer the genus of these species was (as confirmed by these authors) illustrated by the spicule and tail shape, as well as the presence of a basal bulb. For *S. brevicaudatus*, the original description is very short, lacks drawings, and, as in *S. caspersi*, is based only on the female. For those reasons, we are strongly convinced that the three species mentioned above should not be considered as valid. Therefore we present a new list of 14 valid species of the genus *Syringolaimus*. We also propose a new key for this genus.

List of valid species of *Syringolaimus*

Syringolaimus annae sp. n.
Syringolaimus filicaudatus Vitiello, 1970
Syringolaimus gladiautus Bussau, 1993
Syringolaimus ingens Bussau, 1993
Syringolaimus loofi Gourbault & Vincx, 1985
Syringolaimus magdae sp. n.
Syringolaimus marisalbi Platonova & Mokievsky, 1994
Syringolaimus nitidus Bussau, 1993
Syringolaimus renaudae Gourbault & Vincx, 1985
Syringolaimus smarigdus Cobb, 1928
Syringolaimus smolae sp. n.
Syringolaimus striatocaudatus De Man, 1888
Syringolaimus taniae sp. n.
Syringolaimus venustus Bussau, 1993

Key to species of *Syringolaimus*

1	Tail end filiform	2
-	Tail end not filiform	10
2	Spicules narrow	*S. filicaudatus*
-	Spicules wide	3
3	Tail with setae	*S. ingens*
-	Tail without setae	4
4	Odontia divided	5
-	Odontia entire	*S. striatocaudatus*
5	Labial sensilla absent	*S. marisalbi*
-	Labial sensilla present	6
6	Cephalic sensilla absent	*S. taniae* sp. n.
-	Cephalic sensilla present	7
7	Cephalic sensilla setaceous	*S. renaudae*
-	Cephalic sensilla papilla shaped	8
8	Cuticule striations difficult to resolve	*S. annae* sp. n.
-	Cuticule striations well defined along the body	9
9	Tail long “c” < 6, without spinneret	*S. gladiatus*

- Tail short “c” > 6, with spinneret ..... *S. nitidus*
10 Labial sensilla absent ..... *S. smarigdus*
- Labial sensilla present 11
11 Cephalic sensilla absent ..... *S. magdae* sp. n.
- Cephalic sensilla present 12
12 Tail conical ..... *S. loofi*
- Tail conical-cylindrical 13
13 Tail without setae ..... *S. smolae* sp. n.
- Tail with setae ..... *S. venustus*

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APPENDIX: Positions of new species in the Bacia de Campos (Rio de Janeiro, Brazil).