

Nematodes of the order Dorylaimida from Andalucía Oriental, Spain. The genus *Dorylaimoides* Thorne & Swanger, 1936. 2. Pseudodidelphic-opisthodelphic species

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Summary – This article deals with four species of nematodes belonging to the genus *Dorylaimoides* Thorne & Swanger, 1936 and characterized by having a pseudodidelphic-opisthodelphic female genital system which have been collected in natural areas from Southern Spain. *D. cylindricaudatus* Peralta & Peña Santiago, 1992 is again recorded and three new species are described and illustrated. *D. confusus* sp. n. is characterized by having medium size (L = 1.26-1.56 mm), lip region set off by constriction, odontostyle = 5-5.5 μm , pharyngeal bulb = 56-64 μm , V = 32.3-36.8, anterior genital branch = 112-140 μm or 3.4-4 body widths long, tail elongated (78-87.5 μm , c = 14.5-18.1, c' = 3.7-4.2 in females and 75-78 μm , c = 16.1-18.7, c' = 3.3-3.5 in males) and slightly dorsally curved in the posterior end, spicules = 33.5-38 μm and a series of seven to eight regularly spaced ventromedian supplements. *D. rotundicephalus* sp. n. is distinguished by its medium size (L = 1.26-1.48 mm), lip region rounded and set off by depression, odontostyle = 9.5-10 μm , pharyngeal bulb = 53-73 μm , V = 36.2-40.5, anterior genital branch = 106-149 μm or 2.9-3.9 body widths long, tail rounded-conoid (23-38 μm , c = 48.2-58.3, c' = 1.0-1.2 in females and 23-25 μm , c = 54.5-57.6, c' = 0.9-1.0 in males), spicules = 39-43 μm and six to eight regularly spaced ventromedian supplements. *D. striatus* sp. n. can be distinguished in having medium size (L = 1.67-1.95 mm), outer cuticle with strong transverse striation, lip region set off by depression, odontostyle = 6.5-7 μm , pharyngeal bulb = 62-70 μm , V = 31.4-31.8, anterior genital branch = 156-215 μm or 3.8-5.3 body widths long, tail elongated or filiform (82-103 μm , c = 16.5-20.4, c' = 3.3-4.1 in females and 80-107 μm , c = 18.3-23.9, c' = 3.1-4.0 in males) and dorsally bent at the end, spicules = 40-45 μm , and seven to nine ventromedian supplements.

Résumé – *Nématodes Dorylaimida* provenant d'Andalousie Orientale, Espagne. Le genre *Dorylaimoides* Thorne & Swanger, 1936. 2. *Espèces pseudodidelphiques-opisthodelphiques* – Cet article traite de quatre espèces de *Dorylaimoides* Thorne & Swanger, 1936, caractérisées par un tractus génital femelle pseudodidelphique-opisthodelphique, collectées dans des sites naturels du sud de l'Espagne. *D. cylindricaudatus* Peralta & Peña Santiago, 1992 est signalé et trois nouvelles espèces sont décrites. *D. confusus* sp. n. est caractérisé par : taille moyenne (L = 1,26-1,56 mm); région labiale séparée par une constriction; odontostyle = 5-5,5 μm ; bulbe pharyngien = 56-64 μm ; V = 32,3-36,8; branche génitale antérieure = 112-140 μm ou 3,4-4 diamètres du corps; queue allongée (78-87,5 μm , c = 14,5-18,1, c' = 3,7-4,2 chez les femelles et 75-78 μm , c = 16,1-18,7, c' = 3,3-3,5 chez les mâles) et légèrement courbée dorsalement à sa partie postérieure; spicule = 39-43 μm ; sept ou huit suppléments ventromédians régulièrement espacés. *D. rotundicephalus* sp. n. est caractérisé par : taille moyenne (L = 1,26-1,48 mm); région labiale arrondie et séparée par une dépression; odontostyle = 9,5-10 μm ; bulbe pharyngien = 53-73 μm ; V = 36,2-40,5; branche génitale antérieure = 106-149 μm ou 2,9-3,9 diamètres du corps; queue conique arrondie (23-28 μm , c = 48,2-58,3, c' = 1,0-1,2 chez les femelles et 23-25 μm , c = 54,5-57,6, c' = 0,9-1,0 chez les mâles); spicules = 39-43 μm ; six à huit suppléments ventro-médians régulièrement espacés. *D. striatus* sp. n. est caractérisé par : taille moyenne (L = 1,67-1,95 mm); cuticule ornée de fortes striations transversales; région labiale séparée par une dépression; odontostyle = 6,7-7 μm ; bulbe pharyngien = 62-70 μm ; V = 31,4-31,8; branche génitale antérieure = 152-215 μm ou 3,8-5,3 diamètres du corps; queue allongée à filiforme (83-103 μm , c = 16,5-20,4, c' = 3,3-4,1 chez les femelles et 80-107 μm , c = 18,3-23,9, c' = 3,1-4,0 chez les mâles) la portion terminale étant repliée dorsalement; spicules = 40-45 μm ; sept à neuf suppléments ventro-médians.

Key-words : Andalucía Oriental, Spain, *Dorylaimoides*, pseudodidelphic-opisthodelphic species, taxonomy, description.

The first paper in this series (Peralta & Peña Santiago, 1994) dealt with the didelphic species of the genus *Dorylaimoides* Thorne & Swanger, 1936 from Southern Spain. Now, we present a second species group belonging to the same genus but characterized by having pseudodidelphic-opisthodelphic female genital system. Four

species constitute the group : one recently described (see Peralta & Peña Santiago, 1992), and three which are described below.

For methods used see Peralta and Peña Santiago (1994).

***Dorylaimoides cylindricaudatus* Peralta & Peña
Santiago, 1992**

In addition to the original population, one female specimen was found in Sierra de la Sagra, province of Granada, in association with *Pinus* sp. No important difference in measurements or morphology was found compared to the original description.

***Dorylaimoides confusus* sp. n.**
(Figs 1, 2)

MEASUREMENTS

See Table 1.

DESCRIPTION

Female: Slender nematodes of medium size, 1.26-1.56 mm long. Body cylindrical, slightly tapering towards the anterior end and more so towards the posterior one. Habitus ventrally curved, to "C"-shaped. Outer cuticle thin, with fine transverse striations; inner cuticle thicker than the outer layer, more thickened on the tail. Lateral chords narrow, occupying about one-tenth of the midbody width. Lateral pores visible, especially in the posterior body region. Lip region with slightly angular contour, offset from the adjacent body by constriction; twice as wide as high and one-quarter to one-third of the body width at neck base. Lips amalgamated; the inner region slightly elevated. Cephalic and labial papillae distinct but not interfering with the head contour. Amphids cup-shaped, opening at level of the head constriction and occupying two-thirds to three-quarters of the head diameter; *fusus* located in front of the anterior end of the pharynx. Odontostyle relatively short and stout; its ventral side slightly longer than half of the head diameter. Odontophore 3.2-3.7 times the length of the odontostyle. Stoma a truncate cone. Guiding ring simple, refractive. Pharynx consisting of a moderately slender and weakly muscular anterior region and a basal bulb. The anterior part becomes thin at level of the nerve ring. Pharyngeal bulb cylindrical, occupying one-quarter to one-third of the total neck length. The parts of the pharynx are separated by constriction. Pharyngeal gland nuclei often visible, one dorsal and two ventrosublateral pairs. Cardia rounded, relatively small and in lateral view surrounded by the intestine wall. Nerve ring located at half of the neck length. Genital system pseudodidelphic-opisthodelphic. Ovary reflexed and relatively long, often reaching the oviduct-uterus junction. Oocytes arranged first in several rows, then in a single one. Oviduct joining the ovary subterminally; it consists of a slender part with high cells, and a well-developed *pars dilatata* with distinct lumen. Oviduct-uterus junction marked off by a distinct sphincter. Uterus unspecialized. Anterior genital branch consisting of a uterine sac with sperm, a poorly developed sphincter and a variably long cell mass which probably represents a vestigial oviduct. Vagina cylindrical, occupying about

half of the corresponding body diameter and encircled by well developed musculature; its wall adjacent to the vulva surrounded by inner cuticle which extends inwards. Vulva apparently a transverse slit. Prerectum 6-7 anal body diameters long. Three guard cells are present at intestine-prerectum junction. Rectum scarcely longer than anal body diameter. Tail elongated with acute terminus; it tapers gradually and its terminal part is slightly dorsally curved; hyaline terminal portion short. Caudal pores two subdorsal pairs located in the anterior third of the tail.

Male: General morphology similar to female, but the posterior body region more ventrally curved. Genital system diorchic. Testes opposed. Apart from the adanal pair, a series of seven to eight regularly spaced ventromedian supplements is present, the most posterior within the range of the spicules. Rectum short, joined to ejaculatory duct at level of anterior end of the spicules. Tail shape as in female. Caudal pores three pairs, one lateral and two subdorsal. Spicules stout, curved and 1.5-1.7 anal body diameters long. Lateral guiding pieces one-fifth to one-quarter of the spicules length, sigmoid and stout. Sperm spindle-shaped.

TYPE HABITAT AND LOCALITY

Alkaline soil around roots of several herbaceous plants in Alfarnatejo, province of Málaga, Spain.

OTHER HABITATS AND LOCALITIES

Meadow near "La Vidriera", Sierra de Guillimona, province of Granada, Spain.

TYPE MATERIAL

Female holotype, male allotype and one female paratype deposited in the nematode collection, Departamento de Biología Animal, Vegetal y Ecología, Universidad de Jaén, Spain. One female paratype and one male paratype at each of the following centres: Muséum National d'Histoire Naturelle, Paris, France; and Instituut voor Dierkunde, Rijksuniversiteit Gent, Belgium.

DIAGNOSIS AND RELATIONSHIPS

D. confusus sp. n. can be distinguished by its medium size ($L = 1.26-1.56$ mm), lip region set off by constriction, odontostyle $5-5.5$ μm or shorter than the head width, pharyngeal bulb $56-64$ μm long, female genital system pseudodidelphic-opisthodelphic, $V = 32.3-36.8$, anterior genital branch ($112-140$ μm or $3.4-4$ body widths long) consisting of a uterine sac followed by a poorly developed sphincter and a cell mass $25-50$ μm , tail elongated and gradually tapering ($78-87.5$ μm , $c = 14.5-18.1$, $c' = 3.7-4.2$ in females and $75-78$ μm , $c = 16.1-18.7$, $c' = 3.3-3.5$ in males) and the terminal part slightly dorsally bent, spicules $33.5-38$ μm , and seven to eight regularly spaced ventromedian supplements.

The new species closely resembles *D. bulbosus* (Brzeski & Szczygiel, 1961) Szczygiel, 1965, but it differs by having greater size (*vs* $L = 0.99-1.29$), shorter odonto-

Table 1. Measurements and diagnostic features of *Dorylaimoides confusus* sp. n. (all measurements in μm except *L* in mm).

	Meadow, Alfarnatejo, Málaga				Meadow La Vidriera Granada 2 ♀ ♀
	Holotype ♀	Paratype 1 ♀	Allotype ♂	Paratypes 2 ♂ ♂	
L (mm)	1.29	1.26	1.40	1.36 ± 0.07 (1.26-1.41)	1.30, 1.56
a	34.8	33.8	38.0	39.7 ± 2.21 (38.0-42.8)	39.3, 44.5
b	5.85	5.60	6.50	6.50	6.9, ?
c	16.5	14.5	18.7	17.6 ± 1.11 (16.1-18.7)	16.2, 18.1
V	34.2	36.8	—	—	32.3, 35.9
G 1/T 1	9.7	76.4	71.8	66.5 ± 4.14 (61.7-71.8)	8.65, 9.00
G 2/T 2	13.8	14.0	40.7	35.6 ± 5.79 (27.5-40.7)	15.8, 18.0
Ant. gen. br./body diam.	3.38	22.2	—	—	3.41, 4.00
c'	3.70	4.10	3.30	3.38 ± 0.06 (3.30-3.46)	4.20, 3.90
Lip region : diam.	8.5	9.0	9.0	9.0	8.5, 9.0
Lip region : height	4.0	4.0	4.0	4.0	3.5, 4.0
Amphid width	?	?	6.5	6.7 ± 0.25 (6.5-7.0)	6.0, 6.5
Odontostyle	5.5	5.0	5.5	5.5	5.5, 5.0
Odontophore	18.0	17.0	17.5	17.3 ± 0.25 (17.0-17.5)	18.5, 18.5
Stylet length	23.5	22	23	23	24, 23.5
Guiding ring-ant. end	6.5	7.0	6.5	(6.0-6.5)	6.5, 6.5
Nerve ring- ant. end	103	106	103	99 ± 2.8 (97-103)	94, 97
Neck length	220	224	216	208 ± 8.0 (200-216)	190, 210
Pharyngeal bulb length	63.5	60	56	?	60, 64
Body diam. at neck base	31.0	32.5	32.0	30.5 ± 1.08 (29.5-32.0)	27.5, 30.5
Body diam. at midbody	37.0	37.5	37.0	34.3 ± 1.88 (33.0-37.0)	33.0, 35.0
Body diam. at anus	21.0	21.0	23.0	22.8 ± 0.23 (22.5-23.0)	19.0, 22.0
Cuticle head	1.5	1.5	1.5	1.5	1.5, 1.5
Cuticle midbody	2.0	2.0	2.0	2.0	2.0, 2.0
Cuticle tail	4.5	4.5	4.0	(3.0-4.0)	4.0, 4.5
Lateral chord : midbody	3.5	3.5	2.0	2.0	3.5, 4.0
Ant. ovary/testis	—	—	206	206 ± 15.5 (187-225)	—
Ant. genital branch	125	781	1010	906 ± 96.8 (777-1010)	112, 140
Post. ovary/testis	121	108	232	212 ± 13.9 (200-232)	109, 153
Post. genital branch	177	177	572	487 ± 100 (346-572)	206, 281
Vagina : width	13.0	15.0	—	—	16.0, 17.0
Vagina : length	18.0	17.5	—	—	18.0, 18.0
Vulva-ant. end	440	467	—	—	420, 560
Prerectum	125	112	165	141 ± 17.1 (125-165)	125, 153
Rectum/cloaca	26	28	32	32 ± 0.81 (31-33)	24, 25
Tail	78.0	87.5	75.0	77.0 ± 1.41 (75.0-78.0)	80.0, 86.0
Spicules arc	—	—	38.0	35.2 ± 2.01 (33.5-38.0)	—
Ventromedian supplements	—	—	8	(7-8)	—
Sperm length	—	—	8.0	(7.5-8.0)	—
Copulatory muscles	—	—	21	(19-21)	—

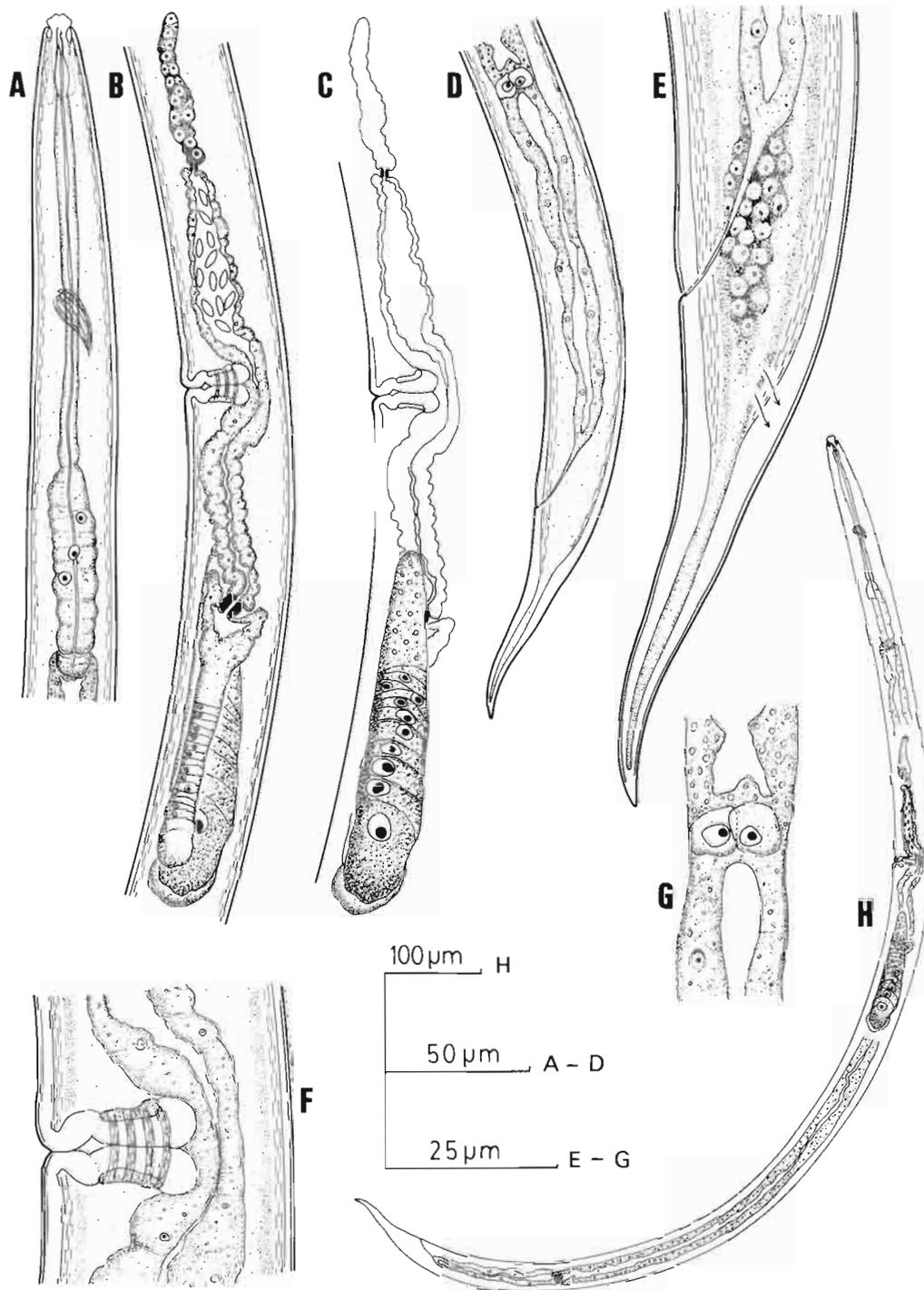


Fig. 1. *Dorylaimoides confusus* sp. n. Female. A: Neck region; B, C: Genital system; D: Posterior body region; E: Caudal region; F: Vagina; G: Intestine-prerectum junction; H: Entire female.

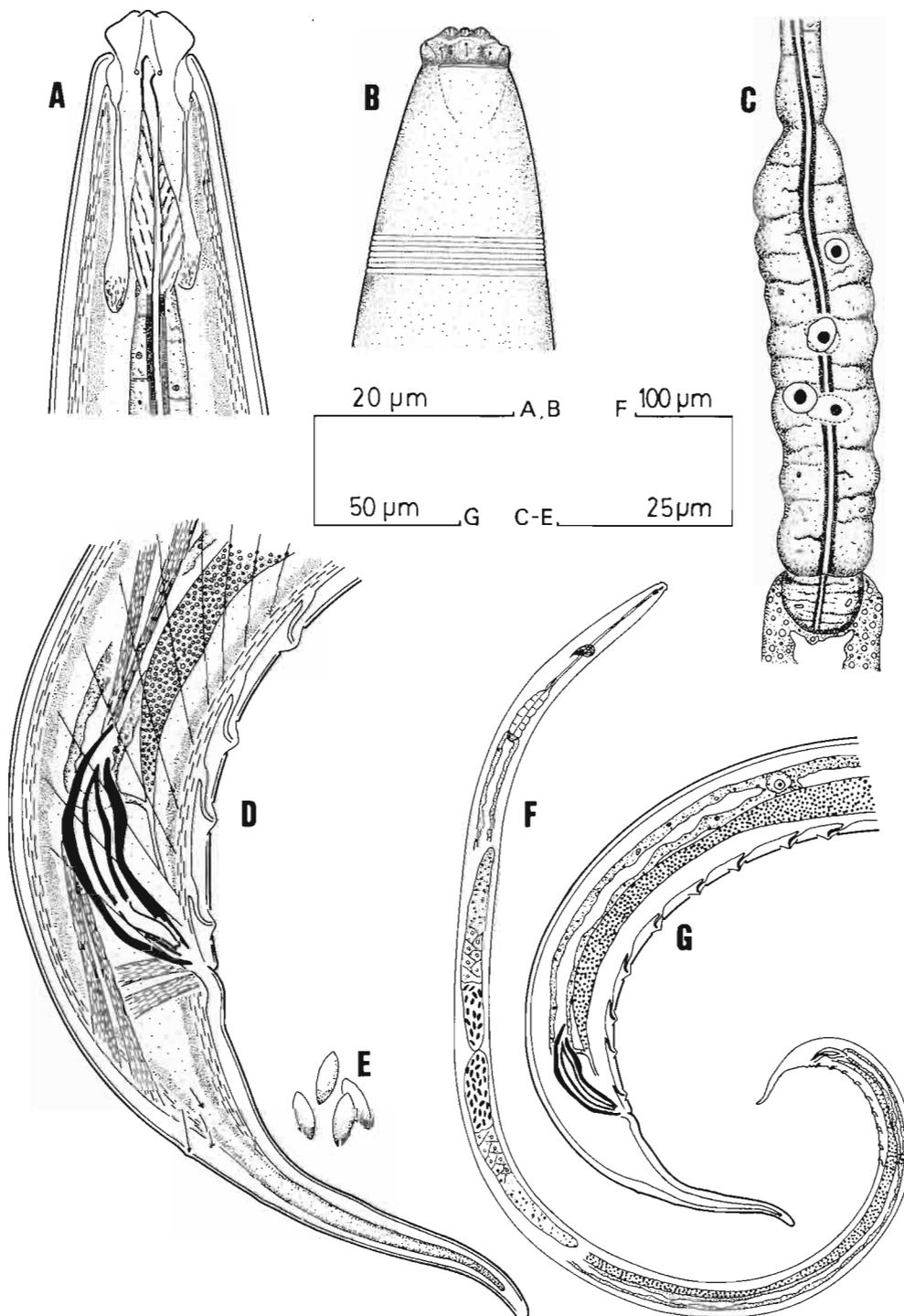


Fig. 2. *Dorylaimoides confusus* sp. n. A : Lip region in dorsal view; B : Same in surface view; C : Pharyngeal bulb and cardia; D : Male caudal region; E : Sperm; F : Entire male; G : Male posterior region.

style (*vs* 8-8.5 μm), different morphology of the anterior genital tract (*vs* without sphincter and vestigial oviduct), tail relatively longer (*vs* $c' = 2.8-3.7$), and males known (*vs* unknown).

***Dorylaimoides rotundicephalus** sp. n.**

(Figs 3, 4)

MEASUREMENTS

See Table 2.

DESCRIPTION

Female: Slender nematodes of medium size, 1.26-1.48 mm long. Body cylindrical, tapering towards the anterior end. Habitus ventrally curved, to C-shaped. Outer cuticle thin and with clear transverse striations. Inner cuticle slightly thicker than the outer one, especially in the caudal region. Lateral chords occupying one-seventh to one-sixth of the midbody width and provided with numerous glandular bodies. Lateral pores often obscure. Lip region rounded, hardly set off from adjacent body by a faint depression, twice as wide as high and about one-third of the body width at neck base. Lips amalgamated with their inner part not elevated. Labial and cephalic papillae clear but not interfering the head contour. Amphid cup-shaped; its aperture occupies 65-75 % of the head diameter. Stoma cylindrical or a truncate cone, scarcely shorter than the cephalic diameter; its wall appears partially thickened anteriorly. Odontostyle as long as the head width. Odontophore twice the length of the odontostyle. Guiding ring distinct, single. Anterior part of the pharynx slender and weakly muscular. Pharyngeal bulb cylindrical, four times as long as wide and occupying 28-32 % of the total neck length. Pharyngeal gland nuclei hardly visible. Cardia rounded. Nerve ring located about half of the neck length. Genital system pseudodidelphic-opisthodelphic. Ovary reflexed, often not reaching the oviduct-uterus junction and with oocytes arranged first in several rows, then in a single one. Oviduct joining subterminally the ovary; it consists of a slender part with prismatic cells and a well developed *pars dilatata*. Sphincter present at the oviduct-uterus junction with a slightly refractive inner part encircled by muscles. Uterus not specialized. Anterior genital branch consisting of a large uterine sac, a poorly developed sphincter, and a cell mass which could be considered as a vestigial oviduct. Vagina cylindrical extending inwards to half of the corresponding body width; vagina-vulva junction surrounded by the inner cuticle which extends inwards; vagina wall encircled by muscles. Vulva apparently a transverse slit. Sperm present throughout the genital tract. Prerectum 5-6 anal

body diameters long; its junction with the intestine guarded by three cells. Rectum as long as anal body width. Tail rounded-conoid, slightly longer than anal body diameter; ventrally almost straight, dorsally more convexe. Caudal pores two pairs located in the posterior half of the tail: one subdorsal, the other lateral.

Male: General morphology similar to female but with the posterior body region more ventrally curved. Genital system diorchic. Testes opposed. In addition to the adanal pair, a series of six to eight regularly spaced ventromedian supplements is present, beginning at level of the anterior end of the spicules. Spicules slightly curved, 1.8 anal body diameters long. Lateral guiding pieces attenuated. Rectum short, joining the ejaculatory duct within the range of the spicules. Tail shape similar to female. Caudal pores as in female. Sperm broad, spindle-shaped.

TYPE HABITAT AND LOCALITY

Rhizosphere of *Ulex parviflorus*, *Stipa tenacissima*, *Retama* sp. (mediterranean brushwood) and moss in road from Ugijar to Torviscon, province of Granada, Spain.

OTHER HABITATS AND LOCALITIES

Ugijar, province of Granada (Spain), from a similar habitat.

TYPE MATERIAL

Female holotype, male allotype, two female paratypes and one male paratype deposited in the nematode collection, Departamento de Biología Animal, Vegetal y Ecología, Universidad de Jaén, Spain. Two female paratypes and one male paratype in each of the following sites: Muséum National d'Histoire Naturelle, Paris, France; Instituut voor Dierkunde, Rijksuniversiteit Gent, Belgium; and Landbouwhogeschool, Wageningen, The Netherlands.

DIAGNOSIS AND RELATIONSHIPS

D. rotundicephalus sp. n. is characterized by its medium size ($L = 1.26-1.48$ mm), lip region rounded and scarcely set off by depression, odontostyle 9.5-10 μm long or equal to head width, pharyngeal bulb 53-73 μm or 28-32 % of the total neck length, female genital system pseudodidelphic-opisthodelphic, $V = 36.2-40.5$, anterior genital tract consisting of uterus with a weak sphincter and a cells chord, tail rounded-conoid (23-28 μm , $c = 48.2-58.3$, $c' = 1.0-1.2$ in females and 23-25 μm , $c = 54.5-57.6$, $c' = 0.9-1.0$ in males), spicules 39-43 μm and six to eight regularly spaced ventromedian supplements.

The new species comes close to *D. teres* Thorne & Swanger, 1936, *D. indicus* Jairajpuri, 1965, and *D. parateres* Siddiqi, 1964. From all of them it differs by the morphology of the anterior genital branch (*vs* didelphic). Further, from *D. teres* it can be distinguished by having longer odontostyle (*vs* 6 μm), more posterior vulva (*vs* $V = 40-48$), relatively longer tail (*vs* $c = 52-69$)

* From the latin word "rotundus" = rounded, and the greek word "kephalé" = head.

Table 2. Measurements and diagnostic features of *Dorylaimoides rotundicephalus* sp. n. (all measurements in μm except L in mm).

	<i>Stipa tenacissima</i> , Ugijar-Torviscón, Granada				<i>Thymus Ugijar Granada</i>
	Holotype ♀	Paratypes 4 ♀♀	Allotype ♂	Paratypes 4 ♂♂	5 ♀♀
L (mm)	1.48	1.38 ± 0.06 (1.31-1.48)	1.31	1.35 ± 0.06 (1.26-1.44)	1.39 ± 0.05 (1.32-1.44)
a	40.0	38.6 ± 1.71 (36.7-41.2)	38.5	40.3 ± 1.80 (38.5-43.6)	37.6 ± 1.29 (35.4-38.6)
b	6.5	6.5 ± 0.24 (6.3-7.0)	5.7	5.9 ± 0.24 (5.7-6.4)	6.4 ± 0.1 (6.2-6.5)
c	56.9	56.5 ± 1.66 (53.8-58.3)	54.5	56.0 ± 1.38 (54.5-57.6)	51.8 ± 3.33 (48.2-55.4)
V	40.5	39.1 ± 1.02 (37.9-40.5)	-	-	36.7 ± 0.58 (36.2-37.7)
G1/T1	9.9	9.1 ± 1.0 (7.60-10.4)	60.4	59.1 ± 3.24 (54.8-64.8)	10.2 ± 2.24 (8.0-13.2)
G2/T2	16.9	17.3 ± 3.60 (12.6-23.2)	35.4	35.7 ± 2.77 (31.2-39.9)	22.6 ± 2.66 (18.2-25.4)
Ant. gen. br./body diam.	3.9	3.5 ± 0.39 (2.9-3.9)	-	-	3.8 ± 0.9 (2.9-5.0)
c'	1.04	1.04 ± 0.01 (1.04-1.05)	1.04	1.0 ± 0.06 (0.90-1.04)	1.15 ± 0.04 (1.08-1.19)
Lip region : diam.	9.5	9.5	9.5	9.5	9.5
Lip region : height	4.0	(4.0-5.0)	4.5	4.5	3.5
Amphid width	7.0	6.90 ± 0.21 (6.5-7.0)	7.5	7.33 ± 0.24 (7.0-7.5)	6.5
Odontostyle	9.5	9.5	10.0	10.0	10.0
Odontophore	21.5	21.0 ± 0.50 (20.5-21.5)	21.0	20.2 ± 0.83 (19.0-21.0)	19.0 ± 0.35 (18.5-19.5)
Stylet length	31				
Guiding ring-ant. end	7.5	(7.5-8.0)	8.0	(7.5-9.0)	(7.5-8.0)
Nerve ring-ant. end	103	103 ± 2.12 (100-106)	103	103 ± 2.04 (100-105)	99.0 ± 2.48 (97-103)
Neck length	228	211 ± 11.4 (200-228)	228	229 ± 12.7 (215-250)	220 ± 7.58 (213-231)
Pharyngeal bulb length	59	54.5 ± 2.60 (53-59)	57	63.0 ± 6.40 (56-73)	64.7 ± 1.24 (63-66)
Cardia : width	11	11	10	10	(10-12)
Cardia : length	6	(6-8)	6	(6-7)	(6-8)
Body diam. at neck base	32.5	31.0 ± 0.77 (30.5-32.5)	29.0	29.0 ± 0.63 (28.0-30.0)	31.0
Body diam. at midbody	37.0	36.0 ± 1.28 (34.0-37.5)	34.0	33.5 ± 1.02 (32.0-35.0)	36.9 ± 0.89 (35.5-38.0)
Body diam. at anus	25.0	24.0 ± 1.30 (22.0-25.0)	23.0	23.5 ± 0.80 (23.0-25.0)	23.3 ± 0.56 (22.5-24.0)
Cuticle : head	1.5	1.5	1.5	1.5	1.5
Cuticle : midbody	2.0	(2.0-2.5)	2.0	(1.5-2.0)	(2.5-3.0)
Cuticle : tail	5.0	(5.0-5.5)	5.0	(4.5-6.0)	(5.0-6.5)
Lateral chord : midbody	5.5	(5.0-7.0)	5.0	(4.0-5.0)	6.0
Ant. ovary/testis	-	-	162	160 ± 31.3 (109-203)	-
Ant. genital branch	142	126 ± 14.4 (106-149)	789	808 ± 78.1 (690-933)	142 ± 33.8 (106-190)
Post. ovary/testis	150	165 ± 87.1 (85-310)	165	165 ± 36.7 (130-231)	242 ± 41.6 (180-296)
Post. genital branch	250	239 ± 52.8 (166-325)	462	484 ± 47.3 (428-553)	313 ± 35.4 (262-362)
Vagina : width	18	(16-18)	-	-	(16-18)
Vagina : length	21	(18-21)	-	-	(17-18)
Vulva-ant. end	600	541 ± 35.7 (500-600)	-	-	510 ± 13.2 (495-527)
Prerectum	134	122 ± 9.80 (112-134)	125	132 ± 7.70 (125-146)	138 ± 22.9 (106-169)
Rectum/cloaca	25	25.2 ± 0.43 (25-26)	34	32 ± 2.2 (28-34)	26 ± 1.4 (25-28)
Tail	26	25 ± 1.3 (23-26)	24	24 ± 0.7 (23-25)	26.9 ± 0.89 (26-28)
Spicules arc	-	-	42	41.5 ± 1.34 (39-43)	-
Ventromedian supplements	-	-	6	(6-8)	-
Sperm length	-	-	7.5	(7.5-8.0)	-
Copulatory muscles	-	-	18	(16-20)	-

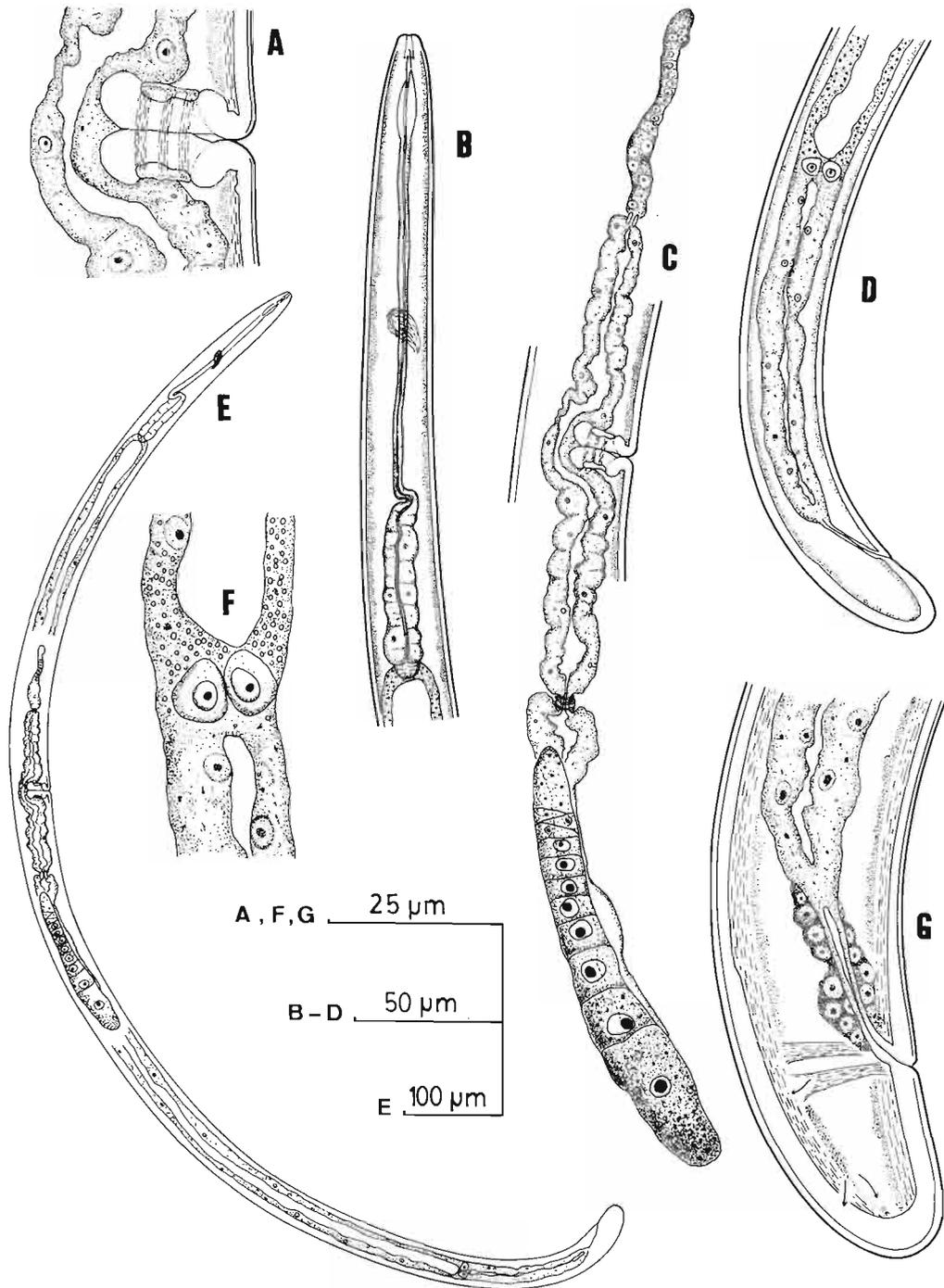


Fig. 3. *Dorylaimoides rotundicephalus* sp. n. Female. A : Vagina; B : Neck region; C : Genital system; D : Posterior body region; E : Entire female; F : Intestine-prerectum junction; G : Caudal region.

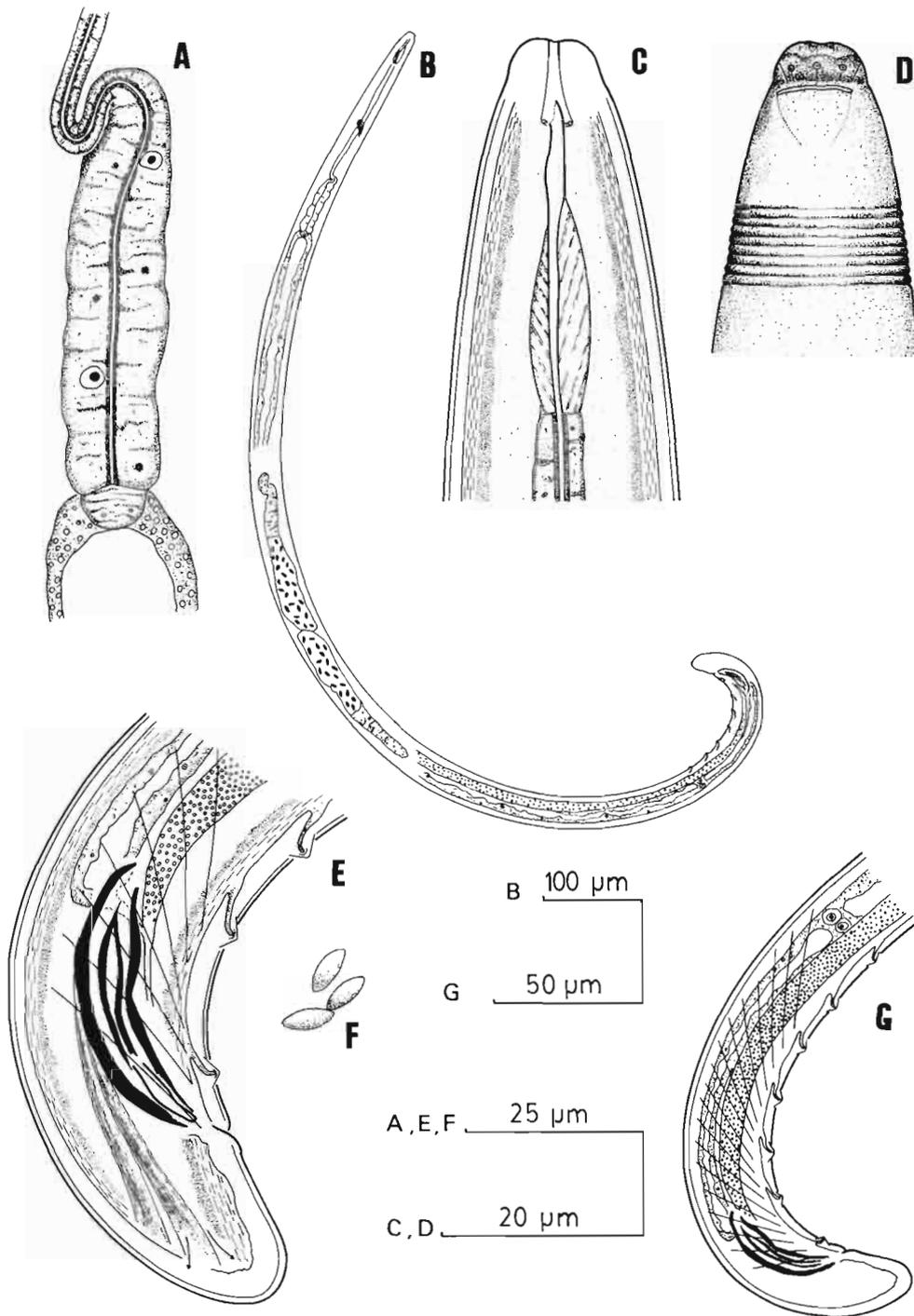


Fig. 4. *Dorylaimoides rotundicephalus* sp. n. *A* : Pharyngeal bulb and cardia; *B* : Entire male; *C* : Lip region in lateral view; *D* : Same, in surface view; *E* : Male caudal region; *F* : Sperm; *G* : Male posterior region.

and longer spicules (*vs* 35.6–38 μm). From *D. indicus* in having longer odontostyle (*vs* 7 μm) and relatively longer tail (*vs* $c = 62\text{--}91$). Finally, it can be separated from *D. parateres* by its longer odontostyle (*vs* 8 μm), pharyngeal bulb (*vs* 48 μm) and spicules (*vs* 35–36 μm).

***Dorylaimoides striatus** sp. n.**
(Figs 5, 6)

MEASUREMENTS

See Table 3.

DESCRIPTION

Female: Slender nematodes of medium size, 1.67–1.74 mm long. Body cylindrical, tapering towards both extremities but more so towards the anterior end. Habitus ventrally curved. Outer cuticle with strong transverse striations. Inner cuticle thicker than the outer one, especially at level of the caudal region. Lateral chords relatively narrow. Lateral pores arranged in a single row but hardly visible. Lip region set off by a marked depression, twice as wide as high and one-quarter to one-third of the body width at neck base. Lips amalgamated, the inner region elevated. Labial and cephalic papillae distinct but not protruding. Amphid cup-shaped, its aperture occupying 80% of the head diameter; *fusus* located at level of the odontophore base. Stoma a truncate cone. Guiding ring single. Ventral side of the odontostyle practically straight and dorsally bent at its anterior tip; dorsal side longer than ventral one and sigmoid. Odontophore 3–4 times the length of the ventral side of the odontostyle. The pharynx consists of a slender and weakly muscular anterior region and a cylindrical basal bulb, which occupies about one-quarter of the total neck length. The parts of the pharynx are separated by a constriction. Pharyngeal gland nuclei often visible. Cardia hemispherical, surrounded by the intestine wall laterally. Nerve ring located at middle of the neck length. Genital system pseudodidelphic-opisthodelphic. Ovary reflexed, with numerous oocytes arranged first in several rows and then in a single one. Oviduct subterminally joining the ovary; it consists of a slender part with high cells and a well developed *pars dilatata*. Sphincter present at the oviduct-uterus junction. Uterus not specialized. Anterior genital branch consisting of a uterine sac, a poorly developed sphincter, and a more or less developed cells chord representing probably a vestigial oviduct. Vagina cylindrical to a truncate cone, extending inwards to half of the corresponding body diameter; its wall adjacent to the vulva not offset from the body cuticle which extends inwards. Vulva apparently a transverse slit. Intestine-prerectum junction guarded by three cells. Prerectum 6–8 anal body diameters long. Tail elongated, with acute terminus, slightly ventrally curved

but its terminal portion dorsally bent; it tapers clearly from anus to its middle, then more gradually; the inner core of the tail not reaching the terminal tip. Caudal pores two pairs located in the anterior third of the tail: one subdorsal, the other more lateral.

Male: General appearance similar to female but with posterior body region more ventrally curved. Genital system diorchic; testes opposed. Apart from the adanal pair, a series of seven to nine regularly spaced ventromedian supplements is present, the first variably located. Spicules stout, curved and strongly sclerotized, 1.5–1.7 times the anal body width long. Lateral guiding pieces curved and with bifid terminus. Tail shape similar to female but more ventrally curved. Caudal pores two pairs located as in female.

TYPE HABITAT AND LOCALITY

Acid soil around roots of a “borreguil” or very moist high-pasture in Sierra Nevada, road from Capileira to Pico del Veleta, province of Granada, Spain.

TYPE MATERIAL

Female holotype, male allotype, one female paratype and two male paratypes in the nematode collection, Departamento de Biología Animal, Vegetal y Ecología, Universidad de Jaén, Spain. One female paratype and two male paratypes in the nematode collection of the Muséum National d’Histoire Naturelle, Paris, France; two male paratypes in Instituut voor Dierkunde, Rijksuniversiteit Gent, Belgium.

DIAGNOSIS AND RELATIONSHIPS

The new species is characterized by having medium size ($L = 1.67\text{--}1.95$ mm), outer cuticle strongly striated, lip region offset by depression, lips amalgamated, odontostyle 6.5–7 μm , pharyngeal bulb 62–70 μm , female genital system pseudodidelphic-opisthodelphic, $V = 31.4\text{--}31.8$, anterior genital branch consisting of a uterine sac with a poorly developed sphincter and a cells chord (156–215 μm or 3.8–5.3 body widths long), tail elongated to filiform with dorsally bent tip (82–103 μm , $c = 16.5\text{--}20.4$, $c' = 3.3\text{--}4.1$ in females and 80–107 μm , $c = 18.3\text{--}23.9$, $c' = 3.1\text{--}4.0$ in males), spicules 40–45 μm and a series of seven to nine regularly spaced ventromedian supplements.

D. striatus sp. n. is similar to *D. confusus* sp. n. from which it can be separated by its greater size (*vs* $L = 1.26\text{--}1.56$), strongly striated cuticle, longer odontostyle (*vs* 5.0–5.5 μm), longer anterior genital branch (*vs* 112–140 μm), male tail (*vs* 75–78 μm) and spicules (*vs* 33.5–38 μm).

Acknowledgment

The second author thanks Project entitled “Fauna Ibérica II” (DGICYT PB 89 0081) for the financial support.

* From “*striatus*” = striated.

Table 3. Measurements and diagnostic features of *Dorylaimoides striatus* sp. n. (all measurements in μm except L in mm).

	Pasture, Sierra Nevada, Granada			
	Holotype ♀	Paratypes 2 ♀♀	Allotype ♂	Paratypes 6 ♂♂
L (mm)	1.74	1.70, 1.67	1.94	1.87 ± 0.08 (1.73-1.95)
a	40.5	41.5, 40.8	51.0	48.7 ± 2.47 (43.3-51.0)
b	7.25	?, 6.7	7.2	7.10 ± 0.34 (6.7-7.8)
c	17.9	16.5, 20.4	19.2	20.5 ± 1.80 (18.3-23.9)
V	31.4	31.8, 31.5	—	—
G1/T1	10.2	12.6, 9.3	62.4	64.3 ± 2.60 (60.0-68.3)
G2/T2	23.0	22.4, 19.0	38.5	39.4 ± 1.43 (37.2-41.1)
Ant. gen. br./body diam. c'	4.13 3.9	5.24, 3.80 4.1, 3.3	— 3.74	— 3.50 ± 0.82 (3.1-4.0)
Lip region : diam.	10.5	10.5, 10.5	10.5	10.5
Lip region : height	5.0	5.0, 5.0	4.5	(4.5-5.0)
Amphid width	?	?, ?	8.0	8.0
Odontostyle	7.0	6.5, 6.5	7.0	6.6 ± 0.23 (6.5-7.0)
Odontophore	22.0	23.0, 22.0	22.0	23.0 ± 0.77 (22.0-24.5)
Stylet length	29	29.5, 28.5	29	(29-31)
Guiding ring-ant. end	7.5	7.5	7.5	(7.5-8.0)
Nerve ring-ant. end	115	?, 115	125	125 ± 3.9 (119-131)
Neck length	240	?, 251	270	263 ± 9.6 (250-282)
Pharyngeal bulb length	62	58, 66	66	68 ± 1.5 (66-70)
Cardia : width	11	10, 11	11	(10-12)
Cardia : length	9	9	9	(7-10)
Body diam. at neck base	38	35, 36	36	35 ± 0.8 (34-36)
Body diam. at midbody	43	41, 41	38	38.5 ± 0.90 (37-40)
Body diam. at anus	25	25, 25	27	26.5 ± 0.69 (25-27)
Cuticle head	1.5	1.5	1.5	1.5
Cuticle midbody	2.5	2.0, 2.5	2.0	(2.0-2.5)
Cuticle tail	6.0	5.5, 6.0	5.0	(5.0-6.0)
Lateral chord : midbody	6.5	7.0, ?	5.5	(5-7)
Ant. ovary/testis	—	—	243	236 ± 30 (200-298)
Ant. genital branch	178	215, 156	1211	1203 ± 82.7 (1039-1334)
Post. ovary/testis	139	225, 274	221	230 ± 30 (194-298)
Post. genital branch	400	381, 318	747	736 ± 44 (645-787)
Vagina : width	?	?, ?	—	—
Vagina : length	?	?, ?	—	—
Vulva-ant. end	546	540, 527	—	—
Prerectum	147	165, 190	169	206 ± 19 (169-234)
Rectum/cloaca	28	28, 28	41	40 ± 1.2 (38-42)
Tail	97	103, 82	101	92 ± 9.6 (80-107)
Spicules arc	—	—	41	42.5 ± 1.70 (40-45)
Ventromedian supplements	—	—	9	(7-9)
Sperm length	—	—	9	(7.5-9.0)
Copulatory muscles	—	—	25	(23-27)

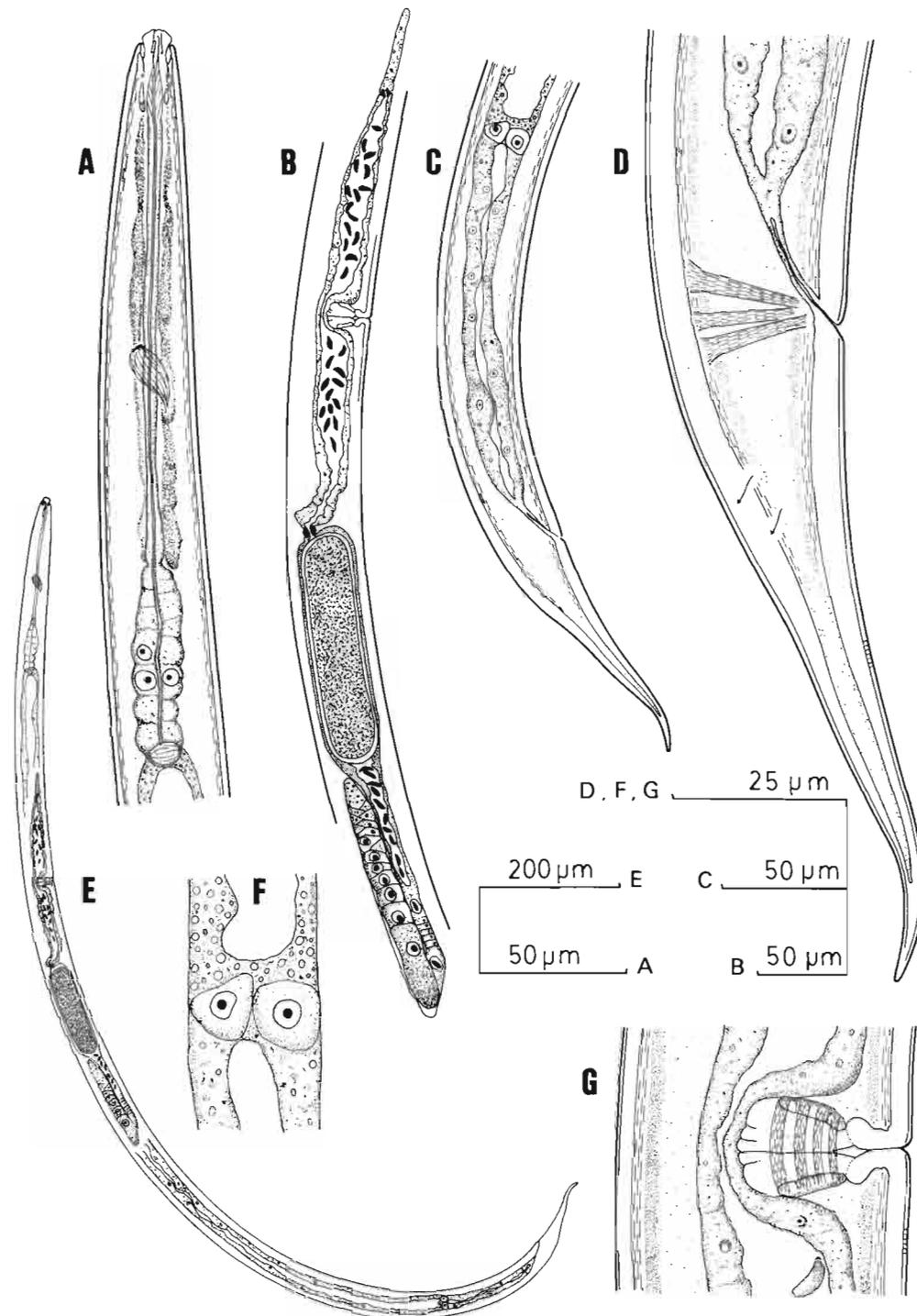


Fig. 5. *Dorylaimoides striatus* sp. n. Female. A : Neck region; B : Genital system; C : Posterior body region; D : Caudal region; E : Entire female; F : Intestine-prerectum junction; G : Vagina.

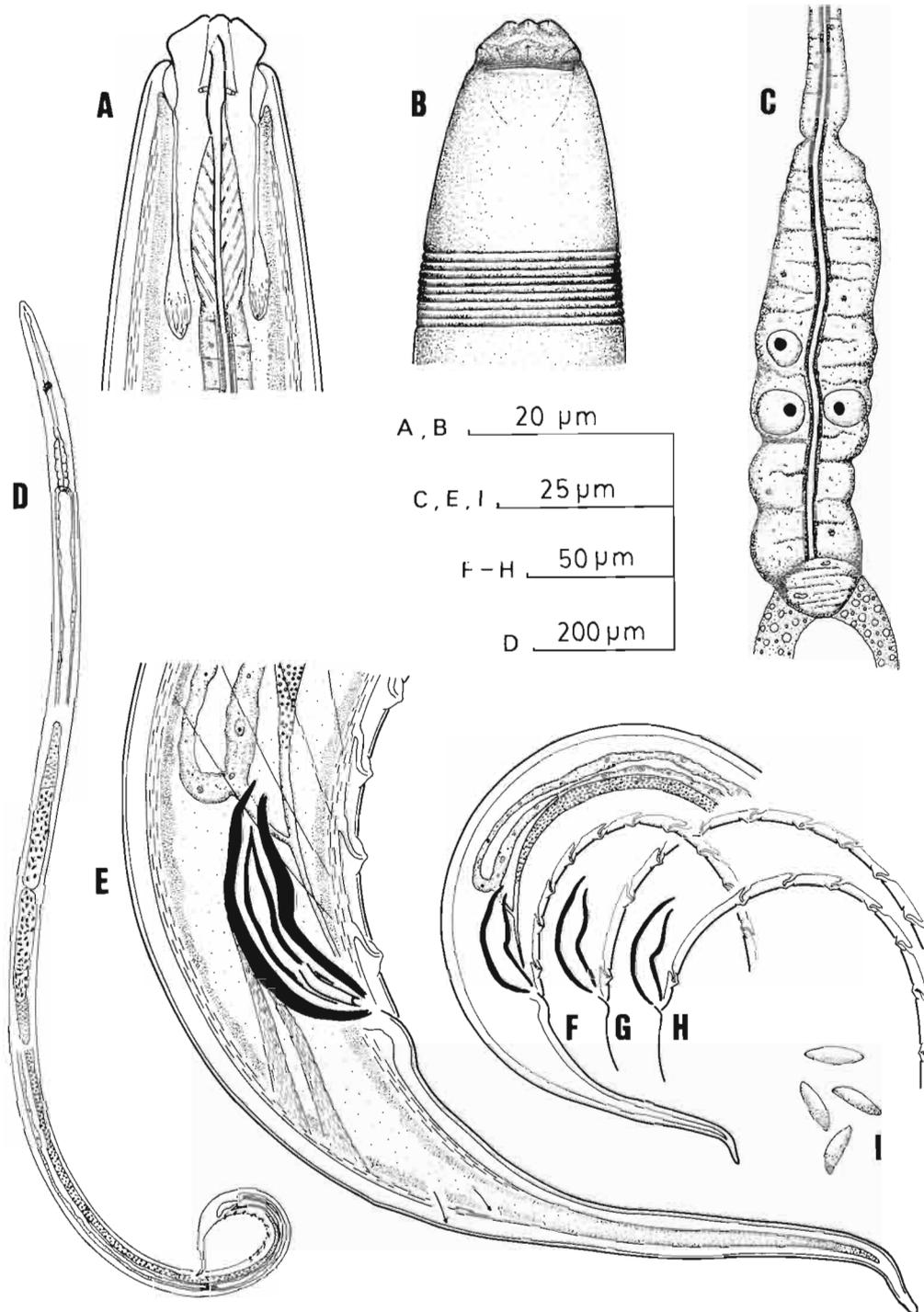


Fig. 6. *Dorylaimoides striatus* sp. n. A : Lip region in ventral view; B : Same in surface lateral view; C : Pharyngeal bulb and cardia; D : Entire male; E : Male caudal region; F-H : Male posterior region; I : Sperm.

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