

The genera *Cervidellus* Thorne, 1937 and *Stegelletina* Andr assy, 1984 (Nematoda: Cephalobidae) from Iran, with description of *S. kheirii* sp. n.

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Summary. One new and one known species of the genus *Stegelletina* and three species of the genus *Cervidellus* were found in soil samples from Iran. *Stegelletina kheirii* sp. n. is characterized by its convex-conoid tail with subacute terminus and by its anterior structure: labial probolae slender-conical with a single bifurcation, primary axils with single triangular guarding piece appearing as two refractive U-shaped elements, lip margins in secondary axils with four pairs of rounded tines, without refractive elements. *S. kheirii* sp. n. is close to *S. similis* and *S. devimucronata* but differs from both mainly in the shape of the tail terminus and absence of a U-shaped element in each secondary axil. Scanning electron microscopic study of *C. neftasiensis* and *C. vexilliger* showed that the extension of the lateral field on the tail and width of the phasmid opening are variable characters. *S. devimucronata* and *C. cancellatus* were also found and described here.

Key words: Cephalobidae, morphology, *Stegelletina*, *Cervidellus*, SEM, taxonomy.

In previous papers on the order Rhabditida Chitwood, 1933 from Iran, the genera *Acromoldavicus* Nesterov, 1970, *Teratocephalus* de Man, 1876, *Metateratocephalus* Eroshenko, 1973 and *Euteratocephalus* Andr assy, 1958 were studied (Karegar *et al.*, 1997a; 1997b). This is the third paper in a series, dealing with the genera *Cervidellus* Thorne, 1937 and *Stegelletina* Andr assy, 1984. More than one hundred soil samples from different parts of Iran yielded two species of *Stegelletina* and three species of *Cervidellus*. Bostr m & De Ley (1996) synonymized the genus *Ypsylonellus* Andr assy, 1984 with *Cervidellus* after studying the type species of the genus, *Y. vexilliger* (de Man, 1880) by light microscopy (LM) and scanning electron microscopy (SEM). The authors presented a provisional classification and differential diagnosis of the genera *Cervidellus* and *Stegelletina* on the basis of the bifurcation of the labial probolae, the structure of cephalic axils and guarding pieces and tail shape. They suggested that more study was required to resolve the taxonomy of these genera. In this paper relevant specimens from Iran are described on the basis of examination with LM and SEM. One new species is described, and new locali-

ties are added for the distribution of four known species.

MATERIALS AND METHODS

Samples were taken from the rhizosphere of different cultured and wild plants. Nematodes were extracted by a centrifugal-flotation method, killed and fixed with hot FAP and transferred to anhydrous glycerine for mounting. Two specimens of each *Stegelletina* species and *Cervidellus neftasiensis* Bostr m, 1986, and one specimen of *C. vexilliger* (de Man, 1880) Thorne, 1937 and *C. cancellatus* (Thorne, 1925) Bostr m & De Ley, 1996 were selected for study using SEM. They were prepared by ultrasonic treatment for about 10 min, followed by an ethanol concentration series of 25, 50, 75, 95, and 100 % at two-hourly intervals, ending with an overnight dehydration in 100 % ethanol. They were then submitted to critical point drying and coated by gold for observation with a JEOL LSM-840 scanning electron microscope.

The following abbreviations have been used in the text or Tables: ABW = anal body width, BW = body width, PUS = postvulval uterine sac, Rdei = number

of ventral annules between the anterior end and deirid, Rep = number of ventral annules between the anterior end and the excretory pore, and V-A = distance from vulva to anus.

DESCRIPTIONS

Stegelletina kheirii sp. n. (Figs. 1A-H & 2)

Measurements: in Table 1.

Female. Body generally slightly arcuate ventrad or dorsad. Cuticle annulated; annules 1.7-2.0 μm wide in neck region and 1.4-1.9 μm at mid-body, smooth or wrinkled with irregular, shallow longitudinal striae that are only visible with SEM and do not form continuous grooves. Lateral field with three lines, usually extending posterior to phasmid and terminating before tail tip. SEM studies revealed that the two wings of the lateral field are accompanied by two more incisures demarcating two irregularly excavated bands that are divided by the circumferential striae of the cuticle. Lip region 7.5-9.0 μm wide, with 6+4 papillae and two small, oval amphids. Lip margin with distinctly refractive U-shaped elements, of which there are two in each primary axil, but none in the secondary axils. Primary axils with a broad base bearing a single triangular guarding piece that is shorter than the lips. There are four pairs of rounded tines in each sector, between neighbouring primary axils. The highest ones are situated at the sides of the primary axils; labial papillae are located at the base of the second pair of tines. Labial probolae 4.0-4.5 μm high, slender-conical with a single bifurcation in the anterior third. Cheilorhabdia small, granular and rounded; the other stoma sections lightly sclerotized but discernible. Corpus 1.5-2.5 times as long as isthmus. Excretory pore opposite isthmus, deirid located in the centre of the lateral field, six to nine annules posterior to excretory pore. Vulva a short and transverse slit, situated at about two thirds of body length. Vagina short, about 20-30% of body width. PUS as long as BW or shorter. Spermatheca offset, 9.0-20.5 μm long, without sperm. Four females each carrying one intra-uterine egg measuring 40x9, 39x17, 43x16, and 49x13 μm . Rectum about one ABW long. Tail conoid, dorsad convex, with subacute and more or less mucronate terminus and with 11-15 ventral annules. Phasmids with narrow opening located in anterior half of tail.

Male. Not found.

Type material. Holotype and seven paratype females kept in the Nematode Collection of the Instituut voor Dierkunde, Universiteit Gent, Belgium (N° 2944-5); two paratype females Moscow State University Zoological Museum, Russia; and

two paratype females in the USDA Nematode Collection, Beltsville, Maryland, USA.

Type habitat and locality. Soil around roots of plum, *Prunus domestica* L., in Shirvan (Ghazi Sofla), Khorasan Province in north east Iran.

Diagnosis. *Stegelletina kheirii* sp. n. is characterized by its small size and three lateral lines, accompanied by two more incisures only visible under SEM; cuticle with transverse annulation; slender-conical labial probolae with a single bifurcation in the anterior one third, a single triangular guarding piece in each primary axil, lip margins with four pairs of rounded tines and two distinctly refractive U-shaped elements in the primary axils and none in the secondary axils; and convex-conoid tail with subacute terminus.

Relationship. This species differs from *S. similis* (Thorne, 1925) Boström & De Ley, 1996 by having a less pronounced tail mucro (*vs* an offset and ragged mucro), by its narrower cuticular annules (1.7-2.0 μm in neck region and 1.4-1.9 μm at mid-body, *vs* 2.8-3.0 and 2.4-3.2 μm in neck region and 3.5-3.6 and 2.1-2.5 μm , respectively in type and Spanish specimens of *S. similis*; De Ley *et al.*, 1994), much shallower longitudinal striae, and absence of refractive U-shaped elements in the secondary axils (*vs* presence of one U-shaped element). From *S. devimucronata* (Sumenkova, 1964) Boström & De Ley, 1996 it can be distinguished by having a simpler, subacute tail tip (*vs* an offset and ragged mucro) and absence of refractive U-shaped elements in the secondary axils. It can be separated from *S. argentinica* (Andrássy, 1963) Andrássy, 1984 (which was originally described based on a male) by the absence of continuous cuticular longitudinal grooves and different lip margin (no U-shaped elements in *S. argentinica*).

Remarks. From the brief original description, *Stegelletina kheirii* sp. n. apparently is similar to *S. insubrica* (Steiner, 1914) Boström & De Ley, 1996. This species, which was considered as *species inquirenda* by Boström & De Ley (1996), appears to have more ventral tail annules (11-15 in *S. kheirii* *vs* 24 on Abb. 4 in Steiner, 1914), and finer cuticular annules in the posterior part of the neck region. De Ley *et al.* (1994) described a male and a female specimen from Senegal as *Ypsylonellus* cf. *insubricus* (Steiner, 1914) Andrássy, 1984. These are very close to *S. kheirii* sp. n. except in the slightly longer body (398 μm in the female and 423 μm in the male), lip margins of the male with three pairs of rounded tines bordering secondary axils (*vs* four pairs), and reproduction probably amphimictic (*vs* presumably parthenogenetic). It is uncertain if these two speci-

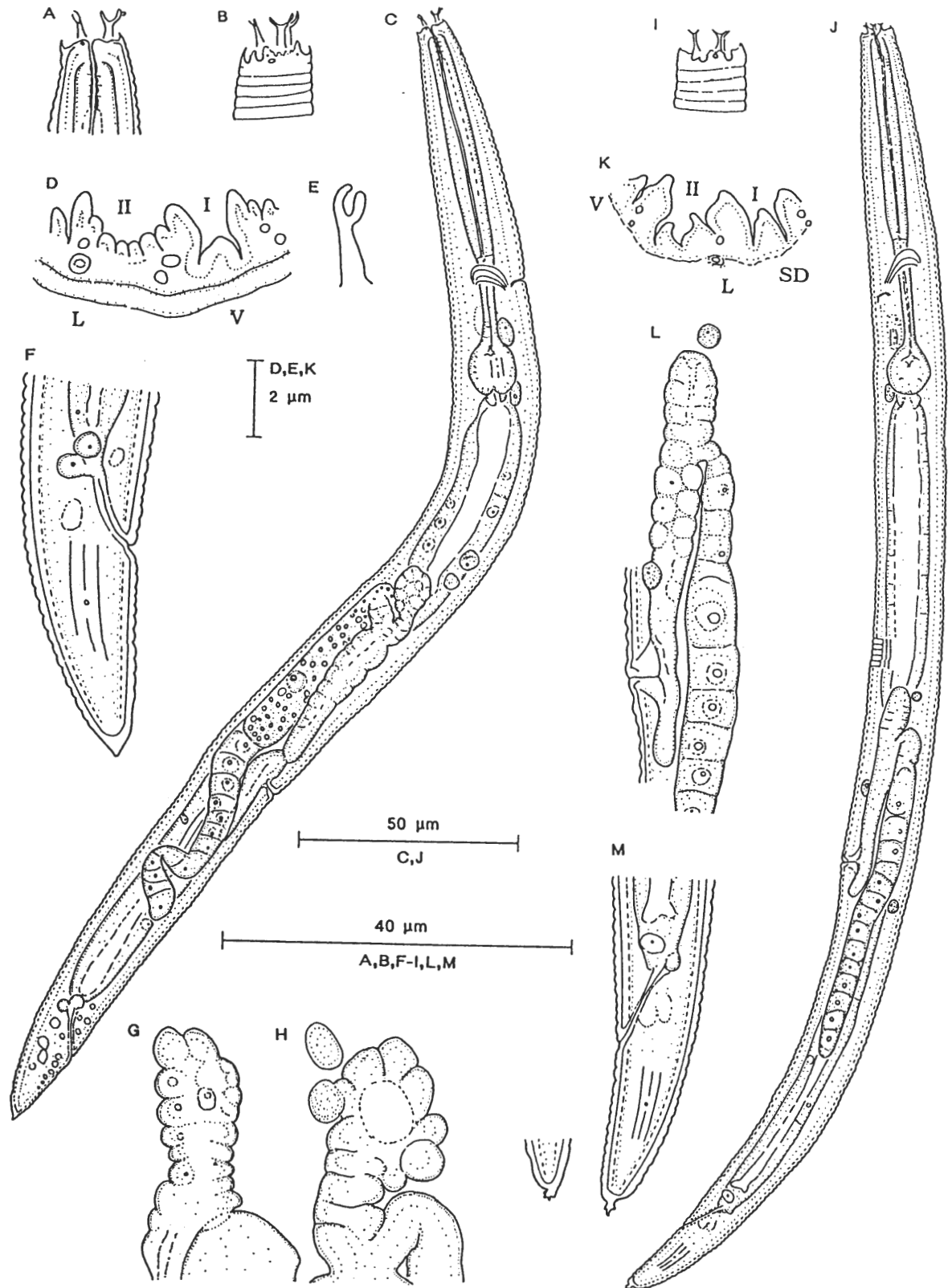


Fig. 1. *Stegelletina kheirii* sp. n. A-H: Holotype. A & B: Lip region; C: Entire body view. Paratype female; D: Lip structures; E: Labial probola; F: Tail; G & H: Variability in shape of spermatheca. *S. devimucronata*. I-M: I: Lip region; J: Entire body view; K: Lip structure; L: Part of female reproductive system; M: Tail with variation in its terminus. (Abbreviations of D & K are: I - primary axil, II - secondary axil, D - dorsal, L - lateral lip, SD - subdorsal lip, V - ventral lip).

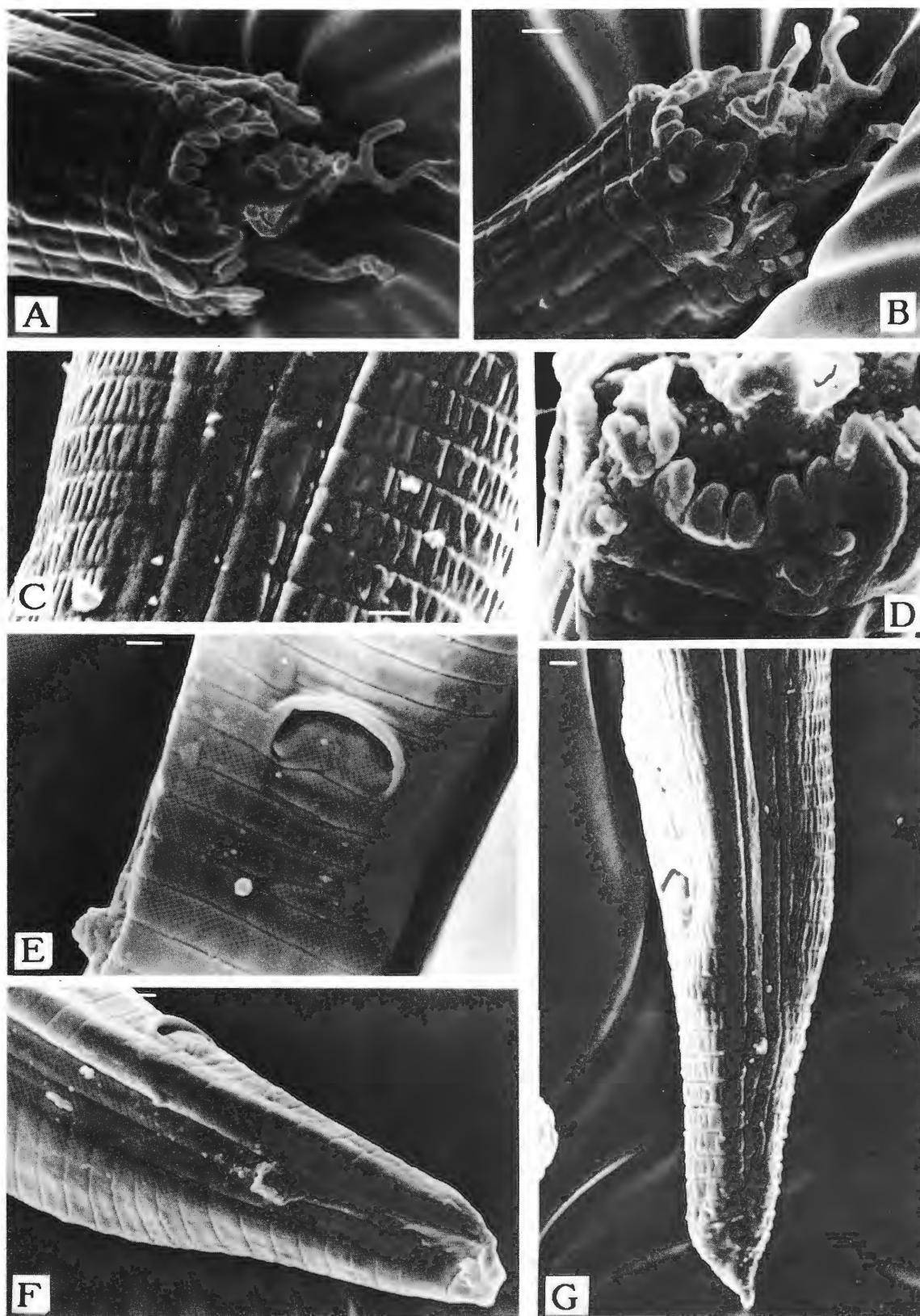


Fig. 2. *Stegelletina kheirii* sp. n. A: Lateral view of head; B: Dorso-lateral view of head; C: lateral field; D: The tines in the secondary axil; E: Ventral view of anus; F & G: Posterior end of the body. Scale bars - 1 μ m.

Table 1. Morphometrics (in μm) of *Stegelletina kheirii* sp. n. and *S. devimucronata* (Sumenkova, 1964) Boström & De Ley, 1996 from Iran.

Species	<i>S. kheirii</i> sp. n.		<i>S. devimucronata</i>	
	Shirvan, Khorasan		Eyvanekey, Tehran	Bojnurd, Khorasan
	Holotype	Paratype females	Females	Female
n	1	12	5	1
L	295	332±22 (295-370)	315±8 (305-325)	315
Body width	20	21±1.7 (19.0-24.5)	16.4±1.5 (15.5-19.0)	17.5
Neck length	88	88.5±3.2 (83-95)	84±7 (72-89)	100
Tail length	20.5	22±1.7 (19.5-24.5)	20.5±1.6 (18-22)	20.5
a	14.8	15.8±0.8 (15-17)	19.3±1.3 (17.1-20.3)	18
b	3.4	3.8±0.2 (3.4-4.2)	3.8±0.3 (3.5-4.3)	3.2
c	14.5	15±0.9 (13.8-16.5)	15.3±1.0 (14.3-16.9)	15.4
c'	2	2±0.2 (1.7-2.3)	2.2±0.2 (2.0-2.4)	1.8
V (%)	67	65±1 (64-67)	64.5±1.6 (62.5-67)	67.5
Anterior end to base of stoma	6.5	6±0.5 (5.0-6.5)	6.3±0.6 (5.5-7.0)	6.5
Corpus	48	46±2 (41-48)	43.5±2.1 (42-46)	58
Isthmus	21	23.5±2.3 (21-30)	25-26	24
Bulbus	11	11.8±0.9 (10.5-13.5)	11.9±1.0 (11.0-13.5)	12
Nerve ring	60	65±3 (60-72)	57±2.6 (54-61)	59
Excretory pore	62	69±3.9 (62-74)	64.5±3.0 (61-69)	59
Deirid	81	82±5 (76-93)	73.5±3.6 (69-78)	–
Rep	39	40±3.2 (35-46)	40±2 (38-42)	45
Rdei	49	47±4 (42-55)	46±2.5 (43-48)	–
Phasmid from anus	–	8.4±1.7 (6-11)	8.9±1.4 (7.6-10.3)	5.8
Phasmid (% tail)	–	37.5±5 (31-46)	43±5.3 (35.5-49.0)	28.5
Spermatheca	12	13.7±4.3 (9.0-20.5)	10.8±1.0 (10.0-12.5)	12
PUS	17	16.8±3.0 (12.5-24.5)	8.1±2.8 (4.5-11.5)	15.5
PUS/BW	0.9	0.8±0.1 (0.6-1.0)	0.5±0.2 (0.3-0.7)	0.9
V-A	77	93±7.9 (77-105)	89±6.7 (82-100)	82
V-A/tail	3.8	4.2±0.3 (3.8-4.5)	4.3±0.4 (3.9-4.9)	4.0
Head-vulva	198	216±13.5 (198-241)	204±5.4 (197-210)	213
Rectum	11	11.2±1.1 (9-13.5)	10.5±1.0 (9.5-12.0)	11
Anal body width	10.5	11.3±1.0 (10.5-13.5)	9.4±0.9 (8.1-10.3)	11.2

mens also represent *S. kheirii* sp. n., but as the Iranian population differs consistently from *S. insubrica* in caudal shape, it can be assumed that neither the Iranian nor the Senegalese specimens represent *S. insubrica*, which remains a *sp. inq.*

***Stegelletina devimucronata* (Sumenkova, 1964) Boström & De Ley, 1996 (Figs. 11-M & 5D, E)**

Measurements: in Table 1.

Female. Body generally slightly arcuate ventrad. Cuticle annulated; annules 1.4-1.8 μm wide at neck region and 1.2-1.8 μm at mid-body without longitudinal striae under light microscopy; shallow longitudinal striae only visible with SEM and do not form continuous incisures. Lateral field with three lines, usually extending almost to tail tip; SEM of

two specimens shows two bands partially protruding and alternate with one or two additional lines. Lip region 7.0-7.5 μm wide, with 6+4 papillae and two small amphids. Lip margin with two distinctly refractive U-shaped elements in each primary axil and one in each secondary axil. Primary axils with a broad base bearing a single triangular guarding piece that is slightly shorter than the lips. Secondary axils with two tines visible under SEM. Labial probolae slender-conical, about 3 μm high with a single bifurcation in their tip. Cheilorhabdia small, granular and rounded; the other stoma sections lightly sclerotized and not discernible. Corpus 1.5-2.5 times as long as isthmus. Excretory pore opposite isthmus, deirid five to eight annules posterior to excretory pore, shifted dorsad. Vulva situated at about two thirds of body length. Vagina short, about 20-30% of BW. PUS 4.5-11.5 μm , shorter than BW. Sper-

matheca offset, 10.0-12.5 μm long, without sperm. Eggs not observed. Rectum about one ABW long. Tail conoid, with 12-14 ventral annules and an offset, ragged terminus. Phasmids with fine opening located in anterior half of tail.

Male. Not found.

Habitat and locality. Soil around roots of *Cynodon dactylon* (L.) Pers. in Eyvanekey, Tehran Province and Chickpea, *Cicer arietinum* L., in Bojnurd, Khorasan Province.

Relationship. This population is similar to *S. devimucronata* (Sumenkova, 1964) Boström & De Ley, 1996. The number of lateral lines is the main difference between this population and the *S. devimucronata* type population; in the original description the lateral field was described and drawn with four lines continuing to tail tip in males, and on females with four lines on the body changing to three on the tail (Sumenkova, 1964: Fig. 2a-b). It was reported that the lateral field often apparently consists of only two or three lines in specimens not lying perfectly on their side (Sumenkova, 1964). Turkish and Greek populations, and one female from Spitzbergen described as *Ypsylonellus devimucronatus* by Boström (1991, 1993) and De Ley *et al.* (1994), all had a lateral field with three lines. The appearance of the lateral field in type specimens is probably due to the preparation methods, and therefore these nematodes are identified here as *S. devimucronatus*.

***Cervidellus neftasiensis* Boström, 1986 (Figs. 3H-M & 4)**

Measurements: in Table 2.

Female. Body slightly curved ventrad. Cuticle annulated; annules 1.5-1.8 μm wide at neck region and 1.2-1.7 μm at mid-body; shallow longitudinal striae are only visible with SEM and do not form continuous incisures. Lateral field with three lines which stop at phasmid. Lip region 7-9 μm wide, continuous or slightly offset, with 6+4 papillae and two small amphids. Lip margins consisting of six groups of five distinctly refractive U-shaped elements (one group per axil) and two pairs of rounded tines between the lips (central tines) which are longer than the other tines. Primary axils and secondary axils are similar. Labial probolae slender-conical, about 3.0-3.5 μm high with a single bifurcation in their tip. Cheilorhabdia small, granular and rounded; the other stoma sections lightly sclerotized and not discernible. Corpus 1.8-2.9 times as long as isthmus. Excretory pore located opposite the nerve ring or isthmus, deirid 8-10 annules posterior to excretory pore, shifted dorsad. Vulva situated at about two thirds of body length. Vagina short, about 20-40 %

of body diameter. PUS 20-90 % of body width. Spermatheca offset, short and without sperm. Eggs not observed. Rectum about one ABW long. Tail conoid with pointed terminus. Phasmids with rather wide opening in a specimen seen by SEM (Fig. 4E), located in anterior half of tail.

Male. Not found.

Habitat and locality. Soil in the fields of mixed wild cherry, *Prunus avium* L., and alfalfa, *Medicago sativa* L., in Hamadan (Abbas Abad), pomegranate, *Punica granatum* L., in Yazd and Astara, and plum *Prunus* sp., in Azad Shaher.

Relationship. These specimens are similar to *C. vexilliger* (de Man, 1880) Thorne, 1937 and *C. neftasiensis* Boström, 1986 but possess a short spermatheca and PUS, thus they are considered to belong to *C. neftasiensis*. The lateral field terminating at phasmid in these specimens corresponds with the original description of *C. neftasiensis* (Boström, 1986). In contrast, the lateral field of a population from the Netherlands usually extended nearly to the tail tip, and these specimens also had phasmids with narrow openings (Boström & De Ley, 1996). As the extent of the lateral field on the tail and the width of the phasmid opening apparently are variable, the length of spermatheca and PUS therefore remain as the main characters differentiating *C. neftasiensis* from *C. vexilliger*.

***Cervidellus vexilliger* (de Man, 1880) Thorne, 1937 (Figs. 3A-G & 5A-C)**

Measurements: in Table 3.

Female. Body slightly curved ventrad. Cuticle annulated; annules 1.8-2.2 μm wide in neck region and mid-body; without longitudinal striae under LM and SEM. Lateral field with three lines which stop at phasmid, the two outer ones extending posteriorly in some specimens. Lip region 9.5-10.5 μm wide, continuous with the body contour or slightly offset, with 6+4 papillae and two small amphids. Lip margins and axils as described above for *C. neftasiensis*. Labial probolae slender-conical, about 3.5-5.5 μm high with a single bifurcation in their tip. Cheilorhabdia small, granular and rounded; the other stoma sections lightly sclerotized and not discernible. Corpus twice as long as isthmus. Excretory pore located opposite the isthmus, deirid 5-7 annules posterior to excretory pore, shifted dorsad. Vulva situated at about two thirds of body length. Vagina short, about 20-40 % of body diameter. PUS long, 1.2-1.5 times body width. Spermatheca offset, long and without sperm. Eggs not observed. Rectum about one ABW long. Tail conoid with pointed terminus. Phasmids

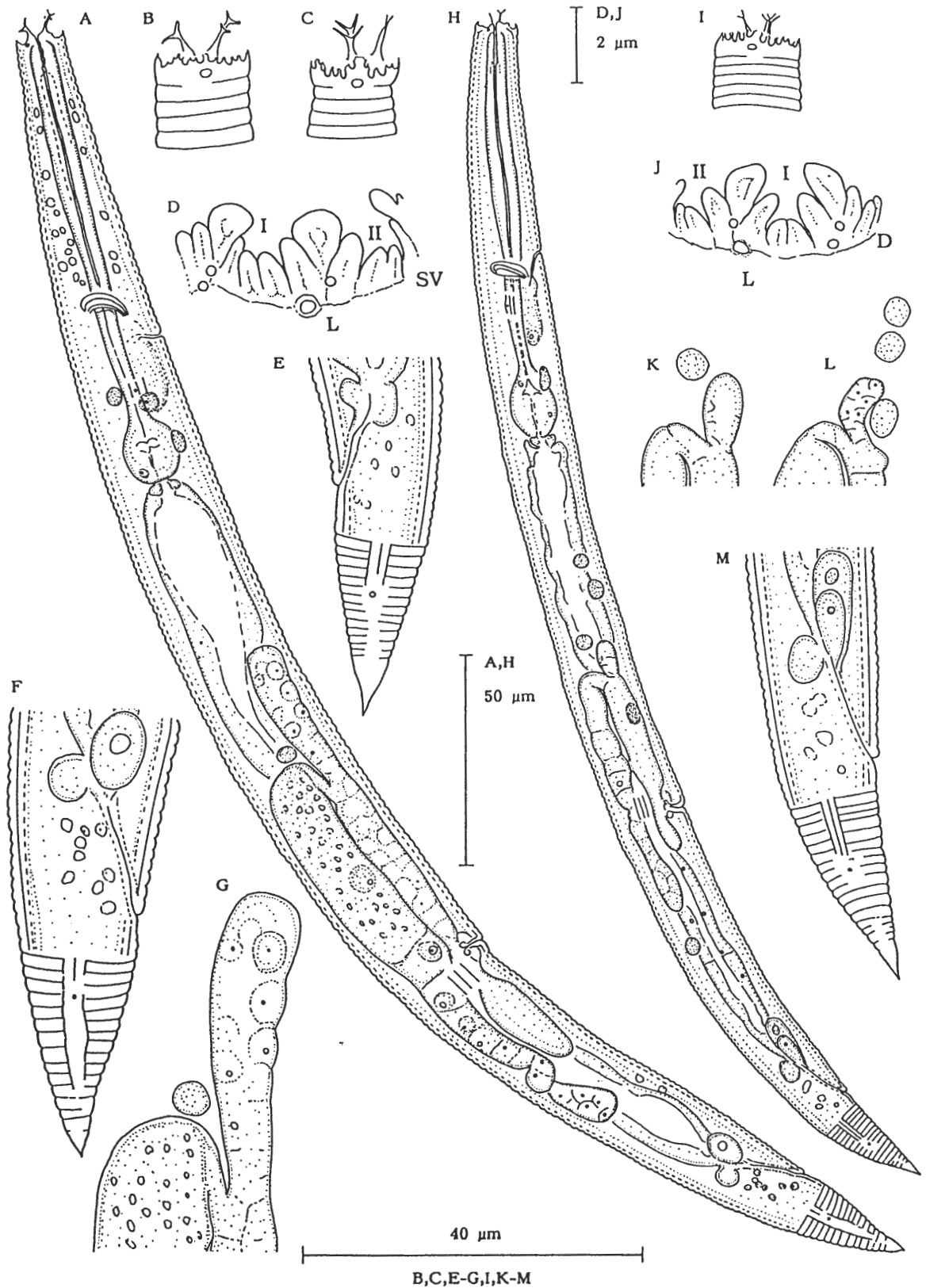


Fig. 3. *Cervidellus vexilliger* (de Man, 1880) Thorne, 1937. A-G. A: Entire body view; B & C: Lip region; D: Lip structures; E & F: Variability of lateral field on tail; G: Spermatheca. *Cervidellus neftasiensis* Boström, 1986. H-M. H: Entire body view; I: Lip region; J: Lip structures; K & L: Spermatheca; M: Tail. (Abbreviations of D & J are: I - primary axil; II - secondary axil; L - lateral lip; D - dorsal lip; SV - subventral lip).

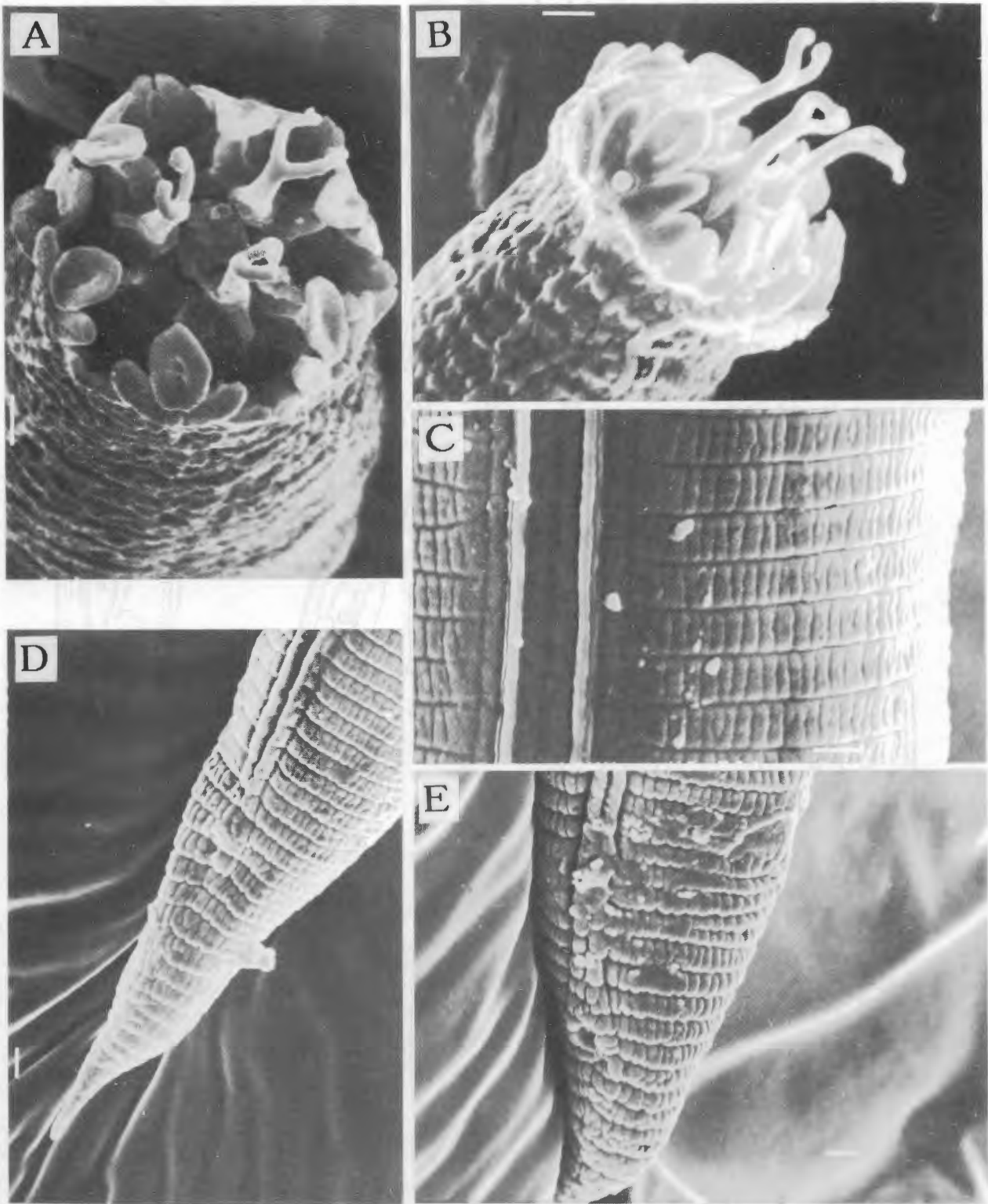


Fig. 4. *Cervidellus neftasiensis* Boström, 1986. A: En face view of lip region; B: Dorsal view of lip region; C: Lateral field; D & E: Lateral field and phasmid on tail. Scale bars - 1 μ m.

Table 2. Morphometrics (in μm) of females of *Cervidellus neftasiensis* Boström, 1986 from Iran.

Locality, province	Astara, Gilan	Hamadan, Hamadan	Azad Shahr, Mazandaran	Yazd, Yazd
n	6	1	1	1
L	270 \pm 15 (255-295)	305	315	265
Body width	17 \pm 0.8 (16-18.5)	17.5	19	19
Neck length	84.5 \pm 1.9 (82-87)	100	96	81
Tail length	26 \pm 1.9 (24-29)	27.5	24.5	24
a	15.7 \pm 1.3 (14.3-17.7)	17.4	16.7	14.1
b	3.2 \pm 0.2 (3.0-3.4)	3.1	3.3	3.3
c	10.3 \pm 0.4 (9.7-10.6)	11.1	12.8	11.2
c'	2.9 \pm 0.4 (2.5-3.4)	2.4	2.1	2.4
V (%)	64 \pm 1.4 (61-65)	64.5	65	63.5
Anterior end to base of stoma	6.2 \pm 0.4 (5.4-6.3)	9	5.8	6.3
Corpus	43.5 \pm 3.1 (40.5-47.0)	62	48	40
Isthmus	20.5 \pm 2.9 (16.0-22.5)	23	26.5	21.5
Bulbus	14 \pm 1.0 (12.5-15.5)	15.5	14.5	13.5
Nerve ring	50 \pm 3.9 (52-63)	60	61	49
Excretory pore	55.5 \pm 3.9 (52-63)	57	73	55
Deirid	68 \pm 4.1 (64-73)	69	78	–
R _{ep}	33 \pm 0.8 (32-34)	34	42	35
R _{dei}	42 \pm 2.2 (40-45)	41	51	–
Phasmid from anus	11 \pm 0.6 (10.5-12.0)	12.5	10.5	11
Phasmid (% tail)	43 \pm 2.9 (38.5-46.5)	46	41.5	45.5
Spermatheca	5.3 \pm 0.6 (4.5-6)	8.5	6.7	8.5
PUS	8.3 \pm 3.5 (6-14.5)	10.5	8	6.5
PUS/BW	0.5 \pm 0.2 (0.4-0.9)	0.6	0.4	0.3
Vulva-anus	70.5 \pm 5.6 (65-79)	80	85	73
V-A/tail	2.7 \pm 0.1 (2.6-2.8)	2.9	3.4	3.1
Head-vulva	172 \pm 9.6 (164-190)	197	204	170
Rectum	7.7 \pm 2 (6-11)	13.5	10.5	10
Anal body width	9.2 \pm 1.2 (8-11)	11.5	12	10

located in the first half of tail.

Male. Not found.

Habitat and locality. Soil around the roots of alfalfa, *Medicago sativa* L., in Damghan, grapevine, *Vitis vinifera* L., in Hamadan (Lak) and natural land in Kandovan, Tehran.

Relationship. The specimens agree well with *C. vexilliger* (de Man, 1880) Thorne, 1937 as described by Boström & De Ley (1996) except that the apical tines of the lips lack apical incisures, and males were absent.

***Cervidellus cancellatus* (Thorne, 1925)
Boström & De Ley, 1996
(Figs. 6 & 7)**

Measurements: in Table 3.

Female. Body stout, generally arcuate ventrad. Cuticle coarsely annulated, annules 2.0-2.7 μm at midbody. Annules deeply longitudinally striated by incisures which are not continuous near the lip region

but continuous elsewhere, forming 32-34 ridges at midbody (excluding the lateral fields). Lateral field with three incisures, beginning anterior to bulbus and continuing to tail terminus. Lip region 11.5-13.5 μm wide, consisting of six groups of four fine tines (one group per axil). Primary axils with two very fine guarding pieces of which only one is usually discernible under LM. The apical tine on each lip (cephalic probola) is longer than the others. Secondary axils with two central tines that are close to each other and only visible by SEM. Labial probolae about 11-12 μm high, bifurcated at two levels, at one quarter of their length (primary bifurcation) and again at two thirds, near the tips (secondary bifurcation). Outer branch of each secondary bifurcation curved and directed posteriorly. Cheilorhabdia large and almost triangular, refractive; five other stoma sections strongly sclerotized and easily visible in most specimens. Dorsal gland ampulla clearly visible in most specimens, located opposite the posterior stego-stom region but the opening faintly visible,

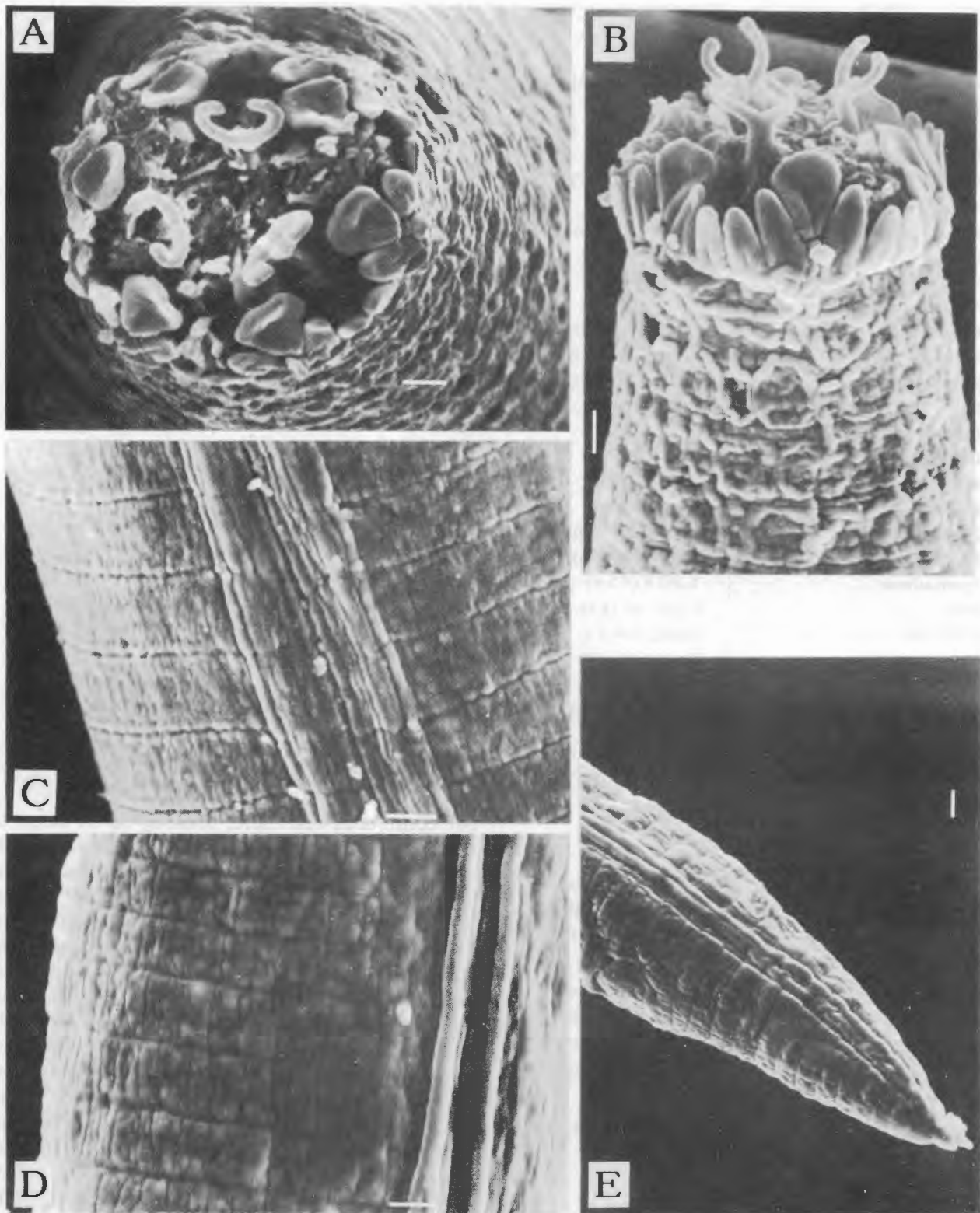


Fig. 5. *Cervidellus vexilliger* (de Man, 1880) Thorne, 1937. A-C. A: *En face* view of lip region; B; Lateral view of lip region; C: Lateral field. *Stegelletina devimucronata* (Sumenkova, 1964) Boström & De Ley, 1996. D: Lateral field; E: Tail. Scale bars - 1 µm.

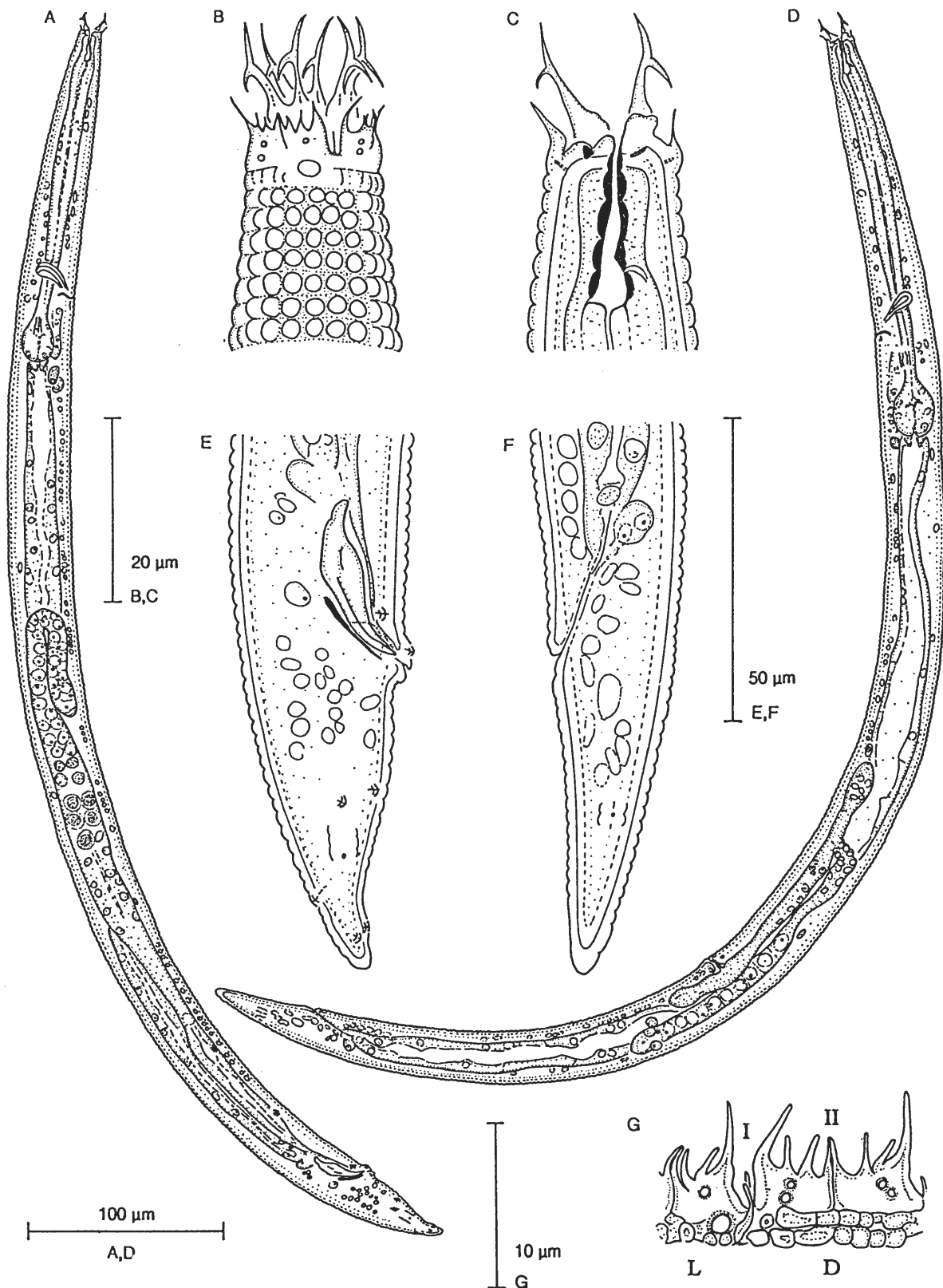


Fig. 6. *Cervidellus cancellatus* (Thorne, 1925) Boström & De Ley, 1996. A & D: Entire body view; B & C: Lip region; E & F: Tail; G: Lip structure. A & E: Male; B, C, D, F & G: Female. (Abbreviations of G are: I - primary axil; II - secondary axil; L - lateral lip; D - dorsal lip).

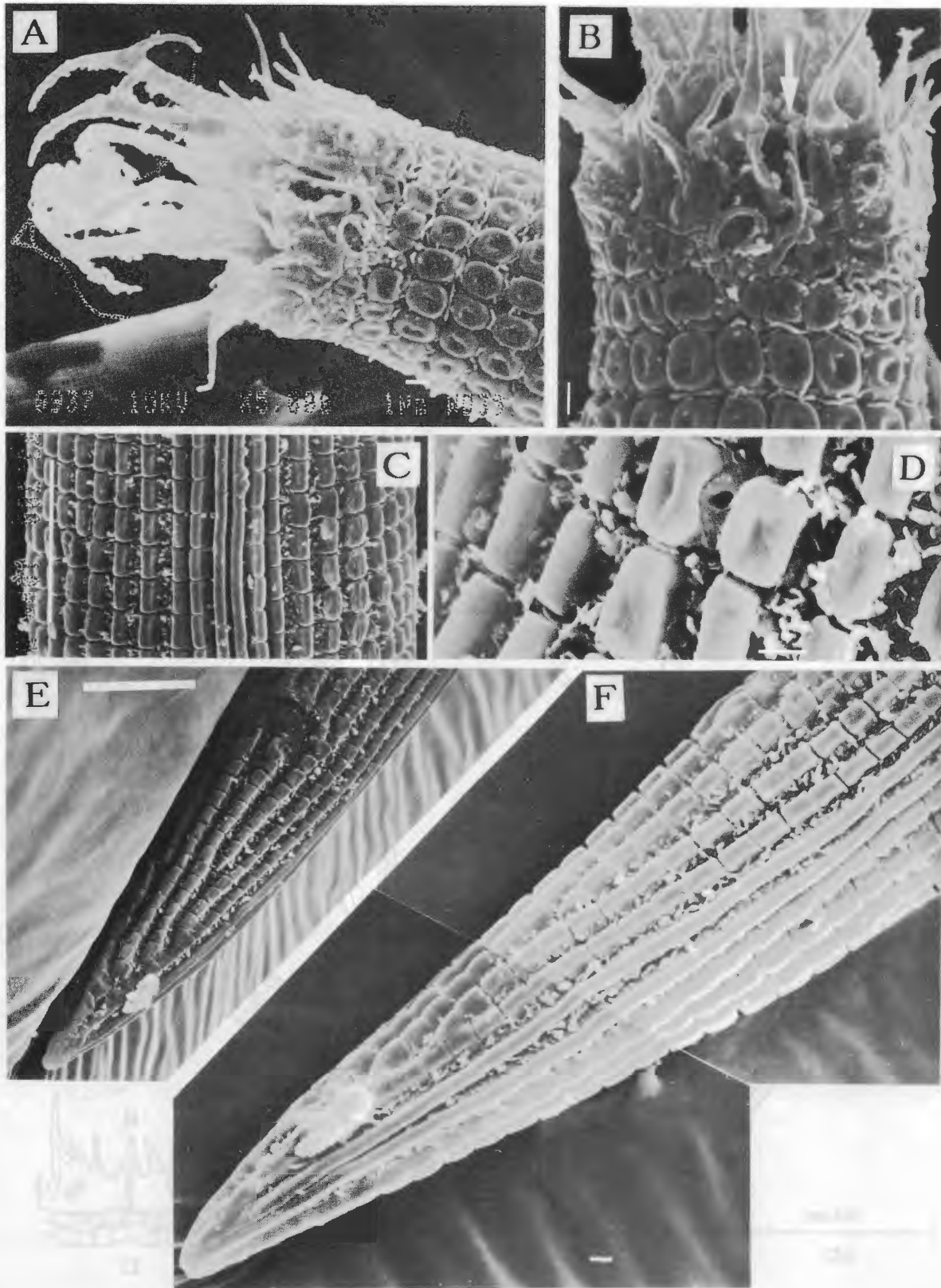


Fig. 7. *Cervidellus cancellatus* (Thorne, 1925) Boström & De Ley, 1996. A: Lateral view of lip region; B: Lip structure; C: Lateral field; D: Excretory pore; E & F: ventral and lateral view of tail. Scale bars: E - 10 μm , A-D, F - 1 μm .

Table 3. Morphometrics (in μm) of females of *Cervidellus vexilliger* (de Man, 1880) Thorne, 1937 and males and females of *C. cancellatus* (Thorne, 1925) Boström & De Ley, 1996 from Iran.

Species	<i>Cervidellus vexilliger</i>			<i>C. cancellatus</i>	
	Locality, province	Kandovan, Tehran	Damghan, Semnan	Hamadan, Hamadan	Tadjirish, Tehran
n		2	1	1	3 females 5 males
L		280-375	380	300	665-810 672±28 (640-715)
Body width		15.5-26	23.5	19.5	33 30.7±1.8 (27.5-32.0)
Neck length		86-110	117	94	164-215 169±9 (156-180)
Tail length		22.5-30	36	27	47-52.5 50±0.8 (49-51)
a		14.4-18.1	16.2	15.4	20-24.5 22±1.6 (20.3-24.5)
b		3.3-3.4	3.2	3.2	3.6-4.2 4±0.2 (3.7-4.1)
c		12.4-12.5	10.6	11.1	14.1-15.4 13.4±0.5 (12.9-14.0)
c'		2.0-2.6	2.5	2.4	2.4-2.7 2±0.1 (1.9-2.1)
V (%)		64.5-65	63	61.5	64.5-65.5 -
T (%)		-	-	-	- 49.5±2.9 (46-52)
Anterior end to base of stoma		6.0-9.4	8.5	6.7	16.5-20 15.8±1.3 (15-18)
Corpus		44-59	61	-	96-129 98±7 (91.5-108.0)
Isthmus		20.5-29	31	-	32-41 31.5±6.6 (26-41)
Bulbus		14.5	16.5	15.5	21.5-25 21±1.6 (18.5-22.5)
Nerve ring		45-65	58	-	112-146 114.5±8 (108-128)
Excretory pore		54-76	75	60	123-160 125±8 (117-138)
Deirid		90	-	70	141-177 142±10 (132-159)
Rep		34	34	35	49-59 48±2 (45-50)
Rdei		39	-	42	55-65 55±3 (50-56)
Phasmid from anus		10.5	13.5	12	22.5-26 29±2 (27-32)
Phasmid (% tail)		34.5	37.5	44.5	48-53.5 58±3 (55-63)
Spermatheca		17-36	37	25	29-45 -
PUS		19-35	34	29	20.5-30.5 -
PUS/BW		1.2-1.3	1.4	1.5	0.6-0.9 -
Spicule		-	-	-	- 29±1.5 (28.0-31.5)
Gubernaculum		-	-	-	- 12.8±1.5 (11-15)
V-A		80-102	100	86	178-223 -
V-A/tail		3.4-3.6	2.8	3.2	3.8-4.2 -
Head-vulva		180-243	240	184	437-532 -
Rectum		10-14.5	8	12.5	17-22 -
Anal body width		8.5-14.8	14.5	11.2	17.5-20 25±1 (23.5-26.0)

situated between the last two stegostom regions. Corpus 2.3-3.9 times as long as isthmus; Deirid located at level of the second half of isthmus, shifted dorsad. Excretory pore opposite the isthmus and 5-6 annules anterior to deirid. Vulva situated at about two thirds of body length. Vagina short, less than 30 % of body diameter. PUS 60-90 % of body width. Spermatheca offset, short and with rounded sperm. Eggs not observed. Rectum about one ABW long. Tail conoid with rounded terminus. Phasmids located at about the middle of the tail.

Male. Body generally arcuate ventrad, especially towards tail. Annules 2.3-2.7 μm wide. Testis reflexed in anterior part, the flexure 42-61 μm long. Spicules strong, arcuate ventrad, 1.1-1.2 times as long as

ABW. Gubernaculum weakly curved, boat-shaped, its length one quarter to one fifth of spicule length. Tail conoid with rounded terminus. Papillae distributed as: three subventral preanal pairs (the first pair situated at about two times tail length anterior to anus, the second pair one tail length anterior to anus and the third pair near the tip of spicules); one single midventral papilla on anterior cloacal lip; one lateral pair, one ventrosublateral pair anterior, and one subdorsal pair posterior to phasmid; two pairs (one lateral and one subventral) near tail tip.

Habitat and locality. The population was found in the rhizosphere of silk tree, *Albizzia julibrissin* Durazz., in Tadjirish, Tehran Province.

Relationship. *Cervidellus cancellatus* was origi-

nally found in Utah, USA (Thorne, 1925), and later in the Soviet Union by Nesterov (1966), who described the male for the first time. He also reported the species to be widespread in Moldavia and Southwestern Ukraine (Nesterov, 1969). The Iranian specimens are similar to *C. cancellatus* (Thorne, 1925) Boström & De Ley, 1996 and *C. rarus* (Nesterov, 1969) Boström & De Ley, 1996. The cuticle of *C. rarus* lacks longitudinal striation and the species possesses a relatively shorter body also labial probolae with prominent basal knobs, therefore we consider the present specimens to belong to *C. cancellatus*. In comparison with the original description of *C. cancellatus* the Iranian population does not show major differences in general morphology, but the SEM observations reported here are the first of the species and provide new details of labial morphology.

Remarks. One lectotype and one paralectotype of *C. cancellatus* in the USDA Nematode Collection (Beltsville, Maryland, USA) as *Stegellata cancellata* on slide T-495t. Both specimens are extremely flattened, but the lip morphology is still visible and agrees with the drawing of Thorne (1925) and with specimens described here.

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Karegar A., De Ley P., Geraert E. Представители родов *Cervidellus* Thorne, 1937 и *Stegelletina* Andrassy, 1984 (Nematoda: Cephalobidae) из Ирана и описание *S. kheirii* sp. n.

Резюме. Новый и один известный вид рода *Stegelletina* и три вида рода *Cervidellus* обнаружены в пробах почвы из Ирана. *Stegelletina kheirii* sp. n. отличается загнуто-коническим хвостовым концом и приостренным терминусом, а также особенностями строения переднего конца: губные проболы утонченно-конические с единственной бифуркацией, первичные выемки с единственной треугольной защитной пластинкой, края губ во вторичных выемках с четырьмя парами закругленных нитевидных выступов, без светопреломляющих элементов. Изучение *C. neftasiensis* и *C. vexilliger* показало, что продолжение латерального поля на хвостовой отдел и диаметр отверстия фазмида представляют собой изменчивые признаки.