

Descriptions of three new and a known species of *Prismatolaimus* de Man, 1880 (Nematoda: Enoplida) from fresh water habitats in India

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Summary.— Three new and a known species of *Prismatolaimus* de Man, 1880 are described and illustrated. *Prismatolaimus lacustris* sp. n. and *P. amphidialis* sp. n. are monovarial species without males in the population. *P. lacustris* sp. n. (L= 0.68-0.80, a= 35.1-47.1, b= 3.7-4.2, c= 3.6-3.9) is characterised by having single jointed outer labial setae; large stoma with prominent dorsal tooth and denticulate ridges; relatively posterior amphids; moderately long post-uterine sac; vagina with refractive pieces; and long, ventrad curved tail with a minute dorsal mucro. *P. amphidialis* sp. n. (L= 0.58-0.68, a= 37-44, b= 4.0-5.4, c= 3.9-4.3) is characterised by its short stoma with inconspicuous stegostom, almost indiscernible dorsal tooth and absence of denticulate ridges; prominent sensillar pouches of amphids; small post-uterine sac; and long filiform tail ventrad curved, with undemarcated mucro. *P. macrostomus* sp. n. (L= 1.02-1.21, a= 51.2-55.0, b= 4.6-5.2, c= 3.2-3.3) is characterised by being large-sized, diovarial females having sparse 4-5 µm long somatic setae; long, articulate cephalic setae; large barrel-shaped stoma with a massive dorsal tooth and rows of inconspicuous subventral denticles; pre-equatorial vulva; and long filiform tail with a pointed dorsal hook. *P. andrassyi* Khera & Chaturvedi, 1977 has been redescribed with morphometrics of populations from four localities.

Keywords: Description, Enoplida, India, morphology, *Prismatolaimus*, new species, Prismatolaimidae, taxonomy.

Resumen.— Se describen e ilustran tres especies nuevas y una previamente conocida del género *Prismatolaimus* de Man, 1880. *Prismatolaimus lacustris* sp. n. y *P. amphidialis* sp. n. son especies monoováricas, sin machos conocidos. *P. lacustris* sp. n. (L= 0.68-0.80, a= 35.1-47.1, b= 3.7-4.2, c= 3.6-3.9) se caracteriza por tener sedas labiales externas sencillas y articuladas; estoma amplio provisto de diente dorsal prominente y crestas denticuladas; anfidios en posición algo posterior; saco uterino posterior moderadamente largo; vagina con piezas refringentes; y cola larga y curvada ventralmente con un mucrón dorsal pequeño. *P. amphidialis* sp. n. (L= 0.58-0.68, a= 37-44, b= 4.0-5.4, c= 3.9-4.3) se distingue por su estoma corto, con estegostoma inconspicuo, diente dorsal prácticamente imperceptible y ausencia de crestas denticuladas; anfidios con fosetas sensitivas prominentes; saco uterino posterior pequeño; y cola larga y filiforme, curvada ventralmente y con un mucrón poco marcado. *P. macrostomus* sp. n. (L= 1.02-1.21, a= 51.2-55.0, b= 4.6-5.2, c= 3.2-3.3) se distingue por su tamaño grande, hembras diováricas que poseen sedas somáticas dispersas y de 4-5 µm de longitud; sedas céfalicas articuladas, largas; estoma grande, con forma de barril, provisto de un sólido diente dorsal y filas de inconspicuos dentículos subventrales; vulva pre-ecuatorial; y cola larga y filiforme, con una fuerte curvatura dorsal. *P. andrassyi* Khera y Chaturvedi, 1977 se ha redescrito con datos morfométricos de poblaciones recolectadas en cuatro localidades.

Palabras clave: Descripción, Enoplida, India, morfología, nuevas especies, *Prismatolaimus*, Prismatolaimidae, taxonomía.

INTRODUCTION

The genus *Prismatolaimus* was erected by de Man, 1880 for *Monhystera intermedia* Bütschli, 1873 who also added another species *P. dolichurus*. Cobb proposed *P. australis* (1893) and *P. stenurus* (1914) which were synonymised with *P. dolichurus*. Later other species viz.,

P. brevicaudatus Wu & Hoeppli, 1929; *P. hsuei* Wu & Hoeppli, 1929; *P. tenuicaudatus* Schuurmans Stekhoven, 1951; *P. verrucosus* Hirschmann, 1952; *P. parvus* Milne, 1963; *P. waipukeus* (Yeates, 1967) Andrassy, 1969; *P. leptolaimus* Andrassy, 1969; *P. tareya* Gagarin & Kuzmin, 1972 and *P. andrassyi* Khera & Chaturvedi, 1977 were added to the genus. Loof (1971) described *P. primitivus*

and *P. stenolaimoides*. Coomans along with Mulk in 1979 and 1980 proposed *P. matoni*, *P. kenyensis* and *P. andrassyanus* and with Raski in 1988 reported *P. chilensis* and *P. novoporus*. Andrassy (2003) added to the list several other species viz., *P. afer*, *P. exilis*, *P. flagellatus*, *P. iucundus*. In 1997 Brzeski added *P. mulcoomus* while Turpeenniemi (1997) described *P. paraprimitivus*. The genus *Prismatolaimus* was first revised by Milne (1963) who compared the morphometrics of sixteen species. A review of the genus was published later by Ryss (1988) in Russian while the amended diagnosis was proposed by Coomans and Raski in the same year, along with a key to its species. Earlier the systematic analysis of Prismatolaimidae was done by Alekseev (1983) with emphasis on fauna of Soviet Union. Some other workers who also contributed to the taxonomy of the genus include Daday (1896), Micoletzky (1922), Stefanski (1925), Eyualem and Coomans (1995, 1996) and Hernández *et al.* (1997). Andrassy (2003) in a comprehensive revision placed the genus under Prismatolaimidae along with its supposedly close relative *Onchulus*. He considered twenty-four valid species under *Prismatolaimus*. Siddiqi (2006) added ten more species to the genus on the basis of collections made from different parts of the world. The present paper deals with the description of three new and a known species of *Prismatolaimus* obtained from different localities of India. This study also forms a part of the ongoing projects on the taxonomic diversity of soil and fresh water nematodes.

MATERIALS AND METHODS

The species of *Prismatolaimus* were isolated from soil and mud samples using sieving and decantation and modified Baermann funnel techniques. For light microscopy (LM), nematodes were fixed in 4% formaldehyde, processed to anhydrous glycerin (Seinhorst, 1959) and mounted on slides. They were later measured with an ocular micrometer and drawn using drawing tube attached to Olympus BX-51 DIC Microscope. LM photographs were taken using Olympus digital camera DP-11. For SEM studies the formaline-fixed specimens were dehydrated in acetone series and critical point dried using CO₂. The dried specimens were mounted on stubs, coated with 10nm gold and viewed under the Scanning Electron Microscope S-2300.

DESCRIPTIONS

Prismatolaimus lacustris sp. n.

(Figs 1 & 2)

Measurements: See Table I.

Female: Body medium-sized, straight to slightly arcuate, tapering more towards posterior extremity. Cuticle transversely annulated; annuli 1-2 μm wide. Body with 3-4 μm long, a total of 25-30 somatic setae with 8-12 confined to pharyngeal region. Lateral fields not differentiated into alae or lines. Lip region low, continuous with adjoining body; lips small, equal, amalgamated. Inner labial sensilla bordering oral aperture, slightly raised; outer labial sensilla on outer lip margins prominently setose, 6-8 μm long, articulate with single joint; cephalic sensilla relatively slender and shorter. Amphids with flattened, elliptical fovea about 3-4 labial diameters from anterior end; amphidial duct and fusus not conspicuous. Stoma twice as long as wide; cheilostom not cuticularised; gymnostom barrel-shaped, cuticularised, 15.5-19.0 μm long, 6-7 μm wide; stegostom funnel-shaped, with concave walls, separated from gymnostom by a constriction; metastegostom bearing a prominent dorsal tooth and subventral flaps provided with saw-like denticulate ridges; telostegostom tapering, connected to pharyngeal lumen. Pharyngeal collar surrounding stegostom about 30-35% of stoma length. Pharynx cylindroid, muscular, occupying 21-25% of body length. Nerve ring encircling pharynx almost at 48-55% of its length. Excretory pore faintly visible at posterior half of pharynx about 70-76% of pharyngeal length. Deirids and hemizonid not observed. Cardia conspicuous, one body diameter long, comprising of two 10-17 \times 8-11 μm central flask-shaped cells, flanked by ovoid pericardial cells. *Organellum dorsale* not observed. Intestine wide with indistinct lining of lumen. Rectum thin-walled, 10-13 μm or one anal body diameter long. Rectal glands absent. Anus a crescent-shaped slit. Reproductive system monovarial, prodelphic. Ovary well developed, dorsally reflexed never extending beyond vulva; on right side of intestine. Oviducts dilated; spermatheca, crustaformeria not differentiated from muscular uterus. Intra-uterine embryonating eggs never observed. Post-uterine sac 23-29 μm long, two times corresponding body diameter. Vagina anteriorly directed, 20-25% of vulval body diameter with

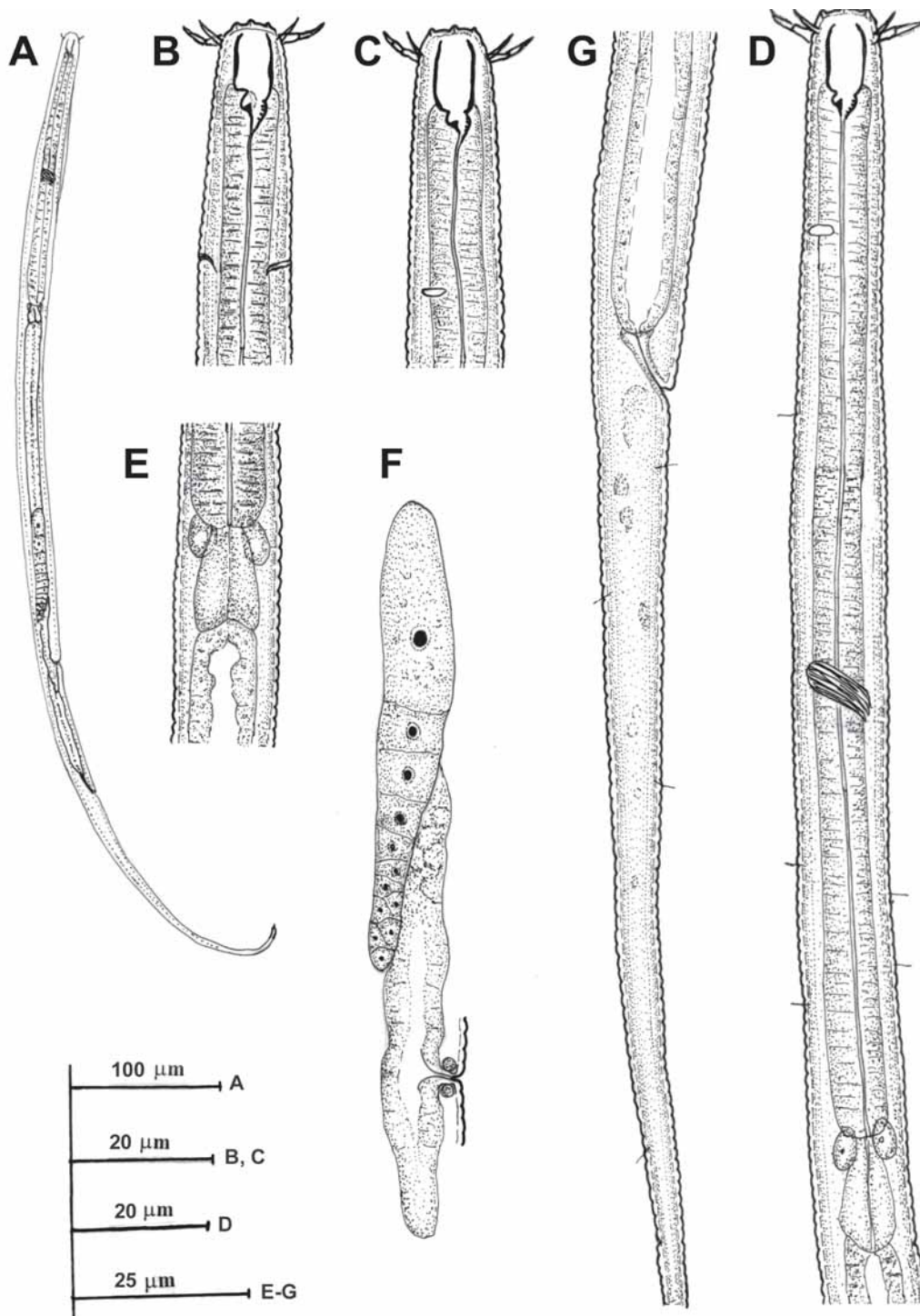


FIGURE 1. *Prismatolaimus lacustris* sp. n. A: Entire female. B: Anterior end (dorsal); C: Anterior end (lateral). D: Pharyngeal region. E: Basal region of Pharynx. F: Female reproductive system. G: Female tail region.

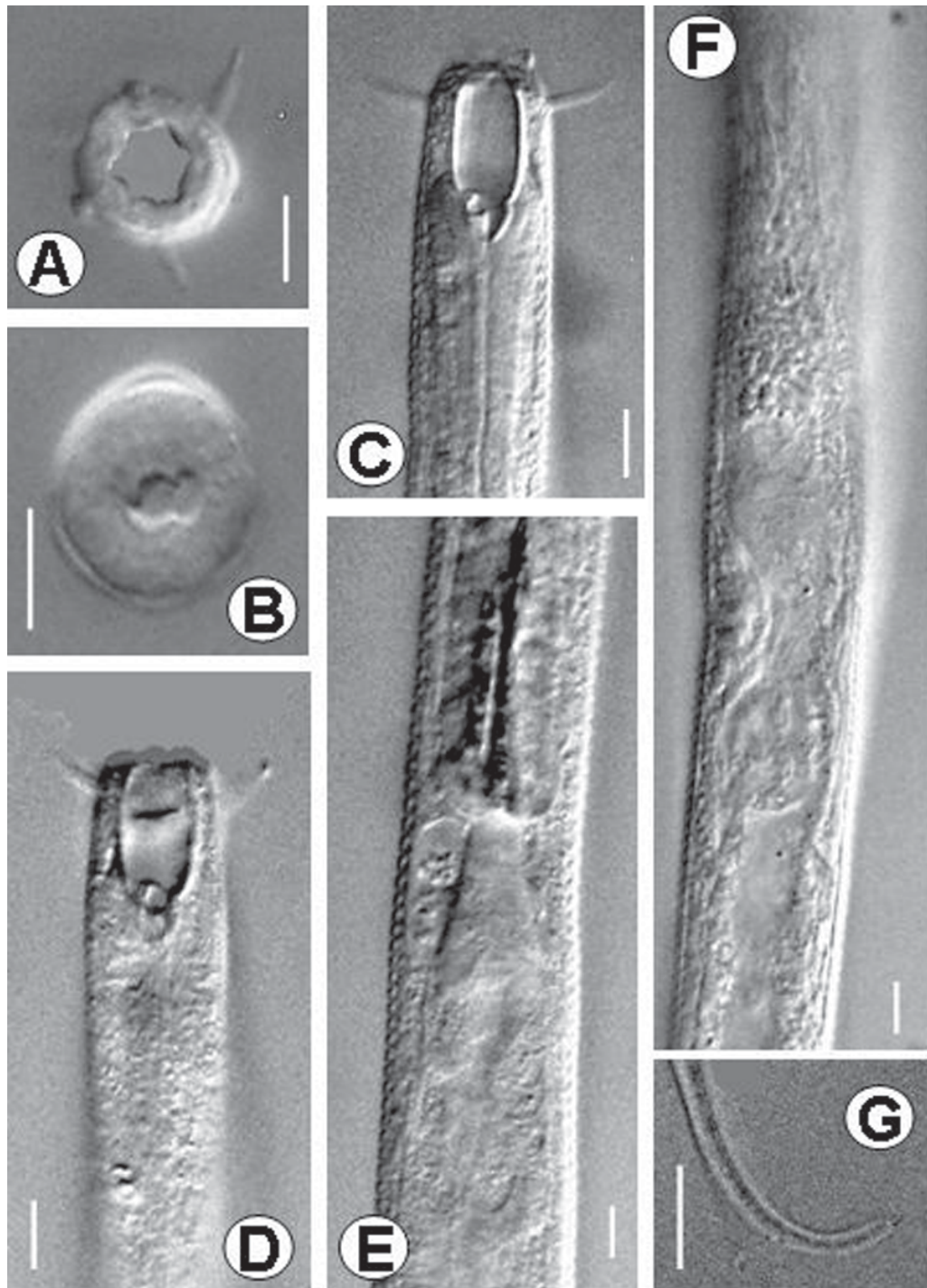


FIGURE 2. *Pristomatolaimus lacustris* sp. n. A: En face view. B: Cross Section at metastegostome level. C: Anterior end (dorsal). D: Anterior end (lateral). E: Basal region of Pharynx. F: Vulval region (lateral). G: Female tail end. (Scale bar = 5 μ m.)

TABLE I. Morphometric data of populations of *Prismatolaimus lacustris* sp. n. All measurements are in μm and in the form: mean \pm standard deviation (range).

Character	n	Naqvi park, Aligarh		Zoology Dept, AMU, Aligarh	Geography Dept, AMU, Aligarh
		Holotype ♀	Paratypes 12 ♀♀	7 ♀♀	2 ♀♀
Body length	766	743. 6 \pm 38.7 (699-766)	722.0 \pm 35.2 (680-763)	776.0 \pm 35.3 (751-801)	
Body width	18	17. 1 \pm 1.1 (16. 5-18.4)	17.3 \pm 0.9 (16.5-19.4)	17.0 \pm 0 (17-17)	
a	41.6	43. 5 \pm 2. 5 (41.6-46.6)	41.7 \pm 3.1 (35.1- 46.1)	45.6 \pm 2.1 (44.1-47.1)	
b	3.9	3. 9 \pm 0. 2 (3.7-4. 0)	3.9 \pm 0.2 (3.7-4.2)	3.9 \pm 0.1 (3.9- 4)	
c	3.8	3.9 \pm 0. 1 (3.8-3. 9)	3.7 \pm 0.1 (3.7-3.9)	3.7 \pm 0.1 (3.6-3.9)	
c'	15.8	16. 6 \pm 1.4 (15.8-18.1)	16.3 \pm 1.3 (14.6-18.5)	16.5 \pm 0.5 (16.1-16.8)	
V (%)	54.8	54. 3 \pm 0. 9 (53.0-54. 8)	53.0 \pm 3 (48.5-58.6)	52.0 \pm 1.2 (51-52.8)	
G1	9.3	12. 1 \pm 2.4 (9. 2-13. 8)	10.4 \pm 2.4 (6.4-13.9)	9.3 \pm 0.9 (8.6-9.9)	
Labial width	9	8. 4 \pm 0. 5 (7-9)	10.0 \pm 0 (10-10)	9.5 \pm 0.5 (9-10)	
Labial height	2	2. 0 \pm 0.0 (2-2)	2.0 \pm 0 (2-2)	2.0 \pm 0 (2-2)	
Stoma length	17	16. 8 \pm 1.1 (15-18)	17.2 \pm 1 (15-19)	18.0 \pm 1.4 (17-19)	
Stoma width	6	6.0 \pm 0 (6-6)	6 \pm 0 (6-6)	6.0 \pm 0.0 (6-6)	
Pharynx length	190	191 \pm 2. 6 (189-194)	182.0 \pm 9.7 (170-197)	195.0 \pm 2.9 (193-197)	
Nerve ring	102	104. 3 \pm 3. 3 (102-106)	82.7 \pm 0.6 (80-85)	90.1 \pm 0.7 (80-96)	
V-A distance: Tail length	0.7	0. 7 \pm 0 (0.7- 0.8)	0. 7 \pm 0.05 (0.6-0.8)	0.8 \pm 0.02 (0.7-0.8)	
Rectum length	13	12.6 \pm 0. 9 (11-13)	10. 5 \pm 0. 9 (10-13)	12.0 \pm 0.0 (12-12)	
ABD	13	11. 6 \pm 0. 9 (10-13)	13.0 \pm 0 (13-13)	12.5 \pm 0.7 (12-13)	
Tail length	199	192. 3 \pm 7. 6 (184-199)	207. 5 \pm 14.6 (187- 233)	206.5 \pm 17.7 (194-219)	
Somatic setae length	3	3.0 \pm 0 (3-3)	3.0 \pm 0.0 (3-3)	3.0 \pm 0 (3-3)	
Cephalic setae length	8	7.1 \pm 0. 7 (6-8)	6 \pm 0.8 (6-8)	7.2 \pm 0.5 (7-8)	
Amphids from ant. end	32	33. 3 \pm 1. 5 (32-35)	33.4 \pm 0.4 (32-36)	33.0 \pm 0.9 (32-34)	
Post-uterine sac length	34	36. 6 \pm 3. 9 (31-39)	25.0 \pm 1. 5 (23-26)	26.0 \pm 5.6 (22-30)	

refractive pieces. Vulva a transverse slit extending 35-45% of vulval body diameter, with lips seldom protruding. Vulva-anus distance 0.70-0.85 times tail length. Tail long, filiform, 27-29% of body length, regularly tapering, ventrally curved posteriorly with an obtuse tip and a short claw-like dorsal mucro.

Male: Not found.

Diagnosis and relationships: *P. lacustris* sp. n. is characterised by medium sized, monovarial females having transversely annulated cuticle; short somatic setae; single jointed outer labial setae; large stoma with prominent dorsal tooth and denticulate ridges; relatively posterior amphids; conspicuous cardia with rounded pericardial cells; absence of *organellum dorsale*; small to moderately long post-uterine sac; vagina with refractive pieces; small rectum; long, ventrally curved tail of 14-18 anal body diameters with a terminal claw-like dorsal mucro; and males not present in the population.

P. lacustris sp. n. most closely resembles *P. waipukeus* (Yeates, 1967) Andrassy, 1969 in most morphological and morphometric details but differs in having lesser and shorter submedian somatic setae, smaller *b* value, longer stoma, posteriorly- placed amphids, smaller post-uterine sac, presence of rounded pericardial cells and absence of males (*vs* 40 submedian somatic setae 10-12 μm long, *b*= 4.3-5.1, stoma 9-10 μm long, amphidial fovea located 2.0-2.5 labial diameters from anterior end, post-uterine sac up to 60 μm , long pericardial cells oblong, and males absent in *P. waipukeus*). It also resembles *P. parvus* Milne, 1963 in presence of articulate labial sensilla and other morphometric characteristics, but differs in having no lateral alae, lesser number of setose sensilla, presence of stomal armature, longer stoma, presence of rounded pericardial cells, and absence of males (*vs* lateral alae present, setose sensilla 12, stomatal armature absent, stoma 9-10 μm long, pericardial cells oblong and males present in *P. parvus*).

Type habitat and locality: Mud samples from a shallow pond of Naqvi Park, Aligarh.

Other localities: Samples from drains of Zoology Department and Geography Department, Aligarh Muslim University, Aligarh, India.

Type material: Holotype female and ten paratype females on slide '*Prismatolaimus lacustris* sp. n. No. G/ 2- 6 deposited in the Nematode Collection, Department of Zoology, Aligarh Muslim University, Aligarh, India. Two paratype females on slide '*Prismatolaimus lacustris* sp. n. No. G/ 1 deposited at the Laboratory of Nematology, Wageningen University and Research Center (WUR), 6700 ES Wageningen, The Netherlands.

Etymology: The species name is based on its locality i.e., shore of pond.

***Prismatolaimus amphidialis* sp. n.**

(Figs 3 & 4)

Measurements: See Table II.

Female: Body medium-sized, ventrally arcuate, tapering at extremities more towards posterior end. Cuticle double, transversely annulated; annuli 1-2 μm wide. Body with sparse somatic setae and no lateral alae. Lip region low, rounded, continuous with adjoining body; lips small, equal, amalgamated. Inner labial sensilla bordering oral aperture, slightly raised; outer labial sensilla on outer lip margins prominently setose, articulate, 3-5 μm long; cephalic sensilla relatively slender and shorter, yet articulate. Amphids with wide, elliptical fovea ca 2.0-2.5 labial diameters from anterior end, leading to amphidial ducts and very prominent rounded to ovoid, cuticularised sensillar pouches. Stoma 9-11 μm long, 4-5 μm wide, 1.5-2.0 times longer than wide; cheilostom arched, slightly cuticularised; gymnostom barrel-shaped, well cuticularised; stegostom short, inconspicuous surrounded by pharyngeal collar; metastegostom with very minute, almost indiscernible dorsal tooth; without subventral denticulate ridges; telostegostom tapering, connected to pharyngeal lumen. Pharynx cylindroid, slightly wider at base, encircled by nerve ring at 45-53% of its length. Excretory pore obscure. Deirids, hemizonid and *organellum dorsale* not

observed. Cardia conspicuous, 12-15 x 8-11 μm in dimension with oblong pericardial cells. Intestine granular with narrow lumen. Rectum thin-walled, 10-13 μm or about one anal body diameter long. Rectal glands absent. Anus a crescent-shaped slit. Reproductive system monovarial, prodelphic. Ovary well developed, dorsally reflexed never extending beyond vulva; on right side of intestine. Intra-uterine embryonating eggs not observed. Post-uterine sac 15-19 μm long or equal to corresponding body diameter. Vagina with ovoid cuticularised pieces, anteriorly directed, 40-50% of vulval body diameter. Vulva a transverse slit 35-45% of vulval body diameter across. Vulva-anus distance 0.70-0.81 times tail length. Tail long, filiform, 20-25% of body length, regularly tapering, often dorsally hooked with a very short nearly indistinct mucro.

Male: Not found.

Type habitat and locality: Soil samples collected from the bank of a pond of Keoladeo National Park, Bharatpur, Rajasthan, India.

Type material: Holotype female and seven paratype females on slide '*Prismatolaimus amphidialis* sp. n. No. 8KNP/ 2- 6' deposited in the Nematode Collection, Department of Zoology, Aligarh Muslim University, Aligarh, India. Two paratype females on slide '*Prismatolaimus amphidialis* sp. n. 8KNP/ 1' deposited at the Laboratory of Nematology, Wageningen University and Research Center (WUR), 6700 ES Wageningen, The Netherlands.

Diagnosis and relationships: *P. amphidialis* sp. n. is characterised by medium-sized, monovarial females with sparse somatic setae; double, transversely annulated cuticle; short stoma with inconspicuous stegostom; very minute almost indiscernible dorsal tooth and absence of denticulate ridges on subventral walls and the *organellum dorsale*; amphids with prominent round sensillar pouches; small post-uterine sac; long filiform tail mostly dorsally hooked with inconspicuous mucro; and absence of males.

P. amphidialis sp. n. most closely resembles *P. parvus* Milne, 1963 in the small body size, lack of denticulate ridges, absence of males and some morphometric characteristics. However, it differs from the latter in having no lateral alae; presence of conspicuous sensillar pouches and dorsal tooth and slit-shaped vulval opening (*vs* lateral alae present,

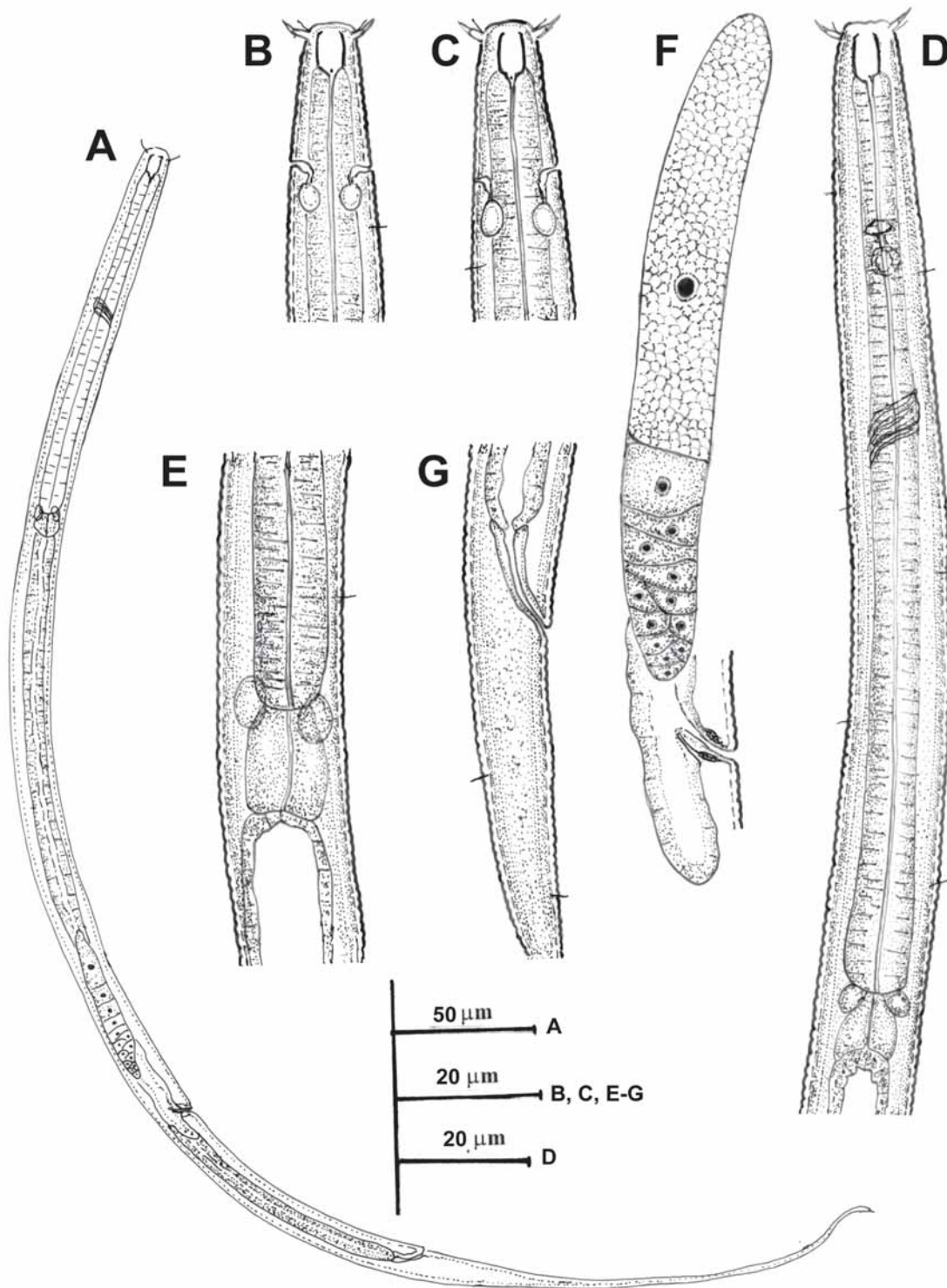


FIGURE 3. *Prismatolaimus amphidialis* sp. n. A: Entire female. B,C: Anterior end (dorsal). D: Pharyngeal region. E: Basal region of Pharynx. F: Female reproductive system. G: Female anal region.

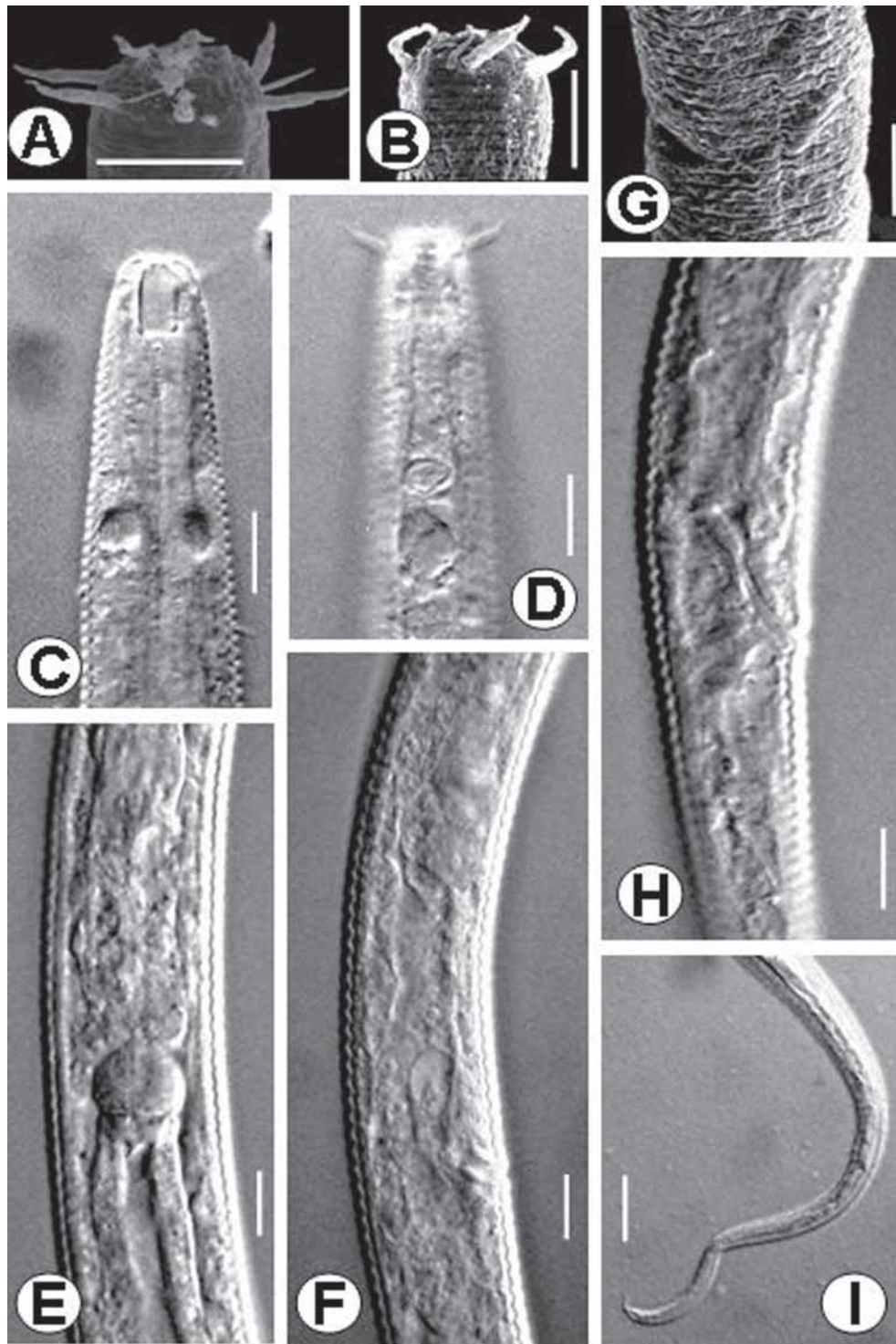


FIGURE 4. *Prismatolaimus amphidialis* sp. n. A,B: SEM Anterior end. C: Anterior end (dorsal). D: Anterior end (lateral). E: Basal region of Pharynx. F: Vulval region (lateral). G: SEM vulval region. H: Female anal region. I: Female tail end. (Scale bar = 5 μ m.)

TABLE II. Morphometric data of *Prismatolaimus amphidialis* sp. n. and *P. macrostomus* sp. n. All measurements are in μm and in the form: mean \pm standard deviation (range).

Species	<i>P. amphidialis</i> sp. n.		<i>P. macrostomus</i> sp. n.	
	Holotype ♀	Paratypes 9 ♀♀	Holotype ♀	Paratypes 9 ♀♀
Character	n			
Body length	633	618.7 \pm 38.5 (582-684)	1025	1117.5 \pm 130.8 (1025-1210)
Body width	18	16.0 \pm 1.0 (14.5-17.5)	20	21.0 \pm 1.4 (20-22)
a	37.2	39.7 \pm 2.1 (37.0-44.0)	51.2	53.1 \pm 2.1 (51.2-55.0)
b	4.4	4.4 \pm 0.6 (4.0-5.4)	4.6	4.9 \pm 0.4 (4.6-5.2)
c	4.1	4.0 \pm 0.1 (3.9-4.3)	3.2	3.2 \pm 0.0 (3.2-3.3)
c'	13.3	12.5 \pm 0.8 (11.3-13.4)	21.3	22.2 \pm 1.3 (21.3-23.1)
V (%)	57.0	55.0 \pm 4.9 (45.3-58.5)	42	44.9 \pm 4.2 (41.9-47.9)
G ₁	15.0	12.5 \pm 2.2 (9.5-15.0)	8.8	7.9 \pm 1.3 (7.0-8.8)
Lip width	8	8.0 \pm 0.0 (8-8)	11	12.0 \pm 1.4 (11-14)
Lip height	2	2.0 \pm 0.0 (2-2)	3	3.0 \pm 0.3 (3-3.5)
Stoma length	10	9.2 \pm 0.9 (8-10)	16	16.5 \pm 0.7 (16-17)
Stoma diameter	4	3.6 \pm 0.2 (3-4)		
Stoma width	-	-	7	7.2 \pm 1.0 (6.5-8)
Pharynx length	146	122.0 \pm 9.2 (115-135)	223	227.5 \pm 6.4 (223-232)
Excretory pore	-	-	99	95.5 \pm 10.7 (90-110)
Nerve ring	73	69.8 \pm 8.3 (63-80)	168	164.3 \pm 7.4 (160-170)
V-A distance: Tail length	0.7	0.7 \pm 0.0 (0.7-0.8)	0.7	0.8 \pm 0.1 (0.7-0.9)
ABD	12	12.1 \pm 1.0 (10.7-13.6)	15	15.5 \pm 0.7 (15-16)
Tail length	155	151.1 \pm 6.0 (143-160)	320	345.0 \pm 35.4 (320-370)
Somatic setae length	2.5	2.2 \pm 0.2 (2-2.5)	4	4.0 \pm 0.7 (4-5)
Cephalic setae length	4	4.1 \pm 0.5 (4-5)	9	9.5 \pm 0.7 (9-10)
Amphids from ant. end	22	21.2 \pm 0.8 (20-22)	35	41.0 \pm 12.7 (32-50)
Post-uterine sac length	16	16.4 \pm 1.5 (15-19)	17	16.4 \pm 1.5 (15-19)

sensillar pouches not conspicuous, dorsal tooth absent, vulval opening a slit surrounded by a circular rim in *P. parvus*). It also resembles *P. matoni* Mulk & Coomans, 1979 in smaller body size, absence of males, size of stoma, position of amphids and most morphometric characteristics, but differs from it in having relatively larger *a* value, conspicuous rounded sensillar pouches; absence of denticulate ridges on subventral stomal walls and presence of post-uterine sac (*vs a* = 33.4-38.5, sensillar pouches fusiform, subventral denticulate ridges present in stoma and post-uterine sac absent in *P. matoni*).

Etymology: The species name is based on prominent conspicuous sensillar pouches of amphids.

Prismatolaimus macrostomus sp. n.

(Figs 5 & 6)

Measurements: See Table II.

Female: Body large-sized, ventrally arcuate, tapering at extremities more towards posterior end. Cuticle transversely annulated; annuli 2.0-2.5 μm wide in different body regions. Body with sparse 4-5 μm long somatic setae. Lateral fields not differentiated into alae or lines. Lip region low, truncate, continuous with adjoining body; lips not separated. Inner labial sensilla bordering oral aperture, slightly raised; outer labial sensilla on outer lip margins prominently setose, 9-10 μm long or one labial diameter, articulate with two

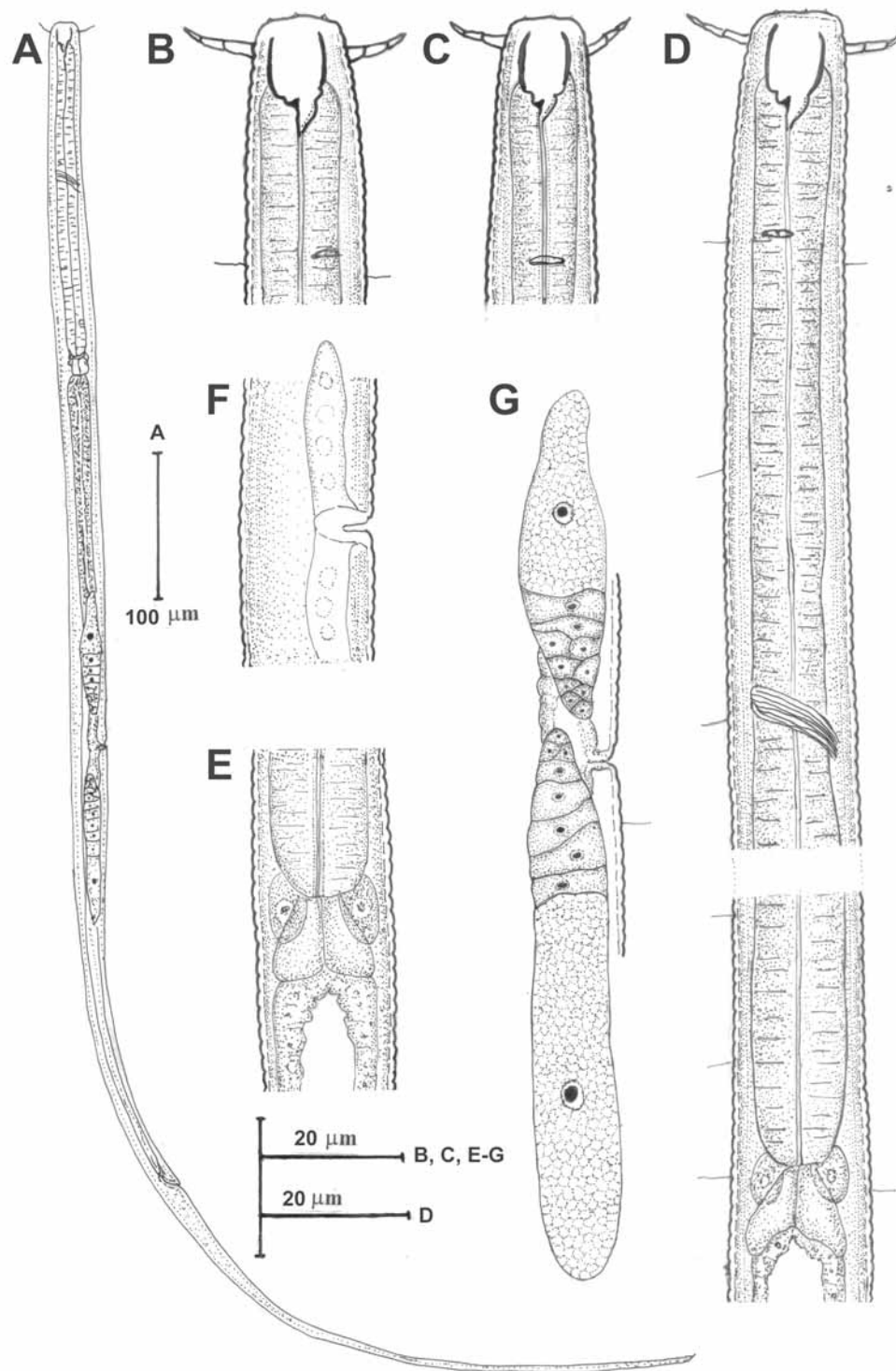


FIGURE 5. *Pristomatolaimus macrostomus* sp. n. A: Entire female; B,C: Anterior end (lateral). D: Pharyngeal region. E: Basal region of Pharynx. F: Genital primordium of fourth stage juvenile. G: Female reproductive system. H: Female tail region.

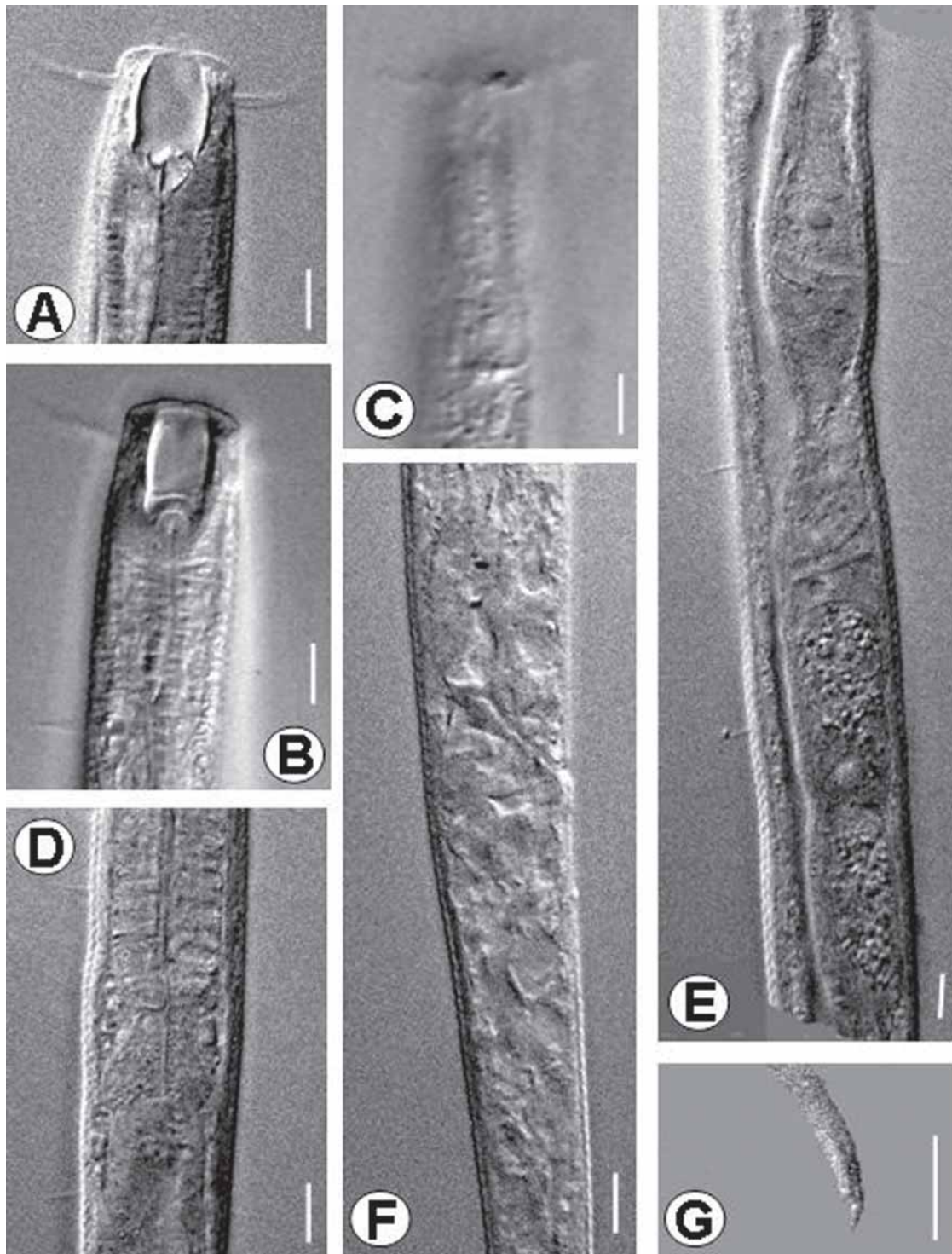


FIGURE 6. *Prismatolaimus macrostomus* sp. n. A,C: Anterior region (lateral). B: Anterior region (dorsal). D: Basal region of Pharynx. E: Vulval region (ventral). F: Female anal region. G: Female tail end. (Scale bar = 5 μ m.)

TABLE III. Morphometric data of populations of *Prismatolaimus andrassyi* Khera and Chaturvedi, 1977. All measurements are in μm and in the form: mean \pm standard deviation (range).

Population	Aligarh	Muzaffarnagar	Delhi	Bharatpur
n	7 ♀♀	15 ♀♀	14 ♀♀	15 ♀♀
Character				
Body length	561.0 \pm 47.7 (480-618)	544.8 \pm 9.6 (510-534)	520.0 \pm 45.9 (457-565)	475.6 \pm 20.1 (452-497)
Body width	16.7 \pm 2.4 (13-19)	14.4 \pm 0.5 (14-15)	14.7 \pm 0.5 (14-15)	14.4 \pm 0.9 (13-15)
a	33.9 \pm 4.0 (28.7-41.2)	36.5 \pm 1.7 (34.0-38.1)	35.2 \pm 2.1 (32.6-37.7)	33.1 \pm 1.9 (30.8-36.1)
b	4.0 \pm 0.3 (3.7-4.5)	4.2 \pm 0.2 (3.9-4.4)	4.26 \pm 0.3 (3.9-4.6)	3.9 \pm 0.2 (3.7-4.1)
c	3.6 \pm 0.4 (2.9-4.0)	3.2 \pm 0.1 (3.1-3.3)	3.6 \pm 0.1 (3.5-3.7)	3.6 \pm 0.3 (3.2-3.9)
c'	13.1 \pm 2.7 (9.6-18.0)	14.8 \pm 0.8 (13.9-16.0)	13.2 \pm 0.3 (13.0-13.6)	11.8 \pm 1.6 (9.8-13.7)
V (%)	56.0 \pm 3.3 (51.0-59.0)	52.7 \pm 0.6 (51.9-53.6)	52.5 \pm 0.9 (51.1-53.1)	55.5 \pm 2.4 (53.0-58.3)
G ₁	17.9 \pm 3.9 (12.8-21.7)	14.3 \pm 2.2 (11.6-17.6)	14.1 \pm 1.5 (12.4-15.8)	14.1 \pm 3.5 (10.0-16.6)
Lip width	7.7 \pm 0.5 (7-8)	7.5 \pm 0.5 (7-8)	7.0 \pm 0.7 (6.0-7.5)	6.2 \pm 0.5 (6-7)
Lip height	2.0 \pm 0.0 (2-2)	2.0 \pm 0.0 (2-2)	2.0 \pm 0.0 (2-2)	2.0 \pm 0.0 (2-2)
Stoma length	10.6 \pm 0.9 (9-12)	12.0 \pm 0.0 (12-12)	9.2 \pm 0.9 (8-10)	9.4 \pm 2.3 (8-12)
Stoma width	3.4 \pm 0.2 (3-4)	4.1 \pm 0.2 (4-5)	3.6 \pm 0.2 (3-4)	3.7 \pm 0.2 (3-4)
Pharynx length	138.3 \pm 6.9 (126-145)	125.2 \pm 6.3 (118-133)	122.0 \pm 9.2 (115-135)	119.0 \pm 6.5 (110-125)
Nerve ring	69.8 \pm 8.3 (63-80)	75.0 \pm 6.4 (73-85)	71.8 \pm 5.2 (68-79)	64.9 \pm 4.4 (60-70)
V-A distance: Tail length	0.6 \pm 0.1 (0.5-0.7)	0.5 \pm 0.0 (0.5-0.5)	0.7 \pm 0.04 (0.6-0.8)	0.6 \pm 0.05 (0.6-0.7)
Rectum length	10.7 \pm 2.4 (7-13)	7.4 \pm 0.5 (7-8)	8.7 \pm 0.9 (8-10)	8.1 \pm 0.9 (8-9)
ABD	12.0 \pm 1.5 (10-14)	10.9 \pm 0.5 (10-11.5)	11.0 \pm 0.7 (10-12)	11.0 \pm 1.0 (10-12)
Tail length	154.3 \pm 17.9 (135-180)	161.0 \pm 2.2 (160-165)	145.0 \pm 10.0 (115-135)	132.6 \pm 14.0 (118-150)
Somatic setae length	3.8 \pm 0.7 (3-5)	3.2 \pm 0.7 (3-5)	3.0 \pm 0.4 (3-4)	3.2 \pm 0.9 (3-5)
Cephalic setae length	4.9 \pm 0.6 (4-6)	5.0 \pm 0.7 (4-6)	4.7 \pm 0.5 (4-5)	4.6 \pm 0.5 (4-5)
Amphids from ant. end	20.7 \pm 2.2 (18-23)	23.7 \pm 1.8 (21-26)	22.6 \pm 2.1 (21-24)	24.7 \pm 1.3 (23-26)

joints; cephalic sensilla not prominently setose. Amphids with compressed, elliptical fovea, 2.0-2.5 labial diameters from anterior end. Stoma spacious, slightly longer than wide about 16-18 μm long, 7-10 μm wide; cheilostom inconspicuous, not cuticularised; gymnostom barrel-shaped, considerably wide, cuticularised; stegostom conspicuous, funnel-shaped, with concave walls; metastegostom bearing a large, prominent anteriorly-directed dorsal tooth and subventral ridges with minute denticles; telostegostom tapering, continuous with pharyngeal lumen. Pharyngeal collar surrounding stegostom at about 30-35% of stoma length. Pharynx cylindroid, muscular, occupying 21-25% of body length. Nerve ring encircling pharynx at 48-55% of pharyngeal length. Excretory pore faintly visible at posterior half of pharynx at 70-76% of pharyngeal length. Deirids and hemizonid not observed. Cardia conspicuous, about a body diameter long, comprising of two 13-17 \times 8-11 μm central flask-shaped cells, flanked by ovoid pericardial cells. *Organellum dorsale* not observed. Intestine wide with indistinct lining of lumen. Rectum thin-walled, 10-13

μm or one anal body diameter long. Rectal glands absent. Anus a crescent-shaped slit. Reproductive system didelphic with reflexed ovaries on right side of intestine. Oocytes arranged in single tile in germinal zone. Intra-uterine embryonating eggs never observed. Vagina about 20-25% of corresponding body diameter with refractive pieces. Vulva a transverse pre-equatorial slit extending 40-50% of vulval body diameter across without protruding lips. Vulva-anus distance 0.70-0.90 times tail length. Tail long, filiform, 27-32% of body length, regularly tapering, ventrally curved posteriorly with an obtuse tip and a sharply pointed claw-like dorsal mucro.

Male: Not found.

Diagnosis and relationships: *P. macrostomus* sp. n. is characterised by large-sized, diovarial females having transversely annulated cuticle; 4-5 μm long somatic setae; long, articulate cephalic setae; large barrel-shaped stoma with a massive dorsal tooth and rows of minute subventral denticles; absence of *organellum dorsale*; pre-equatorial vulva; long filiform,

dorsally mucronate tail of 10-15 anal body diameters; and absence of males.

The new species most closely resembles *P. dolichurus* de Man, 1880 in most morphometric characteristics, but differs in having longer body; greater *a* and *c* values, absence of *organellum dorsale* and males (*vs* body 0.83-1.02 mm long, *a*= 38-50, *c*= 2.6-3.1, presence of *organellum dorsale* and male in *P. dolichurus*). It further resembles *P. paraprimitivus* Turpeenniemi, 1977 in morphometric details and in absence of *organellum dorsale* but differs in having relatively longer body; double jointed cephalic setae; wider, barrel-shaped stoma with prominent dorsal tooth; smaller *a* and *a*' values and absence of males in the population (*vs* body 0.83-1.02 mm long; single jointed cephalic setae; relatively narrower stoma with weak dorsal tooth; *a*= 56-63; *a*'= 24-31 and males present in *P. paraprimitivus*). The new species also resembles *P. exilis* Andr ssy, 2003 in most morphometric details, but differs in having a smaller body, smaller *a* and *c*' values and absence of *organellum dorsale* (*vs* body 1.62-1.87 mm long, *a*= 66-78, *c*'= 30-40 and *organellum dorsale* present in *P. exilis*).

P. macrostomus sp. n. differs from *P. megadontus* Siddiqi, 2006 in having larger body; greater *a*' and lesser *V* values; longer somatic setae; double jointed labial sensilla; absence of *organellum dorsale*; well developed posterior genital branch and absence of males (*vs* body 0.75-0.99 mm; *a*'= 13-17; *V*= 52-59; somatic setae 3-3.5 μ m long; single-jointed labial sensilla; *organellum dorsale* present, gonad pseudodidelphic with rudimentary posterior ovary and males reported in *P. megadontus* Siddiqi, 2006).

Type habitat and locality: Soil samples collected from a ditch of Keoladeo National Park, Bharatpur, Rajasthan, India.

Type material: Holotype female and three paratype females on slide '*Prismatolaimus macrostomus* sp. n. No. 8AKNP/ 2-3' deposited in the Nematode Collection, Department of Zoology, Aligarh Muslim University, Aligarh, India. One paratype females on slide '*Prismatolaimus macrostomus* sp. n. 8AKNP/ 1' deposited at the Laboratory of Nematology, Wageningen University and Research Center (WUR), 6700 ES Wageningen, The Netherlands.

Etymology: The species is named on its large and spacious stoma.

Prismatolaimus andrassyi
Khera & Chaturvedi, 1977
 (Figs 7 & 8)

Measurements: See Table III.

Female: Body small to medium-sized, curved ventrally, tapering at extremities, more towards posterior end. Cuticle thin, transversely annulated, annuli 1-2 μ m wide in different body regions. Somatic setae sparse, 2.0-2.5 μ m confined to caudal region. Head low, truncate, continuous with main body contour. Lips slightly demarcated, rounded with slightly raised inner labial sensilla, small setose outer labial sensilla. Cephalic sensilla larger about 0.5-0.75 times labial diameter. Stoma small, 2.0-2.5 times longer than wide about 8-12 μ m long, 3-5 μ m wide; stomal wall less than 1 μ m in thickness; cheilostom inconspicuous, not cuticularised; gymnostom barrel-shaped, cuticularised; stegostom conspicuous, funnel-shaped; metastegostom bearing a small dorsal tooth, subventral ridges with very minute indiscernible denticles; telostegostom tapering into pharyngeal lumen. Amphidial fovea quite compressed, located at 2-3 labial diameters from anterior end, amphidial chambers symmetrical usually not discernible. Pharyngeal collar engulfing 25-30% of stoma. Pharynx cylindrical, with slightly widened base. Nerve ring located at 44 -50% of pharyngeal length. Excretory pore not visible. Cardia pyriform, 6-10 μ m long, with narrow lumen, encircled by four coelomocyte or pericardial cells. Intestine with narrow lumen. Rectum thin-walled, short, 0.8-1.0 anal body diameter long. Anus a crescent-shaped slit. Reproductive system monodelphic, prodelphic, ovary reflexed, on right side of intestine. Oocytes arranged in single tile in the germinal zone. Intra-uterine embryonating eggs never observed. Post-uterine sac 15-25 μ m long. Vagina anteriorly directed with refractive pieces. Vulva a post-equatorial transverse slit. Vulva-anus distance 0.5-0.8 times tail length. Tail filiform, regularly tapering, curved ventrally with dorsal terminal hook.

Male: Not found.

Habitat and locality: *P. andrassyi* was isolated from moist/wet samples collected from localities of Aligarh, Muzaffarnagar, Delhi and Bharatpur, India.

Voucher specimens: Females on slide '*Prismatolaimus andrassyi* No. 8AKNP/ 1-17' deposited

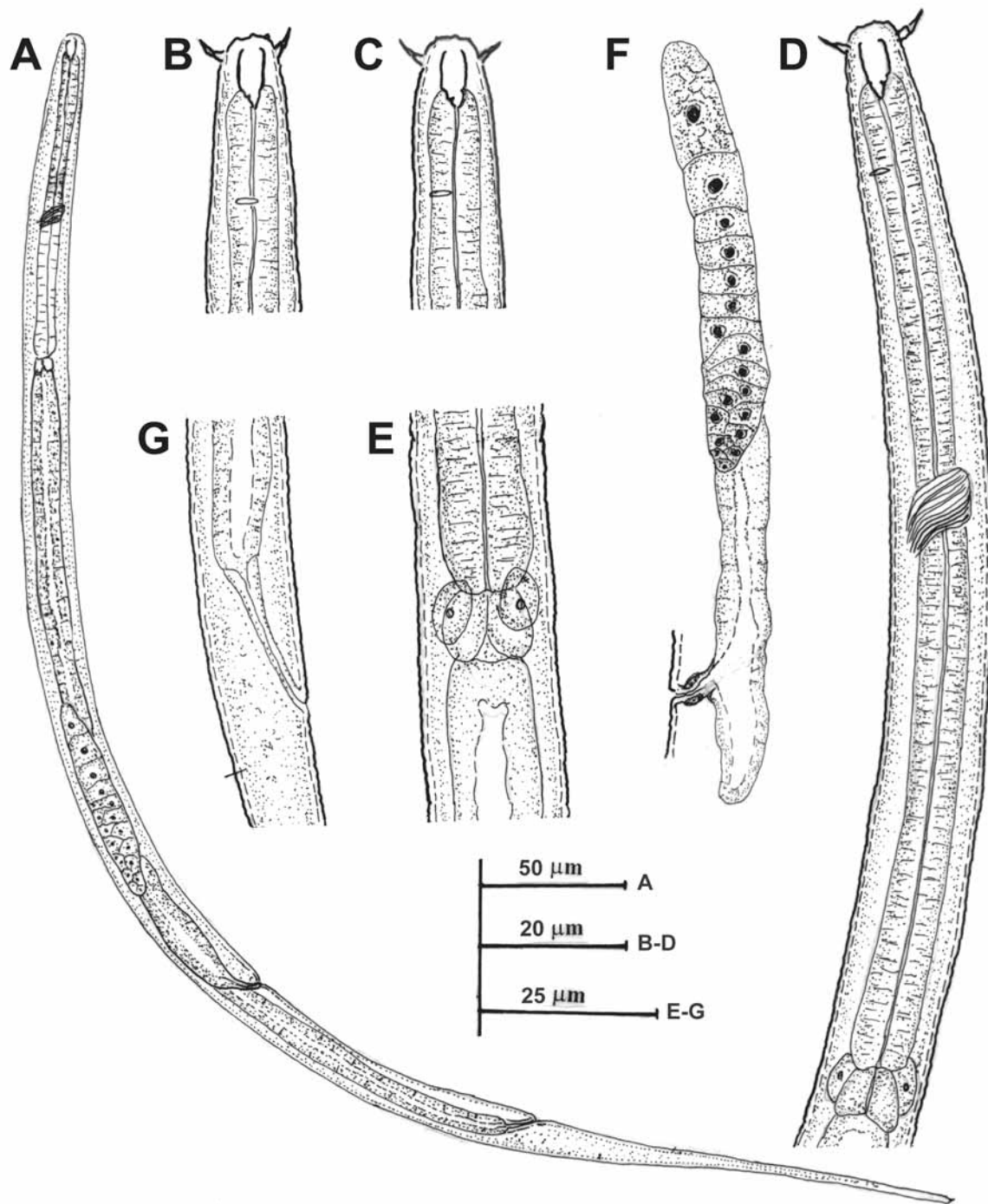


FIGURE 7. *Prigmatolaimus andrassyi* Khera & Chaturvedi, 1977. A: Entire female. B,C: Anterior end (lateral). D: Pharyngeal region. E: Basal region of Pharynx. F: Genital Female reproductive system. G: Female anal region.

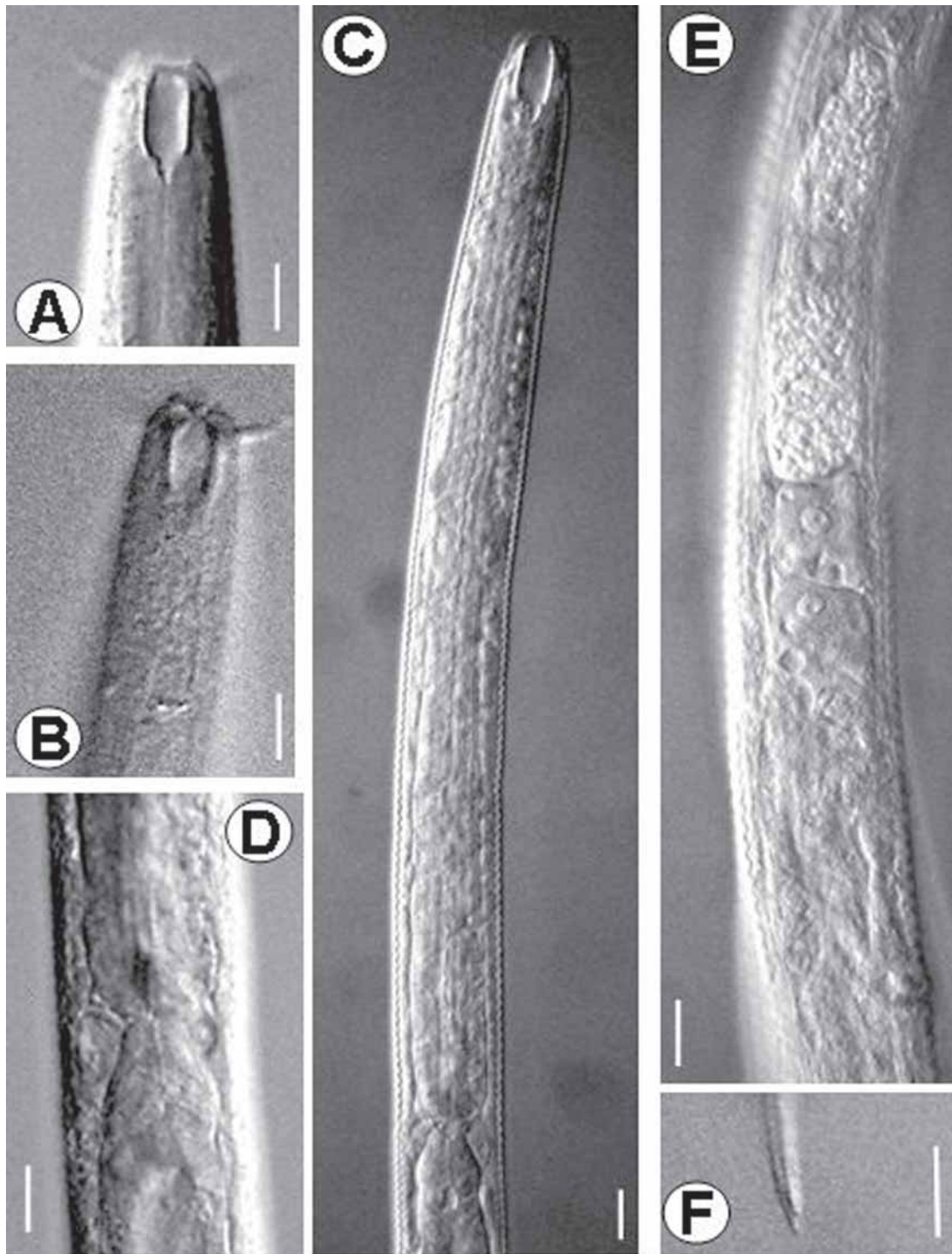


FIGURE 8. *Prismatolaimus andrassyi* Khera & Chaturvedi, 1977. A: Anterior region (lateral). B: Anterior region (dorsal). C: Pharyngeal region. D: Basal region of Pharynx. E: Vulval region (ventral). F: Female tail end. (Scale bar = 5 μ m.)

in the Nematode Collection, Department of Zoology, Aligarh Muslim University, Aligarh, India. Two females on slide '*Prismatolaimus andrassyi* No. 8AKNP/ 18' deposited at the Laboratory of Nematology, Wageningen University and Research Center (WUR), 6700 ES Wageningen, The Netherlands.

Remarks: The above populations collected from different regions of India conformed well with *P. andrassyi* Khera & Chaturvedi, 1977 in the morphological and morphometric characteristics. The subsequent report of Chaturvedi and Khera in 1979 describing populations collected from different parts of India also showed values similar to our populations. Mulk and Coomans (1979) synonymised *P. andrassyi* with *P. matoni* whereas Andrassy (2003) considered it a separate taxon. We consider *P. andrassyi* a valid species in view of the differences in morphology and in topography of the locality; nevertheless, a redescription of the species was necessary in view of the insufficient information. *P. andrassyi* can be differentiated from *P. matoni* in having sparse somatic setae without definite configuration; nondiscernible amphidial chambers; weak stomal wall; less developed stomal armature and presence of post-uterine sac (somatic setae with definite configuration; amphidial chambers asymmetrical; stomal wall 1-1.5 µm thick; dorsal tooth distinctly prominent; post-uterine sac absent in *P. matoni* Mulk and Coomans (1979). Besides, the morphometrics of *P. andrassyi* exhibited wider range of values viz., *a* (28.7-41.2 vs 33.4-38.5); *c'* (11.6-18.0 vs 13-14) and *V* (51-59% vs 56-59%) values.

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