

Description of *Iotonchus champhaiensis* n. sp. (Nematoda: Iotonchinae) and *Iotonchus nayari* Mohandas & Prabhoo, 1979 from Mizoram, India

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Abstract: Very little is known about the biodiversity of mononchid nematodes of Mizoram. A survey led to the recovery of a new species and a known species of *Iotonchus* from Mizoram, India. The soil samples are processed using Cobb's sieving and decanting method followed by modified Baerman's funnel technique. *Iotonchus champhaiensis* n. sp. is characterised by small body, almost straight or slightly arcuate post vulva body, smooth cuticle, prominent labial papillae, offset lip, distinct amphid, barrel shape buccal cavity, dorsal tooth at around posterior half of buccal length from stoma base, toothless subventral wall, two foramina, distinct secretory–excretory pore, prodelphic reproductive system, short conoid tail, broadly rounded tail terminus, tandem caudal glands and terminal spinneret.

Keywords: Mononchida, Iotonchinae, *Iotonchus*, Mizoram, India.

I. INTRODUCTION

Members of the order Mononchida Jairajpuri, 1969 are exclusively predaceous soil-inhabiting nematodes (Ahmad & Jairajpuri, 2010). After the erection of the order Mononchida by Jairajpuri (1969), five families, viz., Anatonchidae Jairajpuri, 1969, Cobbonchidae Jairajpuri, 1969, Iotonchidae Jairajpuri, 1969, Mononchidae Filipjev, 1934 and Mylonchulidae Jairajpuri, 1969 has been assigned under the new order. *Iotonchus* Cobb, 1916 is a genus of the family Iotonchidae characterised by large body, oblong buccal cavity, basal or suprabasal dorsal tooth, toothless subventral wall, tuberculate pharyngo-intestinal junction, prodelphic or amphidelphic reproductive system, long tail, well-developed caudal glands and spinneret (Ahmad & Jairajpuri, 2010; Jairajpuri & Khan, 1982). Cobb (1916) erected the genus *Iotonchus* to facilitate species from *Mononchus* Bastian, 1865 that have non-retrorse teeth, roomy elongated pharynx with longitudinal ribs, long tail, amphidelphic reproductive system and presence of spinneret. Later, Jairajpuri (1969) accommodated *Iotonchus* under Iotonchidae and subfamily Iotonchinae Jairajpuri, 1969.

Iotonchus is a richly diversified genus of the order Mononchida. Genera like *Jensenonchus* Jairajpuri & Khan, 1982 (anteriorly positioned dorsal tooth and conspicuous subventral rib), *Megaiotonchus* Siddiqi, 2015 (anteriorly positioned dorsal tooth and dorsal and ventral pores at rectal region), *Mulveyellus* Siddiqi, 1984 (continuous lip region and anteriorly positioned dorsal tooth) are erected from *Iotonchus* (Jairajpuri & Khan, 1982; Siddiqi, 1984; Siddiqi, 2015). This leads to the transfer of eight species of *Iotonchus*, viz., *I. caesar* Alekseev, 2001, *I. candelabri* Yeates, 1992, *I. kheri* Mohandas and Prabhoo, 1979, *I. maragnus* Clark, 1961, *I. montanus* Yeates, 1992, *I. percivali* Clark, 1961, *I. spinicaudatus* Coetzee, 1967

and *I. vulvapapillatus* Andrassy, 1964 to *Megaiontonchus* (Siddiqi, 2015); seven species, viz., *Iotonchus antedontus* Mulvey, 1963, *Iotonchus antidontoides* Coetzee, 1967, *Iotonchus arenicola* Altherr, 1963, *Iotonchus jairi* (Lordello, 1959) Clark, 1961, *Iotonchus longicaudatus* Baqri et al., 1978, *Iotonchus shamimi* Patil & Khan, 1982 and *Iotonchus vorax* (Cobb, 1917) Mulvey, 1963 to *Mulveyellus* (Andrassy, 1993; Siddiqi, 1984); two species, viz., *Iotonchus ovatus* Jensen & Mulvey, 1968 and *Iotonchus amphigoniscus* (Thorne, 1924) Andrassy, 1958 to *Jensenonchus* (Andrassy, 1993; Jairajpuri & Khan, 1982). Despite such transfer and with discovery of *Iotonchus lotilabiatus* Vu, Le & Nguyen, 2021, the nominal species of the genus stands at 78.

A survey to study Mononchid diversity in Mizoram, India leads to the recovery of one new and another known species of *Iotonchus*. Based on morphological characteristics and morphometric data, the new species is described as *Iotonchus champhaiensis* n. sp.

II. MATERIALS AND METHODS

Soil samples were collected in October 2021 from Champhai and Saitual Districts of Mizoram, India. The samples were processed and analysed at the Parasitology Laboratory, Department of Zoology, Manipur University. The soil samples were first decanted using Cobb's (1918) sieving and decanting method. The processing was followed by modified Baerman's funnel technique (Thorne, 1961). The isolated nematodes were then fixed in warm (around 60°C) Formalin Alcohol (FA) (4:1). For dehydration, the nematodes were treated using the glycerol-ethanol method (Seinhorst, 1962). Permanent mounts were prepared by mounting the specimen on a glass slide with anhydrous glycerin. Nikon Eclipse E200 trinocular microscope equipped with Y-TV 55 and Y-IDT drawing tube was used to observe, capture images and draw the specimens. Images were improved using Adobe Photoshop 2020.

III. RESULTS

Iotonchus champhaiensis n. sp.

(Fig. 1 & 2; TABLE 1)

Description

Female: Slender nematode ($a = 19$), body slightly arcuate ventrally post vulva, 0.87mm long. Body cylindrical, maximum body width at around mid-body region. Cuticle smooth, thickness varies, maximum at anal body region (2 μm). Lip region offset from adjoining body region. Labial width 3.5 times that of labial height. Labial papillae prominent, arranged in circles like a crown. Amphidial fovea cup-shape, located at anterior part of the buccal cavity. Amphidial canal indistinct. Stoma made up of vestibulum and buccal cavity. Buccal cavity large, goblet shape, with flat stoma base. Buccal cavity about 1.5 times as long as wide. Dorsal tooth positioned at posterior half or at 26% of buccal length from stoma base. Subventral wall toothless. Two ventrosublateral foramina present. Pharyngeal sleeve small-covers stoma base. Nerve ring distinct, located at about 11% of body length from anterior end. Secretory-excretory pore distinct, situated about 16 μm away from the nerve ring. Pharyngo-intestinal junction tuberculate, positioned at around 33% of body length from anterior end. Intestine granulated randomly. Reproductive system monodelphic-prodelphic. Genital branch 155 μm long. Ovary robust, reflexed; 39 $\mu\text{m} \times 20 \mu\text{m}$, do not reach oviduct-uterus junction. Post-uterine sac absent. Oviduct-uterus junction without sphincter. Oviduct short. *pars refrigens vaginae* minute, tear drop shape, 1.99 μm long. *pars proximalis vaginae* 11.12 μm long with tubular walls. *pars distalis vaginae* 2.31 μm long with concave walls. Vulva, a transverse slit, located posterior to midbody region. Advulval papillae absent. Rectum straight, shorter in length to anal body diameter. Tail short, straight, elongate. Tail terminus broadly rounded. Caudal glands tandem in arrangement. Spinneret terminal.

Juvenile: Body posture similar to adult female. Slender nematode ($a = 14.37$), 0.73mm long, body width maximum at around midbody region. Cuticle smooth, maximum thickness at anal region. Labial papillae prominent. Lip region offset. Labial width ca 2.5 times that of labial height. Amphids indistinct. Buccal cavity goblet shape, about 1.5 times long as wide. Dorsal tooth apex positioned at 25% of buccal length from stoma base. Subventral wall toothless. Two foramina present. Pharyngeal sleeve covers stoma base. Nerve ring indistinct. Secretory-excretory pore indistinct. Pharyngo-intestinal junction tuberculate, located at 32% of body length from anterior end. Intestine randomly granulated. Rectum shorter in length to anal body diameter. Tail short, conoid-cylindrical, straight. Tail terminus broadly rounded. Caudal glands and spinneret indistinct.

Male: Not Found

Type Specimen

Holotype female on slide MZIch 1 and Juvenile on slide MZIchj 1 submitted to the Nematode Collection Unit of the Parasitology Lab, Department of Zoology, Manipur University.

Type Locality

The new species was recovered from soil around the roots of *Ageratum* sp. from the nearby area of Champhai, Champhai district, Mizoram, India at a longitude of 23°27'57.2"N and latitude of 93°18'40.4"E in October 2021.

Differential diagnosis

Iotonchus champhaiensis n. sp. is characterised by its small body (0.87 mm long), slightly arcuate body post vulva, distinct labial papillae and amphids, dorsal tooth at posterior half of buccal length from stoma base, toothless subventral wall, two foramina, tuberculate pharyngo–intestinal junction, mono–prodelphic reproductive system, tear drop shaped *pars refrigens vaginae*, short, conoid-cylindrical tail with broadly rounded terminus, caudal glands in tandem and spinneret terminal.



Fig. 1. Female *Iotonchus champhaiensis* n. sp. A: Anterior region showing buccal cavity and pharyngo–intestinal junction; B: Vulval region; C: Anterior end showing buccal cavity; D: Midbody to posterior end showing genital system and tail; E: Female reproductive system; F: Pharyngo-intestinal junction; G: Tail.

The new species *Iotonchus champhaiensis* n. sp. is very closely related to *I. manipuriensis* Gambhir & Dhanachand, 1990 in characters like smooth cuticle, distinct amphid, tuberculate pharyngo–intestinal junction, short tail, tandem caudal glands. However, differs from *I. manipuriensis* by having shorter body length (0.87 mm vs 2.28 mm), body posture (almost straight or slightly arcuate post vulva vs ventrally arcuate throughout body), lip region (distinctly set off vs slightly set off),

subventral wall (toothless vs two pairs of small denticles), ventrosublateral foramina (present vs absent), secretory–excretory pore (distinct vs indistinct), reproductive system (mono–prodelphic vs didelphic–amphidelphic), sphincter (absent vs present) and spinneret (terminal vs dorso–terminal).

The new species also comes close to *I. trichurus* Cobb, 1917 in characters like offset lip, prominent amphids, two foramina, reproductive system, no post – uterine sac, no sphincter. But the two species differ in body size (0.87 μm vs 1.2 – 2.2 mm), body posture (slightly arcuate post vulva vs ventrally arcuate throughout body), tail (short, straight, conoid-cylindrical, about 3 anal body diameter vs long, filiform, whip-like, about 13 – 18 anal body diameter), spinneret (terminal vs subterminal).

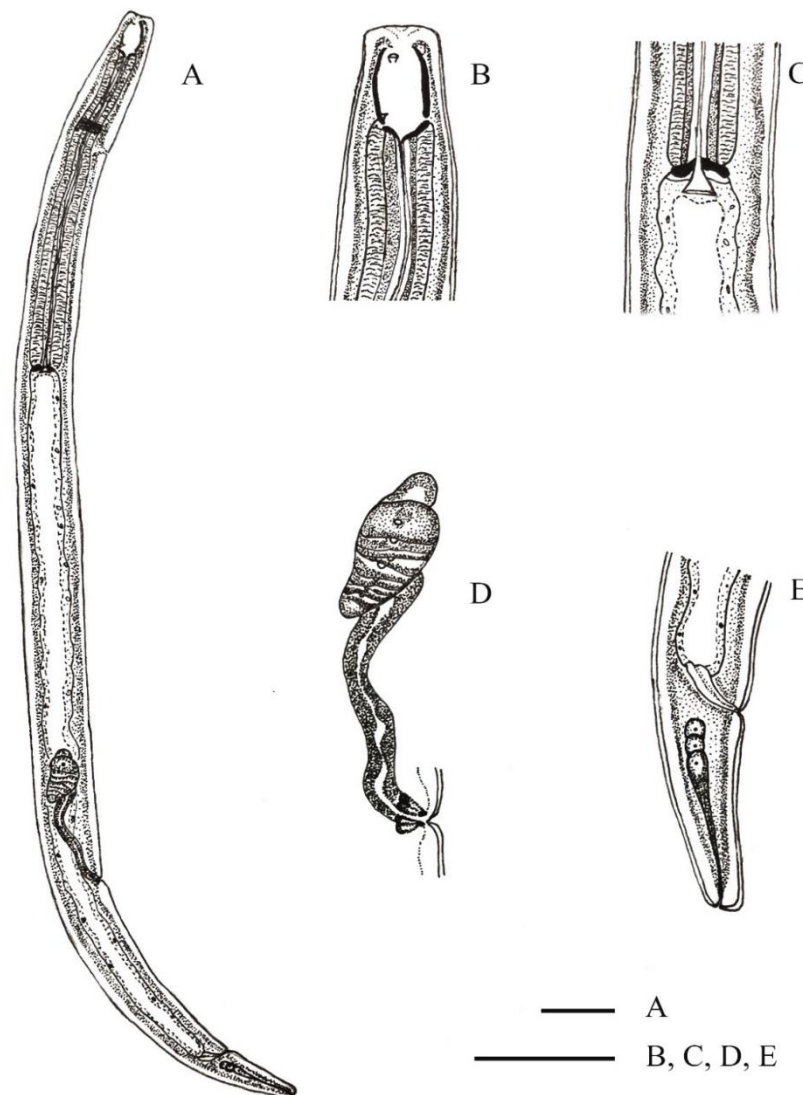


Fig. 2. Line illustration of *Iotonchus champhaiensis* n. sp. A: Whole body; B: Anterior region showing buccal cavity; C: Pharyngo-intestinal junction showing tubercles; D: Female reproductive system; E: Posterior end. Scale bar: A = 50 μm ; B – E = 40 μm .

Iotonchus champhaiensis n. sp. and *Iotonchus southi* Dhanam & Jairajpuri, 1998 share similarities like tuberculate pharyngo-intestinal junction, prodelphic genital system, post-uterine sac and tandem caudal glands. But the two species differ in characteristics like sphincter (absent vs present), advulval papillae (absent vs 1 pre- and post-), rectum length (less

than anal body diameter vs similar to anal body diameter), tail (short and conoid vs long and conoid), tail terminus (rounded vs bluntly conoid and slightly bulged), spinneret (terminal vs subterminal), L (0.87-0.89 vs 1.8-2.6), a (19.12-19.49 vs 31-38) and c' (3.08-3.26 vs 8-11).

The new species also come close to *Iotonchus obtuses* Choi, Khan & Lee, 1999 in characters like large buccal cavity without subventral teeth, presence of foramina, distinct amphids, tuberculate pharyngo-intestinal junction and short tail. But the two species differ in body length (0.87 mm vs 2.8 mm), genital system (mono-prodelphic vs didelphic-amphidelphic), sphincter (absent vs present), advulval papillae (absent vs one pre and two post), rectum length (shorter than anal body diameter vs equal to anal body diameter), tail shape (conoid with rounded terminus vs hemispherical), caudal glands (distinct vs pores) and spinneret (present vs absent).

TABLE 1. Morphometric details of *Iotonchus champhaiensis* n. sp. female and juvenile. All measurements are in μm except L in mm.

Parameters	Holotype	Juvenile
N	1	1
L (body length)	0.87	0.73
a (body length/maximum body width)	19.49	14.37
b (body length/anterior end to pharyngo-intestinal junction length)	3.06	3.09
c (length/tail length)	11.47	9.38
c' (tail length/body width at anus)	3.26	2.33
G1 (anterior gonad length \times 100/body length)	17.75	-
V (anterior end to vulva distance \times 100/body length)	73.17	-
Body width at neck base	21.48	25.67
Body width at vulva	38.83	-
Body width at anus	23.24	33.38
Cuticle at lip region	0.92	0.95
Cuticle at vulva	1.17	-
Cuticle at anus	1.99	1.68
Lip width	22.99	26.44
Lip height	6.61	10.27
Buccal cavity length	25.39	28.42
Buccal cavity width	15.20	17.15
Dorsal tooth apex from stoma base	6.67	7.13
Amphid from anterior end	10.92	-
Amphid opening diameter	4.16	-
Pharyngeal sleeve	5.57	-
Nerve ring from anterior end	94.63	-
Secretory-excretory pore diameter	1.90	-
Secretory-excretory pore from nerve ring	15.80	-
Anterior end to pharyngo-intestinal junction	284.18	236.82
Anterior end to vulval opening	637.50	-
Anterior gonad length	154.72	-
Vulval opening to rectum	157.77	-
Rectum	19.68	25.81
Tail length	75.91	78.07

The new species is also in conformity with *I. longisacatus* Mohilal *et al.*, 2000 in morphological details like smooth cuticle, tuberculate pharyngo-intestinal junction, mono-prodelphic reproductive system, tandem caudal glands and terminal spinneret. But the new species differ in body size and posture (small and slightly arcuate vs long and ventrally arcuate throughout), position of dorsal tooth apex from stoma base (26% vs 35 – 43%), secretory-excretory pore (distinct vs indistinct), sphincter (absent vs present), advulval papillae (absent vs present), tail (short, conoid-cylindrical and about 3 anal body diam. vs long, filiform and about 20 anal body diam.).

The new species is also similar to *I. basidontus* Clark, 1961, *I. indicus* Jairajpuri, 1969 and *I. nayari* Mohandas & Prabhoo, 1979 in characters such as offset lip region, dorsal tooth at about posterior half of buccal length from stoma base, tuberculate pharyngo-intestinal junction. However, *I. champhaiensis* n. sp. differs from these species in body size (0.87 mm vs 1.7 – 2 mm in *I. basidontus*; 1.5 – 1.9 mm in *I. indicus*; 2.3 – 2.7 mm in *I. nayari*), reproductive system (prodelphic vs

amphidelphic), sphincter (absent vs present in *I. basidontus* & *I. nayari*), tail (short, straight, conoid-cylindrical vs long, filiform, elongate-conoid).

A detailed comparative morphometrics of closely related species of the new species is also provided at TABLE 2.

TABLE 2. Comparative account of *Iotonchus champhaiensis* n. sp. with nine *Iotonchus* species. Lengths are given in mm; height and width are in μm . *BCL – Buccal Cavity Length; BCW - Buccal Cavity Width; ABD – Anal Body Diameter.

	<i>I. champhaiensis</i> n. sp.	<i>I. trichurus</i> Cobb, 1917	<i>I. baqriti</i> Jairajpuri, 1969	<i>I. manipuriensis</i> Gambhir & Dhanachand, 1990	<i>I.</i> <i>basidontus</i> Clark, 1961	<i>I. indicus</i> Jairajpuri, 1969	<i>I. longisacatus</i> Mohilal, Anandi & Dhanachand, 2000	<i>I. nayari</i> Mohandas & Prabhoo, 1979	<i>I. silvatus</i> Ahmad & Jairajpuri, 1983	<i>I. southi</i> Dhanam & Jairajpuri, 1998
L	0.87	1.2–2.2	1.4–1.7	2.28	1.7–2.4	1.2–2.0	1.83–2.17	2.0–2.7	1.42–1.85	1.8–2.6
a	19.49	28–46	28–37	24	25–32	21–39	48–54	27–40	27–36	31–38
b	3.06	3.5–5.4	4.0–4.6	3.9	3.7–4.3	4.0–4.8	4.6–5.1	4.0–4.6	4.0–4.3	3.7–4.5
c	11.47	3–5	5–7	19	6.5–7.2	5–8	3.3–3.8	8–14	4.8–5.4	6–7
c'	3.266	15–20	8–11	1.9	5–7	6–10	21	4–6	7–12	8–11
V	73.17	52–65	62–70	66	55–60	56–65	56–59	60–70	62–65	64–80
Lip wide	22.99	21–28	35–44	49	-	37–44	32	48	31–36	35–41
Lip high	6.61	-	12–18	16	-	14–16	12–14	22	13–14	11–12
BCL	25.39	26–32	32–37	55	-	40–47	30–37	52–54	41–42	46–54
BCW	15.20	13–22	28–32	43	-	28–32	22	28–30	24–25	25–31
Dorsal tooth apex from stoma base	6.67	-	8–11	23%	25%	9–12	35–43%	15–18	11–12	26–31%
Reproductive system	Prodelphic	Prodelphic	Prodelphic	Amphidelphic	Amphidelphic	Amphidelphic	Prodelphic	Amphidelphic	Prodelphic	Prodelphic
Sphincter	Absent	Absent	Present	Present	Present	Absent	Present	Present	Present	Present
Rectum	Less than ABD	-	About one ABD	About one ABD	Less than ABD	About one ABD	Less than ABD	Less than ABD	Less than one ABD	Similar to ABD
Tail	Short and conoid	Long and filiform	Long and filiform	Elongate	Long, conoid then cylindrical	Long, elongate – conoid	Long and filiform	Elongate and arcuate	Filiform	Conoid
Tail length	75.91	260–540	270–350	116	-	200–360	560–568	190–230	294–371	336–405
Caudal glands	Tandem	Tandem	Inconspicuous	Tandem	Present	Poorly developed	Tandem	Indistinct	Tandem	Tandem
Spinneret	Terminal	Terminal	Subterminal	Dorso – terminal	Present	Subterminal	Terminal	Terminal	Subterminal	Subterminal

Iotonchus nayari Mohandas & Prabhoo, 1979

(Fig. 3; TABLE 3)

Description

Female: Body large ($a = 20.09$), ventrally arcuate upon fixation. Body width maximum at around midbody region. Cuticle smooth, thickness varies throughout the body, maximum at anal region. Lip region offset. Labial papillae prominent. Amphidial fovea cup-shaped, situated at anterior region of buccal cavity. Amphidial canal indistinct. Buccal cavity oblong shaped with a single dorsal tooth. Dorsal tooth positioned at around posterior half of buccal length or at 23% of buccal length from stoma base. Subventral wall toothless. Two foramina present. Pharyngeal sleeve covers stoma base. Nerve ring distinct, situated at around 9% of body length from anterior end. Secretory-excretory pore distinct. Pharyngo-intestinal junction tuberculate, positioned at 26% of body length from anterior end. Intestine randomly granulated. Reproductive system didelphic-amphidelphic. Genital branches similar, ovaries are reflexed and robust. Sphincter present at oviduct-uterus junction. *pars refrigens vaginae* ellipsoidal. Vulva, a transverse slit, situated posterior to midbody region. Advulval papillae absent. Rectum shorter in length to anal body diameter. Tail conoid then cylindrical. Tail terminus cylindrical. Caudal glands tandem. Spinneret subterminal, ventrally opened.

Male: Not Found

Specimen

Female on slide MzIn1 submitted at Nematode Collection Unit of the Parasitology Lab, Department of Zoology, Manipur University.

Habitat & Locality

The species was recovered from the soil around the roots of an unidentified tree at Keifang, 23°40'10"N 92°57'23"E, Saitual District, Mizoram, India in the month of October 2021.

Remark

The present description agrees well with the original description of *I. nayari*. The original description reports maximum cuticle thickness at the anal region, offset lip, distinct amphid, large buccal cavity, two foramina, distinct nerve ring, didelphic–amphidelphic reproductive system, sphincter at oviduct–uterus junction, elongated and arcuate tail, indistinct caudal glands and terminal spinneret. However, caudal glands are hereby reported as distinct and tandem in arrangement, spinneret subterminal, ventrally opened.

Key to Indian species of *Iotonchus*

15 species of *Iotonchus* have been recorded from India so far. With the recovery of *I. champhaiensis* n. sp., the tally rises to 16. The following key (modified from Vu *et al.*, 2021) provides the classifying characteristics of the Indian species. The provided key is based on the characters of female specimens –

1. – Female genital organ unpaired, prodelphic or asymmetric, pseudo-prodelphic with rudimentary posterior ovary 2
– Female genital organ paired, amphidelphic 9
2. – Genital organ pseudo-prodelphic with rudimentary post-genital branch *pseudodigonicus* Ahmad & Jairajpuri, 1983
– Genital organ monoprodelphic 3
3. – Spinneret subterminal 4
– Spinneret terminal 6
4. – Post-uterine sac completely absent 5
– Post-uterine sac present *southi* Dhanam & Jairajpuri, 1998
5. – Buccal cavity length > 40 μm (41 – 42 \times 24 – 25 μm) *silvallis* Ahmad & Jairajpuri, 1983
– Buccal cavity length < 40 μm (32 – 37 \times 28 – 32 μm) *baqrii* Jairajpuri, 1969
6. – L > 2.5 mm *consimilis* Cobb, 1917
– L < 2.5 mm 7
7. – Tail length < 200 μm *champhaiensis* n. sp.
– Tail length > 200 μm 8
8. – Sphincter absent at oviduct-uterus junction *trichurus* Cobb, 1917
– Sphincter present at oviduct-uterus junction *longisacatus* Mohilal *et al.*, 2000
9. – Caudal spinneret absent 10
– Caudal spinneret present 11
10. – Advulval papillae present *transkeiensis* Heyns & Lagerwey, 1965
– Advulval papillae absent *globibuca* Dhanam & Jairajpuri, 2002
11. – Caudal spinneret subterminal *indicus* Jairajpuri, 1969
– Caudal spinneret terminal 12
12. – Large nematode: L > 3 mm 13
– Smaller nematode: L < 3 mm 14
13. – Length of buccal cavity > 65 μm *apapillatus* Dhanam & Jairajpuri, 1998
– Length of buccal cavity < 65 μm *risoeciae* De Carvalho, 1955
14. – V > 60 *nayari* Mohandas & Prabhoo, 1979
– V = 55 – 60 15
15. – Buccal cavity narrowing posteriorly *parabasideontus* Mulvey & Jensen, 1967
– Buccal cavity not narrowing posteriorly *basideontus* Clark, 1961

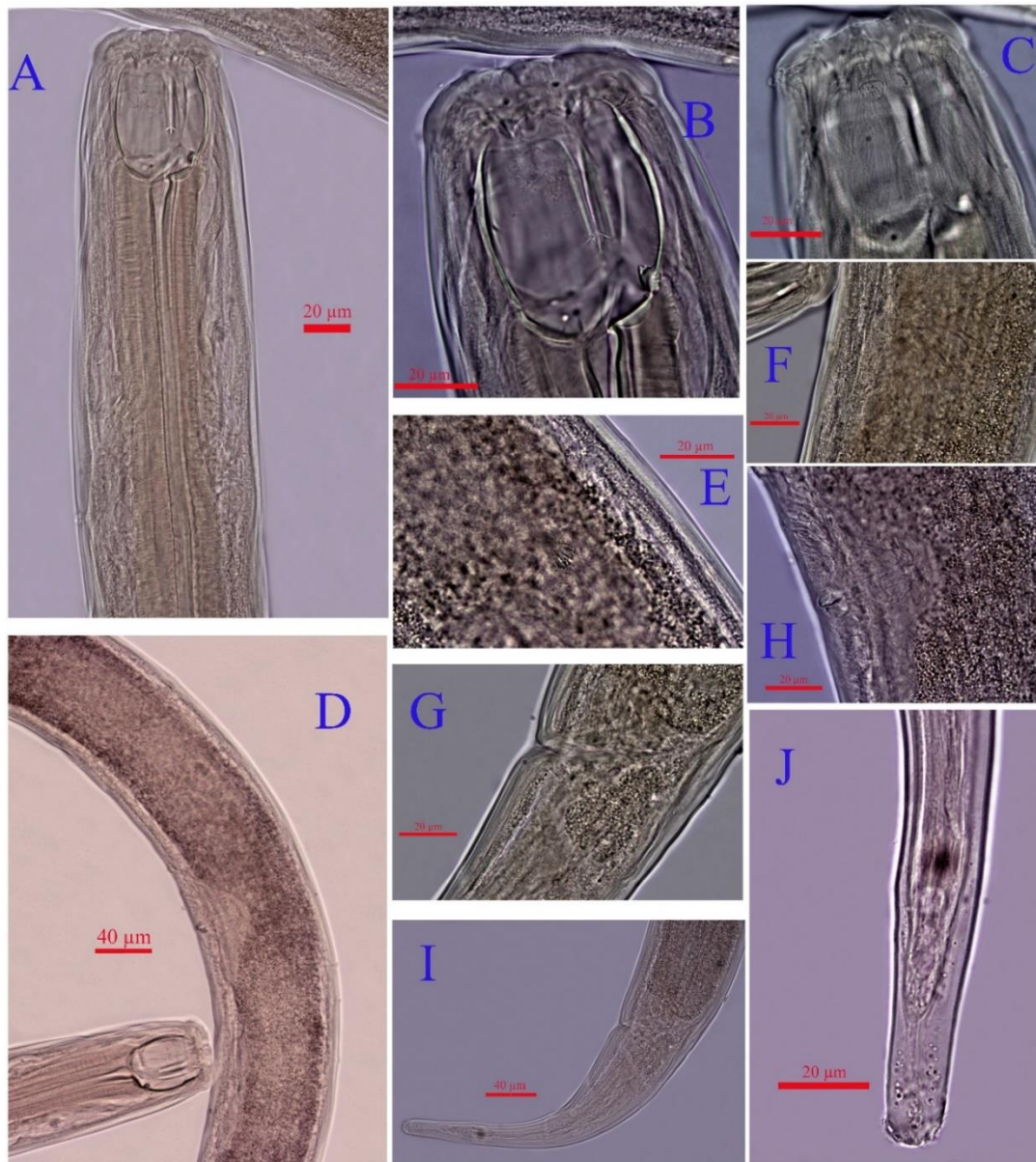


Fig. 3. Female *Iotonchus nayari*. A: Anterior region showing nerve ring; B: Head region showing buccal cavity; C: Head region showing amphids; D: Midbody region showing genital system; E: Sphincter; F: Gonad; G: Anal region; H: Vulval opening; I: Posterior region showing tail; J: Tail terminus showing spinneret.

TABLE 3. Morphometric details of *Iotonchus nayari* female. All measurements are in μm except L in mm.

Parameters	Female
N	1
L (body length)	2.17
a (body length/maximum body width)	20.09
b (body length/anterior end to pharyngo-intestinal junction length)	3.90
c (length/tail length)	8.03
c' (tail length/body width at anus)	4.46
G1 (anterior gonad length \times 100/body length)	14.50
G2 (posterior gonad length \times 100/body length)	14.44
V (anterior end to vulva distance \times 100/body length)	64.54

Body width at neck base	57.38
Body width at vulva	105.06
Body width at anus	60.52
Cuticle at lip region	2.85
Cuticle at vulva	3.59
Cuticle at anus	2.17
Lip width	59.09
Lip height	12.54
Buccal cavity length	55.49
Buccal cavity width	44.57
Dorsal tooth apex from stoma base	12.97
Pharyngeal sleeve	11.31
Nerve ring from anterior end	198.72
Secretory-excretory pore diameter	3.98
Secretory-excretory pore from nerve ring	19.31
Anterior end to pharyngo-intestinal junction	555.85
Anterior end to vulval opening	1400.83
Anterior gonad length	314.83
Posterior gonad length	313.46
Vulval opening to rectum	499.21
Rectum	49.79
Tail length	270.25

IV. CONCLUSION

Mizoram is a northeastern Indian state that is part of the Indo-Burma Biodiversity Hotspot, yet little is known about Mononchid nematodes. Sushilkumar *et al.* (2021) reported three species of *Parahadronchus* Mulvey, 1978; *P. marami* Renubala & Dhanachand, 1982, *P. shakili* (Jairajpuri, 1969) Mulvey, 1978 and *P. siroii* Renubala & Dhanachand, 1982. In 2023, Sushilkumar *et al.*, recovered a new species of *Parahadronchus*, *P. dividentus* Sushilkumar, Mexico & Mohilal, 2023 from Mizoram. Also, Singh *et al.* (2023) recorded a new species of *Mulveyellus*; *M. aizawlensis* Singh *et al.*, 2023 from Mizoram. The present new species, *I. champhaiensis* n. sp. and *I. nayari* also represent the first two species of *Iotonchus* from Mizoram, India.

Tail shape and length, at the genus or species level, are considered one of the most important diagnostic characteristics of Mononchida (Ahmad & Jairajpuri, 2010). According to Ahmad & Jairajpuri (2010), *Iotonchus* have long filiform tail but are rarely very short and bluntly rounded. *I. champhaiensis* n. sp. can be easily identified by its short conoid-cylindrical tail with bluntly cylindrical tail terminus. The tail, however, looks like a broken tail but close observation of the tail revealed an intact tail, without any breakage and damage (cuticle clearly visible at tail terminus). The only species with such a short and similar structure tail is observed in *I. manipuriensis* (differences provided at differential diagnosis). However, the species has been termed *species inquirendae* by Ahmad & Jairajpuri (2010). Small size body, almost straight (slightly curved post-vulva) body posture, short and straight tail, and other morphometric data (see TABLE 2) are some characteristics that separate *I. champhaiensis* n. sp. from other species of *Iotonchus*.

Iotonchus nayari was first described by Mohandas & Prabhoo (1979) from Kerala, India, based on the minute tooth in the vertical subventral wall, small body size and tail. Surprisingly, the species has not been reported from other parts of the country or the world. Also, morphological details like the pharyngeal sleeve, distinct secretory-excretory pore and its morphometrics along with characteristics of *pars refrigens vaginae* are hereby added to the diagnostic characteristics of *I. nayari*.

The present study reveals a glimpse of the richness of diversity and uniqueness of mononchid nematodes in Mizoram. Yet, complete documentation of such majestic organisms still remains incomplete. Hence, further exploration is required to know the extent of richness and unravel Mizoram's mononchid biodiversity.

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