

TWO NEW AND TWO KNOWN SPECIES OF DORYLAIMOIDEA (NEMATODA) FROM WEST BENGAL, INDIA WITH A KEY TO THE SPECIES OF THE GENUS *INDODORYLAIMUS* ALI AND PRABHA, 1974

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INTRODUCTION

A small female population of *Indodorylaimus asaccatus* sp. n. was collected from the soil around the roots of guava (*Psidium guajava* L.) and that of *I. baqrii* sp. n. was collected from the soil around the roots of both guava and litchi (*Litchi chinensis* Sonn.) at South 24-Parganas district, West Bengal, India. The representatives of the genus *Indodorylaimus* Ali and Prabha, 1974 are predominant in India. Of the four valid species described earlier, three have been described from India (Ali and Prabha, 1974; Thomber et al., 1980; Ahmad & Jairajpuri, 1984), and one from South Africa (Andrassy, 1987); the genus has been reported from nowhere else in the world. Male specimens of the proposed new species were not encountered even after extensive searching. Although males are characteristically as common as females in the genus *Indodorylaimus* (Andrassy, 1987), the morphological characters of the present specimens, particularly the moderately sclerotized labial frame work and mono-opisthodelphic reproductive system, strongly support their placement under the genus *Indodorylaimus*, even in the absence of males. Therefore, both the proposed new species have been characterized by the absence of males. This is the first report of the genus from West Bengal, India. Both the species *Discolaimus tenax* Siddiqi, 1964 and *Discolaimium mazhari* Baqri and Jairajpuri, 1968 are being reported for the first time from West Bengal, India and the present specimens of the above genera agree well

with their original description except some minor variations.

MATERIALS AND METHODS

The collected soil samples were processed by Cobb's sieving and decantation technique (Cobb, 1918) followed by modified Baermann funnel technique (Christie and Perry, 1951) for extraction of nematodes. The nematode specimens were fixed and preserved in their characteristic body posture in hot (FA (formalin-acetic acid 4:1) solution and were mounted in anhydrous glycerin, sealed by paraffin wax to make permanent slides. Then they were observed under a compound microscope (Olympus BX 41), measured and photographed. The formulae, to locate the positions of pharyngeal gland nuclei and the terms to denote them, were used as given by Andrassy (1998).

SYSTEMATIC ACCOUNT

- Order DORYLAIMIDA Pearse, 1942
- Suborder DORYLAIMINA Pearse, 1936
- Superfamily DORYLAIMOIDEA De Man, 1876
- Family DORYLAIMIDAE De Man, 1876
- Subfamily THORNENEMATINAE Siddiqi, 1969
- Genus *Indodorylaimus* Ali and Prabha, 1974
- Species *Indodorylaimus asaccatus* sp. n.
- Species *Indodorylaimus baqrii* sp. n.
- Family QUDSIANEMATIDAE Jairajpuri, 1965

- Subfamily DISCOLAIMINAE Siddiqi, 1969
 Genus *Discolaimus* Cobb, 1913
 Species *Discolaimus tenax* Siddiqi, 1964
 Genus *Discolaimium* Thorne, 1939
 Species *Discolaimium mazhari* Baqri and
 Jairajpuri, 1968

DESCRIPTIONS

Indodorylaimus asaccatus sp. n. (Figures 1 and 2)

Measurements : Shown in Table 1. The measurements given hereafter are based on holotype. Minimum-maximum ranges of measurements of paratypes are given in parenthesis.

Female : Body ventrally curved on fixation, almost cylindrical except slightly tapering towards anterior end from the base of pharynx and ending in a uniformly attenuated elongated tail. Striations in cuticle and body pores indistinct. Cuticle $2.5\mu\text{m}$ at midbody and $5.0\mu\text{m}$ ($5.0 - 7.0\mu\text{m}$) thick on tail. Lip region almost continuous or very minutely demarcated from body, almost equal in width to or slightly narrower than adjoining body, moderately sclerotized, $5.0\mu\text{m}$ ($5.0 - 6.0\mu\text{m}$) high and $9.5\mu\text{m}$ ($8.5 - 9.5\mu\text{m}$) wide, lips amalgamated. Amphids not distinctly visible. Odontostyle 1.4 ($1.2 - 1.7$) lip region-widths long, its aperture distinct, 28.5% ($26.5 - 33.0\%$) of the odontostyle length. Odontophore rod-like, 1.2 ($1.1 - 1.9$) times the odontostyle length. Guiding ring at 8.5m ($7.5 - 9.5\mu\text{m}$) from anterior end. Nerve ring at $98\mu\text{m}$ ($90.5 - 117.5\mu\text{m}$) from anterior end. Expanded part of pharynx 3.7 ($2.8 - 4.3$) times the neck base-width or occupying 42.0% ($41.5 - 45.5\%$) of the pharyngeal length. Cardia bluntly conoid or rounded, $9.5\mu\text{m}$ ($7.5 - 12.5\mu\text{m}$) long. Glandularium 91% ($83 - 91\%$) of expanded part of pharynx. Positions of pharyngeal gland nuclei are: D = 58.6 - 63.0%; AS₁ = 44.0 - 48.0%; AS₂ = 45.6 - 50.7%; PS₁ = 63.0 - 68.0%; PS₂ = 66.0 - 69.5%.

Vulva pre-equatorial in position, transverse. Vagina about half of the corresponding body width. Reproductive system mono-opisthodelphic, anterior genital branch completely absent, without any uterine sac; posterior genital branch well developed, ovary reflexed, $71\mu\text{m}$ ($42 - 117\mu\text{m}$) long, sperm absent within the gonad.

Prerectum 2.6 ($2.3 - 2.8$), rectum 1.2 ($1.1 - 1.5$) anal body-widths long. Tail elongated, continuously tapering from anus to a finely rounded terminus, 11.2 ($8.8 - 12.7$) anal body-widths long.

Male : Not found

Type Habitat and Locality : Collected from soil around the roots of guava at Shalipur (West) and Balarampur of Baruipur block on 24. 05. 2004.

Type Specimens : Holotype registration number WN 1019 along with paratypes on the same slide. Paratype registration numbers WN 1020 (2♀), and WN 1021 (2♀), WN 1022 (1♀) and WN 1023 (2♀), deposited in the National Zoological Collection, Zoological Survey of India, Kolkata, India.

Etymology : The species has been named due to the complete absence of the anterior uterine sac.

Diagnosis and Relationship : *Indodorylaimus asaccatus* sp. n. is characterized by the absence of males and by complete absence of the anterior uterine sac. Although it shows closeness to the females of *I. kanhobia* Thomber *et al.*, 1980 in total body length and in some body measurements and ratios, the new species differs from *I. kanhobia* by the complete absence anterior uterine sac, shorter odontostyle ($11.5 - 14.5\mu\text{m}$ vs. $18 - 20\mu\text{m}$), more anteriorly placed vulva ($V = 30.8 - 33.8$ vs. $30 - 38$), lesser *b* value ($4.8 - 5.6$ vs. $5.7 - 6.6$) and by greater *C'* value ($8.8 - 12.7$ vs. $8 - 9$).

Indodorylaimus baqrii sp. n. (Figures 3, 4 and 5)

Measurements : Shown in Table 2. The measurements given hereafter are based on holotype. Minimum-maximum ranges of measurements of paratypes are given in parenthesis

Females : Body moderate to strongly ventrally curved, particularly in posterior portion, tapering slightly anterior to the pharyngeal base. Cuticular striations and body pores indistinct. Cuticle $2.5\mu\text{m}$ ($1.0 - 2.5\mu\text{m}$) at mid body and 5.0m ($3.5 - 7.0\mu\text{m}$) thick on tail.

Lip region slightly set off by depression, narrower than adjoining body, moderately sclerotized, $5.0\mu\text{m}$ high and $11\mu\text{m}$ ($8.5 - 11.0\mu\text{m}$) wide, lips amalgamated. Amphids cup-shaped, $4.0 - 5.0\mu\text{m}$ from anterior end. Odontostyle 1.4 ($1.1 - 1.7$) lip region-widths long, its aperture distinct,

1/3.1 (1/2.6 – 1/3.7) or 31.6% (26.6 – 37.5%) of the odontostyle length. Odontophore rod-like, 1.1 (0.9 – 1.4) times the odontostyle length. Guiding ring 12.0µm (7.5 – 12.0µm) from anterior end. Nerve ring at 130µm (96 – 130µm) from anterior end. Expanded part of pharynx occupying 44.1% (38.5 – 45.2%) of the pharyngeal length. Cardia conoid to rounded, 9.5µm (7.5 – 14.5µm) long. Glandularium 80.0% (80.0 – 97.7%) of cylindrus. Positions of pharyngeal gland nuclei are: D = 57.7 – 63.0%; AS₁ = 39.2 – 41.8%; AS₂ = 38.4 – 46.0%; PS₁ = 56.0 – 56.8%; PS₂ = 58.4 – 60.0%. Vulva pre-equatorial in position. Vagina 1/2.6 (1/1.8 – 1/2.7) or 38.4% (37.0–55.5%) of the corresponding body width. Reproductive system mono-opisthodelphic, anterior genital branch reduced to a small sac, 0.6 (0.4 – 1.0) vulval body-width long. Posterior genital branch normal and well developed. Ovary reflexed, 83.0µm (56.0 – 127.5µm) long. Sperms absent in both branches. Intra-uterine eggs present in the posterior branch in two specimens, measuring 27µm X 127 – 130µm.

Prerectum 2.5 (2.0 – 3.3), rectum 1.3 (0.9 – 1.4) anal body diameter long. Tail elongated, uniformly attenuated from anus to a finely rounded terminus, 10.9 (7.0 – 13.0) anal body-widths long.

Male : Not found.

Type Habitat and Locality: Two different populations collected from the soil around the roots of guava (at Mistripura (Holotype), Chandokhali & Dhaphdapi (West) on 27. 07. 2005) and from Litchi (at Shalipur (West) & Madhyam kalyanpur on 24. 04. 04 & 13. 12.04 respectively) from Baruipur block.

Type Specimens: Holotype registration number WN 1025 along with 6 paratypes on the same slide. Paratype registration numbers WN 1026 (8 ♀) and WN 1027 (2 ♀), WN 1028 (6 ♀) WN 1029 (1 ♀) and WN 1030 (3 ♀), deposited in the National Zoological Collection, Zoological Survey of India, Kolkata, India.

Etymology : The new species has been named after eminent nematologist Dr. Q. H. Baqri.

Diagnosis and Relationship : *Indodorylaimus baqrii* sp. n. is characterized by the absence of males and by the presence of distinct anterior uterine sac (19.5 – 37µm). Further it differs from all other species of the genus *Indodorylaimus*, except *I. kanhobia* Thomber *et al.*, 1980, in having longer body (1.4 – 1.64 mm

vs. 0.96 – 1.4mm; in *I. kanhobia*, L = 1.5 – 1.8mm in females). Although the total body length and some body ratios of the new species comes closer to those of *I. kanhobia*, it differs from *I. kanhobia* in having shorter odontostyle (13.5 – 16.5µm vs. 18 – 20µm), wide range of *a* value (30.8 – 48.9 vs. 37 – 44), lesser *b* value (4.9 – 5.4 vs. 5.7 – 6.6), greater *C'* value (8 – 13 vs. 8 – 9) and in having a shorter tail in comparison with body length, evident from greater *c* value (5.8 – 9.2 vs. 5.3 – 6.8).

Key to the species of *Indodorylaimus* Ali and Prabha, 1974

1. Males present; anterior uterine sac always present.....2
- Males absent; anterior uterine sac either present or absent.....5
2. Anterior uterine sac well developed, 2–3 times or more as long as corresponding body widths.....3
- Anterior uterine sac reduced, shorter than half of the corresponding body width.....4
3. Odontostyle 15 – 17µm; Vulva towards anterior end (V = 33 – 36); males with 4 ventromedian supplements.....
Indodorylaimus saccatus Ahmad & Jairajpuri, 1984
- Odontostyle 12–13µm; Vulva further back (V = 40 – 44); males with 1 – 2 ventromedian supplements
..... *I. africanus* Andrassy, 1987
4. Body shorter (L = 0.9 – 1.2mm); odontostyle 12 –13µm; males with 4 ventromedian supplements
I. elongatus (Ali & Prabha, 1974) Baqri, 1982
- Body longer (L = 1.4 – 1.8mm); odontostyle 18 – 20µm; males without ventromedian supplements
I. kanhobia Thomber, Joshi & Farooqui, 1980
5. Anterior uterine sac completely absent; odontostyle 11.5 –14.5µm long.....
..... *saccatus* sp. n.
- Anterior uterine sac reduced, 0.4 – 1.0 vulval body-width long; odontostyle 13.5–16.5µm long.....*I. baqrii* sp. n.

Discolaimus tenax Siddiqi, 1964
(Figure 6)

Measurements :

Females (n = 12) : L = 1.13 - 1.51mm; a = 35.1 - 42.5; b = 3.8 - 4.6; c = 38.7 - 57.5; C' = 1.0 - 1.5; V = 50.8 - 55.8%; G₁ = 10.7 - 16.1%; G₂ = 11.0 - 18.3%; expansion of head = 11.0 - 19.5µm; odontostyle = 14.5 - 18.5µm; odontostyle aperture = 4.0 - 9.5µm; odontophore = 21.5 - 29.0µm; maximum body width = 29.5 - 41.5µm, length of pharynx = 291.5 - 333.0µm; body width at neck base = 29.5 - 36.0µm; body width at vulva = 29.5 - 41.5µm; expanded part of pharynx = 157.0 - 178.5µm; glandularium = 125.0 - 134.0µm; distance of vulva from anterior end = 625.0 - 794.0µm; vaginal length = 12.0 - 17.0µm; length of anterior gonad = 132.0 - 186.0µm; length of posterior gonad = 135.0 - 272.0µm; prerectum = 22.0 - 27.0µm; rectum = 17.5 - 24.5µm; tail length = 24.5 - 29.5µm; anal body diameter = 19.5 - 27.0µm.

Description :

Female : Body slender, slightly ventrally curved on fixation. Cuticle marked with fine transverse striations, 1.5mm thick at anterior part at the level of odontostyle and at mid body, 2.5- 3.5µm on tail. Lateral chords about one-third of body width at mid body. Lip region discoidal, expanded, off set from body by a deep constriction, 4.0 - 5.0µm high, 16.5 - 19.5µm wide or 1/1.6 to 1.9 of body width at neck base. Liplets six, surrounding stoma. Amphids stirrup-shaped, 5.0 - 7.0mm from anterior end. Odontostyle 0.8 - 1.0 lip region-width long but in most of the specimens smaller than lip width, its aperture occupying 38.5 - 53.0% of odontostyle length. Guiding ring single, 5.5 - 7.0mm from anterior end. Odontophore simple, rod-like, 1.3 - 1.8 times the odontostyle length. Nerve ring at 95.5 - 100.5mm from anterior end. Expanded part of pharynx 51.5 - 54.8% of total neck length. Glandularium 77.0 - 80.5% of the cylindrus. Cardia round to conoid, 6.5 - 10.0µm long, cardiac disc present. Location of pharyngeal gland nuclei are: D = 56.0 - 60.0%; AS₁ = 40.8 - 61.5%; AS₂ = 40.8 - 66.0%; PS₁ = 72.5 - 81.0%; PS₂ = 75.3 - 86.6%. Vulva opening transverse, equatorial to slightly post-equatorial. Vagina extending inward half to about one-third of corresponding body width, unsclerotized. Reproductive system amphidelphic. Both ovaries reflexed, in some specimens posterior

ovary very long, almost reflexed up to vulva, anterior ovary 37.0 - 88.5µm and posterior ovary 39.0 - 127.0µm long. One specimen containing one egg in the posterior branch of gonad, measuring 91.0µm X 29.5µm.

Prerectum 1.0 - 1.2 and rectum 0.8 - 1.2 anal body-width long. Tail convex- conoid, 1.0 - 1.5 anal body-width long.

Male : Not found.

Habitat and Locality : Collected from soil around the roots of guava at South Gobindapur on 13. 12. 2004 and at Bosepukur, Dhapdhapi (East), Baruipur block on 27. 07. 2005.

DISCUSSION AND REMARK : Siddiqi (1964) described *Discolaimus tenax* from soil around the roots of *Citrus sinensis* (L.) Osbeck from Uttar Pradesh, India. Further Ahmad and Jairajpuri (1982) reported the species from soils of grasses (*Motha* sp.) with first report of its males at Kanpur, U. P. The present specimens conform well to both of the above. This is the first report of *D. tenax* from West Bengal.

Discolaimium mazhari Baqri and Jairajpuri, 1968
(Figure 7)

Measurements :

Females (n = 02): L = 1.16 - 1.23mm; a = 39.6 - 41.8; b = 3.8 - 4.0; c = 53.0 - 55.9; C' = 1.0; V = 42.4 - 44.0%; G₁ = 11.5 - 12.5%; G₂ = 11.7 - 12.5%; odontostyle = 13.0 - 14.0µm; odontostyle aperture = 5.5 - 7.0mm; odontophore = 17.0 - 18.0µm; maximum body width = 29.5µm, length of pharynx = 306.0µm; body width at neck base = 29.5µm; body width at vulva = 29.5µm; expanded part of pharynx = 171.5 - 174.0µm; distance of vulva from anterior end = 495.0 - 541.5µm; vaginal length = 12.5µm; length of anterior gonad = 142.0 - 151.0µm; length of posterior gonad = 137.0 - 154.0µm; prerectum = 61.0 - 73.5µm; rectum = 18.0 - 25.0µm; tail length = 22.0µm; anal body diameter = 22.0µm.

Description :

Female : Body cylindrical, almost straight or slightly ventrally curved on fixation. Cuticle smooth and thin, 1.0 - 2.5µm thick at mid body and 2.5 - 3.5µm on tail. Sub cuticle with very faint striations.

Lip region set off by deep constriction from body contour, same as or wider than adjoining body, 5.0µm high, 10.5 - 12.5µm wide or 1/2.3 -

1/2.7 of body width at neck base. Amphids cup-shaped, 5.5 μ m from anterior end, occupying 5.0 – 6.0mm or about half or slightly more of the corresponding body width.

Odontostyle 1.09 – 1.2 lip region width long, its aperture occupying 46.1 – 50.0% of odontostyle length. Guiding ring at 5.0 – 6.0 μ m from anterior end. Odontophore simple, rod-like, 1.2 – 1.3 times the odontostyle length. Circum-oesophageal nerve ring at 98.0 – 103.0.5 μ m from anterior end. Expanded portion of pharynx 56 – 57% of total pharyngeal length. Cardia broadly rounded, 5.0 μ m long, disc present. Pharyngeal gland nuclei indistinct. Vulva transverse, pre-equatorial. Vagina unsclerotized, 1/2.3 of the corresponding body width. Reproductive system amphidelphic. Both ovaries reflexed, anterior ovary 49.0 – 61.0 μ m and posterior ovary 49.0 – 59.0 μ m long. Prerectum 2.7 – 3.3 and rectum 0.8 – 1.1 anal body-widths long. Tail short, rounded or hemispheroid, one anal body-width long.

Male : Not found.

Habitat and Locality : Collected from soil around the roots of guava at Sikharbali, Baruipur block on 23. 09. 2005

DISCUSSION AND REMARK : The present specimens fairly agree with the type specimens of *Discolaimium mazhari* described by Baqri and Jairajpuri (1968) from soil around the roots of cotton (*Gossypium* sp.) from Uttar Pradesh, India except in having a much longer prerectum (prerectum = 15.0 – 19.0 μ m or less than one anal body-width in type specimens). This is the first report of the species from West Bengal.

SUMMARY

A small female population of *Indodorylaimus asaccatus* sp. n. and *I. baqrii* sp. n. were collected from the soil around the roots of guava (*Psidium guajava* L.) and litchi (*Litchi chinensis* Sonn.) at South

24-Parganas district, West Bengal, India. Both the newly proposed species are characterized by the absence of males because the males are very common and frequent in case of rest of the species of this genus. *Indodorylaimus asaccatus* sp. n. is characterized by the absence of males and by complete absence of the anterior uterine sac. Although it shows similarities with the females of *I. kanhobia* Thomber *et al.*, 1980 in total body length and in some body measurements and ratios, the new species differs from *I. kanhobia* by the complete absence anterior uterine sac, shorter odontostyle (11.5 – 14.5 μ m vs. 18 – 20 μ m), more anteriorly placed vulva ($V = 30.8 - 33.8$ vs. 30 – 38), lesser b value (4.8 – 5.6 vs. 5.7 – 6.6) and by greater c' value (8.8 – 12.7 vs. 8 – 9). *Indodorylaimus baqrii* sp. n. is characterized by the absence of males and by the presence of distinct anterior uterine sac.

The new species can be differentiated from all other species of *Indodorylaimus* except *I. kanhobia* Thomber *et al.*, 1980 by its longer body. Although the total body length and some body ratios of the new species overlap with those of *I. kanhobia*, it differs in having shorter odontostyle (13.5 – 16.5 μ m vs. 18 – 20 μ m), wide range of a value (30.8 – 48.9 vs. 37 – 44), lesser b value (4.9 – 5.4 vs. 5.7 – 6.6), greater C' value (8 – 13 vs. 8 – 9) and by greater c value (5.8 – 9.2 vs. 5.3 – 6.8). This is the first report of the genus *Indodorylaimus* from West Bengal, India. Few specimens of *Discolaimus tenax* Siddiqi, 1964 and *Discolaimium mazhari* Baqri and Jairajpuri, 1968 were collected from soil around the roots of guava in the same district and are being reported for the first time from West Bengal, India.

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Table 1. Morphometric data on female *Indodorylaimus asaccatus* sp. n. (All measurements are in μm except L and body ratios, L in mm. Number of paratypes examined given in the parenthesis)

Characters	Holotype female	Paratype females (7)				
		Min	Max	Mean	\pm SD	SE
L	1.5	1.38	1.73	1.5	0.13	0.06
<i>a</i>	45.3	32.1	46.6	41.7	6.09	2.72
<i>b</i>	5.2	4.8	5.6	5.1	0.32	0.14
<i>c</i>	6.0	5.4	6.7	6.1	0.51	0.23
<i>C'</i>	11.2	8.8	12.7	10.9	1.72	0.77
V %	33.2	30.8	33.8	32.7	1.22	0.55
G1 %	0	0	0	0	0	0
G2 %	13	10.2	17.4	13.2	3.74	2.16
Odontostyle length	13.5	11.5	14.5	13.7	1.2	0.54
Odontophore length	17.5	15.5	22.5	17.4	2.89	1.29
Odontostyle aperture	4.0	4.0	5.0	4.1	0.44	0.19
Maximum body width	33.0	30.0	44.0	36.8	6.72	3
Body width below lip region	12.0	9.5	12.0	11.7	1.09	0.49
Body width at neck base	31.5	29.5	44.0	36.1	6.30	2.82
Body width at vulva	33.0	30.0	44.0	36.8	6.72	3
Pharyngeal length	284.0	279.0	306.0	290.4	10.36	4.63
Expanded part of pharynx	120.0	118.0	135.0	126.0	6.24	2.79
Glandularium	109.0	102.0	122.5	112.3	8.46	4.23
Length of cardia	9.5	7.5	12.0	9.4	2.43	1.21
Length of anterior gonad	0	0	0	0	0	0
Length of posterior gonad	194.0	142.0	264.0	195.0	62.55	36.11
Anterior end to vulva	497.0	460.0	534.0	492.8	29.81	13.33
Vaginal length	15.0	14.5	19.5	16.8	1.78	0.8
Tail length	247.0	233.0	257.0	246.4	10.09	4.51
Anal body width	22.0	19.5	29.0	23.0	3.86	1.73
Length of prerectum	59.0	46.5	73.5	60.6	12.55	6.27
Length of rectum	27.0	22.0	44.0	30.0	9.62	4.81

Table 2. Morphometric data on female *Indodorylaimus baqrii* sp. n. (All measurements are in mm except L and body ratios, L in mm. Number of paratypes examined given in the parenthesis)

Characters	Holotype female	Paratype females (7)				
		Min	Max	Mean	± SD	SE
L	1.64	1.4	1.58	1.51	0.05	0.01
<i>a</i>	37.3	30.8	48.9	40.7	4.9	1.36
<i>b</i>	5.3	4.9	5.4	5.1	0.17	0.05
<i>c</i>	6.5	5.8	9.2	6.5	0.86	0.24
<i>c'</i>	11.0	8.0	13.0	10.8	1.28	0.35
V %	33.5	31.5	34.7	33.0	0.81	0.22
G1 %	1.6	1.2	2.5	1.8	0.41	0.12
G2 %	13.3	10.8	24.6	14.4	4.20	1.27
Odontostyle length	15.5	13.5	16.5	15.3	1.09	0.3
Odontophore length	17.5	16.0	19.5	17.5	1.05	0.29
Odontostyle aperture	5.0	4.0	5.5	4.8	0.53	0.16
Maximum body width	44.0	32.0	44.0	37.8	4	1.15
Body width below lip region	12.0	11.0	14.5	12.6	1.21	0.49
Body width at neck base	41.0	32.0	49.0	36.9	5.1	1.53
Body width at vulva	44.0	34.5	44.0	36.9	3.67	1.29
Pharyngeal length	306.0	265.0	309.0	292.2	10.91	3.02
Expanded part of pharynx	135.0	112.5	135.0	123.6	5.97	1.72
Glandularium	108.0	101.0	126.0	116.6	8	2.83
Length of cardia	9.5	7.5	14.0	10.8	2.33	0.82
Length of anterior uterine sac	27.0	19.5	37.0	27.6	5.69	1.64
Length of posterior gonad	220.0	169.0	360.0	226.9	61.40	18.51
Anterior end to vulva	551.0	468.0	522.0	501.7	15.98	4.43
Vaginal length	16.5	14.5	19.5	16.8	1.4	0.44
Tail length	252.0	155.0	257.0	233.1	26.98	7.48
Anal body width	23.0	19.5	24.0	21.6	1.44	0.4
Length of prerectum	59.0	49.0	73.5	60.0	7.53	2.27
Length of rectum	32.0	19.5	32.0	27.0	3.41	1.03

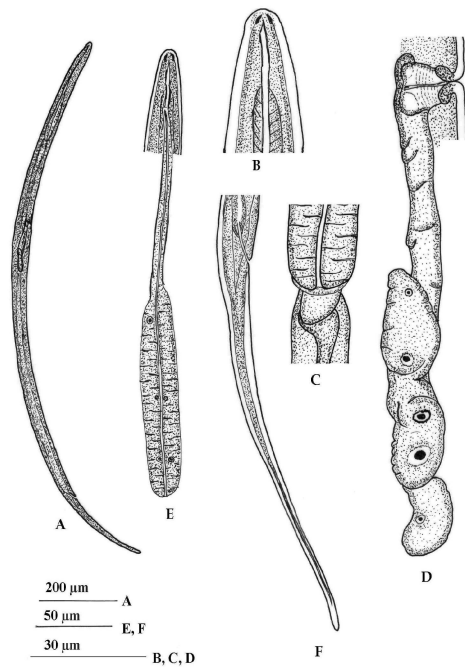


Figure 1. *Indodorylaimus asaccatus* sp. n. Female: A. Entire body, B. Anterior body end showing cephalic region & odontostyle, C. Pharyngo-intestinal junction and cardia, D. Mono-opisthodelphic reproductive system without anterior uterine sac, E. Pharynx showing the gland nuclei, F. Tail end.

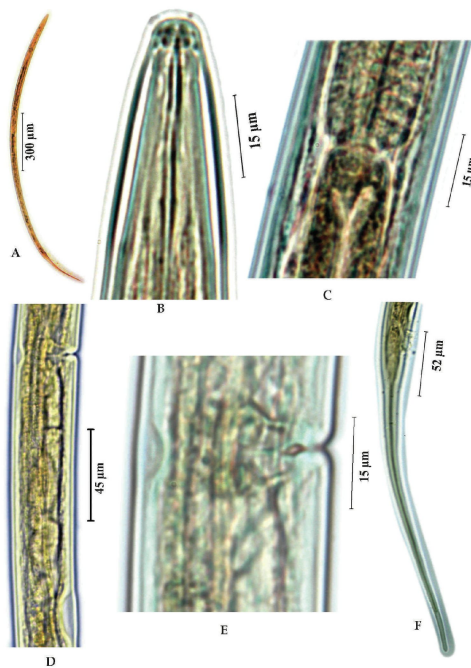


Figure 2. Photomicrographs of *Indodorylaimus asaccatus* sp. n. Female: A. Entire body, B. Anterior body end, C. Pharyngo-intestinal junction showing cardia, D. Mono-opisthodelphic reproductive system without anterior uterine sac, E. Vulval region in enlarged form showing complete absence of anterior uterine sac, F. Tail.

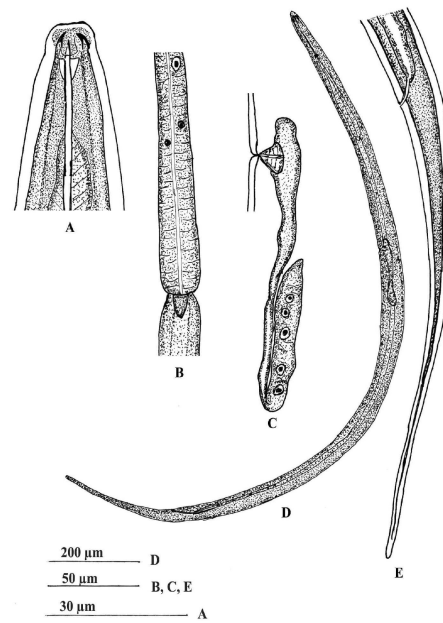


Figure 3. *Indodorylaimus baqrii* n. Female : A. Anterior body end, B. Part of pharynx, pharyngo-intestinal junction & cardia, C. Mono-opisthodelphic reproductive system with anterior uterine sac, D. Entire body, E. Tail.

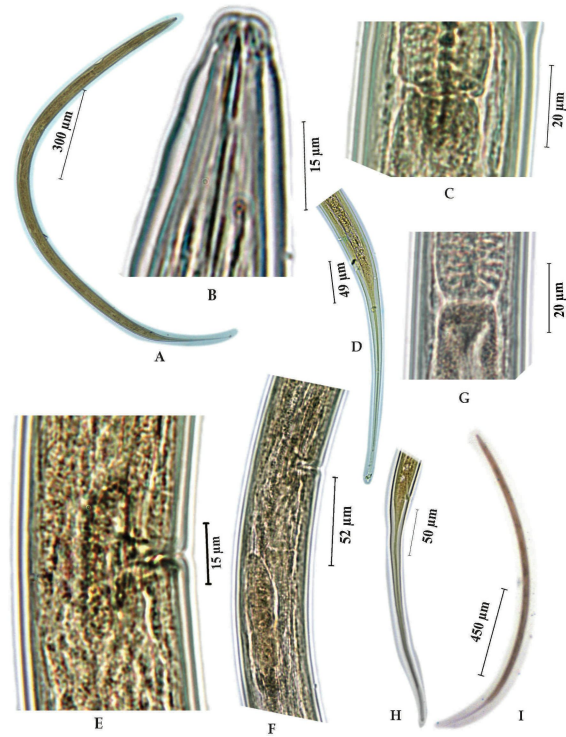


Figure 4. Photomicrographs of *Indodorylaimus baqrii* sp. n. Female: A. Entire body, B. Anterior body end, C. Pharyngo-intestinal junction and cardia, D. Tail, E. Vulva & anterior uterine sac, F. Mono-opisthodelphic reproductive system with anterior uterine sac. Morphological differences of another female: G. Cardia, H. Tail, I. Entire Body shape.

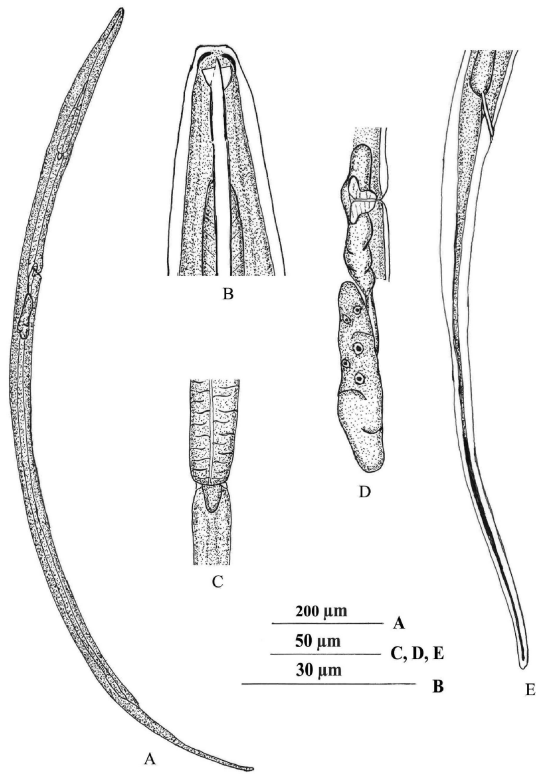


Figure 5. *Indodorylaimus baqrii* n. sp. Another paratype female showing variation in body shape : A. Entire body, B. Anterior body end showing cephalic region, amphid & odontostyle, C. Variation in shape of cardia, D. Monopisthodelphic reproductive system showing anterior uterine sac, E. Tail.

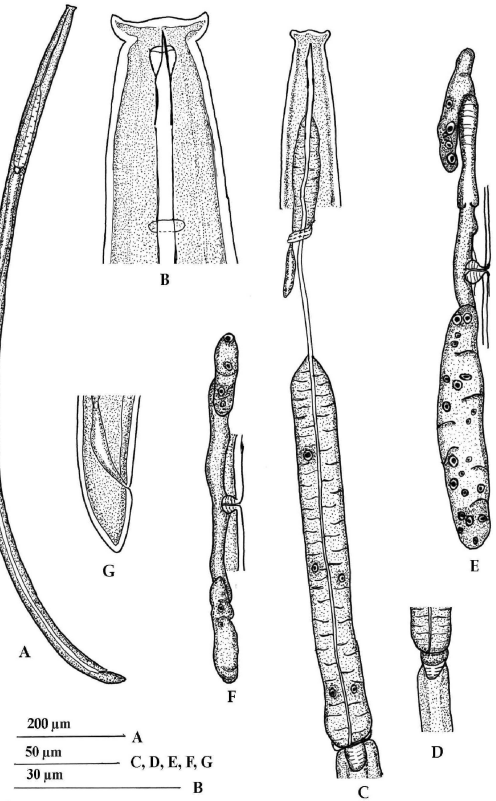


Figure 6. *Discolaimus tenax*. Female. A. Entire body, B. Anterior body end, C. Pharynx showing the pharyngeal gland nuclei, pharyngo-intestinal junction & cardia, D. Different shape of cardia, E & F. Reproductive system, G. Tail.

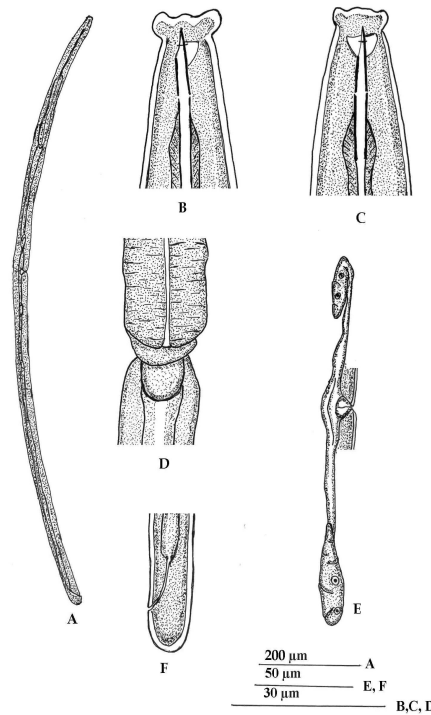


Figure 7. *Discolaimium mazhari*. Female : A. Entire body, B & C. Anterior body end showing lip region, D. Pharyngo-intestinal junction & cardia, E. Reproductive system, F. tail.