PART II

Systematics
INTRODUCTION


Till 1983, there was almost no information on the nematode fauna of Arunachal Pradesh, though it happens to be one of the richest biodiversity spots among the
North-Eastern States of India. In 1983, the Aligarh School of Nematology took some
initiative to study the nematode fauna of this region. Jairajpuri & Rahman (1983) for
the first time described a new genus and species *Curvidorylaimus curvionchus* from
this state. Jairajpuri & Rahman (1984) also described a new mononchid genus and
species *Hydronchoides micodenticulatus* from this state. They further added several
species viz., *Axonchium parasaccatus* Rahman, Jairajpuri & Ahmad, 1986; *Labronema neopacificum* and *Labronema glandosum* Rahman, Jairajpuri, Ahmad &
itanagarus* and *Paractinolaimus arupus* to the little known fauna of Arunachal
Pradesh. Rahman & Ahmad (1994) further reported *Discocriconemella limitanea*
(Luck, 1959) De Grisse & Loof, 1965 from Namdapha Tiger Reserve, Arunachal
Pradesh. Singh & Khan (1997a & 1997b) described two new species of *Longidorus,*
viz., *L. concavassus* and *L. lobus* and three new species of *Xiphinema, X.
filicaudatum, X. digicaudatum, X. arunachalensis* respectively from this state. Singh
and Khan (1998) in their studies on Criconematoidea associated with fruit crop from
North-Eastern region, described a new species *Nothocriconema filicaudatum* from
described a new species of rhabditid nematode *Chiloplectus indicus* from the bamboo
forest of Itanagar. Since most of these reports were based on sporadic surveys and
collection of few soil samples, it was thought necessary to have a detailed taxonomic
study of the soil nematode fauna of this state, and to begin with, the present research
work was planed.

During the course of present work, a total of one hundred and fourteen soil
samples were collected mainly from natural forest region and few from crop fields,
covering seven districts namely Itanagar, Tawang, West Kameng, Dibang Valley, Lohit, Changlang, and Tirap in Arunachal Pradesh. Sixty species belonging to the order Dorylaimida have been reported for the first time from this state. These are grouped under two suborders, five superfamilies, thirteen families, forty-two known genera and a new genus. Fourteen of these species are new to science. Species earlier described by different authors from this state have not been included in this study. Nematodes belonging to other groups of nematode have been identified only up to generic level and a list has been provided at the end of the thesis.
MATERIALS AND METHODS

Processing and Isolation of the nematodes

In addition to the soil samples used for community structure studies, large number of additional samples were collected from different agro-climatic zones and varied habitats for systematic study. These samples were brought to the laboratory for the isolation of nematodes using Cobb’s sieving and decantation and modified Baermann’s funnel technique.

Killing and Fixation

The collected nematodes in cavity blocks were left undisturbed for a few minutes so as to allow them to settle. Excess water was removed with the help of dropper and the hot FA fixative (8 ml of 40% commercial formaldehyde + 2 ml glycerol + 90 ml distilled water) was added to the nematode suspension. This act killed and fixed the nematodes simultaneously.

Dehydration

24 hours after fixation, nematodes were transferred to a mixture of glycerin and alcohol (95 parts of 30% alcohol + 5 parts of glycerin) in a small cavity block and were kept for dehydration (Seinhorst, 1962) in a desiccator containing anhydrous calcium chloride (CaCl₂). After 2-3 weeks these dehydrated specimens were ready to be mounted.

Mounting and Sealing

Wax ring method of mounting and sealing nematodes was practiced. A drop of anhydrous glycerine was placed in the center of a slide and three pieces of paraffin wax was placed around the glycerine. Dehydrated nematodes were transferred to the
glycerine drop. Three pieces of glass wool of the nematode body thickness, were placed around them to prevent flattening. A cover slip was gently placed over the drop and the slide was kept on the hot plate at 65°C for a few seconds. As a result the wax melted which confined the glycerine to the centre of the mount thus allowing the coverslip to stick over the the slide.

**Measurements and Drawings**

The measurements were made using an ocular micrometer and De Man (1884) formula was used to denote the dimensions of the nematodes. The drawings were made using a drawing tube mounted on Nikon Optiphot 2 Microscope.

**Abbreviations Used in the Text**

\[\begin{align*}
L &= \text{Total body length in mm.} \\
a &= \frac{\text{Body length}}{\text{greatest body width.}} \\
b &= \frac{\text{Body length}}{\text{distance from anterior end to pharyngeal base.}} \\
c &= \frac{\text{Body length}}{\text{tail length.}} \\
c' &= \frac{\text{Tail length}}{\text{body diameter at anus or cloaca.}} \\
V &= \frac{\text{Distance of vulva from anterior end} \times 100}{\text{body length.}} \\
G1 &= \frac{\text{Distance of vulva from anterior ovary} \times 100}{\text{body length.}} \\
G2 &= \frac{\text{Distance of vulva from posterior ovary} \times 100}{\text{body length.}} \\
D &= \text{Position of the dorsal gland nucleus as percentage of neck length.} \\
AS1 &= \text{Nucleus of the first ventro-sublateral gland of the first pair as percent of glandularium} \\
AS2 &= \text{Nucleus of the second ventro-sublateral gland of the first pair as percent of glandularium.} \\
PS1 &= \text{Nucleus of the first ventro-sublateral gland of the second pair as percent of glandularium.} \\
PS2 &= \text{Nucleus of the second ventro-sublateral gland of the second pair as percent of glandularium.}
\end{align*}\]
ORDER DORYLAIMIDA PEARSE, 1942

Diagnosis: Cuticle smooth, finely or coarsely striated. Lip region with labial papillae arranged in two circlets; 6 in the inner and 10 in the outer. Feeding apparatus consisting of an anterior cheilostome and a posterior oesophagostome. Cheilostome includes vestibulum and guiding apparatus, base of latter with protrusible odontostyle or mural tooth. Cuticularised walls of vestibulum weakly to heavily sclerotized and may provided with denticles or onchia. Amphids cyathiform, stirrup-shaped or saccate with pore or slit-like aperture. Guiding apparatus with a single or ‘double’ ring. Pharynx in two parts, an anterior slender and a posterior expanded. Nerve ring encircles anterior slender part of pharynx. Excretory pore and excretory duct usually absent. Pharyngeal glands unicellular, numbering five, rarely three, located together with their nuclei and orifices in basal expanded part of pharynx. Intestine oligocytous or polycytous. Female genital system monodelphic (mono-prodelphic or mono-opisthodelphic) or amphidelphic with reflexed ovaries. Vulva transverse, longitudinal or simple pore-like. Vagina with or without sclerotization. Males with pair of opposite testes, paired spicules, lateral guiding pieces and sometimes a gubernaculum. Supplements few to numerous, rarely absent. Prerectum usually well defined; caudal glands absent. Tail shape and size highly variable, often dissimilar in sexes.

Type suborder: Dorylaimina Pearse, 1936

Other suborder: Nygolaimina Ahmad & Jairajpuri, 1979

Key to suborders of Dorylaimida

1. Feeding apparatus provided with odontostyle..........................Dorylaimina

   Feeding apparatus provided with mural tooth......................... ......Nygolaimina
SUBORDER DORYLAIMINA PEARSE, 1936

**Diagnosis:** Feeding apparatus provided with axial odontostyle of varying thickness and size. Guiding ring single or ‘double’. Odontophore rod-like or arcuate, sometimes with basal knobs or flanges. Expanded part of pharynx occupying about one-third to one-half of total pharyngeal length, sometimes a pyriform basal bulb with triquetrous or valvular chamber. Cardia rounded to elongate-conoid. Female genital system monodelphic or amphidelphic with reflexed ovaries. Vulva transverse, longitudinal or simple pore-like. Males with pair of opposed testes; paired spicules; gubernaculum and lateral guiding pieces present or absent. Adanal pair of supplements present; ventromedian supplements none to numerous, spaced or contiguous. Prerectum varying in length. Tail shape and size highly variable, often dissimilar in sexes.

**Type superfamily:** Dorylaimoidea De Man, 1876

**Other superfamilies:** Tylencholaimoidea Filipiev, 1934
Longidoroidae Thorne, 1935
Actinolaimoidea Thorne, 1939
Belondiroidea Thorne, 1939

**Key to superfamilies of Dorylaimina**

1. Cheilostome strongly sclerotized, provided with plate or basket-like structures, frequently accompanied by large onchia with or without denticles

................................................................. Actinolaimoidea

Cheilostome usually thin walled, without onchia or denticles..........................2

2. Odontostyle long and attenuated; pharynx with only three glands

................................................................. Longidoroidea

Odontostyle comparatively much smaller; pharynx with five glands..............3
3. Expanded part of pharynx enclosed in spiral muscular sheath

…………………………………………………………………………………………………Belondiroidea

Expanded part of pharynx not enclosed in spiral muscular sheath…………………4

4. Subcuticle coarsely striated, provided with abundant radial striae; expanded part of pharynx usually a small basal bulb…………………………………….Tylencholaimoidea

Subcuticle not striated, radial striae few if present; expanded part of pharynx usually about half of total pharyngeal length………………………………Dorylaimoidea

**Superfamily Dorylaimoidea De Man, 1876**

**Diagnosis:** Cuticle smooth or transversely striated, rarely with longitudinal ridges or lamelliform structures. Vestibule straight, tubular. Odontostyle hollow, with oblique dorsal opening. Amphids usually with stirrup -or cup-shaped fovea and slit-like aperture. Guiding ring single or ‘double’. Odontophore rod-like, rarely with knobs or flanges at base. Pharynx in two parts, anterior slender, and posterior expanded cylindroid part occupying about one-third to two-thirds total pharyngeal length. Female genital system mono-or amphidelphic. Vulva transverse, longitudinal or pore-like. Spicules arcuate; lateral guiding pieces usually present; gubernaculum rarely present. Ventromedian supplements few to numerous, spaced, or contiguous or in groups. Prerectum distinct. Tail similar or dissimilar in sexes.

**Type family:** Dorylaimidae De Man, 1876

**Other families:** Nordiidae Jairapuri and A.H. Siddiqi, 1964
Aporcelaimidae Heyns, 1965
Qudsianematidae Jairaipuri, 1965
**Key to families of Dorylaimoidea**

1. Odontostyle with wide aperture occupying usually more than half its length, guiding ring not sclerotized plicate.................................................. **Aporcelaimidae**

   Odontostyle with smaller aperture, usually one-third or less its length; guiding ring sclerotized..........................................................2

2. Odontostyle attenuated, usually longer than width of lip region ... **Nordiidae**

   Odontostyle not attenuated and usually about as long as width of lip region..........................................................3

3. Large and stout nematodes, usually with long filiform tail exhibiting sexual dimorphism.................................................. **Dorylaimidae**

   Medium sized nemotodes, usually with short tail similar in sexes .................................................. **Qudsianematidae**

**Superfamily Belondiroidea Thorne, 1939**

**Diagnosis:** Lip region narrow; lips small, angular or rounded. Odontostyle usually small. Odontophore rod-like, rarely flanged. Basal expanded part of pharynx enveloped by thick sheath of muscles, generally with spiral, rarely with longitudinal bands. Female genital system monodelphic or amphidelphic. Ventromedian supplements few to numerous. Tail variable in shape; similar or dissimilar in sexes.

**Type and only family:** Belondiridae Thorne, 1939
Superfamily Actinolaimoidea Thorne, 1939

Diagnosis: Lip region with sclerotised pharyngeal walls varying from simple plates to strong refractive basket-like or ribbed structures, frequently accompanied by four large onchia which may be fused into a spear guide or accompanied by numerous other mural denticles. Cuticle often with longitudinal striations. Odontostyle simple dorylaimoid, with distinct dorsal aperture; odontophore rod-like. Pharynx enlarged near middle, anterior part either with well-developed radial musculature or slender non-muscular tube. Strong basal shield usually present at base of pharynx. Female genital system amphidelphic, very rarely mono-opisthodelphic. Males with dorylaimoid spicules, lateral guiding pieces and ventromedian supplements. Tail short, conoid to long, filiform; similar or dissimilar in sexes.

Type and only family: Actinolaimidae Thorne, 1935

Superfamily Longidoroidea Thorne, 1935

Diagnosis: Body slender, large-sized, 1-2 mm long. Lip region continuous or offset. Odontostyle long and attenuated, with fine lumen and aperture. Odontophore simple, rod-like or with basal flanges. Odontostyle-odontophore junction simple or complex. Guiding ring single or ‘double’. Pharynx with an anterior non-muscular convoluted tubular part set off from an expanded muscular part comprising about one-fourth of total pharyngeal length. Nuclei of only second pair of pharyngeal glands (S2N) and their orifices (S2O) visible. Female genital system monodelphic or amphidelphic. Vulva transverse. Spicules arcuate, lateral guiding pieces and ventromedian supplements present. Tail similar in sexes.

Type family: Longidoridae Thorne, 1935
Other family: Xiphinematidae Dalmasso, 1969

Key to families of Longidoroida

Guiding ring ‘double’; odontophore flanged ................. Xiphinematidae
Guiding ring single; odontophore not flanged .................. Longidoridae

Superfamily Tylencholaimoidea Filipjev, 1934

Diagnosis: Cuticle and sub-cuticle usually with fine or coarse striations; sub-cuticle lose, with radial strations and fixation folds. Musculature meromyarian. Lip region continuous or offset; lips usually rounded and labial papillae not raised. Lip region may bear labial disc or inner liplets around oral aperture. Odontostyle axial, symmetrical or asymmetrical, often solid, acicular. Odontophore rod-like or arcuate, with or without basal knobs or flanges. Pharynx either slender, terminating in small pyriform or cylindroid basal bulb, or large dorylaimoid type. Well develop triquetrous chamber may be present in basal bulb. Intestine oligocytous. Female genital system monodelphic or amphidelphic. Vulva transverse or longitudinal. Males with arcuate spicules, lateral guiding pieces and generally few spaced ventromedian supplements. Tail greatly variable in shape and size; similar in sexes.

Type family: Tylencholaimidae Filipjev, 1934

Other families: Leptonchidae Thorne, 1935
Aulolaimoididae Jairajpuri, 1964
Mydonomidae Thorne, 1964
Key to families of Tylencholaimoidea

1. Pharynx consisting of three sections...........................................Aulolaimoididae
   Pharynx consisting of two sections....................................................2

2. Odontostyle usually well developed; expanded part of pharynx about one-half of pharyngeal length.......................................................Tylencholaimidae
   Odontostyle usually slender; expanded part of pharynx short, cylindroid or pyriform bulb............................................................3

3 Odontostyle asymmetrical with distinct aperture; pharyngeal bulb cylindroid
.................................................................................................Mydonomidae
   Odontostyle symmetrical, attenuated, often solid, needle-like; pharyngeal bulb usually pyriform ......................................................Leptonchidae

Superfamily Nygolaimoidea Thorne, 1935

Diagnosis: Mural tooth on left sub-ventral wall of pharynx. Pharynx eversible, in three sections, viz., distal, median and proximal; median and proximal (basal) parts thick-walled; distal part (vestibulum) thin-walled. Pharynx with anterior slender part and expanded basal. Basal expanded part of pharynx may rarely be bibulbar and is usually enclosed in a thin or conspicuous sheath forming basal pockets. Three cardiac glands or cardiac disc present at junction of pharynx or intestine. Female genital system amphidelphic, rarely mono-opisthodelphic. Vulva transverse, rarely longitudinal. Males generally with massive spicules, lateral guiding pieces and ventromedian supplements. Gubernaculum present or absent. Tail variable in shape and size but similar in sexes.

Type family: Nygolaimidae Thorne, 1935
Other families: Nygellidae Andrássy, 1958
Nygolaimellidae Clark, 1961
Aetholaimidae Jairajpuri, 1965

Key to families of Nygolaimoidea

1. Basal expanded part of pharynx enclosed in thick sheath of spiral muscles;
   female genital system mono-opisthodelphic ........................................... Nygellidae
   Basal expanded part of pharynx not enclosed in muscular sheath; female
   genital system amphidelphic ................................................................. 2

2. Stoma sclerotised ................................................................. Aetholaimidae
   Stoma not sclerotised ........................................................................ 3

3. Basal expanded part of pharynx about one-half pharyngeal length; cardiac
glands present ............................................................. Nygolaimidae
   Basal expanded part of pharynx about two-thirds pharyngeal length, bibulbar;
cardiac disc present ........................................... Nygolaimellidae
OUTLINE CLASSIFICATION

Order Dorylaimida Pearse, 1942

A. Suborder Dorylaimina Pearse, 1936

1. Superfamily Dorylaimoidea De Man, 1876

FAMILY DORYLAIMIDAE DE MAN, 1876

Subfamily Dorylaiminae De Man, 1876
- Dorylaimus Dujardin, 1845
- Ischiodorylaimus Andrassy, 1969

Subfamily Amphidorylaiminae Andrassy, 1976
- Amphidorylaimus Andrassy, 1960
- Apodorylaimus Andrassy, 1988

Subfamily Prodorylaiminae Andrassy, 1969
- Prodorylaimus Andrassy, 1959
- Prodorylaimium Andrassy, 1964
- Oxydiroides Altherr, 1972
- Protodorylaimus Andrassy, 1988
- Kunjudorylaimus Dhanam & Jairajpuri, 2000

Subfamily Laimydorinae Andrassy, 1969
- Mesodorylaimus Andrassy, 1959
- Laimydorus Siddiqi, 1969
- Afrodorylaimus Andrassy, 1964
- Drepanodorylaimus Jairajpuri, 1966
- Calodorylaimus Andrassy, 1969
- Idiodorylaimus Andrassy, 1969
- Fuscheila Siddiqi 1982
- Miodorylaimus Andrassy, 1986
- Calcaridorylaimus Andrassy, 1986
- Crocodorylaimus Andrassy, 1988
- Halodorylaimus Andrassy, 1988
- Namaquanema Heyns & Swart, 1993

Subfamily Thornenematinae Siddiqi, 1969
- Thornenema Andrassy, 1959
- Willinema Baqri & Jairajpuri, 1967
- Sicaguttur Siddiqi, 1971
- Opisthodorylaimus Ahmad & Jairajpuri, 1982
- Sclerolabia Carobonell & Coomans, 1986
- Silvallis Ahmad & Jairajpuri, 1986
Lagenonema Andrássy, 1987
Coomansinema Ahmad & Jairajpuri, 1989
Paratimminema Rahman, Ahmad & Khan, 1993

Subfamily Anadorellinae Siddiqi, 2005
Anadorella Siddiqi, 2005

FAMILY QUDSIANEMATIDAE JAIRAJPURI, 1965

Subfamily Qudsianematinae Jairajpuri, 1965
Qudsianema Jairajpuri, 1965
Labronema Thorne, 1939
Eudorylaimus Andrássy, 1959
Takamangai Yeates, 1967
Ecumenicus Thorne, 1974
Pachydorylaimus Siddiqi, 1983
Tylenchodorus Siddiqi, 1983
Labronemella Andrássy, 1985
Allodorylaimus Andrássy, 1986
Epidorylaimus Andrássy, 1986
Microdorylaimus Andrássy, 1986
Skibbenema Van Reenen & Heyns, 1986
Dorydorella Andrássy, 1987
Bagriella Ahmad and Jairajpuri, 1989
Kallidorylaimus Andrássy, 1989
Crassogula Andrássy, 1992
Talanema Andrássy, 1992
Amblydorylaimus Andrássy, 1998
Boreolaimus Andrássy, 1998
Cricodorylaimus Ahmad & Sturhan, 2001
Scalpelus Ahmad, 2004

Subfamily Discolaiminae Siddiqi, 1969
Discolaimus Cobb, 1913
Discolaimium Thorne, 1939
Mylodiscus Thorne, 1939
Discolaimoides Heyns, 1963
Mylodiscoides Lordello, 1963
Latocephalus Patil & Khan, 1982
Filidiscolaimus Siddiqi, 1995

Subfamily Salimellinae Siddiqi, 2005
Salimella Siddiqi, 2005
Belaxellus Thorne, 1939
Bullaenema Saur, 1968
Durinema Jairajpuri, 1968

Subfamily Carcharolaiminae Thorne, 1967
Carcharolaimus Thorne, 1939
Antholaimus Cobb, 1913
Caryboca Lordello, 1967
Caribenema Thorne, 1967
Carcharodiscus Andrassy, 1991

Subfamily Chrysonematinae Siddiqi, 1969
Chrysonema Thorne, 1929
Oonaguntus Thorne, 1974

Subfamily Hulquinae Siddiqi, 1982
Hulqus Siddiqi, 1982
Mitoanxonchium Yeates, 1973

Subfamily Thorniinae De Coninck, 1965
Thornia Meyl, 1954
Thorneella Andrassy, 1960
Nygolaimoides Meyl & Andrassy, 1960
Thorniosa Andrassy, 1996
Sphaeroamphis Ahmad & Sturhan, 2000

Subfamily Lordellonematinae Siddiqi, 1969
Lordellonema Andrassy, 1960
Poronemella Siddiqi, 1969
Moshajia Siddiqi, 1982
Sicorinema Siddiqi, 1982

Subfamily Crateronematinae Siddiqi, 1969
Crateronema Siddiqi, 1969

FAMILY APORCELAIMIDAE HEYNS, 1965

Subfamily Aporcelaiminae Heyns, 1965
Aporcelaimus Thorne & Swanger, 1936
Aporcelaimellus Heyns, 1965
Makatimus Heyns, 1965
Aporcelaimium Loof & Coomans, 1970
Akrotonus Thorne, 1974
Tubixaba Monterio & Lordello, 1980
Aporcedorus Jairajpuri & Ahmad, 1983

Subfamily Sectonematinae Siddiqi, 1969
Sectonema Thorne, 1930

Subfamily Paraxonchiinae Dhanachand & Jairajpuri, 1981
Paraxonchium Krall, 1958
Gopalus Khan, Jairajpuri & Ahmad, 1988
Tendinema Siddiqi, 1995
FAMILY NORDIIDAE JAIRAJPURI & SIDDIQI, 1964

Subfamily Nordiinae  Jairajpuri & Siddiqi, 1964
   Longidorella  Thorne, 1939
   Saevadorella  Siddiqi, 1982
   Thornedia  Husain & Khan, 1965

Subfamily Cephalodorylaiminae Jairajpuri, 1967
   Cephalodorylaimus  Jairajpuri, 1967
   Acephalodorylaimus  Ahmad & Jairajpuri, 1982
   Echinodorus  Siddiqi, 1995

Subfamily Pungentinae Siddiqi, 1969
   Pungentus  Thorne & Swanger, 1936
   Enchodelus  Thorne, 1939
   Kochinema  Heyns, 1963
   Lenonchium  Siddiqi, 1965?
   Rhyssocolpus  Andrássy, 1971
   Enchodorus  Vinciguerra, 1976
   Californidorus  Robbins & Weiner, 1977
   Lanzavecchia  Zullini, 1988

Subfamily Actinolaimoidinae Jairajpuri & Ahmad, 1992
   Actinolamoides  Meyl, 1957
   Oriverutus  Siddiqi, 1971
   Malekus  Thorne, 1974
   Inbionema  Loof & Zullini, 2000
   Parapalus  Loof & Zullini, 2000
   Oriverutoides  Ahmad & Sturhan, 2002

FAMILY ENCHOLAIMIDAE GOLDEN & MURPHY, 1967
   Encholaimus  Golden & Murphy, 1967
   Helmabia  Siddiqi, 1971
   Nemabia  Siddiqi, 1995

FAMILY ARCTIDORYLAIMIDAE MULVEY & ANDERSON, 1979
   Subfamily Arctidorylaiminae Mulvey & Anderson, 1979
      Arctidorylaimus  Mulvey & Anderson, 1979

2. Superfamily Actinolaimoidea Thorne, 1939

FAMILY ACTINOLAIMIDAE THORNE, 1939

   Subfamily Actinolaiminae Thorne, 1939
      Actinolaomus  Cobb, 1913
Subfamily Neoactinolaiminae Thorne, 1967
Neoactinolaimus Thorne, 1967
Egititus Thorne, 1967
Metactinolaimus Meyl, 1957
Hexactinolaimus Yeates, 1973
Nothactinolaimus Loof, 1973
Scleroactinolaimus Ahmad, Khan & Ahmad, 1992

Subfamily Brittonematinae Thorne, 1967
Brasilaimus Lordello and Zamith, 1957
Practinocephalus Andrassy, 1973
Stopractinca Khan, Ahmad & Jairajpuri, 1994
Afractinca Vinciguerra & Clausi, 2000

Subfamily Paractinolaiminae Thorne, 1967
Paractinolaimus Meyl, 1957
Trachypleurosum Andrassy, 1959
Trachactinmus Andrassy, 1963
Westindicus Thorne, 1967
Afractinolaimus Andrassy, 1970
Dominicactinolaimus Jairajpuri & Ahmad, 1992
Paractinolaimiodes Khan Ahmad & Jairajpuri, 1994

4. Superfamily Longidoroidea Thorne, 1935

FAMILY LONGIDORIDAE THORNE, 1935

Subfamily Longidorinae Thorne, 1935
Longidorus Micoletzky, 1992
Paralongidorus Siddiqi, Hooper & Khan, 1963
Longidoroides Khan, Chawla & Saha, 1978

FAMILY XIPHINEMATIDAE DALMASSO, 1969

Subfamily Xiphinematinae Dalmasso, 1969
Xiphinema Cobb, 1913

Subfamily Xiphidorinae Khan, Chawla & Saha, 1978
Xiphidorus Monterio, 1976
Paraxiphidorus Coomans & Chaves, 1995
5. Superfamily Tylencholaimoidea Filipjev, 1934

FAMILY TYLENCHOLAIMIDAE FILIPJEV, 1934

Subfamily Tylencholaiminae Filipjev, 1934

*Tylencholaimus* De Man, 1876
*Discomyctus* Thorne, 1939
*Utahnema* Thorne, 1939
*Meylonema* Andrássy, 1960
*Chitwoodiulus* Furstenberg & Heyns, 1966
*Capilonchus* Siddiqi, 1982
*Tantunema* Siddiqi, 1982
*Chitwoodiellus* Jimenez Guirado & Pena Santiago, 1992
*Sclerolaimus* Jairajpuri & Ahmad, 1992
*Rostndium* Siddiqi, 1995
*Wasimellus* Bloemers & Wanless, 1996
*Tsukubanema* Ahmad & Araki, 2002
*Chitwoodielloides* Ahmad & Araki, 2003

Subfamily Xiphinemellinae Jairajpuri, 1964

*Xiphinemella* Loos, 1950
*Loncharionema* Goseco, Ferris & Ferris, 1974
*Kantbha* Siddiqi, 1982
*Zalophidera* Siddiqi, 1982
*Clavigula* Siddiqi, 1995

Subfamily Vanderlindiinae Siddiqi, 1969

*Vanderlindia* Heyns, 1964
*Metadorylaimus* Jairajpuri & Goodey, 1966
*Curvidorylaimus* Jairajpuri & Rahman, 1983
*Neometadorylaimus* Jairajpuri & Ahmad, 1992

Subfamily Mumtaziinae Andrássy, 1976

*Mumtazium* Siddiqi, 1969
*Promumtazium* Siddiqi, 1982

FAMILY LEPTONCHIDAE THORNE, 1935

Subfamily Leptonchinae Thorne, 1935

*Leptonchus* Cobb, 1920
*Funaria* Van Linde, 1938
*Proleptonchus* Lordello, 1955
*Bertzuckermania* Khera, 1970
*Meylis* Goseco, Ferris & Ferris, 1974
*Proleptonchoides* Ferris, Goseco & Kumar, 1979
*Apoleptonchus* Siddiqi, 1982
*Incanema* Andrássy, 1992
Subfamily Tyleptinae Jairajpuri, 1964

*Tyleptus* Thorne, 1939
*Caveonchus* Siddiqi, 1982
*Gymnotyleptus* Ahmad & Jairajpuri, 1982

Subfamily Tylencholaimellinae Jairajpuri, 1964

*Tylencholaimellus* Cobb in M.V.Cobb, 1915
*Doryllium* Cobb, 1920
*Agmodorus* Thorne, 1964
*Dorella* Jairajpuri, 1964
*Phellonema* Thorne, 1964
*Oostenbrinkella* Jairajpuri, 1965
*Gerthus* Goseco, Ferris & Ferris, 1975
*Goferus* Jairajpuri & Ahmad, 1992
*Margollus* Pena Santiago, Peralta & Siddiqi, 1993

Subfamily Belonenchinae Thorne, 1964

*Basirotyleptus* Jairajpuri, 1964
*Sclerostylus* Goseco, Ferris & Ferris, 1981
*Glochidorella* Siddiqi, 1982
*Zetalaimus* Siddiqi, 1982
*Punctoleptus* Khan, 1986

Subfamily Athernematinae Ahmad & Jairajpuri, 1978

*Athernema* Ahmad & Jairajpuri, 1978

FAMILY AULOLAIMOIDIDAE JAIRAJPURI, 1964

*Aulolaimoides* Micoletzy, 1915
*Adenolaimus* Andrassy, 1973
*Oostenbrinkia* Ali, Suryawanshi & Ahmad, 1973
*Cladocephalus* Swart & Heyns, 1991

FAMILY MYDONOMIDAE THORNE, 1964

Subfamily Mydonominae Thorne, 1964

*Dorylaimoides* Thorne & Swanger, 1936
*Mydonomus* Thorne, 1964
*Morasia* Baqri & Jairajpuri, 1969
*Scalpenchus* Siddiqi, 1995

Subfamily Calolaiminae Goseco, Ferris & Ferris, 1976

*Calolaimus* Timm, 1964
*Miranema* Thorne, 1939
*Timmus* Goseco, Ferris & Ferris, 1976
6. Superfamily Belondiroidea Thorne, 1939

FAMILY BELONDIRIDAE THORNE, 1939

Subfamily Belondirinae Thorne, 1939

Belondira Thorne, 1939
Axonchium Cobb, 1920
Belondirella Thorne, 1964
Axonchoides Thorne, 196
Anchobelondira Nair & Coomans, 1971
Heynsaxonchium Coomans & Nair, 1975
Phallaxonchium Jairajpuri & Dhanachand, 1979

Subfamily Dorylamellinae Jairajpuri, 1964

Dorylaimellus Cobb, 1913

Subfamily Swangeriinae Jairajpuri, 1964

Swangeria Thorne, 1939
Oxydirus Thorne, 1939
Roqueus Thorne, 1964
Falcihasta Clark, 1964
Qudsiella Jairajpuri, 1967
Lindseyus Ferris & Ferris, 1973
Oxybelondira Ahmad & Jairajpuri, 1979
Paraoxydirus Jairajpuri & Ahmad, 1979
Paraqudsiiella Siddiqi, 1982

Incertae sedis
Porternema Suryawanshi, 1972
Helicobelondira Yeates, 1973
Yunqueus Thorne, 1974
Laurophragus Nesterov, 1976
Yubeldus Khan, Azmi & Chawla, 1979
B. Suborder Nygolaimina Ahmad & Jairajpuri, 1979

Superfamily Nygolaimoidea Thorne, 1935

FAMILY NYGOLAIMIDAE THORNE, 1935

Subfamily Nygolaiminae Thorne, 1935
Nygolaimus Cobb, 1913
Afronygus Heyns, 1968
Aquatides Heyns, 1968
Clavicaudoides Heyns, 1968
Laevides Heyns, 1968
Paranygolaimus Heyns, 1968
Paravulvus Heyns, 1968

Subfamily Solididentinae Ahmad & Jairajpuri, 1982
Solididens Heyns, 1968
Clavicauda Heyns, 1968
Feroxides Heyns, 1968

FAMILY NYGELLIDAE ANDRÁSSY, 1958
Nygellus Thorne, 1939

FAMILY NYGOLAIMELLIDAE CLARK, 1961

Subfamily Nygolaimellinae Clark, 1961
Nygolaimellus Loos, 1949
Aporcelaimoides Heyns, 1965
Scapidens Heyns, 1965

Subfamily Nygolaimiinae Andrássy, 1976
Nygolaimium Thorne, 1930

FAMILY AETHOLAIMIDAE JAIRAJPURI, 1965
Aetholaimus Williamus, 1962
Descriptions
FAMILY DORYLAIMIDAE DE MAN, 1876

Subfamily Dorylaiminae De Man, 1876

Genus *Ischiodorylaimus* Andrássy, 1969

**Diagnosis:** Body usually 6-8 mm long. Lip region continuous with body. Amphids with stirrup-shaped fovea. Odontostyle massive, with wide lumen and aperture. Guiding ring 'double'. Odontophore rod-like. Pharynx enlarging near middle. Female genital system amphidelphic. Prerectum in males long, beginning well in front of supplements. Ventromedian supplements in two groups (fascicles), single supplements also present in-between these groups. Males with well developed copulation pad. Tail long, filiform in females and short, conoid in males.

*Types species:* *Ischiodorylaimus gulliver* (Andrassy, 1964) Andrassy, 1969


*Ischiodorylaimus paraugandanus* Khan and Ahmad, 1994

**Measurements:**

*Females* (n=3): Body length = (4.5± .41) 4.0-5.1 mm; body width at neck base = (115±14.7) 100-135 μm.; body width at midbody = (121.6±14.3) 105-140 μm; body width at anus = (57.3±1.2) 55-59 μm; a = (37.6±1.2) 36-39; b = (52±0.) 4.5-5.5; c = (14.4±0)13.5-15.4; c’ = (5.5±0.2) 5.2-5.7; V= (39.4±2.05)37-41; G₁ = (14.4±0.8)13.5-15.5; G₂ = (19.3±0.5)18.5-20; lip region width = 25 μm; lip region height = 7 μm; amphid aperture = 16 μm; odontostyle length = (53.3±0.9) 52-54 μm; odontophore length = (57±0.8) 56-58 μm; guiding ring from anterior end = (30.5±0.5) 30-31 μm; expanded part of pharynx = (455±14.7) 440-475 μm; nerve ring from anterior end = (237±5.6) 232-245 μm; neck length = (861.7±62) 855-870 μm; cardia length = 52 μm;
prerectum length = (295±28.6) 260-330 μm; rectum length = (79.7±7.4) 73-90 μm; 
tail length = (78±0.2) 290-330 μm.

**Male (n=1):** Body length = 3.8 mm; body width at neck base = 137 μm; body 
width at midbody = 145 μm; body width at anus = 75 μm; a = 26; b = 4; c = 84.5; c’ 
= 0.6; lip region width = 26 μm; lip region height = 6.5 μm; amphid aperture = 11 μm; 
odontostyle length = 58 μm; odontophore length = 58 μm; guiding ring from anterior 
extend = 31 μm; expanded part of pharynx = 520 μm; nerve ring from anterior end = 307 
μm; neck length = 953 μm; cardia length = 52 μm; prerectum length = 390 μm; 
rectum length = 98 μm; spicules length =118 μm; lateral guiding pieces = 22 μm; tail 
length = 45 μm.

**Habitat and locality:** Soil around the roots of forest trees (unidentified) from 
Indira Gandhi Golden Jubilee Park, Itanagar, Arunachal Pradesh.

**Remarks:** Khan and Ahmad (1994) described *I. paraugandanus* from Sitamarhi, 
India based on single female and two males. The present specimen conforms well 
with the type specimens in most of its morphometric characters. However, they differ 
in having shorter neck length (vs. 981 μm); longer cardia (vs. 38 μm); longer 
prerectum (vs. 218 μm); more c’ value (vs. 4.8), and longer spicules (vs. 94-112 μm). 
These differences may be attributed to geographical variations and also because the 
original description was based on very few specimens. This is the first report of this 
species from Arunachal Pradesh.
Subfamily Laimydorinae Andrássy, 1969

Genus *Mesodorylaimus* Andrássy, 1959

**Diagnosis:** Body length usually 1-2 mm. Cuticle thick with fine transverse striae. Lip region continuous or set off by depression or constriction; lips angular or rounded. Amphids with stirrup-shaped fovea and slit-like aperture. Vestibule with thin cuticularised lining. Odontostyle usually slightly longer than one lip width, its aperture occupying about one-third its length. Guiding ring thin, single. Odontophore rod-like. Pharynx muscular, enlarging gradually to abruptly near middle. Cardia short, conoid or digitate. Female genital system amphidelphic. Vulva transverse or rarely longitudinal; vulval lips always strongly cuticularised. Prerectum in males usually terminating at level of supplements or slightly anterior to them. Spicules arcuate, dorylaimoid; lateral guiding pieces present; ventromedian supplements 4-26, adjacent or spaced. Female tail elongate-conoid, or convex-conoid in anterior part, slender, straight or often dorsally curved in posterior part. Varying in length from 1 to 20 anal body widths. Male tail short bluntly rounded.


Syn. *Dorylaimus mesonyctius* Kreis, 1930

*Dorylaimus subulatus* Cobb in Thorne and Swanger, 1936

*Mesodorylaimus chamoliensis* Ahmad, 1995

**Measurements:**

*Females (n=5):* Body length = (0.89±0.08) 0.80-1.03 mm; body width at neck base = (25.1±1.7) 23-27.5 μm; body at mid body = (25.9±1.3) 24.5-27 μm; body width at anus = (15±1)13.5-15.5 μm; a = (34.6±1.8) 33-38; b = (4.5±0.2) 4.0-4.7; c=(4.5±0.5) 3.5-5.0; c’= (13.34±1.8) 11.2-16.0; V = (43.6±1.1) 42.5-45.5; G₁=
(8.3±0.6) 7.0-8.5; \( G_2 = (7.8±0.5) \) 7-8; lip region width = (7.7±0.2) 7.5-8.0 \( \mu m \); lip region height = (3.2±0.2) 3.0-3.5 \( \mu m \); amphid aperture = 4.5 \( \mu m \); odontostyle length= (10.2±0.03)10-10.5 \( \mu m \); guiding ring from anterior end = (6.1±0.6) 5.5-7.0 \( \mu m \); odontophore length = (13.6±0.3)13-14 \( \mu m \); expanded part of pharynx = (75.8±5.4) 68-85 \( \mu m \); nerve ring from anterior end = (81.8±4.9) 76-90 \( \mu m \); neck length= (198.±20)170-226 \( \mu m \); cardia length = (15.5±1.50)14.0-16.5 \( \mu m \); prerectum length = (29.8±3.0) 27.0-34.5 \( \mu m \); rectum length = (25.2±0.9) 24.5-26.5 \( \mu m \); tail length = (201.18±21.7)161-226 \( \mu m \).

**Habitat and locality:** Soil around the roots of forest trees Lathan, District Lohit, Arunachal Pradesh.

**Remarks:** Ahmad (1995) described *M. chamoliensis* from Chamoli, India. Later Ahmad and Araki (2003) reported this species from Japan, for the first time from a locality other than the type locality. Present specimens conform well with the type specimens except for having slightly shorter odontostyle (vs odontostyle 11-12 \( \mu m \)). This is the first report of this species from Arunachal Pradesh.

**Genus Laimydorus Siddiçi, 1969**

* Syn. *Calodorylaimus* Andrássy, 1969
* Paradorylaimus* Andrássy, 1969
* Chrysodorus* Jemenz-Guirado & Cadenas, 1985

**Diagnosis:** Body usually more than 2 mm long. Cuticle thick, with fine striae, without ridges or punctuations, sometimes with scattered radial striae. Lip region continuous or offset; lips amalgamated. Amphids with stirrup shaped fovea and large aperture. Odontostyle massive, with wide lumen and aperture. Guiding ring sclerotised, “double”. Odontophore rod like. Pharynx very muscular, gradually enlarging near middle. Cardia large, digitate. Female genital system amphidelphic.
Vulva longitudinal or rarely transverse. Ventromedian supplements numerous, contiguous. Spicules dorylaimoid; lateral guiding pieces present. Tail long filiform in female and short, conoid with rounded tip in males.

Type species: *Laimydorus prolificus* (Thorne and Swanger, 1936) Siddiqi, 1969
Syn. *Dorylaimus prolificus* Throne and Swanger, 1936
*Mesodorylaimus prolificus* (Thorne and Swanger, 1936)
Goodey, 1963

**Laimydorus vulvastriatus** sp. n.
(Fig. T-1)

**Measurements:** See Table T-1

**Female:** Body almost straight or slightly curved ventrad upon fixation, tapering towards extremities. Cuticle finely striated, 2.5-4.5 μm at midbody and 3.5-4.5 μm on ventral side of tail just posterior to anus. Lateral chords about one-fifth of corresponding body width wide. Lateral body pores indistinct; dorsal pores three, restricted to the neck region anterior to nerve ring; ventral pores 8-11 in the pharyngeal region, 5-6 between pharynx base and vulva, and 3-4 between vulva and anus.

Lip region truncate, almost continuous with body, about one-third of body width at neck base. Amphids stirrup-shaped, their aperture about three-fourth of the corresponding body width wide. Odontostyle 2.5-2.6 times lip region widths long, its aperture about one-sixth to one-fifth of its length. Guiding ring “double”, fixed ring at 1.14-1.26 times lip region width from anterior end. Odontophore simple, rod like, 0.71-0.77 times the odontostyle length. Nerve ring at 34-35% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 42-46% of total neck length. Cardia elongate conoid, about two-third of corresponding body width long. Pharyngeal gland nuclei located as follows: D=60-63%; AS1=30-35%; AS2=50-54%; PS1= 75-78%; PS2=78-81%.
Genital system amphidelphic; both the sexual branches almost equally developed. Ovaries reflexed, measuring 63-131 μm (anterior) and 63-121 μm (posterior) with oocyte arranged in a single row except near tip. Oviduct joining ovary subterminally, measuring 83-158 μm (anterior) and 86-186 μm (posterior). Sphincter present at Oviduct-uterus junction. Uterus a wide tube, measuring 97-173 μm (anterior) and 118-158 μm (posterior). Vagina thick walled, about half of corresponding body width deep. Pars proximalis vaginae 15-17 μm long with straight walls encircled by circular musculature; pars refringens vaginae with triangular sclerotisation, each measuring 4.5-6 x 3-4 μm, cw 11.5-12 μm; a well developed intermediate area visible between two sclerotised pieces, measuring 2.0-2.5 μm; pars distalis vaginae 3.5-4.5 μm with curved wall. Vulva longitudinal. Advulval cuticular ornamentation present both anterior and posterior to vulva. Prerectum 2.6-3.6 anal body width long. A tongue-like structure measuring 20-25 μm, extending in to the lumen of intestine from prerectum-intestine junction. Rectum 1.4-1.6 anal body width long. Tail elongate, filliform, 10-14 anal body width long, with three coudal pores on each side.

**Male:** Supplements, an adanal pair and 10-11 contiguous ventromedians. Spicules dorylaimoid, 1.6-1.8 times anal body widths long. Lateral guiding pieces rod-like, about one-fourth of spicule length, terminating within the range of supplements. A tongue-like structure, measuring, extending in to the lumen of intestine from prerectum-intestine junction. Tail bluntly rounded, 0.78 - 0.82 anal body width long, with three coudal pores on each side.

**Type habitat and locality:** Soil around the roots of forest trees, natural forest area, Namsai, District Lohit, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *Laimidorus vulvastrialus* sp.n /1; paratype females and males on slides *Laimidorus vulvastrialus* spn/ 2-7; deposited
with the nematode collection of the Department of Zoology Aligarh Muslim University, Aligarh.

**Diagnosis and relationships:** *Laimydorus vulvastriatus* sp. n. is characterized by having 1.5-1.8 mm long body; continuous, truncate lip region; 35-38 μm long odontostyle; longitudinal vulva; advulval cuticular ornamentation; elongate attenuated the range of supplements.

In the presence of truncate lip region, large odontostyle, “double” guiding ring, longitudinal vulva and prerectum in males terminating within the range of supplements, the new species comes close to *L. vacillans* Loof, 1996; *L. renwicki* (van der Linde, 1938) Andrássy,1969; *L. minimus* Baqri, 1991; and *L. aesquivel* Ahmad & Shaheen, 2004, however, it differs, from the former in having truncate, continuous lip region (vs lip region offset by depression); longer and straight odontostyle (vs odontostyle slightly sinuate, 31-34 μm long); odontophore distinctly shorter than odontostyle length (vs odontophore slightly longer than odontostyle length, 32-38 μm long); shorter expanded part of pharynx (vs 213-277 μm); vulval sclerotization consists of three triangular pieces (vs only two sclerotised pieces); in the presence of vulval ornamentation (vs absent); smaller c value (vs c=11.5-16.0), and fewer ventromedian supplements (vs 12-14).

From *L. renwicki* (van der Linde, 1938) Andrássy, 1969, the new species differs in having longer, symmetrical odontostyle (vs 30-32 μm long, assymetrical odontostyle); in the presence of advulval ornamentation (vs absence), shorter and straight tail (vs tail 225-241 μm long, slightly hooked, c= 6-7); lower c’ value (vs 9-10); longer spicules and lateral guiding pieces (vs spicules 45 μm, lateral guiding pieces 12 μm) and fewer ventromedian supplements(vs 13).
From *L. minimus* Baqri, 1991, it differs in having continuous truncate lip region (vs offset by depression), distinct dorsal and ventral body pores (vs dorsal and ventral body pores indistinct); “double” guiding ring (vs single), and in the presence of advulval ornamentation (vs absent).

The new species also closely resembles *L. esqueveli* Ahmad & Shaheen, 2004 but differs in having longer odontostyle (vs odontostyle 30-31µm); longer cardia (vs 11-13 µm); presence of advulval ornamentation (vs absent); in the size and shape of female tail (vs female tail 225-241 µm long, finely attenuated with 38-40% long hyaline part); shorter spicules (vs 58-59 µm), and in the shape and size of male tail (vs male tail 33-34 µm long, with characteristically swollen tip).

*Laimydorus cardiacus* sp. n.

(Fig. T-2 )

**Measurements:** See Table T-2

**Female:** Body slightly curved ventrad upon fixation, tapering slightly anterior to the base of pharynx, posteriorly ending in a long filiform tail. Cuticle finely striated, 2.5-3.5 µm thick at midbody and 3.0-3.5 µm on ventral side of tail just posterior to anus. Lateral chord about two-fifth of the body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region truncate, offset by slight depression, slightly wider than adjoining body, about one-third of body width at neck base; labial papillae distinctly projection above labial contour. Amphids stirrup-shaped, their aperture about three-fifth of the lip region width wide. Odontostyle 2.1-2.3 times lip region widths long, its aperture about two-fifths of its length. Guiding ring sclerotized “double”, fixed ring at 0.93-1.08 times lip region width from anterior end. Odontophore rod-like, about 0.8-0.9
times the odontostyle length. Nerve ring at about 32% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 47-48% of the total neck length. Cardia in two parts; anterior part hemispherical measuring 10-13 μm and posterior part elongate-conical measuring 20-24 μm, the two parts joined by an isthmus-like structure. Pharyngeal gland nuclei located as follows: D = 53-56%; AS1 = 32-34%; AS2 = 49-52%; PS1 = 72-75%; PS2 = 73-76%.

Genital system amphidelphic; both the sexual branches almost equally developed. Ovaries reflexed, measuring 72-127 μm (anterior) and 79-188 μm (posterior) with oocyte arrange in single row except near tip. Oviduct joining ovary subterminally, measuring 96-134 μm (anterior) and 102-170 μm (posterior). Sp hincter present at oviduct-uterus junction. Uterus a wide tube, measuring 95-126 μm (anterior) and 106-121 μm (posterior). Vagina thick-walled, about half of the corresponding body width deep; \( pars \text{ proximalis vaginae } 13-14 \mu m \) long with straight walls, encircled by circular musculature; \( pars \text{ refringens vaginae } \) with triangular sclerotization, each measuring 4.5-5.5 μm; \( pars \text{ distalis vaginae } 3.5-4.5 \mu m \) in length. Vulva longitudinal. Prerectum 2.3-3.2 times anal body widths long. Rectum 1.8-2.0 anal body widths long. Tail long filliform, 9.5-10.6 times anal body widths long and dorsally hooked at the tip with three caudal pores on each side.

**Male:** Supplements, an adanal pair and a contiguous series of twelve ventromedians. Spicule dorylaimoid, about 1.6 anal body widths long. Lateral guiding pieces rod-like, slightly more than one-third of spicule length. Prerectum 5.6 anal body widths long, terminating slightly beyond the range of supplement. Tail bluntly conoid, 0.8 anal body width long, with a pair of caudal pores on each side.

**Type habitat and locality:** Soil around the roots of forest trees from Khonsa, District Tirap, Arunachal Pradesh.
Type specimens: Holotype female on slide Laimydorus cardiacus sp. n. /1; paratype males and females on slide Laimydorus cardiacus sp. n. / 2-4; deposited with the nematode collection of the Department of Zoology, Aligarh Muslim University, Aligarh.

Diagnosis and relationships: Laimydorus cardiacus sp. n. is characterized by having 1.8-2.16 mm long body; lip region truncate, offset by slight depression; 34.0-34.5 μm long odontostyle; longitudinal vulva; 9.5-10.5 anal body width long, dorsally hooked female tail, and males with twelve contiguous ventromedian supplements and prerectum terminating beyond the range of supplement.

In the presence of truncate lip region, large odontostyle, “double” guiding ring, longitudinal vulva, hooked female tail, the new species comes close to L. renwicki (van der Linde, 1938) Andrássy, 1969; L. flexus (Thorne and Swanger, 1936) Andrássy, 1969; L. vecilans Loof, 1996; however, it differs from the former in having longer odontostyle and odontophore (vs odontostyle 27-30 μm, odontophore 24-26 μm); in the shape of cardia (vs. cardia not in two parts); longer prerectum (vs 54-69 μm); in having dorsally hooked tail tip (vs tail not hooked); longer spicules and lateral guiding pieces (vs spicules 45 μm, lateral guiding pieces 12 μm), and in males much longer prerectum, extending beyond the range of supplements (vs prerectum 116 μm long terminating within the range of supplements).

From L. flexus, the new species differs, in the shape of lip region (vs lip region continuous with low lips); labial pappilae raised above body contour (vs labial pappilae not raised above body contour); longer odontostyle and odontophore (vs odontostyle 27-33 μm, odontophore 24-25 μm long), in the characteristic shape of its cardia (vs cardia not in two parts); longer spicules and lateral guiding pieces (vs spicules 42-44 μm, lateral guiding pieces 12 μm long), and prerectum in male longer,
terminating beyond the range of supplement (vs prerectum 105-106 μm long, terminating within the range of supplements).

From *L. vecilans*, the new species differs in having smaller odontophore length (vs 32-38 μm); slightly anterior vulva position (vs 50-54); longer and hooked tail (vs tail 108-196 μm long attenuated, not hooked; \( c=11.7-15.9, c'=4.1-5.9 \)), and in males prerectum long extending beyond the range of supplements (vs prerectum 94-149 μm and terminating within the range of supplements).

In the shape of its lip region and nature of odontostyle and odontophore, the females of the new species resembles some monosexual species *viz.*, *P. maqsoodi* (Dhanachand and Jairajpuri (Dhanachand and Jairajpuri, 1981) Loof, 1985 tentatively placed under the genus *Prodorylaimus* Andrássy, 1959 (cf. Loof, 1985, 1996). From *P. maqsoodi*, the new species differs in having longer body size (vs \( L=1.4-1.6 \text{ mm} \)); in the nature of cardia (vs cardia not in two part); comparatively anterior vulva (vs \( V=52-56 \)), and longer hooked tail (vs hooked; \( c=10-12, c'=6-7 \)).

From *P. similis*, it differs in having longer body size (vs \( L=1.55-1.65 \text{ mm} \)); labial papillae raised above labial contour (vs labial papillae not raised above labial contour); longer odontostyle (vs odontostyle 24-26 μm); odontophore distinctly shorter than odontostyle (vs odontophore longer than odontostyle); characteristic shape of its cardia (vs cardia not in two parts); vulva longitudinal (vs transverse), and longer prerectum (vs prerectum 56-60 μm).
Genus *Prodorylaimus* Andrássy, 1959  
*Syn. Prodorylaimium* Andrássy, 1969  
*Apodorylaimus* Andrássy, 1988

**Diagnosis:** Body usually 1-5 mm long. Cuticle smooth or finely striated. Lip region continuous or offset by depression, usually with raised papillae. Amphids with stirrup-shaped fovea. Odontostyle dorylaimoid with wide lumen and aperture. Guiding ring single or ‘double’. Odontophore rod like. Cardia short to elongate conoid. Female genital system amphidelphic. Vulva transverse or longitudinal; vagina thick-walled, distally sclerotised. Spicules dorylaimoid; lateral guiding pieces present. Ventromedian supplements numerous, contiguous, beginning above the range of spicules. Tail elongate conoid to long, filiform; similar in sexes.

Type species: *Prodorylaimus longicaudatoides* Altherr, 1968

*Prodorylaimus bomdillaensis* sp. n.  
(Fig T-3)

**Measurements:** See Table T-3

**Female:** Body curved ventrad upon fixation, tapering slightly anterior to the base of pharynx, posteriorly ending in a long filliform tail. Cuticle finely striated, 1.5-2.3 μm thick at midbody and 2.3-3.0 μm on tail. Lateral chord about one-fifth of body width at midbody. Lateral, dorsal and ventral body pores indistinct.

Lip region truncate, offset by slight depression, about one-third as wide as body width at neck base, Amphid stirrup-shape, their aperture about three-fourth of the lip width wide. Odontostyle 2.3-2.6 times lip region widths long, its aperture about one-fourth of its length. Guiding ring sclerotised “double”, fixed ring at 1.13-1.15 times lip width from anterior end. Odontophore rod-like, about 0.7 times the odontostyle length. Nerve ring at 37-40% of neck length from anterior end. Pharyngeal expansion
gradual; expanded portion occupying about 42-43% of the total neck length. Cardia exceptionally long, elongate-conoid, about four-fifth of the corresponding body width long. Pharyngeal gland nuclei located as follows; D=60-63%; AS1= 30-33%; AS2=45-49%; PS1=69-72%; PS2=70-73%.

Genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 53-64 μm (anterior) and 52-64 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 59-71 μm (anterior) and 63-82 μm (posterior). Weak sphincter present at oviduct-uterus junction. Uterus a wide tube, measuring 38-48 μm (anterior) and 37-42 μm (posterior). Vagina thick walled, about half of corresponding body width deep; pars proximalis vaginae 9.5-10.5 μm long with straight walls, encircled by circular musculature; vaginae 3.0-3.5 μm in length. Vulva longitudinal. Prerectum 1.5-2.0 times anal body widths long. Rectum 1.4-1.5 times anal body widths long. Tail long filliform, 9.8-10.2 times anal body width long with three caudal pores on each side.

**Male:** Not found

**Type habitat and locality:** Soil around the roots of forest trees from natural forest reserve, Dazarling, Bomdilla, district West Kameng, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *Prodorylaimus bomdillaensis* sp. n. /1; paratype females on slide *Prodorylaimus bomdillaensis* sp. n. / 2-4; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, Aligarh.

**Diagnosis and relationships:** *Prodorylaimus bomdillaensis* sp. n. is characterized by having 1.0-1.3 mm long body; lip region truncate, offset by slight depression; 25.0-26.5 μm long odontostyle; exceptionally long cardia; longitudinal vulva, and long filliform tail.
In agreement with Loof (1985, 1996) that all monosexual species of *Laimydorus-Prodorylaimus* complex having long filiform tail in female, be tentatively placed under the genus *Prodorylaimus*, the new species resembles with some monosexual species of this group such as, *P. similis* (Dhanachand and Jairajpuri, 1981) Loof 1996; *P. maqsoodi* (Dhanachand and Jairajpuri, 1981) Loof 1996; *P. szekessyi* (Andrássy, 1960) Andrássy, 1969; *P. arganoi* Zullini, 1973 and *P. bravicaudatus* Andrássy, 1970 in the shape of its lip region, sinuate odontostyle, ‘double’ guiding ring, longitudinal vulva, and long filiform tail. However, it differs, from the former in having smaller body size (vs 1.5-1.65 mm); wider amphid (vs 5-6 μm); shorter odontophore (vs 26-30 μm); long cardia (vs cardia 13-18 μm long), longitudinal vulva (vs tranverse); longer and straight tail (vs tail hooked 180-203 μm long, c = 8-9);

From *P. maqsoodi*, the new species differs in having smaller body size (vs L = 1.4-1.6 mm); shorter 33-35 μm, odontophore 36-39 μm); odontophore distinctly shorter than odontostyle (vs odontophore longer than odontostyle); exceptionally long cardia (vs cardia 21-23 μm long); more anterior vulva (vs V = 52-56); shorter prerectum (vs 75-90 μm); longer tail (vs 142-150, c = 10-12, c' = 6-7).

From *P. szekessyi*, it differs in having slightly smaller body (vs L = 1.4-1.6 mm); shorter odontostyle (vs 28-30 μm), ‘double’ guiding ring (vs single), and shorter tail (vs tail 350-400 μm long, c = 3.6-4.0, c' = 13-16).

From *P. arganoi*, the new species differs in having continuous lip region (vs offset by slight depression); longer odontostyle (vs 21-22 μm), and smaller c’ value (vs c’ = 11-16).

The new species also resembles *P. bravicaudatus*, but differs in having slightly longer odontostyle (vs 23-25 μm); longitudinal vulva (vs tranverse), and shorter tail (vs 148-160 μm, c’ = 5.5-6).
Genus *Kunjudorylaimus* Dhanam and Jairajpuri, 2000

**Diagnosis:** Body medium-sized and slender, straight in anterior part, dorsally bent at midbody and ventrally; papillae indistinct not rising above lip contour. Amphids bilobed, fovea duplex. Guiding ring ‘double’. Odontosytle longer than one lip region width, pointed; aperture and lumen wide. Odontophore straight, longer than odontostyle, weakly sclerotized, rod-like. Anterior Pharynx moderately muscular; posterior portion expanding gradually, occupying about one-half of total pharyngeal length. Cardia moderately long, bluntly conoid to tongue-shaped. Cardiac disc present. Female reproductive system amphidelphic. Vulva transverse, sclerotized, opening wide. Tail long and filiform in both sexes, lateral guiding pieces present. Ventromedan suplements weakly developed and spaced.

Type species: *Kunjudorylaimus kunjui* Dhanam & Jairajpuri, 2000

*Kunjudorylaimus srinii* Dhanam & Jairajpuri, 2000  
(Fig. T-4)

**Measurements:** See Table T-4

**Female:** Body curved ventrad upon fixation, tapering slightly towards anterior end and posteriorly terminating in a long filiform whip-like tail. Cuticle finely striated, 1.5-2.0 μm thick at midbody and 2.0-2.5 μm on tail. Lateral chord about one-fourth of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region continuous, rounded, about one-third of body width at neck base. Lips amalgamated; pappilae indistinct. Amphids cup-shaped, their aperture about three-fifth of corresponding body width wide. Odontostyle 1.6-1.7 times the lip region
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widths long, its aperture about one-third of its length. Guiding ring ‘double’, at about
one lip region width from anterior end. Odontophore rod-like, 1.25-1.44 times the
odontostyle length. Nerve ring at 29-33% of neck length from anterior end.
Pharyngeal expansion gradual; expanded portion occupying about 53-56% of total
neck length. Cardia bluntly conoid, about one-third of corresponding body width long.
Pharyngeal gland nuclei located as follows: D = 50-53%; AS1 = 23-25%; AS2 = 48-
51%; PS1 = 77-80%; PS2 = 79-82%.

Genital system amphidelphic; both sexual branches almost equally developed.
Ovaries reflexed, measuring 33-72 μm (anterior) 35-69 μm (posterior) with oocyte
arranged in single row except near tip. Oviduct joining ovary subterminally,
measuring 98-104 μm (anterior) 84-89 μm (posterior). Sphincter present at oviduct-
uterus junction. Uterus a wide tube, measuring 90-94 μm (anterior) and 65-79 μm
(posterior). Vagina extending inward, about half of the corresponding body width
deep; pars proximalis vaginae 7-8 μm long with straight walls encircled by circular
musculature; pars refringens vaginae consist of two drop-shaped sclerotization, each
measuring 1.2-1.6 x 2.8-3.2 μm, cw 5.6-7.0 μm; pars distalis vaginae 4.0-4.8 μm with
curved walls. Vulva transverse. Prerectum 3.0-3.3 anal body widths long. Rectum 1.1-
1.4 times anal body width long. Tail long filliform, whip-like, 16-17 anal body width
long with a pair of caudal pores on each side.

**Male:** Supplements, an adanal and nine regularly spaced ventromedians. Spicules
dorylaimoid, arcuate, about 1.6 times anal body widths long. Lateral guiding pieces
about one-fifth of spicule length. Prerectum about five anal body widths long,
terminating within the range of supplements. Rectum about twice anal body widths
long. Tail long filliform, about eleven anal body widths long with two caudal pores on
each sides.
**Habitat and locality:** Soil around the roots of forest trees from natural forest, near Itanagar gate check post, Itanagar, Arunachal Pradesh.

**Remark:** The present specimens conform well with the measurements and description of *K. srinii* Dhanam & Jairajpuri, 2000, described from Karnataka, India except for having more robust body (vs a = 61-64), cup-shaped amphid (vs bilobed amphids), shorter odontophore (vs 24-25 μm), more anterior nerve ring position from anterior end (vs 118-126 μm), and shorter male tail (vs tail 235-272 μm, c= 6-7, c’= 14-15). This is the first report of this species from Arunachal Pradesh.

**Genus Amphidorylaimus Andrassy, 1960**


*Type species:* *Amphidorylaimus infecundus* (Cobb in Thorne and Swanger, 1936) Andrassy, 1960

*Syn.: Dorylamus infecundus* Cobb in Thorne and Swanger, 1936

*Amphidorylaimus flagellicauda* Montiero, 1970

**Measurements:**

**Itanagar population**

**Females (n=3):** Body length = (0.95±0.14) 0.84-1.15 mm; body width at neck base = (19.1±1.2)18-20.5 μm; body width at mid body = (18.9±1.6)18-21 μm; body
width at anus = (13.9±4.2)11-15 μm; a = (50.0±2.9) 47.5-54; b = (4.4±3.16) 4.2-4.5; c = (3.88±0.6) 3.0-4.5; c’ = (20.9±3.1)16.5-24; V = (37.6±3.16) 34.5-42; G₁ = (5.5±0.6) 5-6; G₂ = (5.0±0.9) 4-6; lip region width = (10.23±1.2) 9-12 μm; lip region height = 4.0 μm; amphid aperture = (5.61±0.46) 5-6 μm; odontostyle length = (10.8±1.4)10.0-12.5 μm; odontophore length = (10.9±1.4)10-13 μm; guiding ring from anterior end = 5.0 μm; expanded part of pharynx = (79±4.9) 74-85 μm; nerve ring from anterior end = (79.9±6.5) 75-89 μm; neck length = (190.0±1.9)188-212 μm; cardia length = (10.90±0) 10.90 μm; prerectum length = (46.4±7) 36-51 μm; rectum length = (20.13±3.3)16.0-23.5 μm; tail length = (249.5±10.5) 237.5-263 μm.

**Male:** Not found.

**Lohit population:**

**Females (n=6):** Body length = (0.89±0.11) 0.66-1.0 mm; body width at neck base = (21.9±1.3) 20.0-23.5 μm; body width at mid body = (21.8±1.6)19.0-23.5 μm; body width at anus = (12.7±1.1)11.0-13.5 μm; a = (41.2±3.6) 35-47; b = (4.6±0.4) 4.0-5.2; c = (3.8±0.3) 3.3-4.3; c’ = (18.9±2.2)16.0-22.5; V = (38.1±1.9) 35-40; G₁ = (6.5±0.6)5.5-7.0; G₂ = (7.2±1.3) 5.5-9.5; lip region width = (10.3±0.7) 9-11 μm; lip region height = (4.95±0) 4.5-5.0 μm; amphid aperture = (5.26±0.46) 5-6 μm; odontostyle length = (= (75.1±3.9) 67-79 μm; odontophore length = (11.5±0.6)11-13 μm; guiding ring from anterior end = (5.8±0.9) 5-7 μm; expanded part of pharynx = (83.7±4.2) 79-89 μm; nerve ring from anterior end = (75.1±3.9) 67-79 μm; neck length = (199±20.7)165-227 μm; cardia length = (7.5±1.50) 6-10 μm; prerectum length = (45.5±11.5) 32.0-53.5 μm; rectum length = (20.13±1.2)18.0-21.5 μm; tail length = (240 ±36)173-257 μm.

**Male:** Not found.

**Habits and localities:**

1. Soil around the roots of forest trees from natural forest area, Doimuk, near Arunachal University, Itanagar, Arunachal Pradesh.
2. Soil around the roots of forest trees from Mahadevpur, District Lohit, Arunachal Pradesh.

Remarks: Monteiro (1970) described *Amphidorylaimus flagellicauda* based on females only from Brazil. Ahmad and Jairajpuri (1982) reported this species and described its males from Bangalore, India. The present specimens collected from Itanagar and Lohit conforms well with the type population except for having slightly longer body (vs 0.79-0.82 mm). The specimens from Itanagar and Lohit differs from Bangalore population in having slightly posteriorly located nerve ring (63-75 μm from anterior end) and longer prerectum (vs 21-36 μm). This may be because of geographical variations. This is the first report of this species from Arunachal Pradesh.

Subfamily Thornenematinae Siddiqi, 1969

**Genus *Thornenema* Andrássy, 1959**

Syn. *Jairajpuria* Baqri & Jana, 1980  
*Lagenonema* Andrássy, 1987

**Diagnosis:** Body 0.5-2.0 mm long. Lip region rounded, conoid or cylindroid, truncated, continuous with body contour or offset by depression or constriction. Labial framework sclerotized; post-labial sclerotization usually well developed. Amphids with stirrup-or cup-shaped fovea. Odontostyle cylindrical, aperture about one-third its length. Guiding ring single. Odontophore rod-like. Basal expanded part of pharynx about 30-50% of pharyngeal length. Female genital system mono-opisthodelphic; anterior branch vestigial, occasionally complete but non functional. Vulva transverse pre-equatorial. Males with arcuate spicules, lateral guiding pieces and a series of
spaced ventromedian supplements. Tail dissimilar in sexes, elongate-conoid to long filiform in females and short obtusely conoid in males.

**Type species:** *Thornenema lissum* (Thorne, 1939) Andrássy, 1959  
Syn. *Dorylaimus lissum* Thorne, 1939

**Thornenema baldum** (Thorne, 1939) Andrássy, 1959

**Measurements:**

*Females (n=4):* Body length = (1.09±0.088) 0.99-1.21 mm; body width at neck base = (35±4.4) 30.0-39.5 μm; body width at mid body = (38±4.07) 31.41.5 μm; body width at anus = (19±0.8)18.0-20.5 μm; a = (30±1.68) 28-32; b = (5.2±0.4) 4.5-5.5; c = (6.7±0.4) 6-7; c’ = (8.5±0.5) 8-9; V = (36±3.3) 33-40; G2 = (10.3±1.1) 9-11; lip region width = (9.5±0.25) 9.0-9.5 μm; lip region height = (4.5±0.25) 4-5 μm; amphid aperture = (6.2±0.6) 5.5-6.5 μm; odontostyle length = (12.8±0.8) 11.5-13.5 μm; odontophore length = (19.5±0) 19.5 μm; guiding ring from anterior end = (7.5±0.5) 7-8 μm; expanded part of pharynx = (86.3±7) 79-97 μm; nerve ring from anterior end = (96.7±5.6) 91-102 μm; neck length = (212.5±2.9) 207-215 μm; cardia length = (12.61±0.7)11.5-13.5 μm; prerectum length = (32.5±4) 26-37 μm; rectum length = (18±3.2)15-23 μm; tail length = (165.7±12.3)146-178 μm.

**Habitat and locality:** Soil around the roots of bamboo (*Bamboosa tulda L.*) from sector B, Itanagar, Arunachal Pradesh.

**Remarks:** *Thornenema baldum* was described by Thorne, 1939 as *Dorylaimus baldus* from Summatra. Andrássy (1959) transferred this species to *Thornenema* as *T. baldum*. It is a widely distributed species and has been recorded from Mauritius (Williams, 1964); Russia (Lisetskaya, 1971; Eliava et al, 1975); Malaysia and Australia (Sauer, 1981); South Africa, Brazil and Papua New Guinea (Carbonell & Coomans, 1986).
*T. baldum* has quite common occurrence in India, and has been recorded from Ranikhet (Siddiqi, 1965); Tuticorin, Kurnool and Mumbai (Baqri & Jairajpuri 1967); Aurangabad (Ali et al, 1971). Present specimen from Itanagar conforms well with those describe from different locations with no significant differences.

**Thornenema mauritianum (Williams, 1959) Baqri & Jairajpuri, 1967**

*Syn. Chrysonema mauritiana* Williams, 1959

*Thornenema viriosum* Williams, 1964

*Thornenema filiforme* Siddiqi, 1965

*Thornenema delhiensis* Prasad and Chawla, 1965

*Thornenema africannum* Andrássy, 1965

**Measurements:**

**Mahadevpur population:**

**Females (n=6):** Body length = (1.46±0.07) 1.41-1.54 mm; body width at neck base = (33±2.7) 29-33 μm; body width at midbody = (34.5±4) 29.5-40.5 μm; body width at anus = (21.5±1.6)18.5-24 μm; a = (43±3.4) 38-47; b = (5.5±0.5) 5-6; c = (6.3±0.3) 5.5-6.5; c′ = (10.7±0.65) 10-11.5; V = (31±1.3) 29-32.5; G₂ = (7.8±1.7) 6-10; lip region width = (8.5±0.4) 8-9 μm; lip region height = (4.2±0.2) 4.0-4.5 μm; amphid aperture = (5.45±0.5) 5-6 μm; odontostyle length = (12.1±0.5)11-13 μm; odontophore length = (16.3±0.4) 16-17 μm; guiding ring from anterior end = (6.6±0.25) 6-7 μm; expanded part of pharynx = (122±11.8) 109-133 μm; nerve ring from anterior end = (104±4) 96-108 μm; neck length = (271.5±17.5) 242-287 μm; cardia length = (11.50±1.17) 10.5-13.5 μm; anterior uterine sac = (30.2±8.30) 20-40 μm; prerectum length = (49.5±5.2) 41-55 μm; rectum length = (31±1.90) 27-33 μm; tail length = (232±14) 220-256 μm.
Dirak Population:

**Females (n=3):** Body length = (1.40±0.053) 1.32-1.45 mm; body width at midbody = (32±0.97) 31.5-32.5 μm; body width at anus = (20.7±0.78) 20-22 μm; a = (44.3±1.68) 42-45; b = (4.88±0.25) 4.5-5.0; c = (6.15±0.29) 5.5-6.5; c' = (10.94±0.55) 10-11.5; V = (32.3±0.88) 31-33; G2 = (8.15±1.5) 7-10; lip region width = (7.9±0.2) 7.0-8.5 μm; lip region height = (4.4±0.2) 4.0-4.5 μm; amphid aperture = (5.35±0.45) 4.5-5.5 μm; odontostyle length = (12.5±0.47) 11.5-13.0 μm; odontophore length = (16.0±0.60) 15-16.5 μm; guiding ring from anterior end = (7±0) 6.5-7.0 μm; expanded part of pharynx = (124.6±4.2) 119-128 μm; nerve ring from anterior end = (107.5±2.85) 104-110 μm; neck length = (286.5±5.5) 279-292 μm; cardia length = (11±0.57) 10.5-11.8 μm; prerectum length = (51.8±7.50) 45.5-62 μm; rectum length = (31.9±1.25) 30.0-33.5 μm; tail length = (227±3.25) 222-230 μm.

**Habitats and localities:**

1. Soil around the roots of paddy (*Oryza sativa* L.) from Mahadevpur, District Lohit, Arunachal Pradesh.

2. Soil around roots of unidentified grasses from Dirak gate check post, District Lohit, Arunachal Pradesh.

**Remarks:** *Thornenema mauritianum*, originally described as *Chrysonemoides mauritiana* by Williams (1959) from Mauritius was transfer to *Thornenema* by Baqri and Jairajpuri 1967. They also synonymised *T. viriosum* Williams, 1964; *T. filiforme* Siddiqi, 1965; *T. delhiense* Prasad and Chawla, 1965 and *T. africanum* Andrássy, 1965 with this species. It has a world wide distribution and is recorded from Mauritius (Williams, 1959), Ghana (Andrássy, 1965), Malyasia (Baqri and Jairajpuri, 1967; Sauer, 1981), Costa Rica (Loof and Coomans, 1970), Russia (Eleavera et al., 1975), Australia (Sauer, 1981). Carbonell and Coomans (1986) made a detailed study of *T.*
mauritianum, based on specimens collected from Cameroon, Brazil, India, Fiji Islands, Sudan, Iraq, Nigeria and South Africa.

*T. mauritianum* is the most widely distributed species of *Thornenema* Andrássy, 1959 in India and has been recorded from Aligarh, Mathura, Kurnool, Andamans, Aurangabad (Baqri and Jairajpuri, 1967); Aligarh, Madras and Thane (Siddiqi 1965), Osmanabad (Ali *et al.*, 1971). The present populations from Arunachal Pradesh conforms well with those described by earlier authors.

**Genus Opisthodorylaimus Ahmad and Jairajpuri, 1982**

**Diagnosis:** Small-to medium-sized nematodes (*L = 0.6-2.2 mm*). Lips amalgamated; lip region relatively broad to narrower than adjoining body, continuous with body contour or offset by slight depression or expansion. Labial and post-labial sclerotization absent. Amphids with wide stirrup- or goblet-shaped fovea. Odontosytle cylindrical, aperture about one-fourth to one-third its length. Guiding ring single or ‘double’. Odontophore rod-like. Basal expanded part of pharynx about one-third to more than one-half total neck length. Female genital system mono-opisthodelphic. Anterior genital branch may be absent or reduced to a uterine sac or may be anatomically complete. Posterior genital branch normal. Vulva transverse, longitudinal or circular, pre- or post-equatorial. Vagina with distal sclerotization. Males with dorylaimoid spicules, lateral guiding pieces and a series of widely or closely spaced ventromedian supplements. Prerectum within the range of supplements. Tail elongate-conoid to long, filiform in females and short, conoid in males.

*Type species:* *Opisthodorylaimus maqsoodi* Ahmad and Jairajpuri, 1982
Opisthodorylaimus cavalcantii (Lordello, 1955) Carbonell and Coomans, 1986

Measurements:

Changlang population:

**Females (n=3):** Body length = (1.11±0.04) 1.05-1.14 mm; body width at neck base = (33.7±0.8) 33.5-35.5 μm; body width at mid body = (33.8±1.7) 33.5-35.5 μm; body width at anus = (23±2) 20-25 μm; a = (32±1.6) 29.5-33.0; b = (4.2±0.1) 4.0-4.3; c = (11.7±0.9) 10.5-12.5; c’ = (4.2±0.6) 3.0-4.5; V = (46.7±1.09) 45.5-47.5; G2 = (14.5±0.7) 13.5-15.5; lip region width = (10.7±0.4) 10-11 μm; lip region height = (3.45±0) 3.0-3.5 μm; amphid aperture = (6.9±0) 6.5-7.0 μm; odontostyle length = (9.6±1.9) 8-12 μm; odontophore length = (16.3±0.9) 15-17 μm; guiding ring from anterior end = (10.5±0.5) 10-11 μm; expanded part of pharynx = (119.3±4.9) 114-126 μm; nerve ring from anterior end = (97±5.6) 89-102 μm; neck length = (263.5±17.3) 235-275 μm; Cardia length = (10.9±2) 9-13 μm; prerectum length = (59.5±5.0) 55-66 μm; rectum length = (31±3.7) 26-34 μm; tail length = (95.7±10.2) 84-108 μm.

Dibang Valley Population:

**Females (n=5):** Body length = (1.02±0.03) 1.0-1.09 mm; body width at neck base = (36±3.2) 34.5-40.5 μm; body width at mid body = (37.5±2.6) 35.5-40.5 μm; body width at anus = (22.8±1.2) 21.0-23.5 μm; a = (27.4±1.6) 25-30; b = (4.2±0.1) 4.0-4.3; c = (11.35±0.9) 11.0-12.8; c’ = (3.7±0.5) 3.0-4.2; V = (43.7±2.5) 40-45; G2 = (11.8±1.6) 9.5-14.5; lip region width = (11.4±0.6) 10-12 μm; lip region height = (3.35±0.2) 3-4 μm; amphid aperture = (5.95±0) 5.5-5.9 μm; odontostyle length = (11±0.8) 10-12 μm; odontophore length = (17±0.7) 16-18 μm; guiding ring from anterior end = (10.8±0.2) 10.5-11.0 μm; expanded part of pharynx = (114±6) 109-126 μm; nerve ring from anterior end = (91.3±6.4) 81-102 μm; neck length = (242.5±10.7)
227-257 μm; cardia length = (10.56±1.87) 8-13 μm; prerectum length = (60±10) 50-74 μm; rectum length = (31.7±1.6) 29.0-32.5 μm; tail length = (91.5±5.8) 85-101 μm.

Habitats and localities:
1. Soil around the roots of forest trees from natural forest area, Pompu Line, District Changlang, Arunachal Pradesh.
2. Soil around the roots of forest trees from Kang Khong forest range, District Dibang Valley, Arunachal Pradesh.

Remarks: Lordello (1955) described this species as Dorylaimus cavalcantii from Brazil. Andrássy (1959) transferred it to Thornenema as T. cavalcantii. It is one of the most common species of the genus described from different parts of world, viz., Venezuela (Loof, 1964); Brazil (Monteiro, 1970), Russia (Eleavera et al., 1975), Australia, Indonesia, Malaysia (Sauer 1981). Carbonell & Coomans (1985) made a detailed study of this species, Kenya, Bahia State Belmonte, Cameroon, Ivory Coast, U.S.A, Zaire, South Africa) and transferred it to the genus Opisthodorylaimus Ahmad & Jairajpuri, 1982. In India this species has been recorded from Almora (Siddiqi, 1965); Darjeeling, Lebong and Sikkim (Baqri & Khera 1977) and Dharmasala and Chamoli (Ahmad & Jairajpuri, 1982). Present populations from Changlang and Dibang valley conforms well with those described by earlier authors.

FAMILY APORCELAIMIDAE HEYNS, 1965

Subfamily Aporcelaiminae Heyns, 1965

Genus Aporcelaimellus  Heyns, 1965

Diagnosis: Smaller or larger nematodes, between 0.8 and 3.4 mm. Body generally plump. Cuticle, apart from the thin exocuticle, consisting, under optical microscopy,
of two layers of different refraction being especially distinct on the tail; outer layer ‘transparent’ or hyaline, inner layer ‘compact’ and finally radially striated. Labial region always set off by deep constriction; lips more or less amalgamated. Oral aperture transverse. Odontostyle short and thick, aperture generally occupying one-half of its length. Pharynx strongly muscular. AS nuclei in different level, but always located in anterior half of glandularium. Vulva a transverse slit or transverse oval with sclerotized inner labia. Female genital system amphidelphic. Males rare, or unknown in several species. Spicula dorylaimoid. Ventromedian supplements 5 to 21 (exceptionally to 34). Tail similar in both sexes, short, less than half anal body width to two anal body widths long, conoid-rounded or hemispherical, dorsally often concave. Tail terminus broadly rounded.

Type species: Aporcelaimellus obscurus (Thorne & Swanger, 1936) Heyns, 1965

*Aporcelaimellus rotundicaudatus* sp. n
(Fig. T-5)

**Measurement:** See Table T-5

**Female:** Body curved ventrad upon fixation, tapering slightly towards both extremities. Cuticle finely striated, 2.5-4.0 μm thick at mid body and 4-5 μm on tail. Lateral chord about one-forth of corresponding body width at midbody. Lateral, dorsal and ventral body pores indistinct.

Lip region offset by constriction, wider than adjoining body, about one-forth to one-third as wide as body width at neck base. Amphid stirrup-shaped, their aperture about half or slightly more than half of lip region width wide. Odontostyle 1.2 times lip region width long, its aperture about three-fifth of its length. Guiding ring plicated, flap- lip region width from anterior end. Odontophore simple, rod-like, 1.45-1.65
times the odontostyle length. Nerve ring at 31-33% of neck length from anterior end of the body. Pharyngeal expansion gradual; expanded portion occupying about 52-60% of total neck length. Cardia short conoid, one-fourth to one-third of corresponding body width long. Pharyngeal gland nuclei located as follows: D=61-65%; AS1=25-29%; AS2=46-49%; PS1=63-67%; PS2=65-68%.

Genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 64-112 \( \mu \text{m} \) (anterior) and 68-120 \( \mu \text{m} \) (posterior) long with oocyte arranged in single row except near tip. Oviduct with distinct *pars dilatata*, joining ovary subterminally, measuring 125-158 \( \mu \text{m} \) (anterior) and 148-176 \( \mu \text{m} \) (posterior). Sphincter present at oviduct-uterus junction. Uterus a wide tube, measuring 77-124 \( \mu \text{m} \) (anterior) and 72-124 \( \mu \text{m} \) (posterior). Vagina about half of corresponding body width deep. *Pars proximalis vaginae* strongly muscular, 13-16 \( \mu \text{m} \) long; *pars refringens vaginae* absent; *pars distalis vaginae* 9.5-10.0 \( \mu \text{m} \) long. Vulva a transverse slit. Prerectum long. Rectum about as long as anal body width. Tail short rounded to hemispheroid, 0.8-1.0 times anal body width long. Caudal pores three on each side.

**Male:** Similar to female in general morphology, except the posterior portion of body being more strongly curved ventrad because of the presence of copulatory muscles. Supplements, an adanal pair and a series of four to five regularly spaced ventromedians. Spicules dorylaimoid, 1.7-1.8 times anal body widths long. Lateral guiding pieces rod like, about one-fourth to one-third of spicules length. Prerectum 4.6-5.7 anal body width long. Tail hemispheroid to bluntly rounded, 0.7-0.9 times anal body width long with three caudal pores in each side.

**Type habitat and locality:** Soil around the roots of forest trees from Bhalukpong Researve Forest, Bhalukpong, district West Kameng, Arunachal Pradesh.
**Type specimens:** Holotype female on slide *Aporcelaimellus rotundicaudatus* sp. n. /1; paratype females and males on slide *Aporcelaimellus rotundicaudatus* sp. n. / 2-6; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, Aligarh.

**Diagnosis and relationships:** *Aporcelaimellus rotundicaudatus* sp. n is characterised by having 1.6-1.8 mm long body; offset lip region; 18-19 μm long odontostyle with aperture about three-fifth of its length; transverse vulva; vagina without *pars refringens*; short conoid to hemispheroid tail, and males with dorylaimoid spicules and 4-5 ventromedian supplements.

The new species is distinctive in the shape of its lip region which is slightly offset instead of offset by deep constriction in all the other species of *Aporcelaimellus*. In the absence of its vaginal sclerotization, the new species comes close to *A. adriani* Botha and Heyns 1990, the only other species in this genus without *pars refringens vaginae*, but differs in having larger body size (*vs* 1.23-1.49 mm), longer odontostyle and odontophore (*vs* odontostyle 14-16 μm; odontophore 21-26 μm), hemispheroid to bluntly rounded tail (*vs* conoid to bluntly rounded tail), and, in the presence of males (*vs* males absent).

The new species also comes close to *A. amylovorus* (Thorne and Swanger, 1936) Heyns, 1965; *A. obtusicaudatus* (Bastian, 1865) Altherr, 1968; *A. krygeri* (Ditlevson, 1928) Heyns, 1965 and *A. medius* Andrássy, 2002. However, from the former it differs in the absence of vaginal sclerotisation (*vs* strong vaginal sclerotization present), in the shape and size of tail (*vs* 40-43 μm long, convex conoid tail), and fewer ventromedian supplements (*vs* 8).

From *A. obtusicaudatus*, the new species differs in having smaller and slender body (*vs* L= 2.18-2.57 mm; a = 25-31), in the shape of lip region (*vs* lip region deeply
offset); slightly smaller odontostyle and odontophore (vs odontostyle 20-26 μm, odontophore 36-48 μm), in the absence of pars refringens vaginae (vs strong pars refringens vaginae present). The new species further differs from A. obtusicaudatus in the presence of males. A. obtusicaudatus is a widely distributed species but males have never been recorded.

From A. Krygeri, the new species differs in having smaller and slender body (vs L = 2.3-2.5 mm, a = 13-21); of pars refringens vaginae (vs presence); in the shape and size of tail (vs peg-like structure at tail tip; c = 75-122) and in the presence of males (vs absence).

From A. medius, the new species differs in having slender body (vs a = 20-26); shorter odontostyle (vs 22-23 μm); in the absence of pars refringens vaginae (vs strong pars refringens present); longer tail (vs tail 15-23 μm, c=90-140); shorter spicules (vs 72 μm) and fewer ventromedian supplements (vs 10).

**Genus Makatinus Heyns, 1965**

**Diagnosis:** Large-sized nematodes, usually 3-4 mm long. Cuticle without criss-cross line, but with superficial punctuations. Lips moderately amalgamated, set off by slight constriction. Anterior part of pharynx appearing cruciform in en face view, with longest leg of cross directed dorsally. Odontostyle dorylaimoid, aperture occupying about one-half length. Amphidial chambers not divided. Cardiac disc absent. Vulva longitudinal, with cuticularised labia. Female genital system amphidelphic. Spicules dorylaimoid; ventromedian supplements numerous and diverging into double row near anus. Tail conoid; similar in sexes.

Type species *Makatinus punctatus* Heyns, 1965
Measurements:

**Females (n=5):** Body length = (1.75±0.095) 1.62-1.85 mm; body width at neck base = (65±3.25) 60.5-68.5 μm; body width at midbody = (63. ±3.6) 59-67 μm; body width at anus = (38.7±0.65) 38-39 μm; a = (27.5±0.12) 27-27.5; b = (3.6±0.09) 3.5-3.7; c = (72±4.2) 68-78; c’ = (0.62±0.008) 0.61-0.63; V = (52.5±1.4) 52-53; G₁ = (10.0±1.77) 8.5-12.5; G₂ = (10.33±1.27) 8.5-11.5; lip region width = (17.8±0.66) 17-18.5 μm; lip region height = 7 μm; amphid aperture = (9.7±0.34) 9-10 μm; = (11.05±1.14) 10.0-12.5 μm; odontostyle length = (21.45±0.68) 20.5-22.0 μm; odontophore length = (41.±1.92) 38.5-43 μm; guiding ring from anterior end = (11.05±1.14) 10-12.5 μm; expanded part of pharynx = (269.5±9.7) 258-282 μm; nerve ring from anterior end = (141.7±6.22) 132-146 μm; neck length = (476.85±13.06) 459.5-491 μm; cardia length = (18.9±5.1)13.5-20.5 μm; rectum length = (46.8±3.90) 42-51 μm; prerectum length = (67.47±9.01) 59-80 μm; tail length = (24.2±0.71) 23.5-25 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of teak tree (*Tectona grandis*) from natural forest near Delosor, district Dibang Valley, Arunachal Pradesh.

**Remarks:** Ahmad and Ahmad (1992) described this species from Goa, India. The present species from Arunachal Pradesh has slightly smaller and robust body (vs L = 1.96-2.42 mm, a = 37-43), slightly wider lip region (vs 15-16 μm), and smaller b and c value (vs b = 4.0-5.0; c = 82-110). This may be because of geographical and climatic variations. This is the first report of this species from Arunachal Pradesh.
Subfamily Paraxonchinae Dhanachand and Jairajpuri, 1981

Genus Paraxonchium Krall, 1958
Syn.: Drepanodorus Altherr, 1954
Drepanophorus Altherr, 1968

Diagnosis: Body robust, 0.5-2.5 mm long, narrowing abruptly from level of nerve ring to a very small knob-like lip region. Odontostyle symmetrical or asymmetrical. Odontophore simple, usually very long. Pharynx entirely muscular, anterior slender part expanding gradually into basal enlarged part. Cardia with three cardiac gland cells. Vulva transverse. Female genital system amphidelphic or monodelphic. Spicules dorylaimoid; lateral guiding pieces and ventromedian supplements present. Tail usually conoid to subdigitate; similar to sexes.

Type species: Paraxonchium leptocephalus (Altherr, 1954) Altherr and Loof, 1969
Syn.: Drepanodorus leptocephalus Altherr, 1954

Paraxonchium parvus Dhanachand and Jairajpuri, 1981

Measurements:

Female (n=1): Body length = 0.58 mm; body width at neck base = 31 μm; body width at mid body = 32 μm; body width at anus = 17.5 μm; a = 18; b = 3.0; c = 18.5, c’=1.8; V = 65; lip region width = 6.3 μm; lip region height = 3.5 μm; amphid aperture = 3 μm; odontostyle length = 15 μm; odontophore length = 40 μm; expanded part of pharynx = 95 μm; nerve ring from anterior end = 71 μm; neck length = 193 μm; cardia length = 8 μm; prerectum length = 57 μm; rectum length = 23 μm; tail length = 31.5 μm.

Male: Not found.
**Habitat and locality:** Soil around the roots of forest trees from Solung forest area, district Lower Dibang Valley, Arunachal Pradesh.

**Remarks:** The present specimen conforms well with the type specimens described by Dhanachand and Jairajpuri (1981) from Manipur, India except for having slightly robust body ($a = 23-27$), comparatively anterior nerve ring ($95-105 \mu m$ from anterior end), shorter cardia ($12-15 \mu m$), longer prerectum ($23 \mu m$ long), and shorter tail ($35-49 \mu m$). Arunachal Pradesh and Manipur represents the same geographical area in India *i.e.*, North Eastern States. It is quite possible that this species may also be present in other states of this region.
FAMILY QU迪IANEMATIDAE JAIRAJPURI, 1965

Subfamily Qudsianematinae Jairajpuri, 1965

Genus Labronema Thorne, 1939
Syn: witoldinema Brazeski, 1960

Diagnosis: Body robust, 1.0-1.4 mm long. Cuticle finely striated. Lip region offset by constriction, broad and thick; inner flaps arched over vestibular region. Amphids stirrup-shape, with slit-like apertures. Odonostyle dorylaimoid, with wide lumen and, muscular, enlarging gradually. Basal expanded part of pharynx about one-half of neck length. Cardia small but often elongate-conoid. Vulva longitudinal, rarely transverse; vagina notably sclerotized distally. Female genital system amphidelphic. Males with dorylaimoid spicules, lateral guiding pieces and numerous contiguous ventromedian supplements. Tail hemispheroid to subdigitate, with numerous caudal papillae; similar in sexes.

Type species: Labronema ferox Thorne, 1939

Labronema nepalense Ahmad and Jairajpuri, 1982
(Fig T-6)

Measurements: See Table T-6

Female: Body slightly curved ventrad upon fixation, tapering towards both extremities. Cuticle finely striated, 2-3 μm thick at mid body and 4-5 μm on tail. Lateral chord about one-third of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region well offset by constriction, about one-third of body width at neck base, wider than adjoining body; lips angular, well separated. Amphids stirrup-shaped, their aperture about half of the lip region width wide. Odontostyle 1.2-1.4
times lip region widths long, its aperture about one-third of its length. Guiding ring ‘double’, fixed ring at 0.5-0.6 times lip region width from anterior end. Odontophore simple, rod-like, 1.27 times odontostyle length. Nerve ring at 37-40% of neck length from anterior end of the body. Pharyngeal expansion gradual; expanded portion occupying about 46-47% of total neck length. Cardia long, conoid, about one-third of corresponding body width long. Pharyngeal gland nuclei located as follows: D=56-60%; AS1=29-32%; AS2=49-54%; PS1=68-72%; PS2=70-73%.

Genital system didelphic-amphidelphic. Both sexual branches almost equally developed. Ovaries reflexed, measuring 62-129 μm (anterior) and 68-100 μm (posterior) with oocyte arrange in single rows except near tip. Oviduct joining ovary subterminally, measuring 56-67 μm (anterior) and 54-67 μm (posterior). Sphincter present at oviduct-uterus junction. Uterus a wide tube, measuring 37-43 μm (anterior) and 23-39 μm (posterior); uterine eggs 68-84 μm long and with smooth chorion. Vagina extending inwards about half of the corresponding width; pars proximalis vaginae 12-13 μm long; pars refringens vaginae consisting of two triangular sclerotisation, each measuring 7-8 x 4.0-4.5 μm, cw 10.5-11.0 μm; pars distalis vaginae 5-6 μm. Vulva transverse. Prerectum 1.1-1.2 times anal body widths long. Rectum about as long as anal body width. Tail short hemispheroid, 0.51-0.65 times anal body width long with a pair of caudal pores on either side.

**Habitat and locality:** Soil around the roots of forest trees from reserve forest area, nine miles Changlang, district Changlang, Arunachal Pradesh.

**Remarks:** The present population from Arunachal Pradesh conforms well with those described by Ahmad & Jairajpuri (1982) from Nepal, except for having slightly robust body (vs a = 26-29), smaller c value (vs 67-74), shorter prerectum (vs 56-59 μm), and longer rectum (vs 29-36 μm).
Labronema enigmatum sp. n.
(Fig T-7)

Measurements: See Table T-7

Female: Body curved ventrad upon fixation, tapering towards both extremities. Cuticle finely striated, 4.0-4.5 \(\mu m\) thick at mid body and 4.5-5.5 \(\mu m\) on tail. Lateral chord about one-third of corresponding body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region well offset by constriction, about one-forth to one-third as wide as body width at neck base. Lips moderately prominent and angular in profile. Amphids stirrup-shaped, their aperture about half or slightly more than half of lip region width wide. Odontostyle slender 1.2-1.3 times lip region width long, its aperture about one-third of its length. Guiding ring sclerotised ‘double’, fixed ring at 0.65-0.75 times lip region width from anterior end. Odontophore simple rod-like, about 1.6 times the odontostyle length. Nerve ring encircling the anterior slender part of pharynx at 31-32% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 48-50% of total neck length. Cardia elongate-conoid, about one-forth of corresponding body width long. Pharyngeal gland nuclei located as follows. D=53-57%; AS1= 27-32%; AS2= 50-54%; PS1= 70-74%; PS2= 72-76%.

Genital system amphidelphic, both sexual branches almost equally well developed. Ovaries reflexed, measuring 90-187 \(\mu m\) (anterior) and 100-201 \(\mu m\) (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 119-211 \(\mu m\) (anterior) and 140-221 \(\mu m\) (posterior); sphincter present at oviduct-uterus junction. Uterus a wide tube, measuring 134-210 \(\mu m\) (anterior) and 110-200 \(\mu m\) (posterior) with median muscular part containing Z-differentiation. Vagina thick walled, about half of the corresponding body width deep;
pars proximalis vaginae 14-18 µm with straight walls encircled by circular
musculature; pars refrigens vaginae with two triangular sclerotization, each
measuring 8-9 x 4.0 µm, cw 12-14 µm; pars distalis vaginae 6-7 µm in length. Vulva
transverse. Prerectum 3.5-3.7 anal body widths long. Rectum 1.0-1.5 times anal body
widths long. Tail bluntly rounded, 0.7-0.8 times anal body width long with three
caudal pores on each side.

Male: Supplements, an adanal pair and eighteen contiguous ventromedians.
Spicules dorylaimoid about 1.3 times anal body withs long. Lateral guiding piece
about one-sixth of spicules length. Prerectum about four and half anal body widths
long, terminating beyond the range of supplements. Rectum 1.6 times anal body
widths long. Tail bluntly rounded to conoid, 0.6 times anal body width long with three
caudal pores on each side.

Type habitat and locality: Soil around the roots of forest trees, Chonkham forest,
district Lohit, Arunachal Pradesh.

Type specimens: Holotype female on slide Labronema enigmatum sp. n /1;
paratype females and males on slide Labronema enigmatum sp. n/ 2-4; deposited with
nematode collection of the Department of Zoology, Aligarh Muslim University,
Aligarh.

Diagnosis and relationships: Labronema enigmatum sp. n is characterized by
having 2.1-2.5 mm long body; lip region well offset by constriction; 31-32 µm long
slender odontostyle; ‘double’ guiding ring; transverse vulva; Z-organ in the uterus;
short bluntly rounded to conoid tail, and, males with eighteen spaced ventromedian
supplements and prerectum extending beyond the range of supplements.

In the presence of a deeply offset lip region, transverse vulva and short bluntly
rounded tail, the new species resembles L. chilense Andrássy, 1967; L. rikia Yeates,
1967; and L. goodeyi Altherr in Alther & Delmire-Debonttevill, 1972, however, it differs from all the above species in its characteristically slender odontostyle.

From *L. chilensis*, the new species differs in having ‘double’ guiding ring (vs single); comparatively anterior vulva position (vs V=60), in the presence of Z-organ in uterus (vs absent), slightly shorter spicule (vs 60 µm), and, fewer ventromedian supplements (vs 24).

From *L. rikia*, the new species differs in having longer odontostyle (vs 27-29 µm), smaller ‘b’ value (vs 4.4); anterior vulva position (vs V=59), in the presence of Z-organ in uterus (vs absent), in having a hemispheroid female tail (vs conoid); larger ‘c’ value in males (vs c=65-79), and fewer ventromedian supplements (vs 23-36).

From *L. goodeyi*, it differs in having comparatively shorter and robust body (vs L= 2.3-2.9 mm, a=26-35); transverse vulva (vs longitudinal); shorter spicules (vs 70-75 µm), and, fewer ventromedian supplements (vs 23).

In the nature of its odontostyle, *L. enigmatum* sp. n. has close resemblance with the genus *Labronemella* Andrássy, 1985, however, on the basis of shape of lip region it fits more suitably under the genus *Labronema*.

**Genus Eudorylaimus Andrássy, 1959**

**Diagnosis:** Small to medium-sized nematodes, 0.9-3.5 mm long. Cuticle smooth or finely transversely striated. Lip region set off from body by depression or deep constriction. Lips predominantly angular and separate; papillae protruding above labial contour. Amphids with stirrup-shaped fovea and slit-like aperture. Vestibule comparatively wide. Odontostyle 11-38 µm or one to one-and-a half times as long as labial width; aperture one-third to one-half its length. Guiding ring single.
Odontophore simple, rod-like. Pharynx generally enlarges slightly posterior to its middle. Female genital system amphidelphic. Vulva transverse, or rarely longitudinal. Prerectum one to five anal body widths long. Males with dorylaimoid spicules, lateral guiding pieces and 3-18 spaced ventromedian supplements; precloacal space present between ventromedial row and adanal pair of supplements. Tail short, conoid, ventrally curved, rarely straight or slightly bent dorsally; similar in sexes.

Types species: *Eudorylaimus carteri* (Baastian, 1865) Andrássy, 1959

Syn. *Dorylaimus carteri* Bastian, 1865  
*Dorylaimus carteri littoralis* Hofmanner, 1913  
*Dorylaimus carteri profunda* Hofmanner, 1913  
*Dorylaimus carteri apicatus* Micoletzky, 1922  
*Dorylaimus fasciatus* Linstow, 1879  
*Dorylaimus varians* Thorne, 1974

**Eudorylaimus irritans** (Cobb, 1936) Andrássy, 1959

**Measurements:**

**Females** *(n=5):* Body length = *(1.45±0.20)* 1.05-1.6 mm; body width at neck base = *(52±2.1)* 50-56 μm; body at mid body = *(57.5±1.6)* 55-60 μm; body width at anus = *(33.5±3.0)* 28-36 μm; a = *(24.8±3.5)* 18-27.5; b = *(3.7±0.33)* 3-4; c = *(23±1.4)* 21-24; c' = *(1.8±0.06)* 1.5-2.0; V = *(51.2±1.7)* 48-53; G1 = *(11±1.15)* 9.5-12.5; G2 = *(11.7±2.0)* 9-14; lip region width = *(16.2±0.75)* 15-17 μm; lip region height = *(6.0±0.6)* 5-7 μm; amphid aperture = *(8.20±0.98)* 7-10 μm; odontostyle length = *(20.8±0.4)* 20-21 μm; guiding ring from anterior end = *(9.8±0.75)* 9-11 μm; odontophore length = *(31.2±0.98)* 30-33 μm; expanded part of pharynx = *(174.8±15.5)* 144-182 μm; nerve ring from anterior end = *(137±5.4)* 132-146 μm; neck length = *(381.2±28.3)* 380-415 μm; candia length = *(20±2)* 17-22 μm; prerectum length = *(64.5±14.0)* 49-90 μm; rectum length = *(42.6±1.95)* 40-45 μm; tail length = *(62.0±6.5)* 50-65 μm.
**Habitat and Locality:** Soil around the litter of forest trees, Kangkhong forest range, Kankhon, district Dibang valley, Arunachal Pradesh.

**Remarks:** The present specimen conforms well with *E. irritans* (Cobb, 1936) Andrássy, 1959 though there are slight difference in c value (vs. 30-50), and cardia length (vs 8-15 μm). This is the first report of this species from Arunachal Pradesh as well as from India.

**Genus Thonus Thorne, 1974**

**Diagnosis:** Small-sized nematodes, rarely more than 2.0 mm long. Lip region continous or offset from body; lips distinct. Odontostyle cylindrical, aperture about one-half or less length. Guiding ring single, weakly plicated. Pharynx expansion gradual to abrupt. Cardia with well-developed disc-like part between pharynx and intestine. Vulva transverse, with small anterior and posterior glands. Female genital system amphidelphic. Spicules dorylamoid, strongly arcuate; ventromedian supplements variable in number, spaced. Tail hemispheroid to rounded, convex-conoid; similar in sexes.

Type species: *Thonus nothus* (Thorne and Swanger, 1936) Thorne, 1974

Syn.: *Dorylaimus nothus* Thorne and Swanger, 1936

**Thonus goaensis Ahmad, 1993**

**Measurements:**

*Females* (*n=5*): Body length = (0.90±0.065) 0.82-1.0 mm; body width at neck base = (42.7±4.9) 35-48.5 μm; body width at midbody = (43.5±6.5) 32-49 μm; body width at anus = (26.8±1.65) 24-28 μm; a = (21.1±2.45) 19-25.5; b = (3.6±0.18) 3-4; c = (56.95±5.74) 49-65; c’ = (0.59±0.09) 0.5-0.7; V = (59.0±2.53) 58.5-63.5; G_1 =
(12.55±2.66) 9.8-16.5; lip region width = (11.7±0.39) 11-12 μm; lip region height = (4.08±0.15) 4.0-4.5 μm; amphid aperture = (6.4±0.0) 6.4 μm; odontostyle length = (15.8±0.6) 15-17 μm; odontophore length = (20.5±0.60) 20-21.5 μm; guiding ring from anterior end = (10±0.4) 9.5-10.5 μm; expanded part of pharynx = (115.04±2.8) 112-120 μm; nerve ring from anterior end = (92.8±9.5) 84-109 μm; neck length = (251.04±15.3) 226-274 μm; cardia length = (12.8±2.77) 11-16 μm; prerectum length = (42±6.86) 32-50 μm; rectum length = (28.93±0.6) 28-30 μm; tail length = (16.0±1.34) 14-17 μm.

**Habitat and locality:** Soil around the roots of forest trees from Santipur forest range, district Lower Dibang Valley, Arunachal Pradesh.

**Remarks:** Present specimens conforms well with *T. goanesis* Ahmad, 1993, described from soil around the roots of coconut (*Cocos nucifera*), from Goa state, India. This is the first report of this species from Arunachal Pradesh.

**Genus Labronemella Andrássy, 1985**

**Diagnosis:** Body 1.2-2.8 mm long. Cuticle with fine transverse striations. Lip region strongly offset, somewhat discolaimoid; oral field plate-like, sunken, with well-separated inner liplets; field of inner liplets wider than that of external lips. Odontostyle slender, more than one lip region width long, with large aperture. Guiding ring ‘double’. Odontophore rod-like. Pharynx strongly muscular, expanding near middle. Female genital system amphidelphic. Spicules dorylaimoid; ventromedian supplements 11-21, very low and close-set. Tail short, conoid; similar in sexes.

Type species: *Labronemella labiata* Andrássy, 1985
Labronemella loofi (Ahmad & Jairajpuri, 1982) Andrássy, 1985

Measurements:

**Females (n=4):** Body length = (2.16±1.30) 2.09-2.31 mm; body width at neck base = (63.6±5.5) 56-64 μm; body width at midbody = (66.95±3.07) 64-71 μm; body width at anus = (38.12±3.4) 34-43 μm; a= (32.37±2.27) 29-36; b= (4.35±0.22) 4.0-4.6; c= (83.5±7.45) 71-90; c’= (0.68±0.05) 0.61-0.74; V= (52.3±0.76) 51-53; G1= (15.0±0.85) 13.5-15.5; G2= (14.55±0.07) 13-17.5; lip region width = (21±0.65) 20.5-22 μm; lip region height = (6.1±0.038) 5.5-6.5 μm; amphid aperture = 9.5 μm; odontostyle length = (28.9±1.63) 26.5-30.0 μm; odontophore length = (41.4±2.06) 38-44 μm; guiding ring from anterior end = (15.7±1.27) 14.0-17.5 μm; expanded part of pharynx = (240±22.6) 212-269 μm; nerve ring from anterior end = (164.08±11.2) 150-184 μm; neck length = (495±49) 466-576 μm; cardia length = (22.5±1.65) 21-27 μm; prerectum length = (117±7.5) 108-126 μm; rectum length = (48±4) 41-51 μm; tail length = (25.9±1.77) 24-28 μm.

**Males (n=2):** Body length = 1.55, 1.69 mm; body width at neck base = 46.5 μm, 46.5 μm; body width at mid body = 47 μm, 49.5 μm; body width at anus = 32 μm, a= 33, 34; b= 3.5, 4.0; c= 71, 79.5; c’= 0.68, 0.60; lip region width = 20, 20.5 μm; lip region height = 6 μm, 5 μm; amphid aperture = 9.5 μm, 9.5μm; odontostyle length = 27.5 μm, 28 μm; odontophore length = 41.5 μm, 42.5 μm; guiding ring from anterior end = 13.5 μm; expanded part of pharynx = 214 μm, 184 μm; nerve ring from anterior end =141 μm, 146 μm; neck length = 427 μm, 432 μm; cardia length = 34 μm, 29 μm; prerectum length = 128 μm, 138 μm; rectum length = 45.5 μm, 51 μm; spicules
length = 61 μm; lateral guiding pieces = 14 μm, 15 μm; ventromedian supplements = 13, 15; tail length = 22 μm, 21.5 μm.

**Habitat and locality:** Soil around the roots of teak tree (*Tectona grandis*) from forest reserve area, Bhalukpong, district West Kameng, Arunachal Pradesh.

**Remarks:** The present specimens closely resemble with *L. loofi* described by Ahmad and Jairajpuri, 1982 from Himachal Pradesh in most morphometrics characters except for slight difference in males *i.e.* body size (*vs* 2.06-2.2 mm), a value (*vs* 36-40), b value (*vs* 84-91), and c value (*vs* 84-91). This is the first report of this species from Arunachal Pradesh.

**Subfamily Discolaiminae Siddiqi, 1969**

**Genus Discolaimus Cobb, 1913**

**Diagnosis:** Body usually 1-3 mm long. Cuticle finely striated. Lateral chords with well-developed glandular bodies. Lip region discoid, lips widely expanded. Odontostyle long, narrow but thick-walled; aperture about one-third of its length. Guiding ring single. Odontophore rod-like. Basal expanded part of pharynx marked off from anterior slender part by abrupt expansion. Cardia disc-like, followed by bluntly conoid part. Female genital system mono-opisthodelphic or amphidelphic. Males with large dorylaimoid spicules, lateral guiding pieces and series of spaced ventroedian supplements. Tail bluntly rounded or conoid, with obtuse tip; similar in sexes.

**Type species:** *Discolaimus texanus* Cobb, 1913
**Discolaimus texanus** Cobb, 1913

**Measurements:**

**Females (n=5):** Body length = (1.01±0.078) 0.92-1.12 mm; body width at neck base = (28.2±1.28) 26.5-30.0 μm; body width at midbody = (29±1.34) 27.0-30.5 μm; body width at anus = (20.5±1.67)18.5-23.0 μm; \(a= (34.5±3) 30-38; b= (3.6±0.16) 3-4; c= (46.23±1.77) 43-48; c’= (1.07±0.08) 1.0-1.1; V= (42.7±0.97) 41.5-44.0; G_1= (6.8±0.87) 6-7; G_2= (8.1±0.6) 7-9; lip region width = (19.8±0.32)19-20 μm; lip region height = (4.5±0.060) 4-5 μm; amphid aperture = (7.5±0.71) 6.0-8.5 μm; odontostyle length = (15.8±0.32) 15-16 μm; odontophore length = (21.7±1.88) 19-24 μm; guiding ring from anterior end = (6.4±0.8) 5.5-7.0 μm; expanded part of pharynx = (167±14.7) 156-188 μm; nerve ring from anterior end = (85.8±6.6) 75-94 μm; neck length = (278.5±24.16) 247-307 μm; cardia length = (10.5±163) 8-12 μm; prerectum length = 26-28 (26.4±1.6) μm; rectum length = (20.0±0.5)19-20 μm; tail length = (22±1.3) 20-23 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees near Mithun gate, Itanagar, Arunachal Pradesh.

**Remarks:** Cobb (1913) described *Discolaimus texanus*. Later Andrássy (1990) synonymised *Dorylaimus (Discolaimus) texanus* Micoletzky, 1922; *Discolaimus monhystera* Thorne, 1939 and *Discolaimus brevis* Siddiqi, 1964 to *D. texanus*. It was reported from different parts of world (Holland, Czechoslavakia, Hungary, Yugorslavia, Spain, Italy, Uzbekistan, United states and Australia). The present specimens conforms well with those described by different authors with no significant differences.
**Genus Mylodiscus Thorne, 1939**


Type and only species: *Mylodiscus nanus* Thorne, 1939

**Measurements:**

*Mylodiscus nanus* Thorne, 1939

**Females (n=5):** Body length = (1.16±0.15) 1.04-1.44 mm; body width at neck base = (45±2.53) 40.5-47.5 \(\mu\)m; body width at midbody = (47±2.5) 43.5-50.5 \(\mu\)m; body width at anus = (32±3.7) 25.5-36.5 \(\mu\)m; a= (24.5±2.2) 22.0-28.5; b= (3.65±0.23) 3.4-4.0; c= (50.8±5) 44.0-56.5; c’= (0.72±0.08) 0.56-0.80; V= (57.8±2.05) 55-60; Gl = (10.9±1.16) 9.5-11.5; G2= (11.3±0.52) 10.5-12.0; lip region width = (12.3±1.0) 10.5-13.5 \(\mu\)m; lip region height = (3.9±0.2) 3.5-4.0 \(\mu\)m; amphid aperture = (6.33±0.48) 5.5-7.0 \(\mu\)m; odontostyle length = (10.9±0.88) 10-12 \(\mu\)m; odontophore length = (23.2±2.3) 22-26 \(\mu\)m; guiding ring from anterior end = (7±1.2) 6-8 \(\mu\)m; expanded part of pharynx = (137.4±9.7) 123-150 \(\mu\)m; nerve ring from anterior end = (103.5±5.5) 94-108 \(\mu\)m; neck length = (317±26) 284-360 \(\mu\)m; cardia length = (8.9±1.21) 7-10 \(\mu\)m; prerectum length = (81.8±17.2) 60-104 \(\mu\)m; rectum length = (28.5±3.7) 23-32 \(\mu\)m; tail length = (20.18±1.7) 20-25 \(\mu\)m.

**Male:** Not found.
Habitat and locality: Soil around the roots of forest trees near Abotany Statue, Itanagar, Arunachal Pradesh.

Remarks: The present specimens conform well with those describe by earlier authors from different areas of the world. This is the first report of this species from Arunachal Pradesh.

Subfamily Lordellonematinae Siddiqi, 1969

Genus Lordellonema Andrássy, 1960

Diagnosis: Small sized nematodes. Both inner and outer layer of cuticle with distinct striations; inner layer often separated from outer layer. Lateral, dorsal and ventral body pores distinct; dorsal and ventral pores restricted to pharyngeal region or distributed throughout body length. Lip region distinctly offset; labial papillae prominent. Odontostyle dorylaimoid with aperture about one-fourth or one-third of its length. Guiding ring single (?double in L. bauruense). Odontophore simple rod-like. Pharynx dorylaimoid; expanded part about one-third of its length. Cardia short conoid. Vulva pore-like or tranverse; pars refrigens vaginae absent. Female genital system didelphic-amphidelphic or monodelphic-prodelphic. Males with simple arcuate spicules, lacking median piece and three ventromedian supplements. Tail short, conoid, similar in both sexes.

Type species: Lordellonema bauruense (Lordello, 1955) Andrássy, 1960
    Syn. Dorylaimus bauruensis Lordello, 1955
Lordellonema macrodorum sp. n.  
(Fig. T-8)

**Measurements:** See Table. T-8

**Female:** Body slightly curved ventrad upon fixation, tapering towards both extremities. Cuticle distinctly striated, 2.5 μm thick at mid body and 2.5-4.0 μm on tail. Inner layer with distinct striations and loosen from outer layer. Lateral hypodermal chord about one-fifth of corresponding body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region distinctly offset, rather discoid, about two-fifth as wide as body width at neck base. Lips separate; labial papillae distinctly projecting above labial contour. Stoma well developed, slightly thick. Amphids stirrup-shaped, their aperture about half of lip region width wide. Odontostyle dorylaimoid, about 1.4 times lip region width long, its aperture about one-fourth of its length. Guiding ring single, fixed ring at 0.50-0.55 times lip region width from anterior end. Odontophore simple, rod-like, 1.0-1.1 times the odontostyle length. Nerve ring at 32-39% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 42-46% of total neck length. Cardia short, conoid, with a thin cardiac disc, about two-fifth as wide as corresponding body width long. Pharyngeal gland nuclei located as follows. D= 64-67%; AS1=11-15%; AS2= 31-35%; PS1= 59-61%; PS2= 61-63%.

Genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 49-62 μm (anterior) and 65-68 μm (posterior) with oocyte arrange in single row except near tip. Oviduct joining ovary subterminally, measuring 82-85 μm (anterior) and 68-72 μm (posterior). Sphincter present at oviduct-uterus junction. Uterus measuring 75-82 μm (anterior) and 66-81 μm (posterior). Vagina weakly muscular, about one-half of mid body width deep. *Pars*
proximalis absent; pars distalis vaginae measuring 7 μm in length. Vulva transverse. Prerectum 2.8-3.2 times anal body widths long. Rectum about as long as anal body width. Tail short conoid, ventral wall almost straight, dorsally wall slightly convex, about 1.5 times anal body widths long.

**Male:** Not found.

**Type habitat and locality:** Soil around the roots of forest trees, reserve forest near river Horu Zia, Shantipur, district Lower Dibang valley, Arunachal Pradesh.

**Type specimens:** Holotype female on slide Lordellonema macrodorum sp. n./1; paratype female and juveniles on slide Lordellonema macrodorum sp. n./2-4; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, India.

**Diagnosis and relationships:** Lordellonema macrodorum sp. n. is characterized by having 1.1-1.2 mm long body; inner layer of cuticle with distinct striations and loosen from outer layer; body pores indistinct; lip region wide, offset by deep constriction; 22-23 μm long odontostyle; short conoid cardia with a thin disc; transverse vulva; amphidelphic genital system, and, short conoid tail.

**Lordellonema macrodorum** sp. n. differs from all known species of the genus in its characteristic discoid lip region, the large odontostyle and indistinct body pores. It further differs, from L. hashirensis Yasmin, Ahmad & Jairajpuri, 1994 in having longer tail (vs tail 25-30 μm long, c= 32-33.6, c’ =0.95-1.1) and posterior vulva (vs V= 49-51).

From L. porosum the new species differs in having longer body size (vs L = 0.55-0.67 mm), indistinct body pores (vs large number of body pores through out the length of body), longer odontostyle (vs12-13 μm) and longer tail (vs tail 24-29 μm long, c= 24-29).
From *L. minutum* it differs, in having longer body size (vs 0.39-0.44 mm), longer odontostyle and odontophore (vs odontostyle 11.0-11.5 μm, odontophore 11-12 μm), higher b and c’ values (vs b=2.9-3.2, c’=1-1.2), comparatively anterior vulva position (vs V = 59-62), longer prerectum (vs 30-54 μm), and longer tail (vs tail 13-16 μm).

**Genus Sicorinema** Siddiqi, 1982

**Diagnosis:** Small to medium size nematodes; both inner and outer layer of cuticle with striations; Lateral, dorsal and ventral body pores indistinct. Lip region distinctly offset; lips and papillae distinct. Odontostyle dorylaimoid, wide; aperture about half or more of its length. Guiding ring single. Odontophore simple, rod-like. Pharynx muscular, enlarging behind middle. Cardia short conoid. Vulva pore-like; *pars refringens vaginae* absent. Female genital system monodelphic-ophithodelphic or didelphic-amhidelphic. Males with simple arcuate to almost cylindrical spicules, lacking median piece. Ventromedian supplements few, regularly spaced; no precloacal space. Tail short to elongate-conoid with rounded terminus; similar in both sexes.

Type species: *Sicorinema sericatum* Siddiqi, 1982

*Sicorinema bashirjani* sp. n.

(Fig. T-9)

**Measurements:** See Table. T-9

**Female:** Body curved ventrad upon fixation, tapering gradually towards both extremities. Cuticle thin, distinctly striated; inner layer also with distinct striations, 2.0-2.5 μm thick at mid body and 3.0 μm on tail. Lateral hypodermal chord about one third of body width at mid body. Lateral, dorsal, and ventral body pores indistinct.
Lip region offset by constriction with raised pappilae, about one-third of body width at neck base. Amphids stirrup-shaped, their aperture about half of the lip region width wide. Odontostyle dorylaimoid, slightly more than lip region width long, its aperture about one-third of its length. Guiding ring single, fixed ring at 0.4-0.5 times lip region width from anterior end. Odontophore simple, rod-like, 1.2-1.5 times the odontostyle length. Nerve ring at 33-35% of the neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 42-49% of the total neck length. Cardia slightly oblong, about one-forth of corresponding body width long. Pharyngeal gland nuclei located as follows: D = 66-68%; AS1 = 22-25%; AS2 = 44-47%; PS1 = 68-71%; PS2 = 70-73%.

Genital system monodelphic-opisthodelphic. Ovary reflexed, measuring 51-85 μm with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 73-128 μm. Sphincter present at oviduct-uterus junction. Uterus a small undifferentiated tube, measuring 56-69 μm in length. Anterior genital branch represented by a small sac, about 0.6-0.9 times the corresponding body width long. Vagina weakly muscular, about two-third of corresponding body width deep. Pars proximalis vaginae 7.0-7.5 μm long with straight walls, encircled by circular musculature; pars refringens vaginae absent; pars distalis vaginae 4-5 μm with curved wall. Vulva pore-like. Prerectum 2.7-4.2 times anal body widths long. Rectum 1.3-1.4 times anal body widths long. Tail short, conoid, 1.3-2.1 times anal body widths long.

**Male:** Not found.

**Type habitat and locality:** Soil around the roots of Teak tree (Tectona grandis), from Bomdilla forest range, district West Kameng, Arunachal Pradesh.
Type specimens: Holotype female on slide Sicorinema bashirjani sp. n./1; paratype females on slide Sicorinema bashirjani sp. n./2-4; deposited with the nematode collection of the Department of Zoology, Aligarh Muslim University, India.

Diagnosis and relationships: Sicorinema bashirjani sp. n. is characterized by having 1.21-1.38 mm long, slender body; distinctly striated cuticle; 8.0-8.5 μm long odontostyle; pore like vulva; mono-opisthodelphic female genital system with short anterior uterine sac, and short, conoid, minutely rounded tail.

In the presence of mono-opisthodelphic female genital system and a short conoid tail, the new species comes close S. sericatum Siddiqi, 1982; S. colombiense Siddiqi, 1982, and S. esquiveli Loof & Zullini, 2000, however, it differs, from the former in having longer body size (vs L=0.66-0.90 mm); shorter odontostyle and odontophore (vs odontostyle 10-13 μm, odontophore 17-24 μm), higher b value (vs b = 3.9); more posterior vulva (vs V = 40-46), in the presence of an anterior uterine sac (vs absent), and, in the shape and size of tail (vs tail ventrally arcuate, c=13-16, c’=2.9-4.2).

From S. colombiense, the new species differs, in having longer body length (vs L= 0.62-0.78 mm); shorter odontostyle and odontophore (vs odontostyle 10-12 μm, odontophore 22-23 μm); higher b value (vs b = 2.9-3.2); in the presence of an anterior uterine sac (vs absent); longer prerectum (vs 30-36 μm); slightly longer and differently shape tail (vs tail ventrally arcuate, c=20-24, c’=2-2.2).

From S. esquiveli it differs, in having shorter odontostyle and odontophore (vs odontostyle 10.5 μm, odontophore 18 μm), more posterior vulval position (vs V= 42-48); in the presence of anterior uterine sac (vs absent); higher b value (vs b = 4-4.2); shorter prerectum length (vs prerectum 90 μm long), and, shorter tail length (vs 34-37 μm, c= 36-37).
**Sicorinema lunulatum** (Siddiqi, 2003) n. comb.


(Fig. T-10)

**Measurements:** See Table T-10

**Female:** Body curved ventrad upon fixation, tapering towards both extremities. Cuticle thin, finely striated, 1.5-2.0 μm thick at mid body and 3.0-3.5 μm on tail; inner layer with distinct striations. Lateral hypodermal chord about one-third of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region deeply offset by constriction, slightly wider than adjoining body; about one-third as wide as body width at neck base. Lips compact; labial papillae slightly raised. Amphids oval, aperture about one-half of lip region width wide. Odontostyle 1.1-1.2 times the lip region width long with aperture slightly more than half of its length. Odontophore rod-like, with wide lumen, 1.4-1.5 times the odontostyle length. Guiding ring single, fixed ring at about one lip region width from anterior end. Nerve ring encircling anterior part of pharynx at 31-35% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 47-50% of total neck length. Cardia conoid, about one-third of corresponding body width long; a thin cardiac disc present. Pharyngeal gland nuclei located as follows. D=58-63%; AS1= 26-29%; AS2= 48-52%; PS1= 61-65%; PS2= 62-66%.

Female genital system monodelphic-opisthodelphic. Posterior branch fully developed. Ovary reflexed, 42-60 μm long, with oocytes arranged in single row except near tip. Anterior branch represented by a small sac. Vagina slightly less than one-half of corresponding body width deep. *Pars proximalis vaginae* 8-10 μm long; *pars refringens vaginae* absent; *pars distalis vaginae* measuring 4-5 μm. Vulva small pore-like. Prerectum about three times anal body width long. Rectum 1.1-1.2 times
anal body width long. Tail subdigitate with rounded terminus, 1.6-2.0 anal body widths long; inner protoplasmic core convex-conoid, not reaching tail tip; hyaline terminal region 4.0-5.5 μm long.

**Males:** Not found.

**Habitat and locality:** Soil around the roots of forest trees, near Mithun gate, Itanagar, Arunachal Pradesh.

**Remarks:** Siddiqi (2003) described this species as *Latocephalus lunulatus* from Tripura State, India. In the nature of its outer and inner layer of cuticle, lip region, odontostyle and specially the pharynx, this species does not fit under the generic diagnosis of *Latocephalus* Patil & Khan, 1982. Patil & Khan (1982) proposed the genus *Latocephalus* to accommodate the monodelphic species of the genus *Discolaimium* Thorne, 1939. All the discolaimids have abrupt pharyngeal expansion, DO and DN much behind the normal position and well developed hypodermal glands. *Latocephalus lunulatus* does not have any of these basic features.

During present work some specimens of this species were collected from Arunachal Pradesh, a region very close to Tripura, the type locality. A detailed study of these specimens reveal that, in the nature of its outer and inner layer of cuticle, odontostyle, and pharynx, it fits more suitably under the genus *Sicorinema* Siddiqi, 1982 rather than *Latocephalus* and hence it is being transferred here to *Sicorinema* as *S. lunulatum* (Siddiqi, 2003) n. comb.

*S. lunulatum*, closely resembles *S. sericatum* Siddiqi, 1982; *S. esquiveli* Loof & Zullini, 2000; *S. clombiense* Siddiqi, 1982 and *S. bomdillaensis* sp. n. in the presence of a mono-opisthodelphic female genital system, however, it differs from *S. sericatum* and *S. columbiensis* in the shape of its tail.
From *S. esquiveli*, it differs, in having small body size (vs L=1.2-1.3 mm); posterior vulva (vs V= 42-48); shorter prerectum (vs 90); in the presence of anterior uterine sac (vs absent), and subdigitate tail (vs straight).

*S. lunulatum* differs from *S. bomdillaensis* sp. n. in having smaller and robust body (vs L=1.21-1.38 mm, a= 52-59); in the shape of lip region (vs. lips more compact and less deeply offset); less b value (vs b= 4.3-5.2), and in the shape of tail (vs conoid).

**Genus Moshajia Siddiqi, 1982**

**Diagnosis:** Body medium sized (about 1 mm or long). Cuticle irregular with fixation folds. Body pores conspicuous, leading into prominent cuticular canals; lateral pores widely spaced; ventral pore present along the entire length of the body; dorsal pores only in anterior region. Lip region offset by constriction; lips and papillae raised. Odontostyle with wide lumen and aperture over half of its length. Odontophore dorylaimoid, with wide lumen; stoma wide not sclerotized; stylet guiding ring single, large, at base of lip region. Pharynx very muscular gradually enlarging at or behind middle. Female genital system amphidelphic. Vulva pore-like. Spicules nondorylaimoid, lacking median stiffening piece. Ventromedian supplements numerous, spaced. Tail conoid to subdigitate, similar in sexes.

Type species: *Moshajia idiophora* Siddiqi, 1982

**Moshajia cultristyla** Siddiqi, 1982

(Fig. T-11)

**Measurements:** See Table T-11

**Female:** Body slightly curved ventrad upon fixation. Cuticle finely striated, 2.5-3.0 μm thick at mid body and 3-4 μm on tail; inner layer irregular with distinct
striations. Lateral hypodermal chord about one-fourth as wide as corresponding body width. Body pores distinct; ventral pores 7-9 in the pharyngeal region, 3-5 between pharynx and vulva, and, 4-7 between vulva and anus. Dorsal pores 4-5, restricted to the pharyngeal region.

Lip region offset by deep constriction, with raised papillae, about one-third as wide as body width at neck base. Amphids cup-shape, their aperture about one-half lip region width wide. Odontostyle 1.20-1.25 times lip region width long, its aperture about two-third of its length. Guiding ring single, about half the lip region width from anterior end. Odontophore rod-like, 2.0-2.2 times the odontostyle length. Nerve ring at 30-32% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying of about 47-50% total neck length. Cardia short conoid, about one-third of body width at neck base. Pharyngeal gland nuclei located as follows: D = 55-59%; AS1 = 19-22%; AS2 = 37-40%; PS1 = 58-62%; PS2 = 59-63%.

Genital system didelphic-amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 82-102 μm (anterior) and 80-122 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 55-80 μm (anterior) 48-64 μm (posterior). Sphincter present at oviduct-uterus junction. Uterus an undifferentiated tube, measuring 34-40 μm (anterior) 45-55 μm (posterior) in length. Vagina extending inward about one-half of corresponding body width deep. Pars proximalis vaginae 9-10 μm long with straight walls, encircle by circular musculature; pars refringens vaginae absent; pars distalis vaginae 5-6 μm with curved walls. Vulva pore-like. Prerectum 2.2-3.2 anal body widths long. Rectum 1.0-1.3 anal body widths long. Tail subdigitate, 1.1-1.4 times anal body with long with a pair of caudal pores on each side.
Male: Not found

Habitat and locality: Soil around the roots of ginger plant from Iduli, Roing, district Dibang valley, Arunachal Pradesh.

Remarks: Siddiqi (1982) described *M. cultistylo* from Nigeria. This is the first report of this species from India and first ever report after the original description. The present specimens conform well with the type specimens except for having slightly smaller odontostyle (vs 13-15 μm); more anterior guiding ring position (vs 6.5 μm), and shorter prerectum (vs 77-84 μm). These difference may be because of geographical variation.

Subfamily Hulquinae Siddiqi, 1982

Genus *Mitoaxonchium* Yeates, 1973

Diagnosis: Lip region narrow, offset; lips amalgamated; papillae slightly raised. Amphidial aperture oval, less than one-half lip region width. Odontostyle slender, aperture less than one-half length. Pharynx about one-third of body length, enlarging anterior to middle by abrupt expansion; two parts set off by sharp constriction. Orifice of dorsal pharyngeal gland at about one-third length of enlarged part of pharynx. Female genital system amphidelphic. Vulva tranverse. Tail long filliform. Males not known.

Type species: *Mitoaxonchium basalticum* Yeates, 1973
Mitoaxonchium indicum sp. n.

(Fig. T-12)

Measurements: See Table T-12

Female: Body slightly curved ventrad upon fixation, tapering slightly anterior to the base of pharynx, posteriorly ending in a long filiform tail. Cuticle finely striated, 1.0-1.5 μm thick at mid body as well as on tail. Lateral chord about one-third of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region narrow, offset; about one and half times as wide as high and about one-third as wide as body width at neck base. Lips amalgamated; labial papillae slightly raised. Amphids wine glass-shaped, their aperture about one-third of corresponding width wide. Odontostyle dorylaimoid, 1.1-1.3 times the lip region width long. Guiding ring single, 0.7-0.9 times lip region width from anterior end. Odontophore simple, rod-like, 1.5-1.6 times the odontostyle length. Nerve ring at 33-34% of neck length from anterior end. Pharynx about 32-33% total body length, enlarging almost near its middle by sharp constriction. Expanded part occupying about 52-55% of total neck length. Cardia short, bluntly conoid, slightly more than one-third of corresponding body width long. Pharyngeal gland nuclei located as follows: D= 61-64%; AS1= 21-23%; AS2= 38-42%; PS1= 70-73%; PS2= 73-75%.

Genital system didelphic-amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 15-25 μm (anterior), and 16.5-25.5 μm (posterior) with oocytes arranged in a single row except near tip. Oviduct joining ovary subterminally, measuring 35-37 μm (anterior) and 26-37 μm (posterior). A weak sphincter present at oviduct-uterus junction. Uterus an undifferentiated tube, measuring 18-20 μm (anterior) and 15-23 μm (posterior). Vagina extending inwards slightly more than one-half of corresponding body width deep; pars proximalis
Vaginae 4-5 μm; pars refringens vaginae absent; pars distalis vaginae 2.5-3.0 μm. Vulva transverse, slit-like. Prerectum 2.2-2.3 times anal body widths long. Rectum about one anal body width long. Tail long filiform, 11.5-12 anal body widths long, terminating into pointed terminus with no distinct hyaline part.

**Male:** Not found.

**Type habitat and locality:** Mosses grown on tree trunk (teak and plywood trees), about 4-10 feet above the ground surface, natural forest range near Rangring coalmines, Namdang, district Changlang, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *Mitoaxonchium indicum* sp. n./1; paratype females on slide *Mitoaxonchium indicum* sp. n./2-3; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, India.

**Diagnosis and relationships:** *Mitoaxonchium indicum* sp. n. is characterised by having 0.46-0.50 μm long body; lip region narrow offset, with amalgamated lips; wine glass-shaped amphids; 5-6 μm long odontostyle; pharynx enlarging almost near its middle by sharp constriction, and a long filiform tail terminating into a pointed terminus.

*M. indicum* sp. n. differs from the type and only species of the genus, *M. basalticum* Yeates, 1973 in having slightly smaller body size (vs L= 0.51-0.61 mm), more deeply offset and differently shaped lip region (vs lip region with slight constriction, rather angular), wider lateral hypodermal chord (vs one-sixth of corresponding body width), comparatively shorter odontostyle and odontophore (vs odontostyle 6-8 μm, odontophore 10 μm), comparatively anterior vulva (vs. V= 47-51); shorter prerectum (vs 35 μm), longer rectum (vs 7.5 μm), and more longer tail with no distinct hyaline part (vs tail 95 μm, c= 4.8-6.1 with hyaline part distinct).
FAMILY NORDIIDAE JAIRAJPURI & SIDDIQUI, 1965

Subfamily Cephalodorylaiminae Jairajpuri, 1967

Genus *Acephalodorylaimus* Ahmad and Jairajpuri, 1982


Type and only species: *Acephalodorylaimus attenuatus* Ahmad and Jairajpuri, 1982

*Acephalodorylaimus attenuatus* Ahmad and Jairajpuri, 1982

**Measurements:**

*Females (n=8):* Body length = (0.73±0.076) 0.60-0.80 mm; body width at neck base = (16.7±2.4) 15-20 μm; body width at mid body = (18.24±2.75) 15-20 μm; body width at anus = (10.91±1) 9.5-12.5 μm; a = (40.5±3.3) 35.0-47.5; b= (4.0±0.42) 3.2-4.5; c= (10.3±0.95) 8.5-11.5; c’= (6.5±0.45) 6-7; V= (52.7±1.65) 50-55; G1= (10.6±0.92) 9-12; lip region width = (7.2±0.70) 6-8 μm; lip region height = (4.7±0.54) 4.5-6 μm; amphid aperture = (4.8±0.63) 4-5 μm; odontostyle length = (14.5±0.50) 13.5-15.5 μm; odontophore length = (15.9±1.90) 14.5-19 μm; expanded part of pharynx = (83.8±6.05) 76-92 μm; nerve ring from anterior end = (65±6.7) 53-72 μm; neck length = (184.9±22.5) 148-213 μm; cardia length = (3.7±0.58) 3.0-4.5 μm;
prerectum length = (27±4.7) 21-35 μm; rectum length = (10.5±1.82) 9-12 μm; tail length = (71±4.2) 63.5-77.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees, natural forest area, Khonsa, district Tirap, Arunachal Pradesh.

**Remarks:** Ahmad and Jairajpuri, 1982, described this species from Manipur, India and Penang, Malaysia. The present population agrees fairly well with the original description, except for minor difference in body length, prerectum, rectum and tail length (vs. L = 0.85-0.88 mm, prerectum 36-45 μm, rectum 13-17 μm, tail 75-88 μm in type specimens).

**Genus Oriverutus Siddiqi, 1971**

*Sy. Mammillonema* Darekar and Khan, 1982

*Paroriverutus* Carbonell & Coomans, 1982

**Diagnosis:** Body small-sized, about 1 mm long. Cuticle finely striated. Lip region well marked with prominent lips and papillae. Amphids abnormally large. Oral opening and pharynx circular. Odontostyle attenuated, with narrow lumen and sharply pointed tip. Guiding ring single. Pharynx gradually enlarging near middle; duct of dorsal gland long, its nucleus small and located at some distance from gland opening. Openings of anterior pair of ventrosub-lateral glands widely separated from each other and located in anterior half of pharyngeal enlargement; openings of posterior pair close-set and at some distance from base of neck. Cardia rounded, usually surrounded anteriorly by prominent glandular tissues. Vulva transverse, pore- or slit-like. Female genital system mono-opisthodelphic or amphidelphic. Males with dorylaimoid spicules, lateral guiding pieces and two to six spaced mammaliform ventromedian supplements. Tail elongat-conoid, with tip dorsally or ventrally directed; similar in sexes.
Type species: *Oriverutus sundarus* (Williams, 1964) Siddiqi, 1971
Syn. *Eudorylaimus sundarus* Williams, 1964

*Oriverutus longistylus* Ahmad and Jairajpuri, 1987

*Measurements:*

**Females (n=4):** Body length = (0.69±0.02) 0.68-0.74 mm; body width at neck base = (24.9±1.2) 24-27 μm; body width at midbody = (26.3±1.7) 24-28 μm; body width at anus = (14.7±0.7) 13.5-15.5 μm; a = (26.5±1.3) 25.0-28.5; b = (3.3±0.2) 3.0-3.5; c = (12±1.1) 10.5-13.5; c' = (3.9±0.3) 3.5-4.3; V = (41.8±0.4) 41.0-42.5; G2 = (12.5±0.9) 11.5-13.5; lip region width = (8.9±0.4) 8.5-9.5 μm; lip region height = (4.6±0.4) 4-5 μm; amphid aperture = (6.4±0) 6.0-6.5 μm; odontostyle length = (16.7±0) 16.5-17.0 μm; odontophore length = (13.4±1.0) 13.0-14.5 μm; guiding ring from anterior end = (6.4±0.8) 5.5-7.0 μm; expanded part of pharynx = (89.05±14) 73.5-106 μm; nerve ring from anterior end = (92±7.4) 85-102 μm; neck length = (209.3±17.2) 181-228 μm; cardia length = (7.4±1.6) 5.5-8.0 μm; prerectum length = (31.2±5.4) 25.5-38.5 μm; rectum length = (17.9±1.7) 16-20 μm; tail length = (58.3±3.5) 54.5-63.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of teak tree (*Tectona grandis*), Dazarling forest reserve, district West Kameng, Arunachal Pradesh.

**Remarks:** The present specimens conform well with *O longistylus* Ahmad and Jairajpuri, 1987 describe from Mysore, Karnataka except that these have slightly smaller lip region width (vs 10-11 μm) and shorter odontostyle (vs. 19-26 μm).

**Measurements:**

**Dibang Valley population:**

**Females** (*n=2*): Body length = 0.79, 0.96 mm; body width at neck base = 29.5, 32 μm; body width at midbody = 32, 33.5 μm; body width at anus = 20.5, 20 μm; a = 30, 28; b = 3.5, 3; c = 16.5, 15; c’ = 2.8, 2.5; V = 42.5, 46.5; G₂ = 13, 14; lip region width = 11.2 μm; lip region height = 4.4, 4.8 μm; amphid aperture = 7.0, 8.5 μm; odontostyle length = 16.5 μm; odontophore length = 15, 16 μm; guiding ring from anterior end = 9, 10 μm; expanded part of pharynx = 124, 108 μm; nerve ring from anterior end = 96, 99 μm; neck length = 276, 268 μm; cardia length = 5.5, 8.5 μm, prerectum length = 36, 54 μm; rectum length = 24 μm; tail length = 58, 53 μm.

**Bomdilla population:**

**Females** (*n=4*): Body length = (0.99±0.064) 0.9-1.04 mm; body width at neck base = (32±3.2) 27-34 μm; body width at midbody = (33.8±3.8) 28-36 μm; body width at anus = (19.4±1.5) 18.5-21.5 μm; a = (29.6±1.8) 28.5-32.0; b = (3.4 ±0.17) 3.0-3.5; c = (16.6±2.01) 14.5-20.5; c’ = (3.12±0.41) 2.5-3.5; V = (41.13±1.14) 39.5-42.0; G₂ = (11.4±1.67) 9.5-13.5; lip region width = (12±0.65) 11-12.5 μm; lip region height = (4.8±0.32) 4.5-5.0 μm; amphid aperture = (7.8±1) 6.0-8.5 μm; odontostyle length = (19.4±1.7) 17.0-20.5 μm; odontophore length = (16.8±0.92) 16.0-17.5 μm; guiding ring from anterior end = (6.4±0.) 6.4 μm; expanded part of pharynx = (119±12.3) 106-136 μm; nerve ring from anterior end = (110±6.6) 102-117 μm; neck length = (285±5.96) 277-292 μm; cardia length = (8.4±1.03) 7.0-9.5 μm; prerectum
length = (51.5±15.5) 34-72 µm; rectum length = (26±1.03) 24.5-27 µm; tail length = (61.5±10.2) 48.0-72.5 µm.

**Habitats and localities:**

1. Soil around the roots of forest trees from natural reserve forest near River Zia, Santipur, district Dibang Valley, Arunachal Pradesh.
2. Soil around the roots of forest trees (teak, oak and plywood) from natural forest, Manshree forest range, Bomdilla, Arunachal Pradesh.

**Remarks:** Dhanachand & Jairajpuri (1980) described this species as *Enchodelium asaccatum* from Manipur, India. Ahmad & Jairajpuri (1987) recorded it from Garhwal and Calicut and transferred it to the genus *Oriverutus*. Ahmad & Siddiqi (1997) further recorded it from Cameroon. The present two populations from Arunachal Pradesh agrees fairly well with earlier descriptions except for some minor differences in the neck length.

*Oriverutus neopagaras* sp. n.

(Fig. T-13)

**Measurements:** See Table T-13

**Female:** Body slightly curved ventrad upon fixation, tapering gradually towards both extremities. Cuticle finely striated, 2-3 µm thick at mid body and 2.5-4.0 µm on tail. Lateral chord about one-fifth of body widths at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region offset by constriction, about one-third as wide as body width at neck base. Lips lobe-like; labial papillae prominent, projecting above the labial contour. Amphids stirrup-shaped, their aperture about half of lip region width wide. Odontostyle dorylaimoid, attenuated, 0.54 times the lip region width from anterior
end. Odontophore simple, rod like, about 1.15-1.30 times the odontostyle length. Nerve ring at 31-36% of neck length from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 37-42% of the total neck length. Cardia short, conoid, about one-third to one-forth of corresponding body widths long with a cardiac disc; cardiac glands indistinct. Pharyngeal gland nuclei located as follows. D = 60-63%; AS1 = 24-28%; AS2 = 53-56%; PS1 = 73-75%; PS2 = 76-78%.

Genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 51-86 μm (anterior) and 50-76 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 72-108 μm (anterior) and 65-100 μm (posterior). Well developed sphincter present at oviduct uterus junction. Uterus a wide tube, with distinct pars dilatata, measuring 49-83 μm (anterior), 48-82 μm (posterior). Vagina extending inwards about half of the corresponding body width deep; pars proximalis vaginae 8.8 x 10.5 μm long with straight walls, encircled by circular musculature; pars refringens vaginae with two triangular sclerotization, each measuring 2.8-3.2 x 2.3-2.5 μm, cw= 6.2-6.4; pars distalis vaginae measuring 3 μm with curved wall. Vulva pore-like. Prerectum 1.37-1.46 times anal body width long. Rectum 1.0-1.2 times anal body width long. Tail elongate-conoid, ventrally curved to straight, dorsally bent near tip, 2.3-2.4 times anal body widths long, and, with a pair of caudal pores on each side.

Male: Similar to females in general morphology, except for slightly more curved posterior region because of the presence of copulatory muscles. Supplements, an adanal pair and 4-6 spaced ventromedians. Spicules dorylaimoid, 1.20-1.35 anal body widths long; lateral guiding pieces rod like, about one third of the spicules length. Prerectum 3.3-3.4 anal body widths long, terminating almost at the level with the last
ventromedian supplements. Tail similar to females, 2.0-2.7 times anal body widths long, and, with a pair of caudal pores on the each sides.

**Type habitat and locality:** Soil around the roots of forest trees (unidentified), natural reserve forest, Dazarling, Bomdilla, district West Kameng, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *O. neopagarus* sp. n. /1; paratype males and females on slide *O. neopagarus* sp. n./ 2-7; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, India.

**Diagnosis and relationships:** *Oriverutus neopagarus* sp. n. is characterized by having 0.81-1.02 mm long body; lip region offset by constriction; lips lobe-like with raised labial papillae; \( \mu m \) long, slender odontostyle; short conoid cardia with cardiac disc; cardiac gland absent; elongate-conoid tail with slightly dorsally bent tip and males with 4-6 spaced ventromedian supplements.

The new species is most closely related to *O. pagarus* Ahmad & Jairajpuri, 1987 in the shape of its lip region, nature of odontostyle, shape of vulva and the type of genital system, however, it differs in having comparatively weak odontostyle (vs. odontostyle comparatively more strong); smaller amphid aperture (vs 8-9 \( \mu m \)); shorter pharynx (vs 309-311 \( \mu m \)); *pars refrengens vaginae* with two sclerotised pieces (vs three pieces), in the absence of cardiac glands (vs present); shorter prerectum (vs 55-66 \( \mu m \)), differently shaped tail (vs tail elongate-conoid, ventrally bent, tip not dorsally bent); shorter spicules (vs 36-40 \( \mu m \)); in the shape of lateral guiding pieces (vs lateral guiding pieces with bulboid head), and, fewer ventromedian supplements (vs 8-9).
FAMILY LONGIDORIDAE THORNE, 1935

Subfamily Longidorinae Thorne, 1935

Genus Longidorus Micoletzky, 1922
Syn. Brevinema Stegarescu, 1980
Neolongidorus Khan, 1987

Diagnosis: Body long and slender. Lips amalgamated. Lateral chord wide; lateral body pores in one or two rows. Amphids large, fovea pouch-like with unlobed, symmetrically or asymmetrical bilobed base. Amphidial apertures minute, pore like, often inconspicuous. Odontostyle long and attenuated. Odontophore without basal flanges. Junction of odontostyle and odontophore simple. Stylet guiding apparatus single, situated anteriorly (almost at level of anterior third of odontostyle). DN usually at some distance from DO. SVN generally more developed than DN. Female genital system amphidelphic. Vulva transverse. Males with dorylaimoid spicules, lateral guiding pieces and ventromedian supplements. Tail short, conoid to bluntly rounded; similar in sexes.

Type species: Longidorus elongatus (De Man, 1876) Thorne and Swanger, 1936
Syn. Dorylaimus elongatus De Man, 1876.

Longidorus dimorphicaudatus sp. n
(Fig. T-14)

Measurements: See Table T-14

Female: Body curved ventrad upon fixation, tapering gradually anteriorly, more abrupt posteriorly. Cuticle finely striated, 3.0-4.5 μm thick at mid body and 4.0-5.5 μm on tail. Lateral hypodermal chord about one-fourth of body width at mid body. Lateral, dorsal and ventral body pores indistinct.
Lip region flattened, continuous or slightly offset by depression, about one-fourth of body width at neck base. Amphids pouch-like with pore-like aperture. Odontostyle elongate, attenuated with finely rounded base, about 8.5-10.5 times lip region widths long with very fine aperture. Guiding ring single, fixed ring at 2.5-3.0 times lip region width from anterior end. Odontophore slightly enlarged at the base, 0.45-0.60 times the odontostyle length. Nerve ring at 61-66% of neck length from the anterior end. Pharynx typical of the genus; expanded portion occupying about 16.5-24% of the total neck length. Cardia one-fifth to one-fourth of corresponding body width at neck base. Pharyngeal gland nuclei and orifices located as follows: D = 81-85%; PS1 = 21-24%; PS2 = 54-57%.

Genital system amphidelphic; both the sexual branches almost equally developed. Ovaries reflexed, measuring 99-203 μm (anterior) and 82-206 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 153-229 μm (anterior) and 161-308 μm (posterior). Sphincter present at oviduct-uterus junction. Uterus a wide tube, body width deep; pars proximalis vaginae 16-20 μm long with straight wall encircled by circular musculature; pars refringens vaginae absent; pars distalis vaginae 15-17 μm long with curved walls. Vulva transverse. Prerectum 4.0-4.5 times anal body widths long. Rectum 0.8-1.0 times the anal body width long. Tail elongate-conoid, ventrally arcuate, 6.5-8.0 anal body widths long, with a pair of caudal pores on each side.

Male: Supplements, an adanal pair and nine irregularly spaced ventromedians. Spicules large, strongly built, ventrally bent near its middle, 1.5-2.1 times anal body widths long; lateral guiding pieces straight, about one-fourth of spicules length. Tail short, conoid, slightly ventrally arcuate with acute terminus, about two anal body widths long. Caudal pores two on each side.
**Type habitat and locality:** Soil around the roots of grassland, Tawang, district Tawang, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *Longidorus dimorphicaudatus* sp. n./ 1; paratype females and males on slide *Longidorus dimorphicaudatus* sp. n./ 2-5; deposited with the nematode collection of the Department of Zoology, Aligarh Muslim University, India.

**Diagnosis and relationships:** *Longidorus dimorphicaudatus* sp. n. is characterized by having 3.0-3.9 mm long body; 117-132 μm long, attenuated odontostyle with finely rounded base; odontophore simple, slightly enlarged at the base; transverse slit-like vulva, and, tail showing sexual dimorphism, elongate-conoid in female and short conoid in male.

*L. dimorphicaudatus* sp. n. distinctive from all the known species of *Longidorus* Micoletzky, 1922 in the presence of sexual dimorphism in tail shape. However, because of the presence of an elongate conoid female tail, it comes close to *L. longicaudatus* Siddiqi, 1962; *L. nirulai* Siddiqi 1965; *L. pini* Andrias & Arias, 1987 and *L. reysi* Roca & Bravo, 1993; but differ from the former in having longer body (vs 2.5-3.0 mm), longer odontostyle (vs odontostyle 92-100 μm), more posterior guiding ring (vs 21-24 μm from anterior end), longer tail (vs 2.8-3.2 anal body widths long, c= 40-50), and in the presence of males (vs absent).

From *L. nirulai*, the new species differs in having comparatively robust body (vs a = 88-104); longer odontostyle (vs odontostyle 100-106 μm); smaller expanded part of pharynx (vs 90 μm); shorter prerectum (vs 5-6 anal body widths long), longer female tail (vs two and half anal body widths long, c = 54-64), and, longer spicules (vs spicules 55-60 μm).
From *L. pini*, it differs, in having longer odontostyle and odontophore (*vs* odontostyle 65-70 \(\mu\)m, odontophore 55-71\(\mu\)m), more posterior guiding ring position (*vs* 26-27 \(\mu\)m from anterior end) and in the presence of males (*vs* absent).

From *L. reysi*, the new species differs, in having smaller and robust body (*vs* L= 6.9-10.5 \(\text{mm}\), a=157.5-214.5 \(\text{\mu mm}\)), lip region flattened, continuous or slightly offset by depression (*vs* lip region subcylindrical, distinctly offset), longer odontostyle (*vs* 103.5-112.5 \(\mu\)m), more posterior guiding ring position from anterior end (*vs* 29.5-32.5 \(\mu\)m), shorter pharyngeal bulb (*vs* 113-132.5 \(\mu\)m), smaller b value (*vs* 70.0-93.5 \(\mu\)m, c=87-126, c’= 2.1-2.9), and in the presence of males (*vs* absent).
**FAMILY BELONDIRIDAE THORNE, 1939**

Subfamily Belondirinae Thorne, 1939

**Genus Belondira Thorne, 1939**

Syn. Belondirium Andrássy, 1976

**Diagnosis:** Body 0.7-2.0 mm long, almost straight to slightly ventrally curved. Lip region rounded; papillae not raised. Outer part of cephalic framework weakly to moderately sclerotized. Amphidial apertures usually as wide as lip region width. Odontostyle narrow, usually less than width of lip region. Guiding ring obscure. Odontophore rod-like. Anterior slender part of pharynx expanding below ellipsoidal swelling, then gradually narrowing until it forms basal expanded part; latter encircled by thick sheath of spiral muscle bands. Cardia conoid or rounded. Female genital system mono-opisthodelphic. Anterior uterine branch vestigial, saccate. Males with well-developed spicules, lateral guiding pieces and one or two widely spaced ventromedian supplements. Tail rounded to clavate, usually with thick cuticle; similar in sexes.

*Type species:* Belondira apitica Thorne, 1939

Belondira murtazai Siddiqi, 1968

**Measurements:**

*Females (n=5):* Body length = (0.78±0.05) 0.69-0.82 mm; body width at neck base = (22.18±0.93) 21-23 μm; body width at mid body = (22.04±0.45) 21-23 μm; body width at anus = (17.22±1.06) 15.5-18.5 μm; a= (34±2.45) 31.0-37.5; b= (4.2±0.26) 3.5-4.5; c= (40.5±3.78) 35.5-44.5; c’= (1.12±0.07) 1.0-1.2; V = (35.78±1.06) 34-37; G2 = (17±3.62) 13-22; anterior uterine sac = (5.8±0.2) 5-6%; lip region width = (6.15±0.92) 5-7 μm; lip region height = (3.75±0.21) 3.5-4.0 μm;
amphid aperture = (4.50±0.93) 3.5-5.5 μm; odontostyle length = (4.5±0.46) 4.0-5.5 μm; odontophore length = (7.0±0.80) 6-8 μm; expanded part of pharynx = (73.3±9) 63-85 μm; nerve ring from anterior end = (76.8±7.90) 68-89 μm; neck length = (183.8±3.11) 179-187 μm; cardia length = (8.73±1.3) 7.0-9.5 μm; prerectum length = (27±2.8) 25-29 μm; rectum length = (10.9±4) 8-15 μm; tail length = (19.4±1.19) 18-21 μm.

**Males (n=3):** Body length = (0.82±0.013) 0.82-0.83 mm; body width at neck base = (20.5±0.61) 20-21 μm; body width at midbody = (20.5±0.61) 20-21 μm; body width at anus = 15.5 μm; a = (40±0.26) 39.0-40.5; b = (4.7±0.50) 4.5-5.0; c = (36±3.5) 31-39; c' = (1.39±1.03) 1.3-1.4; lip region width = (5.82±0.2) 5.5-6.0 μm; lip region height = (3.5±0.2) 3.0-3.5 μm; amphid aperture = (4.8±0.2) 4.5-5.0 μm; odontostyle length = (4.2±0.2) 4.0-4.5 μm, odontophore length = (6.8±0.8) 6.0-7.5 μm; expanded part of pharynx = (65.6±2.5) 63-68 μm; nerve ring from anterior end = (73.5±4.1) 68-77 μm; neck length = (168.7±10.30) 154-176 μm; cardia length = (5.8±0.1) 5.5-6.0 μm; rectum length = 9.5 μm; prerectum length = (19.5±0) 19.5 μm; spicules length = (21.06±0.91) 20.0-22.5 μm; lateral guiding pieces = (11.3±0.47) 11.5-12.0 μm; ventromedian supplements = 2-3, tail length = (21.66±0.46) 21-22.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of bushes and unidentified trees from reserved forest area near 5-KILO GRIEF Camp, Itanagar, Arunachal Pradesh.

**Remarks:** Siddiqi (1968) described *Belondira murtazai*, from Sibsagar Assam India, Later Ferris, Ferris & Goseco (1983) studied the species and synonymised *B. rafiqi* Suryavansi, 1972 described from Osmanabad India with *B. murtazai* Siddiqi 1968. The present population conforms well with the original description except for
having slightly shorter body length (vs. 0.99-1.02 mm), lower b value (vs. 5.3, 5.7), and lower c value (vs. 46.3, 53.8).

*Belendira porta* Thorne, 1964

**Measurements:**

**Changlang population**

**Females (n=4):** Body length = (1.27±0.12) 1.11-1.42 mm; body width at neck base = (41±4.45) 35-47 μm; body width at mid body = (39.8±3.1) 36-45 μm; body width at anus = (26.4±0.87) 25.0-27.5 μm; a = (32±2.3) 28-34; b = (3.8±0.37) 3-4; c = (66±5.27) 61.5-74; c' = (0.77±0.04) 0.75-0.80; V = (39±2.1) 35-43; G2 = (10.5±1.5) 9-13; lip region width = (7.5±0.17) 7.0-7.5μm; lip region height = (4.7±0) 4.7 μm; amphid aperture = (4.7±0) 4.7μm; odontostyle length = 6.3 μm; odontophore length = (15.5±1.0) 14.0-16.5 μm; guiding ring from anterior end = 5.5 μm; expanded part of pharynx = (196±23.3) 172-229 μm; nerve ring from anterior end = (93.8±2.68) 89-96 μm; neck length = (333±18.55) 306-357 μm; cardia length = (10.50±.91) 9-11 μm; anterior uterine sac = (6.91±1.05) 5-8%; prerectum length = (91.2±6.5) 83-101 μm; rectum length = (26±3.4) 23-30 μm; tail length = (19.9±1) 19.0-21.5 μm.

**Male (n=1):** Body length = 1.10 mm; body width at neck base = 36 μm; body width at mid body = 34.5 μm; body width at anus = 24 μm; a = 32; b = 3.5; c = 55; c' = 0.83; lip region width = 8 μm; lip region height = 4.5 μm; amphid aperture = 4.5 μm; odontostyle length = 6.5 μm; odontophore length = 14 μm; expanded part of pharynx = 153 μm; nerve ring from anterior end = 86 μm; neck length = 298 μm; cardia length = 12 μm; prerectum length = 111 μm; rectum length = 31.5 μm; spicules length = 36 μm; ventromedian supplement = 2; tail length = 20 μm.
Itanagar population:

**Females (n=4):** Body length = (1.51±69.42) 1.46-1.63 mm; body width at neck base = (40.63±2.51) 37-44 μm; body width at midbody = (39.18±1.0) 37.5-40.0 μm; body width at anus = (25.65±1.40) 23.5-27.5 μm; a = (38.75±1.58) 37.0-40.5; b = (4.24±0.24) 4.0-4.5; c = (76.5±6) 71.5-86.5; c’ = (0.77±0.04) 0.74-0.83; V = (38.40±1.35) 37.0-40.5; G2 = (9.0±1.52) 7-11; lip region width = (8.0±0.19) 7.5-8.3 μm; lip region height = (4.5±0.35) 4-5 μm; amphid aperture = (5.5±0) 5.5 μm; odontostyle length = (6.31±0.56) 5.5-7.0 μm; odontophore length = (16.16±1.17) 14-17 μm; guiding ring from anterior end = 5.5 μm; expanded part of pharynx = (191±20.65) 162-215 μm; nerve ring from anterior end = (103.5±5.33) 96-111 μm; neck length = (359±28.02) 322-377 μm; cardia length = (13.6±1.5) 12.5-15.5 μm; anterior uterine sac = (5.25±0.15) 5.0-5.5%; prerectum length = (93±19.02) 66-106 μm; rectum length = (29.47±1.50) 28-32 μm; tail length = (20±0.66) 19.0-20.5 μm.

**Male (n=1):** Body length = 1.57 mm; body width at neck base = 39.5 μm; body width at mid body = 38 μm; body width at anus = 23.5 μm; a = 41; b = 4.4; c = 76; c’ = 0.86; lip region width = 8 μm; lip region width = 8 μm; lip region height = 4.5 μm; amphid aperture = 4.5 μm; odontostyle length = 6.5 μm; odontophore length = 12.5 μm; expanded part of pharynx = 189 μm; nerve ring from anterior end =100 μm; neck length = 350 μm; cardia length = 13 μm; prerectum length = 160 μm; rectum length = 34 μm; spicules length = 37.5 μm; lateral guiding pieces = 8 μm; ventromedia supplement = 2; tail length = 20.5 μm.

Tirap population:

**Females (n=4):** Body length = (1.42±0.041) 1.38-1.49 mm; body width at neck base = (40.67±1.80) 39-43 μm; body width at midbody = (39.29±1.94) 37-42 μm; body width at anus = (23.30±0.88) 22-24 μm; a = (36.5±2.90) 33-41; b = (4.55±0.15) 4.4-4.8; c = (71.8±2.1) 68-73; c’ = (0.86±0.04) 0.82-0.92; V = (38.78±0.99) 37.0-39.5; G2 = (13±1.82) 10-15; lip region width = (7.8±0.43) 7-8 μm; lip region height =
(4.24±0.64) 3.0-4.5 μm; amphid aperture = (6.80±0.37) 6-7 μm; odontostyle length = (6.8±0.34) 6-7 μm; odontophore=(16.12±0.64) 15.0-16.5 μm; guiding ring from anterior end = (6.45±0.50) 6-7 μm; expanded part of pharynx = (175±4.60) 168-179 μm; nerve ring from anterior end = (93.5±3.75) 88-98 μm; neck length = (309.85±5.35) 304-315 μm; cardia length = (12.41±0.76) 12.0-13.5 μm; prerectum length = (104.65±38.05) 75-170 μm; rectum length = (26.8±2) 24-29 μm; tail length = (20±0.50) 19.0-20.5.

Habitats and localities:

1. Soil around the roots of forest trees from Pompu line forest range, district Changlang, Arunachal Pradesh.

2. Soil around the roots of forest trees near Arunachal Pradesh Secretariat building, Itanagar, Arunachal Pradesh.

3. Soil around the roots of forest tree from Khonsa, Tirap district. Arunachal Pradesh.

Remarks: Thorne (1964) described Belondira porta from Puerto Rico. The present populations conform well with B. porta Thorne 1964, except for slight difference in the following morphometric characters.

Changlang population: higher c value (vs. 36.4-45.9); shorter odontophore (vs. 19 μm); shorter prerectum length (vs. prerectum 112-128 μm), and slightly longer tail (vs tail 16-18 μm, c= 77-91), and lower c value in male (vs. c= 67.7).

Itanagar population: shorter odontophore length (vs 19 μm); shorter prerectum (vs. 112-128 μm), higher c value in male (vs. 67.7)

Tirap population: is almost same in measurements and morphological characters.
**Genus *Axonchium* Cobb, 1920**

**Diagnosis:** Small to large-sized (0.9-4.3 mm) nematodes. Body almost straight to open C-shaped upon fixation. Lip region continuous or set off with amalgamated or high, conoid to rounded lips. Amphidial apertures about two-thirds to same width as base of lip region. Odontostyle small, fusiform. Guiding ring single or ‘double’. Odontophore rod-like with thickened walls, usually equal to odontostyle length. Anterior part of pharynx usually with weak musculature. Fusiform enlarged region may occur just in front of nerve ring. Anterior slender part of pharynx separated by isthmus-like section. Basal expanded part of pharynx usually very long, enclosed in weakly to strongly developed sheath of spiral or straight muscles. Dorsal pharyngeal gland nucleus conspicuous. Female genital system mono-opisthodelphic. Vulva transverse, rarely longitudinal or oval. Vagina usually wide and with longitudinally striated walls; may be distinctly sclerotized. Anterior uterine sac small to moderately large or completely absent. Males with well-developed massive, straight to ventrally arcuate spicules. Lateral guiding pieces sclerotized, rod-like with distal bifid ends. Supplements, an adanal pair and 2-30 ventromedians that may be contiguous or spaced. Tail hemispherical to conoid; similar in sexes.

**Types Species:** *Axonchium (Axonchium) amplicolle* Cobb, 1920.
Syn. *Axonchium amphidium* Thorne, 1964
*A. mauritiaense* Williams, 1958
*A. elegans* Jairajpuri, 1964

**Measurements:**

**Females (n=5):** Body length = (1.14±0.042) 1.1-1.24 mm; body width at neck base = (26.12±1.30) 24.5-27.5 μm; body width at midbody = (27.23±1.16) 26-28 μm;
body width at anus = (21.1±1.7) 19.0-23.5 µm; a = (41.9±3.1) 39-46; b = (2.4±0.25) 2-3; c = (54.4±2.01) 52-57; c' = (0.98±0.07) 0.92-1.1; V = (52.9±0.87) 51-54; G₂ = (15.5±2.50) 13-17; lip region width = (6.3±0.2) 6.0-6.5 µm; lip region height = (3.8±0.19) 3.5-4.0 µm; amphid aperture = (5.14±0.72) 5-6 µm; odontostyle length = (9.9±0.53) 9.5-10 µm; guiding ring from anterior end = (6.12±0.5) 5-7 µm; odontophore length = (9.46±0.04) 9.0-9.5 µm; expanded part of pharynx = (275.9±44.9) 219-292 µm; nerve ring from anterior end = (100.7±2.60) 96-102 µm; neck length = (457±47.4) 427-519 µm; cardia length = (9.7±2.1) 8.0-11.5 µm; anterior uterine sac = (8.01±1.42) 6-10%; prerectum length = (151±1) 150-152 µm; rectum length = (22.9±0.98) 21.0-23.5 µm; tail length = (20.9±1.33) 19.5-22.0 µm.

Habitat and locality: Soil around the roots of forest trees, Aradhera forest, near Rangring coalaries, district Changlang, Arunachal Pradesh.

Remarks: Jairajpuri, (1964) described *A. elegans* from Trivandrum, Kerala State, India. The present specimens conform well with those described by Jairajpuri (I.e.) except that they have slightly smaller body (vs L=1.36 mm); small a value (vs a= 50), smaller c value (vs c= 75), and higher G₂ value (vs G₂=13-17)

Subfamily Swangeriinae Jairajpuri, 1964

Syn: Oxydirinae Thorne, 1964
Roqueinae Thorne, 1964
Falcihastinae Andrássy, 1976

Genus Oxydirus Thorne, 1939

Diagnosis: Body cylindroid, generally 1.5-2.5 mm long. Lip region continuous with body and appearing asymmetrical in lateral view. Cuticle and sub-cuticle with fine transverse striations. Amphids with stirrup-shaped fovea and large slit-like aperture. Odontostyle dorylaimoid with aperture about one-third length. Guiding ring single.
Odontophore lightly sclerotized, rod-like. Pharynx gradually expanding near middle, posterior part enclosed in sheath of dextrally spiral muscles. Vulva transverse. Female genital system mono-opisthodelphic or amphidelphic. Males with dorylaimoid spicules, lateral guiding pieces and regularly spaced ventromedian supplements. Prerectum five to seven anal body widths long. Tail long, filiform; similar in sexes.

Type species: *Oxydirus oxycephaloides* (De Man, 1921) Thorne, 1939
   Syn. *Dorylaimus oxycephaloides* De Man, 1921.

*Oxydirus tenuicaudatus* Thorne, 1964

**Measurements:**

**Females** (n=2): Body length = 1.25, 1.39 mm; body width at neck base = 27 μm; body width at midbody = 27.5 μm; body width at anus = 17 μm; a = 46.5, 50; b = 4.8, 5.8; c = 7.5, 6.2; c' = 10, 13; V = 35, 34; G₂ = 10, 10.5; lip region width = 6.5, 7.0 μm; lip region height = 3.5 μm; amphid aperture = 3.4 μm; odontostyle length = 6.0, 6.5 μm; guiding ring from anterior end = 8, 6 μm; odontophore length = 10.0, 10.5 μm; expanded part of pharynx = 134, 109 μm; nerve ring from anterior end = 85, 84 μm; neck length = 269, 239 μm; cardia length = 10 μm; prerectum length = 40 μm; rectum length = 21.5, 22.5 μm; tail length = 172, 222 μm.

**Habitat and locality:** Soil around the roots of forest trees from Juli basti, Nahar gate, Itanagar, Arunachal Pradesh.

**Remarks:** Thorne (1964) described *O. tenuicaudatus* from Puerto Rico. Ferris, Goseco and Ferrris (1980) studied the species collected from Indiana. The present specimens conform well with earlier descriptions except that these have slightly smaller body (vs L= 1.4-1.7 mm), and shorter prerectum (vs 83-160 μm).
Genus *Qudsiella* Jairajpuri, 1967

**Diagnosis:** Body slender, 0.9-1.0 mm long. Lip region narrow, rounded; lips and cephalic papillae not modifying its contour. Odontostyle attenuated, with narrow lumen and small aperture. Odontophore simple, linear. Anterior slender part of pharynx a very narrow tube, especially behind nerve ring; expanded part fusiform, enclosed in sheath of spiral muscles. Cardia elongate, isthmus-like, with intestine attached only to its posterior end. Female genital system amphidelphic. Males with dorylaimoid spicules, lateral guiding pieces and two spaced ventromedian supplements. Tail long, filiform; similar in sexes.

Type and only species: *Qudsiella gracilis* Jairajpuri, 1967

*Qudsiella gracilis* Jairajpuri, 1967

(Fig. T-15)

**Measurements:** See Table. T-15

**Female:** Body cylindrical, almost straight upon fixation, tapering slightly anterior to the base of the pharynx, posteriorly ending in a long filiform tail. Cuticle finely striated, 0.8-1.2 μm thick at mid body and 1-1.5 μm on tail. Lateral chord about one-forth of body width at midbody. Lateral, dorsal and ventral body pores indistinct.

Lip region narrow, rounded, continuous with the body, about one-forth of body width at neck base. Amphids cup-shaped, their aperture about two-third of lip region width wide. Odotostyle attenuated, 1.0-1.15 times lip region width long, with narrow lumen, its aperture about one-forth of its length. Guiding ring single, fixed ring at 0.61-0.63 times lip region width from anterior end. Odontophore 1.0-1.1 times odontostyle length, linear. Nerve ring at 43-46% of neck length from anterior end.
Anterior part of pharynx very slender; expanded portion surrounded by sinistrally spiral muscles sheath, occupying about 26-29% of total neck length. Cardia elongate (spathulate) isthmus-like with intestine attached to its posterior end, about one-half of corresponding body width long. Pharyngeal gland nuclei located as follows. D = 74-79%; AS1 = 21-25%; AS2 = 38-42%; PS1 = 63-66%; PS2 = 64-68%.

Genital system didelphic-amphidelphic; both the sexual branches almost equally developed. Ovaries reflexed, measuring 40-61 μm (anterior) and 44-55 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 44-49 μm (anterior) and 51-54 μm (posterior). Sphincter present at oviduct-uterus junction. Uterus an undifferentiated tube, measuring 41-51 μm (anterior) and 44-51 μm (posterior) in length. Vagina thick walled, about two-third of the corresponding body width deep; pars proximalis vaginae 8-9 μm long with straight walls, encircle by circular musculature; pars refringens vaginae absent; pars distalis vaginae 4.5-5.0 μm with curved wall. Vulva transverse, slit-like. Prerectum 2.15-2.3 times anal body widths long. Rectum 1.0-1.2 times anal body width long. Tail long filliform, about 7.7-11.6 anal body widths long.

**Male:** Similar to female in general morphology, except more ventrally curved in the posterior region because of the presence of copulatory muscles. Supplements, an adanal pair and two slightly spaced ventromedians. Spicules dorylaimoid, 1.3-1.6 times anal body widths long. Lateral guiding pieces about half the spicules length. Prerectum 1.0-1.12 times anal body width long. Tail long, filliform, 8.5-9.0 anal body widths long.

**Habitat and locality:** Soil around the roots of unidentified weeds in forest area, Namsai, district Lohit, Arunachal Pradesh.
Remarks: Jairajpuri (1966) described the genus *Qudsiella* with type and only species *Q. gracilis* from Andamans, India. The description was based on two females, two males and nine juveniles. The species has never been recorded since then. Our present species though from an entirely different agro-climatic region closely fits the original description except for having slightly shorter odontostyle (vs 8-9 μm), comparatively anterior vulva (vs V=48-50), and shorter prerectum (vs prerectum 43 μm).

**Genus Paroxydirus** Jairajpuri and Ahmad, 1979

**Syn.** Tarjanius Ferris, Goseco & Ferris, 1980

**Diagnosis:** Body long (3.6-5.7 mm). Cuticle finely strated. Lip region symmetrical, continuous with body contour. Amphids with stirrup-or cup-shaped fovea. Odontostyle small, asymmetrical, less than lip region width long. Guiding ring single. Odontophore weakly sclerotised, rod-like. Pharynx short, with small fusiform basal expanded part occupying about one-third pharyngeal length and enclosed in thick sheath of sinistrally spiral muscles. Cardia large, hemispheroid or elongate. Female genital system amphidelphic. Vulva transverse; vagina large, with thick muscular triangular structures around opening. Males with well developed arcuate spicules, lateral guiding pieces and 11-15 close-set ventromedian supplements, beginning well above spicular range. Prerectum 7-10 anal body widths long. Tail long, filiform; similar in sexes.

Type species: *Paroxydirus magnus* (Timm, 1964) Jairajpuri and Ahmad, 1979

**Syn.** Oxydirus magnus Timm, 1964

**Paraoxydirus novus** (Jairajpuri, 1965) Jairajpuri and Ahmad, 1979

**Syn.:** Oxydirus novus Jairajpuri, 1965

**Tarjanius novus** (Jairajpuri, 1965) Ferris, Goseco and Ferris, 1980

**Measurements:**

**Females (n=4):** Body length = (3.64±0.1) 3.51-3.86 mm; body width at mid body = (56.6±1.92) 53-58 μm; body width at anus = (31.87±1.25) 29.5-32.5 μm; a = (64.6±3.07) 61-68; b = (11.9±1.01) 10.0-12.5; c = (6.1±1.05) 4.5-7.0; c’ = (16.8±1.35) 15-18; V = (34.43±1.80) 32-36; G₁ = (9.5±0.87) 9-11; G₂ = (9.8±1.07) 9.0-11.5; lip region width = (10.6±0.22) 10-11 μm; lip region height = (4.6±0.44) 4-5 μm; amphid aperture = (6.8±0.22) 6-7 μm; odontostyle length = (7±0.24) 7.0-7.5 μm; guiding ring from anterior end = (7.2±0.48) 7-8 μm; odontophore length = (14.8±0.36) 14.0-15.5 μm; expanded part of pharynx = (121±16.8) 111-148 μm; nerve ring from anterior end = (136±4.98) 129-140 μm; cardia length = (18±1.68) 17-20 μm; neck length = (306±2.99) 287-348 μm; prerectum length = (618±28.47) 569-640 μm; rectum length = (36.32±2.99) 32.5-40.5 μm; tail length = (610±113.2) 487-795 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees from Aradhara natural reserve forest, near Namdang coallaries, district Changlang, Arunachal Pradesh.

**Remarks:** Jairajpuri (1965) described this species as Oxydirus novus from Andamans, India. Ahmad and Jairajpuri (1979) transferred it to their newly proposed genus Paraoxydirus as P. novus. Ferris, Goseco and Ferris (1980) in their revision of Belondiroidea removed this species from Oxydirus Thorne, 1939 and placed it under a new genus Tarjanius as T. novus. Later Ferris, Goseco and Ferris (1981) synonymised Tarjanius with Paraoxydirus. Present specimens collected from Arunachal Pradesh conforms well with type specimens except for having slightly
shorter body length (vs 3.9-4.0 mm) and longer prerectum (vs 1.7 mm anal body width long).

FAMILY TYLENCHOLAIMIDAE FILPJEV, 1934

Subfamily Tylencholaiminae Filipjev, 1934

Genus Tylencholaimus De Man, 1876
Syn. Xenonchium Siddiqi and Khan, 1964

Diagnosis: Body robust, usually less than 1.5 mm long. Cuticle and sub-cuticle finely striated. Radial striations present. Lip region cap-like, distinctly offset by deep constriction or by shallow depression. Amphids with cyathiform fovea. Odontostyle usually as long as width of lip region. Guiding ring single. Odontophore rod-like, with basal knobs. Pharynx dorylaimoid, consisting of anterior slender and short basal expanded part. Cardia hemispheroid. Female genital system monodelpic or amphidelphic. Vulva transverse. Males with dorylaimoid spicules, lateral guiding pieces and a few spaced ventromedian supplements. Tail hemispheroid to elongate-conoid; similar in sexes.

Type species: Tylencholaimus mirabilis (Buttschli, 1873) De Man, 1876

Tylencholaimus pakistanensis Timm, 1964

Measurements:

Females (n=7): Body length = (0.44±0.047) 0.35-0.46 mm; body width at neck base = (15.7±2.08) 14.0-17.5 μm; body width at mid body = (17.9±1.62) 15.0-19.5 μm; body width at anus = (13±0.8) 12.0-13.5 μm; a = (26±1.87) 23.0-27.5; b = (3.8±0.35) 3.0-4.5; c = (32.7±3.7) 28-34; c' = (0.93±0.2) 0.9-1.0; V = (45.85±1.18) 44.0-47.5; G₂ = (16.7±2.8) 14.5-23.5; lip region width = (6.7±0.42) 6-7 μm; lip region height = (3.34±0.32) 3-4 μm; amphid aperture = (3.8±0.3) 3.5-4.0 μm; odontostyle
length = (7.08±0.24) 7-8 μm; guiding ring from anterior end = (4.7±0.23) 4-5 μm; odontophore length = (8.02±0.21) 8-9 μm; expanded part of pharynx = (43±6.5) 35-50 μm; nerve ring from anterior end = (45.9±2.94) 41-51 μm; neck length = (114.4±8.7) 104-119 μm; cardia length = (4.8±0.46) 4-5 μm, prerectum length = (37.2±7.33) 24-45 μm; rectum length = (11.7±1.35) 10-14 μm; tail length = (13.6±1.32) 12.0-14.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around roots of forest trees, Namtak forest reserve, district Changlang, Arunachal Pradesh.

**Remarks:** Timm (1963) described *T. pakistanensis* from Bangladesh (formerly east Pakistan). Present specimens conform well with this species except for having slightly higher a value (vs. 18.0-19.6); narrower lip region (vs 30% body width at neck base); and slightly longer expanded part of pharynx (vs 27-33%).

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*Tylencholaimus savaryi* Loof and Jairajpuri, 1968

**Measurements:**

**Females (n=6):** Body length = (0.66±0.04) 0.57-0.69 mm; body width at neck base = (22±1.9) 20.0-25.5 μm; body width at mid body = (22±1.16) 20.5-23.5 μm; body width at anus = (15±1.23) 14.5-17.0 μm; a = (29.8±0.85) 28.5-31.5; b = (3.6±0.23) 3-4; c = (39.5±1.87) 36-42, c' = 1; V = (60.87±1.62) 58.5-62.0; G₁ = (12.7±2.13) 9.5-14.5; G₂ = (11.59±1.87) 10-19; lip region width = (7.6±0.38) 7-8 μm; lip region height = (3.15±0.25) 3.0-3.5 μm; amphid aperture = (3.97±0.15) 3.5-4.5 μm; odontostyle length = (7.6±0.25) 7-8 μm; guiding ring from anterior end = (5.3±0.29) 5-6 μm; odontophore length = (8.7±0.23) 8-9 μm; expanded part of pharynx = (71±5.5) 61-76 μm; nerve ring from anterior end = (63.9±4.24) 57-71 μm;
neck length = (182.17±16.8) 162-212 μm; cardia length = (5.9±1.1) 4-7 μm; prerectum length = (54±3.85) 50-61 μm; rectum length = (17.5±2.05) 16-19 μm; tail length = (16.8±0.81) 16-18 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees, Kengkhu forest range, district Changlang, Arunachal Pradesh.

**Remarks:** Loof and Jairajpuri (1968) described *T. savaryi* from Switzerland. The present specimens conform well with the type specimens except for having slightly longer odontostyle (vs. 5-6 μm). This species is recorded for first time from India.

**Tylencholaimus japonicus** Ahmad and Araki, 2003

**Measurements:**

**Females (n=7):** Body length = (0.62±0.04) 0.60-0.71 mm; body width at neck base = (22±1.4) 19.5-24.5 μm; body width at mid body = (24±2.13) 21-26 μm; body width at anus = (15.4±0.60) 15.0-16.5 μm; a = (27.4±0.56) 26.5-28.5; b = (4.2±0.27) 3.5-4.0; c = (47.7±1.22) 45.5-49.0; c’ = (0.84±0.03) 0.78-0.90; V = (69.5±0.62) 68.5-70.5; G1 = (20.4±2.6) 16.0-23.5; lip region width = (7.1±0.04) 7.0-7.5 μm; lip region height = (3.13±0.03) 3.0-3.5 μm; amphid aperture = (3.8±0.19) 3.5-4.0 μm; odontostyle length = (5.78±0.29) 5.5-6.5 μm; guiding ring from anterior end = (4.23±0.50) 3.5-4.5 μm; odontophore length = (6.44±0.59) 5.5-7.5 μm; expanded part of pharynx = (54.9±3) 50-59 μm; nerve ring from anterior end = (63.20±6.76) 54.5-75.0 μm; neck length = (148.76±11.05) 130-163 μm; cardia length = (4.1±3.2) 4-4.5 μm; prerectum length = (30.4±2.04) 28-32 μm; rectum length = (15.4±1.26) 14-17 μm; tail length = (13.15±0.98) 12.5-15.0 μm.

**Male:** Not found.
Habitat and locality: Soil around the roots of forest tree, Diputa forest range, Bomdilla, district West Kameng, Arunachal Pradesh.

Remarks: Ahmad and Araki (2003) described this species from Japan. The present specimens conform well with the type specimens except for having slightly wider amphid aperture (vs 2.5-3.0 μm), and shorter prerectum (vs 70-120 μm).

Genus Discomyctus Thorne, 1939

Diagnosis: Small-sized nematodes. Lip region discoid, wider than adjoining body, with disc-like structure around vestibule. Odontostyle irregular in contour. Odontophore strongly developed with conspicuous cuticularized basal knobs. Anterior part of pharynx very narrow and non-muscular, expanding abruptly near middle to form broad, muscular, enlarged part. Female genital system monoprodelphic; posterior sexual branch completely absent. Tail long, filiform, similar in both sexes.

Type species: Discomyctus cephalatus Thorne, 1939

Discomyctus semirarus Siddiqi, 1998

Measurements:

Lohit population:

Females (n=5): Body length = (0.75±0.04) 0.67-0.80 mm; body width at neck base = (20.5±0.3) 20-22 μm; body width at mid body = (21.4±1.5) 20-24 μm; a = (34.5±1.4) 33.5-37.0; b = (3.0±0.1) 2.8-3.2; c = (6.3±0.4) 5.5-6.5; c' = (7.6±0.6) 7.5-8.5; V = (58.4±1.1) 56-60; G_1 = (9.5±0.8) 8.0-10.5; lip region width = (6.9±0.3) 6.5-7.0 μm; lip region height = (3.2±0.2) 3.0-3.5 μm; amphid aperture = (3.8±0.2) 3.5-4.0
µm; odontostyle length = (6.3±0.5) 5.5-7.0 µm; guiding ring from anterior end = (4.8±0.2) 4.5-5.0 µm; odontophore length = (9.8±0.4) 9-10 µm; expanded part of pharynx = (143±4.1) 139-148 µm; nerve ring from anterior end = (62.7±4.02) 57-69 µm; neck length = (244±18.1) 202-256 µm; cardia length = (7.3±1.18) 5.5-8.5 µm; prerectum length = (46.6±9.1) 39-52 µm; rectum length = (16.7±1.9) 14-20 µm; tail length = (116.5±9.1) 108-132 µm.

**Male:** Not found.

**Changlang population:**

**Females (n=3):** Body length = (0.72±0.04) 0.68-0.78 mm; body width at neck base = (19.5±0.8) 18-20 µm; body width at mid body = (19.7±1.3) 18.0-21.5 µm; body width at anus = (14±0.5) 13.5-14.5 µm; a = (36.8±1.1) 35.5-38.0; b = (2.8±0.2) 2.5-3.0; c = (6.9±0.2) 6.5-7.0; c’ = (7.3±0.3) 7-8; V = (58.3±1.1) 57.0-59.5; G1 = (8±0.8) 7-9; lip region width = (7.1±0.2) 6.5-7.0 µm; lip region height = (3.5±0.4) 3-4 µm; amphid aperture = (4.1±0.7) 3.5-5.0 µm; odontostyle length = (6.5±0.1) 6.5-7.0 µm; guiding ring from anterior end = (4.8±0.2) 4.5-5.5 µm; odontophore length = (9.7±0.2) 9.5-10.0 µm; expanded part of pharynx = (138.4±7.5) 130-148 µm; nerve ring from anterior end = (69.5±4.5) 63-73 µm; neck length = (252.5±13) 236-268 µm; cardia length = (7.2±0.8) 6-8 µm; prerectum length = (47.5±1.9) 45.0-49.5 µm; rectum length = (16±0.6) 15-17 µm; tail length = (104.5±6.8) 97-113 µm.

**Male:** Not found.

**Habitats and localities:**

1. Soil around the roots of grasses in forest, near Dirak River, district Lohit, Arunachal Pradesh.
2. Soil around the roots of forest trees, near Rangring water dam, district Changlang, Arunachal Pradesh.
Remarks: Siddiqi (1998) described *D. semirarus* from Sibsagar, Assam. The present populations conform well with the type specimens with no significant differences. The reason for this similarity may be because Assam and Arunachal Pradesh are two neighbour states with similar agro-climatic conditions.

Subfamily Mumtaziinae Andrássy, 1976

**Genus Promumtazium Siddiqi, 1982**

**Diagnosis:** Body medium sized (0.5-1.4 mm long). Cuticle with indistinct radial striations and fixation folds. Lip region offset by constriction; peri-oral disc absent. Amphids small, with oval aperture. Stoma not sclerotised. Odontostyle asymmetrical, fusiform, with thin walls, wide lumen and aperture, its length less than lip region width, tip distinctly sclerotised. Guiding ring single. Odontophore straight, rod like. Pharynx muscular, enlarging gradually behind the middle. Female genital system amphidelphic; vulva transverse. Spicule dorylaimoid, robust and slightly arcuate. Supplements, an adanal pair and two or three widely spaced ventromedians. Tail short, obtusely rounded; similar in sexes.

Type species: *Promumtazium pyxidorum* Siddiqi, 1982

*Promumtazium pyxidorum* Siddiqi, 1982

(Fig. T-16)

**Measurements:** See Table T-16

**Female:** Body straight to slightly curved ventrad upon fixation, tapering towards both extremities. Cuticle with faint radial elements and fixation folds, its thickness
1.0-2.0 μm along the body. Lateral hypodermal chord about one-fourth of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region offset, low, cap-like, about one-fourth as wide as body width at neck base. Lips compact; labial pappillae slightly raised, no pre-oral disc. Amphid small, oval pocket-like, their aperture about slightly less than one-third of the corresponding body width wide. Odontostyle rather fusiform with thin walls which tend to be dorsally arcuate, about three-fourth lip region width long; its aperture about one-fifth of its length. Guiding ring single, fixed ring at 0.61-0.62 time lip region width from anterior end. Odontophore simple dorylaimoid, not scerotised, about twice as long as odontostyle length. Nerva ring at about 35-37% of neck length from the anterior end. Pharyngeal expansion gradual; expanded portion occupying about 41-45% of the total neck length. Cardia rounded to subdigitate, about one-third of corresponding body width long. Pharyngeal gland nuclei located as follows: D = 63-66%; AS1 = 18-21%; AS2 = 42-45%; PS1 = 80-82%; PS2 = 82-84%.

Genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 27-69 μm (anterior) and 30-64 μm (posterior) with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 42.5 μm (anterior) and 67 μm (posterior) long. A weak sphincter muscle present at oviduct–uterus junction Uterus an undifferentiated tube, measuring 32.5 μm (anterior) and 27.5 μm (posterior). Vagina about one-third of corresponding body width deep. Pars proximalis vagine 7.5-8.5 μm long with straight walls, encircled by circular musculature; pars refringens vaginae absent; pars distalis vaginae measuring 3.5-4.5 μm with curved wall. Vulva transverse. Prerectum 5-6 anal body widths long. Rectum 1.0-1.1 times anal body width long. Tail convex conoid with an obtusely rounded tip, 0.7-0.9 times anal body width long. Caudal pores two on each side.
Male: Not found.

Habitat and locality: Soil around the roots of forest trees, Kangkhong forest range, district Lower Dibang valley, Arunachal Pradesh.

Remarks: Siddiqi (1982) described Promuntzium pyxidorum from Araracuara, Columbia. Later, Ahmad and Araki (2003) recorded this species from Japan. The present specimens conform well with type specimens with no significant difference. This is the first report of this species from India.

FAMILY LEPTONCHIDAE THORNE, 1935
Syn. Belonenchidae Thorne, 1964
Basirotyleptidae Siddiqi and Khan, 1964
Tylenchoimellidae Jairajpuri, 1964
Encholaimidae Golden and Murphy, 1967
Tylenchidae Monteiro, 1970

Subfamily Leptonchinae Thorne, 1964
Syn. Doryssotinae, 1974

Genus Proleptonchus Lordello, 1955
Syn. Amorphostoma Clark, 1962
Didoryllium Izatullaeva, 1967
Picarillamus Sukul, 1973

Diagnosis: Body cylindroid to arcuate. Cuticle smooth or with fine striations; refractive elements abundant. Sub-cuticle coarsely or finely striated, radial striae present. Body pores apparently arranged in two rows. Lip region slightly offset; lips separate or amalgamated. Stoma flask-shaped, distinctly cuticularized. Amphids with cyathiform fovea, simple or duplex. Odontostyle very slender, aperture barely visible, lumen very fine. Odontophore slightly cuticularised, arcuate. Pharynx slender, terminating in a constricted pharyngeal bulb. Cardia flat to bluntly conoid or rounded. Vulva transverse, post-equatorial. Female genital system mono-prodelphic; anterior
genital branch normally developed, posterior branch reduced to a uterine sac. Prerectum junction with intestine may be guarded by small cells. Spicules dorylaimoid; lateral guiding pieces and well-spaced ventromedian supplements present. Tail hemisperoid to bluntly conoid; similar in sexes.

Type species: *Proleptonchus aestivus* Lordello, 1955

*Proleptonchus aestivus* Lordello, 1955
(Fig. T-17)

**Measurements:** See Table T-17

**Female:** Body slightly curved ventrad upon fixation with blunt extremities. Cuticle finely striated, inner layer irregular and loosen from the outer layer, 2-3 μm thick at mid body and 3-4 μm on tail. Lateral chord about one-sixth to one-fifth of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region markedly offset by a depression, about one-third as wide as body width at neck base; lips rounded and moderately separated; labial and cephalic papillae not projecting above labial contour. Stoma flanked-shaped with chilostome wall slightly thickened. Amphids cup-shaped, their aperture about two-third of lip region width wide. Odontostyle slender, attenuated, 0.7-0.8 times lip region width long, its aperture about one-fifth of its length. Guiding ring single, fixed ring at 0.80-0.85 times lip region width from anterior end. Odontophore slightly sclerotized, arcuate, 1.41-1.48 times the odontostyle length. Nerve ring at 42-55% of neck length from anterior end. Anterior part of pharynx very slender muscular, expanding to form a basal bulb about 19-20% of total neck length; a distinct constriction present at the junction of two parts. Cardia hemisperoid, about one-third as long as body width at neck base.
Genital system monodelphic-prodelphic; anterior branch well developed, posterior branch represented by a uterine sac. Ovary reflexed, measuring 110-165 μm with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 114-208 μm long. Sphincter present at oviduct-uterus junction. Uterus measuring 72-109 μm in length. Posterior branch represented by a small sac with uterus part only, 4.5-5.5% of total body width long. Vagina about half of corresponding body width deep. *Pars proximalis vaginae* 11.0-13.5 μm long with straight walls, encircled by musculature; *pars refringens vaginae* absent; *pars distalis vaginae* 7.5-8.5 μm with curved wall. Vulva transverse, slit-like. Prerectum 4.3-5 anal body widths long. Rectum 0.83-0.84 times anal body width long. Tail short, conoid to hemispheroid, about 0.5-0.8 times anal body width long.

**Male:** Supplements, an adanal pair and six spaced ventromedian. Spicules slender, slightly arcuate, 1.65 anal body widths long; lateral guiding pieces about one-third of spicules length. Prerectum 5.8-6.6 anal body widths long, terminating within the range of supplements. Rectum 1.3 times anal body widths long. Tail short, conoid to hemispheroid, 0.7-0.8 times anal body width long.

**Habitat and locality:** Soil around the roots of forest trees, Kengkhu forest range, district Changlang, Arunachal Pradesh.

**Remarks:** Lordello (1955) described *Proleptonchus aestivus* from Brazil based on females only. Later, Jairajpuri and Siddiqi (1964) reported few females of this species from India. The present specimens which include both females and males closely resembles the type specimens except for having simple cup-shaped amphid (*vs* amphid apparently duplex), slightly longer odontostyle (*vs* 6.4 μm), longer basal bulb (*vs* 33.6 μm), longer pharynx (*vs* 182 μm), and longer cardia (*vs* 3.2 μm). The males are reported here for the first time in this species.
Subfamily Tyleptinae Jairajpuri, 1964

Genus *Tyleptus* Thorne, 1939

**Diagnosis:** Body cylindroid, usually arcuate. Cuticle smooth or finely striated; subcuticle smooth, finely or coarsely striated. Body pores apparently arranged in two rows. Lip region offset, inner liplets around oral aperture distinct. Amphidial fovea cup- or stirrup-shaped, simple or duplex. Stoma a short truncate cone, slightly sclerotised. Odontostyle robust. Odontophore simple or flanged. Pharynx slender, with pyriform terminal bulb; inner lining of bulb with thickened vulvular chamber. Cardia rounded. Vulva transverse. Female genital system mono-opisthodelphic. Spicules dorylaimoid; lateral guiding pieces and series of ventromedian supplements present. Tail hemispheroid, rounded or conoid; similar in sexes.

Type species: *Tyleptus projectus* Thorne, 1939

*Tyleptus affinis* Monteiro, 1970

**Measurements:**

**Females** (n=3): Body length = (0.65±0.055) 0.60-0.73 mm; body width at neck base = (20.2±0.9) 19-22 μm; body width at midbody = (22±1.25) 20-24 μm; body width at anus = (15±1.25) 14.0-16.5 μm; a = (29.8±1.25) 29-31; b = (3.97±0.26) 3.5-4.0; c = (62.5±1.32) 61.0-64.5; c' = (0.69±0.02) 0.65-0.70; V = (34.5±1.28) 33.0-35.5; G2 = (21±4.5) 20-24; lip region width = (9.5±0.24) 9-10 μm; lip region height = (3.9±0.2) 3.5-4.0 μm; amphid aperture = (6.4±0.41) 6-7 μm; odontostyle length = (7.9±0.70) 7.5-9.0 μm; guiding ring from anterior end = (5.8±0.2) 5.5-6.0 μm; odontophore length = 10 μm; expanded part of pharynx = (21.4±2.35) 20-24 μm; nerve ring from anterior end = (64.2±1.55) 62-66 μm; neck length = (164±7.7) 155-
174 μm; cardia length = (6±1) 5-7 μm; anterior uterine sac = (23.6±3.5) 20-27 μm; prerectum length = (47.8±3.9) 45-53 μm; rectum length = (15.2±1.5) 14-17 μm; tail length = (10.5±0.80) 10.0-11.5 μm.

**Males (n=4):** Body length = (0.52±0.09) 0.5-0.6 mm; body width at neck base = (19.5±1.5) 19-20 μm; body width at mid body = (22±1.25) 20-24 μm; body width at anus = (15±1.25)14.0-16.5 μm; a = (29.8±1.25) 29-31; b = (3.97±0.26) 3.5-4.0; c = (45.6±5.92) 39-50; c' = (0.83±0.09) 0.80-0.90; lip region width = (9.15±0.28) 9.0-9.5 μm; lip region height = (4.02±0.25) 4.0-4.5 μm; amphid aperture = (6.4±0.57) 6-7 μm; odontostyle length = (6.9±0.40) 6.5-7.5 μm; guiding ring from anterior end = (6.6±0.5) 6.0-7.5 μm; odontophore length = (9.0±0.25) 9.0-9.5 μm; expanded part of pharynx = (21.7±4.03) 20.5-25.0 μm; nerve ring from anterior end = (64.5±5.21) 64-69 μm; neck length = (147±22.3) 126-169 μm; cardia length = (6.25±1.10) 5-7 μm; prerectum length = (46.5±11.1) 39-54 μm; rectum length = (21.7±2.75) 20-23 μm; spicules length = (23.75±0.28) 23.5-24.0 μm; lateral guiding pieces = (11.74±1.4) 11-13 μm; ventromedian supplements = 3; tail length = (12.2±1.25)12-14 μm.

**Habitat and locality:** Soil around the roots of forest trees, forest reserve area, Santipur, district Lower Dibang Valley, Arunachal Pradesh.

**Remarks:** The present specimens conform well with *T. affinis* Monteiro, 1970, except that there is a slight difference in body length (vs. 0.51 mm), higher a value (vs. 24.8), higher b value (vs. 3.3), higher c value (vs. 53) and number of ventromedian supplements (vs. 2). This may be because of geographical variation. This is the first record of this species from India.
Subfamily Belonenchinae Thorne, 1964

Genus Basirotyleptus Jairajpuri, 1964

Syn. Trichonchium Siddiqi & Khan, 1964
Belonenchus Thorne, 1964
Poncenema Thorne, 1964
Coronatyleptus Siddiqi, 1982
Aculonchus Siddiqi, 1983

Diagnosis: Body cylindroid, usually arcuate. Cuticle and sub-cuticle striated; refractive elements and radial striae present or absent. Body pores apparently arranged in two rows. Lip region offset. Lips and papillae distinct. Amphids with cup- or stirrup-shaped, simple or duplex fovea. Stoma a long truncate cone, distinctly sclerotised, thickened around oral opening. Odontostyle solid, needle-like. Odontophore simple, flanged or enveloped by distinct pharyngeal tissue. Pharynx slender, with pyriform terminal bulb. Inner cuticular lining of bulb thickened and distinct. Cardia rounded. Vulva transverse. Female genital system monodelphic or amphidelphic. Spicules dorylaimoid, lateral guiding pieces present. Supplements, an adanal pair and one to four spaced ventromedians. Tail short, conoid or hemispheroid; similar in sexes.

Type species: Basirotyleptus (Basirotyleptus) basiri Jairajpuri, 1964
Syn. Trichonchium archium Siddiqi & Khan, 1964

Basirotyleptus (Coronatyleptus) coronatus Siddiqi and Khan, 1965
Syn. Coronatyleptus coronatus (Siddiqi & Khan, 1965) Siddiqi, 1982

Measurements:

Females (n=5): Body length = (0.64±0.023) 0.60-0.65 mm; body width at neck base = (25.7±1.47) 23.5-27.5 μm; body width at mid body = (27.7±1.5) 25-29 μm; body width at anus = (17.4±0.99) 16-19 μm; a = (23.2±0.84) 22-24; b = (4.5±0.44) 4-5; c = (76.44±9.8) 67-89; c’ = (0.48±0.04) 0.4-0.5; V = (42.7±0.7.19) 42-44; G₂ =
(16.9±1.66) 14-18; lip region width = (7.7±0.19) 7.5-8.0 μm; lip region height =
(3.02±0.16) 3.0-3.5 μm; amphid aperture = (4.6±0.14) 4-5 μm; odontostyle length =
(10.9±0.4) 10-11 μm; guiding ring from anterior end = (5.5±0.3) 5-6 μm; odontophore
length = (12.5±0.76) 11-13 μm; expanded part of pharynx = (30.6±2.5) 28.0-33.5 μm;
nerve ring from anterior end = (63.19±6.76) 62.5-67.0 μm; neck length =
(142.8±13.35) 127-163 μm; cardia length = (6±0.8) 5-7 μm; anterior uterine sac =
(1.55±0.14) 1.5-2.0%; prerectum length = (63.3±1.9) 61-66 μm; rectum length =
(23.8±0.75) 23-25 μm; tail length = (8.5±0.87) 7.5-9.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees from Reserve forest,
Dzong East, district West Kameng, Arunachal Pradesh.

**Remarks:** Siddiqi and Khan (1965) described *B. coronatus* from Ranikhet, India.
The present specimens from Arunachal Pradesh conform fairly well with the type
specimens except for having slightly longer odontostyle (vs slightly less than one lip
region width) and lower a value (vs. 26-33).

*Basirotypleptus pini* Siddiqi and Khan, 1965

**Measurements:**

**Females** (*n=3*): Body length = (0.47±0.030) 0.44-0.51 mm; body width at neck
base = (18.2±1.47) 16.0-19.5 μm; body width at mid body = (19.46±1.61) 17-21 μm;
body width at anus = (13.65±0.99) 12.5-15.0 μm; a = (24.3±1.11) 23-25; b =
(4.4±0.45) 3.8-4.8; c = (60±3) 56.5-64; c’ = (0.58±0.08) 0.47-0.64; V = (40.9±2.71)
38.0-44.5; G₂ = (21.5±5.5) 17.5-25.5; lip region width = 7 μm; lip region height = 2.5
μm; amphid aperture = 4 μm; odontostyle length = (9.9±0.38) 9-10 μm; odontophore
length = (10±0.9) 9-11 μm; expanded part of pharynx = (17.3±1.18) 16.0-18.5 μm;
nerve ring from anterior end = (59.7±2) 57.5-62.0 μm; neck length = (106.6±9.68) 95-118 μm; cardia length = 4 μm; anterior uterine sac = (2.6±0.54) 2-3%; prerectum length = (37.7±3) 35.5-40.0 μm; rectum length = (19.45±1) 18-20 μm; tail length = (7.8±0.61) 7.0-8.5 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees from Bolik Reserve forest, Dibang Valley, Arunachal Pradesh.

**Remarks:** *Basirotyleptus pini* was described by Siddiqi and Khan (1965) from Chandigam, Kashmir. The present specimens from Arunachal Pradesh conform well with type specimens, except for having slightly shorter odontostyle (vs 13 μm), higher c value (vs 45-53), comparatively posterior valva position (vs 35-38); slightly shorter prerectum (vs 48 μm), and shorter tail (vs 13 μm).

*Basirotyleptus tirapus* sp. n
(Fig. T-18)

**Measurements:** See Table T-18

**Female:** Body slightly curved ventrad upon fixation, tapering towards both extremities. Cuticle finely striated, inner layer irregular and loosen from outer layer. Lateral chord about one-forth to one-third of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region markedly set off by constriction, about one-half of body width at neck base. Amphids cup-shaped, their aperature about half of the lip region width wide. Odontostyle very thin, solid needle-like, about 1.1-1.2 times lip region width long. Guiding ring indistinct. Odontophore simple. about as long as odontostyle length. Nerve ring at 48-58% of neck length from anterior end. Pharynx a cylindrical tube
with terminal muscular bulb occupying 17-20% of the total neck length, inner cuticular lining of bulb thickened and distinct.

Female genital system amphidelphic; both sexual branches almost equally developed. Ovaries reflexed, measuring 30-59 μm (anterior) and 27-48 μm (posterior) with oocytes arranged in a single row except near tip. Oviduct joining ovary subterminally, measuring 70-74 μm (anterior) and 68-75 μm (posterior). A weak sphincter present at oviduct-uterus junction. Uterus an undifferentiated tube, 28-32 μm (anterior) and 20-25 μm (posterior) in length. Vagina thick walled, about two-third of corresponding body width deep; pars proximalis vaginae 7.0-8.5 μm long with straight walls, encircled by circular musculature; pars refringens vaginae absent; pars distalis vaginae 4.5 μm long with curved wall. Vulva tranverse, slit-like. Prerectum 1.3-2.0 times anal body widths long. Rectum 1.2-1.3 times anal body width long. Tail 0.70-0.90 times anal body width long, terminus slightly hemispheroid. Caudal pores two on each side

**Male:** Not found

**Type habitat and locality:** Soil around the roots of Hollyhok tree (*Althaea rosea*)), natural reserve forest, Khonsa, district Tirap, Arunachal Pradesh.

**Type specimens:** Holotype female on slide *Basirotyleptus tirapus* sp. n. /1; paratype females on slide *Basirotyleptus tirapus* sp. n./ 2-4; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, India.

**Diagnosis and relationships:** *Basirotyleptus tirapus* sp. n. is charaterised by having 0.62-0.76 mm long body; solid needle-like odontostyle, simple odontophore, bulb-like expanded part of pharynx, inner cuticular lining of bulb thickened, amphidelphic gonad and a slightly hemispheroid tail.
In the presence of lip region markedly set off by constriction; lips with no labial disc; and amphidelphic female genital system, the new species resembles *B rugosus* Sauer, 1966 and *B westralis* Siddiqi, 1970. However, it differs, from the former in having slightly smaller body (vs 0.74-0.89 mm), body pores indistinct (vs cuticle finely rugose with conspicuous lateral pores over the entire length of the body), shorter odontostyle (vs odontostyle 19-21 μm); longer and simple odontophore (vs odontophore one-half odontostyle length and flanged), in the absence of characteristic enlargement of pharynx anterior to bulb proper (vs slight enlargement of the pharynx just anterior to the bulb proper), and smaller b value (vs b = 5.2-6.3).

From *B westralis*, the new species differs, in having basal bulb longer than corresponding body width (vs shorter in length than corresponding body width), more posterior vulva position (vs V = 47-52), smaller 'b' value (vs 5.3-6.0), shorter and slightly hemispheroid tail (vs tail 1.4-1.9 anal body width long, dorsally convex conoid to rounded terminus, c = 23-29).

**Subfamily Tylencholaimellinae Jairajpuri, 1964**
Syn. Dorylliinae Izatullaeva, 1967

**Genus Oostenbrinkella Jairajpuri, 1965**

**Diagnosis:** Body cylindroid, 1.0-1.3 mm long. Lip region offset, with labial disc. Odontostyle attenuated; odontophore broadly flanged. Guiding ring single. Pharynx a slender tube with short basal bulb. Female genital system mono-opisthodelphic. Vulva transverse, pre-equatorial. Spicules dorylaimoid; lateral guiding pieces present. Supplements only an adanal pair, ventromedians absent. Tail long, filiform; similar in sexes.

Type and only species: *Oostenbrinkella oostenbrinki* Jairajpuri, 1965
**Oostenbrinkella oostenbrinki** Jairajpuri, 1965

**Measurements:**

**Females** (n=7): Body length = (1.0±0.060) 0.90-1.07 mm; body width at neck base = (23.3±1.2) 22.5-25.5 μm; body width at mid body = (24.9±1.3) 23.5-27.5 μm; body width at anus = (16.4±0.9) 15.0-17.5 μm; a = (40.3±3.3) 34-45; b = (5.9±0.6) 5-7; c = (4.6±0.6) 3.5-5.5; c’ = (13.3±1.8) 10.5-15 V = (26.8±2.3) 24-28; G2 = (11.3±0.8) 10-13; lip region width = (6.6±0.4) 6-7 μm; lip region height = (3.9±0.2) 3.5-4.0 μm; amphid aperture = (5.2±0.3) 5.0-5.5 μm; odontostyle length = (11.7±0.8) 11.0-12.5 μm; guiding ring from anterior end = (7.2±0.3) 7-8 μm; odontophore length = (8.9±0.7) 8-10 μm; expanded part of pharynx = (38.3±2.6) 32.5-42.5 μm; nerve ring from anterior = (78.5±4) 70-81 μm; neck length = (168.6±12.8) 142-182 μm; cardia length = (6.05±0.70) 5-7 μm; prerectum length = (30.3±1.5) 28-32 μm; rectum length = (20.13±1.1) 17.5-20.5 μm; tail length = (218.6±29.5) 188-262 μm.

**Male** (n=1): Body length = 0.95 mm; body width at neck base = 22 μm; body width at mid body = 22 μm; body width at anus =11 μm; a = 43.5; b = 6; c = 5; c’ = 11; lip region width = 7 μm; lip region height = 4 μm; amphid aperture = 5 μm; odontostyle length = 11.5 μm; guiding ring from anterior end = 8 μm; odontophore length = 8.5 μm; expanded part of pharynx = 32.5 μm; nerve ring from anterior end = 8 μm; neck length = 163 μm; cardia length = 5-7 μm; prerectum length = 31.5 μm; rectum length = 20.5 μm; spicules length = 21.5 μm; lateral guiding pieces = 13.5 μm; ventromedian supplement = nil; tail length =188 μm.

**Habitat and locality:** Soil around the roots of forest trees from Doimuk, near Arunachal University Campus, Itanagar, Arunachal Pradesh.

**Remarks:** Jairajpuri (1965) described *Oostenbrinkella oostenbrinki* from Andamans, India. The present specimens conforms well with *O. oostenbrinki* except
for having slightly smaller a value (vs 45-53), slightly lower ‘b’ value (vs 7.0-7.6),
and shorter prerectum (vs three anal body width long). These differences may be due
to geographical variations.

FAMILY MYDONOMIDAE THORNE, 1964
Syn. Dorylaimoididae Siddiqi, 1969
Miranematidae Siddiqi, 1969

Subfamily Mydonominae(Thorne, 1964) Ahmad & Jairajpuri, 1992
Syn. Dorylaimoidinae Siddiqi, 1969

Genus Dorylaimoides Thorne and Swanger, 1936
Syn. Tarjania Brzeski & Szczygiel, 1961
Leptonema Jairajpuri, 1961
Shamimonema Chawla, Khan & Prasad, 1965

Diagnosis: Body length usually less than 2 mm. Cuticle and sub-cuticle finely strated.
Radial striae and refractive elements absent. Lip region slightly offset. Odontostyle
asymmetrical, dorsal arm longer than ventral. Guiding ring single. Odontophore
usually arcuate or angular, enveloped by distinct pharyngeal tissue. Pharyngeal bulb
cylindroid, sometimes slightly constricted, usually about one-fourth to one-third
pharyngeal length. Female genital system mono-opisthodelphic or amphidelphic.
Vulva transverse. Males with dorylaimoid spicules, lateral guiding pieces and series
of spaced ventromedian supplements. Tail hemispheroid to long, filiform; similar in
sexes.

Type species: Dorylaimoides (Dorylaimoides) teres Thorne and Swanger, 1936
**Dorylaimoides micoletzkyi** (De Man, 1921) Thorne & Swanger, 1936  
Syn. *Dorylaiminus micoletzkyi* De Man, 1921  
*Dorylaimoides pakistanensis* Siddiqi, 1964

**Measurements:**

**Females (n=5):** Body length = (1.20±0.11) 1.06-1.32 mm; body width at neck base = (27.6±1.38) 26-29 µm; body width at mid body = (31.03±2.04) 29-34 µm; body width at anus = (20.0 ±1.12) 19.0-21.5 µm; a = (38.4±2.88) 35-41; b = (6.36±1.18) 5-7; c = (18.9±1.54) 17-20; c' = (3.1±0.09) 3.0-3.2; V = (39.5±3.8) 37.0-44.5; G₁ = (10.43±1.50) 8-12; G₂ = (12.8±2.4) 10-15; lip region width = (8±0.2) 7.5-8.5 µm; lip region height = (3.7±0.22) 3.5-4.0 µm; amphid aperture = (5.7±0.064) 5.5-6.0 µm; odontostyle length = (10.2±0.69/7.6±0.2) dorsal arm 9-10.5 µm/ventral arm 7.5-8.0 µm; guiding ring from anterior end = (6.3±0.5) 6.0-7.5 µm; odontophore length = (14.8±1.15) 13.0-15.5 µm; expanded part of pharynx = (52.2±0.77) 51-53 µm; nerve ring from anterior end = (86±3.31) 82-90 µm; neck length = (191±15.5) 176-210 µm; cardia length = (8.3±0.43) 7.5-9.0 µm; prerectum length = (51.2±3.16) 47-55 µm; rectum length = (29±2.06) 26-31 µm; tail length = (62.7±1.88) 61-65 µm.

**Males (n=2):** Body length =1.12, 1.10 mm; body width at neck base = 30, 29 µm; body width at mid body = 32, 31.5 µm; body width at anus = 31.5 µm; a = 35, 35; b = 5.8, 5.7; c = 20, 21.5; c' = 2.2-2.5; lip region width = 7.9 µm; lip region height = 3.5 - 4.0 µm; amphid aperture = 5.5, 6.0 µm; odontostyle length = 15.0,16.5 µm; guiding ring from anterior end = 6, 7 µm; odontophore length = 15,16 µm; expanded part of pharynx = 47, 44 µm; nerve ring from anterior end = 96, 87 µm; neck length = 193, 192 µm; cardia length = 7 µm; prerectum length = 73, 88 µm; rectum length = 28, 35.5 µm; spicules length = 40, 41 µm; lateral guiding pieces = 10.5, 12 µm; ventromedia supplements = 5, 7; tail length = 55, 51 µm.
**Habitat and locality:** Soil around the roots of forest trees from Jeng pathar, district Dibang Valley, Arunachal Pradesh.

**Remarks:** De Man (1921) described *D. micoletzkyi* as *Dorylaimus micoletzkyi* from the Netherlands. Later, Thorne and Swanger (1936) transferred this species to *Dorylaimoides* as *D. micoletzkyi*. Goseco, Ferris and Ferris (1976) in their review of the genus *Dorylaimoides*, made a detailed observations on this species and synonymised *Dorylaimoides pakistanensis* Siddiqi, 1964 with it. The present specimens collected from Arunachal pradesh conform well with type species with no significant differences.

*Dorylaimoides arcuatus* Siddiqi, 1964  
*D. intermedius* Thorne, 1964

**Measurements:**

**Females (n=3):** Body length = (0.86±0.068) 0.78-0.94 mm; body width at neck base = (17.75±2) 16.0-19.5 μm; body width at mid body = (21.6±1.3) 20-23 μm; body width at anus = (14.7±0.9) 13-16 μm; a = (40±2) 36-43; b = (6±1) 5.0-7.5; c = (11±1) 10-12; c’= (5.3±0.2) 4.5-5.5; V = (34.3±1.0) 30-35; G2 = (17.3±2.3) 15-20; lip region width = (7.2±0.5) 7-8 μm; lip region height = (3.1±0.2) 3.0-3.5 μm; amphid aperture = (4.7±0.2) 4.5-5.0 μm; odontostyle length = (9±0.7/5.6±0.7) dorsal arm 8.5-10μm/ventral arm 5-6; guiding ring from anterior end = (4.7±0) 4.7 μm; odontophore length = (11±0.4) 10.0-11.5 μm; expanded part of pharynx = (40±2.4) 38.0-43.5 μm; nerve ring from anterior end = (69.7±4.4) 65.5-75.5 μm; neck length = (144.2±15.1) 125-162 μm; cardia length = (8.1±0.4) 8.0-8.5 μm; anterior uterine sac = (5.2±0.9)
4.0-6.5%; prerectum length = (85±15.5) 67-105 μm; rectum length = (21.5±1.5)20.0-
23.5 μm; tail length = (79±7.4) 69-85 μm.

**Males (n=2):** Body length = 767, 840 mm; body width at neck base = 19, 20 μm;
body width at mid body = 19.5, 21.0 μm; body width at anus = 15 μm; a = 42.5, 36; b
= 5.9, 5.7; c = 12, 11.5; c’ = 4.6, 4.4; lip region width = 7.0 μm; lip region height =
3.9, 3.4 μm; amphid aperture = 4.5 μm; odontostyle length = dorsal arm 9 ,9.5/ ventral
arm 4.5, 5.5μm; guiding ring from anterior end = 5.5; odontophore length =
11,11.5μm; expanded part of pharynx = 35.5, 33.5 μm; nerve ring from anterior end
= 72.5, 66.5 μm; neck length = 142, 134 μm; cardia length = 5.5; prerectum length =
61, 65 μm; rectum length = 23 μm; spicules length = 25, 24 μm; lateral guiding pieces
= 4.0, 4.5 μm; ventromedian supplements = 4, 3; tail length = 69, 67 μm.

**Habitat and locality:** Soil around the roots of forest trees from Khonsa, district
Tirap, Arunachal Pradesh.

**Remarks:** Siddiqi (1964) described *Dorylaimoides arcuatus* from Tanakpur, India.
Later, Goseco, Ferris and Ferris, (1976) in their review of the genus *Dorylaimoides*,
studied the paratypes and synonymised *D. intermedius* Thorne,1964 and *D. rusticus*
Timm, 1964 with this species. *D. arcuatus* seems to have wide range of distribution;
Porto Rico (Thorne 1964), Brazil (Goseco, Ferris and Ferris, 1976), Bangladesh
(Timm1964). In India, in addition to the type locality it was collected from
Muradabad, Etawah, and Kanpur districts of Uttar Pradesh (Hussain & Khan, 1968;
Baqri & Jairajpuri, 1969). The present specimens conform well with the earlier
descriptions.
Dorylaimoides filicaudatus Jana and Baqri, 1981

Measurements:

Females (n=3): Body length = (1.32±0.040) 1.29-1.38 mm; body width at neck base = (31±0.37) 30.5-31.5 μm; body width at mid body = (33.6±0.37) 33-34 μm; body width at anus = (21±0.76) 20.5-22.0 μm; a = (39.4±1.06) 38-40; b = (6.9±0.36) 6.5-7; c = (5.29±0.22) 5.0-5.5; c‘ = (11.9±0.37) 11-12.5; V = (35.8±1.19) 34.0-37.5; G1 = (12±0.27) 11.5-12.5; G2 = (11.27±0.34) 10-11.5; lip region width = (11.3±0.42) 10.5-11.5 μm; lip region height = (4.17±0.18) 4.0-4.5 μm; amphid aperture = (7.6±0.38) 7-8 μm; odontostyle length = (10±0.78/4.5±0) dorsal arm 10-11.5 μm/ventral arm 4.5 μm; guiding ring from anterior end = (6.3±0.01) 6.0-6.5 μm; odontophore length = (13.7±0.37) 13-14 μm; expanded part of pharynx = (55.6±4.06) 51-61 μm; nerve ring from anterior end = (85±3.45) 83-89 μm; neck length = (190.6±6.50) 183-199 μm; cardia length = (6.3±0) 6.5 μm, prerectum length = (88.7±3) 84-90 μm; rectum length = (31±1.96) 28-33 μm; tail length = (250.7±3) 247-253 μm.

Male (n=1): Body length = 1.27 mm; body width at neck base = 33 μm; body width at mid body = 37 μm; body width at anus = 23.5 μm; a = 34; b = 6.3; c = 5.1; c‘ = 10.4: lip region width = 11.5 μm; lip region height = 4.5 μm; amphid aperture = 8.5 μm; odontostyle length = dorsal arm11 μm/ventral arm 4; guiding ring from anterior end = 7 μm; odontophore length = 13.5 μm; expanded part of pharynx = 55 μm; nerve ring from anterior end = 83 μm; neck length = 200 μm; cardia length = 6.5 μm; prerectum length = 90 μm; rectum length = 30 μm; spicules length = 34 μm; lateral guiding pieces = 9.5 μm; ventromedian supplements = 4; tail length = 246 μm.

Habitat and locality: Soil around roots of forest trees from evergreen forest, Darzah, Bomdilla, district West Kameng, Arunachal pradesh.
Remarks: Jana & Baqri (1981) described *D. filicaudatus* from West Bengal, India. Present specimens conform well with the type specimens except for having shorter odontostyle (vs dorsal arm 6-7 μm, ventral arm 4-5 μm), longer expanded part of pharynx (vs 25-29 μm), longer vaginal length (vs 14-15 μm), longer spicules (vs 24-29 μm). These differences may be due geographical variations.

*Dorylaimoides mujtabai* Baqri, 1991

Measurements:

Abotany statue population

**Females** (n=5): Body length = (0.68±0.030) 0.64-0.72 mm; body width at mid body = (25±1.44) 23-26 μm; body width at neck base = (24±0.95) 22-25 μm; body width at anus = (16±1.4) 14-17 μm; a = (27.4±1.44) 26-29; b = (4.7±0.19) 4-5; c = (16.7±0.99) 15-17; c’ = (2.5±0.26) 2-3; V = (47.7±2.40) 45-50; G₁ = (12±1.37) 10-14; G₂ = (11.8±1.40) 10-13; lip region width = (7.6±0.40) 7.0-8.5 μm; lip region height = (3.1±0.26) 2.5-3.5 μm; amphid aperture = (4.4±050) 5.0-5.5 μm; odontostyle length = (13.68±0.60/6.16±0.58) dorsal arm 13.5-14.5 μm/ventral arm 5.5-6.5; guiding ring from anterior end = (4.75±0.8) 4.0-5.5 μm; odontophore length = (7±1.05) 6-8 μm; expanded part of pharynx = (37.4±2.6) 34-40 μm; nerve ring from anterior end = (66±4.2) 59-70 μm; neck length = (145.5±8.12) 135-158 μm; cardia length = (4.26±0.53) 3.5-4.5 μm; prerectum length = (66.3±4.21) 65-70 μm; rectum length = (16.8±0.86) 16.0-18.5 μm; tail length = (40.5±3.05) 36-43 μm.

**Male:** Not found.

**Itanagar Sector B. population:**

**Female** (n=1): Body length = 0.72 mm; body width at mid body = 29 μm; body width at anus = 19.5 μm; a = 27; b = 5.3; c = 18.5; c’ = 2; V = 46.5; G₁ = 11; G₂ = 11.5;
lip region width = 8.5 \mu m; lip region height = 3.5 \mu m; amphid aperture = 3.8 \mu m; odontostyle length = dorsal arm 12.6\mu m/ventral arm 5.8; guiding ring from anterior end = 5 \mu m; odontophore length = 7 \mu m; expanded part of pharynx = 36 \mu m; nerve ring from anterior end = 63 \mu m; neck length = 150 \mu m; cardia length = 3.5 \mu m; prerectum length = 68 \mu m; rectum length = 18.5 \mu m; tail length = 39 \mu m.

**Male (n=1):** Body length = 0.78 mm; body width at midbody = 29 \mu m; body width at anus = 19 \mu m; a = 27; b = 5; c= 20; c'= 2; lip region width = 7.5 \mu m; lip region height = 3.5 \mu m; amphid aperture = 4 \mu m; odontostyle length = dorsal arm 13.5/ventral arm 6.7\mu m; guiding ring from anterior end = 5 \mu m; odontophore length = 8.5 \mu m; expanded part of pharynx = 58 \mu m; nerve ring from anterior end = 64 \mu m; prerectum length = 72 \mu m; rectum length = 19 \mu m; spicules length = 28 \mu m; lateral guiding pieces = 11.5 \mu m; ventromedian supplements = 2; tail length = 39 \mu m.

**Habitats and localities:**

1. Soil around the roots of forest trees from natural forest area near Abotany Statue, Itanagar, Arunachal Pradesh.
2. Soil around the roots of Bamboo at Sector B, Itanagar, Arunachal Pradesh.

**Remarks:** Baqri (1991) described *Dorylaimoides mujtabai* from South and West Sikkim. Present specimen conforms well with the type population, except for having slightly shorter prerectum (vs 74-84 \mu m), and longer spicules (vs 25 \mu m).
Dorylaimoides reyisi Ahmad, Mustaq and Baniyamuddin, 2003

Measurements

Khonsa population:

**Females (n=4):** Body length = (1.3±0.10) 1.29-1.54 mm; body width at neck base = (26.9±0.81) 26-28 μm; body width at midbody = (32.3±1.42) 31-34 μm; body width at anus = (21.3±1.1) 19.5-22.0 μm; a = (44.3±2.52) 41.5-46.5; b = (6.8±0.2) 6-7; c = (10.9±1.46) 9-12; c’ = (6.1±0.82) 5.5-7.4; V = (41.8±1.34) 40-43; G₁ = (9.8±0.80) 8.5-10.5; G₂ = (9.7±0.93) 8.5-10.5; lip region width = (8.2±0.2) 8.0-8.5 μm; lip region height = (3.8±0.17) 3.5-4.0 μm; amphid aperture = (6.3±0.79) 5.5-7.0 μm; odontostyle length = (10.2±0.62/6.5±0.39) dorsal arm 9.5-11 μm/ ventral arm 6.3-7.0; guiding ring from anterior end = (6.6±0.38) 6-7 μm; odontophore length = (13.8±0.46) 13-14 μm; expanded part of pharynx = (53.8±7.8) 45-63 μm; nerve ring from anterior end = (102±11.9) 92-119 μm; neck length = (210.7±14.7) 197-231 μm; cardia length = (7.0±1.06) 6.0-8.5 μm; prerectum length = (71.7±5.4) 67-79 μm; rectum length = (27.0±1.3) 26.0-27.5 μm; tail length = (131.9±10.7) 120-146 μm.

**Male:** Not found.

Itanagar population:

**Females (n=2):** Body length = 1.42, 1.39 mm; body width at neck base = 35, 27.5 μm; body width at midbody = 38.5, 31.5 μm; body width at anus = 23, 20.5 μm; a = 36.5, 44; b = 6, 7; c = 8.5, 10.5; c’ = 7, 6.5; V = 41, 42.5; G₁ = 8, 12.5; G₂ = 8.5, 9.5; lip region width = 8.5 μm; lip region height = 4 μm; amphid aperture = 5.5, 7.0 μm; odontostyle length = dorsal arm 10.5 μm/ ventral arm 6.7; guiding ring from anterior end = 6 μm; odontophore length = 12.5, 13.5 μm; expanded part of pharynx = 59, 51 μm, nerve ring from anterior end = 101, 97 μm, neck length = 221 μm; cardia length
Male: Not found.

Habitats and localities:

1. Soil around the roots of bushes and forest trees from Khonsa, district Tirap, Arunachal Pradesh.

2. Soil around the forest trees of natural forest area from Mithun gate, Itanagar, Arunachal Pradesh.

Remarks: Ahmad, Mustaq & Baniyamuddin (2003) described *Dorylaimoides reyisi* from Shangjunonjia mountains, China. The present specimens collected from Khonsa and Itanagar, Arunachal Pradesh conforms well with the type specimens except for having comparatively slender body and shorter prerectum (vs a = 34-38, prerectum 111-141 μm) in Khonsa population and slightly odontostyle(vs dorsal arm 8-9/ventral arm 6μm) and lower c value (9.8-11.8) from Itanagar population. This is the first report of this species from India.

*Dorylaimoides brevisaccus* Ahmad and Mushtaq, 2004

Measurements:

**Females (n=4):** Body length = (0.89±0.043) 0.82-0.93 mm; body width at neck base = (24.8±0.8) 23.5-26.0 μm; body width at mid body = (24.4±1.5) 22-26 μm:body width at anus = (14.8±0.3) 14-15 μm; a = (36.5±1.4) 34.5-38.0; b = (5.1±0.3) 4.5-5.5; c= (5.2±0.25) 5.0-5.5; c’ = 10.5; V = (34.7±1.0) 34.0-36.5; G2 = (11±1.7) 9-13; lip region width = (6.3±0.4) 6-7 μm; lip region height = (3.36±0.2) 3.0-3.5 μm; amphid aperture = (5.6±0.5) 5-6 μm; odontostyle length = (8.8±0.8/4.7±0.1) dorsal arm 8-10μm/ventral arm 4.3-4.7μm; guiding ring from anterior end = (5.3±0.05) 5.0-5.5 μm;
odontophore length = (12.6±0.5) 12-13 μm; expanded part of end = (79±3.5) 73-83 μm; neck length = (172.2±13.7) 161-195 μm; cardia length = (5.5±0.40) 5.5-6.0 μm; anterior uterine sac = (0.9±0.1) 0.7-0.9%; prerectum length = (75.4±4.7) 70-87 μm; rectum length = (22.9±0.5) 22.0-23.5 μm; tail length = (161.1±0.8) 160-162 μm.

_Habitat and locality:_ Soil around roots of Hollyhok tree (_Althaea rosea_) from natural forest, Mobang, district Dibang Valley, Arunachal Pradesh.

_Remarks:_ Ahmad and Mustaq (2004) recently described this species from Singapore. The present specimens conform well with _D. brevisacus_ except that there is a slight difference in c value (vs 5.5-5.9), amphid aperture (vs 4 μm), longer odontostyle length (vs ventral arm 6 μm and dorsal arm 7-8 μm), shorter, odontophore length (vs 15-17 μm), slightly longer anterior uterine sac (vs 0.6-0.7%). This is the first record of the species from India.

**Subfamily Calolaiminae Goseco, Ferris and Ferris, 1976**

**Genus Paratimms gen. n.**

_Diagnosis:_ Medium sized nematodes. Lip region hemispherical, continuous; papillae not raised. Amphids with stirrup-shaped fovea. Odontostyle tiny, asymmetrical, but with distinct lumen. Guiding ring single, distinctly sclerotized. Odontophore simple, rod-loke, sclerotized. Pharynx slender, gradually expanding to form basal bulb constituting about one-fourth its entire length; a thin sheath (not spiral) around basal bulb present. Cardia elongate, spathulate, with intestine attached to its posterior tip. Female genital system monodelphic-opisthodelphic; short anterior uterine sac present. Vulva transverse, distinctly anterior. Males with dorylaimoid spicules and three to four spaced ventromedian supplements. Tail long filiform, similar in sexes.
Type and only species: *Paratimmus provulvus* gen. n., sp. n.

**Relationships:** The new genus, as the name indicates closely resembles the genus *Timmus* Goseco, Ferris & Ferris, 1976 but differs in some definite morphological features. The shape of its lip region, the nature of guiding ring and odontostyle, the type of pharynx though similar to *Timmus*, but the odontophore is distinctly sclerotized in *Paratimmus*. The new genus further differs from *Timmus* in having monodelphic-opisthodelhic gonad (vs amphidelphic in *Timmus*) and the unusually anterior position of vulva. The nature of cardia is most distinctive feature in *Paratimmus*. Similar cardia is reported in the family Belondiridae, subfamily Swangiriniae (cf. the genera *Swangeria, Qudsiella*), but the new genus has no spiral muscular sheath around expanded part of pharynx.

*Paratimmus provulvus* gen. n., sp. n.
(Fig. T-19)

**Measurements:** See Table T-19

**Female:** Body cylindrical, almost straight upon fixation, tapering slightly anterior to the base of the pharynx, posteriorly ending in a long filiform tail. Cuticle smooth, 2-3 μm thick at mid body and 2.5-3.0 μm on tail. Lateral chord about one-fifth of body width at mid body. Lateral, dorsal and ventral body pores indistinct.

Lip region narrow rounded, continuous, about one-third of body width at neck base. Amphids cup-shape, their aperture about two-third of the lip region width wide. Odontostyle asymmetrical, 1.2-1.6 times lip region width long, attenuated, with narrow lumen; its aperture about one-third of its length. Guiding ring thickened, distinctly sclerotized, at about 1.1 times lip region width from anterior end.

Odontophore sclerotized, linear, 1.3-1.4 times odontostyle length. Nerve ring at 46-
47.5% of neck length from anterior end. Anterior part of pharynx very slender; expanded portion occupying about 27-30% of total neck length. Cardia elongate, spathulate, about half of the corresponding body width long; intestine attached only to its posterior end. Pharyngeal gland nuclei located as follows. D=75-78%; AS1=24-26%; AS2=52-56%; PS1=69-71%; PS2=70-74

Genital system monodelphic-opisthodelphic; anterior branch represented by a uterine sac, about 1.2-1.8 times corresponding body width long. Posterior branch well developed; ovary reflexed, measuring 48-60 μm with oocyte arranged in single row except near tip. Oviduct joining ovary subterminally, measuring 88-92 μm in length. Sphincter present at oviduct-uterus junction. Uterus an undifferentiated tube, measuring 30-35 μm in length. Vagina with thick cuticular walls, about one-half to one-third as wide as corresponding body width deep; pars proximalis vaginae 10-11 μm long with straight walls encircled by circular musculature; pars refringens vaginae absent; pars distalis vaginae measuring 8-9 μm with curved wall. Vulva a transverse slit. Prerectum 2.8-4.0 anal body widths long. Rectum 1.4-1.7 times anal body width long. Tail long filliform, about 15-22 anal body widths long. Caudal pores two on each side.

**Male:** Similar to female in general morphology except more ventrally curved in the posterior region because of the presence of coupulatory muscles. Supplements, an adanal pair and three to four spaced ventromedians. Spicules dorylaimoid, about 1.4 times anal body widths long. Lateral guiding pieces about one-third of spicules length. Prerectum 3.6-4.2 anal body widths long. Tail long filliform, about 10-15 anal body widths long, and with a pair of caudal pores on each side.

**Type habitat and locality:** Soil around the roots of teak tree (*Tectona grandis*) from natural reserve forest, Bomdilla, district West Kameng, Arunachal Pradesh.
Type specimens: Holotype female on slide Paratimmus provulvus sp. n. /1; paratype females and males on slide Paratimmus provulvus sp. n./ 2-6; deposited with nematode collection of the Department of Zoology, Aligarh Muslim University, India.

FAMILY AULOLAIMOIDIDAE JAIRAJPURI, 1964

Genus Adenolaimus Andrássy, 1973

Diagnosis: Body tapering uniformly at both the directions. Cuticle and sub-cuticle with fine transverse striations. Lip region amalgamated, rounded. Stoma walls supported by minute rib-like structures. Odontostyle dorylaimoid. Odontophore long, slightly sclerotised, flanged. Pharynx composed of three sections: slender anterior part gradually expanding posteriorly, more slender glandular middle section and muscular basal bulb set off by constriction and with vulvular chamber. Female genital system mono-opisthodelphic. Vulva transversely oval; vagina wide and muscular with distinct walls. Spicules slender; lateral guiding pieces and supplements absent. Tail short, gradually tapering to rounded tip; similar in sexes.

Type species: Adenolaimus orthus (Thorne, 1939) Goseco, Ferris & Ferris, 1975
Syn. Doryllium orthum Thorne, 1939
Adenolaimus dadayi Andrássy, 1973

Adenolaimus minor sp. n.
(Fig. T-20)

Measurements: See Table T-20

Female: Body slightly curved ventrad upon fixation, tapering toward both extremities. Cuticle finely striated, 1.5 μm thick at mid body and 2 μm on tail.
Lateral chord about one-fifth of body width at mid body. Lateral, dorsal, and ventral body pores indistinct.

Lip region continuous, about one-third of body width at neck base. Lips amalgamated; labial papillae not projecting above labial contour. Stoma wall supported by minute rib-like structures. Amphid stirrup-shaped, their aperture about half of the lip region width wide. Odontostyle dorylaimoid, 1.0-1.4 times lip region width long Guiding ring indistinct. Odontophore rod-like with flanged base. Nerve ring at about 55-57 % of neck length from anterior end. Pharynx tripartite, basal expanded part occupying about 25% of total neck length. Cardia short, conoid, about one-fifth of corresponding body width long.

Genital system mono-opisthodelphic; anterior branch represented by a small uterine sac about as long as corresponding body width; posterior branch well developed. Ovary reflexed, measuring 35-56 μm in length with oocyte arranged in single row except near the tip. Oviduct and uterus indivisible. Vagina extending inward about half of corresponding body width deep; pars proximalis vaginae 5.0-5.5 μm long with straight walls, encircle by circular musculature; pars refringens vaginae absent; pars distalis vaginae 2.5-3.0 μm with curved wall. Vulva transverse. Prerectum 4.5-7 times anal body width long. Rectum 1.0-1.3 anal body width long. Tail obtusely rounded, 1.4-1.7 anal body width long.

Male: Similar to female in general morphology. Supplements, an adanal pair and a single ventromedian. Spicules slender, 1.08 anal body widths long. Rectum about as long as anal body width. Tail short, hemispheroid. Caudal pores indistinct.

Type habitat and locality: Soil around the roots of forest trees from natural forest range, Teenmile forest, Teenmile, district Changlang, Arunachal Pradesh.
**Type specimens:** Holotype female on slide *Adenolaimus minor* sp. n. 1; paratype females and a male on slide *Adenolaimus minor* sp. n./ 2-3 deposited with nematode collection of Department of Zoology Aligarh Muslim University, India.

**Diagnosis and relationships:** *Adenolaimus minor* sp. n. is characterised by having small sized body (L= 0.38-0.46 mm), stoma supported by minute ribs, monopisthodelphic female genital system with a small pre-uterine sac, obtusely rounded tail and male with slender spicules and a single ventromedian supplement.

In the presence of a short anterior uterine sac, the new species comes close to *A. ahyperoche* Goseco, Ferris & Ferris, but differs in having shorter odontostyle (vs 3.2 μm), lower b value (vs b=5.0-6.4), posterior vulva (vs V=27-31), shorter tail (vs tail 31-32 μm), shorter spicules (vs 22-23 μm), and in the presence of supplement (vs supplement absent).

**FAMILY NYGOLAIMIDAE THORNE, 1935**

**Subfamily Nygolaiminae Thorne, 1935**

Syn. Parvulvinæ Ahmad and Jairajpuri, 1982

**Genus *Aquatides* Heyns, 1968**


**Diagnosis:** Body length usually 1-4 mm. Cuticle and sub-cuticle finely striated. Tooth linear, usually longer than width of lip region. Lip region truncate or rounded, set off by slight depression. Basal expanded part of pharynx enclosed in conspicuous sheath, usually forming basal pockets. Cardiac gland well developed, spheroid to ovoid. Cardia well developed. Vulva transverse. Female genital system amphidelphic. Males with massive arcuate spicules, well developed gubernaculum, lateral guiding
pieces and ventromedian supplements. Prerectum usually one to four anal body 
widths long. Tail bluntly convex-conoid to hemispheric; similar in sexes. 

Type species: *Aquatides aquaticus* (Thorne, 1930) Thorne, 1974 

*Aquatides himalus* sp. n. 
(Fig. T-21) 

**Measurements:** See Table T-21 

**Female:** Body slightly curved ventrad upon fixation, tapering towards both 
extremities. Cuticle finely striated, 1.5-2.0 μm thick at mid body and 3.5-4.0 μm on 
tail. Lateral chord about one-third of the body width at neck base. Lateral, dorsal and 
ventral body pores indistinct. 

Lip region slightly asymmetrical, offset by slight depression, about one-third of 
body width at neck base. Lips angular; labial papillae slightly elevated. Amphids 
small, cup shaped; their aperture occupying about one-third of lip region width. Mural 
tooth linear, about one lip region width long. Guiding ring single, fixed ring at 0.56- 
0.58 times lip region width from anterior end. Nerve ring at about 31% of neck length 
from anterior end. Pharyngeal expansion gradual; expanded portion occupying about 
49-55% of the total neck length. Cardia short, conoid, about one-third of 
corresponding body width long. Cardiac glands rounded, measuring 6.5 x 8.0 μm. 
Pharyngeal gland nuclei located as follows: D=64-66%; AS1=25-27%; A S2= 42-
45%; PS1=72-73%; PS2=73-75%

Genital system amphidelphic; both sexual branches almost equally developed. 
Ovaries reflexed, measuring 39-42 μm (anterior) and 35-52 μm (posterior) with 
oocyte arrange in single row except near tip. Oviduct joining ovary subterminally, 
measuring 56-76 μm (anterior) tube, measuring 22-24 μm (anterior) and 25-34 μm 
(posterior) in length. No Sperm observed in uterus. Vagina thick walled, about one-
half corresponding body width deep; pars proximalis vaginae 10.0-11.5 μm long with straight walls, encircled by musculature; pars refringens vaginae absent; pars distalis vaginae 8.5-9.0 μm in length. Vulva transverse. Prerectum 1.3-1.7 anal body widths long. Rectum about as long as anal body width. Tail short, convex conoid to hemispheroid, 0.9-1.0 anal body width long. Caudal pores two on each side.

**Male:** Not found

**Type habitat and locality:** Soil around the roots of bushes and small plants near Dirak river, district Lohit, Arunachal Pradesh.

**Type specimens:** Holotype female on slide Aquatides sp n/1; paratype females and juveniles on slide Aquatides sp n/2-4; deposited with nematode collection of Department of Zoology Aligarh Muslim University, Aligarh.

**Diagnosis and relationships:** Aquatides sp. n. is characterised by 1.1-1.2 mm length body, Lip region offset by depression, 12.5-13.5 μm long a linear mural tooth, gradually expanded pharynx, amphidelphic gonad, and a short convex conoid to hemispheroid tail.

The new species is closely resemble with *A. thornei* (Shneider, 1937) Ahmad and Jairajpuri 1982, *A. intermedius* (De Man 1880) Ahmad and Jairajpuri 1982 and *A. christicki* Ahmad and Jairajpuri, 1982 but differs from former in having shorter odontostyle (vs 16.5-17 μm), more anterior vulva position (vs 55), higher a value (vs 3.3-3.4), shorter prerectum (vs 27 μm) and smaller rectum (vs 65 μm), shorter tail (vs 27 μm, c = 59-60) and absence of male (vs male present).

The new species also resemble with *A. intermedius* but differs in having smaller body size (vs 2-2.3 mm), smaller tooth (vs 19-20 μm), moderately developed expanded part of pharynx (vs bulb conspicuous) shorter pharynx (vs 445-470 μm, b 4.2-4.7), shorter expanded part of pharynx (vs 46-48 μm), more posterior vulva
position (vs vulva = 44-46) shorter Prerectum and Rectum (vs prerctum = 43-50\(\mu m\), rectum = 24-30\(\mu m\)), shorter tail length (vs 25-27\(\mu m\), c = 79-82).

The new also similar with \textit{A. christicki} but differ distinctly in the shape of head ie, slightly offset by depression (vs slightly offset with assymetrical head), smaller body length (vs 1.66-1.83\text{mm}), smaller tooth (vs 19-23\(\mu m\)), smaller pharynx (vs 411-475\(\mu m\), b= 3.8-4.3) and absence of males (vs males present)

**FAMILY NYGELLIDAE ANDRÁSSY, 1958**

**Subfamily Nygellinae Andrásy, 1958**

**Genus Nygellus Thorne, 1939**

**Diagnosis:** Body straight or slightly ventrally curved upon fixation. Cuticle and subcuticle finely striated. Lips closely amalgamated, rounded, continuous with body contour. Tooth deltoid or linear, usually less than width of lip region. Basal expanded part of pharynx enclosed in conspicuous sheath of spiral muscles. Cardiac glands ovoid. Vulva transverse. Female genital system mono-opisthodelphic. Anterior uterine branch present or absent. Tail elongate, clavate. Males not known.

**Type species:** \textit{Nygellus clavatus} Thorne, 1939

**Nygellus clavatus Thorne, 1939**

**Measurements**

**Females (n=7):** Body length = (1.13±0.10) 0.98-1.16 \text{mm}; body width at neck base = (21.1±1.3) 18.5-22.5 \(\mu m\); body width at mid body = (21.6±1.3) 19.5-23.0 \(\mu m\); body width at anus = (12±0.8) 10.5-13.5 \(\mu m\); a = (53.9±2.9) 50-55; b = (3.2±0.2) 3.0-3.5; c = (11.2±0.5) 10.0-13.5; c’ = (8.5±0.3) 8.9; V = (36.9±1.1) 35-38; G_2 = (7±1)
5.5-8.5; lip region width = (7.7±0.2) 7.5-8.0 μm; lip region height = (3.9±0.1) 3.5-4.0 μm; amphid aperture = (4.9±0.4) 4.5-5.5 μm; mural tooth = (5.7±0.5) 5.0-6.5 μm; guiding ring from anterior end = (3.5±1.3) 3.5-4.5 μm; expanded part of pharynx = (196±19) 163-232 μm; nerve ring from anterior end = (102.12±7) 93-111 μm; neck length = (360.4±27.4) 323-386 μm; cardia length = (4.8±0.57) 3.5-5.5 μm; prerectum length = (97.7±13) 69-111 μm; rectum length = (19.8±3.6) 19-23 μm; tail length = (101.8±6.2) 97-116 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of bamboo (*Bambusa tulda L.*) from F. Sector, Itanagar, Arunachal Pradesh.

**Remarks:** Thorne (1939) described *Nygellus clavatus* from Sumatra. Jairajpuri (1964) reported this species from Jorhat, India. The present specimens conform well with type specimens with no significant difference.

*Nygellus subclavatus* Timm and Ameen, 1960

**Measurements:**

**Females (n=10):** Body length = (1.18±0.39) 1.15-1.48 mm; body width at neck length = (26.5±1.91) 23-29 μm; body width at mid body = (27±2.45) 23-31 μm; body width at anus = (13.18±1.11) 11.5-15.0 μm; a = (47.5±2.18) 44.5-50.0; b = (3.4±0.30) 3-4; c = (37.7±7.9) 31-42; c' = (2.8±0.55) 2-3; V = (35±2.15) 32-37; G2 = (9.6±3.2) 6.0-13.5; lip region width = (9.2±0.32) 8.5-9.5 μm; lip region height = (3.2±0.71) 2.5-4.0 μm; amphid aperture = (4.4±0.5) 3.0-4.5 μm; mural tooth length = (7.3±0.5) 6.5-7.5 μm; guiding ring from anterior end = (5.1±0.54) 4.5-5.5 μm; expanded part of pharynx = (208±24.3) 170-232 μm; nerve ring from anterior end = (107±8.01) 97-120 μm; neck length = (373±25.5) 338-410 μm; cardia length = (4.36±0.51) 3.5-5.0 μm;
prerectum length = (55.8±12.8) 30-72 μm; rectum length = (21.07±2.2) 18.5-24.0 μm; tail length = (37.4±7.6) 30-57 μm.

**Habitat and locality:** Soil around the roots of forest trees near Arunachal University, Doimuk, Itanagar, Arunachal Pradesh.

**Remarks:** Timm and Ameen (1960) described *Nygellus subclavatus* from Dhacca, Bangladesh. Ahmad and Jairajpuri (1982) recorded this species from Cuttak, India. The present specimens conform well with the earlier descriptions.

**FAMILY NYGOLAIMELLIDAE CLARK, 1961**

**Subfamily Nygolaimellinae Clark, 1961**

**Genus Nygolaimellus Loos, 1949**

**Diagnosis:** Large-sized nematodes (L = 2.5-6.0 mm). Cuticle thickened especially towards tail, with fine transverse striations, sometimes with indications of criss-cross lines overlying transverse striations. Lips fairly distinct, hexagonal in *en face* view, set off by deep constriction, and wider than adjoining body. Tooth deltoid, smaller or longer than lip width. Pharynx nygolaimoid, its walls well sclerotised in region of tooth. Pharynx with basal expanded part usually occupying two-thirds its length. Basal expanded part consisting of three sections, first and second of which are often separated by constriction, middle and basal section enclosed in sheath. Hemizonid either opposite or slightly anterior to nerve ring, appearing as two adjacent notches in sub-cuticle. Cardiac disc present. Female genital system amphidelphic. Vulva transverse. Spicules with lateral apical thickenings; lateral guiding pieces and well-developed spaced ventromedian supplements present. Gubernaculum absent. Tail short, conoid; similar in sexes.

**Type species:** *Nygolaimellus abnormis* Loos, 1949
Nygolaimellus heynsi Ahmad and Jairajpuri, 1982

Measurements:

**Females (n=6):** Body length = (2.55±0.15) 2.38-2.80 mm; body width at neck base = (48.2±6.7) 41-55 μm; body width at mid body = (48.2±6.7) 42-62 μm; body width at anus = (28.3±3) 25-33 μm; a = (52.3±8.3) 39-61; b = (4.3±0.7) 3.5-5.5; c = (47.6±3.1) 41.0-50.5; c' = (1.9±0.3) 1.5-2.0; V = (53.6±1.7) 50.0-54.5; G₁ = (7.3±0.6) 6.5-8; G₂ = (7.5±0.9) 6.5-9; lip region width = (13.6±3.5) 12.0-17.5 μm; lip region height = (5.0±0.2) 4.0-5.5 μm; amphid aperture = (6.6±0.5) 6-7 μm; mural tooth length = (14.2±0.5) 13-15 μm; anterior part of pharynx = (125±14.8) 105-144 μm; isthmus length = (307.5±50.2) 240-376 μm; expanded part of pharynx = (445.2±51.4) 372-520 μm; nerve ring from anterior end = (106.4±7.7) 94-115 μm; neck length = (605.5±84.1) 450-730 μm; cardia length = (12.5±1) 10.0-15.5 μm; prerectum length = (51.5±8.4) 38-66 μm; rectum length = (34.6±4.7) 29-41 μm; tail length = (53.7±3.3) 50-59 μm.

**Male:** Not found.

**Habitat and locality:** Soil around the roots of forest trees from Parbuk forest range, lower Dibang Valley, Arunachal Pradesh.

**Remarks:** Ahmad and Jairajpuri (1982) described Nygolaimellus heynsi from Bangalore, Karnataka. The present specimens closely resemble with the type specimens except for having slightly smaller body size (vs L= 2.96-3.29 mm), longer mural tooth (vs 10-11 μm), more anterior nerve ring position from anterior end (vs 123-140 μm); slightly smaller c value (vs 59-65) and shorter rectum length (vs 46-49 μm).
Genus *Aporcelaimoides* Heyns, 1965

**Diagnosis:** Large-sized nematodes (L = 4-5 mm). Cuticle with minute transverse striations or with transverse striations as well as criss-cross lines. Lip region set off by deep constriction; lips closely amalgamated. Amphids with median support. Anterior part of pharynx appearing elongate, hexagonal in cross-section. Spear appearing dorylaimoid, with large dorsal aperture; basal part of spear much narrower than lumen of pharynx and situated ventrally in latter; cardiac disc absent. Female genital system amphidelphic. Vulva transverse. Males with almost straight spicules, lateral guiding pieces and a few poorly developed ventromedian supplements. Tail convex-conoid, bluntly rounded; similar in sexes.

**Type species:** *Aporcelaimoides probulbum* Heyns, 1965

*Aporcelaimoides probulbum* Heyns, 1965

**Measurements:**

**Females (n=6):** Body length = (3.43±0.31) 2.93-3.83 mm; body width at neck base = (95.3±11.2) 85-117 μm; body width at mid body = (98.9±8.7) 91-117 μm; body width at anus = (70.3±4.0) 67-77 μm; a = (33.9±2.2) 30-37; b = (4.1±0.6) 3-5; c = (94.2±9.9) 79-109; c’ = (0.5±0.04) 0.47-0.55; V = (56.7±2.5) 52-59; G₁ = (11.3±2.3) 9-16; G₂ = (10.9±1.3) 9-12; lip region width = (24.0±1.1) 22.5-26.0 μm; lip region height = (8.9±0.4) 8.5-9.5 μm; amphid aperture = (10.4±0.9) 9.0-11.5 μm; mural tooth length = (16.4±1.6) 15.0-19.5 μm; guiding ring from anterior length = (10.2±0.5) 9.5-10.5 μm; expanded part of pharynx = (533.7±97.4) 441-607 μm; nerve ring from anterior end = (191.7±19.3) 158-213 μm; neck length = (851.5±124.2) 751-
964 μm; cardia length = (14.5±3.8) 9-17 μm; prerectum length = (165.8±11.8) 147-178 μm; rectum length = (74.2±14.7) 55-97 μm; tail length = (36.7±3.7) 33-44 μm.

**Males (n=3):** Body length = (3.07±0.31) 2.62-3.32 mm; body width at neck base = (89.6±15) 77-110 μm; body width at mid body = (89.5±15.1) 76-110 μm; body width at anus = (67.9±9.6) 59-81 μm; a = (35.47±5.9) 29.5-43.5; b = (3.81±0.38) 3-4; c = (78.14±5.41) 70-83; c’ = (0.57±0.09) 0.45-0.63; lip region width = (23.52±2.1) 20.5-25.0 μm; lip region height = (9.47±0.23) 8.5-9.0 μm; amphid aperture = (10.45±1.22) 8.5-11.5 μm; mural tooth length = (16.17±0.69) 15.0-16.5 μm; guiding ring from anterior end = (10.29±0.3) 10.0-10.5 μm; expanded part of pharynx = (471.34±53.3) 426-546 μm; nerve ring from anterior end = (179±12.03) 169-196 μm; neck length = (808±15.15) 751-910 μm; cardia length = (14.03±2.79) 10.0-17.5 μm; prerectum length = (169.05±22.05) 147-191 μm; rectum length = (108.7±3.012) 77-110 μm; spicules length = (84.6±7.22) 75-93 μm; lateral guiding pieces = (22.05±2.44) 19.5-24.5 μm; ventromedian supplement = 1; tail length = (38.5±1.85) 37-41 μm

**Habitat and locality:** Soil around the roots of paddy (*Oryza sativa* L.) from Dirak gate, Lohit district, Arunachal Pradesh.

**Remarks:** Heyns (1965) described *A. probulbum* from South Africa. Later Khan Jairajpuri & Ahmad (1989) recorded this species from Gorakhpur, India. The present specimens conforms well with earlier descriptions except for having smaller ‘a’ value (vs 41-45) in females and shorter body length (vs 3.62-4.66) and smaller “a” value (vs 49-63) in males.