

Dorsal pharyngeal gland nucleus two or more body widths posterior to beginning of pharyngeal enlargement; female tail long filiform .....Hulqinae

## **SUBFAMILY QUDSIANEMATINAE JAIRAJPURI, 1965**

**DIAGNOSIS:** Cuticle smooth or finely striated. Lateral hypodermal chords may be provided with distinct glandular bodies. Lip region set off by constriction or depression. Lips angular or forming flaps arching in ward. Amphids small to large, with stirrup-shaped fovea. Odontostyle cylindrical, dorylaimoid, with wide lumen and aperture. Guiding ring single or 'double'. Odontophore rod-like, with sclerotized basal flanges or knobs. Pharynx cylindroid, muscular; anterior slender part expanding near middle. Cardia hemispheroid to elongate-conoid. Cardiac disc present, may be obscure. Vulva transverse or longitudinal. Female reproductive system mono-opisthodelphic or amphidelphic. Males with well developed arcuate spicules, lateral guiding pieces and few to numerous, spaced or contiguous ventromedion supplements. Tail short, hemispheroid to elongate-conned; similar in sexes.

**Type genus:** *Qudsianema* Jairajpuri, 1965

**Other genera :** *Labronema* Thorne, 1939

*Eudorylaimus* Andrassy, 1959

*Crassolabium* Yeates, 1969

- Ecumenicus* Thorne, 1974  
*Thonus* Thourne, 1974  
*Indokochinema* Darekar & Khan, 1979  
*Pachydorylaimus* Siddiqi, 1983  
*Tylenchodorus* Siddiqi, 1983  
*Labronemella* Andrásy, 1985  
*Allodorylaimus* Andrásy, 1986  
*Epidorylaimus* Andrásy, 1986  
*Microdrylaimus*, Andrásy, 1986  
*Skibbenema* Van Reenen & Heyns, 1986  
*Baqriella* Ahmad & Jairajpuri, 1989  
*Kallidorylaimus* Andrásy, 1989  
*Crassogula* Andrásy, 1991  
*Talanema* Andrásy, 1991  
*Boreolaimus* Andrásy, 1998

### KEY TO GENERA OF QUDSIANEMATINAE

1. Female reproductive system mono-opisthodelphic .....2  
    Female reproductive system amphidelphic .....3
2. Amphids labial in position ..... *Indokochinema*  
    Amphids post-labial in position ..... *Ecumenicus*
3. Odontophore simple rod-like ..... 4  
    Odontophore flanged or with basal knobs .. ..... 17
4. Odontostyle large, guiding ring 'double' .....5  
    Odontostyle small, guiding ring single .....8

5. Lip region with deeply sunken oral field and well separated inner liplets; odontostyle slender ..... *Labronemella*  
 Lip region without deeply sunken oral field, inner liplets not so well separated; odontostyle broad..... 6
6. Vulva longitudinal ..... *Labronema*  
 Vulva transverse ..... 7
7. Anterior part of pharynx strongly muscular; spermatozoa minute, shorter than one-tenth of body width ..... *Crassogula*  
 Anterior part of pharynx, weakly muscular; thin; spermatozoa large, one-fourth to one-fifth of body width ..... *Talanema*
8. Outer margin of lips forming flap over oral area, inner margin of lips sunken ..... *Baqriella*  
 Lips not sunken ..... 9
9. Constriction present between two parts of pharynx, basal bulb bipartite ..... *Skibbenema*  
 Constriction not present between two parts of pharynx; basal bulb not bipartite ..... 10
10. Lips provided with cuticularized pieces ..... *Crassolabium*  
 Lips not provided with cuticularized pieces ..... 11
11. Cardiac disc present ..... *Thonus*  
 Cardiac disc absent ..... 12
12. Tail comparatively long, 4-8 anal body widths ..... 13  
 Tail shorter, 1-3 anal body widths ..... 14
13. Female tail straight; males with one supplement.....  
 ..... *Kallidorlaimus*  
 Female tail ventrally bent; males with 4-9 supplements .....  
 ..... *Epidorylaimus*

14. Body small (>1 mm) pharynx long, almost one-third body length .....*Microdorylaimus*  
 Body long (< 1 mm); pharynx short ..... 15
15. Stoma lining uncommonly wider; anterior sub-ventral pharyngeal gland absent .....*Boreolaimus*  
 Stoma lining usual; anterior sub-ventral pharyngeal gland present..... 16
16. Pre-cloacal space present ..... *Eudorylaimus*  
 Pre-cloacal space absent .....*Allodorylaimus*
17. Odontophore flanged ..... 18  
 Odontophore with three prominent basal knobs  
 .....*Tylenchodorus*
18. Odontostyle thick walled .....*Pachydorylaimus*  
 Odontostyle thin walled .....*Qudsianema*

## GENUS *LABRONEMA* THORNE, 1939

Syn. *Witoldinema* Brzeski, 1960

Thorne (1939) proposed the genus *Labronema* for those species of *Dorylaimus* which possess six enarching lip-flaps over the entrance of stoma, and designated *L. ferox* as the type-species. He (l.c.) also transferred six species from *Dorylaimus* to *Labronema*. Altherr (1950-72), Williams (1959), Geraert (1962), Heyns (1963), Andr assy (1967 & 78), Ferris (1968), Monteiro (1970), Thorne (1974), Ahmad & Jairajpuri (1982), Vinciguerra (1984), Rhaman *et al.* (1988), Khan *et al.* (1989) added species to this genus. Andr assy (1985) transferred four species of *Labronema* to his newly proposed genus *Labronemella* and later in 1991 proposed a new genus *Talanema* to accommodate four species of *Labronema* with transverse vulva.

During course of present study, a population of *Labronema* was collected <sup>from</sup> South India. On detailed study it was found to represent a new species. This is being described in the following:

**DIAGNOSIS:** Body robust, 1.0-4.0 mm long. Cuticle finally streated. Lip region offset by deep constriction, broad and thick; inner flaps arched over vestibular region. Amphids stirrup-shaped, with slit-like aperture. Odontostyle dorylaimoid, with wide lumen and aperture. Guiding ring sclerotized, 'double'. Odontophore rod-like. Anterior portion of pharynx generally strong, muscular, enlarging gradually. Basal expanded portion of pharynx about one-half of total neck length. Cardia small but often elongate-conoid. Vulva longitudinal; vagina notably sclerotized distally. Female reproductive 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

**Other species:** *L. alticola* (Menzel in Hafmanner & Menzel, 1914)

Thorne, 1939

*L. andrassyi* Gagarin, 1992

*L. arenicola* (Altherr, 1958) Andrassy, 1986

*L. baqrii* Khan, Jairajpuri & Ahmad, 1991

*L. bathybium* (Von Daday, 1906) Andrassy, 1960

*L. bicitulum* Furstenberg, Heyns & Swart, 1994

*L. brevicauda* Furstenberg, Heyns & Swart, 1994

*L. chilense* Andrassy, 1967

*L. condemni* (Vanha, 1893) Andrassy, 1986

*L. confusus* (Jana & Baqri, 1983) Andrassy, 1991

*L. corii* (Liebermann, 1928) Andrassy, 1960

*L. czernowitziensis* (Micoletzky, 1922) Thorne,

1939

*L. deorieaensis* Khan, Jairajpuri & Ahmad, 1991

*L. dermatus* (Thorne, 1939) Andrassy, 1986

*L. digiturum* Vinciguerra, 1984

*L. fimbriatum* Thorne, 1939

*L. fluviatilis* Altherr, 1958

*L. glandosum* Rhaman, Jairajpuri, Ahmad & Ahmad,

1988

*L. goodeyi* Altherr & Delamare Deboutteville, 1972

- L. hyalinum* (Thorne & Swarger, 1936) Thorne,  
1939
- L. khazariensis* (chesunov, 1985) Andrásy, 1991
- L. loeffleri* Andrásy, 1978
- L. macrosoma* Alekseev, 1992
- L. malagasi* Furstenberg, Heyns & Swart, 1994
- L. magnum* Altherr, 1972
- L. neopacificum* Rhaman, Jairajpuri, Ahmad &  
Ahmad, 1988
- L. obesum* Thorne, 1974
- L. pacificum* (Cobb, 1906) Thorne, 1939
- L. papillatum* Khan, Ahmad & Jairajpuri, 1994
- L. polonicum* (Brzeski, 1961) Jairajpuri & Ahmad,  
1992
- L. pulechrum* Vinciguerra & Zullini, 1980
- L. rapax* Thorne, 1994
- L. seychellense* Furstenberg, Heyns & Swart, 1994
- L. stechlinensis* Altherr, 1968
- L. thornei* Ferris, 1968
- L. varicaudatum* (Thorne, 1929) Thorne, 1939
- L. virgo* Monteiro, 1970
- L. vulvapapillatum* (Meyl, 1954) Loof & Grootaert,  
1981
- L. mangloreense* sp.n.

***Labronema mangloreense* sp. n.**

(Fig. 31)

**MEASUREMENTS:**

**Paratytype females (n = 5) :** L = 1.63-1.90 (1.76) mm; a = 30-87 (34); b = 4.2-4.9 (4.50); c = 76-85 (80.6); c' = 0.6-0.7 (0.6); V = 51-55 (53); G1 = 16; G2 = 15-17 (16); odontostyle = 21-22 (21)  $\mu\text{m}$ ; odontophore = 25-28 (27)  $\mu\text{m}$ ; neck length = 375-421 (398)  $\mu\text{m}$ ; prerectum = 102-135 (119)  $\mu\text{m}$ ; rectum = 26-42 (34)  $\mu\text{m}$ ; tail = 22-23 (220)  $\mu\text{m}$ ; ABD = 29-35 (32)  $\mu\text{m}$ .

**Holotype female :** L = 1.82 mm; a = 37; b = 4.6; c = 79; c' = 0.7; V = 54; G1 = 16, G2 = 17; odontostyle = 21  $\mu\text{m}$ ; odontophore = 25  $\mu\text{m}$ ; neck length = 397  $\mu\text{m}$ ; prerectum = 135  $\mu\text{m}$ ; rectum = 26  $\mu\text{m}$ ; tail = 23  $\mu\text{m}$ ; ABD = 32  $\mu\text{m}$ .

**Paratype males (n = 3) :** L = 1.66-2.00 (1.83) mm; a = 29-32 (31); b = 4.2-4.9 (4.5); c = 65-74 (69.8); c' = 0.6-0.7 (0.7); T = 57-62 (60); odontostyle = 19-22 (21)  $\mu\text{m}$ ; odontophore = 28-29 (28)  $\mu\text{m}$ ; neck length = 373-424 (399)  $\mu\text{m}$ ; spicules = 49-52 (51)  $\mu\text{m}$ ; lateral guiding pieces = 18-20 (19)  $\mu\text{m}$ ; ventromedian supplements = 16; Prerectum = 190-216 (203)  $\mu\text{m}$ ; tail = 25-27 (26)  $\mu\text{m}$ ; ABD = 36-45 (41)  $\mu\text{m}$ .

**DESCRIPTIONS :**

**Female:** Body slightly ventrally curved upon fixation, gradually tapering towards both extremities. Cuticle finely striated, 3-5  $\mu\text{m}$  thick

at mid-body, 7-8  $\mu\text{m}$  on tail. Lateral chords one-fourth to one-fifth of body width at mid-body. Lateral, dorsal and ventral body pores indistinct.

Lip region well offset by a constriction, 15-16  $\mu\text{m}$  or about one-third of body width at base of neck region, wider than adjoining body. Lips well developed, angular, separated. Amphids stirrup-shaped, its aperture 8-9  $\mu\text{m}$  or about half of corresponding body width. Odontostyle 1.3-1.4 lip region widths long, its aperture about one-third of its length. Guiding ring 'double' 10-13  $\mu\text{m}$  or 0.6-0.8 lip region width from anterior end. Odontophore simple, rod-like, 1.2-1.3 times the odontostyle length. Nerve ring at 142-152  $\mu\text{m}$  from anterior end of body. Expanded portion of pharynx occupying about 42-45% of total neck length. Cardia long, conoid, 27-35  $\mu\text{m}$ . Location of pharyngeal gland nuclei and their orifices are as follows:

DO = 56-58 %	$S_1 N_1 = 73-74 \%$	$S_2 N = 88-90 \%$
DN = 59-61%	$S_1 N_2 = 78-79 \%$	$S_2 O = 90-91 \%$
DO-DN = 2.60-2.97 %		

Reproductive system amphidelphic. Vulva a longitudinal slit; vagina sclerotized distally, 28-42  $\mu\text{m}$  or about half of the corresponding body width deep. Oviduct-uterus separated by a weak sphincter. Prerectum 3.4-3.8 anal body widths long. Rectum 1.0-1.2 anal body widths long. Tail short, hemispheroid, 0.6-0.7 anal body width long, with one or two caudal pores on each side.

**Male:** Supplements, an adanal pair and 16 regularly spaced ventromedians. Spicules 1.1-1.3 anal body widths long. Lateral guiding

pieces simple, rod-like. Prerectum 4.8-5.2 anal body widths long. Rectum 1.2-1.3 anal body widths long. Tail bluntly rounded, 0.6-0.7 anal body width long, with a pair of caudal pores on each side.

**TYPE HABITAT AND LOCALITY:** Soil around roots of coconut (*Cocos nucifera* L.) from Kudupu, Manglore district, Karnatka, India. Collected on January 6, 1997.

**TYPE SPECIMENS:** Holotype female and a paratype male on slide *Labronema mangloreense* sp.n./1; paratype females and males on slides *Labronema mangloreense* sp.n./2-5; deposited in the nematode collection of the Department of Zoology, Aligarh Muslim University, Aligarh.

**DIAGNOSIS AND RELATIONSHIP:** *Labronema mangloreense* sp.n. is characterized by having 1.63-1.90 mm long body, lip region well offset, 21-22  $\mu\text{m}$  long odontostyle, longitudinal vulva, short hemispheroid tail and males with 49-52  $\mu\text{m}$  long spicules and 16 ventromedian supplements.

*Labronema mangloreense* sp.n. comes close to *L. glandosum* Rahman *et al.*, 1987 and *L. neopacificum* Rahman *et al.*, 1987 but differs from the former in having slightly longer and slender body, shorter odontostyle and pharynx, slightly shorter tail and longer female prerectum (L = 1.41-1.58 mm; a = 19-22 ; c = 59-66; V = 53-54; odontostyle 32-35  $\mu\text{m}$  prerectum 60-86  $\mu\text{m}$  in *L. glandosum*). From *L. neopacificum* it differs in having smaller body size, in the shape of lip

region, shorter odontostyle and odontophore, less V value, shorter spicules and lesser number of ventromedian supplements (L = 2.19-2.60 mm; a = 30-35; c = 81-90; V = 55-61; odontostyle 32-36  $\mu\text{m}$ ; odontophore = 50-51 $\mu\text{m}$ ; spicules 65-71  $\mu\text{m}$  and ventromedian supplements 21-23 in *L. neopacificum*).

## GENUS *TALANEMA* ANDRÁSSY, 1991

Andrássy (1991) proposed the genus *Talanema* to accommodate the species of *Labronema* having transverse vulva and differentiated it from *Labronema* in having a sub-digitate tail and non-contiguous supplements in addition to having a transverse vulva. The genus *Talanema* differs from *Takamangai* yeates, 1967 in having a 'double' guiding ring, a sub-digitate tail and higher number of supplements. Andrássy transferred four species previously described under *Labronema* to this genus. None of the above three characters used by Andrássy to differentiate *Talanema* from *Labronema* are of generic status in dorylaims. Species with both transverse as well as longitudinal vulva are common in *Mesodorylaimus*, *Eudorylaimus*, *Makatinus* etc and we still have species under *Labronema* (*L. nepalense*) with transverse vulva. The arrangement of supplements and the tail shape are also highly variable features in dorylaims.

Though the proposal of *Talanema* is not based on very sound characters, it is here accepted as a valid genus for the time being.

**DIAGNOSIS:** Body almost straight, 0.9-1.8 mm long. Cuticle smooth; sub-cuticle finely striated. Lip region well offset, lips separate. Amphids stirrup-shaped. Odontostyle 19-27  $\mu\text{m}$ , as long as or somewhat longer than labial width, aperture occupying about one-third its length. Guiding ring 'double'. Odontophore rod-like. Pharynx enlarges near middle. Vulva 50-60% of body length with sclerotized lips. Prerectum comparatively short. Female reproductive system

amphidelphic. Males with dorylaimoid spicules. Lateral guiding pieces and numerous contiguous ventromedian supplements. Tail hemispheroid, digitate with numerous caudal papillae on each side; similar in sexes.

**Type species:** *Talanema digitatum* (Sukul, Das & Mitra, 1975)

Andrássy, 1991

**Other species:** *T. mauritiense* (Williams, 1959) Andrássy, 1991

*T. pararapex* (Ahmad & Jairajpuri, 1982) Andrássy,  
1991

*T. pygmaeum* (Heyns, 1963) Andrássy, 1991

### ***Talanema mauritiense* (Williams, 1959) Andrássy, 1991**

#### **MEASUREMENTS:**

##### **Goa populations:**

**Females (n = 4):** L = 1.45-1.55 (1.50) mm a = 24-30 (27); b = 4.8-5.2 (5.0); c = 62.3-92.2 (77.2); c' = 0.6-0.9 (0.7) V = 49-50 (49); G1 = 21-24 (23); G2 = 24-26 (25); odontostyle = 20-22 (21)  $\mu\text{m}$ ; odontophore = 26-27 (26)  $\mu\text{m}$ ; neck length = 293-303 (298)  $\mu\text{m}$ ; prerectum = 83-96 (90)  $\mu\text{m}$ ; rectum = 37-49 (43)  $\mu\text{m}$ ; tail = 17-25 (21)  $\mu\text{m}$ ; ABD = 25-28 (27)  $\mu\text{m}$ .

**Males (n = 4):** L = 1.23 -1.30 (1.26) mm; a = 25-34 (30); b = 4.2-4.7 (4.4); c = 58-65 (62); c' = 0.6-0.7 (0.6); T = 39-47 (43); odontostyle = 20-21 (20)  $\mu\text{m}$ ; odontophore = 25-27 (26)  $\mu\text{m}$ ; neck length = 275-293 (284)  $\mu\text{m}$ ; spicules = 46-51 (49)  $\mu\text{m}$ ; lateral guiding pieces = 18-20

(19)  $\mu\text{m}$ ; ventromedian supplements = 20-22 (21); prerectum = 112-155 (134)  $\mu\text{m}$ ; tail = 20-22 (21)  $\mu\text{m}$ ; ABD = 26-32 (29)  $\mu\text{m}$ .

**Kerala population:**

**Females (n = 4):** L = 1.26 -1.43 (1.34) mm; a = 24-28 (26); b = 4.4-4.8 (4.6); c = 55-62 (59); c' = 0.7-0.8 (0.7); V = 49-52 (51); G1 = 20-23 (22); G2 = 22-27 (25); odontostyle = 20-22 (21)  $\mu\text{m}$ ; odontophore = 24-25 (24)  $\mu\text{m}$ ; neck length = 286-296 (291)  $\mu\text{m}$ ; prerectum = 74-84 (79)  $\mu\text{m}$ ; rectum = 37-39 (38)  $\mu\text{m}$ ; tail = 22-24 (23)  $\mu\text{m}$ ; ABD = 25-31 (28)  $\mu\text{m}$ .

**Males (n = 3):** L = 1.27-1.40 (1.33) mm; a = 24-26 (25); b = 4.5- 4.6 (4.5); c = 55-61 (58); c' = 0.7-0.8 (0.7); T = 60-69 (65); odontostyle = 21-22 (21)  $\mu\text{m}$ ; odontophore = 25-26 (25)  $\mu\text{m}$ ; neck length = 282-300 (291)  $\mu\text{m}$ ; spicules = 53-57 (55)  $\mu\text{m}$ ; lateral guiding pieces = 19-20 (19)  $\mu\text{m}$ ; ventromedian supplements = 21-22 (21); prerectum = 154  $\mu\text{m}$ ; tail = 23  $\mu\text{m}$ ; ABD = 28-31 (30)  $\mu\text{m}$ ;

**HABITATS AND LOCALITIES:**

1. Soil around roots of paddy (*Oryza sativa* L.) from Margoa, Goa, India. Collected on January 14, 1997.
2. Soil around roots of teak (*Tectona grandis*) from periyar forest, Thekkadi district, Kerala, India. Collected on April 19, 1995.

**REMARKS :** The present population of *T. mauritiense* conforms well the earlier description of the species provided by Williamis (1959); Ahmad & Jairajpuri (1982) and Botha & Heyns (1990).