



A NEW DISTRIBUTIONAL RECORDS OF FREE – LIVING MARINE NEMA TODES FROM INDIAN WATERS III

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Abstract :

A Free living marine nematodes are found in higher abundant taxan in the benthic realm. Among these marine nematodes community chromadorids were the most dominant order which are collected from the south continental shelf area of indian during FORV 'SagarSampda' Cruise no 260 consisting 91 out of 192. Among these following six namely honestus. Micro laminus , conothelis, Micro laminus rob ustides , Leptoleimus, ampullacesus, Elegans and laptolaimuspapilliger Corning under family microlaimindais and the laptolaitmodae are found in new distributional records for the Indian water.

Key words:-Free- Living marine nematodes, Microlaimidae Lpto Laimidae, Continental Shelf.

Introduction:-

The total body length described was 0.9- 1.3mm and tail length was 9.5 a.b.d. in male the body length of the specimen studied at present was found larger being 0.8 – 1.4mm and the tail length 8.2 – 8.3 a.b.d this is the first record of the species from the Indian water. Free living marine nematodes are usually the most abundant metazoans inhabiting marine benethic ecosystems often representing more than 90% of the benthic meiofauna. This is an important feature of nematode population is the large number of species present in any habitat [1] 2006

However most of a few studies about meiobenthos in the indian waters quanor live and quantities aspects [2] 1996, 2007 The samples were washed though a set of 0.5 mm and 0.05mm sieves in laboratory.

The efficacy of technique is around 95% [3]

The meiofaunal organism were done under a stereo micro scope, the sorted nematodes were mounted on to glass slides using the formalin - ethanol glycerol following vincex[4]

I deification of nematodes done to highest taxonomic level .possible using the compound microscope [5]

Results :-

All over 4235 nematode specimens were isolated and 192 species were identified. Among these, six species belonging to the order Enoplida were found to be new distributional records from the Indian waters. Detailed systematic account, material examined (number of specimens, place, depth and date of collection), brief description, feeding type, habitat and geographical distribution besides remarks of the above six species are given below.

S.no	Data	Object	Year
1	Phylum	Nematoda Rudolphi	1808
2	Class	Adenophorea	1905
3	Order	Enoplida Filipjev	1929
4	Family	Thoracostomopsidae Filipjev	1927
5	Genus	Enoplolaimus DeMan	1893
6	Species	1. Enoplolaimus longicaudatus	1914
7	Synonym	Enoplus longicaudatus Southern	1914
8	Material examined	females from Karaikkal at 150m depth	(20.12.2008).

Remarks

The specimens examined and agree with the earlier description, except for the smaller body size. The total body size described as 2.9 -3.6 mm and maximum body diameter 50-76 μ m. The tail length was between 9.5 and 10.3 a.b.d.[7]

This is the first record of this species from the Indian waters.

S.no	Data	Object	Year
1	Family	Anticomidae Filipjev	1918
2	Genus	Anticoma Bastian	1865
3	Species	2. Anticomaeberthi Bastian	1865
4	Family	Thoracostomopsidae Filipjev	1927

Description

Body length 1 -1.4 mm. Maximum body diameter 39-43 μm . Cuticle with fine transverse striation. Three fairly low flap-like lips with no internal striations. Six long cephalic setae equal, about 0.8 h.d. (head diameter), four shorter subcephalic setae about 0.4 h.d. Six cervical setae shorter than the cephalic setae. Mandibles typical, appearing as two lateral rods united by an anterior curved bar. Buccal cavity narrow and tubular. Oesophagus cylindrical (197 - 206 μm). Ovaries symmetrical paired and reflexed. Tail very long and filiform about 9.1 a.b.d. (anal body diameter). Vulva present at 58-61% of body length (Fig.1.A-C).

Male: Not found

Feeding type: The specimens showed large jaws. According to the classification of buccal cavity by Wieser (1953), this species is a predator (2B).

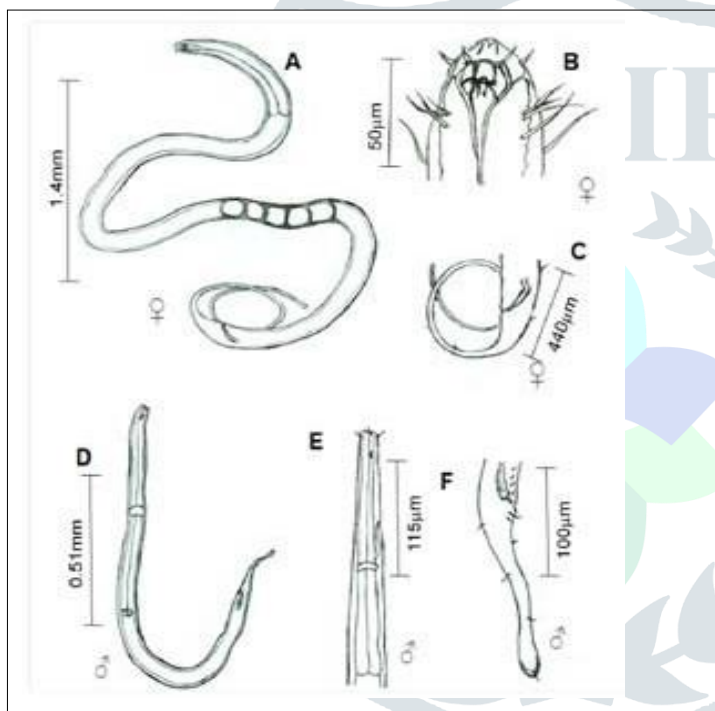


Fig.1. A-C: *Enoplolaimus longicaudatus* A) entire female, B) female head, C) female tail; D-F: *Anticoma eberthi* D) Entire male, E) male head, F) male tail

Diagnostic characters:

Body elongated. Buccal cavity small and conical. Tubular precloacal supplement. Excretory pore well posterior to cervical setae. Spicules long.

Description

Body length 0.51 mm. Maximum body diameter 21 μm . Cuticle smooth without any striations. Six rounded lips. Six cephalic setae 18 μm . Cervical setae commence 0.7 h.d. from anterior. Amphid pocket-like. Buccal cavity small Conical shaped. Oesophagus narrow tubular. Excretory pore well posterior to cervical setae. Elongated and conico-cylindrical tail with swollen tip. Tail 2.8 a.b.d. long. Spicules 1.3 a.b.d. long. Supplements

present in front of cloaca (Fig.1.D-F).

Female: Not found

Description

Body length 1.5mm. Maximum diameter 20 μ m. Cuticle smooth. Six low rounded lips each with a papilliform sensillum. Six long-21 μ m (1.3 h.d.) and four short-12 μ m (0.7 h.d.) cephalic setae. Cervical and somatic setae absent. Amphid indistinct. Buccal cavity in two parts, separated by cuticularised band: three teeth present in posterior part, the right subventral being the biggest than the left sub ventral and dorsal. Oesophagus cylindrical. Tail about 4.9 a.b.d., cylindrical with swollen tip. Caudal glands extend well anterior to anus. Spicules unequal: right 120 μ m (6.8 a.b.d.), left 69 μ m (4 a.b.d.). Gubernaculum absent. Copulatory bursa present consisting of two longitudinal wings of cuticle occupying anterior third of tail. Paired setae present at both ends of bursa and a pair of supporting rods about one-third of its length from cloaca (Fig.2.A-C).

Female: Not found

Feeding type: The specimens showed large teeth. According to the classification of buccal cavity by Wieser (1953), this species is a predator (2B).

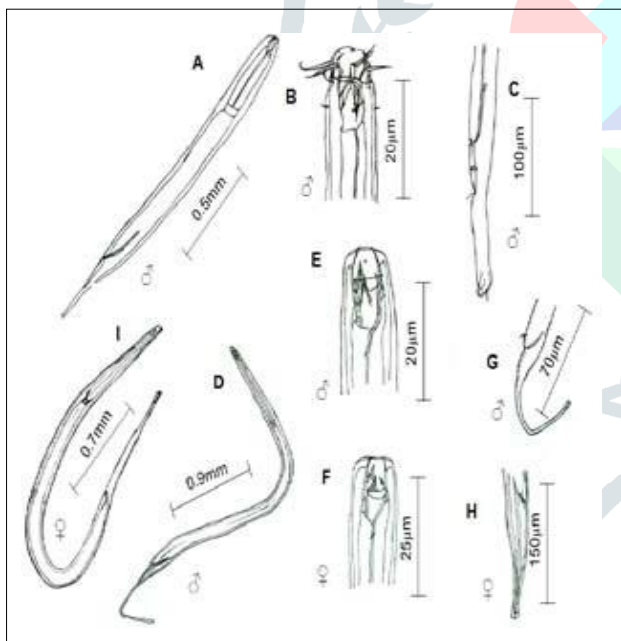


Fig.2.A-C: *Oncholaimellus calvadosicus*; A) entire male, B) male head, C) male tail; D-I: *Viscosia glabra*; D) entire male, E) male head, F) female head, G) male tail, H) female tail I) entire female

The first record of the species from the Indian waters.

Family: Oncholaimidae Filipjev, 1916
 Genus: Viscosia De Man, 1890
 Species: 4. Viscosia glabra (Bastian, 1865)

DeMan ratio:	a	b	c
Male:	41.68±0.67 (40.81-42.28)	4.67±0.23 (4.22-5.02)	5.41±0.28 (4.96-5.89)
Female:	43.12±0.44 (42.44-43.66)	4.92±0.14 (4.66-5.04)	5.89±0.21 (5.44-6.10)

Remarks

The specimens examined conform well to the earlier description, except for the larger body size. The total body length described was 1.9 mm and tail length was 10.5a.b.d in male (Platt and Warwick, 1983) and in female the body length was 1.6 mm and tail length 9.3a.b.d. (Gerlach and Riemann, 1974). The body length of the specimen studied at present is larger being 1.9-2.2 mm and the tail length 8.9-11.8 a.b.d. in male and 1.7-2.1 mm body length and tail length 9.1- 10.7a.b.d female. In both sexes, the width of amphid is lesser than the previous description. This is the first record of the species from the Indian waters.

Family: Oncholaimidae Filipjev, 1916
 Genus: Viscosia De Man, 1890
 Species: 5.Viscosia langrunensis (DeMan, 1890)
 Synonym: Oncholaimus langrunensis Deman, 1980

Description

Body length 1.6-2.1 mm in male, 1.2-1.8 mm in female. Maximum diameter 28-34 µm in male and 26-30 µm in female. Cuticle smooth without any striation and dots. Six rounded lips. Cephalic setae 3-4 µm (0.3 h.d.) in male and 2-4 µm (0.2 h.d.) in female. Pocket-like amphids 6-8 µm wide in male and 6-7 µm wide in female. Dorsal tooth and smaller subventral tooth extend anterior to middle of buccal cavity, both single tipped. Oesophagus cylindrical, 276-288 µm in male and 218-242 µm in female. Tail conico-cylindrical with slightly distended tip, 131-142 µm in male and 122-139µm in female. Spicules 20-23µm. No Gubernaculum. Ovaries paired, equal, opposed, reflexed. Vulva present at 60-63% of body length (Fig.3.A-F).

Feeding type: The specimens showed large teeth. According to the classification of buccal cavity by Wieser (1953), this species is a predator (2B).

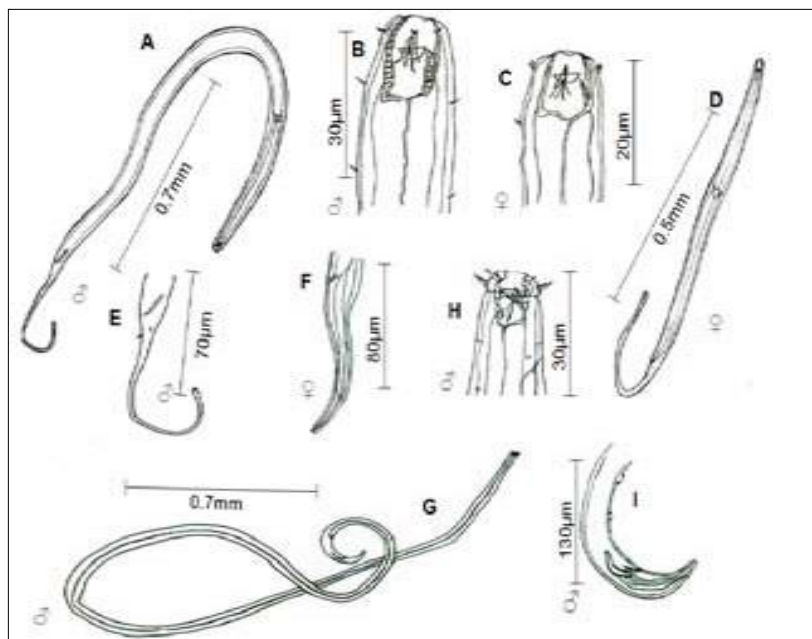


Fig.3.A-F: *Viscosia longrunensis*; A) entire male, B) male head, C) female head, D) female head, E) male tail, F) female tail;

G-I: *Eurystomina terricola*; G) entire male H) male head, I) male tail

Conclusion

At last we find that the occurrence of six species (*Enoplolaimus longicaudatus*, *Anticom aeberthi*, *Oncholaimellus clavadosicus*, *Viscosia glabra*, *Viscosia langirunensis* and *Eurystomina terricola*) of free-living marine nematodes belonging to four families under order Enoplida is reported for the first time from the continental shelf of southeast coast of India from Indian water. So far, around 125 species of nematodes have been reported from various regions including estuaries, backwaters, lagoons and mangroves on the east and west coasts of India (Timm, 1961, 1967a, 1967b; Gerlach, 1962; Rao and Ganapathi, 1968; Krishnamurthy et al., 1984; Roa, 1986; Sinha et al., 1987; Sultan Ali et al., 1998; Nanajkar and Ingole, 2007; Anila Kumary, 2008). Eldose (2008) recorded 79 species from the continental slope of southeast coast of India and Mondal (2009) 76 species in the inshore waters (up to 25 m depth) of the Parangipettai waters. Sajan and Damodaran (2007) and Sajan et al. (2010) reported 154 species in the western continental shelf of India. However none of these 6 species have been reported earlier from Indian waters.

Hence: We concluded that the above six free-living marine nematode species were recorded first time ever in Indian waters. Until now, around 125 free-living marine nematodes were identified in Indian waters and 8921 species were recorded globally (NeMys data base Steyaert et al., 2005). Recently free-living marine nematodes are focused as indicators of aquatic pollution and aquatic toxicological studies worldwide. Therefore, these new recorded species might be useful for future studies in Indian waters.

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