CIBTech Journal of Zoology ISSN: 2319–3883
Online, International Journal, Available at http://www.cibtech.org/cjz.htm
2026 Vol.15, pp.85-111/Satyanarayana and Gowri
***Research Article** (Open Access)*

DIVERSITY AND DISTRIBUTION OF FREE-LIVING MARINE NEMATODES FROM CHIDAMBARANAR PORT, BAY OF BENGAL, INDIA

[1]Satyanarayana A and [2]Gowri Devi K*
[1]Department of Zoology, Andhra University, Visakhapatnam, 530003, Andhra Pradesh, India
[2]Swami Shraddhanand College, University of Delhi, Alipur, Delhi -110036 India
**Author for Correspondence: gowri@ss.du.ac.in*

ABSTRACT
The present investigation is undertaken to study the abundance of nematodes along the V.O. Chidambaranar Port, East Coast of India between latitudes 80 44' to 80 45' N and longitudes 780 12' to 780 13' E. The present study provides information about the new reports of nematodes along the V.O. Chidambaranar Port, East Coast of India between latitudes 80 44' to 80 45' N and longitudes 780 12' to 780 13' E. In the present study, altogether 161 species represented by 66 genera and 27 families, 3 orders were identified from the V.O. Chidambaranar Port, out of which 25 species were found to be new reports from the Indian waters. Since nematodes constituted one of the most important faunal groups in view of their numerical abundance and species richness, they were examined and studied in detail in the study area.

Keywords: *Marine Nematodes, Chidambaranar port, Enoplus schulzi*

INTRODUCTION

Marine nematodes were thought to be of ecological importance and sensitive bioindicators of pollution because they are very diverse taxonomically and occur everywhere, usually in great numbers and often exceeding other taxa by orders of magnitude (Croll and Mathew, 1977; Platt *et al.,* 1984). In part, there were problems with nematode identification. However, there are valuable illustrated keys at present to simplify the identification of free-living nematodes (Platt and Warwick, 1983, 1988; Warwick *et al.,* 1998). In addition, there are strong indications that pollution effects are detectable at even higher taxonomic levels (Warwick, 1988b). It has further been observed that to be of value in a pollution assessment context it may not be necessary to work at the species level (Warwick, 1988b; Heip *et al.,* 1988). Many studies of meiofauna have shown that the dominant taxa are usually nematodes and harpacticoid copepods (Dye and Furstenburg, 1981; Heip *et al*., 1985; Danovaro *et al*., 2000; Giere, 2008).

The phylum Nematoda is highly diverse, present in all types of environments and considered as one of the most successful phyla on Earth (Lambshead and Boucher, 2003; Lambshead *et al.,* 2004). An important feature of nematode population is the large number of species present in any habitat, often an order of magnitude higher than any other group (Balsamo *et al*., 2010, Semprucci *et al*., 2011, 2014 and 2015). However, lack of taxonomic studies on free living marine nematodes mainly due to their broad distribution and high diversity along with small size and superficial morpho-taxonomy has resulted in knowledge gap globally (Coomans, 2002; Bhadury *et al*., 2006). The knowledge on free-living marine nematodes, in particular from tropical regions, is generally very sparse. Along the coastal waters of India, continental shelf regions seem to harbor fairly diverse number of free-living marine nematode species as revealed by some studies undertaken over the last few years (Sajan and Damodaran, 2007; Ansari *et al*., 2012a). Although free living marine nematodes comprise a large fraction of marine benthic communities, to date only limited studies have been undertaken on qualitative and quantitative aspects of meiobenthos

in Indian waters (Nanajkar and Ingole, 2007; Sajan and Damodaran, 2007; Anila Kumary, 2008; Sajan *et al.*, 2010; Ansari *et al.,* 2012a,b, 2014, 2015). As far as morpho-taxonomy is concerned, the available information from Indian coastal ecosystems is very meager (Timm 1961, 1967; Ali *et al.,* 1998; Chinnadurai and Fernando 2006a, b; Annapurna *et al.,* 2012; Ansari *et al*., 2012c, 2013a, b; Vijayabhanu *et al.,* 2013; Annapurna *et al.,* 2015, Naveen *et.al*., 2016). At the same time, only a single study has attempted to quantify diversity of marine nematodes from the Indian coast based on molecular techniques and this study highlighted the need to undertake detailed studies involving morpho-taxonomy of free living marine nematodes (Kumar *et al*., 2014).

Free-living nematodes play an important role in the structure and functioning of marine ecosystems (Heip *et al.,* 1985; Snelgrove *et al.,* 1997; Gray and Elliot, 2009) and constitute, in terms of abundance, a major component of the meiobenthos in soft bottoms (Higgins and Thiel, 1988). The rich populations of nematodes inhabiting all soft marine sediments on the earth can substantially affect ecological processes such as regeneration of nutrients, transfer of energy to higher levels in the benthic food webs and bioturbation of sediments (Giere, 2008). Thus, the understanding of the structure and functioning of benthic ecosystems encourages the investigation of the nematode assemblages. The ecology and taxonomy of free-living marine nematodes cover a huge amount of information mainly related to temperate ecosystems.

Nematodes are the most abundant metazoan organisms in the world. The marine free-living forms inhabit all of the world's seabed habitats in great numbers. In anyone habitat they usually have more species than any other major taxon, usually by an order of magnitude. This shows the importance of nematodes in the economy of the sea bed (Platt and Warwick, 1980). Studies of nematodes from major coasts of developed countries are available and understood. Nevertheless, in Indian waters, the studies are limited to their quantitative aspects only. As far as morpho-taxonomy is concerned, the available information from Indian coastal ecosystems is very meager (Timm, 1961, 1967; Ali *et al*., 1998; Chinnadurai and Fernando, 2006a, b; Sajan and Damodaran, 2007; Annapurna et al., 2012; Vijayabhanu et al., 2013, Annapurna et al., 2015, Naveen *et al.,* 2016, Ansari *et al*., 2012c, 2013a, b). At the same time, only a single study has attempted to quantify diversity of marine nematodes from the Indian coast based on molecular techniques and this study highlighted the need to undertake detailed studies involving morpho-taxonomy of free living marine nematodes (Kumar *et al.,* 2014).

MATERIALS AND METHODS

Study area

V.O.Chidambaranar Port, formerly Tuticorin Port, is one of the 12 major ports in India, the second-largest all weather port in Tamil Nadu and fourth-largest container terminal in India, is situated at Tuticorin, (Tamilnadu, South India) located 550km south of Chennai and 125km north of Cape Camorin , on the East Coast of India. It was declared as a major port on 11 July 1974 under the Major Port Trust Act, 1963. V.O.Chidambaranar Port is an artificial port. After the completion of Sethusamudram shipping canal project, V.O.Chidambaranar Port will become India's premier port and one of the major ports of Asia equal to Port of Singapore. V.O.Chidambaranar Port is situated 607 kms south of Chennai (Lat. 8°45'-9°00' N and Long. 78°15' E) on the eastern coast of southern Tamil Nadu. There is a thermal power plant on the coast with a generating capacity of 3 x 600 MW; V.O.Chidambaranar Port registered a growth rate of 12.08 per cent, crossing 10 million tons from 1 April to 13 September 2008, surpassing the corresponding previous year handling of 8.96 million tons. It has services to USA, China, Europe, Sri Lanka and Mediterranean countries. The Coast Guard Station V.O.Chidambaranar Port was commissioned on 25 Apr 1991 by Vice Admiral SW Lakhar, NM, VSM the then Director General Coast Guard. The Station Command, Coast Guard Station V.O.Chidambaranar is located at V.O.Chidambaranar Port under the operational and administrative control of the Commander, Coast Guard Region (East), Chennai. The study area, V.O. Chidambaranar port, the 10th Major Port, is a modern all weather port in

the Gulf of Mannar (8º44'53.82"N-Latitude, 78º12'15.77'longitude) in the south east coast of India and is managed by VO Chidambaranar Port Trust (VOCPT). It is 129 nautical miles from the international mainline shipping route connecting the far east with the western region. The port is busy with year round heavy traffic by a number of ships and other mechanized boats.

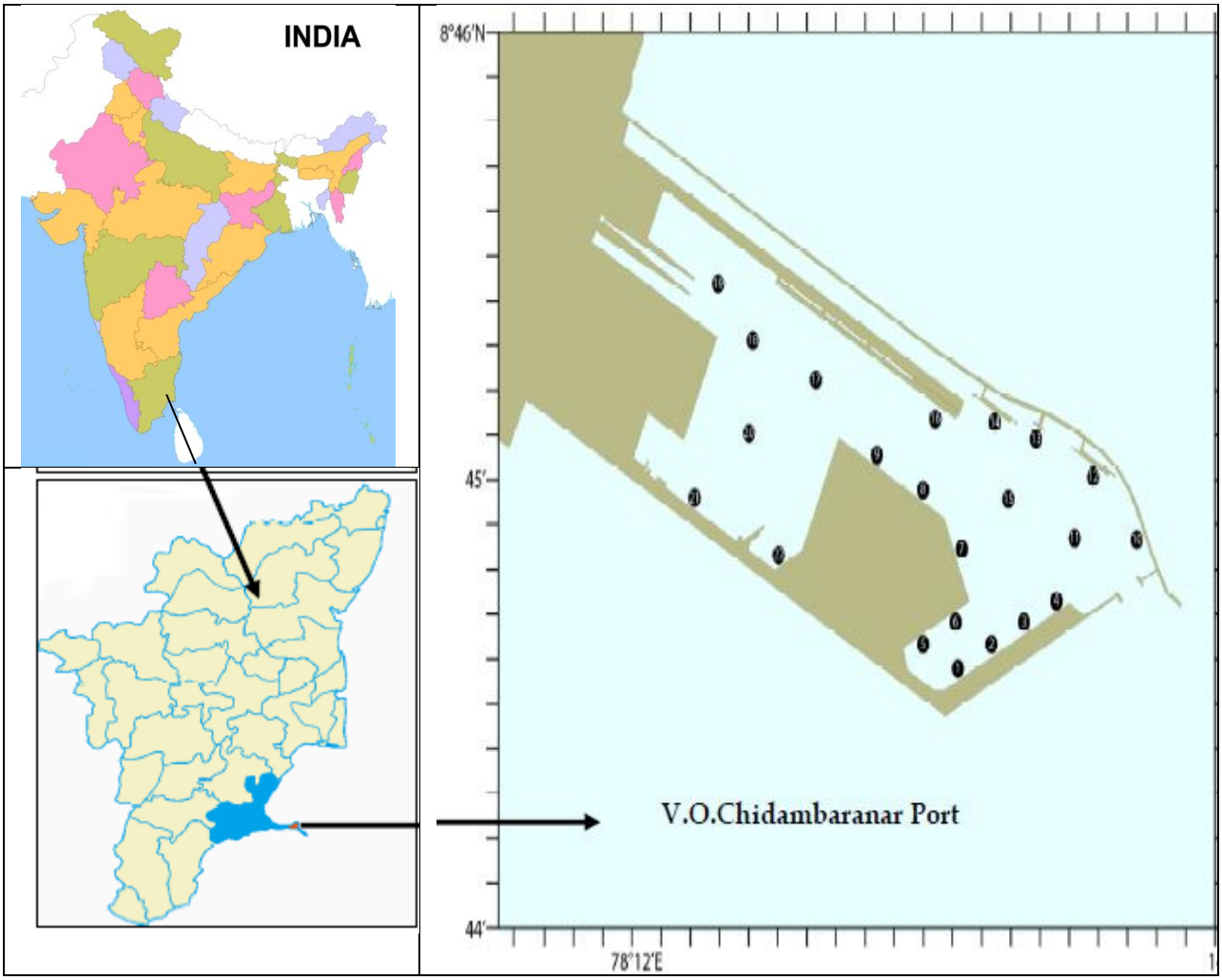

Figure 1: Schematic map of the sampling stations of V.O. Chidambaranar Port

Sampling
Samples were taken from the 22 predetermined (GPS fixed) locations in the V.O. Chidambaranar Port (Table 1). The observations (384 samples) were made during four seasons namely monsoon season (July 2012), post-monsoon (October 2012), cold weather season (December 2012) and pre-monsoon (March 2013) between latitudes 8° 44' N-8° 45' N and longitudes 78°12' E - 78°13' E at 22 GPS fixed locations using a Van Veen grab having an area of 0.1m2. From these, sub samples were collected at each location using a 10 cm long glass corer (3.6cm dia.). The samples were anaesthetized with $MgCl_2$ and preserved in 4% buffered formalin. Triplicate core samples were processed separately in the laboratory and data were pooled for analyses. About 50 g of sediment was sub-sampled from each grab sample for the analysis of

sediment texture and organic matter. Sediment samples were oven-dried (at 60 0C) and stored for further analysis. At each sampling location, bottom water temperature, dissolved oxygen, salinity, pH, sediment texture and organic matter were measured according to standard protocols (Holme, and McIntyre, 1984).

Sample collection
Biological observations included collection of quantitative meiobenthic samples. A Van Veen grab (0.1 m2 Hydrobios, Kiel, Germany) was used to collect the sediment samples. At each station, a glass corer (3.6 cm inner diameter) was used for collecting sediment samples of 10 cm long cores from grab (Van Veen grab, 0.1m²) hauls. The Van Veen grab has an opening lid at the top, which facilitates the core sample to be taken out without disturbing the sediment. Replicate sub samples were collected from each haul. The samples were in Toto transferred to polythene containers, labeled ((depth/location/date)) and material preserved in 4% formalin and Rose Bengal for further examination. All samples were labeled (depth/location/date) and stored for further analysis.

Table 1: Station locations of V.O.Chidambaranar Port.

S.No	Name of station	Depth	Latitude	Longitude
1	TNVOCPB-1	10.8	8°44'35"N	78°13'19"E
2	TNVOCPB-2	10.8	8°44'38"N	78°13'26"E
3	TNVOCPB-3	11.2	8°44'38"N	78°13'30"E
4	TNVOCPB-4	12.5	8°44'45"N	78°13'40"E
5	TNVOCPB-5	10.8	8°44'38"N	78°13'15"E
6	TNVOCPB-6	10.6	8°44'42"N	78°13'19"E
7	TNVOCPB-7	15.2	8°44'57"N	78°13'24"E
8	TNVOCPB-8	15.1	8°44'00"N	78°13'12"E
9	TNVOCPB-9	15.3	8°45'03"N	78°13'01"E
10	TNVOCPB-10	No sample		
11	TNVOCPMP-1	12.8	8°44'53"N	78°13'44"E
12	TNVOCPCJ-1	15.2	8°45'03"N	78°13'51"E
13	TNVOCPOJ	15.3	8°45'11"N	78°13'37"E
14	TNVOCPCJ-2	14.4	8°45'08"N	78°13'31"E
15	TNVOCPMP-2	15.2	8°45'03"N	78°13'19"E
16	TNVOCPNCB-1	15	8°45'11"N	78°13'19"E
17	TNVOCPMP-3	6.3	8°45'14"N	78°12'50"E
18	TNVOCPMP-4	4.2	8°44'18"N	78°12'39"E
19	TNVOCPMP-5	3.7	8°45'25"N	78°13'32"E
20	TNVOCPMP-6	3.6	8°45'11"N	78°13'33"E
21	TNVOCPLJ	4.2	8°45'00"N	78°13'25"E
22	TNVOCPSB-1	4.8	8°45'53"N	78°13'39"E

Sample processing
At the laboratory, the sediment samples were then processed through a set of two sieves; the upper one of 500 µ and the lower with 42 µ mesh size. Residue retained over the 42 µ sieve was back washed into a glass container and the same preserved in 4% neutral formalin. In some cases, Rose Bengal was used as stain prior to sorting and enumeration.

The general methodology was that the residue over the 42 µ sieve was taken into a 1000 ml beaker and filled with filtered seawater. The diluted sample was elutriated. The supernatant was passed through a sieve of 42µ. The meiobenthos retained on this sieve was washed into a 250 ml glass beaker. Meiobenthos in an aliquot sample was taken in a petri dish and enumerated group wise using a binocular microscope. Taxonomic classification of constituent species was carried out based on standard literature (foraminifera- Ganapati and Satyavati, 1958; Vedantam and Subba Rao, 1970; Bock *et al.,* 1986; copepoda-Lang, 1965; ostracoda-Morkhoven, 1962-63; nematoda- Wieser, 1959; Platt *et al.,* 1998; The Darwin Nematode Electronic Key of The Plymouth Marine Laboratory and Natural History (Museum).
For the identification of nematodes glycerin slides were prepared and observed with the help of a ZEISS binocular stereoscopic microscope, Japan. The total number of organisms in the sample represented by different phyla was expressed in numbers per $10cm^{-2}$. Biomass of each species was determined from volume calculations. For each species the length*maximum width squared (in mm) was calculated and multiplied by a conversion factor to give body volumes in ml. For nematodes a common factor of 530 was applied (Warwick and Price, 1979).

RESULTS AND DISCUSSION

Species composition and abundance

In the present study, altogether 161 species represented by 66 genera and 27 families were encountered. Since nematodes constituted one of the most important faunal groups in view of their numerical abundance and species richness, they were examined and studied in detail in the study area.

Families

Altogether 27 families were identified from 4 seasons (monsoon, postmonsoon, cold weather season and pre-monsoon) in the V.O.Chidambaranar Port, of which only 12 families had relative abundance of ≥1.
Overall, dominant families encountered include Comesomatidae (31.99%) followed by Linhomoeidae (17.72%), Leptolaimidae (12.07%), Axonolaimidae (9.57%), Chromadoridae (8.14%), Xyalidae (5.79%), Ethmolaimidae (3.91%), Selachnematidae (1.97%), Sphaerolaimidae (1.94%), Oncholaimidae (1.91%), Oxystominidae (1.51%), Cyatholaimidae (1.11%), while remaining families like Anoplostomatidae, Desmodoridae, Siphonolaimiade, Anticomidae, Monhysteridae, Enchelidiidae, Diplopeltidae, Desmoscolecidae, Microlaimidae, Enoplide, Thoracostomopsidae, Phanodermatidae, Ironidae, Trefusiidae and Draconematidae, represented together with an abundance of ≤ 1% i.e. 2.37%.
Season wise, during the monsoon (July), 23 families were encountered of which dominant families include: Comesomatidae (26.3%) followed by Axonolaimidae (21.49%), Linhomoeidae (15.25%), Leptolaimidae (11.28%), Xyalidae (8.73%), Ethmolaimidae (4.76%), Chromadoridae (2.36%), Cyatholaimidae (1.66%), Oncholaimidae (1.59%), Sphaerolaimidae (1.47%), Oxystominidae (1.47%), Selachinematidae (1.43%), while remaining families like Anoplostomatidae, Desmodoridae, Anticomidae, Siphonolaimidae, Enchelidiidae, Desmoscolecidae, Diplopeltidae, Microlaimidae, Monhysteridae, Enoplidae and Thoracostomopsidae represented together with an abudance of ≤ 1% i.e 2.21%.
During the post-monsoon (October), 23 families were encountered of which dominant families include: Comesomatidae (40.55%) followed by Linhomoeidae (23.47%), Leptolaimidae (12.37%), Chromadoridae (5.40%), Ethmolaimidae (4.43%), Xyalidae (3.95%), Selachnematidae (1.91%), Oxystominidae (1.43%), Oncholaimidae (1.41%), Anoplostomatidae (1.16%), Axonolaimidae (1.09%), while remaining families like, Sphaerolaimidae, Cyatholaimidae, Monhysteridae, Desmodoridae. Diplopeltidae, Siphonolaimiade, Microlaimidae, Enchelidiidae, Anticomidae, Desmoscolecidae, Phanodermatidae and Draconematidae represented together with an abundance of ≤ 1% i.e. 2.83%.
During the cold weather season (December), 16 families were encountered of which dominant families include: Comesomatidae (37.7%) followed by Leptolaimidae (13.06%), Chromadoridae (11.99%),

Linhomoeidae (11.82%), Sphaerolaimidae (5.41%), Selachinematidae (4.74%), Xyalidae (4.41%), Oncholaimidae (3.85%), Ethmolaimidae (2.01%), Anoplostomatidae (1.78%), Oxystominidae (1.45%), while remaining families like Cyatholaimidae, Axonolaimidae, Anticomidae, Desmodoridae and Siphonolaimiade represented together with an abundance of ≤ 1% i.e. 1.78%.
During the pre-monsoon (March), 21 families were encountered of which dominant families include: Comesomatidae (25.52%) followed by Chromadoridae (25.42%), Linhomoeidae (17.98%), Leptolaimidae (12.76%), Xyalidae (2.78%), Sphaerolaimidae (2.64%), Axonolaimidae (2.40%), Ethmolaimidae (2.26%), Oncholaimidae (2.07%), Oxystominidae (2.02%), Selachinematidae (1.18%), Anoplostomidae (1.13%), while remaining families like Cyatholaimidae, Desmodoridae, siphonolaimidae, Anticomidae, Ironidae, Enchelidiidae, Trefusiidae, Desmoscolecidae and Monhysteridae represented together with an abundance of ≤ 1% i.e. 1.84%.

Genera and Species
In the present study, altogether there were 161 species represented by 66 genera 27 families. The most abundant nematode species encountered during this study include: *Sabatieria punctata* contributed (3145 individuals), *Metalinhomoeus longiseta* (2002 individuals), *Antomicron elegans* (1424 individuals), *Paraodontophora* sp. (940 individuals), *Chromadora macrolaima* (733 individuals), *Paracomesoma dubium* (412 individuals), *Daptonema vicinum* (333 individuals), *Chromadora nudicapitata* (264 individuals), *Axonolaimus paraspinosus* (229 individuals), *Comesa warwicki* (221individuals), *Sabatiera* sp. (214 individuals), *Halichoanolaimus dolichurus* (201 individuals), *Sabatiera elongata* (198 individuals), *Sphaerolaimus balticus* (174 individuals), *Viscosia cobbi* (162 individuals), *Leptolaimus pellicidus* (142 individuals), *Terschellingia longicaudata* (143 individuals). While the Genus *Daptonema* showed highest diversity with nine species identified (*Daptonema beggi, D.furcatum, D.hirsutum, D.invagiferoum, D.normandicum, D.oxycrca, D.procerum, D.setosum* and *D.vicinum),* followed by genus *Sabatieria* with seven species identified *(Sabatiera praedatrix, S.lyonessa, S.elongata, S.pulchra,S.punctata, S.celtica* and *S.ornata),* and genus *Viscosia* with five species identified (*Viscosia viscosa*, *Viscosia cobbi, Viscosia glabra Viscosia elegans* and *Viscosia* sp.).
Overall observation (384 samples) showed the presence of eight species in common (irrespective of seasons and region wise) which contributed to 80.20% (10938 individuals) to the nematode populations (13638 individuals) and sixteen species namely *Sabatieria punctata* (23.06%, 3145 individuals), *Metalinhomoeus longiseta* (14.68%, 2002 individuals), *Antomicron elegans*, (10.44%, 1424 individuals), *Paraodontophora* sp. (6.89%, 940 individuals), *Chromadora macrolaima (*5.37%, 733 individuals), *Paracomesoma dubium* (3.03%, 413 individuals), *Daptonema vicinum* (2.44%, 333 individuals), *Chromadora nudicapitata* (1.94 %, 264 individuals), *Axonolaimus paraspinosus* (1.68%, 229 individuals), *Comesa warwicki* (1.62 %, 221 individuals), *Sabatieria* sp. (1.57%, 214 individuals), *Halichoanolaimus dolichurus* (1.28%, 174 individuals), *Sabatieria elongata* (1.45 %, 198 individuals), *Viscosia cobbi* (1.19%, 162 individuals), *Terschellingia longicaudata* (1.05 %, 143 individuals and *Leptolaimus pellucidus* (1.04%,142individuals).

Seasonal wise
Season wise, in the monsoon (July) altogether 5593 individuals belonging to 114 species and 48 genera were encountered, dominated by Sabatieria punctata (17.11%, 957 individuals), Paraodontophora sp. (16.04%, 897 individuals), Metalinhomoeus longiseta, (11.84%, 662 individuals), Antomicron elegans (9.35%, 523 individuals), Daptonema vicinum (4.20%, 235 individuals), Axonolaimus paraspinosus (3.47%, 194 individuals), Comesa warwiki (2.45%, 137 individuals), Sabatieria elongata, (2.27%, 127 individuals), Paracomesoma dubium (1.87%, 104 individuals), Sabatieria sp. (1.64%, 92 individuals), Paracanthonchus longicaudatus (1.64%, 92 individuals), Axonolaimus spinosus (1.45%, 81 individuals), Chromadora macrolaima (1.34%, 75 individuals), Dorylaimposis punctata, (1.25%, 70 individuals),

Laimella longicaudata (1.25%, 70 individuals), Cobbia trefusiaeformis (1.14%, 64 individuals), Comesa cuanensis (1.11%, 62individuals), Viscosia cobbi (1.09%, 61 individuals), Leptolaimus pellucidus (1.05%, 59 individuals), Sphaerolaimus balticus (1.04%, 58 individuals), Terschellingia longicaudata (1.04%, 58 individuals). Enoplus schulzi, Enoplolaimus vulgaris, Oncholaimus oxyuris, Oncholaimus attenuates, Acantholaimus polydentatus, Prochromadorella sp., Rhips sp., Chromadora tenuis, Dichromadora geophila, Desmodora sp., Neochromadora sp., Dorylaimopsis sp., Sabatieria praedatrix, Aponema torosum, Microlaimus sp., Leptolaimus sp., Desmoscolex sp., Diplolaimella stagnosa, Daptonema furcatum, Daptonema oxycerca, Theristus sp. Paramonohystera sp., Eleutherolaiminae sabulicolus, Campylaimus sp., Diplopeltula incisa, and Diplopeltula sp. were exclusively found.

During the post-monsoon (October) altogether 4128 individuals belonging to 116 species and 56 genera were encountered, dominated by Sabatieria punctata (30.43%, 1256 individuals), Metalinhomoeus longiseta, (20.06%, 828 individuals), Antomicron elegans (11.17%, 461 individuals), Paracomesoma dubium (5.84%, 241 individuals), Chromadora macrolaima (3.20%, 132 individuals), Comesa vitia (2.03%, 84 individuals), Chromadora nudicapitata, (1.62%, 67 individuals), Terschellingia longicaudata (1.50%, 62 individuals), Halicholaimus dolichurus (1.33%, 55 individuals), Anaplostoma viviparum (1.11%, 46 individuals), Sabatieria sp. (1.09%, 45 individuals), Terschellingia communis (1.02%, 42 individuals), Daptonema beggi, (1.02%, 42 individuals). Phaenoderma sp., Eurystomina ornata, Chromadorella filiformis, Chromadorina sp.,

Prochromadorella septempapillata, Paralongicytholaimus minutes, Choniolaimus papillatus, Synonchiella riemanni, Richtersia sp., Desmodora claparedii, Molgolaimus cuanensis, Diodontolaimus sabulosus, Deontolaimus tardus, Thalassomonhyestera parva, Theristus partenuis, Paramonohystera buetsclii, Siphonolaimus sp. and Campylaimus lefeverei were exclusively found.

During the cold weather season (December) altogether 1793 individuals belonging to 69 species and 16 genera were encountered dominated by Sabatieria punctata (29.5%, 529 individuals), Antomicron elegans (12.72%, 228 individuals), Metalinhomoeus longiseta, (9.70%, 174 individuals), Chromadora macrolaima (9.59%, 172 individuals), Sphaerolaimus balticus (4.18%, 75 individuals), Halicholaimus dolichurus (3.85%, 69 individuals), Viscosia cobbi (2.68%, 48 individuals), Sabatieria sp. (2.62%, 47 individuals), Daptonema vicinum (2.23%, 40 individuals), Paracomesoma dubium, (1.78%, 32 individuals), Chromadora nudicapitata (1.67%, 30 individuals), Anaplostoma viviparum (1.45%, 26 individuals), Comesa warwicki (1.45%, 26 individuals), Dorylamposis punctata (1.34%, 24 individuals), Cobbia trefusiaeformis (1.12%, 20 individuals), and Sphaerolaimus islandicus, (1.00%, 18 individuals). No species was exclusively found.

During the pre-monsoon (March) altogether 2124 individuals belonging to 98 species and 46 genera were encountered, dominated by Sabatieria punctata (18.97%, 403 individuals), Chromadora macrolaima (16.67%, 354 individuals), Metalinhomoeus longiseta, (15.91%, 338 individuals), Antomicron elegans (9.98%, 212 individuals), Chromadora nudicapitata (7.72%, 164 individuals), Leptolaimus pellucidus (2.21%, 47 individuals), Paracomesoma dubium (1.65%, 35 individuals), Sabatieria sp. (1.41%, 30 individuals), Paraodontophora sp. (1.32%, 28 individuals), Sabatieria elongata (1.27%, 27 individuals), Sphaerolaimus balticus (1.27%, 27 individuals), Anaplostoma viviparum, (1.04, 22 individuals), Comesa warwicki (1.04%, 22 individuals), Halichoanolaimus dolichurus (1.04%, 22 individuals). Dolicholaimus marioni, Oncholaimus skawensis, Rhabditis sp., Spiliphra gracilicaudata, Chromadorella granulopigmentata, Prochromadorella ditlevseni, Paracomesoma sp., Camacolaimus longicaudata, Theristus longus, Metalinhomoes typicus and Ascolaimus species were exclusively found.

Seasonally, there was an evident decrease in the mean nematode abundance in the monsoon. In general (266nos.10cm-2), post-monsoon (229nos.10cm-2), pre-monsoon (111nos.10cm-2) and cold weather season (85nos.10cm-2). Monsoon and post-monsoon seasons supported the greatest wealth of life.

Altogether 161 species belonging to 66 genera and 27 families, 3 orders were identified from the V.O.Chidambaranar Port out of which 25 species were found to be new reports from the Indian waters.

1. **Phylum :** Nematoda Rudolphi, 1808
   Class : Enoplea Inglis, 1983
   Sub class : Enoplia Pearse, 1942
   Order : Enoplida Filipjev, 1929
   Family: Enoplidae Dujardin, 1845
   Genus: Enoplus Dujardin, 1845
   Enoplus schulzi Gerlach, 1952 (Fig. 2-A)

1988. *Enoplus schulzi* Platt and Warwick, Synopses of British Fauna (New series) Part. I
Female: L=700-850µm; a=25-30.35; b=23-36.1; c=22-46.5
Diagnosis: Cuticle smooth, six longer cephalic setae three – fifths of h.d Amphid large, mandibles expanded in the middle but not bilobed anteriorly. Tail conical and pointed.
Distribution: India**:** V.O.Chidambaranar Port; during monsoon (st- 11)
Elsewhere: Exe estuary (gravelly sand at high water Spring tidal level)
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.3-1.6 mm, the maximum diameter 45-56µm, tail 1-1.6 a.b.d..The body length of the present specimen ranged from 0.7-0.85 mm, the maximum diameter 45-56µm. Tail in female 1-1.3 a.b.d.

2. **Family**: Ironidae de Man, 1876
   Genus: *Dolicholaimus* De Man, 1888
   Dolicholaimus marioni De Man, 1888 (Fig. 2-B)

1988. *Dolicholaimus marioni* Platt and Warwick, Synopses of British Fauna (New series) Part.I
Female: L=380-420µm; a=35-37; b=29-40; c=31-43
Diagnosis: Cuticle smooth, buccal cavity long and tubular, amphids pocket like, oesophagus narrows in the middle with an elongated bulb.Tail cylindrical.
Distribution: India**:** V.O.Chidambaranar Port during Pre-monsoon (st- 19)
Elsewhere: Plymouth; Isles of scilly
(intertidal algae)
Material examined: Three females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 4.1-4.3mm, the maximum diameter 107-118µm, Tail 2.4-2.9 a.b.d. The body length of the present specimen ranged from 0.38-0.42 mm, the maximum diameter 102-112µm. Tail in female 2.1-2.5 a.b.d.

3. **Family**: Oncholaimidae Filipjev, 1916
   Genus: *Oncholaimus* Cobb, 1930
   Oncholaimus brachycercus De Man, 1889 (Fig. 2-C)

1988. *Oncholaimus brachycercus* Platt and Warwick, Synopses of British Fauna (New series) Part. I
Male: L=850-1315µm; a=28.0-29.9; b=30-45.1; c=36-45.1
Diagnosis: Buccal cavity slightly long. Oesophagus cylindrical, short setae scattered over general body surface. Tail short and spicule fairly straight
Distribution: India**:** V.O. Chidambaranar Port during Post-monsoon (st-5); Premonsoon (st-19)

Elsewhere: Recorded from several localities around the British Isles. Usually from intertidal sand, but also among hydroids and seaweeds
Material examined: Four males
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 3.0-4.3mm, the maximum diameter 40-65µm, Tail 1.2-1.9 a.b.d and Spicule 36-39µm. The body length of the present specimen ranged from 0.38-0.42 mm, the maximum diameter 102-112µm. The body length of the present specimen ranged from 0.85-1.31 mm, the maximum diameter 45-58 µm, spicule 37-39µm. Tail in male 1.0-1.6 a.b.d.

4. **Family**: Oncholaimidae Filipjev, 1916
Genus: *Oncholaimus* Cobb, 1930
Oncholaimus oxyuris Ditlevsen, 1911 (Fig. 2-D)
1988. *Oncholaimus oxyuris* Platt and Warwick, Synopses of British Fauna (New series) Part. I
Male: L=850-1105µm; a=51-56.2; b=21-25.6; c=22-26.0
Diagnosis: Buccal cavity is deep with dorsal tooth. Tail anterior half conical, posterior half cylindrical spicule slightly bent.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-21)
Elsewhere: Barrow-in-Furness (power station intake): Exe estuary (coarse and muddy sand near high water mark)
Material examined: Two males
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 2.3-2.5mm, the maximum diameter 50-59µm, Tail 1.3-1.6a.b.d and Spicule 47-50µm. The body length of the present specimen ranged from 0.85-1.10 mm, the maximum diameter 52-57 µm, spicule 48-49µm. Tail in male 1.5-2.3 a.b.d.

5. **Family**: Oncholaimidae Filipjev, 1916
Genus: *Oncholaimus* Cobb, 1930
Oncholaimus attenuatus Ditlevsen, 1911 (Fig. 2-E)
1988. *Oncholaimus attenuatus* Platt and Warwick, Synopses of British Fauna (New series) Part. I
Male: L=890-1200µm; a=27-32.4; b=25-46.5; c=29-47.6
Diagnosis: Cuticle smooth and buccal cavity lengths from anterior, spicule shorter and stouter, seven pairs of fairly long and slender circumcloacal setae.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-21)
Elsewhere: Falmouth; Clare Island, West Ireland, Whit stable (intertidal sediments)
Material examined: Two males
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 2.8mm, the maximum diameter 60µm, Tail 3.2 a.b.d and Spicule 38-41µm. The body length of the present specimen ranged from 0.89-1.20mm, the maximum diameter 55 µm, spicule 39-40µm. Tail in male 3.1 a.b.d.

6. **Family**: Enchelidiidae Filipjev, 1918
Genus: *Eurystomina* Filipjev, 1921
Eurystomina ornata Eberth, 1863 (Fig. 2-F)
1988. *Eurystomina ornata* Platt and Warwick, Synopses of British Fauna (New series) Part. I
Female: L=700-950µm; a=30.0-50.1; b=13.9-27.0; c=16.5-19.2

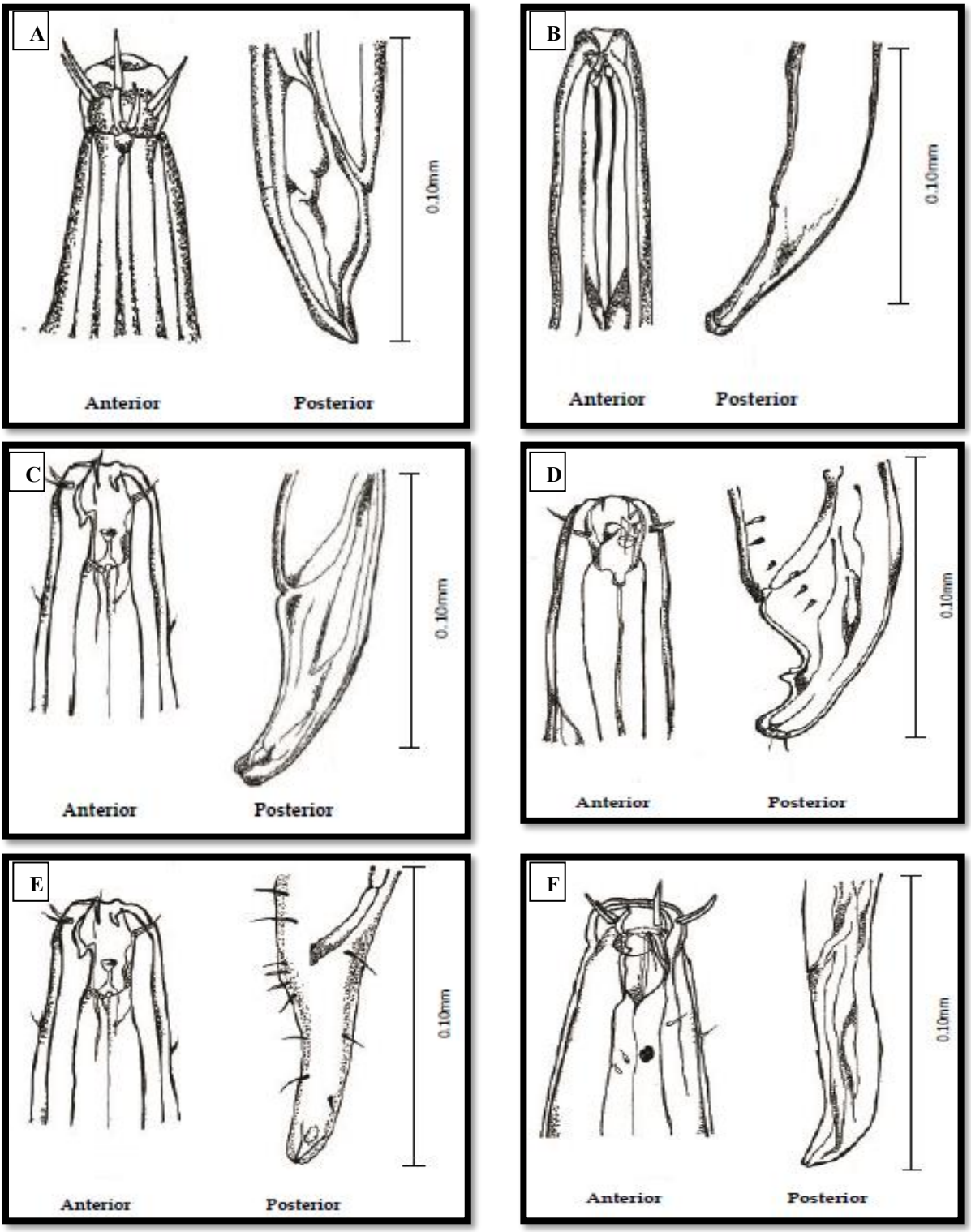

Fig: 2. (A) *Enoplus schulzi* Gerlach, 1952; (B) *Dolicholaimus marioni* De Man, 1888; (C) *Oncholaimus brachycercus* De Man, 1889; (D) *Oncholaimus oxyuris* Ditlevsen, 1911; (E) *Oncholaimus attenuatus* Ditlevsen, 1911; (F) *Eurystomina ornata* Eberth, 1863.

Diagnosis: Cuticle smooth, nerve ring present amphid a reniform loop, buccal cavity divided into two sections by rows. Tail conical and caudal glands extend anterior to anus.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-6)
Elsewhere: West Ireland (intertidal amongst spirorbis tubes and sub littoral in sand and shells); Plymouth (intertidal weed); Northumberland (kelp holdfasts); Isles of Scilly (Kelp holdfasts and amongst other weeds).
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 3.5-4.3mm, the maximum diameter 44-58µm, Tail 2.2-4.1 a.b.d. The body length of the present specimen ranged from 0.70-0.95 mm, the maximum diameter 46-56 µm. Tail in female 2.1-3.9 a.b.d.

7. **Order:** Chromadorida Chitwood, 1933
Family: Chromadoridae Filipjev, 1917
Genus: *Acantholaimus* Allgen, 1933
Acantholaimus polydentatus Gerlach, 1951 (Fig. 3-G)
1988. *Acantholaimus polydentatus* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Female: L=898-986µm; a=46.5-50.0; b=21-25.9; c=20.1-26
Diagnosis: Cuticle punctuated with lateral differentiation. Long somatic setae arranged more. Circular amphid. Buccal cavity conical with one dorsal and two sub ventral teeth. Tail elongated and pointed spinneret
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-2)
Elsewhere: Loch Ewe, West Scotland (Sub littoral sand)
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.8-1.0mm, the maximum diameter 23-32µm, Tail 1.1-1.2 a.b.d. The body length of the present specimen ranged from 0.89-0.98 mm, the maximum diameter 26-31 µm. Tail in female 9-11 a.b.d.

8. **Family**: Chromadoridae Filipjev, 1917
Genus: *Spiliphera* Bastian, 1865
Spiliphera gracilicauda De Man, 1893 (Fig. 3-H)
1988. *Spiliphera gracilicauda* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=700-1300µm; a=31-51; b=15-29; c=14.1-40
Female: L=800-1450µm; a=37-51.6; b=17-31.2; c=15.3-38
Diagnosis: Cuticle with transverse rows of simple rounded punctions.Buccal cavity three teeth six small conical labial papillae. Ampid just posterior, tail elongated.
Distribution: India**:** V.O.Chidambaranar Port during Pre-monsoon (sts-19, 20)
Elsewhere: Fal mouth, South West England; play mouth, south west England, Isles of scilly (intertidal algae); Blacksod Bay, west Ireland (among spirorbis tubes).
Material examined: One male, one female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.2-1.3 mm, the maximum diameter 60-65µm, Tail 5.6-5.9 a.b.d and Spicule 29µm. The body length of the present specimen ranged from 0.70-1.45mm, the maximum diameter 61-63 µm, spicule 69µm. Tail in male 5.7-5.8 a.b.d.

9. **Family**: Chromadoridae Filipjev, 1917
Genus: *Chromadorella* Filipjev, 1918
Chromadorella duopapillata Platt, 1973 (Fig. 3-I)
1988. *Chromadorella duopapillata* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=400-570µm; a=25.0-32.3; b=9.1-13.0; c=9.5-13.5
Female: L=650-805µm; a=31-33.9; b=12-15.4; c=13-14.5
Diagnosis: Cuticle punctuated with heterogeneous ornamentation, a short distance posterior to the base of the oesophagus, Amphid wide, transversely oval and curved. Oesophagus with well developed posterior bulb.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-2); Post-monsoon (st-19); Pre-monsoon (sts-19, 20)
Elsewhere: Strangford lough, North East Ireland (intertidal)
Material examined: Three males, three females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.0 mm, Tail 4.5 a.b.d in male 7 a.b.d in female and Spicule 29-33µm. The body length of the present specimen ranged from 0.40-0.80 mm, the maximum diameter 29-30 µm, spicule 30-32µm. Tail in male 4.6 a.b.d., tail in female 8 a.b.d.

10. **Family**: Chromadoridae Filipjev, 1917
Genus: *Chromadorella* Filipjev, 1918
Chromadorella filiformis (Bastion, 1865) Filipjev, 1918 (Fig. 3-J)
1988. *Chromadorella filiformis* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Female: L=500-650µm; a=26-38.1; b=10-15.0; c=9.5-14.9
Diagnosis: Cuticle punctuated with heterogeneous ornamentation and lateral differentiation consisting of two rows of dots beginning more or less at the anterior end of the oesophagus and extending three-quarters of the way down the tail. Buccal cavity conical with large anteriorly directed dorsal tooth and two dorsally directed sub ventral teeth. Tail conical with asymmetrical spinneret.
Distribution: India**:** V.O.Chidambaranar Port during Pos- monsoon (st-19)
Elsewhere: Falmouth, South West England. Isles of scilly; Newton Ferrrers, River Yealm, Devon (intertidal sea weeds)
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 29-30 mm in female Tail 5.5 a.b.d. The body length of the present specimen ranged from 0.50-0.65 mm, the maximum diameter 29-30 µm. Tail in female 5.7 a.b.d.

11. **Family**: Chromadoridae Filipjev, 1917
Genus: *Chromadorina* Filipjev, 1918
Chromadorina granulopigmentata (Wieser, 1951) Wiser, 1954 1988. (Fig. 3-K)
Chromadorina granulopigmentata Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=300-699µm; a=5.6-19.0; b=6.5-17.0; c=5.8-15.9
Diagnosis: Amphids slit like, granular pigment spots 2 h.d from anterior end, oesophageal bulb without thickened cuticularised lining. Cup shaped precloacal supplements.
Distribution: India**:** V.O.Chidambaranar Port during Pre-monsoon (st-19)
Elsewhere: Play mouth, South West England (intertidal sea weeds)
Material examined: Two males

Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.6-0.7 mm, Tail 4.5 a.b.d in male. The body length of the present specimen ranged from 0.85-1.31 mm, the maximum diameter 45-58 µm, spicule 37-39µm. The body length of the present specimen ranged from 0.85-1.31 mm, the maximum diameter 28-30 µm. Tail in male 4.7
a.b.d.

12. **Family**: Chromadoridae Filipjev, 1917
Genus: *Chromadorita* Filipjev, 1922
Chromdorita tenuis (G.schneider, 1906) Filipjev, 1922 (Fig. 3-L)
1988. *Chromdorita tenuis* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Female: L=800-1086µm; a=3.4-15.9; b=7.0-16.5; c=6-15.9
Diagnosis: Lateral punctuations of the cuticle enlarged but not arranged in longitudinal rows. Baccal cavity with a hollow slender dorsal tooth opposed by two much smaller sub ventral teeth. Amphid wide, transverse loop-shaped between bases of cephalic setae.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-19)
Elsewhere: Exe estuary South West England (intertidal sand)
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.0-1.1 mm, the maximum diameter 35-43µm, Tail 3.1-4.2 a.b.d .The body length of the present specimen ranged from 0.80-1.08 mm, the maximum diameter 36-42 µm. Tail in female 3.2-4.1 a.b.d.

13. **Family**: Chromadoridae Filipjev, 1917
Genus: *Neochromadora* Micoletzky, 1924
Neochromadora poecilosomoides Filipjev, 1918 (Fig. 4-M)
1988. *Neochromadora poecilosomoides* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=250-850µm; a=5.5-18.1; b=6.9-17.1; c=5.0-16.9
Female: L=300-985µm; a=8.9-23.1; b=6.22-19.0; c=9.32-23.6
Diagnosis: Cuticle ornamentation complex in anterior oesophageal region transverse rows of punctuations with lateral differentiation of two longitudinal rows, four sub lateral rows of long somatic setae. Oesophagus with slight oval posterior bulb. Spicules arcuate.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-14, 17); Cold weather season (st-17)
Elsewhere: Isles of scilly (kelp hold fast) play mouth, South West England (cooling water from power station and intertidal sea weeds)
Material examined: Two males, one female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.0-1.1 mm, the maximum diameter 28-31µm, Tail 5.0-5.7 a.b.d and Spicule 24-26µm. The body length of the present specimen ranged from 0.25-0.98 mm, the maximum diameter 29-30 µm, spicule 25µm. Tail in male 5.2-5.5 a.b.d., tail in female 5.3-5.5 a.b.d.

14. **Family**: Neotonchidae Wiser&Hopper, 1966
Genus: *Comesa* Gerlach, 1956
Comesa votadinii (Warwick, 1971) (Fig. 4-N)
1988. *Comesa votadinii* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=250-600µm; a=5.9-15.6; b=6.3-18.4; c=8.0-19.8

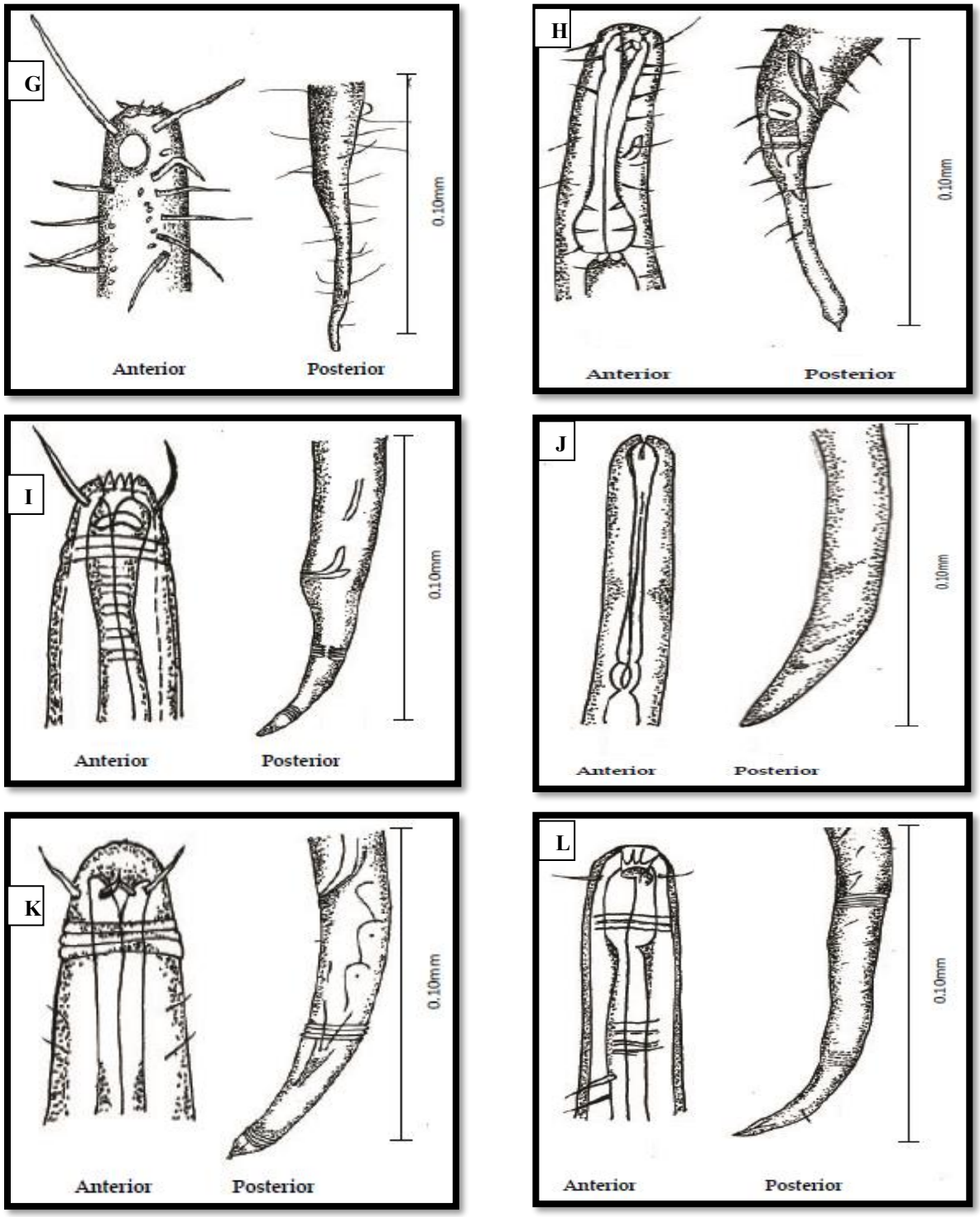

Fig.3: (G) *Acantholaimus polydentatus* Gerlach, 1951; (H) *Spiliphera gracilicauda* De Man, 1893; (I) *Chromadorella duopapillata* Platt, 1973; (J) *Chromadorella filiformis* (Bastion, 1865) Filipjev, 1918; (K) *Chromadorina granulopigmentata* (Wieser, 1951) Wiser, 1954; (L) *Chromdorita tenuis* (G.schneider, 1906) Filipjev, 1922.

Female: L=300-650µm; a=6.2-15.9; b=7.1-19.5; c=9.2-21.0
Diagnosis: Cuticle punctuation is transverse rows. Dots slightly larger laterally posterior to oesophagus. Buccal cavity narrows, with a large dorsal tooth. Spicules arcute with two ventral undulations in proximal third. Fourteen precloacal supplements.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-19); Post-monsoon (sts-19, 21) and pre-monsoon (st-19).
Elsewhere: Northumberland, North east England (sub littoral silt).
Material examined: Twenty one males, eighteen females.
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.8 mm, the maximum diameter 25-35µm, Tail 3.0-3.3 a.b.d and Spicule 34µm. The body length of the present specimen ranged from 0.25-0.65 mm, the maximum diameter 27-33 µm, spicule 33µm. Tail in male 3.1-3.2 a.b.d., tail in female 3.1-3.3 a.b.d.

15. **Family**: Neotonchidae Wiser&Hopper, 1966
Genus: *Comesa* Garlach, 1956
Comesa cuanensis (Platt, 1982) (Fig. 4-O)
1988. *Comesa cuanensis* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=290-650µm; a=5.2-16.1; b=7.5-18.9; c=9.2-22.0
Female: L=380-690µm; a=6.8-17.1; b=7.7-22; c=8.9-23.6
Diagnosis: Cuticle punctuation is transverse rows of fine dots, rows more numerous in oesophagal region of males than females. Buccal cavity wide a pointed dorsal tooth and subventral ridges. 8-10 precloacal supplements.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (sts-11, 12, 13, 14, 15, 16, 17, 18, 19, 21); Post-monsoon (sts-9, 15, 16, 17, 19, 20, 21); Cold weather season (st-6)
Elsewhere: Strangford Lough, North East England (intertidal sand)
Material examined: Forty five males, Thirty one females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.8-1.1 mm, the maximum diameter 17- 22µm, Tail 3.8-5.5 a.b.d and Spicule 19-21µm. The body length of the present specimen ranged from 0.29-0.69 mm, the maximum diameter 19-20 µm, spicule 20µm. Tail in male 3.9-5.1a.b.d., tail in female 4.1-5.3 a.b.d.

16. **Family**: Microlaimidae Micoletzky, 1922
Genus: *Aponema* Jensen, 1978
Aponema torosum (Loren Zen, 1973) Jenson, 1978 (Fig. 4-P)
1988. *Aponema torosum* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=250-600µm; a=20.2-40.2; b=4.0-18; c=7.8-15.2
Diagnosis: Buccal cavity weakly cuticularised, narrow. Posterior oesophageal bulb long. Tail with distal cylindrical and a slightly swollen tip. Spicule as curve.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-1)
Elsewhere: Exe estuary, South West England; Tamer estuary, South West England (intertidal mud)
Material examined: Two males
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.7-0.8 mm, the maximum diameter 27-41µm, Tail 4.5 a.b.d and Spicule 35-37µm. The body length of the present specimen ranged from 0.25-0.60 mm, the maximum diameter 32-39 µm, spicule 36µm. Tail in male 4.5 a.b.d.

17. **Family**: Draconematidae Filipjev, 1918
Genus: *Draconema* cob, 1913
Draconema claparedii (Mechnikov, 1867) Filipjev, 1918 (Fig. 4-Q)
1988. *Draconema claparedii* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Female: L=230-890µm; a=20.0-41; b=4.5-9.3; c=6.9-15.1
Diagnosis: Amphid relatively small, tail more slender, spicules shorter and more somatic setae present.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-3)
Elsewhere: Clew Bay, West Ireland (sub littoral sediment), recorded as *Chaetosoma hibernicum*.
Material examined: Two female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.2-1.3 mm, the maximum diameter 90µm, Tail 4.5 a.b.d.. The body length of the present specimen ranged from 0.23-0.89 mm, the maximum diameter 85 µm. Tail in female 4.2 a.b.d.

18. **Family**: Leptolaimidae Orley, 1880
Genus: *Antomicron* Cobb, 1920
Antomicron elegans (De Man, 1922) De coninck, 1965 (Fig. 4-R)
1988. *Antomicron elegans* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=200-660µm; a=4.1-26.0; b=3.0-25.1; c=4.2-20.2
Female: L=400-950µm; a=25-36.2; b=28.0-32.2; c=14-16.0
Diagnosis: Buccal cavity tubular, merging imperceptibly with oesophageal lining. Oesophagus with two weakly developed bulbs in the wild region and a large pyriform posterior bulb with a thickened cuticular lining. Spicule slender curved.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (sts-2-9; 11 - 22); Post-monsoon (sts-1 9, 14-16, 18-22); Cold weather season (sts-1- 4, 6, 8, 9, 12, 13, 15, 16, 18, 19 - 22); Pre-monsoon (sts-1 - 9, 12- 14, 19, 20, 22)
Elsewhere: Blyth estuary, North East England; Exe estuary, South West England; Tamar Estuary, South West England (intertidal mud)
Material examined: Nine hundred fifty males, four hundred seventy four females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.0-1.1 mm, the maximum diameter 32-33µm, Tail 4.3-6.4 a.b.d and Spicule 37-39µm. The body length of the present specimen ranged from 0.20-0.95 mm, the maximum diameter 32 µm, spicule 38µm. Tail in male 4.4-6.2 a.b.d., tail in female 4.5-6.3 a.b.d.

19. **Family**: Camacolaimidae Micoletzky, 1924
Genus: *Diodontolaimus* Southern, 1914
Diodontolaimus sabulosus Southern, 1914 (Fig. 5-S)
1988. *Diodontolaimus sabulosus* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=390-400µm; a=24-36.3; b=10.2-15.9; c=12-16.5
Female: L=400-450µm; a=29.2-39.5; b=11-19.2; c=12-18.6
Diagnosis: Cuticle with widely spaced striations without lateral differentiation. Oesophagus gradually expands towards the base. Spicule, strongly arcuate, cephalate proximally with ventral ala.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (sts-19, 21, 22)
Elsewhere: Blacksod Bay, West Ireland (intertidal sand)
Material examined: Four males, nine females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.7 mm, the

maximum diameter 46µm, Tail 2.8 a.b.d and Spicule 40µm. The body length of the present specimen ranged from 0.39-0.45 mm, the maximum diameter 44 µm, spicule 38µm. Tail in male 2.5 a.b.d., tail in female 2.7 a.b.d.

20. **Family**: Leptolaimidae Orley, 1880
Genus: *Leptolaimus* de Man, 1876
Leptolaimus elegans (Stekhoven&De coninck, 1933) Gerlach, 1958 (Fig. 5-T)
1988. *Leptolaimus elegans* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Male: L=300-700µm; a=28-40.1; b=12-20.1; c=11-19.0
Female: L=350-790µm; a=29-42.3; b=13-22; c=12-29.1
Diagnosis: Cuticle with widely spaced transverse striations, cephalic setae present, tail conico-cylindrical.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-22); Post-monsoon (st-22); Cold weather season (st-21); Pre-monsoon (sts-1- 6, 14, 15)
Elsewhere: Blacksod North umber land coast, North East England (sub littoral fine sand and mud); Plymouth, South West England (intertidal sea weeds0; Strangford Lough, Narth East Ireland (itetidal sand)
Material examined: Ten males, one female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.8 mm, Tail 5.5 a.b.d and Spicule 21µm. The body length of the present specimen ranged from 0.30-0.79 mm, the maximum diameter 15-23 µm, spicule 18µm. Tail in male 5.2 a.b.d., tail in female 5.4 a.b.d.

21. **Family**: Camacolaimidae Micoletzky, 1924
Genus: *Camacolaimus* de Man, 1889
*Deontolaimus tardus (*de Man, 1889) Holovachov&Bostrom,2015 (Fig. 5-U)
1988. *Deontolaimus tardus* Platt and Warwick, Synopses of British Fauna (New series) Part. II
Female: L=280-380µm; a=25.2-48.0; b=11-16.9; c=12.0-16.2
Diagnosis: Cuticle with widely spaced transverse striations, Amphid wide and dorsal, buccal cavity long. Oesophagus narrow and long.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-19)
Elsewhere: Exe estuary, South West England (intertidal sand and muddy sand)
Material examined: Two female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.8-2.0 mm, the maximum diameter 37-40, Tail 3 a.b.d .The body length of the present specimen ranged from 0.28-0.38 mm, the maximum diameter 38 µm. Tail in female 2 a.b.d.

22. **Order:** Monhysterida Filipjev, 1929
Family: Monhysteridae de Man, 1876
Genus: *Diplolaimella* Allgen, 1929
Diplolaimella stagnosa Lorenzen, 1966 (Fig. 5-V)
1988. *Diplolaimella stagnosa* Platt and Warwick, Synopses of British Fauna (New series) Part. III
Male: L=300-560µm; a=25.2-46.1; b=10.2-15.0; c=12.0-15.9
Female: L=350-600µ; a=32.1-49; b=10.5-16.0; c=10.3-17
Diagnosis: Buccal cavity long tail long and gradually tapering.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (sts-19, 22)
Elsewhere: In mud sample from the Tamer estuary, south West England, this had been maintained in the laboratory at low salinity.

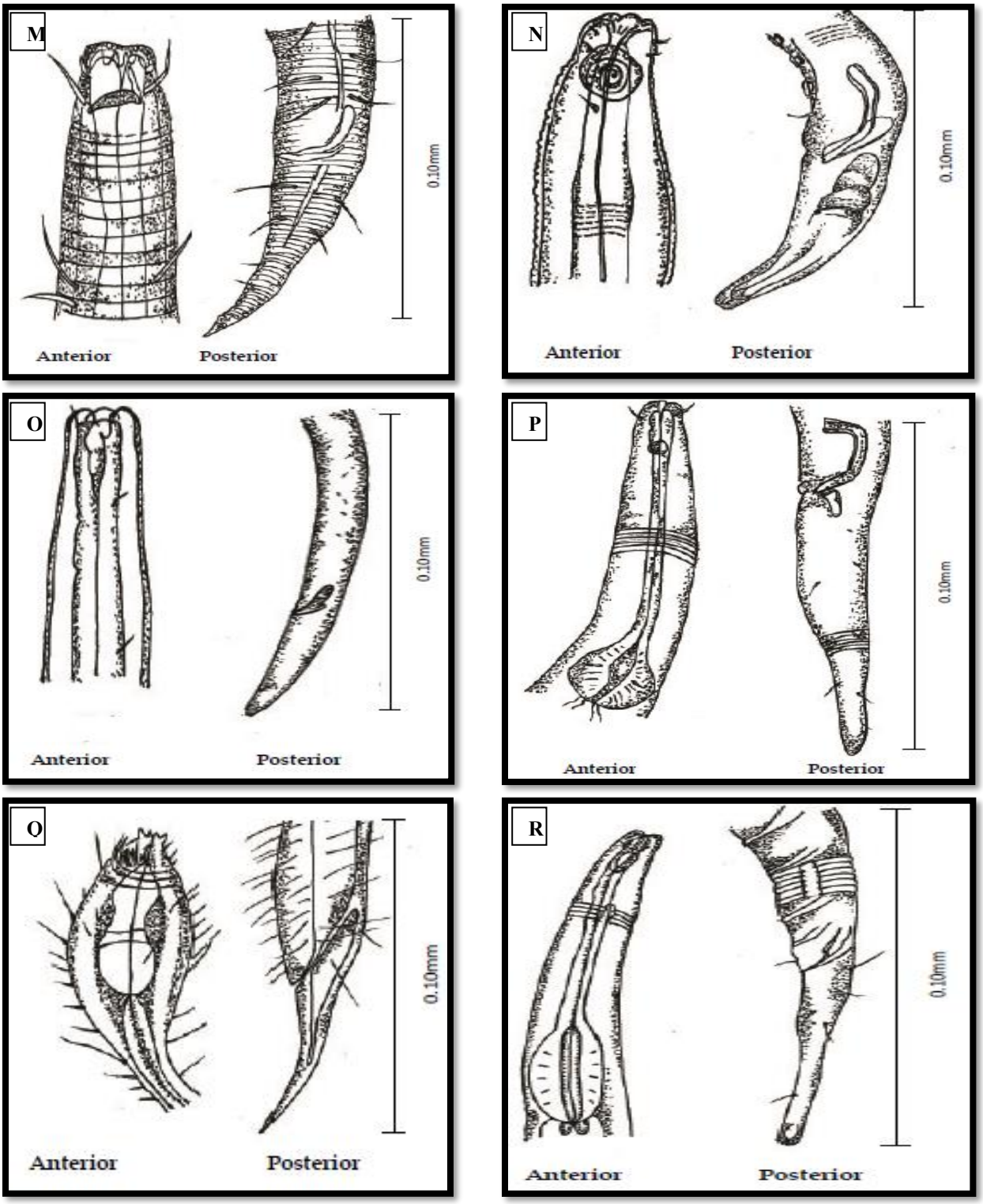

Fig.4: (M) *Neochromadora poecilosomoides* Filipjev, 1918; (N) *Comesa votadinii* (Warwick, 1971); (O) *Comesa cuanensis* (Platt, 1982); (P) *Aponema torosum* (Loren Zen, 1973) Jenson, 1978; (Q) *Draconema claparedii* (Mechnikov, 1867) Filipjev, 1918; (R) *Antomicron elegans* (De Man, 1922) De coninck, 1965.

Material examined: Two males, three females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.7-0.8mm, the maximum diameter 11-12µm, Tail 3 a.b.d and Spicule 16-18µm. The body length of the present specimen ranged from 0.30-0.60 mm, the maximum diameter 11 µm, spicule 17µm. Tail in male 1.6-2.2 a.b.d., tail in female 1.8-2.5 a.b.d.

23. **Family**: Xyalidae Chitwood, 1951
Genus: *Daptonema* Cobb, 1920
Daptonema furcatum Juario, 1974 (Fig. 5-W)
1988. *Daptonema furcatum* Platt and Warwick, Synopses of British Fauna (New series) Part. III
Male: L=250-600µm; a=9.2-22.1; b=4.6-15.1; c=4.2-10.6
Female: L=350-900µm; a=13-29.1; b=6.9-19.1; c=5.6-15.0
Diagnosis: Somatic setae dense posterior to cloaca. Tail sharp and bend of the body. Spicule paired, symmetrical.
Distribution: India**:** V.O.Chidambaranar Port during Monsoon (st-21)
Elsewhere: North East coast of England (sub littoral muddy-sand)
Material examined: One male, one female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 0.57-0.7 mm, Tail 4.7-5.7 a.b.d and spicule 24-29µm. The body lengths of the present specimen ranged from 0.25-0.90 mm, the maximum diameter 17µm, spicule 24-28µm. Tail in male 4.8-5.2 a.b.d., tail in female 4.9-5.6 a.b.d.

24. **Family**: Xyalidae Chitwood, 1951
Genus: *Theristus* Bastian, 1865
Theristus pertenuis Schhrmans stekhoven, 1935 (Fig. 5-X)
1988. *Theristus partenuis* Platt and Warwick, Synopses of British Fauna (New series) Part. III
Male: L=300-886µm; a=15.5-39.8; b=3.9-18.1; c=5.1-14.6
Female: L=350-936µm; a=20.9-49.1; b=8.1-16.2; c=7.1-19.3
Diagnosis: Six cephalic setae present, somatic setae short, buccal cavity minute. Amphids 1.4-1.8 h.d. from anterior.
Distribution: India**:** V.O.Chidambaranar Port during Post-monsoon (st-21)
Elsewhere: Strangford lough, North East Ireland; Firth of Clyde, West Scotland (intertidal sand)
Material examined: Two males, one female
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 1.0-1.1 mm, the maximum diameter 24-25µm, Tail 5.5-8.0 a.b.d and Spicule 23µm. The body length of the present specimen ranged from 0.30-0.93 mm, the maximum diameter 24 µm, spicule 22µm. Tail in male 5.6-7.5., tail in female 5.7-7.8 a.b.d.

25. **Family**: Xyalidae Chitwood, 1951
Genus: *Paramonohystera* Steiner, 1916
Paramonhystera buetschlii Bresslau & Schhrmans Stekhoven in Schuurmans Stekhoven, 1935 (Fig. 6-Y)
1988. *Paramonhystera buetschlii* Platt and Warwick, Synopses of British Fauna (New series) Part. III
Female: L=365-899µm; a=21.0-46.0; b=8.2-16.1; c=7.1-19.2
Diagnosis: Cephalic setae present, amphids from anterior and tail cylindrical.

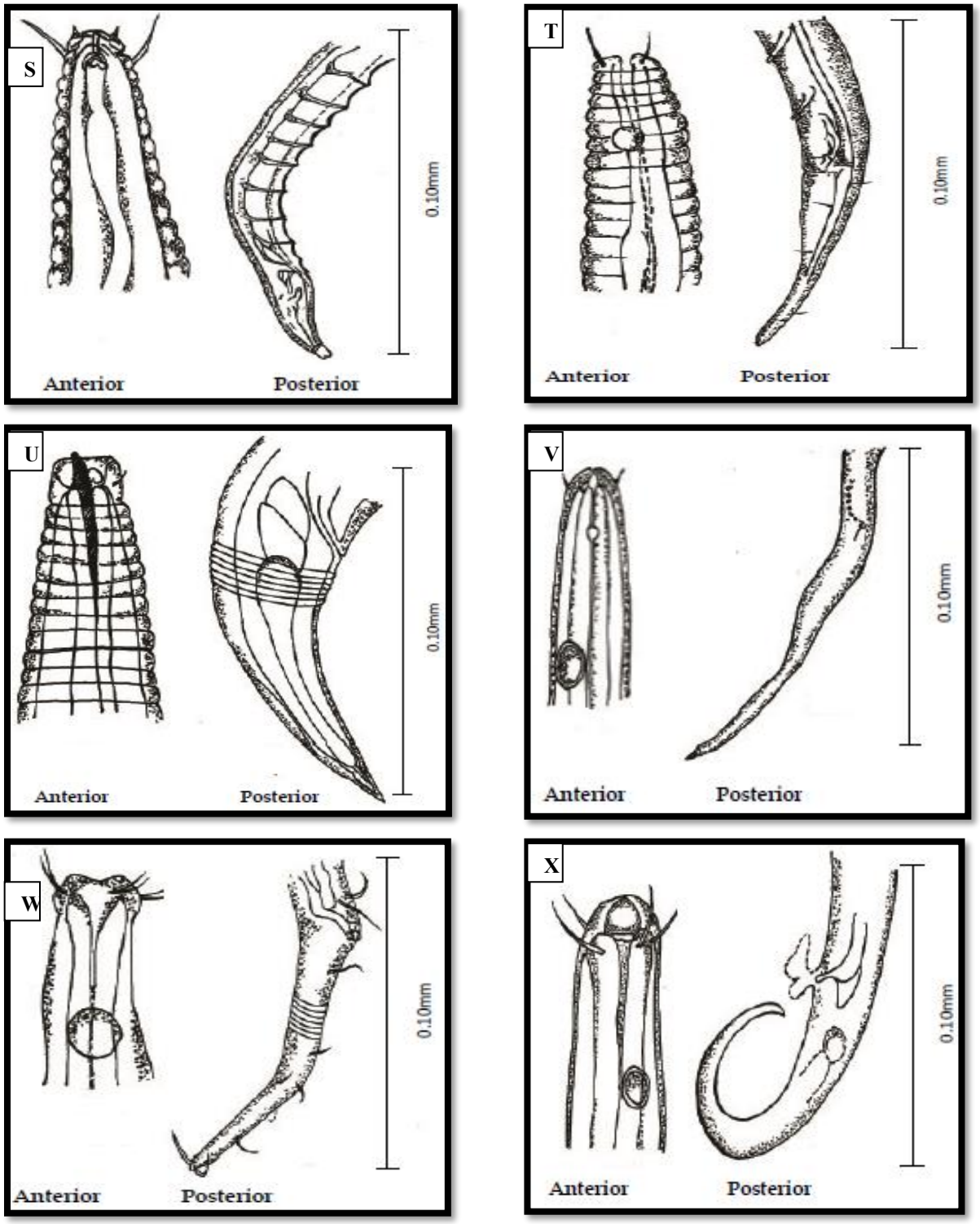

Fig.5: (S) *Diodontolaimus sabulosus* Southern, 1914; (T) *Leptolaimus elegans* (Stekhoven&De coninck, 1933) Gerlach, 1958; (U) *Deontolaimus tardus (*de Man, 1889); (V) *Diplolaimella stagnosa* Lorenzen, 1966.; (W) *Daptonema furcatum* Juario, 1974; (X) *Theristus pertenuis* Schhrmans stekhoven, 1935.

Distribution: India**:** V.O.Chidambaranar Port during Post monsoon (st-1)
Elsewhere: Isles of scilly (fine sand among Zostera roots, intertidal algae)
Material examined: Two females
Remarks: The material examined conforms well to the earlier description, except for minor variation in the relative measurements of the body. The total body length originally described varied from 2.0-2.2 mm, Tail 4.3 a.b.d. The body length of the present specimen ranged from 0.36-0.89 mm, the maximum diameter 25-36 µm. Tail in female 4.2 a.b.d.

In the present study, altogether 27 families were identified from V.O.Chidambaranar Port. Overall, the most dominant families were Comesomatidae, Linhomoeidae, Leptolaimidae, Axonolaimidae, Chromadoridae, Xyalidae and Ethmolaimidae accounting for the 89% of the population. The high abundance and dominance of families such as Comesomatidae, Linhomoeidae and Desmodoridae have been reported from Western continental shelf of India by Sajan *et al.,* (2010); Anbuchezhian *et al.,* (2010) from Palk Bay, south east cost of India; Ansari *et al*., 2012 from south east continental shelf of India revealed that it might be common families with cosmopolitan distribution.

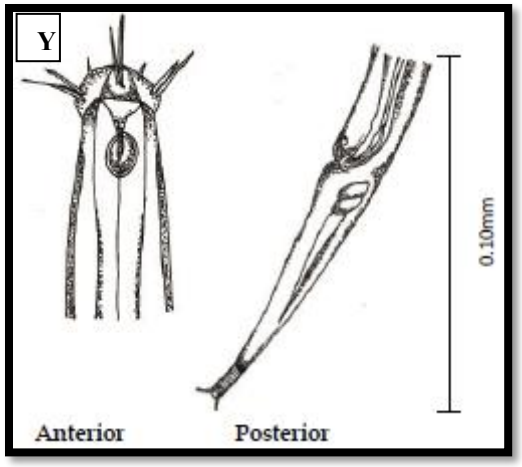

Fig.6: (Y) Schuurmans Stekhoven, 1935.

Most abundant group, nematodes were represented by 161 species of 66 genera, 27 families and 3 orders and 25 of them were new to the Indian waters. About 136 species were reported earlier by different workers from interstitial waters, estuaries or Island waters, lagoons and mangroves from Indian waters (Timm, 1961, 1967; Ali *et al.,* 1998; Chinnadurai and Fernando, 2006a, b; Sajan and Damodaran, 2007; Annapurna *et al.,* 2012; Vijayabhanu *et al.,* 2013, Annapurna *et al.,* 2015, Naveen *et al.,* 2016, Ansari *et al.,* 2012c, 2013a, b).
In the present study, 161 species were identified in 22 locations from the V.O. Chidambaranar Port. The dominant species in the study areas were *Sabatieria punctata*, *Metalinhomoeus longiseta*, *Antomicron elegans, Paraodontophora* sp., *Chromadora macrolaima*, *Paracomesoma dubium*, *Daptonema vicinum*, *Chromadora nudicapitata*, *Axonolaimus paraspinosus, Comesa warwicki*, *Sabatiera* sp., *Halichoanolaimus dolichurus*, *Sabatiera elongata*, *Sphaerolaimus balticus*, *Viscosia cobbi*, *Leptolaimus pellicidus*, and *Terschellingia longicaudata*. On the whole, the nematode species/generic composition of the V.O.Chidambaranar Port appears to be comparable to those reported elsewhere (Vanhove *et al.,* 1999;

Vanaverbeke *et al.,* 2000). A notable overlap in generic composition can be observed between the nematode assemblage found in this study and those reported for other tropical and even temperate areas (Heip *et al.,* 1985; Alongi, 1986; Gourbault and Renaud- Mornant, 1990; Gourbault *et al.,* 1995; Boucher, 1997; Ndaro and O'lafsson, 1999; Raes *et al.,* 2007 and Semprucci *et al*., 2010, 2011, 2014). The dominant families in the present study were comesomatidae xyalidae, and desmodoridae. Similar results have been reported by Sajan and Damodaran (2007) in west coast of India and Ansari *et al.,* 2014 in South east coast of India and Semprucci *et al*., 2010, 2011 from Maldives (Indian Ocean).
The classic paper of Sanders (1968) showed that the marine benthic diversity for soft-bottoms was higher in the tropics than in boreal regions. Nematode abundances of the V.O.Chidambaranar Port are similar to those recorded in other shelf/ bays/ harbours and they are considered to be good candidate organisms for quality assessment of shelfs (Ansari *et al*., 2012; Ingole and Singh, 2010; Amjad and Gray, 1983; Lambshead, 1984; Shiels and Anderson, 1985; Lampadariou *et al.,* 1997; Fichet *et al.,* 1999; Friedrichs *et al.*, 2000; Lee *et al*., 2001; Armenteros *et al.,* 2009). Based on the classification of Simboura and Zenetos (2002), the nematode diversity of V.O.Chidambaranar Port was good as the maximum value of the Shannon-Wiener index H' recorded in this area was 4.18.

CONCLUSIONS

In the present study, 161 species were identified in 22 locations from the V.O.Chidambaranar Port. The dominant species in the study areas were *Sabatieria punctata*, *Metalinhomoeus longiseta*, *Antomicron elegans, Paraodontophora* sp., *Chromadora macrolaima*, *Paracomesoma dubium*, *Daptonema vicinum*, *Chromadora nudicapitata*, *Axonolaimus paraspinosus, Comesa warwicki*, *Sabatiera* sp., *Halichoanolaimus dolichurus*, *Sabatiera elongata*, *Sphaerolaimus balticus*, *Viscosia cobbi*, *Leptolaimus pellicidus*, and *Terschellingia longicaudata*. This is the first report of these species this record will contribute to the nematode checklist of Indian seas.

ACKNOWLEDGEMENT

The authors are grateful to the Professor and Head of the Department of Zoology, Andhra University, Visakhapatnam for providing the necessary culture room and laboratory facilities for the completion of the present research study.

REFERENCES

Ali MAS, Ajmal Khan S, Balasubramanian T (1998.) Nematodes of the Pichavaram mangroves. In: Ajmal Khan S, Balassubramanian T (eds) GIS based information system for pichavaram. *ENVIS publication*, Government of India, pp 1–47.

Alongi DM (1986). Population structure and trophic composition of the free-living nematodes inhabiting carbonate sand of Davis Reef Great Barrier Reef. *Australian Journal of Marine and Fresh water Resources* **37**: 609-619 Amjad and Gray, 1983;

Anbuchezhian R., S Ravichandran, JS Serebiah and C Ramprabhu (2010). Composition and seasonal fluctuations of Nematodes in Palk Bay, South east coast of India. *Middle-East Journal of Scientific Research* **6**(2): 189-197.

Anila Kumary K S (2008). Diversity of meiobenthic nematodes in the Poonthura estuary (Southwest coast of India). *Journal of the Marine Biological Association of India*, **50**(1), 23-28.

Annapurna C, Bhanu CV, Rao M S, Sivalakshmi M V, Cooper L M, & Rao Y K (2012). Free-living nematodes along the continental slope off northeast coast of India. *Journal of the Marine Biological Association of India*, **54**(2), 52-60.

Annapurna C, Rao MS, & Bhanu CV (2015). Distribution of meiobenthos off Kakinada Bay, Gaderu and Coringa estuarine complex. *Journal of the Marine Biological Association of India*, **57**(2), 18.

Ansari KGMT, Lyla PS and Ajmal Khan S (2012). Faunal composition of metazoan meiofauna from the south east continental shelf of India. *Indian journal of marine Geo-Marine Sciences.* **41**(5), pp. 457-467.

Ansari KGMT, Lyla PS, Ajmal Khan S (2012c). New record of free-living marine nematodes (Nematoda: Enoplida) from Indian waters. *Journal of the Marine Biological Association of India* 54:39–45.

Ansari KGMT, PSI Lyla and S Ajmal khan (2012a). Faunal composition of metazoan meiofauna from the southeast continental shelf of India. *Indian Journal Geo-Marine Sciences,* **41**(5): 457 - 467.

Ansari KGMT, SM Manokaran, S Raja, S Ajmal Khan and PSI Lyla (2012b). Checklist of Nematodes (Nematoda: Adenophorea) from Southeast Continental Shelf of India. Check List, **8**(3): 414 - 420.

Ansari KGMT, Pattnaik AK, Rastogi G, & Bhadury P (2015). An inventory of freeliving marine nematodes from Asia's largest coastal lagoon, Chilika, India. *Wetlands Ecology and Management*, **23**(5), 881-890.

Ansari ZA, Mehta P, Furtado R, Aung C, & Pandiyarajan RS (2014). Quantitative distribution of meiobenthos in the Gulf of Martaban, Myanmar Coast, north-east Andaman Sea.

Ansari KGMT, Lyla PS, Ajmal Khan S (2013a). New records of five *Daptonema* species (Nematoda: Xyalidae) from Indian waters. *Journal of the Marine Biological Association of India,* **55**: 71–78.

Ansari KGMT, Lyla PS, Ajmal Khan S (2013b). New reports of free-living marine nematodes,*Chromadorina granulopigmentata* (Wieser, 1951) and *Neochromadora poecilosomoides*(Filipjev, 1918) (Chromadorida: Chromadoridae) from Indian waters. *Indian Journal Nematology,* **43** 17–23.

Armenteros M, Ruiz-Abierno A, Ferna´ndez-Garce R, Pe´rez-Garcýa JA, Dý´az-Asencio L, Vincx M, Decraemer W (2009). Biodiversity patterns of free-living marine nematodes in a tropical bay: Cienfuegos, Caribbean Sea . *Estuarine Coastal and Shelf Science,* **85**: 179–189.

Balsamo M, Albertelli G, Ceccherelli VU, Coccioni R, Colangelo MA, Curini-Galletti M, Danovaro R, D'Addabbo R, De Leonardis C, Fabiano M, Gallo M, Gambi C, Guidi L, Moreno M, Pusceddu A, Sandulli R, Semprucci F, Todaro MA, Tongiorgi P (2010). Meiofauna of the Adriatic sea: present knowledge and future perspectives. *Chem Ecology,* **26**: 45–63.

Bhadury P, Austen MC, Bilton DT, Lambshead PJD, Rogers AD, & Smerdon GR (2006). Development and evaluation of a DNA-barcoding approach for the rapid identification of nematodes. *Marine Ecology Progress Series*, **320**, 1-9.

Bock W, Hay W, Lee JJ (1986). Order foraminiferida D'orbigny, 1826. In: An illustrated guide to the protozoa. *(Eds John J Lee, Seymour H, Hutner and Eugene C Bovée)* 252.

Boucher G (1997). Structure and biodiversity of nematode assemblage in the SW Lagoon of New Caledonia. Coral Reefs **16**: 177–186.

Chinnadurai G and Fernando OJ (2006a). New Records of Five Free-living Marine Nematodes from an Artificial Mangrove of India. *Journal of the Marine Biological Association of India,* **48** 105-107.

Chinnadurai G, Fernando OJ (2006b). Meiobenthos of Cochin Mangrove (Southwest Coast of India) with Special Emphasis on Free-living Marine Nematode Assemblage, *Russian Journal of Nematology*, 64: 127-137.

Coomans, A. (2002). Present status and future of nematode systematics. *Nematology*, ***4***(5), 573-582.

Croll NA & Matthews BE (1977). Biology of nematodes -John Wiley and Sons, New York.

Danovaro R, Tselepides A, Otegui A, & Della Croce N (2000). Dynamics of meiofaunal assemblages on the continental shelf and deep-sea sediments of the Cretan Sea (NE Mediterranean): relationships with seasonal changes in food supply. *Progress in Oceanography*, **46**(2), 367-400.

Dye AH, & Furstenburg JP (1981). Estuarine meiofauna. *Estuarine ecology: with particular reference to southern Africa*, 179-186.

Fichet D, Boucher G, Radenac G and Miramand P (1999). Concentration and mobilization of Cd, Cu, Pb and Zn by meiofauna populations living in harbour sediment: their role in the heavy metal flux from sediment to food web. *The Science of the Total Environment*, **243**: 263–272.

Friedrichs M, Graf G, Springer B (2000). Skimming flow induced over a simulated polychaete tube lawn at low population densities. *Marine Ecology Progress Series*, **192**: 219−228.

Ganapati P.N., Satyavati P (1958). Report on the foraminifera in bottom sediments in the Bay of Bengal off the East coast of India. In: *Andhra University Memoirs in Oceanography* II **62**: 100 – 127.

Giere O (2008). Meiobenthology. The microscopic fauna in aquatic sediments. *Berlin, Heidelberg*: *Springer*.

Gourbault N & Renaud - Mornant J (1990). Micro - Meiofaunal Community Structure and Nematode Diversity in a Lagoonal Ecosystem (Fangataufa, Eastern Tuamotu Archipelago). *Marine Ecology*, ***11***(2), 173-189.

Gourbault NE, Warwick RM, Helleouet MN (1995). A survey of intertidal meiobenthos (especially Nematoda) in coral sandy beaches of Moorea (French Polynesia). *Bull Mar Sci,* 57:476-488.

Gray JS, Elliot M (2009). Ecology of marine sediments. From science to management. 2nd ed. New York: *Oxford University Press*: 225 pp.

Heip C, Vincx M, Vranken G (1985). The Ecology of Marine Nematodes. *Oceanogr Mar Biol Ann Rev*, **23**: 399-489.

Heip C, Warwick RM, Carr MR, Herman PM, Huys R, Smol N & Van Holsbeke K (1988). Analysis of community attributes of the benthic meiofauna of Frierfjord/Langesundfjord. *Marine Ecology Progress Series*, *46*, 171-180.

Higgins RP, Thiel H (1988). Introduction to the study of meiofauna. Washington, DC, USA: Smithsonian Institution Press.

Holme NA and AD McIntyre (1984). Methods for the Study of Marine Benthos. *Blackwell Scientific Publications*. *Oxford pp*: 217-244.

Ingole B and Singh R (2010). Biodiversity and community structure of free living marine nematodes from the Larsemann Ice Shelf, East Antarctica, *Current Science*, **99** (10) 1413- 1419.

Kumar A, Sen D, Bhadury P (2014). Unraveling free-living marine nematode community structure from a biodiversity-rich tropical coastal setting based on molecular approaches. *Marine Biodiversity*.

Lang K (1965). Copepoda. Harpacticoidea from the Californian Pacific Coast. *Kungl Svensk Vetensk Akad Handl,* **10**: 566.
Lambshead PJD & Boucher G (2003). Marine nematode deep‐sea biodiversity–hyperdiverse or hype?. *Journal of Biogeography*, **30**(4), 475-485.
Lambshead P. J. D. (1984). The nematode–copepod ratio. Some anomalous results from the Firth of Clyde. *Marine Pollution Bulletin*, **15**: 256–259.
Lambshead PJD, Chen ZX, Chen WY, Chen SY & Dickson SW (2004). Marine nematode diversity. *DOI:10.1079/9780851996455.0438*
Lampadariou N, Austen MC, Robertson N and Vlachonis G (1997). Analysis of meiobenthic community structure in relation to pollution and disturbance in Iraklion harbour, *Greece. Vie et Milieu*, **47**: 9–24.
Lee MR, Correa JA, Castilla JC (2001). An assessment of the potential use of the nematode to copepod ratio in the monitoring of metals pollution. The Chanaral case. *Marine Pollution Bulletin*. **42**: 696-701.
Nanajkar MR, Ingole BS (2007). Nematode species diversity as indicator of stressed benthic environment along the central west coast of India. In: Desai, P.V., Roy, R. (Eds.), Diversity and Life Processes from Ocean and Land. *Goa University, India*, pp. 42–52.
Naveenbabu M, Vijaya Bhanu Ch and Annapurna C (2016). Five new records of free-living marine nematodes (Nematoda: Enoplida) from Indian waters". *Indian Journal of Geo-Marine Science*.
Ndaro SG & Olafsson E (1999). Soft-bottom fauna with emphasis on nematode assemblage structure in a tropical intertidal lagoon in Zanzibar, eastern Africa: I. Spatial variability. *Hydrobiologia*, **405**, 133-148.
Morkhoven FPCM (1962-63). Post Paleozoic Ostracoda and their morphology, taxonomy and economic use. *Amsterdam*, *Elsevier*, Vol I&II pp: 478.
Platt HM, Warwick RM (1980). The significance of free living nematodes to the littoral ecosystems. In: Price, J.H., Irvin, Farnham, W.F. (Eds.), Ecosystem. *The Shore Environment*, vol. **2**. Academic Press, New York, NY, pp. 729–759.
Platt HM & Warwick RM (1983). *Freeliving marine nematodes. Part 1: British enoplids. Pictorial key to world genera and notes for the identification of British species*. Cambridge University Press, for the Linnean Society of London and the Estuarine and Brackish water Sciences Association.
Platt HM and Warwick RM (1988). Free living marine Nematodes – Part II (Order Chromadorida). The Linnean Society of London and the Estuarine and Brackish-Water Sciences Association, New York, pp.1-502.
Platt HM, Shaw KM & Lambshead PJD (1984). Nematode species abundance patterns and their use in the detection of environmental perturbations. *Hydrobiologia*, **118**(1), 59-66.
Platt HM, Warwick RM, Somerfield PJ (1998). Free living marine nematodes Part I British Enoplids *Cambridge University press Cambridge.*
Raes M, De Troch M, Ndaro SGM, Muthumbi A, Guilini K & Vanreusel A (2007). The structuring role of microhabitat type in coral degradation zones: a case study with marine nematodes from Kenya and Zanzibar. *Coral Reefs*, **26**(1), 113-126.
Sajan S, Damodaran R (2007). Faunal composition of meiobenthos from the shelf region off west coast of India. *Journal of the Marine Biological Association of India*, **49**: 19-26.
Sajan S, Joydas TV, Damodaran R (2010). Meiofauna of the Western Continental shelf of India, Arabian sea. *Cont She Res*, **86**: 665-674.

Sanders HL (1968). Marine benthic diversity: A comparative study. *The American Naturalist*. **102**: 243 – 282.
Semprucci F, Colantoni P, Baldelli G, Rocchi M & Balsamo M (2010). The distribution of meiofauna on back‐reef sandy platforms in the Maldives (Indian Ocean). *Marine Ecology*, **31**(4), 592-607.
Semprucci F, Colantoni P, Sbrocca C, Baldelli G & Balsamo M (2014). Spatial patterns of distribution of meiofaunal and nematode assemblages in the Huvadhoo lagoon (Maldives, Indian Ocean). *Journal of the Marine Biological Association of the United Kingdom*, **94**(07), 1377-1385.
Semprucci F, Colantoni P, Sbrocca C, Baldelli G, Rocchi M, Balsamo M (2011). Meiofuana in sandy back-reef platforms differently exposed to the monsoons in the Maldives (Indian Ocean). *J Mar Syst,* 87:208–221.
Semprucci F, Colantoni P, Sbrocca C, Baldelli G & Balsamo M (2014). Spatial patterns of distribution of meiofaunal and nematode assemblages in the Huvadhoo lagoon (Maldives, Indian Ocean). *Journal of the Marine Biological Association of the United Kingdom*, **94**(07), 1377-1385.
Semprucci F, Losi V & Moreno M (2015). A review of Italian research on free-living marine nematodes and the future perspectives on their use as Ecological Indicators (EcoInds). *Mediterranean Marine Science*, **16**(2), 352-365.
Shiells GM and Anderson KJ (1985). Pollution monitoring using the nematode–copepod ratio. A practical application. *Marine Pollution Bulletin*, **16**: 62–68.
Simboura N, Zenetos, A (2002). Benthic indicators to use in ecological quality classification of Mediterranean soft bottoms marine ecosystems, including a new biotic index. *Mediterranean Marine Science*, **3/2**: 77-111.
Snelgrove PVR, Blackburn TH, Hutchings PA, Alongi DM and 7 others (1997). The importance of marine sediment biodiversity in ecosystem processes. *Ambio* **26**: 578–583.
Timm RW (1961). The marine nematodes of the Bay of Bengal. *Proceedings of Pakistan Academy of Science*s **1**, 1–88.
Timm RW (1967). Some estuarine nematodes from the Sunderbans. In: *Proceedings of the Pakistan Academy of Science* (**4**, No. 1, 1-13).
Vanhove S, Arntz W, Vincx M, (1999). Comparative study of the nematode communities on the southeastern Weddell Sea shelf and slope (Antarctica). *Mar Ecol Prog Ser* **181**: 237-256.
Vedantam D, Subba Rao M (1970). Recent foraminifera off Pentakota, East Coast of India *Micropalaeontology* **16** (3): 325–344.
Vijaya Bhanu CH, Annapurna C, Srinivasa Rao M, Siva Lakshmi MV, Sanjeevi P & Satyanarayana A (2013). New Records of Free-Living Marine Nematodes (Nematoda: Enoplida) from East Coast of India IJSR – International Journal Of Scientific Research **2**(11).
Warwick RM (1988b). The level of taxonomic discrimination required to detect pollution effects on marine benthic communities. *Marine Pollution Bulletin*, **19**(6), 259-268.
Warwick RM and R Price (1979). Ecological and metabolic studies on free-living nematodes from an estuarine mudflat. *Estuarine and Coastal Marine Science*. **9** 257-271.
Warwick RM, Platt HM, SomerWeld PJ (1998). Free-living marine Nematodes Part III Monhysterids. In: Barnes RSK, Crother JH (eds) Synopses of the British Fauna (New Series). The Linnean Society of London, Shrewsbury, 1–296.
Wieser W (1959). Free-living nematodes and other small invertebrates of Puget Sound beaches. *The University of Washington Press,* 179.

CIBTech Journal of Zoology ISSN: 2319–3883
Online, International Journal, Available at http://www.cibtech.org/cjz.htm
2026 Vol.15, pp.85-111/Satyanarayana and Gowri
***Research Article** (Open Access)*