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Taxonomical Keys for Morphological Identification of Coral-Associated Polychaetes from Great Nicobar Islands

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Abstract

The present study illustrates the insufficient taxonomy records and highlights the better knowledge of microscopic diagnostic tool in polychaete taxonomy. It leads to better understanding of coral-associated polychaete taxonomy in Great Nicobar Islands, India. Total 24 species under 14 genera, 7 orders, and 11 families were identified for the identification key purpose, in spite of 3 species of Phyllocidae, 8 species of Nereidae, 5 species of Eunicidae, 2 species of Spionidae, and 1 species of Opheliidae, Sabellariidae, Terebellidae, Polynoidae, Amphinomidae, and Sabellidae. The current status of taxonomic information varies greatly among taxa and among geographic areas within taxa. Problems include nomenclature, diagnoses, and determination of taxonomic relationships. We provide examples of a variety of these problems. Each species has distinct features of the particular families, and taxonomic section of this chapter to assists the polychaete identification is necessary to assess the biodiversity and taxonomy of at any levels. This chapter considers the importance of monitoring biological diversity, current morphological taxonomy of polychaetes and describes the approach developed for protected areas in Great Nicobar Islands.

Keywords: polychaetes, taxonomy, Great Nicobar, identification, coral reef

1. Introduction

Generally, the taxonomy is essential for basic identification keys for animal kingdom to learn about the global biodiversity, in a better way, and gain the knowledge and understanding of bio-resources and its wise use. Correct identification of the organisms is necessary to analyze and assess the biological diversity of an ecosystem at all levels, namely, diversity among ecosystems, phyletic diversity or diversity of species, and their genetic diversity among species receiving increasing attention [1, 2]. Polychaetes are a large group of segmented worms that display a wide range of morphological diversity [3]. Identifying organisms precisely at species level is fundamental to any ecological research and environmental monitoring. Generally, identification of polychaetes at species rank is quite difficult without illustrated monographs which may have been hampered by their morphological similarity to their fully marine counterparts [4]. Polychaetes vary widely from

generalized pattern and can display a range of different body forms. The most generalized polychaetes are those that crawl along the bottom, but others have adapted many different ecological niches including burrowing, pelagic life, tube dwelling or boring, and commensalism and parasitism, requiring various modifications to their body structure.

In polychaete taxonomy, parapodia are the important organ for identification particularly segment of origin, shape, and structural composition in body regions. Special features of branchiae or occurrences of multiple cirri are also important. A key morphological feature of seta construction, notopodia for the superfamilial and ordinal levels, and development of each ramus with the various parapodial lobes and cirri are very important at the generic and species levels. The presence of branchiae may not even be considered a specific character [5]. A number of pioneering conventional taxonomic studies on polychaetes were made by Fauvel [6, 7], Day [8] and Fauchald [9]. There is yet a lag in making taxonomic information available in many ecological programs and databases for polychaetes. In early studies, all the characteristics were mainly featured by diagrammatic figures. The importance of accurate examination of the setae is still underestimated by most taxonomists; the precise observations must require close microscopic analysis to make proper identification, which should be followed for all taxonomic studies as a routine [9]. Thus, the present study was focused to analyze the taxonomical features of Great Nicobar Island polychaetes through advance magnification techniques to improve the quality and precision of identification through key characteristic features.

2. Materials and methods

2.1 Study area

Great Nicobar Islands, the southernmost land piece of India, has the greatest length of about 55 km between North Murray Point and South Indira Point. It has a width of about 30 km in the north but narrows down to about 3 km at the southern tip (**Figure 1**). In the present study, samples were collected from 11 different stations in the intertidal region of the Great Nicobar Islands (**Tables 1 and 2**).

2.2 Sample collection

Samples collected from the intertidal areas, the dead coral material were broken down in to smaller fragments with the help of hammer and chisel. Polychaetes picked with the help of forceps were transferred to plastic containers, before fixation, into strong alcohol to have their pharynx everted, which will aide in the identification of the group. Samples were fixed with 10% formalin diluted with seawater and were later transferred to 70% ethanol the purpose of staining, Rose Bengal stain was used.

2.3 Examination of specimens

Stained specimens were placed in petri dish containing tap water to dissect the morphological features of parapodia and proboscis of the jaws and other features of all the family which were made into thin sections with a surgical blade (No. 2) and were mounted on slides to examine under a compound binocular microscope (Olympus CX41). Specimens were sorted up to genus level, and later detailed examination staining of specimens with Rose Bengal provided a useful diagnostic tool.

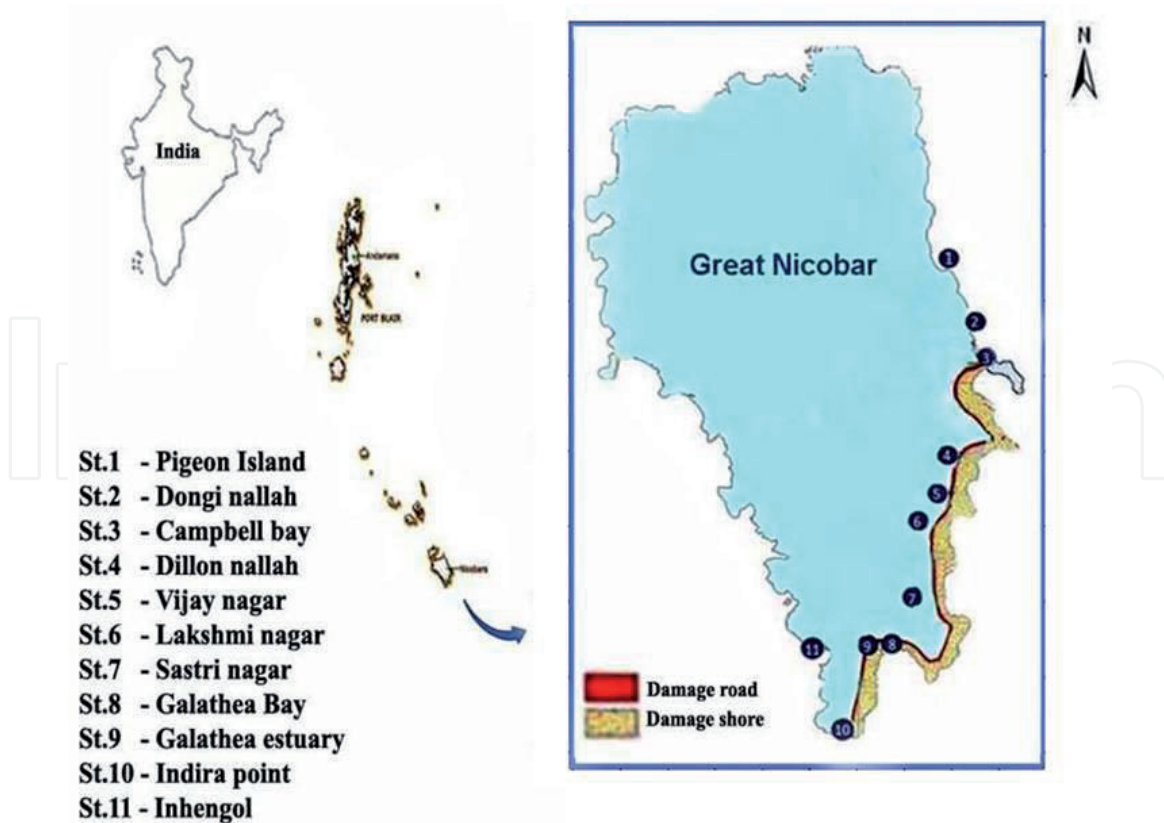


Figure 1.
 The map showing the sampling point along the Great Nicobar Islands.

Station no.	Station name	Latitude	Longitude	Coast	Substrate type
1.	Pigeon Island	07°05.823' N	93°53.010' E	East	Small pebbles on the western side and huge rocks on the eastern side
2.	Dongi nallah	07°01.700' N	93°53.933' E	East	On the northern side of the nallah, the coast is rocky
3.	Campbell Bay	06°55.962' N	93°55.896' E	East	Vast dead coral patches are found on the northern side between the "B" quarry and breakwaters
4.	Dillon nallah	06°55.962' N	93°54.770' E	East	The coast is sandy on the southern side, while vast stretches of coral rubbles are on the northern side of the seashore
5.	Vijaynagar	06°54.606' N	93°55.770' E	East	Up to 3 km seawards during low-tide periods, vast stretches of dead corals and rocks extend both northwards and southwards being exposed
6.	Lakshmi Nagar	06°52.993' N	93°55.990' E	East	At this station, dead coral patches observed on the landward side
7.	Sastri Nagar	06°48.163' N	93°53.304' E	East	Rocky shore and vast stretches of coral reefs. These rocks and dead corals are exposed up to a distance of 2 km
8.	Galathea Bay	06°49.166' N	93°51.544' E	East	This bay has a sandy coast for about 2 km along with rocky shore
9.	Galathea estuary	06°48.974' N	93°51.810' E	East	Collection sites were mangroves surrounding the estuarine region about 1.5 km upstream

Station no.	Station name	Latitude	Longitude	Coast	Substrate type
10.	Indira Point	06°45.293' N	93°49.648' E	South	The Great Channel (international sea route) lies at a distance of 60 km south from this point in the Indian Ocean. Vast stretches of dead corals and sand substratum
11.	Inhengloi	06°48.185' N	93°47.871' E	West	The dead coral patches are found at the northern end which are exposed to about 2.5 km during low tides

Table 1.
Sampling stations and substrate type of the Great Nicobar Islands.

Sl. no.	Scientific name	Habitat	Collected station
1.	<i>Eurythoe complanata</i> (Pallas, 1766)	Rocks and dead corals	St. 2, 3, 5, 6, 7, 8, and 10
2.	<i>Iphione muricata</i> (Savigny, 1818)	Dead corals, crevices and surface of live corals	St. 1–8, 10. and 11
3.	<i>Phyllodoce quadraticeps</i> (Grube, 1878)	Dead corals crevices and beach rocks	St. 3, 4, 5, 7, 8, 10, 11. and 13
4.	<i>Phyllodoce fristedti</i> (Bergstrom, 1914)	Crevices of dead corals and beach rocks	St.1 and 4
5.	<i>Phyllodoce castanea</i> (Marenzeller, 1879)	Crevices of dead corals and beach rocks	St. 2–7 and 8
6.	<i>Ceratonereis mirabilis</i> (Kinberg, 1866)	Silty sand substratum under coral rubbles and surface of dead corals	St. 1–10
7.	<i>Perinereis nigro-punctata</i> (Horst, 1889)	Found among oysters and dead coral crevices of low tide	All station except St. 9
8.	<i>Perinereis nuntia brevicirrus</i> (Grube, 1876)	Found among barnacles and oysters and in dead coral crevices at low tide	St. 2, 3, 5, 6,7. and 11
9.	<i>Perinereis nuntia caeruleis</i> (Hoagland, 1920)	Boring into dead corals to live on cavity	St. 2, 3, 6, 7, 8, 10. and 11
10.	<i>Perinereis vancaurica</i> (Ehlers, 1868)	Occurs in intertidal areas of oyster- and barnacle-encrusted coral rocks	St. 1, 2, 3, 5, 7. and 11
11.	<i>Perinereis cultrifera</i> (Grube, 1840)	Boring in dead corals and living in coral cavity	All the 11 stations
12.	<i>Perinereis cultrifera typica</i> (Grube, 1840)	Boring in dead corals and living under rocks	All the stations except St. 6
13.	<i>Pseudonereis variegata</i> (Grube, 1857)	Burrowing on rocks and dead and live corals	All the 11 stations
14.	<i>Eunice antennata</i> (Savigny 1820)	Boring into dead corals and beach rocks	St. 1–8 and 11
15.	<i>Eunice vittata</i> (Delle Chiaje, 1825)	Boring into dead corals and living on cavity of dead corals and rocks	St. 1, 3, 5. and 9
16.	<i>Eunice afra punctata</i> (Peters, 1854)	Boring into beach rocks and dead corals	St. 2–8 and 10
17.	<i>Lysidice collaris</i> (Grube, 1870)	Boring in dead corals and living on crevices of dead corals	St. 1–8, 10, and 11
18.	<i>Lysidice ninetta</i> (Audouin & Milne Edwards, 1833)	Boring in dead corals and living on cavity of corals	St. 2–8 and 10

Sl. no.	Scientific name	Habitat	Collected station
19.	<i>Malacocers indicus</i> (Fauvel, 1928)	Occurring in silty coral line sediments with sandy shore regions	St. 3
20.	<i>Scolelepis squamata</i> (Muller, 1806)	Silty sediments in sandy shore areas	St. 1, 2, 3, 9, and 11
21.	<i>Aramandia leptocirrus</i> (Grube, 1878)	Silty sediments in littoral region of sandy shore	St.1–7, 9–11
22.	<i>Idanthyrus pennatus</i> (Peters, 1985)	Hard tube formed with sand particles on corals and rocks	St. 2–7 and 10
23.	<i>Terebella ehrenbergi</i> (Grube, 1870)	Soft tube forming on dead and live corals at 1 m water depth	St. 2, 4, 5, 7, 8, and 11
24.	<i>Megalomma quadrioculatum</i> (Willey, 1905)	Tube forming (boring) on corals at 1 m water depth, living inside of the tubes	St. 3 and 7

Table 2.
Systematic account and species habitat along the Great Nicobar Islands.

The diagnostic tool in some families had good refractive qualities even at high magnification, and thickness of the mount was easily controlled. A thicker mount was necessary when viewing larger structures such as parapodia, cross sections, and the whole animal as such. The specimen was mounted in lacto-phenol and then heated carefully to avoid air bubbling. This procedure clears the tissue immediately making chitinized internal structures such as jaws and acicula more visible. Compound microscope was used to elucidate the small structures of setae and the permanent mounts of the parapodia and setae with polyvinyl lactophenol. All the characteristic features of the polychaetes focused in the light microscope and labeled image were done by correct pathway. All the species were identified with the help of the standard illustrated manuals of Fauvel [7] and Day [8].

3. Results

At all stations, polychaetes were found to be the dominant group with 24 species belonging to 2 major classes, 14 genera, and 7 orders with 11 different families selected for the morphological studies. Among these Polynoidae, Amphinomidae, Sabellariidae, Terebellidae, Sabellidae, and Opheliidae accounted for 1 species in their group, and the rest comprised of 3 Phyllocidae, 8 Nereidae, 5 Eunicidae, and 2 Spionidae. Each species has distinct features, and the taxonomic section serves as a key to genera, generic diagnoses, and species identification with their physiological characteristics. Each species description comprised several sections.

3.1 Systematic account

3.1.1 Species description

Eurythoe complanata (Pallas, 1766)

Aphrodita complanata [10]: 109.

Eurythoe alcyonaria [11]: 248, pl. 9 figs. 140–143, pl. 10 figs. 144–146, text-figs. 257–268.

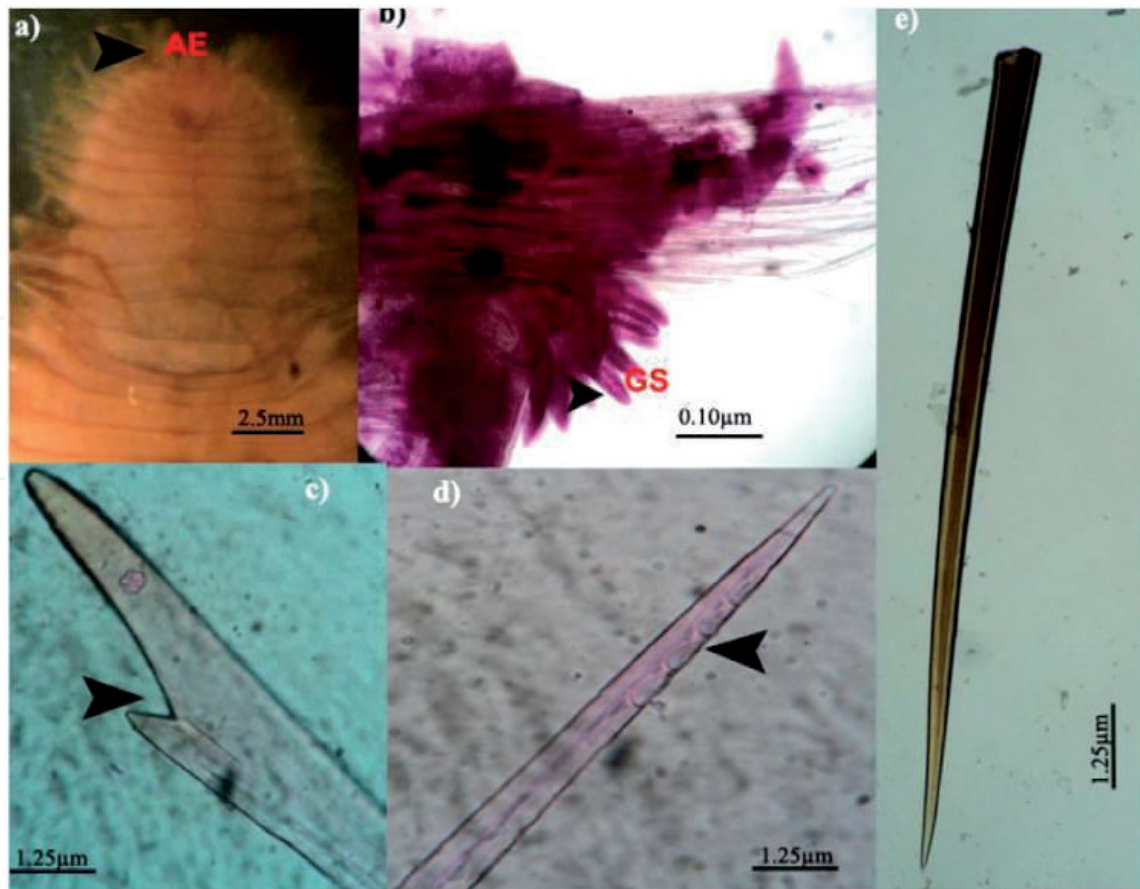


Figure 2.

Eurythoe complanata (a) anterior end, (b) anterior foot, (c) stout neurosetae, (d) Harpoon setae, and (e) smooth notopodial spine.

Eurythoe complanata [7]: 83, fig. 38b-m; [8]: 128–129, fig. 3.2i-l; [12]: 734; [13]: 200; [14]: 74; [15]: 95.

Habitat: Living in crevices of rocks and dead corals.

Description: Body elongated, 10–15 mm wide, and dorsoventrally flattened; prostomium with pair of eyes having three antennae (**Figure 2a**). One pair of palps is color pale red with light brown branchiae and white setae. The caruncle terminates on the anterior part of the fourth setiger. Its lateral lobes are not very clear since they are hidden. Gills begin on the second setiger and extend to the end of the body (**Figure 2b**). The notosetae vary greatly and are long and white with a slender, elongated tip and a few serrations along the cutting edge together with a spur below the serrations; large, straight, and harpoon-shaped setae with recurved fangs (**Figure 2d**). The neurosetae are short forked with unequal prongs (**Figure 2c**), and slender setae have a small spur (**Figure 2e**).

Remarks: On irritation, the worms erect their setae which break off easily releasing the poisonous contents.

Distribution: Tropical waters of Pacific, Indian, and Atlantic Oceans, Mergui, Ceylon, Great Barrier Reef, Florida, West Indies, Australia, Zanzibar, Maldives, and Madagascar. India: Lakshadweep, Gulf of Mannar, Andaman and Nicobar Islands, and Gujarat and Orissa coast.

***Iphione muricata* (Savigny, 1818)**

Polynone muricata [16]: 308, pl. 3 fig. 1.

Iphione muricata [11]: 226, pl. 9 figs. 129-135; [7]: 32; fig. 13a-e; [8]: 43 fig. 1.3a-f; [13]: 197; [17]: 55; [18]: 140.

Habitat: Dead corals and cervices and surface of live corals.

Description: Body oval, much flattened, 20–22 mm long (**Figure 3a**). Prostomium is square deeply bilobed with two tentacles and four eyes (**Figure 3b**).

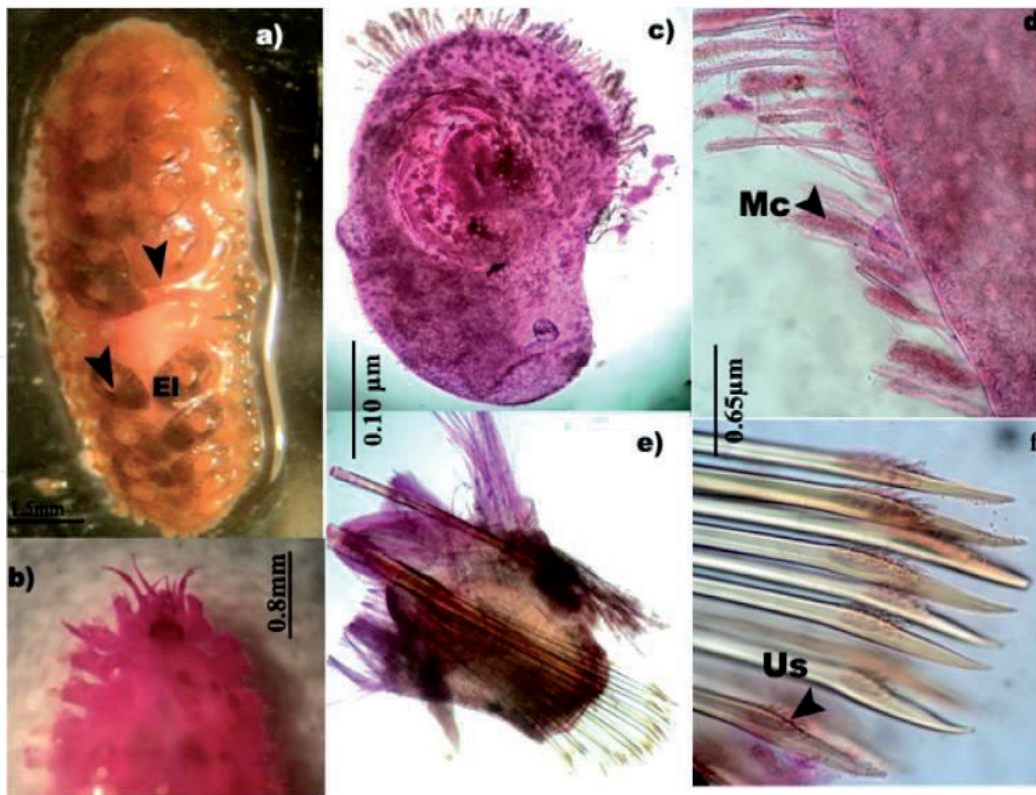


Figure 3.
Iphione muricata (a) entire worm, (b) anterior end, (c) elytra, (d) marginal capillaries, (e) setae, and (f) enlarged view of setae.

Lateral antenna terminal with large ceratophores is fused to the facial tubercle. Median antennae are represented by a small papilla posterodorsal in position and usually hidden under the nuchal fold dorsally covered by 13 pairs of tough imbricating elytra (**Figure 3c**) which are large and reniform; they are divided into punctate polygonal areas with one to two rows of stout chitinous projection and long adhesive papillae near the posterior margin (**Figure 3d**). Ventral cirri are papillose, and notopodium has very fine numerous short setae (**Figure 3e**). Neurosetae are stout with smoothly curved apical portion (**Figure 3f**). Neuropodium is large and truncate with numerous stout unidentate setae ornamented with transverse striations.

Remarks: The present material agrees well with the earlier descriptions.

Distribution: Mozambique, South Africa, Madagascar, Maldives, Sri Lanka, Mergui, Philippines, Japan, and Solomon Islands. India: Lakshadweep, Andaman and Nicobar Islands, and Gulf of Mannar.

***Phyllodoce quadraticeps* (Grube, 1878)**

Phyllodoce quadraticeps [19]: 98; [20]: 198, pl. 10 figs. 22-24, text-figs. 56-60; [8]: 145, fig. 5.2h-j; [13]: 201.

Habitat: Crevices of dead corals and beach rocks of intertidal zone.

Description: Body elongated, 400–460 mm long with numerous segments. Each segment is slender and yellowish with a dark crossbar on. Prostomium is oval or square with an occipital papilla in the posterior notch (**Fig. 4a**). Antennae are ovoid dorsally; first tentacular segments are not visible, but the second and third are distinct and separate. Tentacular cirri are cylindrical; others are tapered having long cirrophores and short swollen cirrostyles. Tentacular segments without setae. Dorsal cirri are reddish, oval, broader, and long (**Figure 4b**). Setigerous lobes are long and faintly bilobed. Ventral cirri are oval and uniramous, and parapodia have compound seta spinigers (**Figure 4c and d**).

Remarks: The present material agrees well with the descriptions of Day [8].

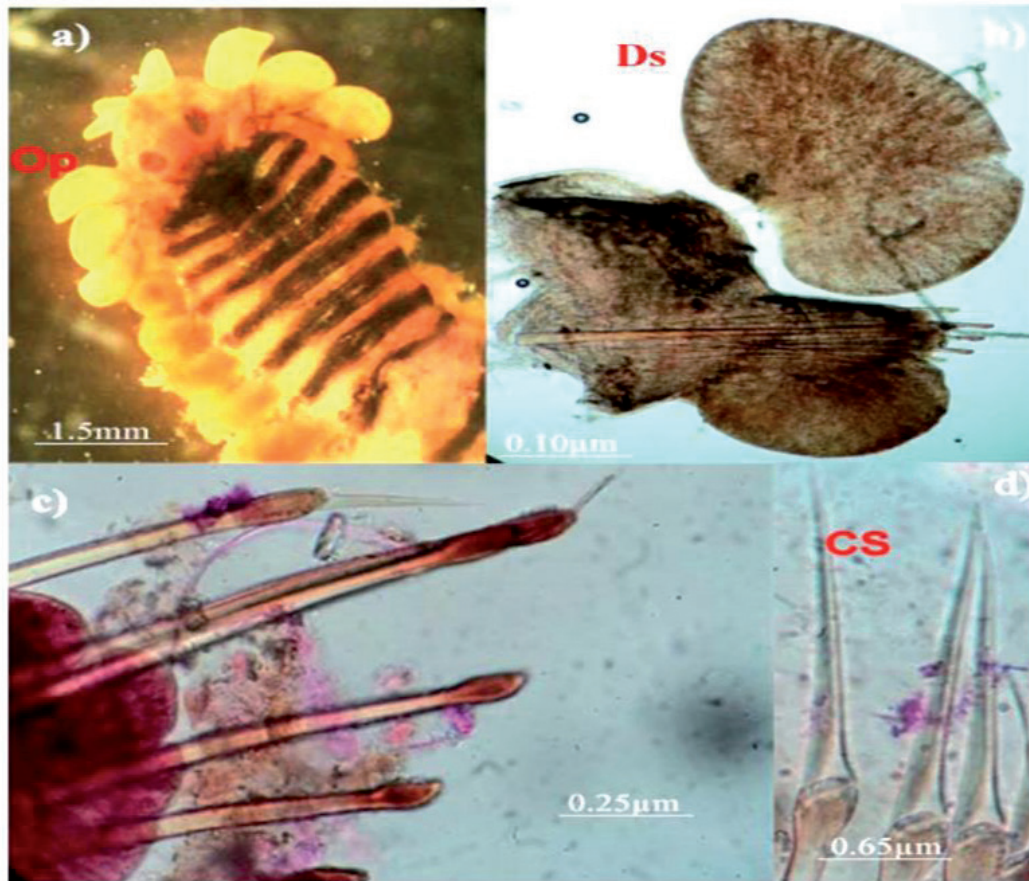


Figure 4.
Phyllodoce quadraticeps (a) anterior end, (b) anterior foot, (c) setae, and (d) spinigers.

Distribution: Pacific Ocean, Korea, New Caledonia, Philippines, Indian Ocean, and Red Sea. India: Andaman and Nicobar Islands.

***Phyllodoce fristedti* (Bergstrom, 1914)**

Phyllodoce fristedti [21]: 152, pl. 3 fig. 1, text-fig. 49; [7] :118, fig. 58a–b; [22]: 636, 1967: 147, fig. 5.2k–m; [23]: 104.

Habitat: Crevices of dead corals and beach rocks in intertidal zone.

Description: Body long, slender with numerous segments. Prostomium is heart shaped with a pair of prominent black eyes (**Figure 5a**). Posterior margin of prostomium is notched and a small occipital tentacle is present. Four short subulate tentacles. The longest tentacular cirri reach back to the seventh setiger. Numerous irregular rows of short papillae at the base of the long proboscis. Feet are uniramous (**Figure 5b**). Dorsal and ventral cirri are foliaceous, lanceolate, nearly twice as long, and broad. Ventral cirri are small and broad (**Figure 5c**). Compound setae are minutely serrated (**Figure 5d**).

Remarks: The present material agrees well with the descriptions of Day [8].

Distribution: Indian Ocean and Ceylon. India: Andaman and Nicobar Islands.

***Phyllodoce castanea* (Marenzeller, 1879)**

Carobia castanea [24]: 127; [25]: 199, pl. 21 fig. 3.

Genetyllis castanea [26]: 158, fig. 53, pl. 3 fig. 3; [7]: 115, fig. 56a–c.

Phyllodoce castanea [8]: 149, fig. 5.3d–f.

Habitat: Crevices of dead corals and beach rocks of intertidal zone.

Description: Body is short with some red pigmentation; prostomium is bluntly triangular with four antennae (**Figure 6a**); no occipital tentacles. Tentacular segments are separated from the prostomium, but the first is often fused to the second, and only the third is separated dorsally and distinct. Proboscis is slender with covered small irregular arranged papillae. All tentacular cirri are short and spindle

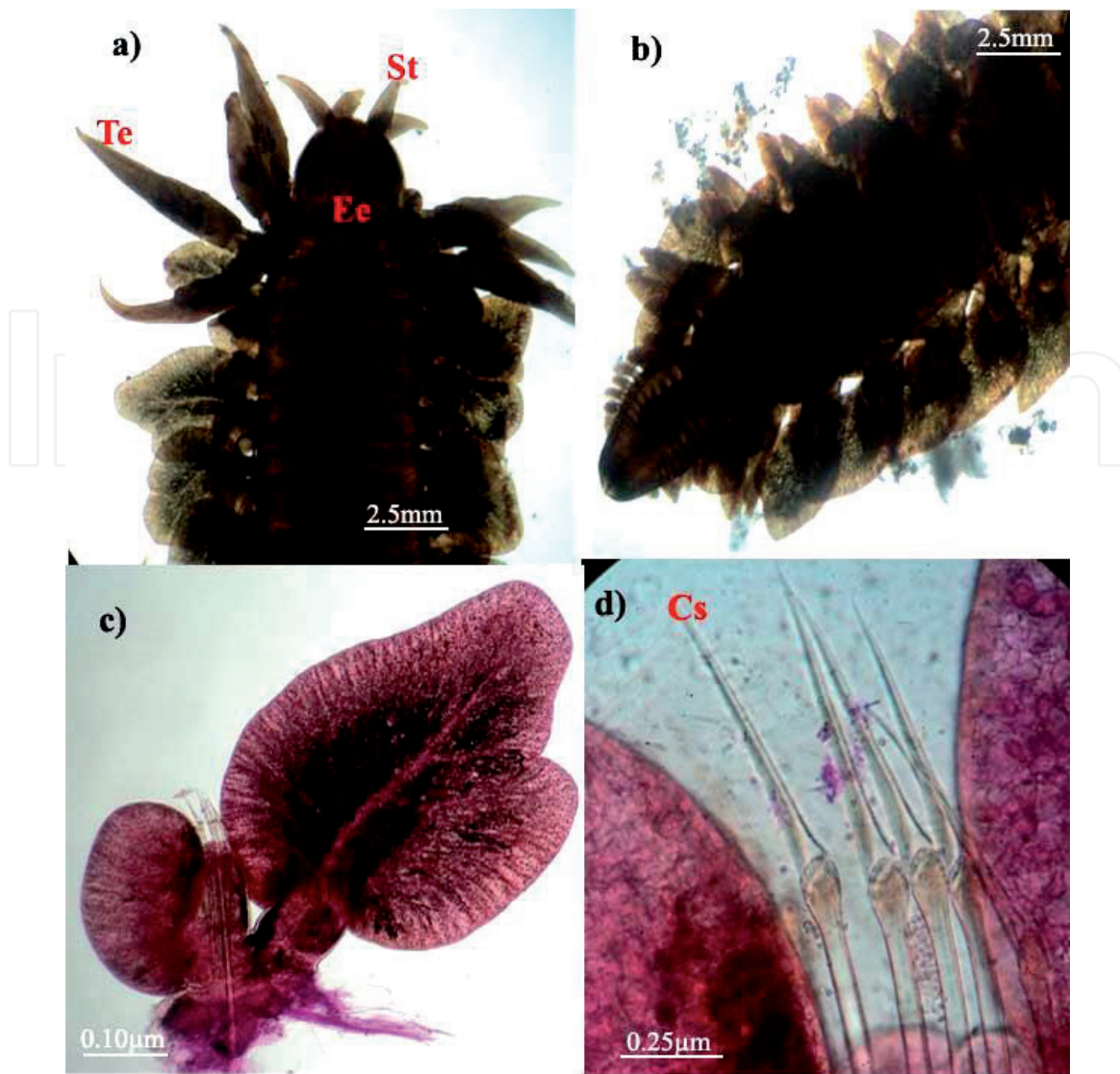


Figure 5.
Phyllodoce fristedti (a) anterior end, (b) anterior foot, (c) posterior foot and (d) setae.

shaped. The second and third tentacular segments with setae. Dorsal cirri are cordate and reddish, and setigerous lobes are bluntly rounded apically (**Figure 6b**). Ventral cirri are oval. Setae are few, with long shafts ending in truncate and strongly striated shaft heads. Blades are short and dagger-like (**Figure 6c**).

Remarks: In earlier description this species is the first record in Andaman and Nicobar waters.

Distribution: Australia, Japan, New Zealand, Ceylon, Red Sea, California, Tuticorin pearl bank, and India.

***Ceratonereis mirabilis* (Kinberg, 1866)**

Ceratonereis mirabilis [27]: 170; [11]: 172, pl. 11, fig. 42; [7]: 200, fig. 103a–e; [8]: 324, fig. 14.10a–f; [18]: 145.

Habitat: Silty sand substratum under coral rubbles and surface of dead corals.

Description: The prostomium is broad, more than twice as wide as long and has a deep cleft between the antennae. The basalia of palps is quite long, and terminalia is button shaped (**Figure 7a**). Two pairs of eyes in rectangular arrangement. The longest peristomialcirrus extends back to the 17th setiger. Prostomium and dorsum of palps are light green, and dorsum of segment has distinct light green or green-brown band, which becomes lighter toward posterior. The other parts of the body are white. Paragnaths are present only on maxillary ring of the proboscis: I = 0; II = 10–13 cones in 2 oblique clusters; III = 7–9 cones in 1 cluster; and IV = 10–14 cones.

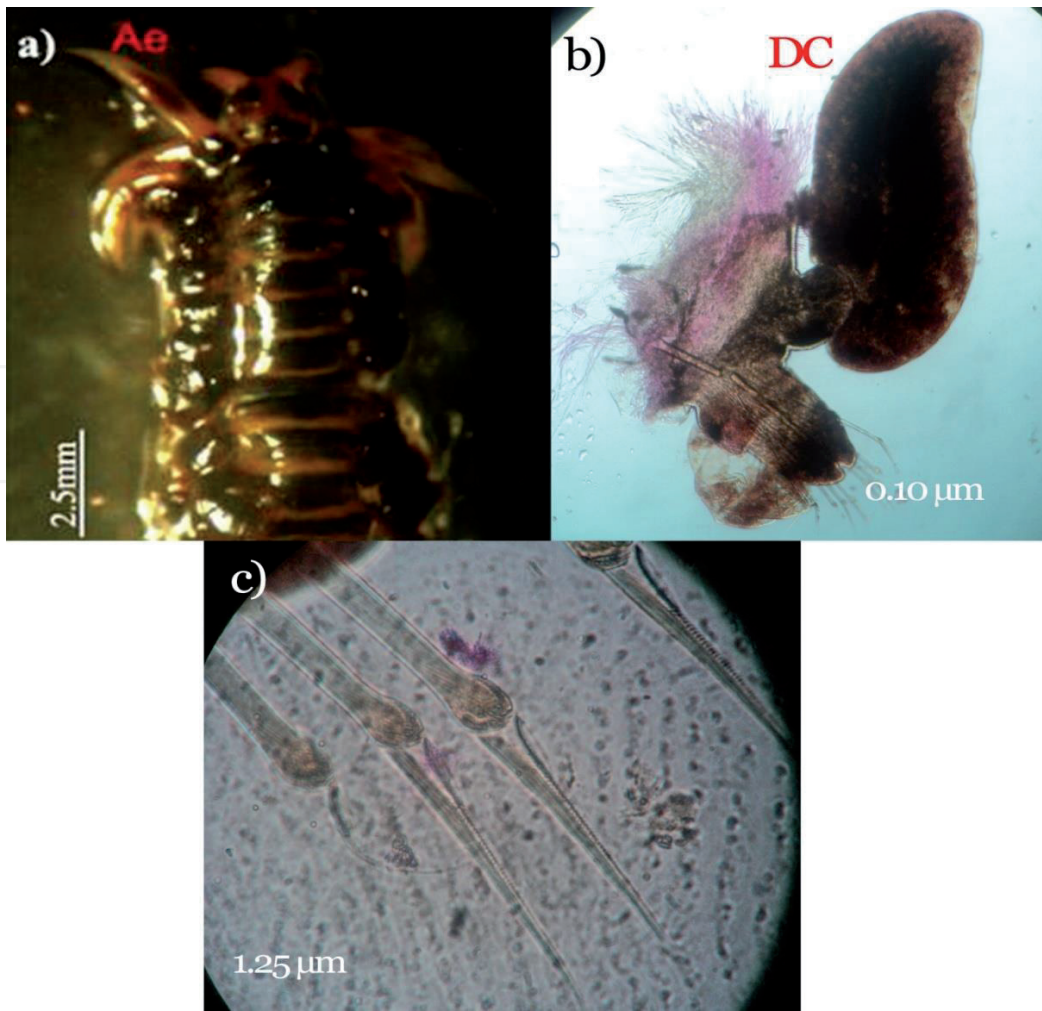


Figure 6.
Phyllodoce castanea (a) anterior end, (b) anterior foot and (c) setae.

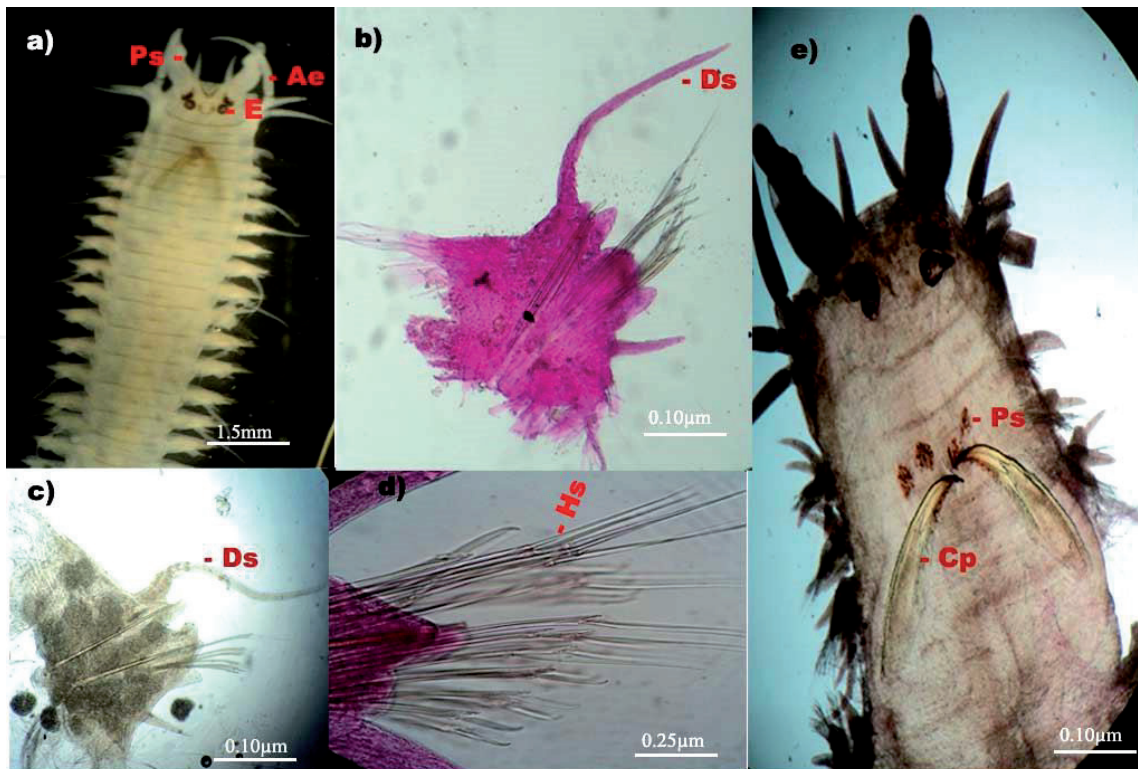


Figure 7.
Ceratonereis mirabilis (a) anterior end, (b) anterior foot, (c) posterior foot, (d) setae, and (e) dorsal view of proboscis.

Lateral teeth of the jaw are indistinct (**Figure 7e**). The first two pairs of parapodia are uniramous, the rest biramous. The dorsal cirrus is very long, three times as long as notoligule. Neuroligule is slightly shorter but thicker (**Figure 7b and c**). The dorsal and ventral cirri are digitate; acicular lobes are very small, only as a projection, shorter than ventral cirrus. The dorsal cirrus of anterior parapodia is five times long as notoligule, and notoligules digitate, while supra-notoligules are thicker.

The acicular lobes of neuropodium are short and distally obtuse; neuroligule is short but slightly longer than neuro-acicular lobe. The dorsal segments of middle and posterior cirrus are rather long. Anterior notoseate are homogomph spinigers. Indistinct heterogomph falcigers appear from the middle parapodium, and the end of terminal piece is beaked. Some posterior setigers bear homogomph falcigers in which the end of terminal piece is bifid. Notopodial falcigers are homogomph; neuropodial falcigers are homogomph (**Figure 7d**).

Remarks: The species is characterized by its cleft prostomium and the presence of notopodial falcigers on posterior setigers.

Distribution: Red Sea, Persian Gulf, Indian and Atlantic Oceans, Japan, New Caledonia, New Zealand, Honolulu, Australia, Brazil, and West Indies. India: Lakshadweep, Andaman and Nicobar Islands, Krusadai Island, Pamban, Kilakarai, Maharashtra, and Goa Coast.

***Perinereis nigro-punctata* (Horst, 1889)**

Nereis nigro-punctata [28]: 171.

Perinereis marjorii [29]: 595.

Perinereis nigro-punctata [30]: 107; [7]: 210; [8]: 337, fig. 14.13r-v; [12]: 741; [14]: 77; [31]: 325; [32]: 202.

Habitat: Found among oysters and dead coral crevices of low tide.

Description: Body 50–60 mm long with three rows of brown marks, and prostomium is “V”-shape trapezoidal with deep median furrow anteriorly; tentacular cirri are short. Palps with robust, short palpophores, and globular palpostyles. Antennae two short, triangular longest tentacular cirri usually extend to third setiger. Peristomium is relatively long (**Figure 8a**). Anterior notopodia, subtriangular; notopodial ligules, conical; median ligules with small superior lobes (**Figure 8b**). Dorsal cirrus is as long as dorsal notopodial lobes on anterior setigers and slightly longer posteriorly (**Figure 8c**). Neuropodia with digitiform superior lobe; low, rounded inferior lobe; shorter post-setal lobe with straight border.

Ventral ligule elongates digitiform longer than remaining notopodial ligules, and ventral cirrus is approximately half as long as ventral ligule. Dorsal notopodial ligule increases in length and expands in posterior setigers with dorsal cirrus distally inserted. Notosetae homogomph spinigers only, with 1–3 robust heterogomph falcigers (**Figure 8d**). Anal cirri are narrow and elongated.

Remarks: The present materials agree well with the earlier descriptions.

Distribution: Malay Archipelago and Great Barrier Reef. India: Andaman and Nicobar Islands, Chilika Lake, Orissa, Gujarat coast, Tuticorin, Cape Comorin, Ganges Delta, Madras Coast, and Bombay Coast.

***Perinereis nuntia brevicirrus* (Grube, 1876)**

Nereilepas brevicirrus [33]: 19.

Perinereis mictodonta var. *mictodontoides* [34]: 117.

Perinereis nuntia var. *brevicirrus* [30]: 110; [7]: 214; [12]: 742.

Habitat: Found among barnacles and oysters and in dead coral crevices at low tide.

Description: Maximum length of specimen is 100 mm long and 6 mm wide. Prostomium is pyriform, with pairs of eyes in trapezoidal arrangement situated on the posterior part of prostomium (**Figure 9a**). Tentacles are short and small and distally slender; the palps are large, and the basalia is expanded; the terminalia is

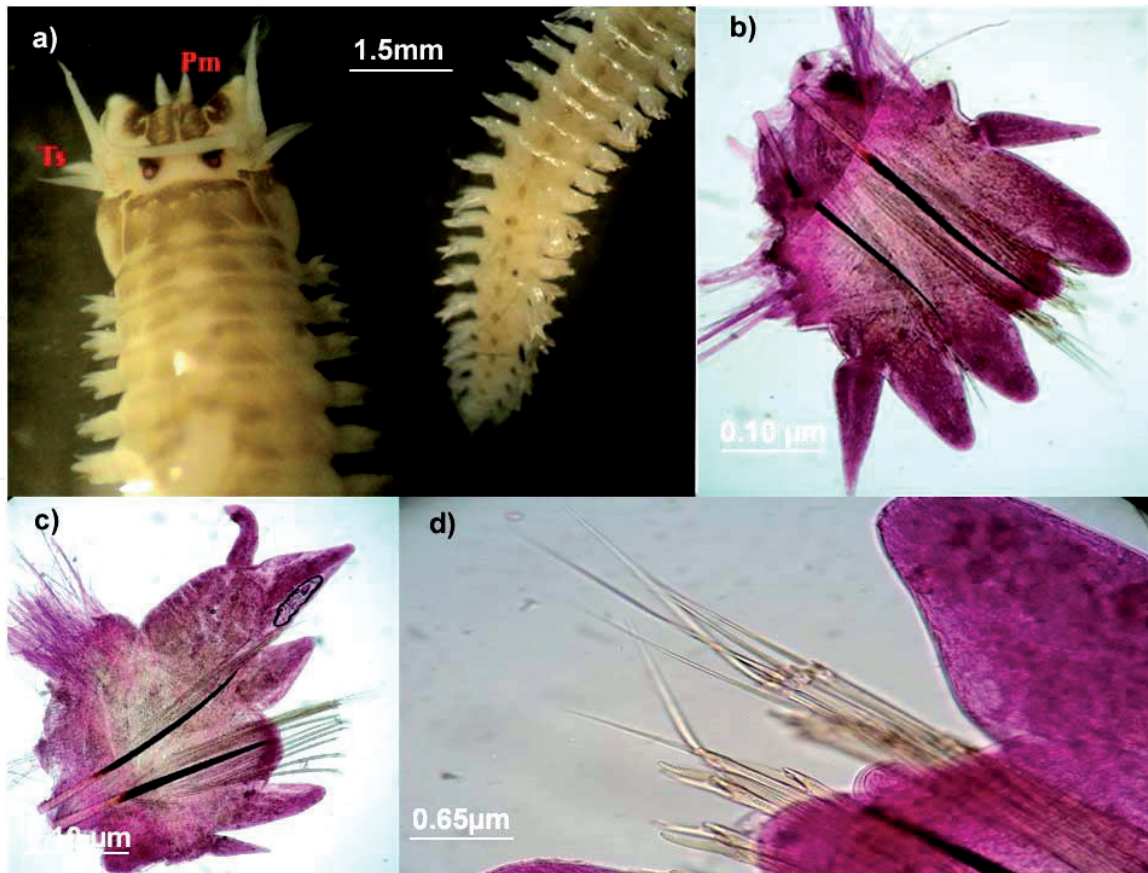


Figure 8. *Perinereis nigropunctata* (a) anterior and posterior end, (b) anterior foot, (c) posterior foot, and (d) setae.



Figure 9. *Perinereis nuntia brevicirrus* (a) anterior end, (b) anterior foot, (c) posterior foot, and (d) setae structure.

very small and button shaped. The longest peristomial cirrus extends back to the seventh setiger.

The paragnaths on proboscis have the following arrangement: I = 3 cones, II = 12–15 cones in 3 oblique rows; III = 13 cones in 3 longitudinal rows; IV = a dense triangular group; V = 3 cones in a triangle; VI = a transverse row of 5–8 flattened broad paragnaths; and VII and VIII = 30–40 cones in 3 irregular rows.

Typical parapodia have all ligules conical with the dorsal longest ones (**Figure 9b**). Dorsal cirri are slender and extend distally somewhat beyond the tips of dorsal ligules (**Figure 9c**). The anterior setigers, more than 10 in a live specimen, are blue-black or green-black; the posterior region is pale-brown. Notosetae with homogomph spinigers and neurosetae with heterogomph falcigers (**Figure 9d**).

Remarks: The present materials agree well with the description of Fauvel [7].

Distribution: Japan, Australia, New Zealand, New Caledonia, Malay Archipelago, Indian Ocean, Saint Paul Island, and Red Sea. **India:** Gulf of Mannar, Tuticorin, Cape Comorin, Andaman and Nicobar Islands, Maharashtra, and Goa Coast.

***Perinereis nuntia caeruleis* (Hoagland, 1920)**

Nereis (*Heteronereis*) *caeruleis* [35]: 608–610, pl. 47 fig. 13–16, pl. 48 fig. 1–4.

Perinereis nuntia caeruleis [36]: 261–262.

Habitat: Boring into dead corals to live on cavity.

Description: Body 120–125 mm long, eyes black in color. A prominent, circular depression present in anterior prostomium between the antennae. Antennae are one third long as prostomium. Tentacular cirri extend back to 2–4 setigers (**Figure 10a** and **b**). Jaws are dark brown with no teeth. Paragnaths I = 0; II = 0; and III = 60–90 in central group; IV = 80–100 cones, bars absent; V = 1 large cones plus 10–15 small cones; VI = 8–12 bars; VII–VIII = about 100–150 very small cones, plus 3–4 large

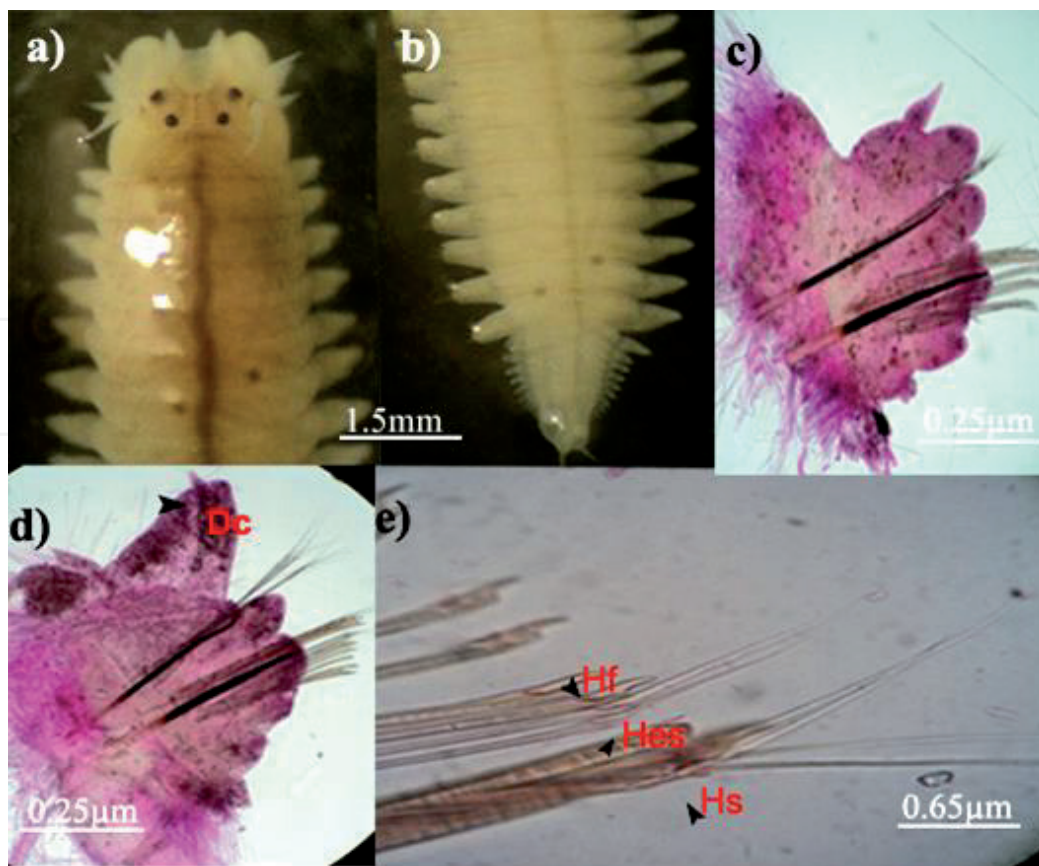


Figure 10. *Perinereis nuntia caeruleis* (a) anterior end, (b) posterior end, (c) anterior foot, (d) posterior foot, and (e) seta structure.

cones on each side close to area VI. Parapodia of first and second setigers are anteriorly directed. Anterior notopodia with two equal lobes (**Figure 10c**) and basal lobe becoming expanded from median setigers up to twice as long as ventral lobe with distally attached dorsal cirri. All notosetae are homogomph spinigers. Neurosetae are heterogomph spinigers and heterogomph falcigers in both supra-acicular and infra-acicular positions. Neuropodial heterogomph spinigers are absent from anterior-most 24th–35th setigers. Anal cirri are as long as posterior-most fourth setigers (**Figure 10d**).

Remarks: The present material agrees well with the description of Wilson and Glasby [36]. In earlier collections as a new distribution record species in Andaman and Nicobar Islands [37].

Distribution: Australia and Philippines.

***Perinereis vancaurica* (Ehlers, 1868)**

Nereis vancaurica [38]: p. xx.

Perinereis horsti [11]: 182, pl. 11, fig. 47, text-figs. 182-4.

Perinereis vancaurica [30]: 103; [7]: 205, fig. 105f–g; [8]: 334, fig. 14.12, k–o; [12]: 740; [15]: 96; [14]: 77; [18]: 146.

Habitat: Occurs in intertidal areas of oyster- and barnacle-encrusted coral rocks.

Description: Paragnaths are arranged as follows: I = 1, II = 16–20 in triangle, III = 32–40, IV = 25–45 cones, V = 3 cones in a triangle, VI = 2 long flattened bars, and VII–VIII = 58–80 in 3 irregular rows. Paragnaths in VII–VIII in 2 bands. The band closest to the oral end of the pharynx consists of large cone in two irregular rows. Anterior notopodia with conical notopodial ligule (**Figure 11b**). Dorsal cirrus is slightly longer than dorsal ligule (**Figure 11c**). Neuropodia with superior lobe are poorly developed and inferior lobe is dome-shaped. Posterior notopodia with dorsal ligule triangular are broad. Dorsal cirri are becoming distally inserted on notopodial ligule on posterior setigers. Other parapodial lobes are posteriorly similar to anterior setigers. All notosetae are homogomph spinigers. Neurosetae are heterogomph falcigers in both supra-acicular and infra-acicular positions (**Figure 11d**).

Remarks: The present material agrees well with the earlier description.

Distribution: Philippines, Indochina, Great Barrier Reef, New Zealand, Singapore, Mergui, Red Sea, Atlantic Ocean, and French Guiana. **India:** Andaman and Nicobar Islands, Lakshadweep, Maharashtra, Goa Coast and Gujarat.

***Perinereis cultrifera* (Grube, 1840)**

Nereis cultrifera [39]: 74.

Perinereis cultrifera [40]: 352, fig. 137, 11953, p. 206, fig. a–l; [8]: 337, 14.13, fig. o–q; [41]: 71, [18]: 146.

Habitat: Boring in dead corals and living in coral cavity.

Description: Body 85–90 mm long. Prostomium is broadly triangular; palps are large; tentacular cirri are rather long and slender (**Figure 12a**). Faint transverse pigmented bands on several anterior setigers, otherwise lacking pigmentation patterns. Eyes are black, antennae one-third as long as prostomium, longest tentacular cirri extend back to fifth setiger. Jaws about five distinct teeth. Paragnaths: I = 1–2; II = 5–9; III = 9–11; IV = 9–12 cones; V = 3 cones in triangle; VI = 1; VII–VIII = 26–30 cones in 2 regular rows. Notopodia with 2 equal lobe anteriorly. Dorsal cirrus as long as dorsal notopodial ligule anteriorly (**Figure 12b** and **c**). Heterogomph spinigers present in ventral neuropodial fascicles from the first setiger. Anal cirri extend back to about seven setigers (**Figure 12d**).

Remarks: The present material agrees well with the earlier descriptions.

Distribution: Cosmopolitan; Indian, Pacific, and Atlantic Oceans; Mediterranean Sea; Israel; Japan; and Burma and Diamond Island. **India:** Lakshadweep, Maharashtra coast, Travancore, Cape Comorin, Tuticorin, Gulf of Mannar, Orissa coast, and Andaman and Nicobar Islands.

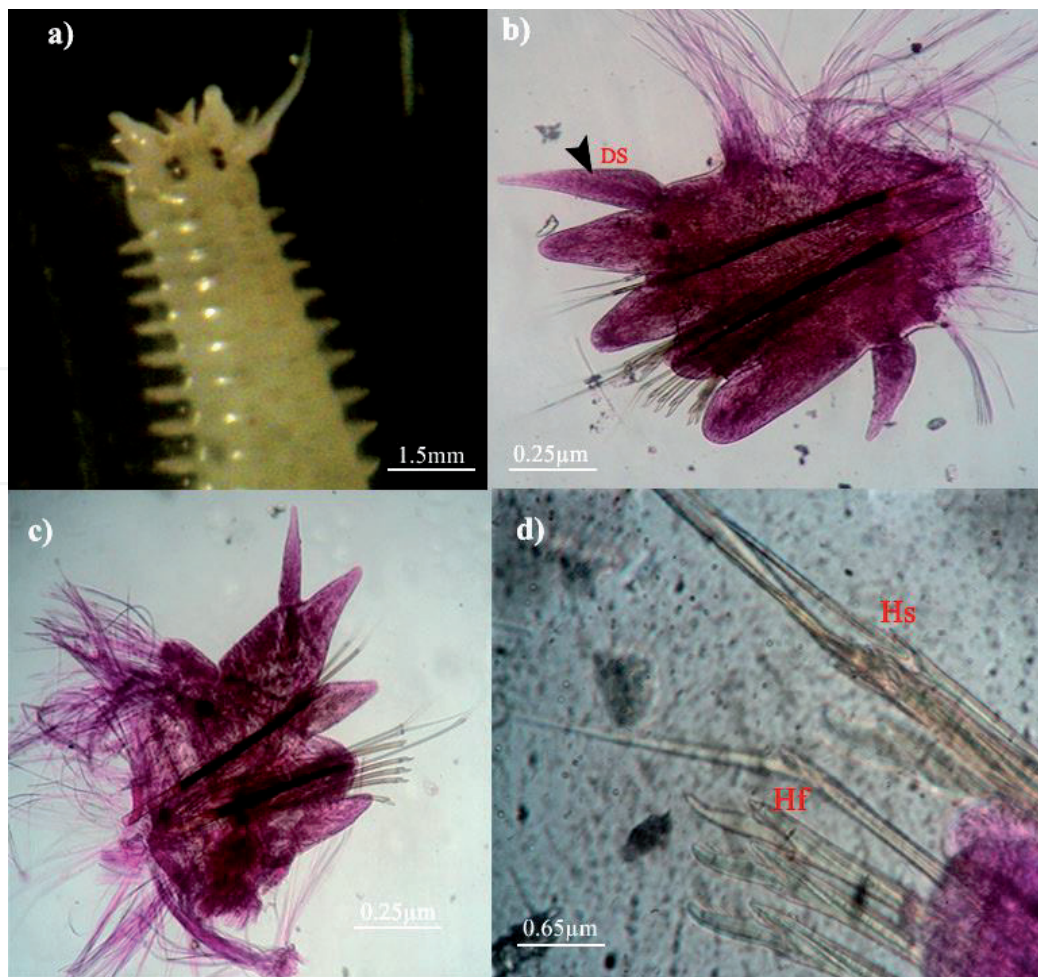


Figure 11.
Perinereis vancaurica (a) anterior end, (b) anterior foot, (c) posterior foot and (d) seta structure.

Perinereis cultrifera typica Grube, 1840

Perinereis cultrifera typica [39]: 74; [40]: 352, fig. 137; [7]: 208; [12]: 740.

Habitat: Boring in dead corals and living under rocks.

Description: Specimen is 80–90 mm long. Prostomium is pyriform and bears two short, small digitate tentacles. Palps are large (**Figure 13a**). Two pairs of black eyes in rectangular arrangement. The longest peristomial cirrus extends backward to 5–6 setigers (**Figure 13b**). Proboscis has paragnaths on both rings: I = 2 cones; II = 12–18 cones in 3 oblique rows; III = 14–20 cones in 3–4 transverse rows; IV = 10–20 cones in 3 oblique rows; V = 3 cones in a triangle; VI = a single flat triangular cone; VIII and VIII = 20–30 cones in 2 rows. And the jaws have 4–5 lateral teeth. Anterior parapodium is enlarged about two times as large as the uniramous one, and dorsal cirri are located at the dorsum of notoligule (**Figure 13c**). The dorsal cirrus is slightly longer than notoligule, and ventral cirrus is shorter than neuroligule. Ventral cirri with pointed end. Posterior parapodium is smaller, but supra-notoligules are very distinct, large, long, terminate, slender, and pointed carrying the dorsal cirrus on top. The ventral cirrus is short, digitate, and distally slender. Notosetae are homogomph spinigers throughout, and neurosetae are homogomph spinigers and heterogomph falcigers in supra-acicular position. Heterogomph spinigers and heterogomph falcigers in infra-acicular position (**Figure 13d**).

Remarks: The present material agrees well with the original description.

Distribution: Red Sea, Persian Gulf, and Indian Ocean. India: Tuticorin, Pamban backwaters, Chandipore, Andaman and Nicobar Islands, Maharashtra, and Goa Coast.

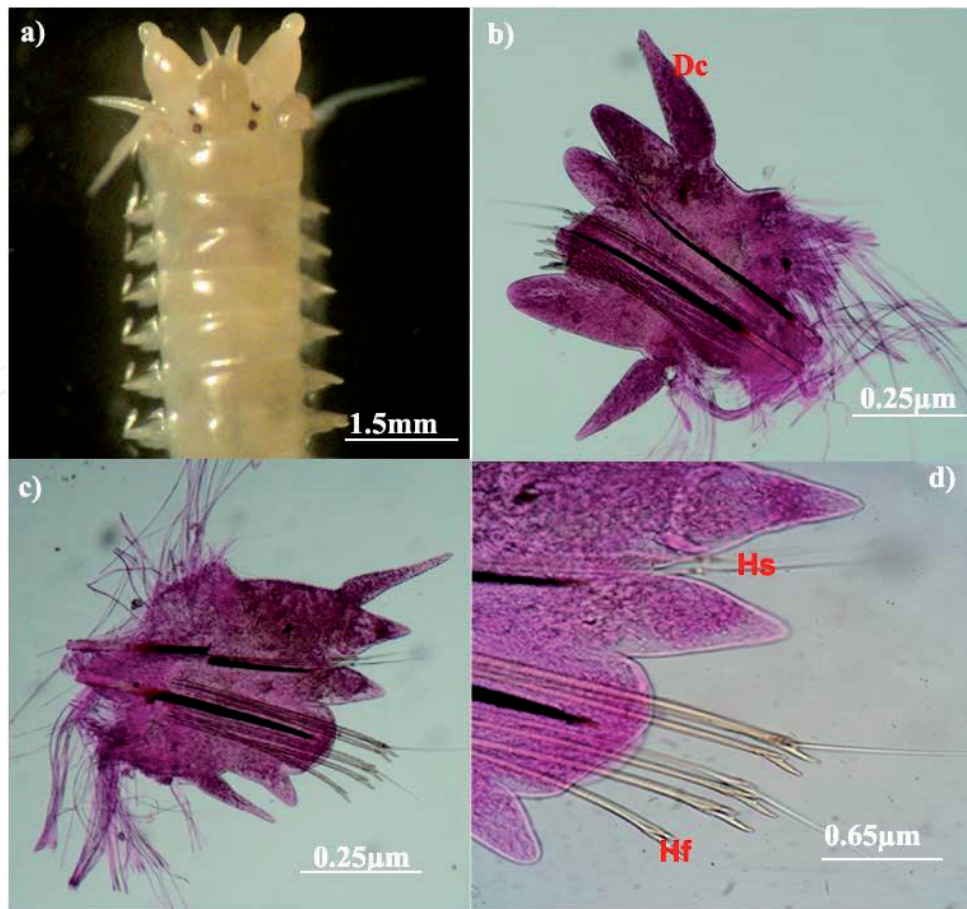


Figure 12.
Perinereis cultrifera (a) anterior end, (b) anterior foot, (c) posterior foot and (d) seta structure.

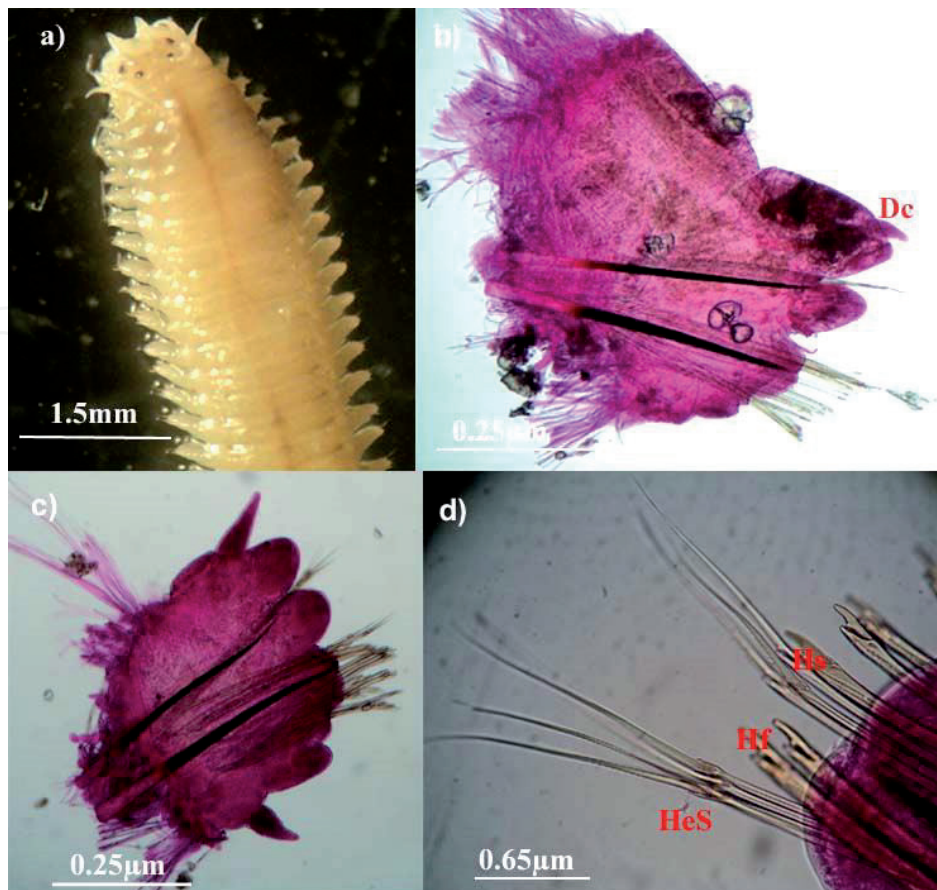


Figure 13.
Perinereis cultrifera typica (a) anterior end, (b) anterior foot, (c) posterior foot, and (d) setae.

***Pseudonereis variegata* (Grube, 1857)**

Nereilepas variegata [42]: 164.

Nereis (Mastigonereis) variegata [43]: 37, pl. 1 figs. 6–10, pl. 2 figs. 11, 12.

Pseudonereis gallapagensis [27]: 174; [7]: 215, fig. 110a–e.

Pseudonereis variegata [8]: 331, fig. 14-12.a–f; [44]: 74; [15]: 96l [14]: 77.

Habitat: Burrowing on rocks and dead and live corals.

Description: Body up to 90 mm long, prostomium somewhat pyriform. Two pairs of eyes in trapezoidal arrangement, tentacles are small, and palps are large with bulbous tip. The longest peristomial cirrus reaches backward to five setigers (**Figure 14a**). Proboscis is large, paragnaths are present on both rings; I = 1 cone; II = 16–20 points in a regular triangular cluster; III = 12–18 points in 3 triangular rows; IV = 17–22 points; V = 1 cone; VI a single transverse bar; VII and VIII have 30–40 cones in 3–4 irregular rows.

Anterior parapodia bear rounded supra- and infra-ligules (**Figure 14b**). Both dorsal and ventral cirri are digitate, and middle parapodia have almost the same size as notoligule; but the end of the supra-notoligule is slender. The dorsal cirri are longer than notopodial lobes slenderized toward the end. The ventral cirrus is very short, situated at the base of infra-neuroligule (**Figure 14c**). Beyond the 50th setiger, supra-notoligule expands toward the posterior end in rectangular shape; it is carrying the dorsal cirrus at the end; ventral cirrus is very short. The upper margin or supra-notoligule in posterior parapodia bears a gland. Notosetae are

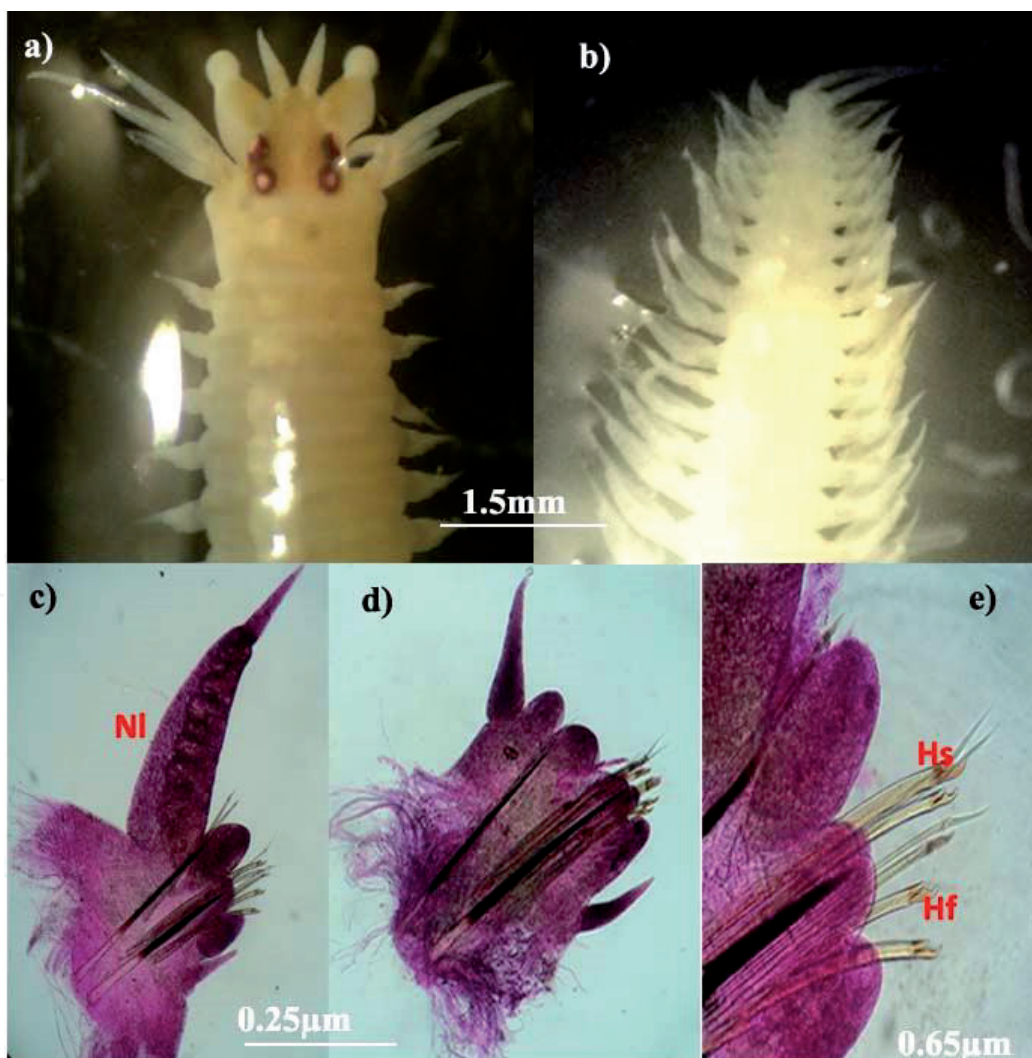


Figure 14. *Pseudonereis variegata* (a) anterior end, (b) posterior end, (c) anterior foot, (d) posterior foot, and (e) setae.

homogomph spinigers throughout, and neurosetae in anterior and middle parapodia are homogomph spinigers and heterogomph falcigers. Posterior neurosetal lobes with heterogomph spinigers and falcigers (**Figure 14d**).

Remarks: The present material agrees well with the description of Day [8].

Distribution: Pacific Ocean, Galapagos, Peru, Chile, Strait of Magellan, Indochina, Indian Ocean, Madagascar, and Brazil. **India:** Orissa coast, Gulf of Mannar, Andaman and Nicobar Islands, Goa, and Gujarat.

***Eunice antennata* (Savigny 1820)**

Leodice antennata [45]: 50.

Eunice antennata [46]: 312; [47]: 17; [7]: 138 & 240; [8]: 384, fig. 17.2 k–q; [12]: 743; [13]: 204; [18]: 148.

Habitat: Boring into dead corals and beach rocks.

Description: Body 30–155 mm long, prostomium is bilobed with five prostomial tentacles, pair of tentacular cirri on the second apodous segment, and the dorsal cirri and anal cirri are moniliform. The first apodous segment is about three and a half times as long as the second apodous segment (**Figure 15a**). The setae of the first foot are arranged in two bundles. A bundle of simple capillaries at the base of the dorsal cirrus (**Figure 15b**). Branchiae first start on the 6th setigerous segment well developed between the 10th and 25th segments, where they have 6th or 7th filaments, and decrease to two or three in median region; thereafter, the number increases again in posterior segments (**Figure 15c**). The anal segment bears two long anal cirri. Acicular setae are first present in the 19th setigerous segment; they are yellow, tridentate, and distally hooded. Other setae include slender capillary, bidentate compound falcigers with rounded hood, and pectinate setae with lateral, asymmetrical extensions (**Figure 15d**).

Remarks: Present material agrees well with the earlier descriptions.

Distribution: Red Sea, Persian Gulf, Indian Ocean, Philippines, Pacific Ocean, Indochina, and Ceylon. **India:** Lakshadweep; Gulf of Mannar; Andaman and Nicobar Islands; Pamban, Krusadai, and Shingle Island; and Tuticorin and Maharashtra Coast.

***Eunice vittata* (Delle Chiaje, 1825)**

Nereis vitta [48]: 195.

Eunice vitta [40]: 404, fig. 158 h–n; [8]: 385, fig. 17.3a–e.

Habitat: Boring into dead corals and living on cavity of dead corals and rocks.

Description: Body 30–35 mm long, anterior segments with red bars which fade in alcohol, antennae and cirri are smooth without annulations, the longest or median one extends back to the sixth segment (**Figure 16a**). A pair of circular eyes at the outer bases of the median antenna, tentacular cirri are smooth and extend forward not quite to the front of the prostomium. Branchiae are first present from the third parapodium (**Figure 16b** and **c**) and continue back to 45th segment; they have 10–18 filaments. Acicula is yellow with blunt tips, slightly curved. Acicular setae are yellow and tridentate with small apical tooth. Compound setae are falcigerous and are distally bifid and covered with a pointed hood (**Figure 16d**).

Remarks: In earlier findings of Rajasekaran [37], this species is the first record from Indian waters.

Distribution: Australia.

***Eunice afra punctata* Peters, 1854**

Eunice punctata [49]: 611.

Eunice afra var. *punctata* [50]: 89; [8]: 393; [13]: 204; [17]: 59; [18]: 150.

Habitat: Boring into beach rocks and dead corals.

Description: Body 130–140 mm long, brown in color with dotted tiny white punctations on the anterior portion. Prostomial antennae are smooth, and peristomial cirri are long as the peristomial segment (**Figure 17a**). From the first segment,

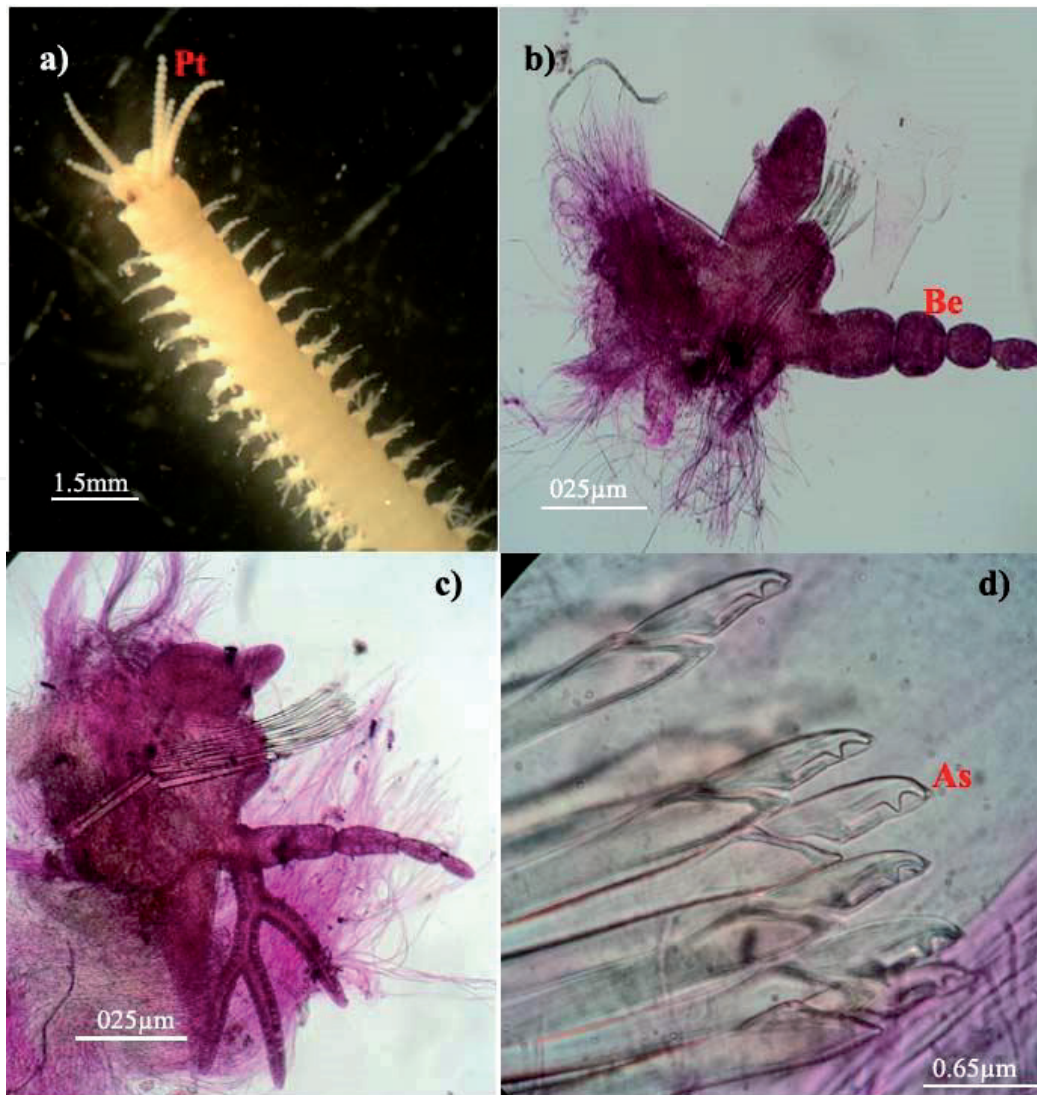


Figure 15.
Eunice antennata (a) anterior end, (b) anterior foot, (c) posterior foot and (d) setae.

branchiae are absent (**Figure 17b**) Branchiae are starting from about 16th segment, with 2–4 filaments; they are pectinately divided and attain a maximum of 8 filaments at the 30th setiger; the last 10 segments lack them (**Figure 17c**). There are 2 acicula each of the first 28–30 parapodia and only 1 in others. Acicular hooks are first present in 30th segment; they are distally bidentate and subdistal tooth is directed laterally. Other setae are of three kinds: slender capillary (**Figure 17d**), pectinate (**Figure 17f**), and bidentate compound falcigers in which the hood is distally rounded (**Figure 17e**).

Remarks: Present material agrees well with the original descriptions.

Distribution: South Africa. **India:** Lakshadweep, Gulf of Mannar, and Andaman and Nicobar Islands.

***Lysidice collaris* Grube, 1870**

Lysidice collaris [51]: 495; [20]: 272, pl. 14 figs. 93–95, text-figs. 144–147; [8]: 402–403, fig. 17.8.a–f; [7]: 248, fig. 124a–g; [13]: 205; [14]: 78.

Habitat: Boring in dead corals and living on cervices of dead corals.

Description: Prostomium is distinctly bilobed in front and has two reniform eyes located near the outer base of the paired antennae (**Figure 18a**). The three prostomial antennae are slender, and the second dental plate has three heavy teeth. In anterior segments the dorsal cirri are slenderer than ventral ones (**Figure 18b** and c). In posterior segments the dorsal cirri become shorter. Setae include capillary setae (**Figure 18d**), bidentate composite falcigers, and comb setae, and bidentate

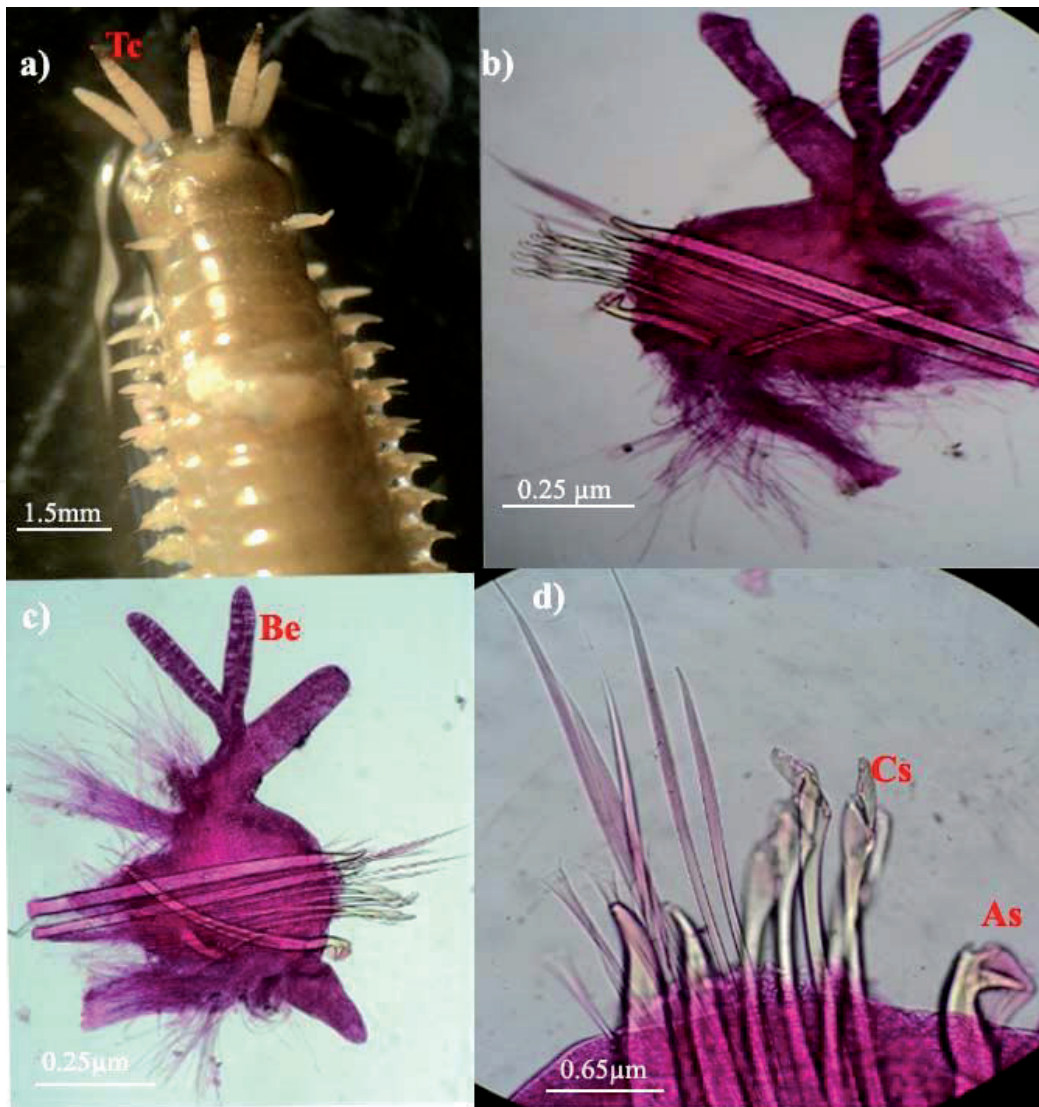


Figure 16.
Eunice vittata (a) anterior end, (b) anterior foot, (c) posterior foot and (d) setae.

sub-acicular hooks are first present at the 21st setiger and continue posteriorly (**Figure 18e**).

Remarks: Present materials agree well with the descriptions of Day [8].

Distribution: Indian Ocean, Pacific Ocean, Persian Gulf, and Red Sea. **India:** Andaman and Nicobar Islands, Kilakarai, Pamban, Gujarat coast, and Gulf of Mannar.

Lysidice ninetta (Audouin & Milne Edwards, 1833)

Lysidice ninetta [52]: 235; [40]: 411, fig. 162a–f; [8]: 403, fig. 17.8g–I; [18]: 150.

Habitat: Boring in dead corals and living on cavity of corals.

Description: Body 75–100 mm long, reddish with white spots and white bar on the second and fifth setiger (**Figure 19a**). Prostomial antennae are short and three in number, and peristomial appendages and gills are absent. Each parapodium with bluntly conical dorsal cirrus, rounded ventral cirrus, and a broad setigerous lobe (**Figure 19b**). Setae include capillaries with pectinate setae, composite falcigers, and bidentate acicular hooks (**Figure 19c**). Acicula black with blunt tips. Bidentate sub-acicular hooks from the 22nd–25th setigers onwards.

Remarks: Present material agrees well with the descriptions of Day [8].

Distribution: Red Sea, West Indo-Pacific, north Atlantic Ocean, North Carolina, Mediterranean Sea, and Angola. **India:** Lakshadweep, Kilakarai, Pamban, and Andaman and Nicobar Islands.

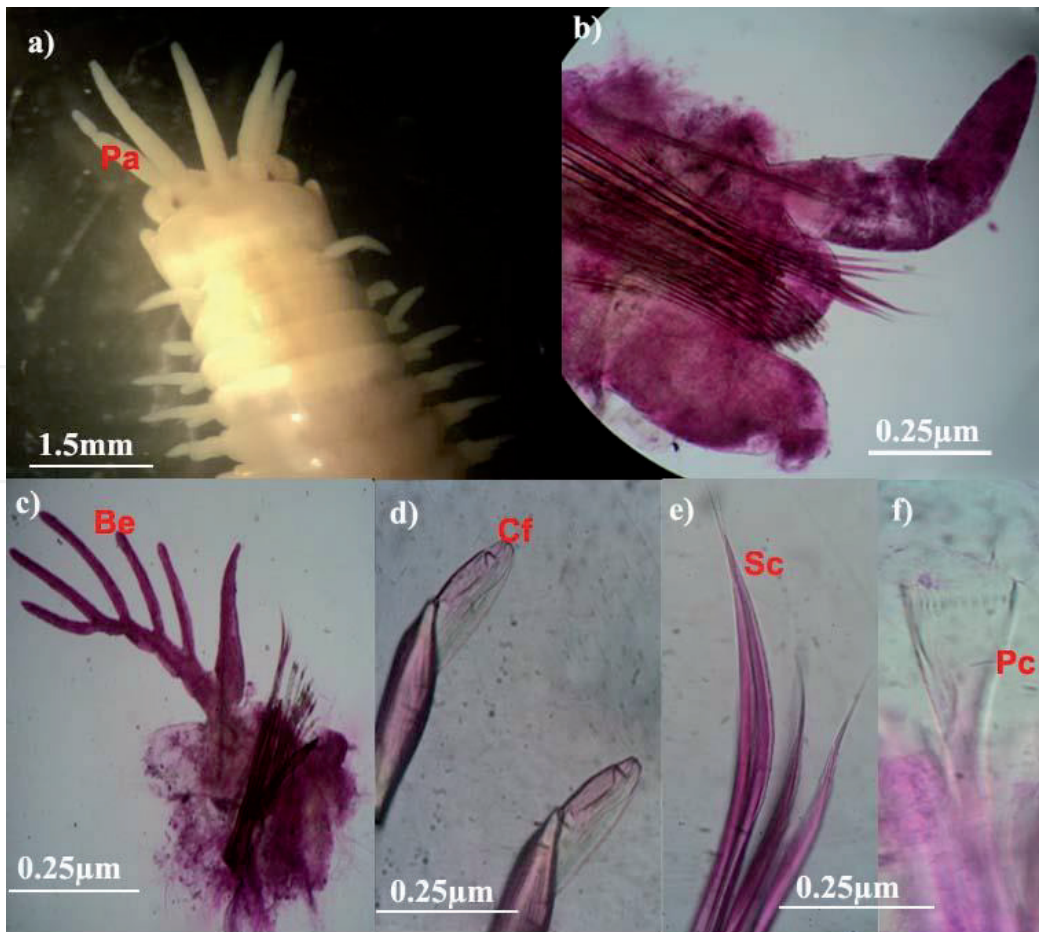


Figure 17.
Eunice afra punctata (a) anterior end, (b) anterior foot, (c) posterior foot, (d) simple capillary seta, (e) heterogomph falciger, and (f) comb setae.

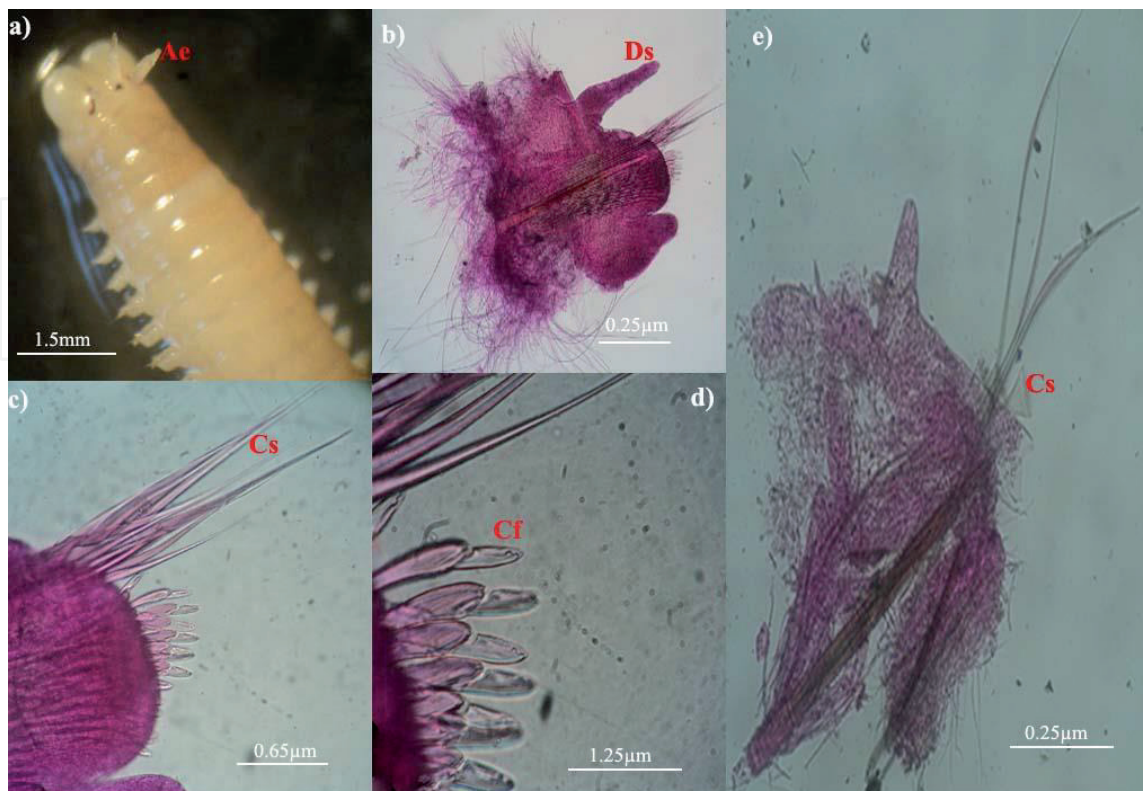


Figure 18.
Lysidice collaris (a) anterior end, (b) anterior foot, (c) posterior foot, (d) limbate capillary, and (e) falciger and comb setae.

***Malacoceros indicus* (Fauvel, 1928)**

Scolelepis indica [53]: 93–94, fig. 2g–n; [6]: 35, **fig. 7g–n**, [18]: 153.

Malacoceros indicus [54]: 219; [55]: 6–7, figs. 2a–g, 3a–j; [8]: 447, fig. 18.5p–u.

Malacoceros indicus [56]: 50–53; [44]: 74.

Description: Body 45–55 mm long, yellowish tan in alcohol, prostomium with lateral peaks tapering with posteriorly and blunt caruncle extending to posterior edge of the first setiger, with irregular clusters of small 6–8 eyespots (**Figure 20a**). Branchiae are present from the first setiger continuing to the end of the body. Notopodial lamellae are slender and triangular, with tapered end attached only at the base of the branchiae (**Figure 20b**). Neuropodial lamellae are rounded anteriorly with a nipple-like projection posteriorly (**Figure 20c**). Notosetae capillaries through the body (**Figure 20d**); neurosetae capillaries in anterior setigers and hooded hooks in posterior setigers (**Figure 20e**).

Remarks: In earlier findings 9 specimens are collected from station 2 and 10 and the first record of the genus is from Andaman and Nicobar Islands.

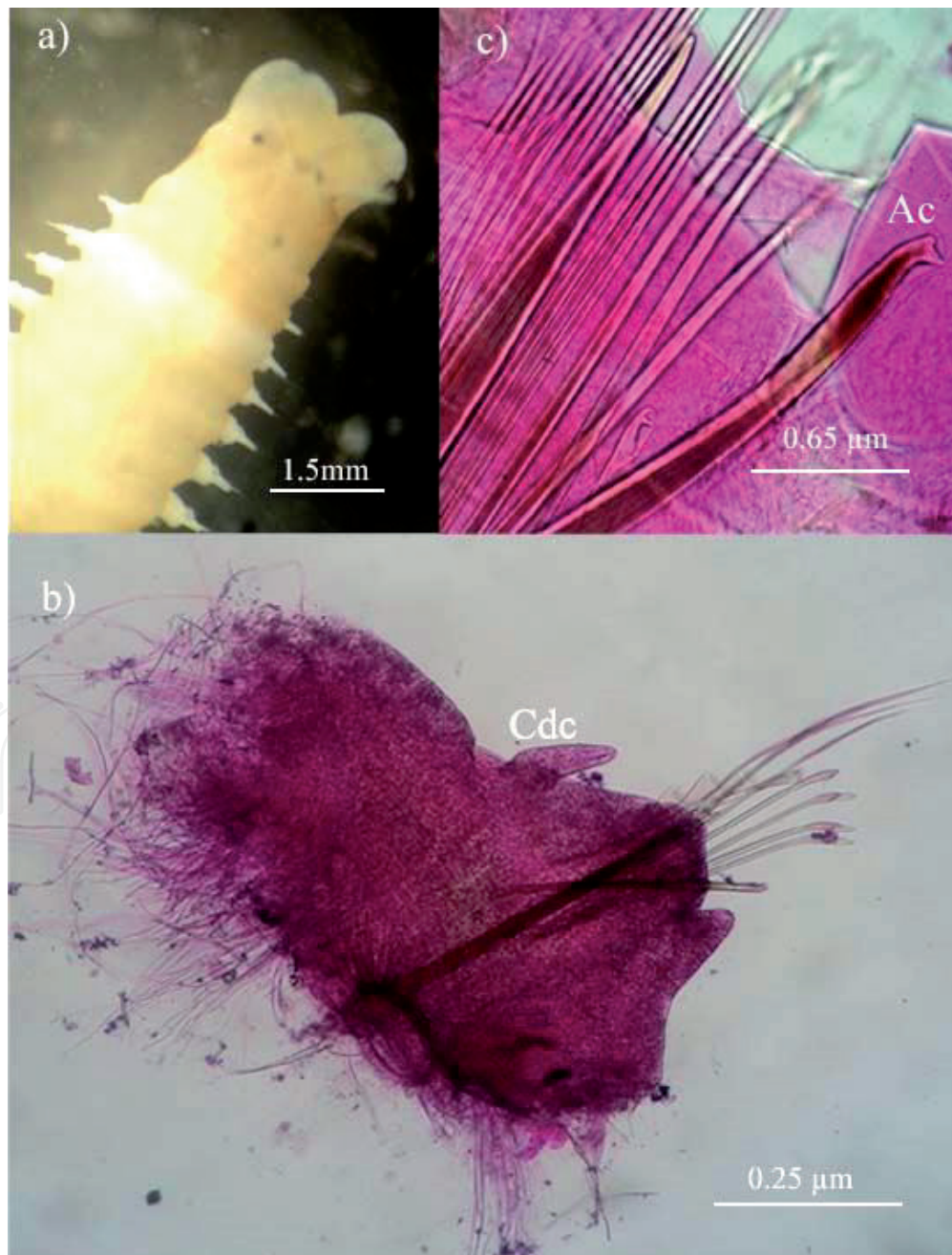


Figure 19.
Lysidice ninetta (a) anterior end, (b) middle foot and (c) acicular seta.

Distribution: Caribbean, New Caledonia, Chile, Japan, and Australia. **India:** Lakshadweep, Gulf of Mannar, Orissa, and Visakhapatnam.

***Scolelepis squamata* (Muller, 1806)**

Lumbricus squamatus [57]: 39.

Lumbricus cirratulus [48]: 196.

Nerine cirratulus [58]: 36, fig. 11g–n; [59]: 412, fig. 1–j; [60]: 26.

Scolelepis squamata [8]: 483, fig. 18.7c–h, [18]: 153.

Habitat: Silty sediments in sandy shore areas.

Description: Body 55–60 mm long, prostomium is pointed anteriorly with 4–5 pairs of eyes in a row and a well-marked occipital keel reaching the second setiger (**Figure 21a**). A pair of long and stout coiled palps; branchiae start from the second setiger and continue to the posterior end and attached to the dorsal lamellae (**Figure 21b**). Only capillary setae are present in the first few segments (**Figure 21c** and **d**). Bidentate hooded hooks in the neuropodia from the 30th–35th setigers onwards and in the notopodia from the 60th setiger (**Figure 21e**). A maximum of 12 neuropodial hooks, pygidial cushion is small, broader, and long.

Remarks: This is the first record of the genus from Andaman and Nicobar Islands [37].

Distribution: Mozambique, Madagascar, Atlantic Ocean, and Mediterranean Sea. **India:** Orissa coast, Rushikulya estuary, Visakhapatnam coast, Pulicat Lake, Vellar estuary, and Godavari estuary.



Figure 20.

Malacocers indicus (a) anterior end, (b) anterior foot, (c) posterior foot, (d) notopodial capillary, and (e) saber setae and hooded hook.

***Aramandia leptocirrus* (Grube, 1878)**

Aramandia leptocirrus [19]: 194; [61]: 435; [62]: 50; [8]: 577; fig. 25.2h; [18]: 157.

Habitat: Silty sediments in littoral region of sandy shore.

Description: Body elongated, 20–30 mm. long, pointed anteriorly, and not divided into two regions (**Figure 22a**). The gills arise from the second setiger to the last setiger. Eyes are lateral—spots on the 7th setiger to around the 18th setiger. The parapodia arise from the dorsal margin of the ventrolateral folds. Parapodia with short presetal lobe, short ventral cirrus (**Figure 22b**), and two bundles of capillary setae (**Figure 22c**). Anal funnel is long and obliquely truncate so that the anus opens upward. It has long ventral cirrus and 12 fine dorsal papillae.

Remarks: *Aramandia leptocirrus* is extremely specialized, being highly adapted to life within sandy sediments. The branchiae are directed backwards and are present from the anterior end of the ventral groove.

Distribution: Red Sea, Mozambique, South Africa, Persian Gulf, Philippines, Indochina, and New Caledonia. **India:** Lakshadweep, Gulf of Mannar, and Andaman and Nicobar Islands.

***Idanthyrus pennatus* (Peters, 1985)**

Sabellaria (Pallasia) pennata [63]: 613.

Idanthyrus pennatus [64]: 88; [23]: 117; [8]: 675, fig. 2j–n; [13]: 207.

Habitat: Hard tube formed with sand particles on corals and rocks.

Description: Body 30–60 mm long, prostomium covered by two large opercular stalks bearing modified setae in two rows, paleae of the opercular peduncle with a number of 19–32 pairs in the outer row and 15–18 pairs in the inner one (**Figure 23a**). Outer paleae with strongly curved shaft and slender denticles giving the general impression of a feather or a palm leaf (**Figure 23c**). Inner paleae smooth with tapering tips (**Figure 23b**). The middorsal line of the opercular peduncle has a

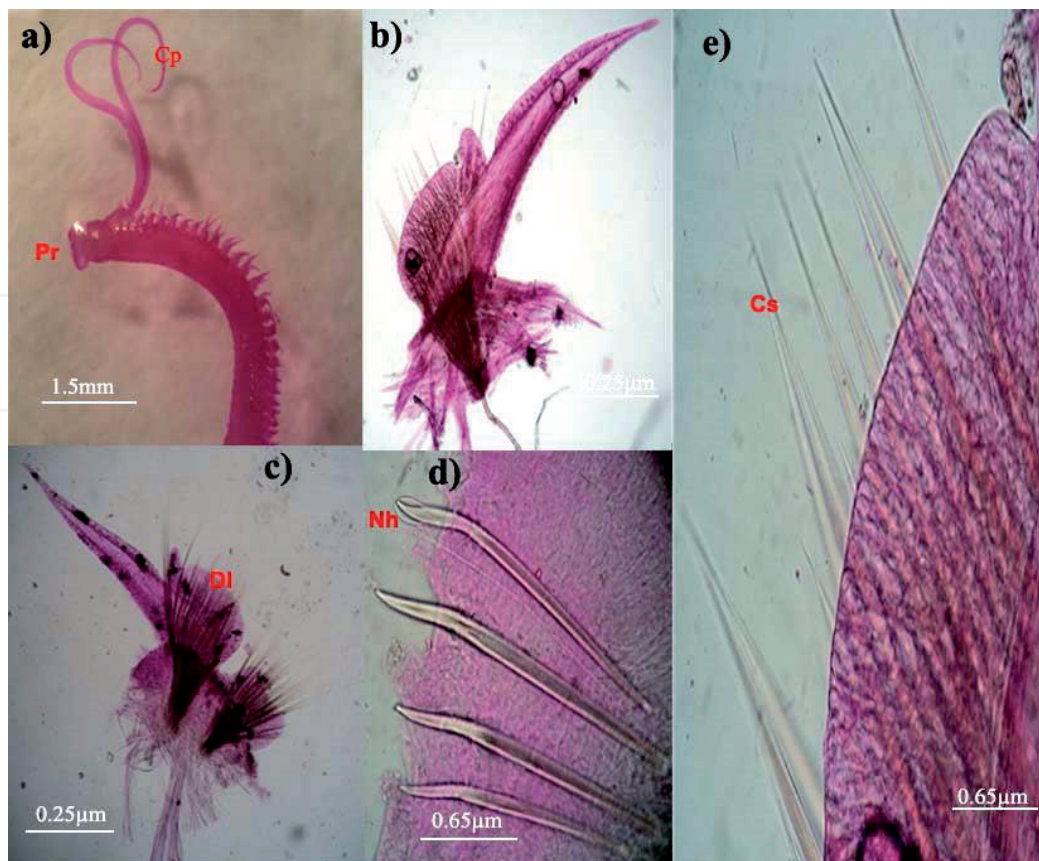


Figure 21. *Scolelepis squamata* (a) anterior end, (b) anterior foot, (c) posterior foot, (d) hooded hook, and (e) notosetae.

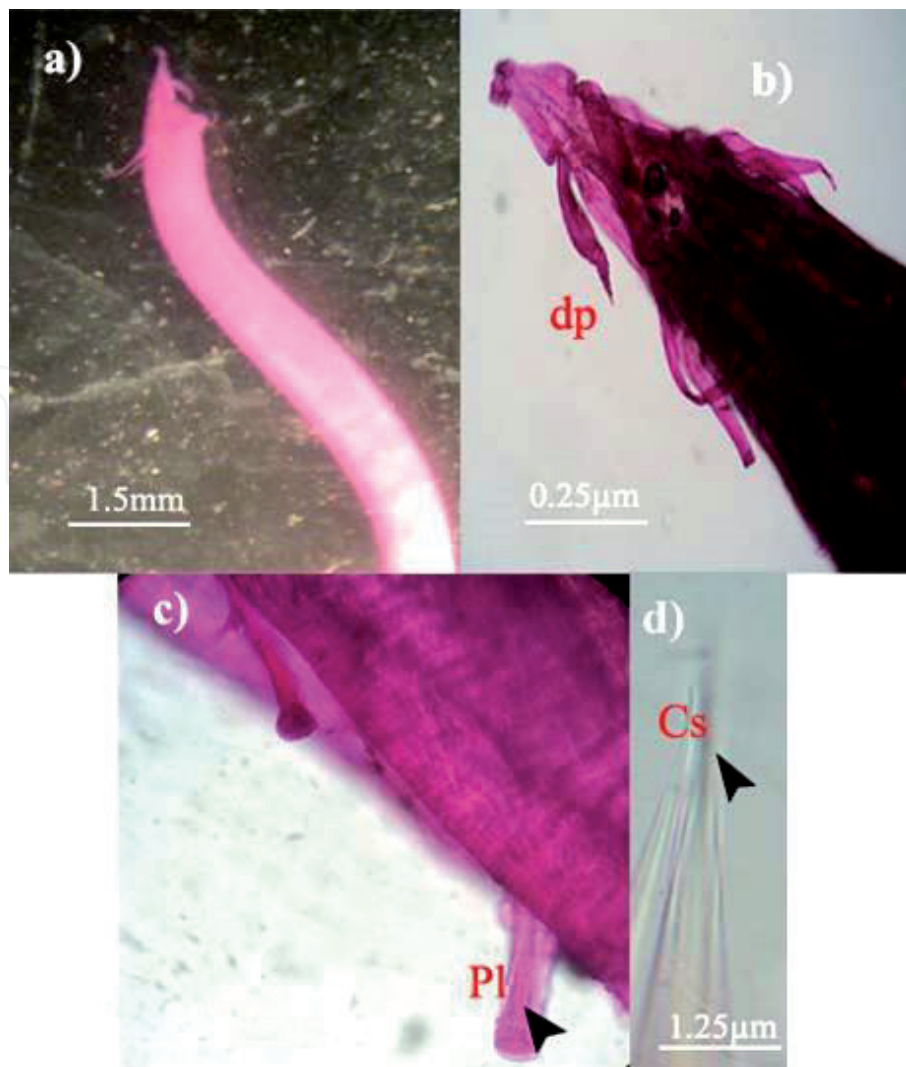


Figure 22.
Aramandia leptocirrus (a) posterior end, (b) middle foot, and (c) simple capillary.

pair of nuchal hooks (**Figure 23e**) and a pair of long papillae. The second segment has a pair of branchiae. The three parathoracic segments are biramous. Thoracic uncini have eight teeth (**Figure 23d**). Caudal region is achaetous and apodous. Segments are numerous and indistinguishable.

Remarks: The present material agrees well with the description of Day [8].

Distribution: Atlantic Ocean, Indian Ocean, and Pacific Ocean. **India:** Andaman and Nicobar Islands.

***Terebella ehrenbergi* (Grube, 1870)**

Terebella ehrenbergi [51]: 511; [65]: 213, pl. 4 figs. 224–225; [66]: 188; [8]: 748, fig. 36.10g–i; [14]: 81; [32]: 207.

Habitat: Soft tube forming on dead and live corals at 1 meter water depth.

Description: Body 35–40 mm in length with long and coiled tentacles; tentacles are filamentous, numerous, and slender. Three pairs of arborescent gills are present on segments 2, 3, and 4 (**Figure 24a**). Lateral lobes are lacking. The peristomium has eye spots. Notosetae are first present from the fourth segment and continue posteriorly but are absent from the last 40 segments. Setae are very slender and distally serrated (**Figure 24b**). Uncini are in single rows on segments 5–10 and the last segment and in double rows on other segments. Each uncinus has 3–5 large teeth (**Figure 24c**).

Remarks: The present material agrees well with the original description.

Distribution: Japan, China Sea, Burma, and Red Sea. **India:** Gulf of Mannar, Andaman and Nicobar Islands, Mahanadi River Estuary, and Gujarat.

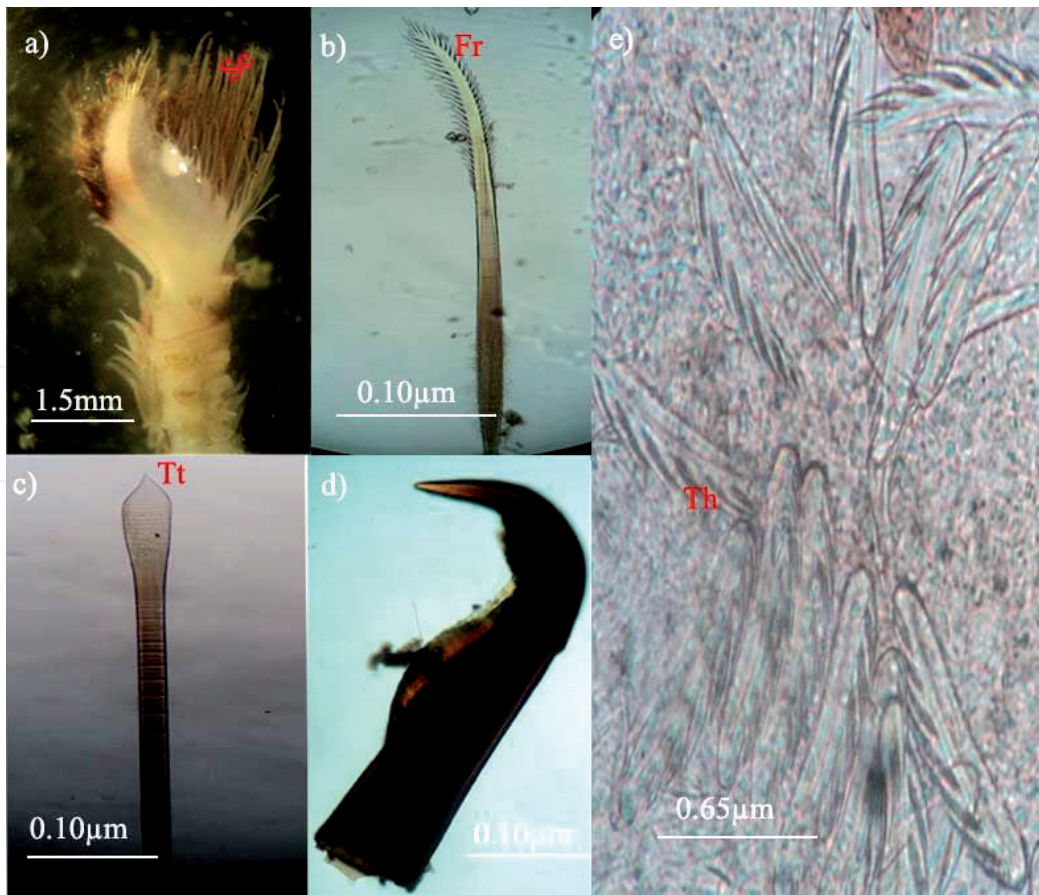


Figure 23.
Idanthysus pennatus (a) anterior end, (b) inner palea, (c) outer palea, (d) uncinus, and (e) opercular hook.

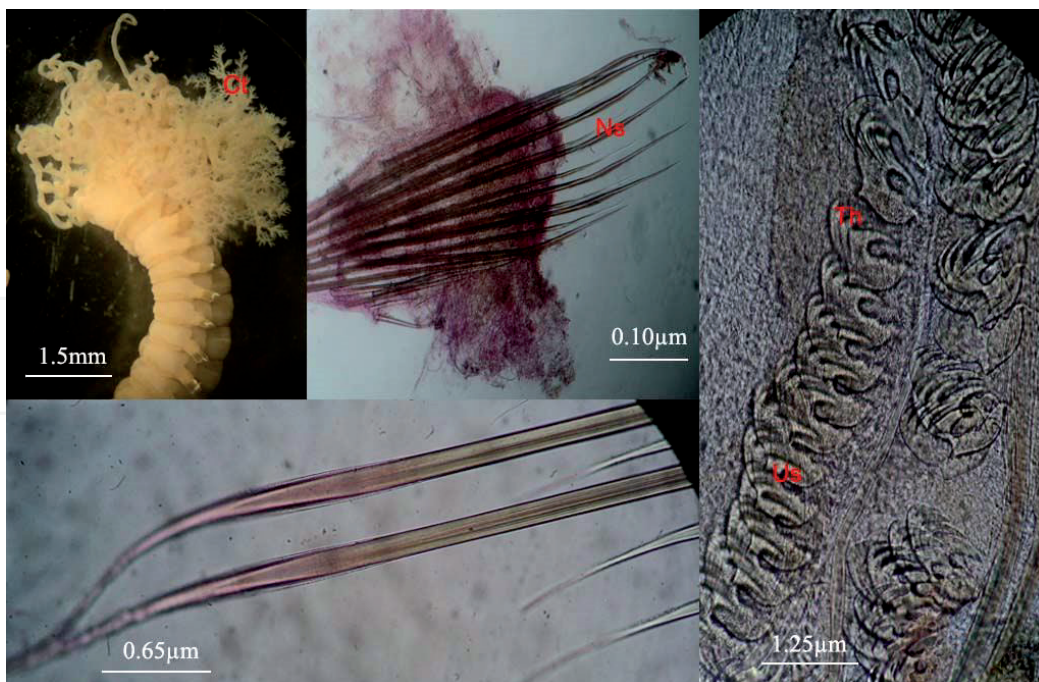


Figure 24.
Terebella ehrenbergi (a) anterior end, (b) notopodial seta, and (c) Thoracic uncinus.

***Megalomma quadrioculatum* (Willey, 1905)**

Branchiomma quadrioculatum [67]: 307.

Branchiomma mushaensis [68]: 94, pl.7 fig. 267–270, fig. 447–453.

Megalomma quadrioculatum [8]: 758, fig. 371h–o.

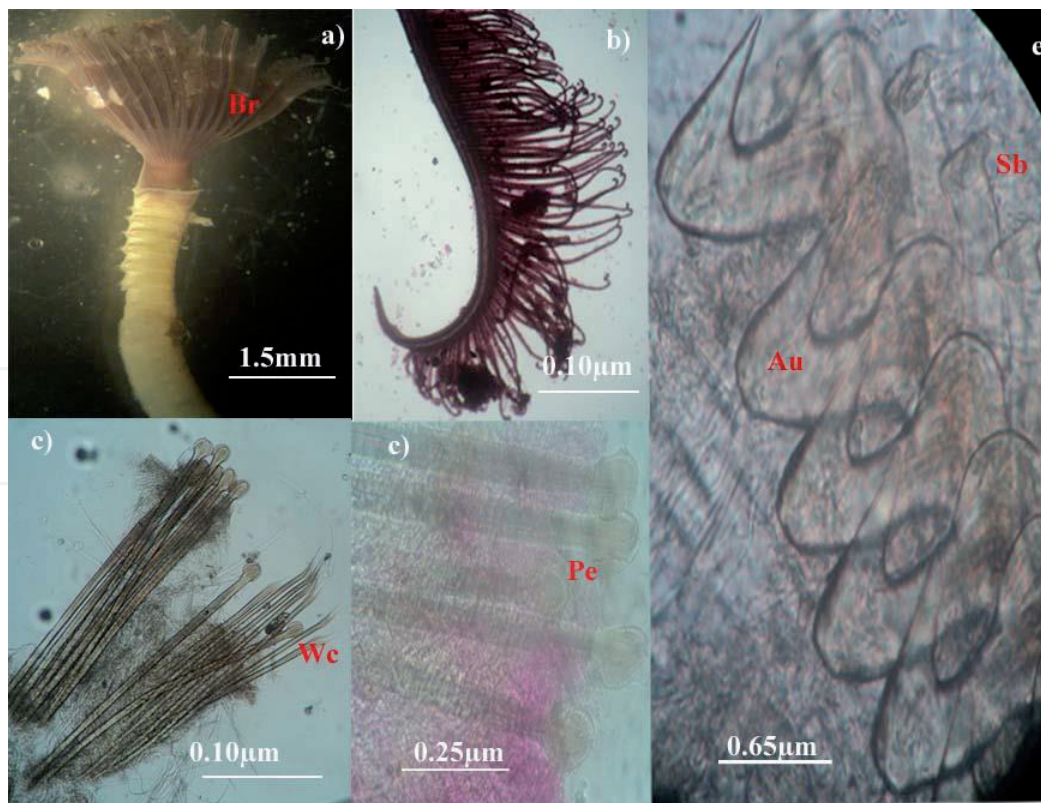


Figure 25. *Megalomma quadrioculatum* (a) entire worm, (b) radioles with subterminal eye, (c) paleae with slender tip, (d) thoracic winged capillary, and (e) pick ax setae and Avicular uncinus.

Habitat: Tube forming (boring) on corals at 1 m water depth and lives on inside of the tubes.

Description: Body 35–40 mm long (**Figure 25a**). About 20–30 branchial radioles (**Figure 25b**) with the tips coiled inwards each bearing large subterminal eye. Collar is notched back dorsally to form two small and large lateral lobes, and palps are short. Thoracic notosetae of the 2nd–8th setigers include two types of setae: long slender winged capillaries (**Figure 25c** and **d**) and paleae with pointed tips (**Figure 25e**). Thoracic neurosetae include avicular uncini with long tails and striated crests, plus two rows of pick ax setae with symmetrical blades and tapering tips (**Figure 25f**).

Remarks: This is the first record of the species from Indian waters.

Distribution: Red Sea, Madagascar, and Sri Lanka.

4. Discussion

The present study is an attempt to understand the basic polychaete taxonomical tools, diversity, and morphological identification of the common coral-reef-associated polychaetes of Great Nicobar Islands. Over 5400 species of polychaetes have been described so far worldwide. Many polychaete worms are beautiful and strikingly colored red, green, or pink or with a combination of different colors, and some are iridescent. The most common and visible polychaetes found on coral reefs are feather dust and Christmas tree worms. Hence, in the present survey, a total of 24 species belonging to 14 genera, 7 orders, and 11 families were identified for the taxonomical study purpose, in spite of 3 species Phyllocidae, 8 species Nereidae, 5 species Eunicidae, 2 species Spionidae, 1 species Opheliidae, Sabellariidae, Terebellidae, Polynoidae, Amphinomidae, and Sabellidae of coral-reef associate polychaetes are so far reported from Great Nicobar Island coastal waters. Fauvel [7]

gave about 450 species from the waters in and around India and rightly stated that this was probably half of the total number occurring in these waters. A total of 30 species of polychaetes belong to 8 families and 23 genera. Each species has specific features for the representative family, and all species were recorded for the first time from the Andaman and Nicobar Islands, of which 15 species are new to Indian waters. Prior to the study periods in Great Nicobar Islands, very less polychaete taxonomical study has been reported; the present study clearly highlights the polychaete taxonomical tools of Great Nicobar Island.

5. Conclusion

This chapter concludes the taxonomy status and identification tools of polychaete diversity in Great Nicobar Islands. Polychaetes are one of the best indicator species in marine environment. Coral associated polychaete identification is very difficult to identify. The study of polychaete taxonomy is a better tool for understanding the conventional taxonomy. In recent trends various molecular tools have been used for identification purpose. In spite of molecular techniques, conventional taxonomy is one of the basic important tools. Taxonomic identification is very difficult to identify in the coral-reef region could be solved by re-establishing species names at present regarded as subordinate synonyms, formerly the type or topotype resources are analyzed. Our hope is that the present list may prove useful for such a major reconsideration of this distinctive fauna and that it may encourage regional colleagues to expand our worldwide understanding of the polychaete diversity in Great Nicobar region, also this region region which may very well Islands ecosystems of the uppermost polychaete diversity in India. The results highlight the importance of the taxonomy key and evaluate the species information in around Great Nicobar Islands. In many of previous literature can used in line drawing only but the present data describe the clear illustration of digital snapshot animal parts.

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