SOME COMMON SPECIES OF PLANKTONIC HARPACTICOIDA (CRUSTACEA, COPEPODA) FROM INDONESIAN WATERS

Mulyadi
Div. Zoology, Research Center for Biology, Indonesian Institute of Sciences, Jl. Raya Jakarta-Bogor Km. 46, Cibinong 16911, Indonesia
E-mail: mulyadi_08@yahoo.com

ABSTRACT

Taxonomic study was made on the species of the order Harpacticoida recently collected from 9 sites in Indonesian waters. Six species from 5 genera and 5 families Clytemnestridae, Ectinosomatidae, Harpacticidae, Tachidiidae and Talestridae, including Clytemnestra scutellata Dana, 1847; Euterpinia acutifrons (Dana, 1848), Eudactylopus latipes (T. Scott, 1894); Macrosetella gracilis (Dana, 1848); Microsetella norvegica (Boeck, 1864) and Microsetella rosea (Dana, 1852) were recorded. C. scutellata and M. norvegica are recorded for the first time from Indonesian waters. Descriptions, measurements, and figures are given for all species, along with a review of their distribution over the world’s oceans, with taxonomical remarks, and restricted synonymies.

Key words: Clytemnestridae, Ectinosomatidae, Harpacticidae, Tachidiidae, Talestridae, Harpacticoida, Copepoda, Indonesian waters

INTRODUCTION

The order Harpacticoida consists of 3,000 species belonging to 463 genera and 54 families. Most species are bottom-living in marine and brackish waters (Huys et al., 1996). Of these 945 species are living in freshwater. Planktonic harpacticoids in marine and brackish water are known 23 species belonging to 13 genera (Wells, 1970; Boxshall, 1979; Huys and Bottger-Schnack, 1994). Nine species of them are distributed in East and Southeast Asian waters are Aegisthus aculeatus Giesbrecht, 1891; A. mucronatus Giesbrecht, 1891; Clytemnestra scutellata Dana, 1847; Distioculus minor (Scott, 1894); Euterpinia acutifrons (Dana, 1848); Macrosetella gracilis (Dana, 1848); and Miracia efferata Dana, 1852 (Scott, 1909; Tanaka and Hue, 1965). However, they did not provide figures or adequate descriptions of most of the species recorded. They also some doubtful records species, which need to be studied more accurately.


MATERIAL AND METHODS

The present plankton samples were collected at 9 sites in Indonesian coastal waters during 1995–2010 (Figure 1). For convenience of description, these sites are divided into three study areas with the consideration of their topography and hydrological conditions. They were the coastal waters of Indian Sea side of southern Java (Area A including Sites 1–3), the Java Sea (Area B including Sites 4–6), and the eastern region (Area C including Sites 7–9).

Sampling was done by surface towing and vertical hauls (from 10 m or 20 m depth to the surface) with plankton nets (0.1 mm and 0.33 mm mesh size; 0.35 m and 0.45 m diameter aperture) at day-and nighttime. The specimens were fixed and preserved in 5% formalin/sea water solution. The specimens were identified after dissection and examined with a compound microscope. Drawings were made with the aid of a camera lucida. Length of prosome and urosome were taken dorsally from the anterior of head to the posterior end of the last metasomal somite; and from anterior margin of genital somite to posterior end of CR excluding setae.

Abbreviations used in the text to describe morphological features are: A1, antennule; A2, antenna; Ms1-Ms6, metasomal somites 1–6; P1-P6, swimming legs 1–6; Ur1–Ur6, urosomal somites 1–6; CR, caudal rami; Re, exopod; Ri, endopod; Se, outer spine; Si, inner spine; St, terminal spine.

All the type specimens are deposited at the Museum Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Sciences (LIPI), Cibinong, Indonesia.

RESULT AND DISCUSSION

Total six species representing 5 genera and 5 families Clytemnestridae, Ectinosomatidae, Harpacticidae, Tachidiidae and Talestridae, including Clytemnestra
For the convenience of discussion, these sites are divided into 3 study areas as mentioned in Material and Methods. I named the area including Sempu Island, Segara Anakan Cilacap and Ujung Kulon (Sites 1, 2, and 3) as Area A, the Java Sea (Sites 4, 5, and 6) as Area B, and the eastern waters (Sites 7, 8, and 9) as Area C.

The number of observed species was highest at the sites which has connection with the Indian or Pacific Oceans (Sites 3 and 8), and only 3 species (Euterpina acutifrons, Eudactylopus latipes, and Macrosetella gracilis) were found from Java Sea (Sites 4 and 5). The number of species increased towards the eastern part, 4 species at Bali Strait (Site 6), and 6 species at Ambon Bay (Site 8). E. acutifrons and M. gracilis were found widely in Indonesian waters, while C. scutellata was found only from high salinity regions (Sites 3, 6, 8 and 9). The less abundant species, M. norvegica was found only from Sites 3 and 8.

All the species mentioned above were analyzed for the purpose of clarifying the geographical distribution patterns. Their distributional patterns and habitats are listed in Table 1. As a result, all of harpacticoid species recorded in the present study are cosmopolitan species. However, only 3 species (E. acutifrons, M. gracilis and M. rosea) are recorded in the Southeast Asian waters including Australia and Japanese waters (see Table 1). Two species (C. scutellata and M. norvegica) are recorded for the first time from Indonesian waters.

**Table 1.** Species list of the planktonic harpacticoid recorded in the present study, their sampling sites and their previous records in Indonesian waters, neighbouring areas and major oceans. o = present records, ● = previous records, A = Indonesian waters, B = Australian waters, C = China Seas, D = Japanese waters, I, P and At = India, Pacific and Atlantic Oceans, O = oceanic, N-O = neritic-oceanic, Nr = new records.

<table>
<thead>
<tr>
<th>Species</th>
<th>Sites</th>
<th>Neigb. areas</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clytemnestra scutellata</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Euterpina acutifrons</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Eudactylopus latipes</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Macrosetella gracilis</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Microsetella norvegica</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>M. rosea</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

**DESCRIPTIONS**

Family **Clytemnestridae** A. Scott, 1909

Genus **Clytemnestra** Dana, 1852

**Clytemnestra scutellata** Dana, 1847 (fig. 2)

Clytemnestra scutellata Dana, 1847, 1852: 1194, pl. 83, fig. 12a-f; Giesbrecht, 1892: 566, pl. 1, fig. 9; Mori, 1929: 201, pl. 8, figs. 1–5.
Material examined. Five females (1.05 mm), 5 males (1.04 mm) collected from Ujung Kulon National Park, Banten by surface tow of 0.1 mm mesh plankton net at night on 13 June 2008.

Female. Prosome 4-segmented. Cephalon bell-shaped, with nauplius eye, rostrum large, anteriorly directed, fused to cephalic shield. Posterolateral ends of each somite laterally expanded. Urosome 5-segmented, consists of Ms5, genital double-somite and 3 free abdominal somites. CR short, twice as long as wide with 2 plumose setae. Genital double-somite subdivided by slight lateral constrictions.

A1 slender 7-segmented, aesthetasc-like setal elements present on segments 3, 4 and 7. Antennary Re represented by 2 setae; free Ri 2-segmented; proximal segment unarmed; distal segment bearing 1 subapical and 4 terminal elements. Mandible reduced, coxa with slender, stylet-like gnathobase, palp represented by single seta. Maxillule reduced to tapering lobate segment bearing 1 seta. Maxilla with 2 syncoxal endites, proximal endite represented by single seta, distal endite lobate with 3 setae, allobasis with articulating claw-like element plus 2 accessory setae. Maxilliped well developed, slender and elongated 3-segmented, and armed with short hooks on the end. P1-P4 with following armature (spines in Roman and setae in Arabic numerals):
Some Common Species of Planktonic Harpacticoida

Table 1. Coxa, basis, Re segments, Ri segments for P1 to P5 of the family Clytemnestridae.  

<table>
<thead>
<tr>
<th></th>
<th>coxa</th>
<th>basis</th>
<th>Re segments</th>
<th>Ri segments</th>
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<tbody>
<tr>
<td>P1</td>
<td>0-0</td>
<td>0-0</td>
<td>3-1</td>
<td>0-2,2</td>
</tr>
<tr>
<td>P2</td>
<td>0-0</td>
<td>0-0</td>
<td>0-1; I-1; II,2,3</td>
<td>0-1; 0-2; 1,2,3</td>
</tr>
<tr>
<td>P3</td>
<td>0-0</td>
<td>0-0</td>
<td>1-1; 1-1; II,2,3</td>
<td>0-1; 0-2; 1,2,2</td>
</tr>
<tr>
<td>P4</td>
<td>0-0</td>
<td>0-0</td>
<td>0-1; I-1; I,2,2</td>
<td>0-1; 0-2; 1,2,2</td>
</tr>
</tbody>
</table>

P5 uniramous, 2-segmented, baseoendopod small with outer seta only, compound exopodal segment elongate, typically with 5 setae.

**Male.** Prosome as in female. Urosome 6-segmented, consists of Ms5, genital somite and 4 free abdominal somites; CR short, with 7 setae, setae 4 and 5 fused at base, without fracture A1 7-segmented; haplocerate with geniculation between segments 6 and 7; aesthetascs-like setal elements present on segments 3, 5 and 7, segment 6 short with spine. Maxilliped well developed, elongate, Ri represented by curved distal claw and 5 accessory elements. P1–P5 as in female. P6 represented by elongate lobe bearing 3 setae.

**Remarks.** The family Clytemnestridae A. Scott, 1909 divided into two genera, *Clytemnestridae* Dana, 1848 and *Goniopsyllus* Brady, 1883 consists of 5 and 3 species, respectively. Boxshall (1979) adopted the family name *Clytemnestridae* A. Scott, 1909 rather than the *Pseudopeltididae* Poppe, 1891 as used by Lang (1948). Huys & Conroy-Dalton (2000) revisited this action, noting that the valid senior synonym of this taxon, *Goniopeltiidae* Claus, 1891, had remained unused since 1899 and could be considered a *nomen oblitum*. The junior name, the *Clytemnestridae*, was treated by Huys & Conroy-Dalton (2000) as a protected name.

**Distribution.** Members of the *Clytemnestridae* are holoplanktonic, typically occurring in the epipelagic zone. After Huys & Conroy-Dalton (2000) 8 species are treated as valid. There is considerable uncertainty surrounding known distribution patterns because of the taxonomic

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**Figure 5.** *Macrosetella gracilis*. Female. a, whole animal, dorsal view; b, P5. Male. c, whole animal, lateral view; d, P5.

**Figure 6.** *Microsetella rosea*. Female. a, whole animal, dorsal view. Male. b, whole animal, lateral view; c, P5.
confusion over species identities. Confirmed distributions of *C. scutellata* Dana has been recorded from the tropical and subtropical zones of the Indo-Pacific Oceans. There is a possibility that three Indo-Pacific species, *Clytemnestra farrani*, *C. longipes* and *C. setosa* are distributed in the East and Southeast Asian waters. I have found *C. scutellata* from the sites 3, 6, 8 and 9.

Family **Euterpinidae** Brian, 1921
Genus **Euterpina** Norman, 1903
*Euterpina acutifrons* (Dana (1847))

*Harpacticus acutifrons* Dana, 1847: 153.
*Euterpe acutifrons*, Dahl, 1894: 13; Mori, 1937: 117, pl. 64, figs. 1–3; Lang, 1948: 285–287, fig. 142; Gonzales & Bowman, 1965: 264, fig. 14d-i.
*Euterpina acutifrons*, A. Scott, 1909: 229.

**Material examined.** Ten females (0.62–0.69 mm), 10 males (0.53–0.56 mm) collected from Gilimanuk, Bali Strait by surface tow of 0.31 mm mesh plankton net at daytime on 14 July 2009.

**Female.** Body slender, cyclopiform, with distinct boundary between prosome and urosome at podopean position. Prosome 5-segmented, consists of cephalon, Ms1 and 3 free metasomal somites. Cephalon produced into triangular process anteriorly. Rostrum prominent, tapering to a point, fused to cephalic shield. Nauplius eye present. Urosome 5-segmented, much narrower than prosome, consists of Ms5, genital double somite and 3 free abdominal somites. Genital double somite subdivided by dorsal chitinous bar. Anal operculum small, rounded. Genital apparatus comprising paired genital apertures located ventrally on genital double-somite; copulatory pore located on ventral midline some distance posterior to genital apertures. CR cylindrical, longer than wide.

A1 17-segmented, with aesthetascs on segments 4 and 7. A2 with 1-segmented Re armed with 4 plumose setae. Mandible with well developed coxal gnathobase; palp small; basis with 2 setae; Ri and Re 1-segmented, each with 7 and 5 setae, respectively. Maxillule with well developed precoxal arthrite bearing 8 distal elements; coxa with endite bearing 3 setae; coxal epipod absent; basis and rami combined into unsegmented lobe bearing 6 setae. Maxilla with 3 syncoxal endites bearing 3, 3, 4 elements; allobasis with claw plus 4 setae; free Ri 1-segmented, armed with 5 setae. Maxilliped extremely slender, prehensile, forming subchela; 3-segmented; syncoxa and basis unarmed, endopodal segment with setulate claw plus accessory seta. P1–P4 with following armature (spines in Roman and setae in Arabic numerals):

<table>
<thead>
<tr>
<th></th>
<th>coxa</th>
<th>basis</th>
<th>Re segments</th>
<th>Ri segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>0-0</td>
<td>0-1</td>
<td>I-0; II,1,3</td>
<td>0-1; I,1,4</td>
</tr>
<tr>
<td>P2</td>
<td>0-0</td>
<td>0-0</td>
<td>I-1; I-1; II,1,3</td>
<td>0-1; 0-2; I,2,2</td>
</tr>
<tr>
<td>P3</td>
<td>0-0</td>
<td>0-0</td>
<td>I-1; I-1; II,1,3</td>
<td>0-1; 0-2; I,2,2</td>
</tr>
<tr>
<td>P4</td>
<td>0-0</td>
<td>0-0</td>
<td>I-1; I-1; II,1,2</td>
<td>0-1; 0-1; I,2,2</td>
</tr>
</tbody>
</table>

P5 long, fused medially to form a rectangular plate with 4 strong and 2 small St, 1 long and 1 short Se arising on its base, and 1 plumose seta on outer margin, furnished with ridge of spinules on inner margin.

**Male.** General appearance as in female. Prosome 4-segmented. Urosome 6-segmented, consists of Ms5, genital somite and 4 free abdominal somites. A1 7-segmented, prehensile with plumose setae. P1, P3 and P4 as in female, P2 with 2-segmented Ri. P5, both legs fused on base, divided at tip by median groove reaching halfway to base, armed with 2 St on either side, 1 Se with seta arising on its base, and proximal outer seta. P6 symmetrical, represented by small plate bearing 2 spines.
Remarks. *Euterpina acutifrons* is monotype, has a cosmopolitan distribution in the plankton community of shallow seas between 66° and 40° S. Its development was described by Haq (1965) and the anatomy of the naupliar stages was described by Fanta (1973). This species occurred regularly in almost the sites, but never abundant.

Family **Thalestridae** Sars, 1905  
Subfamily **Dactylopodiinae** Lang, 1948  
Genus **Eudactylopus** A. Scott, 1909  
**Eudactylopus latipes** (T. Scott, 1894)  

*Dactylopus latipes* T. Scott (non Boeck), 1893: 99, pl. 10, figs. 38–43.  
**Eudactylopus latipes**, A. Scott, 1909: 219, pl. 43, figs. 8–14; Sewell, 1940: 201–207, text-figs. 31–32; Lang, 1948: 561; Tanaka & Hue, 1965: 65, fig. 4a-g.

**Material examined.** Ten females (1.45–1.50 mm) collected from Ujung Kulon, Sunda Strait by surface tow of 0.1 mm mesh plankton net at daytime on 1 June 2008.

**Female.** Prosome stout and more or less depressed, 5-segmented consists of cephalon, Ms1 and 3 free metasomal somites. Cephalon well developed, rostrum long and sharply pointed at apex. Urosome rather slender, 5-segmented, consists of Ms5, genital double somite and 3 free abdominal somites. Genital double somite, Ur2 and Ur3 each fringed with 3 rows of fine spinules, one of which parallel to distal margin of somite, and the other 2 run obliquely near lateral margin. Anal somite very short; CR slightly shorter than wide, more or less divergent, 2nd inner seta much longer than others, about as long as combined lengths of urosomal somites and CR.

A1 7-segmented, 1st segment long, broad and stout; segments 2, 3 and 4 well developed, segments 5 and 6 short and small, but terminal segment elongated. A2 with separate coxa, allobasis with 1 abepodal seta, Ri 1-segmented, bearing 3 subapical setae; Re 1-segmented, bearing 9 setae. Maxilliped prehensile, 3-segmented, without characteristic features. P1–P4 with following armature (spines in Roman setae in Arabic numerals):

<table>
<thead>
<tr>
<th></th>
<th>coxa</th>
<th>basis</th>
<th>Re segments</th>
<th>Ri segments</th>
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<tbody>
<tr>
<td>P1</td>
<td>0-0</td>
<td>I-I</td>
<td>1-0; 1-1; I-V-0</td>
<td>0-1; II-1</td>
</tr>
<tr>
<td>P2</td>
<td>0-0</td>
<td>I-0</td>
<td>1-1; 1-1; III,1,3</td>
<td>0-0; 0-1; I,1,2</td>
</tr>
<tr>
<td>P3</td>
<td>0-0</td>
<td>I-0</td>
<td>1-1; 1-1; III,1,4</td>
<td>0-1; 0-2; I,3,3</td>
</tr>
<tr>
<td>P4</td>
<td>0-0</td>
<td>I-0</td>
<td>1-1; 1-1; III,1,4</td>
<td>0-1; 0-1; 1,2,2</td>
</tr>
</tbody>
</table>

**P5** 2-segmented, extending to distal end of Ur2, segments very large and foliaceous, proximal segment broad and wedge-shape, outer margin of segment furnished with 5 short feeble setae, distal segment sub-quadrate in outline and bears 6 short feeble setae, and fringed with short hairs on periphery.

No male was found in the present study

**Remarks.** *Eudactylopus latipes* is easily identified by the 2-segmented Re of the A2, the structure of P1, and the very large, foliaceous and transparent P5. This species was described for the first time by T. Scott (1894) based on a single specimen from the Gulf of Guinea. It has also been recorded from the Island of Ceylon by Thompson & Scott (1903). Sars (1903) points out that *Dactylopus latipes* Boeck is identical with *Dactylopusia brevicornis* (Claus), but is quite distinct from *Dactylopus latipes* T. Scott (1894). A. Scott (1909) was recorded 2 specimens of this species from St. 273, east coast of Aru Islands at a depth of 13 metres. I have found this species at the following sites 1, 3, 4, 6, 7 and 8.

**Distribution.** Nankauri Harbour, Nicobar Islands, East coast of Aru Islands (A. Scott, 1909), and Singu tide pool, Northwest coast of Kyushu, Japan (Tanaka & Hue, 1965).

Family **Miraciidae** Dana, 1846  
Genus **Macrosetella** A. Scott, 1909  
**Macrosetella gracilis** (Dana, 1848)  

*Setella gracilis* Dana, 1852: 1198, pl. 48, fig. 3a-g; Brady, 1883: 108, pl.50, figs. 1–10; Mori, 1937: 115, pl. 64, figs. 1–5.  
**Macrosetella gracilis**, A. Scott, 1909: 230; Wilson, 1932: 281, fig. 174a-d.

**Material examined.** Ten females (1.20–1.45 mm), 10 males (1.15–1.30 mm) collected from Ujung Kulon, Sunda Strait by surface tow of 0.1 mm mesh plankton net at night on 13 June 2008.

**Female.** Body slender, prosome 4-segmented. Cephalon narrowed anteriorly, fused with Ms1, paired cuticular lenses absent. Rostrum uniramous, well developed, long and pointed, ventrally projected, defined at base. Urosome 5-segmented, consists of Ms5, genital double somite and 3 free abdominal somites. Anal operculum small, ornamented with rows of spinules. Genital double somite subdivided
dorsally and laterally by cuticular ridges; CR short, longer than wide, innermost caudal seta (seta V) very long.

A1 8-segmented; A2 2-segmented, without Re. Mandible and maxilla 1-segmented, without Re and Ri. P1–P4 with following armature (spines in Roman and setae in Arabic numerals):

<table>
<thead>
<tr>
<th>coxa</th>
<th>basis</th>
<th>Re segments</th>
<th>Ri segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>0–0</td>
<td>I–I</td>
<td>0–1; 3</td>
</tr>
<tr>
<td>P2</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 1,1,2</td>
</tr>
<tr>
<td>P3</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 0–1,1,2</td>
</tr>
<tr>
<td>P4</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 0–1,1,2</td>
</tr>
</tbody>
</table>

P5 symmetrical, 2-segmented, 1st segment with 4 inner corner and 1 outer setae; 2nd segment with 6 setae.

Male. Prosome 6-segmented. Urosome 6-segmented, consists of Ms5, genital somite and 4 free abdominal somites; CR as in female. A1 prehensile, with knee-like articulation between segments 5 and 6. P1–P2 2-segmented. P5 symmetrical, 2-segmented, 1st segment with 2 setae on inner corner and 1 outer seta; 2nd segment with 2 setae on outer margin, 1 very long apical seta, 1 short and 2 small setae on inner margin.

Remarks. The family Miraciidae consists of 363 species from 53 genera. They are brightly pigmented, usually purplish-blue, when alive. *Macrostella gracilis* is the only species of the genus. *Macrosetella gracilis* is the principal inhabitant of epipelagic zone in warm oceanic waters. Bjoernberg (1965) noted that the adults and developmental stages of *M. gracilis* are usually found in association with cyanobacteria (*Trichodesmium*) and it seems likely that all planktonic miraciids exhibit a similar specialised life-style.

Distribution. Widely recorded in subtropical and tropical zones of all oceans, roughly between 40° N and 40° S, mainly between the 15° C mean annual surface temperature isotherms. A. Scott (1909) recorded this species from Sulawesi Sea, Flores Sea, Banda Sea and Arafura Sea. I have found this species from sites 2, 3, 4, 6, 7 and 8.

Family *Ectinosomatidae* Sars, 1903
Genus *Microsetella* Brady & Robertson, 1873
*Microsetella rosea* (Dana, 1848) (fig. 6 and 7a-c)

*Canthocamptus roseus* Dana, 1852: 1189, pl. 183, figs. 1–10. *Microsetella rosea*, Giesbrecht, 1892: 550, pl. 44, figs. 32, 35, 37–38; Esterly, 1932: 177, fig. 122a-c; Mori, 1937: 116, pl. 64, figs. 6-8.

**Material examined.** Ten females (0.52–0.56 mm), 10 males (0.40–0.45 mm) collected from Ujung Kulon, Sunda Strait by surface tow of 0.1 mm mesh plankton net at daytime on 13 June 2008.

**Female.** Body fusiform, compressed laterally. Prosome 4-segmented, consists of cephalon, Ms1 and 3 free metasomal somites. Cephalon triangular anteriorly, fused with Ms1; rostrum well developed and not defined at base, bent ventrally, and not visible from dorsal view; nauplius eye present. Urosome 5-segmented, consists of Ms5, genital double somite and 3 free abdominal somites; anal somite with conspicuous ornamentation around anal opening; CR short, inner caudal seta (seta V) very long, almost twice as long as body.

A1 6-segmented, 3rd segment elongated with aesthetasc. A2 biramous, with 3-segmented Re. Mandible biramous, well developed, gnathal lobe with few teeth, Re very small, Ri large, with single enlarged seta on middle of inner margin. P1–P4 with following armature (spines in Roman and setae in Arabic numerals):

<table>
<thead>
<tr>
<th>coxa</th>
<th>basis</th>
<th>Re segments</th>
<th>Ri segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>0–0</td>
<td>I–I</td>
<td>0–1; 0–1; I,I+1,2</td>
</tr>
<tr>
<td>P2</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 0–1; I,I+1,2</td>
</tr>
<tr>
<td>P3</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 0–1; I,I+1,2</td>
</tr>
<tr>
<td>P4</td>
<td>0–0</td>
<td>I–0</td>
<td>0–1; 0–1; I,I+1,2</td>
</tr>
</tbody>
</table>

P5 with outer lobe of baseoendopod well developed; Re foliaceous, 2-segmented, 1st segment with 2 inner and 1 outer setae, 2nd segment with 3 marginal and 1 surface setae, innermost seta nearly as long as the other seta.

Male. Body as in female, but slightly shorter. Prosome 6-segmented. Urosome 6-segmented, consists of Ms5, genital somite and 4 free abdominal somites. Caudal rami cylindrical with directed spinous processes, armed with 7 setae. A1 prehensile, with knee-like articulation between segments 5 and 6. P1–P4 as in female. P5 symmetrical, 2-segmented, 1st segment with 2 inner and 1 outer setae; 2nd segment with 2 outer setae, 1 very long apical seta, 1 long and 2 very short inner setae. P6 represented by small plate, typically with 2 setae.

Remarks. The family Ectinosomatidae consists of 226 species from 20 genera. The genus *Microsetella* consists of two species, *M. rosea* (Dana, 1848) and *M. norvegica* (Boeck, 1864). *M. rosea* most resembles *M. norvegica*, but it is distinguishable from the latter by the longest of caudal seta is nearly as long as the body, and the inner most seta of the P5 is nearly as long as the other setae. In *M. norvegica* the longest caudal seta is nearly as long as the body, and the inner seta of the P5 is nearly half times as long as the neighbouring seta.
The two species of *Microsetella* have successfully colonised the marine plankton and are widely distributed, especially in shallow coastal waters (Boxshall, 1979). A. Scott (1909) recorded this species from Java Sea, Flores Sea, Banda Sea and Arafura Sea. I have found this species from the sites 3, 6, 7 and 8.

*Microsetella norvegica* (Boeck, 1864)  
(fig. 7d-f)

*Ectinosoma atlanticum*, Brady, 1883: 100, pl. 4, figs. 10–14.


*Microsetella norvegica*, A. Scott, 1909: 199; Mori, 1937: 116, pl. 64, figs. 9–10; Wilson, 1932: 176, fig. 121a-c; Tanaka & Hue, 1965: 59, fig. 1g-k.

**Material examined.** Ten females (0.45–0.55 mm), 10 males (0.35–0.40 mm) collected from Ujung Kulon, Sunda Strait by surface tow of 0.1 mm mesh plankton net at daytime on 13 June 2008.

**Female.** Body extremely slender and compresses, almost linear in form. Prosome 4-segmented, cephalon dorsally flattened, fused with Ms1. Rostrum short and abruptly deflexed. Urosome 5-segmented, each segments with rows of minute spinules arranged transversely, CR scarcely shorter than broad with long caudal seta V, as long as body. A1 6-segmented. A2 biramous, with 3-segmented Re. Mandible biramous. P1–P4 as in *M. rosea* with 3-segmented Re and Ri, Ri longer than Re. P5 symmetrical, 2-segmented, 1st segment with 2 setae on inner corner, and 1 seta on outer corner; 2nd segment with 2 long and 2 short setae. Inner seta on base of Ri of P5 less half as long as outer seta.

**Male.** Prosome 6-segmented. Both A1 modified into grasping organs. P5 rudimentary and asymmetrical, distal segment with 2 unequal long setae and 1 plumose seta medially.

**Remarks.** *Microsetela norvegica* has a moderately wide distribution in all oceans (circumglobal species). *M. norvegica* is readily distinguished from *M. rosea* by the small size, the caudal seta V as long as body, and the form of the fifth legs. I have found this species from sites 3 and 8. *Microsetella* species appear to have retained a surface-feeding life-style, attaching themselves to discarded and occupied larveae houses.

**REFERENCES**


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2. Segara Anakan Cilacap (28 April–8 May 2009)
3. Ujung Kulon, Sunda Strait (13–15 June 2008)
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5. Off Kenjeran, Surabaya (18 October 2010)
6. Gilimanuk, Bali Strait (11–24 July 2009)
7. Lembeh Strait, Bitung, North Sulawesi (14–30 May 2004)
9. Manyailibit Bay, Raja Ampat, West Papua (6–7 June 2007)