

ON SOME NEW RECORDS OF PENAEID PRAWNS FROM THE
EAST COAST OF INDIA

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ABSTRACT

Solenocera melantho de Man, *Solenocera pectinata* (Bate), *Parapenaeopsis tenella* (Bate), *Parapenaeopsis cornuta* (Kishinouye), *Trachypenaeus sedili* Hall, *Trachypenaeus granulosus* (Haswell), *Metapenaeopsis mogiensis* (Rathbun), *Metapenaeopsis hilarulus* (de Man) and *Sicyonia lanceifer* (Olivier) are recorded for the first time from the east coast of India. Differences noticed from the existing descriptions and other relevant morphological features are recorded.

In the course of examination of the prawns in the commercial catches landed at Visakhapatnam and Kakinada, 37 species of penaeid prawns belonging to 9 genera were collected and identified (Appendix 1). Of these, 9 species which are recorded for the first time from the east coast of India are discussed in this paper with special reference to points of taxonomic interest.

***Solenocera melantho* de Man**

Solenocera melantho de Man, 1907, pp. 137; 1911, pp. 48-52; Hall, 1961, pp. 78-79 and 1962, p.12.

Solenocera depressa Kubo 1949, pp. 237-241.

non *Solenocera melantho* Ganapathi and Subramanyam 1966, pp. 11-20.

Material— Five females, 86-97 mm (carapace 23.5-28.0 mm) and 3 males, 81-92 mm (carapace 22.5-26.0 mm).

Locality— Sandheads, Lat. 20°45'N and Long. 88°10'E, depth 73 m.

Distribution— Indonesia, Japan, Malacca Strait and east coast of India.

Remarks— The species which was reported by Ganapathi and Subramanyam (1966) from the Godavary estuary as *S. melantho* de Man is actually *S. indicus* Nataraj (Personal communication from Dr. M. Subramanyam).

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The antennular flagella which are about $1\frac{1}{2}$ times the carapace length become tapered in the distal 10-11 segments. The lower edge of the rostrum is straight. The post-rostral carina has a shallow sulcus in its posterior $\frac{1}{3}$ in 6 of the 8 specimens examined. The thoracic legs are shorter than in de Man's specimens and exactly resemble the condition described by Kubo (1949) for *S. depressa* and *S. prominentis*. The shorter legs of the present specimens and of those collected by Hall (1961) can, perhaps, be explained by the smaller size of these specimens when compared to those of de Man (1911). The possibility of smaller individuals of *S. melantho* having shorter legs is also indicated by de Man (1911, p. 50). In the thelycum the antero-lateral angles and the lateral ridges of the quadrangular area overhang shallow cavities which appear to receive the spermatophores.

***Solenocera pectinata* (Bate)**

Philonicus pectinata Bate 1888, p. 279.

Solenocera pectinata George 1966, p. 337 (with synonymy).

Material—Two females, 26-37 mm (carapace 6.0-10.5 mm) and two males 26-31 mm (carapace 6.0-8.0 mm).

Locality—Visakhapatnam coast, Lat. $17^{\circ}45'$ N and Long. $83^{\circ}45'$ E, depth 51 m; Kakinada coast, Lat. $16^{\circ}57'$ N and Long. $82^{\circ}25'$ E, depth 30 m.

Distribution—Japan, South China Sea, Indonesia, Arabian Sea, Tenasserim coast and east coast of India.

Remarks—The thelycum (Fig. 1) has the following features which have not been mentioned in the earlier descriptions of the species. There is a quadrangular area in between the 5th pereopods with a median elevation covered with hook-like spines; the paired spiny prominences between the 5th legs form the posterior boundary of this area. The well-defined lateral ridges bounding the quadrangular area are

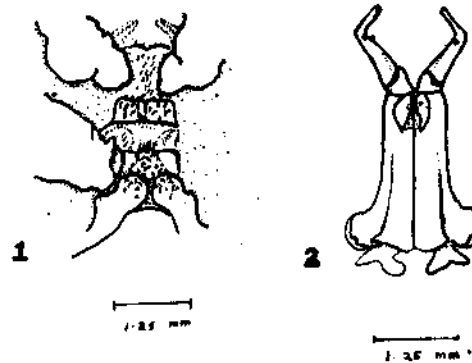


FIG. 1. *Solenocera pectinata* (Bate). Thelycum. 2. *Parapenaeopsis cornuta* (Kishinouye). Petasma—dorsal view.

hidden beneath the coxal expansion of the 5th pereopods. In front of the anterior border of the quadrangular area are two oval plates each bearing two groups of setae.

***Parapenaeopsis tenella* (Bate)**

Penaeus tenellus Bate 1888, pp. 270-271.

Parapenaeopsis tenella Thomas 1969, pp. 166-167 (with synonymy).

Material—Two males, 33-34 mm (carapace 7.5-8.0 mm) and 15 females, 45.5-67.0 mm (carapace 10.0-16.5 mm).

Locality—Visakhapatnam coast, Lat. 17°43'N and Long. 83°23'E, depth 18 m; Kakinada coast, Lat. 16°57'N and Long. 82°25'E, depth 30-35 m.

Distribution—Japan, Northern China, New Guinea and Northern Territory, Gulf of Carpentaria, Malaysia, Ceylon, Gulf of Mannar, Palk Bay and the Bay of Bengal.

Remarks—The rostrum in females above 60 mm is distinctly upcurved and extends beyond the tip of the antennular peduncle. In males the rostrum is curved down and reaches only the middle of the 2nd segment of the peduncle. The telson in some specimens bears 2 pairs of minute lateral spines in the distal half.

***Parapenaeopsis cornuta* (Kishinouye)**

Penaeus cornutus Kishinouye 1900, p. 23.

Parapenaeopsis cornuta De Bruin 1965, pp. 95-96.

Parapenaeopsis cornuta cornuta Racek & Dall 1965, pp. 98-99 (with synonymy).

Parapenaeopsis cornuta Kunju 1967, pp. 1384-1385.

Material—One male, 48.5 mm (carapace 11.0 mm).

Locality—Kakinada Bay, Lat. 16°56' N and Long. 82°16' E, depth 1 m.

Distribution—Japan, Hong Kong, Indonesia, tropical Australia, Ceylon, west and east coasts of India.

Remarks—In the present specimen the rostrum bears 7+1 teeth, reaches the end of 2nd segment of peduncle and in shape exactly resembles the condition depicted in Fig. 26A of Dall (1957). Basal spine absent on 3rd pereopods. Telson has four pairs of movable lateral spines. The petasma has a minute tooth at the inner angle of the sharply bent cornua (Fig. 2). These teeth have not been mentioned in previous descriptions of the species. The distal piece of the appendix masculina has a distinct excavation at the top and a tongue-like outgrowth from the rim medially.

The specimen was carefully compared with numerous specimens of *P. maxillipedo* from the Andhra coast. Even the smallest *P. maxillipedo* examined (36 mm

total length) has 9+1 rostral teeth, has a distinct, though minute, basal spine on the 3rd pereopods and lacks the lateral spines on the telson. In all the males examined the petasma lacks the tooth at the inner angle of the cornua which are also less sharply bent. Further, the appendix masculina in *P. maxillipedo* lacks the excavation at the top of the distal piece which ends in a blunt cone and the boot-shaped endopod of the 2nd pleopod has a distinctly narrower "toe". This is the first time that clear differences in the petasma and appendix masculina of these two closely related species have been brought to light.

***Trachypenaeus sedili* Hall**

Trachypenaeus sedili Hall 1961, pp. 100-102; Hall 1962, p.30; De Bruin 1965, pp. 92-93.

Material—Seven females, 39-61 mm (carapace 9.0-13.5 mm) and 7 males, 32.0-54.5 mm (carapace 7-12 mm).

Locality—Visakhapatnam coast, Lat. 17°43'N and Long. 83°23' E, depth 18 m; Kakinada coast, Lat. 16°57'N and Long. 82°25'E, depth 30 m.

Distribution—Singapore Island, Malacca Strait and Ceylon. This is the first record of the species from Indian waters.

Remarks—The first three pereopods bear each a mastigobranch. A minute ischial spine is discernible on the 1st pereopods. The rostrum is straight and uptilted in females smaller than 55 mm, and upcurved in females larger than 55 mm; it is straight in males. The deep median dorsal sulcus on telson is bordered by well-defined carinae; this feature serves to distinguish *T. sedili* from the closely related *T. curvirostris*, which lacks the well-defined carinae.

***Trachypenaeus granulosus* (Haswell)**

Trachypenaeus granulosus Racek and Dall 1965, pp. 94-96 (with synonymy).
Trachypenaeus salaco De Bruin 1965, pp. 90-92.

Material—One female, 69 mm (carapace 17 mm).

Locality—Kakinada coast, Lat. 16°57'N and Long. 82°23'E, depth 20 m.

Distribution—Malaysia, Indonesia, Northern Australia, Formosa and Ceylon. This is the first record of this species from the Indian waters.

Remarks—Entire carapace and abdominal segments with minute granulations covered with fine setae. Rostrum strongly upcurved, with 10+1 teeth on upper margin, reaches middle of distal segment of antennular peduncle. The mid-dorsal carina on 4th and 5th abdominal segments ends in a blunt spine posteriorly. In the fresh condition the general body colour of the specimen was light-brown, the sides of carapace and abdomen being washed with yellow, uropods red washed with

yellow; telson yellow in distal 1/3 but with a red tip; pleopods red; pereopods 3 and 5 washed with yellow proximally. The thelycum exactly resembles Fig. 15 of Hall (1961).

***Metapenaeopsis mogiensis* (Rathbun)**

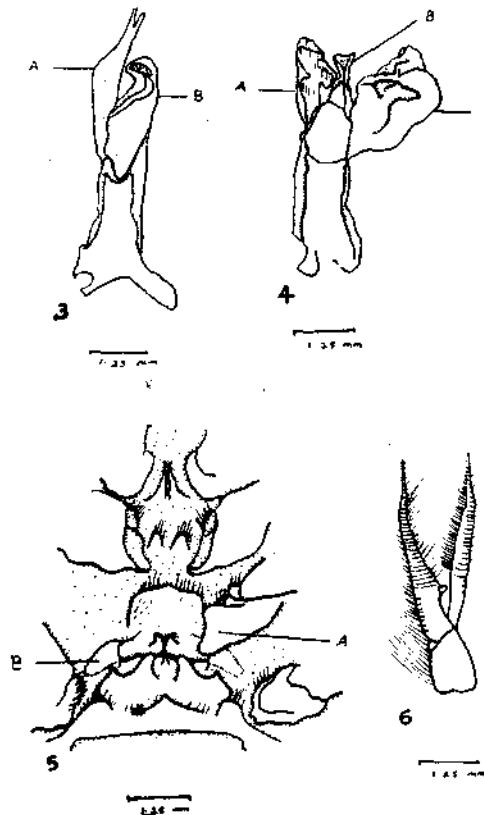
Parapenaeus mogiensis Rathbun 1902, p. 39.

Metapeneus mogiensis Alcock 1906, pp. 29-30.

Metapenaeopsis mogiensis Dall 1957, pp. 172-174; D Bruin 1965, pp. 81-84.

Material—27 females, 62-81 mm (carapace 13.0-18.5 mm) and 32 males, 52-69 mm (carapace 11.0-14.5 mm).

Locality—Visakhapatnam coast, Lat. 17°43'N and Long. 83°23'E, depth 26-28 m; Kakinada coast, Lat. 16°57'N and Long. 82°25'E, depth 25-30 m.



FIGS. 3-6. *Metapenaeopsis mogiensis* (Rathbun). 3. Dorsal view of left petasmas lobe: A-left distoventral projection; B-fused inner and outer intermediate strip. 4. Dorsal view of right petasmas lobe: A-distoventral flap; B-distomedian lobule; C-right distoventral projection. 5. Thelycum: A-coxal plate of 4th pereopod; B-outline of seminal vesicle. 6. Male antennule.

Distribution—Japan, Queensland, Malabar coast, Gulf of Mannar, Andaman Islands and east coast of India.

Remarks—De Bruin (1965) separated *M. mogiensis* (Rathbun) from the closely related *M. hilarulus* (de Man). In the possession of the following features the present specimens could be clearly identified as *M. mogiensis* (Rathbun):

1. There is no round glabrous dot on the posterodorsal region of the carapace in females.
2. The mid-dorsal carina on the 3rd abdominal segment has a well-defined groove.
3. Terminal filaments are present on the left distoventral projection of the petasma.
4. The anterior sternal plate between the 5th pereopods bears four teeth, the two larger median ones being incurved.
5. The pair of teeth or platelets in the posterior region of the thelycal plate is small.

The coxal plate of the 4th pereopods in the female lacks the minute tooth on the anterior border shown by Dall (1957, Fig. 12 B).

***Metapenaeopsis hilarulus* (de Man)**

Penaeopsis sp. (*hilarulus*) de Man 1911, pp. 70-71.

Penaeopsis hilarulus Barnard 1950, pp. 595-596.

Metapenaeopsis mogiensis Hall 1962, p. 35; Racek and Dall 1965, pp. 42-44.

Metapenaeopsis hilarulus De Bruin 1965, pp. 81-84.

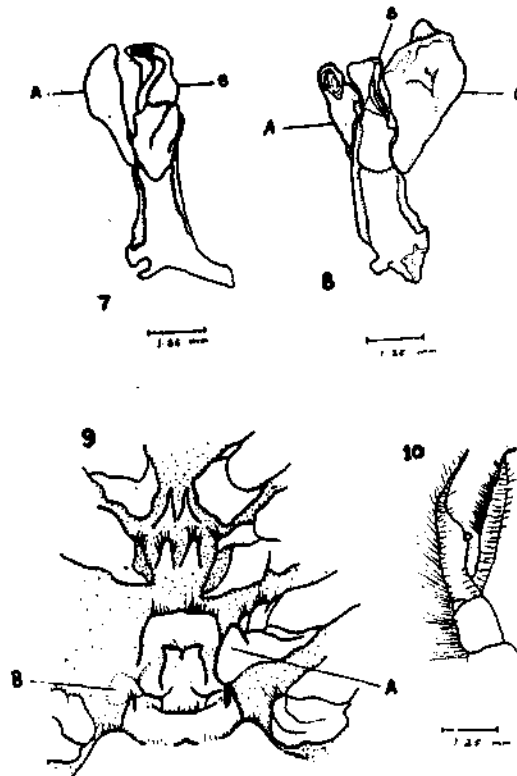
Material—Two males, 52.5-57.0 mm (carapace 10.5-11.0 mm) and 9 females, 50-70 mm (carapace 10-15 mm).

Locality—Visakhapatnam coast, Lat. 17°43' N and Long. 83°23'E, depth 26-28 m; Kakinada coast, Lat. 16°57'N and Long. 82°25'E, depth 30-35 m.

Distribution—Malaysia, east coast of Africa, Indonesia and Ceylon. This is the first record of this species from Indian waters.

Remarks—The antennal flagella in the male have bright red feathery setae in the distal half. The general body colour of *M. hilarulus* in the fresh condition is very much like that of *M. barbata* and is strikingly different from that of *M. mogiensis*.

Apart from the differences pointed out by De Bruin (1965) *M. hilarulus* can be clearly distinguished from *M. mogiensis* on the basis of the clear-cut differences observed during the present study (Table 1).

Sicyonia lancifer (Olivier)*Palaemon lancifer* Olivier 1811, p. 664.*Sicyonia lancifer* George 1966, p. 344 (with synonymy).**Material**—One male, 37 mm (carapace 9.5 mm).**Locality**—Kalingapatnam coast, Lat. 18°25'N and Long 84°25'E, depth 50 m.**Distribution**—Japan, Indonesia, Penang, Ceylon and the west and east coasts of India.**Remarks**—The paired sternal spines between the 2nd and 3rd pereopods noticed by de Man (1911) appear to arise from the posterior border of the

FIGS. 7-10. *Metapenaeopsis hilarulus* (de Man). 7. Dorsal view of left petasml lobe: A- left distoventral projection; B- fused inner and outer intermediate strip. 8. Dorsal view of right petasml lobe; A- distoventral flap; B- distomedian lobule; C- right distoventral projection. 9. Thelycum; A- coxal plate of 4th pereopod; B- outline of seminal vesicle. 10. Male antennule.

TABLE 1. *Distinguishing characters of M. mogiensis and M. hilarulus*

	<i>M. mogiensis</i>	<i>M. hilarulus</i>
1. Lower flagellum of antennule in males	Width at level of tooth relatively less. The tooth relatively nearer base of flagellum (see Fig. 6).	Width at level of tooth relatively more. The tooth relatively further away from base of flagellum (see Fig. 10).
2. Telson	As long as inner uropods. Proximal pair of movable lateral spines almost reach base of succeeding pair.	Clearly falls short of tip of inner uropods. Proximal pair of spines barely reach half the distance to the succeeding pair.
3. Coxal plate of 4th pereopods	Heart-shaped with a smoothly rounded antero-median margin (see Fig. 5A).	Anterior margin prominently conical (see Fig. 9A).
4. Petasma	Distomedian lobule small and falls short of the tip of the distoventral flap. The piece representing the fused inner and outer intermediate strips has a bluntly triangular area above the oval spiny patch and falls far short of the left distoventral projection (see Figs. 3 and 4).	Distomedian lobule much larger with a broad distal end almost reaching tip of distoventral flap. The fused inner and outer intermediate strip lacks the triangular area above the oval spiny patch but attains level of tip of left distoventral projection (see Figs. 7 and 8).
5. Thelycum	Seminal vesicles tubular (see Fig. 5B).	Seminal vesicles broad distally (see Fig. 9B).
6. Colour of fresh specimens	Body with close light brown mottlings. Pleopods washed with white. Distal half of uropods white and purple.	Body less closely mottled with dark brownish red. Pleopods dark red. Distal half of uropods dark brownish red.

sternites between the 1st and 2nd pereopods in the present specimen. The pair of ventral distolateral horns of the petasma are not prominently rounded as figured by Kubo (1949).

ACKNOWLEDGEMENTS

I am deeply grateful to Shri. K.H. Mohamed and Dr. M.J. George for furnishing me with some of the references and for going through the manuscript and offering valuable suggestions for its improvement.

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APPENDIX I

*List of penaeid prawns collected by the author
on the east coast of India*

- Solenocera indica* Nataraj
 * *Solenocera melantho* de Man
 * *Solenocera pectinata* (Bate)
Solenocera waltirensis George and Muthu
Solenocera hexti Wood-Mason and Alcock
Penaeus indicus H. Milne Edwards
Penaeus merguensis de Man
Penaeus penicillatus Alcock
Penaeus monodon Fabricius
Penaeus semisulcatus de Haan
Penaeus japonicus Bate
Metapenaeus monoceros (Fabricius)
Metapenaeus ensis (de Haan)
Metapenaeus affinis (H. Milne Edwards)
Metapenaeus dobsoni (Miers)
Metapenaeus brevicornis (H. Milne Edwards)
Metapenaeus lysianassa (de Man)
Atypopenaeus compressipes (Henderson)
Parapenaeopsis stylifera (H. Milne Edwards)
Parapenaeopsis hardwickii (Miers)
Parapenaeopsis sculptilis (Heller)
Parapenaeopsis uncta Alcock
Parapenaeopsis nana Alcock
Parapenaeopsis acclivirostris Alcock
 * *Parapenaeopsis tenella* (Bate)
 * *Parapenaeopsis cornuta* (Kishinouye)
Parapenaeopsis maxillipedo Alcock
Parapenaeopsis indica Muthu
Trachypenaeus curvirostris (Stimpson)
 * *Trachypenaeus sedili* Hall
Trachypenaeus granulatus (Haswell)
Parapenaeus longipes (Alcock)
Metapenaeopsis stridulans (Alcock)
Metapenaeopsis barbata (de Haan)
 * *Metapenaeopsis mogiensis* (Rathbun)
 * *Metapenaeopsis hilarulus* (de Man)
 * *Sicyonia lancifer* (Olivier)

* New records from the east coast.