

## GRAPSID AND XANTHID CRABS OF PARANGIPETTAI COAST

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### INTRODUCTION

Studies pertaining to the infauna of Parangipettai waters have been in progress since the inception of the Marine Biological Station in the year 1956. With the growth of this station as an Advanced Centre in Marine Research, a more extensive knowledge on the local fauna has become imperative. Special emphasis was given to this aspect, so as to get a comprehensive idea of community structure and population dynamics of this area. Brachyuran crabs, the most interesting group of organisms among the decapod crustaceans occur in large numbers in the Vellar estuary, Pitchavaram mangroves and in the trawl catches of local mechanised vessels. Sethuramalingam (1983) studied the portunid crabs of Porto Novo coast. No information is yet available regarding the species composition of grapsid and xanthid crabs. In the present study an inventory was made on species composition of the above groups and the results are given here. The terminology used in the keys conform to those of earlier works. The synonyms given are not to be complete.

### CHECK LIST

- Family : Grapsidae Dana, 1851  
Subfamily : Grapsinae Dana, 1851  
Genus : **Grapsus** Lamarck, 1801  
Species : *G. strigosus* Herbst, 1783  
*G. tenuicrustatus* (Herbst, 1783)  
Genus : **Metopograpsus** H. Milne Edwards, 1853  
Species : *M. maculatus* Milne Edwards, 1853  
*M. messor* (Forskal, 1775)  
Subfamily : Varuninae  
Genus : **Ptychognathus** Stimpson, 1858  
Species : *P. altimanus* (Rathbun, 1914)  
Genus : **Pseudograpsus** H. Milne Edwards, 1837  
Species : *P. intermedius* Chhapgar, 1955

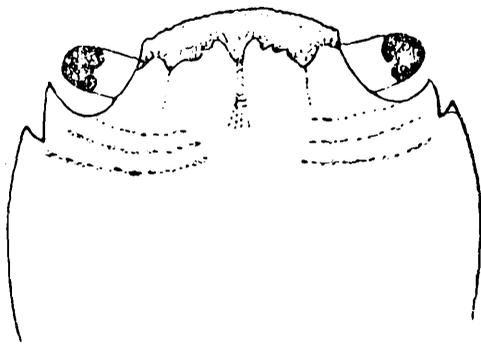
- Subfamily : Sesarminae Dana, 1852  
 Genus : **Nanosesarma** Tweedie, 1950  
 Subgenus : **Nanosesarma** Serene and Soh, 1970  
 Species : *N. (Nanosesarma) minutum* (De Man, 1887)  
 Subgenus : **Beanium** Serene and Soh, 1970  
 Species : *N. (Beanium) batavicum* (Moriera, 1903)  
*N. (Beanium) andersoni* (De Man, 1887)  
 Genus : **Neopisesarma** Serene and Soh, 1970  
 Subgenus : **N. (Neopisesarma)** Serene and Soh, 1970  
 Species : *N. (Neopisesarma) mederi* (H. Milne Edwards, 1853)  
 Subgenus : **Muradium** Serene and Soh, 1970  
 Species : *N. (Muradium) tetragonum* (Fabricius, 1798)  
 Subgenus : **Selatium** Serene and Soh, 1970  
 Species : *N. (Selatium) brockii* (De Man, 1887)  
 Genus : **Parasesarma** (De Man, 1890)  
 Species : *P. plicatum* (Latreille, 1806)  
 Subfamily : Plagusinae Dana, 1851  
 Genus : **Plagusia** Latreille, 1806  
 Species : *P. depressa tuberculata* (Lamarck, 1818)  
*P. dentipes* (De Haan, 1835)  
 Family : Xanthidae Alcock, 1898  
 Subfamily : Xanthinae Alcock, 1898  
 Genus : **Liagore** De Haan, 1835  
 Species : *L. rubromaculatus* (De Haan, 1835)  
 Genus : **Leptodius** A. Milne Edwards, 1863  
 Species : *L. crassimanus* A. Milne Edwards, 1867  
 Genus : **Demia** Laurie, 1906  
 Species : *D. buccalipes* Alcock, 1898  
 Genus : **Halimede** De Haan, 1835  
 Species : *H. ochtodes* (Herbst, 1783)  
 Genus : **Galene** De Haan, 1833

Species : *G. bispinosa* (Herbst, 1783)  
 Subfamily : Piluminae Ortmann, 1893  
 Genus : **Heteropanope** Stimpson, 1858  
 Species : *H. indica* De Man, 1887

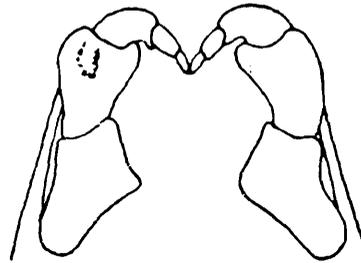
## KEY FOR IDENTIFICATION

*Key to Grapsidae*

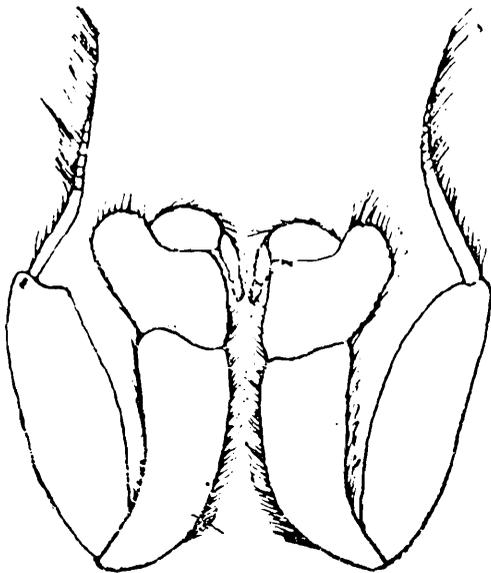
Last legs not dorsally placed ; a gap between third maxillipeds ; anterolateral side of carapace straight or arched ; front broad ; rarely true land crabs (Fig. 1).



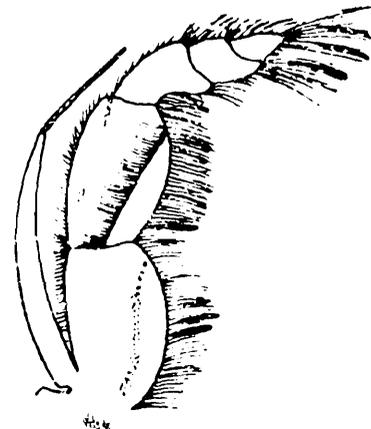
T. Fig. 1



T. Fig. 2



T. Fig. 3

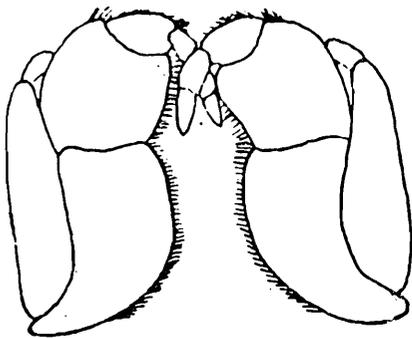


T. Fig. 4

Figs. 1-4. 1. Broad front in grapsid crabs. 2. Gap between external maxillipeds in crabs of subfamily Grapsinae. 3. External maxillipes which completely shut buccal cavern in crabs of subfamily Varuninae. 4. Oblique hairy crest on merus of external maxillipeds in crabs of subfamily Sesarminae.

*Key to subfamilies of Grapsidae*

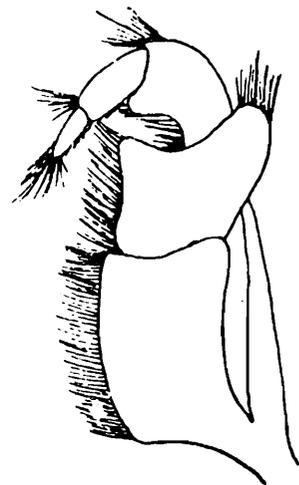
1. Front broad and deflexed ; flagellum of antenna very short ; external maxillipeds leaving rhomboidal gap between them (Fig. 2) ... *Grapsinae*
2. Front broad and not deflexed, sublaminar ; antennal flagellum lengthy ; external maxillipeds completely shut buccal cavern (Fig. 3) ... *Varuninae*
3. Front broad and strongly deflexed ; external maxillipeds slender ; oblique hairy crest on merus (Fig. 4) ... *Sesarminae*
4. Antennular fossets deeply divided into lobes ; infraorbital border curved ; external maxillipeds incompletely close buccal cavern (Fig. 5) ... *Plagusinae*



T. Fig. 5



T. Fig. 6



T. Fig. 7

Figs. 5-7. External maxillipeds which incompletely close buccal cavern in crabs of subfamily Plagusinae. 6. Merus of external maxillipeds longer than broad in crabs of genus *Grapsus*. 7. Merus of external maxillipeds broader than long in crabs of genus *Metapograpsus*.

*Key to genera of Grapsinae*

1. Front less than half of greatest breadth of carapace ; merus of external maxillipeds longer than broad ; dactylus of cheliped spoon shaped at tip (Fig. 6) ... *Grapsus*
2. Front more than half of greatest breadth of carapace ; merus of external maxillipeds broader than long ; antenna completely excluded from orbit (Fig. 7) ... *Metapograpsus*

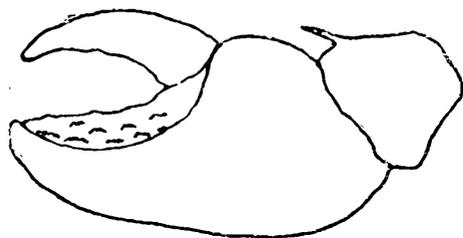
**Genus *Grapsus* Lamarck**

1801. *Grapsus* Lamarck, *Syst. Anim. Sons. Verte.*, 150.  
 1900. *Grapsus* Alook, *J. Asiatic Soc. Bengal*, 69 : 390.  
 1918. *Grapsus* Tesch, *Siboga Expedn. Monogr.*, 39C : 71.  
 1965. *Grapsus* Crosnier, *Fauna de Madagascar*, 18 : 10.

This genus is represented by two species in Parangipettai waters.

*Key to species of Grapsus*

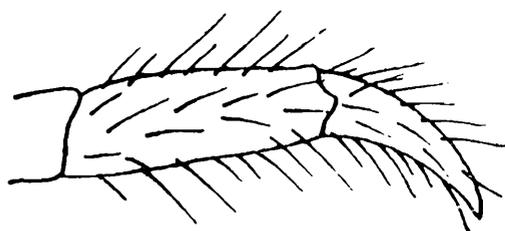
1. Front less deflexed and less high ; epistome short ; spine at inner angle of wrist of cheliped nearly straight (Fig. 8) ... *G. strigosus*
2. Front strongly deflexed and very high ; epistome very long ; spine at inner angle of wrist of cheliped curved (Fig. 9) ... *G. tenuicrustatus*



T. Fig. 8



T. Fig. 9



T. Fig. 10

Figs. 8-10. 8. Straight spine at inner angle of wrist of cheliped in *Grapsus strigosus*. 9. Curved spine at inner angle of wrist of cheliped in *Grapsus tenuicrustatus*. 10. Distinctly shorter dactylus (than propodus) and trilobed last segment of abdomen in *Metopograpsus maculatus*.

***Grapsus strigosus* Herbst**

1803. *Grapsus strigosus* Herbst, *Krabben*, III : 55.  
 1893. *Grapsus strigosus* Henderson, *Trans. Linn., Soc. London Zool.*, 20 : 390.  
 1900. *Grapsus strigosus* Alcock, *J. Asiatic Soc. Bengal*, 69 : 393.  
 1950. *Grapsus strigosus* Tweedie, *Bull. Raffles Mus. Singapore*, 21 : 94.

*Material* : 10 males and 20 females ranging from 30 mm to 34 mm in carapace width were collected from Veller estuary.

*Colour* : Carapace green, mesogastric and hepatic regions light green, cardiac and other intestinal regions brownish and epibranchial region with scattered white patches ; dark green bands on pereopods and chelipeds light green.

*Habitat* : These are the inhabitants of rocky shore, constricted rocks, boulders and broken building material like iron bar. In Vellar estuary it is collected from underneath stones, pillars of railway bridge, jetty and from oyster beds.

*Distribution* : This species is widely distributed in the Indo-Pacific region from the East coast of Africa, Madagascar, Red sea, Arabian sea through Japan and Australia to Hawaii.

In and around India, the occurrence of this species has been reported from Andaman Nicobars, Mergui, Sri Lanka, East and West coasts of India, Sind and Baluchistan.

*Remarks* : This species is smaller than *G. tenuicrustatus* and is always found along with the latter. The presence of the straight spine at the inner angle of carpus of cheliped is very much helpful in distinguishing this species from *G. tenuicrustatus*.

### **Grapsus tenuicrustatus (Herbst)**

1783. *Cancer tenuicrustatus* Herbst, *Krabben*, I : 113.  
 1840. *Grapsus hirtus* Randal, *Acad. Nat. Sci. Philadelphia Journ.*, 8 : 124.  
 1906. *Grapsus grapsus tenuicrustatus* Rathbun, *Bull. U. S. Fish. Comm.*, 23 : 838.  
 1918. *Grapsus maculatus gracilipes* Tesch, *Siboga Expedn. Monogr.*, 39 C : 71.  
 1922. *Grapsus grapsus* Balss, *Arch. f. Naturg. Bd.*, III, 88 : 147.  
 1965. *Grapsus tenuicrustatus* Crosnier, *Fauna de Madagascar*, 16 : 10.  
 1976. *Grapsus tenuicrustatus* Sakai, *Crabs of Japan and Adjacent Seas* : 629.

*Material* : 5 males and 20 females were collected from Vellar estuary.

*Colour* : Carapace velvet green with regularly arranged white patches, concentrated more on epibranchial region along striae ; dactylus of pereopods light brown and merus with irregularly scattered white patches which is absent in chela and palm of which appears violet in colour.

*Habitat* : This species occurs in the constricted rocks, stones and boulders of railway bridge and jetty at Parangipettai and in the oyster bed also.

*Distribution* : All tropical and subtropical seas.

*Remarks* : This fairly large sized crab runs faster when approached. It has already been recorded from the rocky habitat. Now it is found to inhabit the oyster bed also.

Genus **Metopograpsus** H. Milne Edwards

1853. *Metopograpsus* H. Milne Edwards, *Ann. Sc. Nat.*, 3 : 164.  
 1918. *Metopograpsus* Tesch, *Siboga Expedn. Monogr.*, 39C : 79.  
 1939. *Metopograpsus* Sakai, *Yokendo Ltd. Tokyo*, 646, 653.  
 1956. *Metopograpsus* Crosnier, *Fauna de Madagascar*, 21.

This genus is represented by two species in Parangipettai coast.

*Key to species of Metopograpsus*

1. Walking legs larger, dactylus distinctly shorter than propodus ; lateral margin of carapace less convergent posteriorly ; last segment of abdomen trilobed (Fig. 10)  
 ... *M. maculatus*
2. Walking legs shorter, dactylus nearly as long as propodus ; lateral margin markedly convergent posteriorly ; last segment of male abdomen triangular (Fig. 11)  
 ... *M. messor*

**Metopograpsus maculatus** H. Milne Edwards

1853. *Metopograpsis maculatus* H. Milne Edwards, *Ann. Sci. Nat. Zool.*, (3) XX : 165.  
 1887. *Metopograpsus maculatus* De Man, *Journ. Linn. Soc. Zool.*, 22 : 145.  
 1900. *Metopograpsus maculatus* Alcock, *J. Asiatic Soc. Bengal*, 69 : 398.  
 1918. *Metopograpsus maculatus* Tesch, *Siboga Expedn. Monogr.*, 39C : 80.

**Material** : 10 males measuring carapace width of 21 mm to 26 mm were collected from Pitchavaram mangroves.

**Colour** : Carapace dark green, few scattered light green patches on pereopods, dactylus of chelate leg violet.

**Habitat** : It is found in the muddy substrates of the intertidal region in Pitchavaram mangroves.

**Distribution** : Along the coasts of India, Ceylon, Mergui and East Indies. It has been recorded from Bombay coast by Alcock (1900).

**Metopograpsus messor** (Forsk.)

1775. *Cancer messor* Forskal, *Descrip. Anim. in itin Orient.*, : 88.  
 1887. *Metopograpsus messor* DeMan, *Journ. Linn. Soc. London Zool.*, 22 : 144.  
 1900. *Metopograpsus messor* Alcock, *J. Asiatic Soc. Bengal*, 69 : 397.  
 1918. *Metopograpsus messor* Tesch, *Siboga Expedn. Monogr.*, 39C : 79.

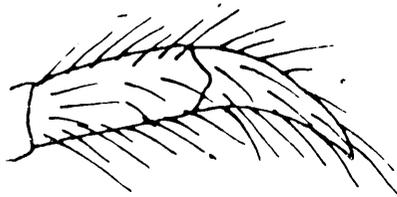
**Material** : 50 specimens of both males and females were collected from Vellar estuary and Pitchavaram mangroves.

**Colour :** Carapace dark green with scattered white patches on epibranchial and cardiac regions ; pereopods striped with light and dark green bands and dactylus of chela appears bright violet.

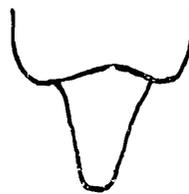
**Habitat :** Abundantly found in rocks and exposed oyster beds in subtidal region and also found in muddy substrata.

**Distribution :** Ranging from Red sea to Australia.

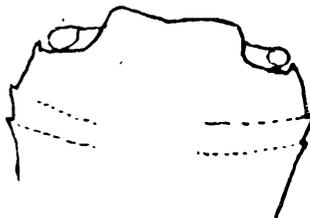
**Remarks :** This species is easily distinguishable from *M. maculatus* by the colour pattern and by the triangular shaped last segment of abdomen of male.



T. Fig. 11



T. Fig. 12



T. Fig. 13



T. Fig. 14

Figs. 11-14. 11. Equal sized dactylus and propodus and triangular shaped last segment of male abdomen in *Metopograpsus messor*. 12. Toothed lateral border and very flat carapace in crabs of genus *Ptychognathus*. 13. Subcircular carapace with flattish teeth on anterolateral border separated by very narrow notch in crabs of genus *Pseudograpsus*. 14. 'S' shaped upper orbital margin in carapace of *Pseudograpsus altimanus*.

#### Key to genera of Varuninae

1. Exognath of external maxillipeds broader than or nearly as broad as ischium ; carapace very flat lateral border toothed, no posterolateral facet defined (Fig. 12) ... *Ptychognathus*
2. Exognath of external maxillipeds narrower than ischium, external maxilliped do not close buccal cavern completely, merus of external maxillipeds shorter than ischium ; carapace subcircular, teeth on anterolateral border flattish and separated by very narrow notch (Fig. 13) ... *Pseudograpsus*

**Genus *Ptychognathus* Stimpson**

1858. *Ptychognathus* Stimpson, *Proc. Acad. Nat. Sci. Philadelphia*, **10** : 104.  
 1900. *Ptychognathus* Alcock, *J. Asiatic Soc. Bengal*, **69** : 402.  
 1918. *Ptychognathus*, Tesch, *Siboga Expedn. Monogr.*, **39C** : 85.  
 1965. *Ptychognathus* Crosnier, *Fauna de Madagascar*, **18** : 37.

The genus is represented by a single species in Parangipettai waters.

**Key to species of *Ptychognathus***

1. Carapace finely punctate, two pairs of indistinct transverse depressions on carapace, upper orbital margin 'S' shaped (Fig. 14) ... *P. altimanus*

***Ptychognathus altimanus* (Rathbun)**

1914. *Varuna altimana* Rathbun, *Proc. U. S. Nat. Mus.*, **47** : 70.  
 1918. *Ptychognathus altimanus* Tesch, *Siboga Expedn. Monogr.*, **39C** : 88.

**Material** : 5 males and 7 females were collected from Vellar estuary and Pitchavaram mangroves.

**Colour** : Carapace brown, cardiac region less brighter.

**Habitat** : Inhabits muddy substrata along intertidal region.

**Distribution** : Indo-Pacific.

**Remarks** : From 'S' shaped orbital margin the species can be easily identified.

**Genus *Pseudograpsus* H. Milne Edwards**

1837. *Pseudograpsus* H. Milne Edwards, *Hist. Nat. Crust.*, **I** (2) : 81.  
 1918. *Pseudograpsus* Tesch, *Siboga Expedn. Monogr.*, **39C** : 97.  
 1965. *Pseudograpsus* Crosnier, *Fauna de Madagascar*, **18** : 39.

This genus is represented by a single species.

**Key to species of *Pseudograpsus***

1. Legs hairy, not compressed, a fleshy lobe at dactylus of cheliped ... *P. intermedius*

***Pseudograpsus intermedius* Chhappgar**

1957. *Pseudograpsus intermedius* Chhappgar, *Marine Crabs of Bombay State* : 57.

**Material** ; 15 males and 10 females were collected from Pitchavaram mangroves.

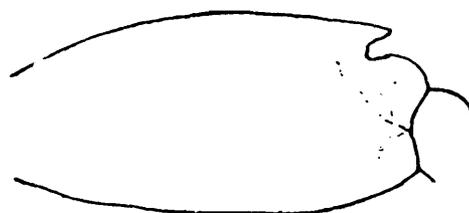
*Colour* : Chestnut.

*Habitat* : Found under the stones in muddy substrates.

*Distribution* : Indo-Pacific. It has been reported from Bombay coast by Chhapgar (1957).



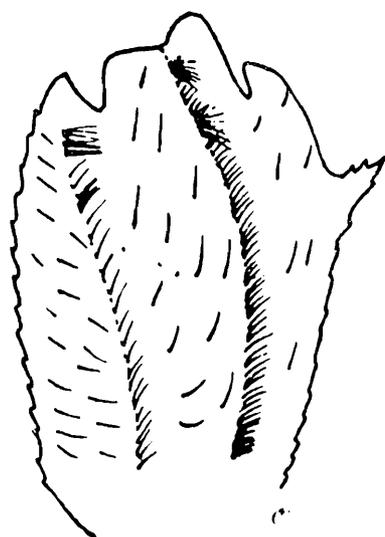
T. Fig. 15



T. Fig. 16



T. Fig. 17



T. Fig. 18



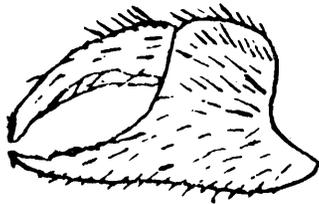
T. Fig. 19

Figs. 15-19. 15. Merus of pereopod 4-5, in crabs of genus *Nanosesarma* with dents. 16. Merus of pereopod 4-5, in crabs of genus *Neopisesarma* without dents. 17. Anterior frontal margin with strong median concavity in crabs of genus *Neopisesarma*. 18. Anterior border of merus of cheliped with subdistal triangular process distally denticulated in crabs of genus *Neopisesarma*. 19. Carapace with no anterolateral tooth on carapace in crabs of genus *Parasesarma*.

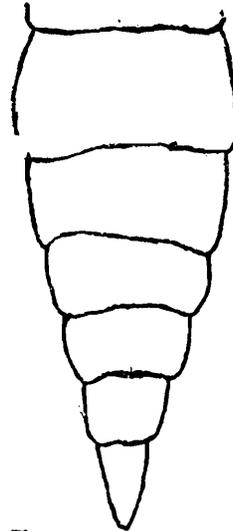
*Remarks* : The fleshy lobe at the dactylus of cheliped is helpful in the easy identification of this species.

*Key to genera of Sesarminae*

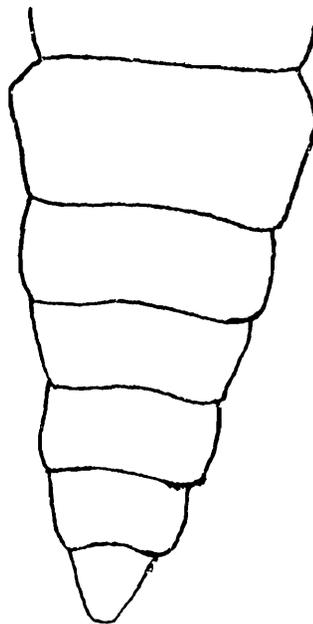
1. Antennal peduncle not excluded from orbit ; posterolateral border of merus of pereopod with 4-5 dents (Fig. 15) ... *Nanosesarma*



T. Fig. 20



T. Fig. 21



T. Fig. 22

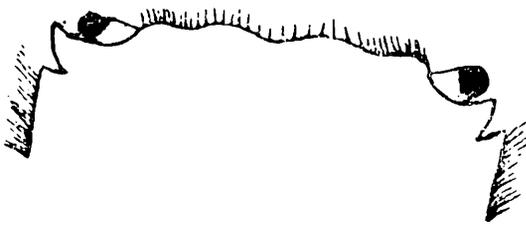
Figs. 20-22. 20. Outerside of palm of cheliped entirely covered with soft hair in crabs of subgenus *Nanosesarma* (*Nanosesarma*). 21. Remarkably elongated male abdomen in crabs of subgenus *Nanosesarma* (*Nanosesarma*). 22. Not so remarkably elongated male abdomen in crabs of subgenus *Nanosesarma* (*Beanium*).

2. Antennal peduncle not excluded from orbit ; posterolateral border of merus of pereopods 4-5, without dents (Fig. 16) ; carapace with one or two anterolateral teeth, anterior frontal margin with strong median concavity (Fig. 17) ;

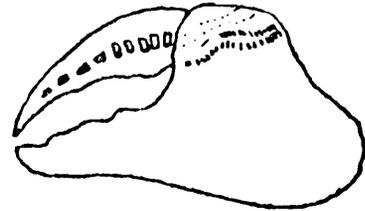
- upper surface of palm of cheliped with only one of pectinated crest, anterior border of merus of cheliped with subdistal triangular process distally denticulated (Fig. 18) ... *Neopisesarma*
3. Antennal peduncle not excluded from orbit ; posterodistal border of pereopod without denticulation ; upper edge of palm of cheliped with 2-3 pectinated crest (Fig. 19) ; no anterolateral tooth on carapace ... *Parasesarma*

### Genus *Nanosesarma* Tweedie

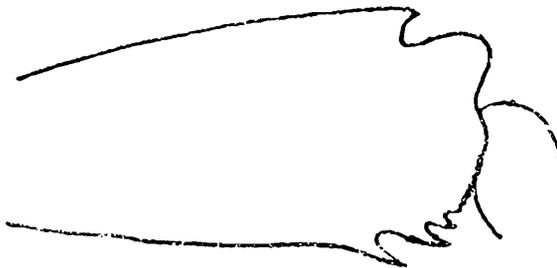
1950. *Nanosesarma* Tweedie, *Bull. Raffles. Mus. Singapore*, 13 : 310.  
 1965. *Nanosesarma* Crosnier, *Fauna de Madagascar*, 18 : 70.  
 1970. *Nanosesarma* Serene and Soh, *Treubia*, 27 (4) : 393.



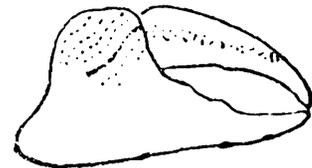
T. Fig. 23



T. Fig. 24



T. Fig. 25



T. Fig. 26

Figs. 23-26. 23. Clearly marked anterolateral teeth on carapace of *Nanosesarma* (*Nanosesarma*) *minutum*. 24. Upper edge of palm of cheliped with 2 oblique pectinated crest in *Nanosesarma* (*Beanium*) *batavicum*. 25. Three acute spines on posterodistal border of pereopod 4 in *Nanosesarma* (*Beanium*) *batavicum*. 26. Upper edge of palm of cheliped with numerous striae in *Nanosesarma* (*Beanium*) *andersoni*.

### Key to subgenera of *Nanosesarma*

1. Outerside of palm of cheliped entirely covered with soft hair concealing lines of granules (Fig. 20), merus of pereopod with short denticulation ; male abdomen remarkably elongated (Fig. 21) ... *N.* (*Nanosesarma*)

2. Outer surface of palm of cheliped smooth or with limited patch of hair, merus of pereopod 4 with 2-4 acute spines posterodistally ; male abdomen not remarkably elongated (Fig. 22) ... *N. (Beanium)*

The subgenus *Nanosesarma* is represented by a single species and subgenus *Beanium* by two species in Parangipettai waters.

#### *Key to species of Nanosesarma*

1. Upper edge of palm of cheliped without pectinated crest ; anterolateral teeth on carapace clearly marked (Fig. 23) ... *Nanosesarma (Nanosesarma) minutum*
2. Upper edge of palm of cheliped with 2 oblique (Fig. 24) pectinated crest, three acute spines (one long and 2 short) on posterodistal border of pereopod 4 (Fig. 25) ... *Nanosesarma (Beanium) batavicum*
3. Upper edge of palm of cheliped with numerous striae (Fig. 26), one of which forms pectinated crest, four strong spines on posterodistal border of merus of pereopod 4 (Fig. 27) ... *Nanosesarma (Beanium) andersoni*

#### *Nanosesarma (Nanosesarma) minutum (De Man)*

1887. *Sesarma minutum* De Man, *Zool. Jahrb. Syst.*, II : 657.  
 1917. *Sesarma (Sesarma) minuta* Tesch, *Zool. Meded. Leiden*, iii : 127.  
 1935. *Sesarma (Sesarma) gordonii* Shen, *Chinese Journ. Zool.*, 1 : 27.  
 1950. *Nanosesarma gordonii* Tweedie, *Bull. Raffles. Mus. Singapore*, 13 : 311.  
 1957. *Sesarma (Sesarma) minuta* Chhappgar, *Marine Crabs of Bombay State* : 60.  
 1965. *Nanosesarma gordonii* Crosnier, *Fauna de Madagascar*, 18 : 72.  
 1970. *Nanosesarma (Nanosesarma) minutum* Serene and Soh, *Treubia*, 27 (4) : 404.

*Material* : 8 males and 15 females were collected from Pitchavaram mangroves.

*Colour* : Carapace lemon yellow, cardiac region less brighter ; pereopod, with yellow and light green bands, chela bright yellow.

*Habitat* : Occurs in the muddy substrata along intertidal area and also in loosely packed oyster shells in the subtidal area.

*Distribution* : Indian coasts, Sagami Bay and Inland Seas of Japan.

#### *Nanosesarma (Beanium) batavicum (Moriera)*

1970. *Nanosesarma (Beanium) batavicum* Serene and Soh, *Treubia*, 27 (4) : 394.

*Material* : 100 males and 100 females were collected from Pitchavaram mangroves and Vellar estuary.

**Colour :** Carapace light green in general, mesogastric and cardiac regions bright coloured ; pereopods with less pronounced stripes and dactylus of cheliped with light brown colour.

**Habitat :** Inhabits the oyster bed in the intertidal region of Vellar estuary and Pitchavaram mangroves.

**Distribution :** Widely distributed in Indo-Pacific region.

**Remarks :** This small grapsid crab dominates the crab fauna of oyster bed community. More number of adult specimens were collected during summer whereas during monsoon season, the juveniles were more.

### **Nanosesarma (Beanium) andersoni (De Man)**

1887. *Sesarma andersoni* De Man, *Zool. Jahrb. Syst.*, II : 657.

1900. *Sesarma andersoni* Alcock, *J. Asiatic Soc. Bengal*, 69 (3) pt. 11 : 418.

1970. *Nanosesarma (Beanium) andersoni* Serene and Soh, *Treubia*, 27 (4) : 394.

**Material :** 4 males and 13 females were collected from Pitchavaram mangroves.

**Colour :** Carapace dark green with scattered white patches.

**Habitat :** Intertidal muddy substrata near railway bridge and also found in Pitchavaram mangroves.

**Distribution :** Indo-Pacific.

**Remarks :** Serene and Soh (1970) considered the presence of 2-3 acute spinules on the posterodistal border of the merus of pereopod 4 as subgeneric character of *Beanium*. Presently *N. (B.) andersoni* shows 4 strong spinules on posterodistal border of merus of pereopod 4, when reexamined. So the taxonomy of *N. (B.) andersoni* needs further detailed study.

### **Genus Neopisesarma Serene and Soh**

1970. *Neopisesarma* Serene and Soh, *Treubia*, 27 (4) : 389, 395.

1976. *Neopisesarma* Sakai, *Crabs of Japan and Adjacent Seas*, 661.

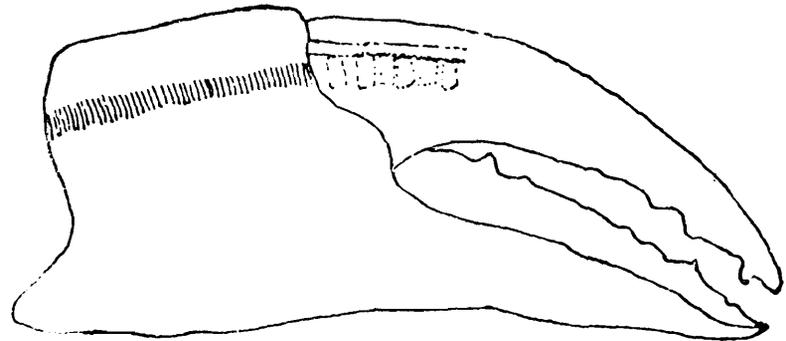
### **Key to subgenera and species of Neopisesarma**

1. On upper surface of palm of cheliped low pectinated crest continued from distal end to proximal end, numerous transverse long swollen dactylar tubercles closely arranged in a continuous rim (Fig. 28) ... *Neopisesarma*  
(*Neopisesarma*)
  - (i) Carapace quadrangular ; above transverse dactylar tubercles, a sulcus runs about 1/3 of total length of tubercles, vertical granular crest on inner palm salient (Fig. 29) ... *N. (Neopisesarma) mederi*.

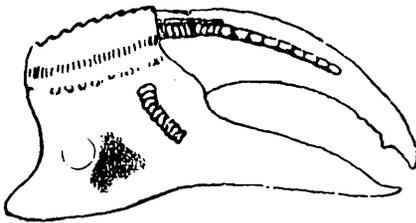
2. On upper surface of palm of cheliped, high pectinated crest limited to median part, proximally continued by smooth rim, distally continued by lines of granules ... *V. Neopisesarma (Muradium)*



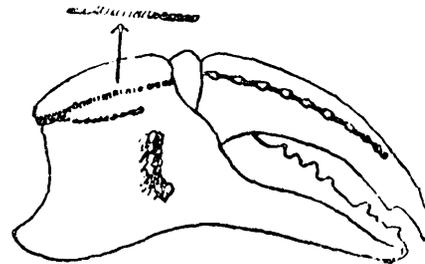
T. Fig. 27



T. Fig. 28



T. Fig. 29



T. Fig. 30

Figs. 27-30. 27. Four strong spines on posterodistal border of merus of fourth pereopod in *Nanosesarma (Beanium) andersoni*. 28. Pectinated crest on upper surface of palm in crabs of subgenus *Neopisesarma (Neopisesarma)*. 29. Salient vertical granular crest on inner palm of *Neopisesarma (Neopisesarma mederi)*. 30. Strongly salient vertical granular crest on inner palm of cheliped in *Neopisesarma (Muradium) tetragonum*.

- (i) Longitudinal dactylar tubercles widely separated from one another, a clear sulcus running between them, vertical granular crest on inner palm of cheliped strongly salient (Fig. 30) ... *(Muradium) tetragonum*
3. On upper surface of palm of cheliped, pectinated crest salient, only proximally replaced by smooth rim, vertical granular crest on inner palm salient ... *Neopisesarma (Salatium)*
- (i) Pectinated crest on upper palm distally reach margin, dactylar tubercles well separated from one another without transverse sulcus above (Fig. 31) ... *N. (Selatium) brockii*

**Neopisesarma (Neopisesarma) mederi (H. Milne Edwards)**

1853. *Sesarma mederi* H. Milne Edwards, *Ann. Sci. Nat. Zool.*, 20 (3) : 185.  
 1880. *Sesarma teaniolatum* De Man, *Zool. Jahrb. Syst.*, II : 647.  
 1900. *Sesarma teaniolatum* Alcock, *J. Asiatic Soc. Bengal*, 69 (3) pt. II : 419.  
 1970. *Neopisesarma (Neopisesarma) mederi* Serene and Soh, *Treubia*, 27 (4) : 389, 396, 405.

**Material :** 3 males and 3 females were collected from Pitchavaram mangroves.

**Colour :** Carapace dark green, mesogastric region less brighter, pereopods less violet, dactylus of cheliped bright violet.

**Habitat :** Inhabits burrows as deep as one meter in the muddy substratum along intertidal area of Pitchavaram mangroves.

**Distribution :** Indo-West Pacific.

**Remarks :** This is recorded for the first time in Parangipettai coast. Altogether 3 males and 3 females were collected from the same spot during the study period. It has been observed that this species occurs in limited numbers and restricted to a particular habitat where another species of this genus (*tetragonum*) is dominant.

**Neopisesarma (Muradium) tetragonum (Fabricius)**

1798. *Cancer tetragonum* Fabricius, *Ent. Syst. Suppl.*, 341.  
 1799. *Cancer fascicularis* Herbst, *Krabben*, III : 49.  
 1887. *Sesarma tetragona* De Man, *Zool. Jahrb. Syst.*, II : 646.  
 1893. *Sesarma tetragona* Henderson, *Trans. Linn. Soc. Zool.*, 2 : 392.  
 1970. *Neopisesarma (Muradium) tetragonum* Serene and Soh, *Treubia*, 27 (4) : 397, 405.

**Material :** 100 males and 100 females were collected from burrows found in the muddy substrata of Pitchavaram mangroves and Vellar estuary.

**Colour :** Carapace dark brown, epibranchial region less brighter, pereopods purple coloured, chelipeds dark red and dactylus light red.

**Habitat :** Inhabits burrows as deep as 1 meter in muddy and bushy areas of Pitchavaram mangroves along intertidal region.

**Distribution :** Widely distributed in Indo-West Pacific region.

**Remarks :** In the present study, the generic and subgeneric characters reveal that there are differences in the pectinated crest.

**Neopisesarma (Selatium) brockii (De Man)**

1887. *Sesarma brockii* De Man, *Zool. Jahrb. Syst.*, 9 : 651.  
 1900. *Sesarma brockii* Alcock, *Lit. Cit.* : 419.  
 1970. *Neopisesarma (Selatium) brockii* Serene and Soh, *Treubia*, 27 (4) : 405.

**Material :** 5 males and 11 females were collected from Pitchavaram mangroves.

**Colour :** Carapace brownish, epibranchial and mesogastric less brighter, dactylus or chela violet.

**Habitat :** Like *N. (M.) tatragonum* and *N. (N.) mederi* this species occurs in burrows as deep as one meter along the intertidal area of Pitchavaram mangroves.

**Distribution :** Indo-Pacific.

**Remarks :** Alcock (1900) recorded this species as *Sesarma brockii*. Serene and Soh (1970) erected a new genus and subgenus and included this species.

### Genus *Parasesarma* (De Man)

1895. *Sesarma (Parasesarma)* De Man, *Zool. Jahrb. Syst.*, **9** : 181.  
 1900. *Sesarma* Alcock, *Lit. Cit.* : 413.  
 1917. *Sesarma (Parasesarma)* Tesch, *Zool. Meded. Leiden*, **iii** : 187.  
 1950. *Sesarma (Parasesarma)* Barnard, *Ann. South Afric. Mus.*, **38** : 127.  
 1965. *Sesarma (Parasesarma)* Crosnier, *Fauna de Madagascar*, **18** : 65.  
 1970. *Parasesarma* Serene and Soh, *Treubia*, **27** (4) : 387, 392.

### *Key to species of Parasesarma*

1. Outer transverse dactylar tubercles sharp, not much loosely packed, a clear sulcus runs between two rows of tubercles extended upto 2/3 of total length of dactylus, vertical granular crest on inner palm of cheliped clear (Fig. 32)  
 ... *P. plicatum*

### *Parasesarma plicatum* (Latreille)

1806. *Ocypoda plicata* Latreille, *Hist. Nat. Crust., & C.*, **6** : 47.  
 1900. *Sesarma quadrata* Alcock, *Lit. Cit.* : 413.  
 1917. *Sesarma (Parasesarma) plicata* Tesch, *Zool. Meded. Leiden*, **iii** : 187.  
 1950. *Sesarma (Parasesarma) plicata* Barnard, *Ann. South Afric. Mus.*, **38** : 127.  
 1965. *Sesarma (Parasesarma) plicatum* Crosnier, *Fauna de Madagascar*, **18** : 65.  
 1976. *Sesarma (Parasesarma) plicatum* Sakai, *Crabs of Japan and Adjacent Seas* : 657.  
 1978. *Parasesarma plicatum* Soh, *Vem. H. K. Nat. Hist. Soc.*, **13** : 11.

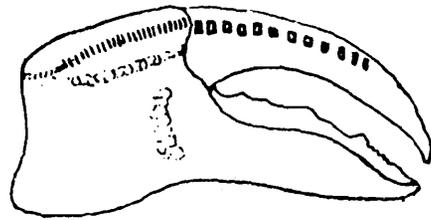
**Material :** 100 males and 100 females were collected from the Pitchavaram mangroves and the Vellar estuary.

**Colour :** Dark brown, dactylus of cheliped in striking violet.

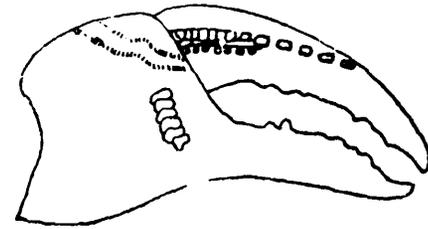
**Habitat :** Inhabits the muddy substratum in lower reaches of tidal creek and roots of mangrove plants.

**Distribution :** Widely distributed in Indo-Pacific region.

*Remarks* : This species was previously recorded as *Sesarma quadrata* by Balasubramanian (1962) from Parangipettai coast. Serene and Soh (1970) included this species in *Parasesarma* based on the presence of pectinated crest on the upper surface of palm of cheliped.



T. Fig. 31



T. Fig. 32



T. Fig. 33



T. Fig. 35



T. Fig. 34

Figs. 31-35. 31. Well separated dactylar tubercles in *Neopisesarma (Selatium) brockii*. 32. Clean vertical granular crest on inner palm of cheliped in *Parasesarma plicatum*. 33. Merus of pereopods with one subterminal tooth on upper margin in *Plagusia depressa tuberculata*. Fig. 34. Carapace with squamiform tubercles in *Plagusia depressa tuberculata*. 35. Outer palm of cheliped longitudinally costate in *Plagusia depressa tuberculata*.

#### Key to genera of *Plagusinae*

1. Carapace thick ; merus of external maxillipeds as broad as ischium ... *Plagusia*

#### Genus *Plagusia* Latreille

1806. *Plagusia* Latreille, *Gen. Crust.*, 1 : 23.  
 1900. *Plagusia* Alcock, *Lit. Cit.* : 436.  
 1965. *Plagusia* Crosnier, *Fauna de Madagascar*, 18 : 80.

#### Key to species of *Plagusia*

1. Merus of pereopods (Fig. 33) with one subterminal tooth on upper margin ; carapace with squamiform tubercles (Fig. 34) ; outer palm of cheliped longitudinally costate (Fig. 35) ... *P. depressa tuberculata*

2. Merus of pereopods with a series of teeth on upper (Fig. 36) margin ; carapace devoid of tubercles ; outer palm of cheliped with longitudinal grooves deeply impressed (Fig. 37) ... *P. dentipes*

***Plagusia depressa tuberculata* (Lamarck)**

1818. *Plagusia tuberculata* Lamarck, *Hist. Nat. Anim. Sans. Vert.*, 5 : 247.  
 1858. *Plagusia orientalis* Stimpson, *Proc. Acad. Nat. Sci. Philadelphia*, 10 : 103.  
 1900. *Plagusia depressa squamosa* Alcock, *Lit. Cit.* : 437.  
 1918. *Plagusia depressa tuberculata* Tesch, *Siboga Exp. Monogr.*, 39C : 129.  
 1965. *Plagusia depressa tuberculata* Crosnier, *Fauna de Madagascar*, 18 : 80.

**Material :** 9 males and 6 females were collected from the tidal zone of Vellar estuary.

**Colour :** In general, carapace brownish, cardiac region reddish, merus of pereopods with red markings transversely in the middle on the outer surface dactylus of pereopods light red.

**Habitat :** inhabits rocks, constricted rocks and drift wood.

**Distribution :** Indo-Pacific, extending upto west coast of America.

***Plagusia dentipes* (De Haan)**

1835. *Grapsus plagusia dentipes* De Haan, *Ph. F. Von Seibold's Fauna Japonica Crust.*, 58.  
 1918. *Plagusia dentipes* Tesch, *Siboga Expedn. Monogr.*, 39C : 129.  
 1976. *Plagusia dentipes* Sakai, *Crabs of Japan and Adjacent Seas*, : 675.

**Material :** 10 males were collected from the tidal zone of the Vellar estuary.

**Colour :** Carapace reddish brown, few scattered red spots on epibranchial region, anterolateral teeth on carapace dark red, very light brown band like colouration in merus of pereopods.

**Habitat :** Inhabits rocky beaches, floating timbers.

**Distribution :** Indo-Pacific and Japan.

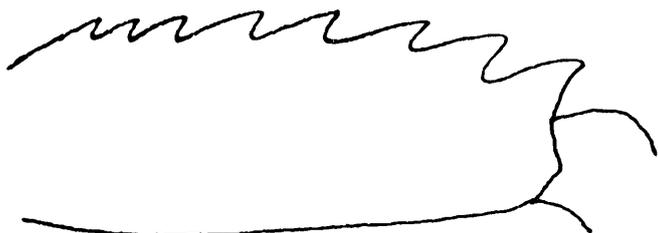
*Key to Xanthidae*

Legs not adapted for swimming ; carapace anteriorly broadened, branchial region not swollen ; no inner lobe on endopodite of first maxilliped.

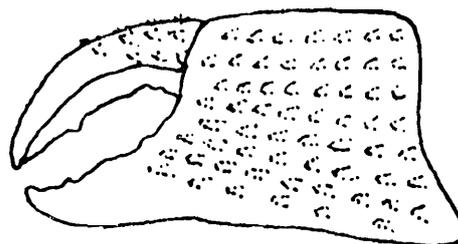
*Key to subfamilies of Xanthidae*

Carapace usually much broader than long, transversely oval, sometimes hexagonal, front narrow, one third to one fifth of greatest breadth of carapace ... *Xanthinae*

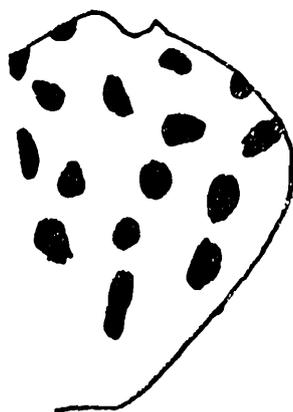
Carapace moderately broad, front about a third of greatest breadth of carapace, anterolateral borders of carapace not longer than posterolaterals; basal antennal joint does not or just touches front ... *Pilumninae*



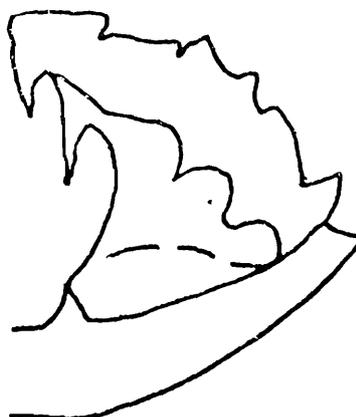
T. Fig. 36



T. Fig. 37



T. Fig. 38



T. Fig. 39

Figs. 36-39. 36. Merus of pereopods with a series of teeth on upper margin in *Plagusia dentipes*. 37. Outer palm of cheliped with longitudinal grooves deeply impressed in *Plagusia dentipes*. 38. Reddish spots on carapace of *Liagore rubromaculatus*. 39. Anterolateral border in *Leptodius crassimanus* cut into 5 teeth.

*Key to genera and species of Xanthinae*

1. Carapace perfectly smooth, no trace of regions, anterolateral border entire ... *Liagore*

Front faintly bilobed; little pimple like thickenings (tubercles) on outer angle of orbit; borders of merus hairy, upper borders with a denticle, dactyli of leg elongately plumed; reddish spots on carapace (Fig. 38) as well as on legs ... *L. rubromaculatus*

Genus **Liagore** De Haan

1835. *Liagore* De Haan, *Ph. F. Von Siebold's Fauna Japonica, Crust.*, 1 : 19.  
 1851. *Liagore* Dana, *Amer. J. Sci. & Arts.*, 12 (2) : 121.  
 1898. *Liagore* Alcock, *Lit. Cit.* : 93.

**Liagore rubromaculatus** (De Haan)

1835. *Cancer (Liagore) rubromaculatus* De Haan, *Ph. F. Von Siebold's Fauna Japonica, Crust.*, 1 : 49.  
 1898. *Liagore rubromaculatus* Alcock, *Lit. Cit.*, 67 : 93.  
 1976. *Liagore rubromaculatus* Sakai, *Crabs of Japan and Adjacent Seas*, 389.

**Material** : 8 males and 10 females were collected from the trawl catches of local inshore waters.

**Colour** : Yellowish with numerous scattered large red spots on carapace and pereopods.

**Habitat** : Inhabits the bottom or rocks and stones.

**Distribution** : Indian coasts, Irrawaddy delta, Hong Kong and Japan.

2. Anterolateral borders not prolonged beyond orbit, cut into 4 or more teeth ;  
 dactylus of cheliped blunt hollowed at tip ... *Leptodius*  
 Front narrow with edges of its lobes deeply concave, appears quadridentatus,  
 anterolateral border cut into 5 teeth (Fig. 39) ... *L. crassimanus*

Genus **Leptodius** A. Milne Edwards

1863. *Leptodius* A. Milne Edwards, *Ann. Sci. Nat. Zool.*, 20 : 284.  
 1898. *Xantho (Leptodius)* Alcock, *Lit. Cit.* : 117.  
 1968. *Leptodius* Guinot, *Cahiers du Pacifique*, 15 : 1091.

**Leptodius crassimanus** Milne Edwards

1882. *Leptodius crassimanus* Haswell, *Catalogue Austr. Crust.*, 61.  
 1898. *Xantho (Leptodius) crassimanus* Alcock, *Lit. Cit.* : 120.  
 1957. *Leptodius crassimanus* Chhappgar, *Marine Crabs of Bombay State* : 30.

**Material** : 10 males and 6 females were collected and examined in the present study.

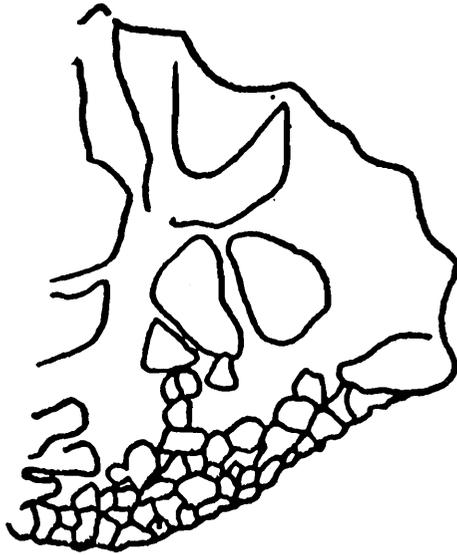
**Colour** : Carapace grey ; dactylus of cheliped black with whitish tip.

**Habitat** : Inhabits rocky beaches and is found under stones and crevices.

**Distribution** : Bombay coast, Andamans, Karachi and Australia.

3. Anterolateral borders of carapace lobed, first two indistinct, carapace regions and subregions well defined (Fig. 40) ... *Demania*

Dactylus of cheliped sharp and incurved, surface of cheliped entire with mosaic pattern ... *D. buccalipes*



T. Fig. 40



T. Fig. 41



T. Fig. 42



T. Fig. 43

Figs. 40-43. 40. Lobed anterolateral border and well defined regions and subregions in crabs of genus *Demania*. 41. Round and smooth tubercles in carapace of *Halimede ochtodes*. 42. Pentagonal carapace in *Galene bispinosa*. 43. Anterolateral border armed with 4 teeth behind the external orbital angle in crabs of genus *Heteropanope*.

**Genus Demania Laurie**

1906. *Demania* Laurie, *Ceylon Pearl oyster Fish. Report* London, 5 : 396.  
 1969. *Demania* Serene, *J. Mar. Biol. Ass. India*, 11 (1) : 1.  
 1971. *Demania* Guinot, *Bull. Mus. Hist. Nat.*, (2) : 1074.  
 1986. *Demania* Deb. *Rec. Zool. Surv. India*, 83 (3 & 4) : 127.

***Demania buccalipes* (Alcock)**

1898. *Xantho* (*Lophoxanthus*) *scaberrimus buccalipes* Alcock, *J. Asiatic Soc. Bengal*, 67 : 117.  
 1938. *Xantho reynaudii buccalipes* Balss, *Bull. Raffles Mus.*, 14 : 51.  
 1957. *Xantho* (*Lophoxanthus*) *scaberrimus buccalipes* Ohhappgar, *Marine Crabs of Bombay State* : 29.  
 1971. *Demania scaberrima buccalipes* Guinot, *Bull. Mus. Hist. Nat.*, 42 (5) : 1074.  
 1976. *Demania buccalipes* Sakai, *Crabs of Japan and Adjacent Seas*, 421.  
 1986. *Demania buccalipes* Deb, *Rec. Zool. Surv. India*, 83 (3 & 4) : 132.

*Material* : 20 males were collected from the trawl catches of local inshore waters.

*Colour* : Carapace dull red, pereopods bright red and dactylus of cheliped yellowish.

*Habitat* : Inhabits the bottom of rocks, stones and broken shells.

*Distribution* : Bombay, Sri Lanka, Malacca Strait and Japan.

4. Front square cut and narrow, two lobes not strongly convex dorsally, carapace rugose and granular, ... *Halimede*  
 Tubercles of carapace and chelipeds ill isolated and their surface round and smooth ; anterolateral tooth obtusely angular (Fig. 41). ... *H. ochtodes*

**Genus Halimede De Haan**

1835. *Halimede* De Haan, *Crustacea* in : de SIEBOLD'S *Fauna Japonica*, 35.  
 1852. *Halimede* Dana, *Crustacea United States Exploring Exped.*, 13 : 149.  
 1898. *Halimede* Alcock, *Lit. Cit.* : 135.  
 1976. *Halimede* Sakai, *Crabs of Japan and Adjacent Seas*, 386.

***Halimede ochtodes* (Herbst)**

1783. *Cancer ochtodes* Herbst, *Krabben*, I : 158.  
 1898. *Polycremnus ochtodes* Alcock, *Lit. Cit.* : 135.  
 1906. *Halimede hendersoni* Nobili, *Anni. Sci. Nat. Ser. 9, Zool. Paris*, 4 : 123.  
 1910. *Halimede ochtodes* Rathbun, *The Danish Exped.*, 4 : 853.  
 1945. *Halimede ochtodes* Stephensen, *Danish Sci. Invest. in Irran, Copenhagen*, 4 : 158.  
 1976. *Halimede ochtodes* Sakai, *Crabs of Japan and Adjacent Seas*, 387.

*Material* : 7 males and 4 females were collected from the trawl catches of local inshore waters.

*Colour* : Cream coloured.

*Habitat* : Inhabits muddy or sandy habitats in the inshore waters.

*Distribution* : Madras coast, Penang, Singapore, Gulf of Thailand, Hong Kong, Sagami Bay.

5. Carapace granular marginally, regions vaguely defined ; basal antennal joint not reaching front, anterolateral border with lobes or teeth ... *Galene*

Carapace pentagonal (Fig. 42), surface lumpy and scabrus near borders, pterygostomian region almost hairy, anterolateral border indistinctly four lobed, posterolateral border longer than anterolateral border ; inner and outer surfaces of palm and wrist spiniform ... *G. bispinosa*

### Genus *Galene* De Haan

1883. *Galene* De Haan, *Ph. F. Von Siebold's Fauna Japonica Crust*, 19.

1886. *Galene* Miers, *Report H. M. S. "Challenger"*, London, 17 : 118.

1898. *Galene* Alcock, *Lit. Cit.* : 136.

### *Galene bispinosa* (Herbst)

1783. *Cancer bispinosa* Herbst, *Krabben I. II* : 144.

1835. *Cancer (Galene) bispinosa* De Haan, *Ph. F. Von Siebold's Fauna Japonica Crust.*, 49 : 21.

1971. *Galene bispinosa* Guinot, *Bull. Mus. Dist. Nat.*, 42 (5) : 1070.

*Material* : 50 males and 50 females were collected from the trawl catches of local inshore waters.

*Colour* : Carapace grey, frontal and protogastric region brighter, dactylus of pereopods less violet, inner and outer palm light grey.

*Habitat* : Inhabits the bottom of sandy mud at about 3 to 50 meters deep.

*Distribution* : Indian coast, Singapore, coasts of South China, Formosa, Hong Kong, Queensland.

*Remarks* : In Parangipettai region this species is being eaten by coastal inhabitants. This species dominates the catches during summer months. The systematic position of *bispinosa* is still uncertain. Though the adults have all the morphological characteristics of the subfamily Xanthinae, the larvae (Mohan, 1984) showed close similarities to pilumnids in their antennal morphology (Hyman, 1925) and armature of abdominal segments (Sandifer, 1974). As revealed by larval characteristics this species should be removed from Xanthinae and included into the subfamily Pilumninae.

*Key to species of Pilumninae*

Carapace transversely oval, markedly convex and glabrous, broader, frontal lobe straight and truncate, anterolateral border armed with 4 teeth behind external orbital angle (Fig. 43). ... *Heteropanope*

Dorsal surface of carapace convex in both directions, transverse ridges beaded with depressed granules ; carpus and propodus of cheliped studded with pearly granules ... *H. indica*

**Genus *Heteropanope* Stimpson**

1858. *Heteropanope* Stimpson, *Proc. Acad. Nat. Sci. Philadelphia*, **10** (4) : 35.  
 1898. *Heteropanope* Alcock, *Lit. Cit.* : 207.  
 1933. *Heteropanope* Balss, *Capite Zoologica deel 4, ofl. 35*, 31.  
 1939. *Heteropanope* Sakai, *Yokendo Ltd., Tokyo*, 512, 545.

***Heteropanope indica* de Man**

1887. *Heteropanope indica* De Man, *Journ. Linn. Soc. Zool.*, **22** : 53.  
 1898. *Heteropanope indica* Alcock, *Lit. Cit.*, **67** (2).

*Material* : 20 males and 30 females were collected from Pitchavaram mangroves and Vellar estuary.

*Colour* : Carapace dark green, dactylus of cheliped black.

*Habitat* : Inhabits the loosely packed oysters, present along the subtidal region of Pitchavaram mangroves and Vellar estuary.

*Distribution* : Indo-Pacific.

*Remarks* : The maximum size of the species recorded in the present study is 24 mm in carapace width. This species is restricted to the oyster bed community. The antennal morphology of the larvae of this species suggests erection of a third group of Xanthid larvae in addition to the already existing 2 groups of Hyman (1925).

**SUMMARY**

Collection and identification of crabs belonging to the families Grapsidae and Xanthidae revealed the occurrence of 15 species of grapsids under 8 genera and 6 species of xanthids belonging to 6 genera. A figurative key for their identification has been prepared and presented, along with notes on their distribution. A check list is also provided.

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