

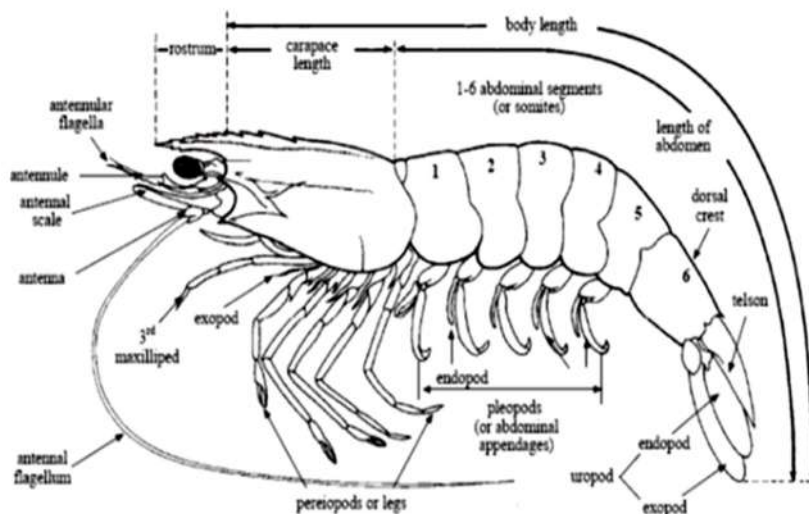
CHAPTER 32

Morphological Characters for Identification of inshore Penaeid Prawns from Indian Waters



Penaeid prawns are distributed all along the Indian coast and inhabit inshore or offshore waters. They have a general life span of 2 to 2.5 years, maturing mostly between 6 – 8 months. They spawn in oceanic waters but the large number of eggs released by them develop through different stages and drift to estuaries. Here they develop into juvenile prawns. From the estuaries, they move to the sea to mature and spawn, and complete their life cycle. Most of the penaeid prawns spawn throughout their life. They are bisexual and mature females are larger than males. Petasma is the copulatory organ in males formed between the first pair of pleopods or swimming appendage and in females the genitalia termed thelycum consisting of the modifications of the posterior two or sometime three thoracic sternites, for the transfer or storage of sperms.

Fig.1.



Diagrammatic representation of penaeid prawn

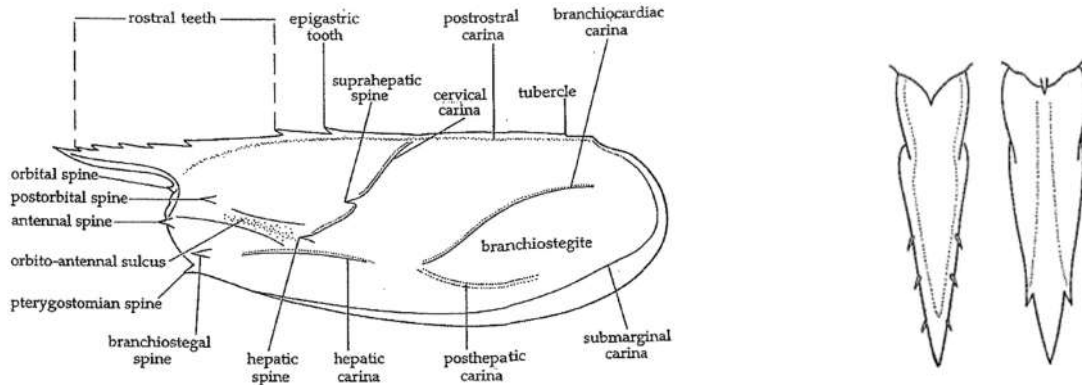


Fig.2. Carapace

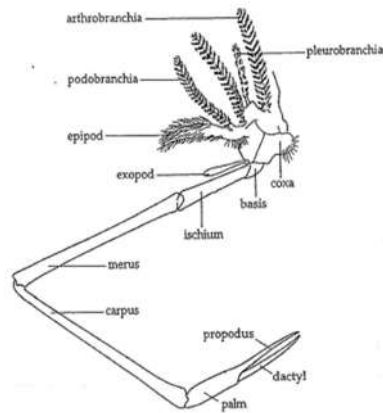


Fig.4. Pereopod

Important characters for identification of some important penaeid prawn species from Indian waters:

Metapenaeus dobsoni (Miers, 1878) Distomedian projections of petasma with a short filament on ventral surface and another on dorsal surface. Anterior thelycal plate tongue-like. Merus of fifth pereopod with 1-2 triangular teeth.



Fig.5. Petasma, thelycum and merus of fifth pereopod

Metapenaeus monoceros (Fabricius, 1798) Distomedian projections of petasma hood-like. Lateral thelycal plates with parallel ear-shaped lateral ridges; Merus of fifth pereopod with large spine.

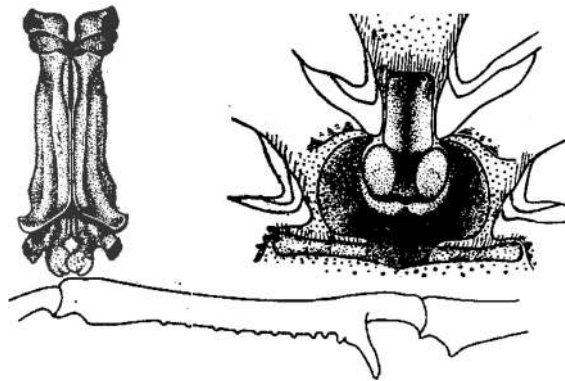


Fig.6. Petasma, thelycum and merus of fifth pereopod

Metapenaeus affinis (H. Milne Edwards, 1837) Distomedian projections of petasma crescent-shaped. Anterior thelycal plate longitudinally grooved, wider posteriorly than anteriorly; Merus of fifth pereopod with a proximal notch followed by a twisted keeled tubercle.



Fig.7. Petasma, thelycum and merus of fifth pereopod

Metapenaeus brevicornis (H. Milne Edwards, 1837) Distomedian projections of petasma with a long and slender apical filament. Anterior plate of thelycum large, square and grooved, lateral plates enclosing two pear shaped plates. Merus of fifth pereopod with spine like projection.



Fig.8. Petasma, thelycum and merus of fifth pereopod

Metapenaeus kutchensis (George, George and Rao, 1963) Distomedian petasmal lobes bifid. Anterior plates of thelycum lying in level with the coxal projections, posterior lateral plates large and round.

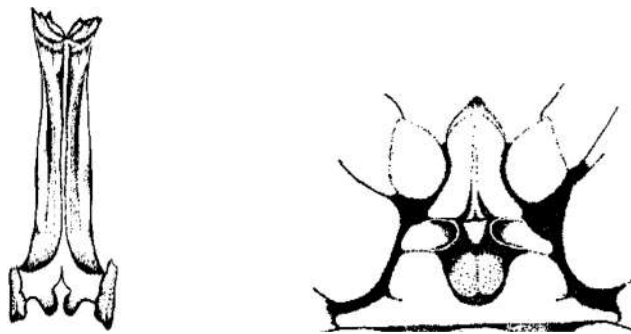
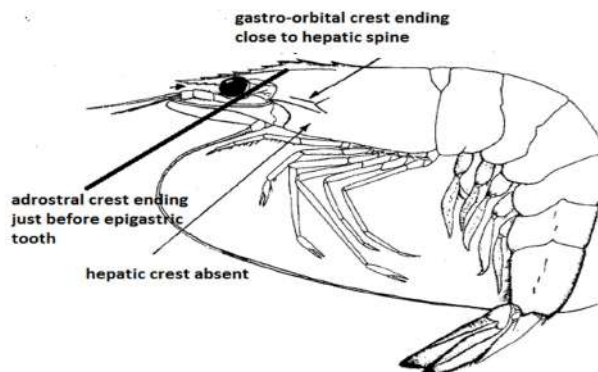
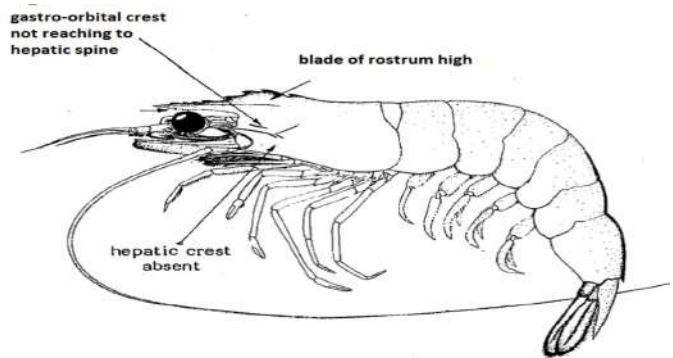


Fig.9. Petasma and thelycum

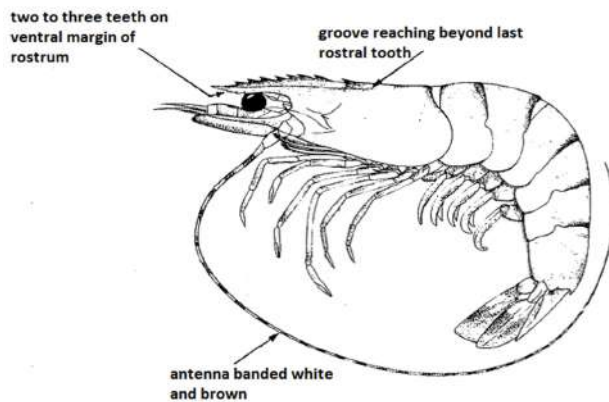
Penaeus indicus H. Milne Edwards, 1837 Rostrum with 7-8 dorsal and 5-6 ventral teeth. Adrostral carina ending just before epigastric tooth. Gastro-orbital crest ending close to hepatic spine.



Penaeus merguensis De Man, 1888
 Rostral crest triangular and high.
 Dorsal teeth on rostrum 6-9 and 3-5
 ventral teeth. Gastro orbital crest not
 reaching up to the hepatic spine.

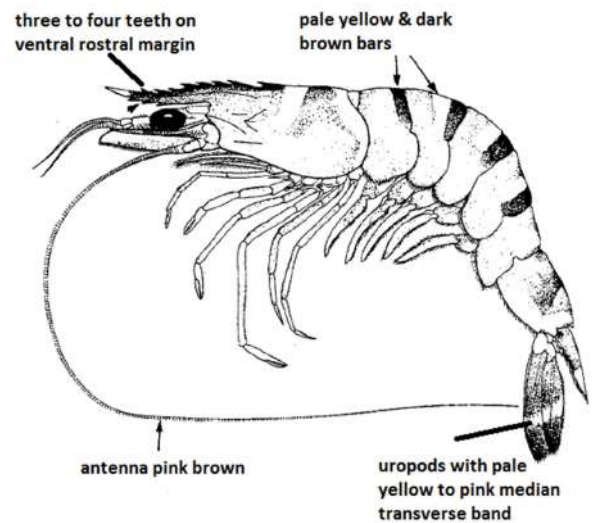


Penaeus semisulcatus De Haan, 1844

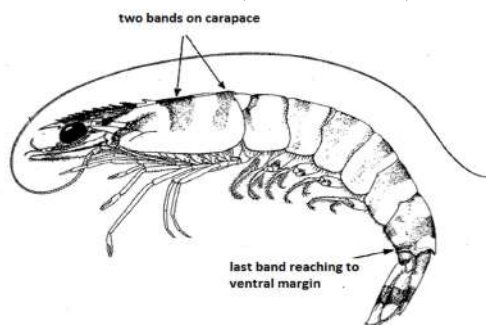


Rostrum with 7-8 dorsal and 3 ventral
 teeth. Adrostral carina reaches beyond
 the epigastric tooth. Body pale brown or
 greenish with yellow stripes on carapace
 and abdomen.

Penaeus monodon Fabricius, 1798 Rostrum has 6-8
 dorsal and 3-4 ventral teeth. Adrostral carina reaches
 almost the epigastric tooth. Body with distinct black
 and yellow stripes on abdomen and uropods.

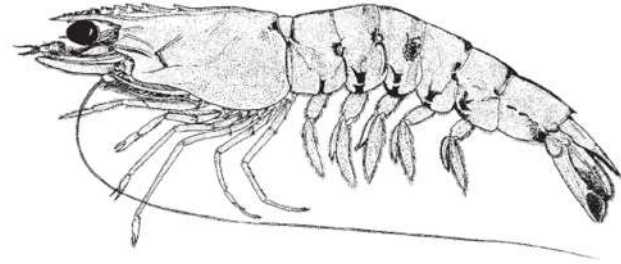


Penaeus canaliculatus (Olivier, 1811)

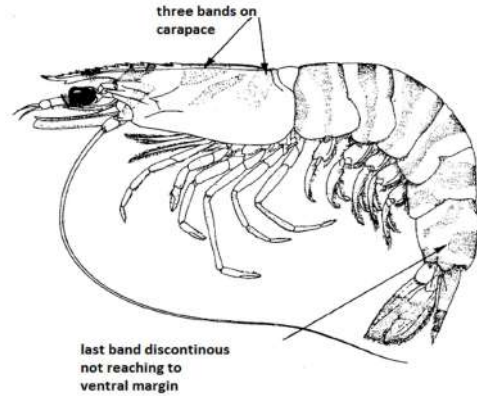


Adrostral crest extends almost to the posterior
 margin of carapace. Telson lack lateral spines.
 Two bands present on carapace and the band
 on the last abdominal segment complete.

Penaeus latisulcatus Kishinouye, 1896
 Adrostral crest extends almost to the posterior margin of carapace. Telson with 3 pairs of movable lateral spines. Black or brown dots on abdominal segments and black lines on pleuron.



Penaeus japonicus Spence Bate, 1888
 Adrostral crest extends to the posterior margin of carapace. Telson with 3 pairs of movable lateral spines. Three bands on carapace, band on last abdominal segment incomplete.



Parapenaeopsis stylifera (H.Milne Edwards, 1837)
 Telson armed with 4 pairs of lateral fixed spines. Distolateral projection of petama slender, horn like and straight, directed antero laterally. Anterior plate of thelycum square, concave; posterior plate deeply notched anteromedially.

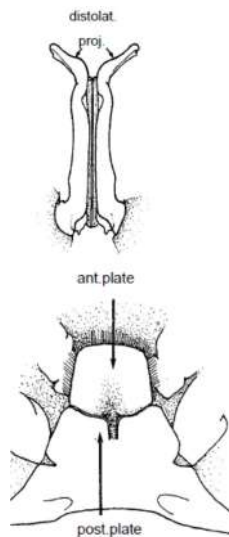
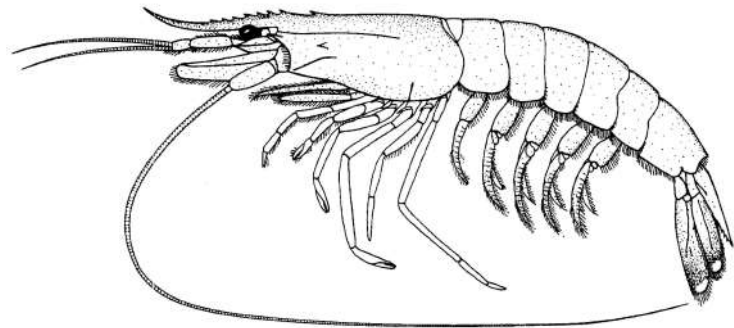


Fig.10. Petasma, thelycum and spines on telson

Kishinouyepenaeopsis maxillipedo (Alcock, 1905) Petasma with slender horn like distolateral projections curving inwards. Thelycum subquadrate, posteriorly depressed and medially fused to posterior plate. Dark brown spot on the last abdominal segment.

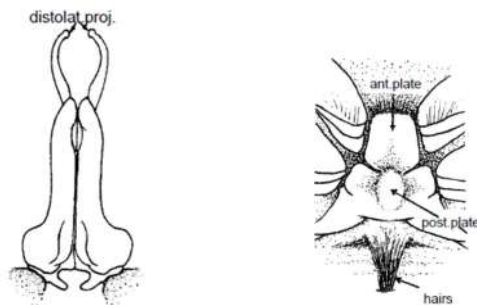
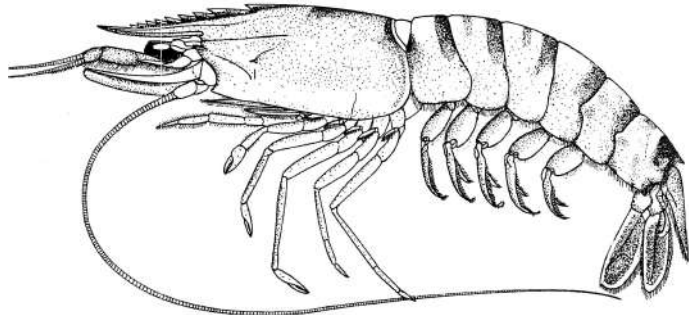


Fig.11. Petasma and thelycum

Mierspenaeopsis sculptilis (Heller, 1862) Petasma with long, rabbit ear-shaped distomedian projections, deeply concave ventrally; distolateral projections short, directed anterolaterally; proximolateral lobes very large, and curved dorsally. Thelycum with anterior plate distally rounded and broadly articulating with posterior plate.

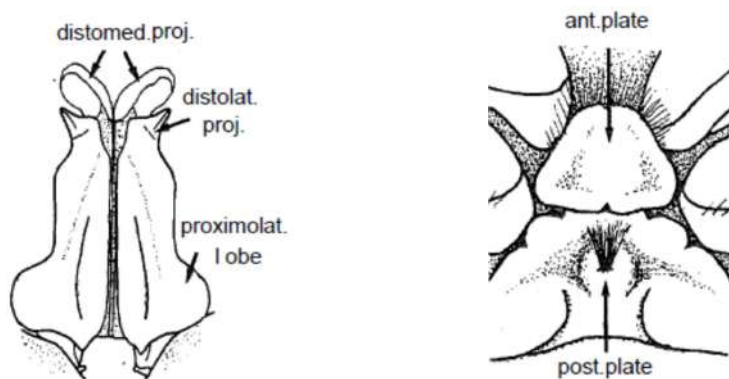
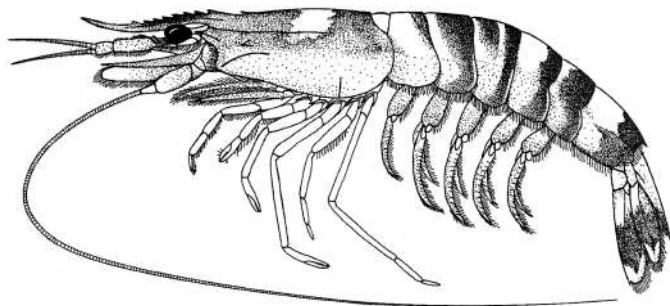


Fig.12. Petasma and thelycum

Kishinouyepenaeopsis cornuta (Kishinouye, 1900) Telson with 2 to 4 pairs of distolateral spinules. Petasma with long and slender, horn-like distolateral projection, diverging proximally and curving inward distally, each with a small dorsal spiniform process. Anterior plate of thelycum oblong and concave, fused posteromedially with posterior plate.



Fig.14. Petasma and thelycum

Mierspenaeopsis hardwickii (Miers, 1878) Petasma with distomedian projections wing-like, wider than long, their anterior margin often crenulate; distolateral projections short and directed laterally. Thelycum with anterior plate concave, rounded anteriorly; posterior plate flat, with a pair of anterolateral tooth-like projections.



Fig.15. Petasma and thelycum

Ganjampenaeopsis uncta (Alcock, 1905) Distolateral projections of petasma tapering, ends with a long dorsomedian spine-like process. Anterior plate of thelycum wide and short, with curved anterior margin and with 2 longitudinal ridges, medially fused with the quadrate posterior plate. Dark brown patch on dorso posterior part of carapace.

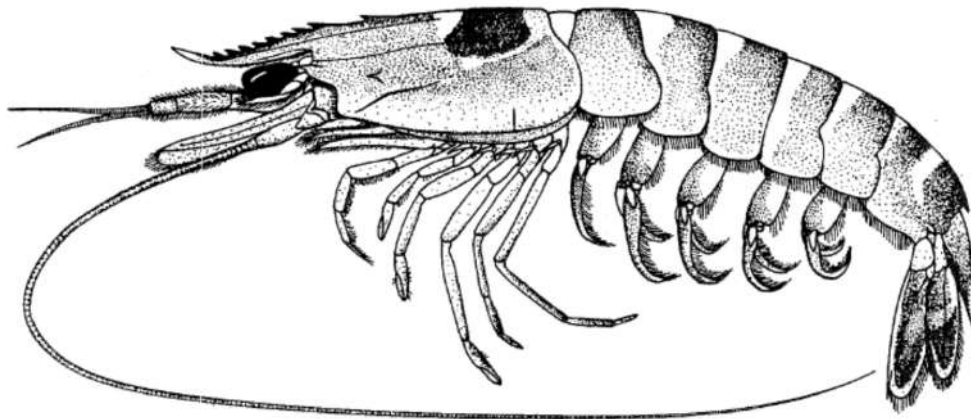




Fig.16. Petasma and thelycum

Metapenaeopsis stridulans Alcock, 1905 Carapace, abdomen and telson with dark brown mottlings. 5 to 7 strong stridulating ridges in a straight band on carapace. Left lobe of petasma sharply pointed and triangular. Thelycal plate square.

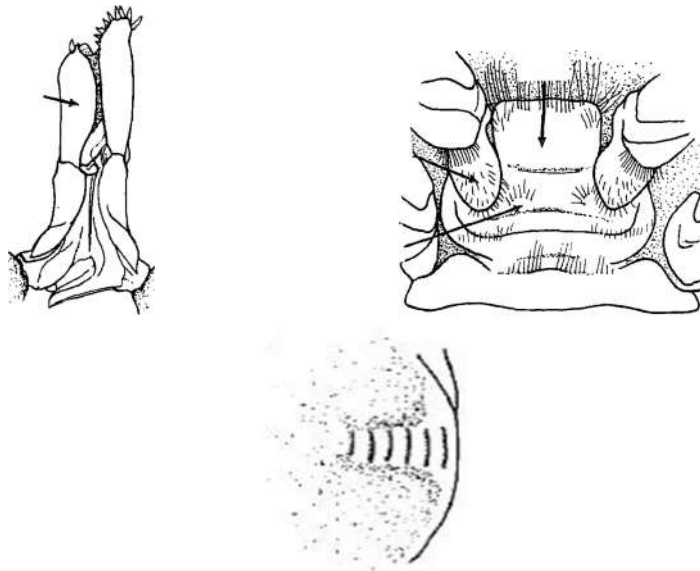


Fig.17. Petasma, thelycum and stridulating ridges

Metapenaeopsis toloensis Hall, 1962 Stridulating ridges 14 to 22 in curved band. Left distoventral projection of petasma swollen. Thelycal plates subquadrate with rounded corners.

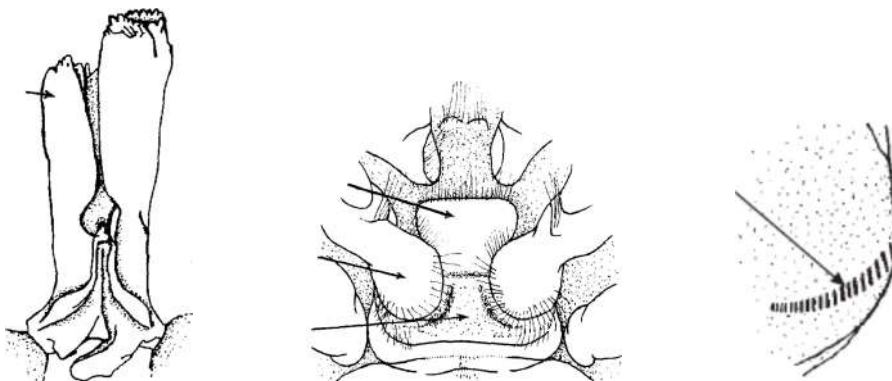


Fig.18. Petasma, thelycum and stridulating ridges

Trachysalambria aspera (Alcock, 1905) - Rostrum straight with 8- 9 dorsal teeth excluding the epigastric tooth. Carina on the second abdominal segment forms a tubercle. Carina on 3rd abdominal segment starting at 1/3rd, that on 6th abdominal segment ends in sharp spine. The median plate on the anterior portion of the thelycum semicircular, single transverse plate on the posterior portion.

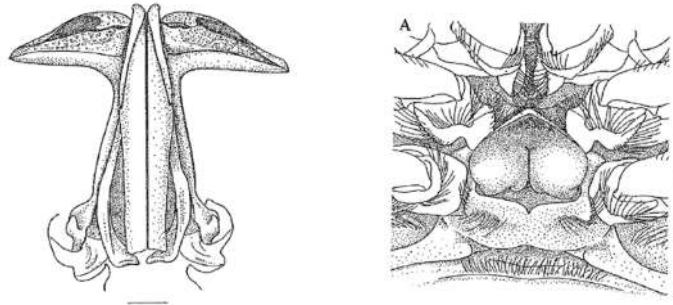


Fig.19. Petasma and thelycum

Solenocera crassicornis (H.Milne Edwards, 1837) - Rostrum with 8-10 dorsal teeth. Fifth pereopod without coxal spine. Telson unarmed.

Solenocera choprai Nataraj, 1945 - Rostrum with 6-9 dorsal teeth. Fifth pereopod with a coxal spine. Telson with a pair of fixed distolateral spine.



Few important terms for identification of penaeid prawns

- **Adrostral carina:** Ridge flanking the rostrum, sometimes nearly reaching the posterior margin of the carapace.
- **Branchiostegal spine:** Short spine on or near anterior margin of the carapace ventral to the antennal spine and dorsal to the anteroventral angle of the carapace.
- **Distomedian projection:** Distal relatively narrow extension of the dorsomedian lobule of the petasma.
- **Epigastric tooth:** Tooth on the carapace situated above the gastric region behind the first (posterior most) rostral tooth.

- **Hepatic carina:** Longitudinally or obliquely disposed ridge of variable length lying ventral to the hepatic region, sometimes extending almost to the anterior margin of the carapace.
- **Hepatic spine:** Lateral spine situated near the anterior margin of the hepatic region of the carapace.
- **Pleuron (Pleura):** One of the lateral flaps on each of the anterior five abdominal somites.
- **Postorbital spine:** Spine situated near the orbital margin posterior to the antennal spine
- **Postrostral carina:** Dorso-median ridge extending posteriorly from the base of the rostrum, sometimes nearly reaching the posterior margin of the carapace.
- **Pterygostomian spine:** Marginal spine arising from the anteroventral angle or border of the carapace.
- **Sternum:** Ventral surface of the cephalothorax or abdomen.
- **Prahepatic spine:** Spine arising from the edge of the cervical carina dorsal to the hepatic spine.
- **Supraorbital spine:** Spine located posterior to the orbital margin of the carapace.
- **Telson:** Terminal unit of the abdomen bearing the anus.
- **Uropod:** Paired biramous appendage attached to the sixth abdominal somite, usually combining with the telson to form a tailfan.

