Poultry, Fisheries & Wildlife Sciences

Chanda, Poult Fish Wildl Sci 2016, 4:1
http://dx.doi.org/10.4172/2375-446X.1000147

Short Communication Open Access

A Study on Newly Described Genera *Alcockpenaeopsis, Batepenaeopsis, Helleropenaeopsis, Kishinouyepenaeopsis* and *Parapenaeopsis* from Indian Water

Angsuman Chanda*

Raja NL Khan Women's College, West Bengal, India

Abstract

Present work is an attempt to diagnosis of the species under genera *Alcockpenaeopsis, Batepenaeopsis, Helleropenaeopsis, Kishinouyepenaeopsis* and *Parapenaeopsis* found in Indian water. During the study it has been observed that Indian water represents single species under the genus *Alcockpenaeopsis*, two species under the genus *Batepenaeopsis*, four species under the genus *Helleropenaeopsis*, two species under the genus *Kishinouyepenaeopsis* and three species under the genus *Parapenaeopsis*. The scheme of classification and diagnosis of genera and species has been followed to Perez Farfante and Kensley i.e., characteristics of epigastric tooth, epipod on periopods, variation of petasma, thelycum etc. has been considered.

Keywords: Diagnosis; Genus; Species; Indian water; Petasma; Thelycum

Introduction

Parapenaeopsis was separated from *Penaeus* by Alcock [1] as a subgenus of the genus *Penaeus*. H. Milne Edwards [2] was the first to record the genus from Indian water as Penaeus. Generic feature of this genus was quite ambiguous. Pathan and Jalhial [3] proposed to revise the genus because the generic type species of *Parapenaeopsis stylifera* [2] possessed several features quite different to the remaining species. Pérez Farfante and Kensley [4] suggested that the genus was very heterogeneous and would eventually be splited into several genera. Recently, Sakai and Shinomiya [5] divided the genus, *Parapenaeopsis* Alcock [1] into eight genera considering only on the variation of male petasma without considering the female structure, thelycum and/or the general characteristics for both sexes. Therefore, they were unable to include *P. acclivirostris* Alcock [6] and *P. aroaensis* Hall [7] in their 8 genera classification for *Parapenaeopsis* Alcock [1], because these two species were described on the collection of female organisms only. Sakai and Shinomiya [5] diagnosed the type species for each new genus considering only the characteristic variation of appendix masculina, which was absent in female organisms and there was no indication for the diagnosis of female organism at their species level. De Grave S and Fransen CHJM [8] in their work "*Carideorum catalogus*: the recent species of the dendrobranchíate, stenopodídean, procarididean and caridean shrimps (*Crustácea*: Decapoda)", accepted the genera proposed by Sakai and Shinomiya [5] in the form of a check list. De Grave S, Fransen CHJM [8] did not make any critical analysis on the work of Sakai and Shinomiya [5]. As such Chanda A [9] makes an alternative scheme of classification for *Parapenaeopsis* Alcock [1] into five new genera, considering the characteristics for both sexes as followed by Perez-Farfante and Kensley [4] without considering the Sakai and Shinomiya's newly proposed classification for the genus *Parapenaeopsis* Alcock [1].

During the present study the genus *Batepenaeopsis* Chanda represents two species, *Batepenaeopsis tenella* and *Batepenaeopsis acclivirostris*; the genus *Alcockpenaeopsis* Chanda, represents single species, *Alcockpenaeopsis* unct; the genus *Helleropenaeopsis* Chanda, represents four species, *Helleropenaeopsis sculptilis*, *Helleropenaeopsis hardwickii*, *Helleropenaeopsis indica* and *Helleropenaeopsis cultirostris* [3]; the genus *Kishinouyepenaeopsis* Chanda, represents two species, *Kishinouyepenaeopsis cornuta* and Kishinouyepenaeopsis maxillipedo and the genus *Parapenaeopsis* Alcock, represents three species, *Parapenaeopsis stylifera* (H. Milne Edwards), *Parapenaeopsis nana* Alcock, *Parapenaeopsis longirostris* Chanda and Bhattacharya. *P. stylifera* has three subspecies *P. stylifera stylifera*, sensu stricto, *Parapenaeopsis stylifera coromandelica* Alcock, and *Parapenaeopsis stylifera cochinensis* George.

Materials and Methods

The present study is mainly based on the specimens collected by the author from different commercial fish landing centers throughout Indian coast line. In addition to this penaeid prawns preserved in the National Collection of the Zoological Survey of India, Kolkata, India; Central Marine Fishery Research Institute, Cochin, Kerala and its regional stations at Mandapam, Tamil Nadu and National Institute of Oceanography have also been studied.

The materials preserved in rectified spirit (90%) and body parts of taxonomic importance have been dissected and studied under a stereoscopic binocular microscope. All the type species have been illustrated with a lateral view of whole specimen, petasma and thelycum. The illustrations have been drawn with the aid of line drawing and by camera Lucida. The detailed synonymies have been furnished to the genera and species and also their diagnosis, distribution, taxonomic remarks have been furnished. A key to these genera has been provided. The genera and species have been arranged alphabetically for convenience. In addition an attempt has been made to include a comprehensive coverage of the references in the Reference Section. For all citations of taxon author's name and year of publication has been given.

***Corresponding author:** Angsuman Chanda, Raja NL Khan Women's College, West Bengal, India, Tel: 03222 275 426; E-mail: angsumanchanda@yshoo.in

Received November 05, 2015; **Accepted** February 29, 2016; **Published** March 03, 2016

Citation: Chanda A (2016) A Study on Newly Described Genera *Alcockpenaeopsis, Batepenaeopsis, Helleropenaeopsis, Kishinouyepenaeopsis* and *Parapenaeopsis* from Indian Water. Poult Fish Wildl Sci 4: 147. doi:10.4172/2375-446X.1000147

Results

Systematic accounts

Prawns of the genus *Alcockpenaeopsis*, *Batepenaeopsis*, *Helleropenaeopsis*, *Kishinouyepenaeopsis* and *Parapenaeopsis* belong to family Penaeidae under super family Penaeiodea. Family Penaeidae comprises 17 genera and 75 species from Indian water. A brief account of its systematic position is given below:

Superclass: *Crustacea* Pennant

Class: *Malcostraca* Latreille

Order: *Decapoda* Latreille

Suborder: *Dendrobranchiata* Bate

Super family: *Penaeiodea* Rafinesque-Schmaltz

Family: *Penaeidae* Rafinesque-Schmaltz

Present genera can be separated from other genera under family *Penaeidae* by the following dichotomous key.

Key to the Genera under Family *Penaeidae*, found in Indian Water

1. Rostrum not reaching distal end of first antennular segment: 2

2. Rostrum extend up to or beyond distal end of first antennular segment: 3

3. Eye stalk longer than rostrum and extend beyond first antennular segment; eye ball small: *Miyadiella* Kubo.

4. Eye stalk smaller than rostrum and not extend beyond first antennular segment; eye ball large: *Trachypenaeopsis* Burkenroad.

5. Rostrum armed with dorsal and ventral teeth: 4

6. Rostrum armed with dorsal teeth only; absence of gastro-orbital carina: 5

7. Presence of gastro-orbital carina; sixth abdominal somite with three interrupted cicatrix: *Penaeus* Fabricius.

8. Absence of gastro-orbital carina; sixth abdominal somite with single long cicatrix: *Pelagopenaeus* Perez Farfante and Kensley.

9. Antennal spine very small; hepatic spine reduced or absent: *Atypopenaeus* Alcock.

10. Antennal spine prominent; hepatic spine always present and prominent: 6

11. Longitudinal suture present; transverse suture present : 7

12. Longitudinal suture absent; transverse suture absent : 10

13. Body thickset, densely pubescent, integument thick; hepatic carina absent : 8

14. Body smooth or very minutely pubescent, integument thin; hepatic carina present: 9

15. Anterior thelycal plate on sternite XIII with a tongue-like caudal extension; distolateral projection of petasma with laterally directed broad base and tip directed forward like a hook: *Megokris* Perez Farfante and Kensley.

16. Anterior thelycal plate on sternite XIII without caudal extension, distolateral projection of petasma directed laterally like a wing: *Trachysalambria* Burkenroad.

17. Postocular sulcus prominent; parapenaeid spine absent: 13

18. Postocular sulcus absent; parapenaeid spine present: *Parapenaeus* Smith.

19. Petasma semiopen; thelycum open: *Funchalia* Johnson.

20. Petasma closed or semiclosed; thelyum close: 11

21. Pterygostomian spine absent; postocular sulcus prominent, exopod absent on fifth pereopod: *Metapenaeus* Wood-Mason.

22. Pterygostomian spine present; postocular sulcus absent; exopod present on all maxillipeds and pereopod: 12

23. Carapace with a small orbital spine; sixth abdominal somite without cicatrix; first and second pereopod and third maxilliped with basial spine; petasma asymmetrical: *Metapenaeopsis* Bouvier.

24. Carapace without orbital spine; sixth abdominal somite bearing long, interrupted cicatrix; only first pereopod with basial spine; petasma symmetrical: *Penaeopsis* Bate.

25. Epigestric tooth ptesent; epipod absent on third pereopod: 14

26. Epigestric toot absent; epipod absent on all pereopods: *Batepenaeopsis* Chanda.

27. Orbital spine absent; antennular flagella equal to antennular peduncle; width of anterior thelycal plate is greater than its length: *Alcockpenaeopsis* Chanda.

28. Orbital spine present; antennular flagella not equal to antennular peduncle; width of anterior thelycal plate not greater than its length: 15

29. Longitudinal suture short, not reaching cardiac region; a median tuft of long hairs present behind thelycum: *Kishinouyepenaeopsusis* Chanda.

30. Longitudinal suture long, extending upto or beyond cardiac region; a median tuft of hairs absent behind thelycum: 16

31. Longitudinal suture extending upto cardiac region; orbital spine prominent: *Parapenaeopsis* Alcock.

32. Longitudinal suture extending beyond cardiac region; orbital spine reduced like an angle: *Helleropenaeopsis* Chanda,

Genus *Alcockpenaeopsis* Chanda

A. Chanda [9] created the genus *Alcockpenaeopsis* by splitting *Parapenaeopsis* Alcock.

Diagnosis of the genus

Genus *Alcockpenaeopsis* can be distinguished from others congenera by the following characters: distolateral projections of petasma longer than distomedian projections, tapering distally with a long distomedian spine; anterior thelycal plate wider than length, rounded anterior margin with two ventromedian parallel ridges, medially fused with quadrate posterior plate. This genus has only one species viz. *Alcockpenaeopsis uncta*, found in the ocean adjacent to Indian subcontinent (Figure 1).

Type Species: By present designation, *Parapenaeopsis uncta* Alcock.

Type Locality: Ganjam, Orissa coat, East coast of India.

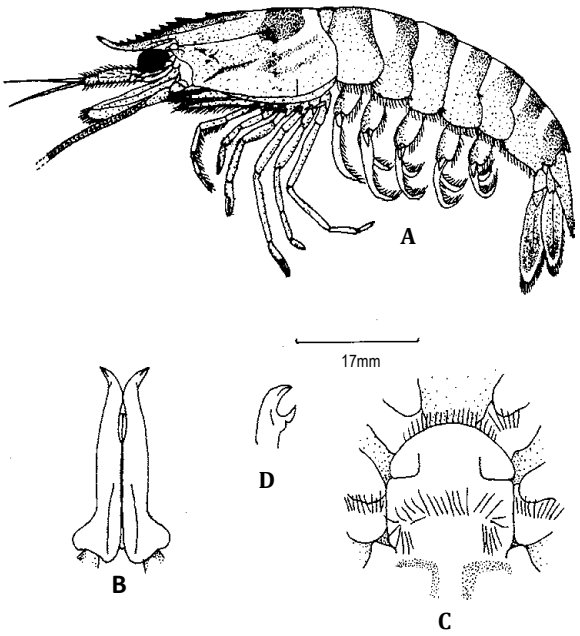

Figure 1: *Alcockpenaeopsis uncta* (Alcock, [6]). A: Lateral views of the species, B: Petasma, C: Thelycum, D: Lateral view of distolateral projection of petasma.

List of species under the genus: *Alcockpenaeopsis uncta* (Alcock).

Alcockpenaeopsis uncta (Alcock)

A. uncta was described by Alcock [6] from Orissa coast, East coast of India. A brief history of the species with special reference to Indian contributions has been given below.

- 1905: *Parapeneopsis uncta* Alcock.
- 1942: *Parapenaeopsis uncta* Nataraj.

Type species: *Parapeneopsis uncta* Alcock.

Type locality: Ganjam, Orissa Coast, East coast of India.

Material examined

2 males (70-71 mm), ZSI Reg No C4794/2, Pulicot Lake, Andhra Pradesh, 26.8.1995, Chanda A.

Diagnosis of the species

Integument thick, punctate; rostrum, short stout, extending upto middle of second segment of antennular peduncle, armed with 7-9+1 dorsal teeth, distal toothless portion short, styleform; postrostral carina extending upto posterior margin of carapace, sulcate dorsally; epigastric tooth conspicuously separated from penultimate tooth; adrostral carina and sulcus not extending behind epigastric tooth; orbital spine absent; antennal and hepatic spine prominent; longitudinal suture long extending posteriorly to cardiac region, cervical sulcus long, hepatic sulcus horizontal behind hepatic spine, slopes anteriorly towards sharp pterygostomian angle; transverse suture prominent, located on branchial region at the level of third pereopod; antennular flagella equal in length, shorter than carapace, equal to antennular peduncle; dorsal carination on abdomen starting from third segment, ending at midposterior border of sixth somite in a short sharp spine curving downwards; epipod and basial spine present on first and second pereopod, in males basial spine very small on second pereopod; distomedian projection of median lobe of petasma very small; distolateral projection of lateral lobe of petasma tapering at tip, each with a long dorsomedian spine-like process; anterior plate of thelycum wide and short, with curved anterior margin, and two longitudinal ridges, medially fused with the quadrate posterior plate; posterior plate medially possess a row of long hair.

Distribution

India: Ganjam, Orissa, Pulicot Lake, Andhra Pradesh, East coast and Cochin, Kerala, West coast.

Elsewhere: Sri Lanka; Bangladesh; Malaysia; Indonesia.

Genus *Batepenaeopsis* Chanda

Chanda [9] created the genus *Batepenaeopsis* by splitting *Parapenaeopsis* Alcock.

Diagnosis of the genus

Body slender, integument thin, minutely setose, rostrum straight, variable in length, toothed throughout the dorsal margin; epigastric tooth absent; orbital spine distinct, well developed antennal spine with prominent posterior antennal carina occupying two-third distance between antennal and hepatic spine; hepatic spine prominent; pterygostomian angle blunt; hepatic sulcus convex, accompanied with prominent carina, starting behind hepatic spine, extending anteroventrally below pterygostomian angle; longitudinal suture long extending upto cardiac region; transverse suture prominent; antennular flagella shorter than its peduncle; cicatrix absent on sixth abdominal somite; telson unarmed; epipod absent on all pereopod; petasma symmetrical, semiclosed, distomedian projections of median lobe short, lateral lobe slender, distolateral projections directed proximolaterally; appendix masculina with two parts, proximal stalk, distal part horse shoe shaped; anterior plate of thelycum semicircular, concave in ventral view with rounded anterior margin; posterior margin with a short median notch; posterior plate trapezoidal, anterior margin slightly concave, posterior margin straight with two posterolateral horns.

Type species: By present designation, *Parapenaeopsis acclivirostris* Alcock.

Type locality: Persian Gulf (Figure 2).

List of species under the genus: *Batepenaeopsis acclivirostris, Batepenaeopsis tenella*

Key to the species under genus *Batepenaeopsis* Chanda, 2016 found in India

1. Dorsal carination on abdominal somite starts from third somite, anterior plate of thelycum with a posterior extension: *B. acclivirostris*.

2. Dorsal carination on abdominal somite starts from fourth somite, anterior plate of thelycum without posterior extension: *B. tennella*.

Batepenaeopsis acclivirostris Alcock, 1905

B. acclivirostris was described by Alcock [6] from Persian Gulf as *Parapenaeopsis acclivirostris*. Alcock [10] recorded the species for the first time from east coast (Ganjam, Visakhapattnam, Chennai, Palk Strait) of India. A brief history of the species with special reference to Indian contributions has been given below.

1905: Parapeneopsis acclivirostris Alcock.

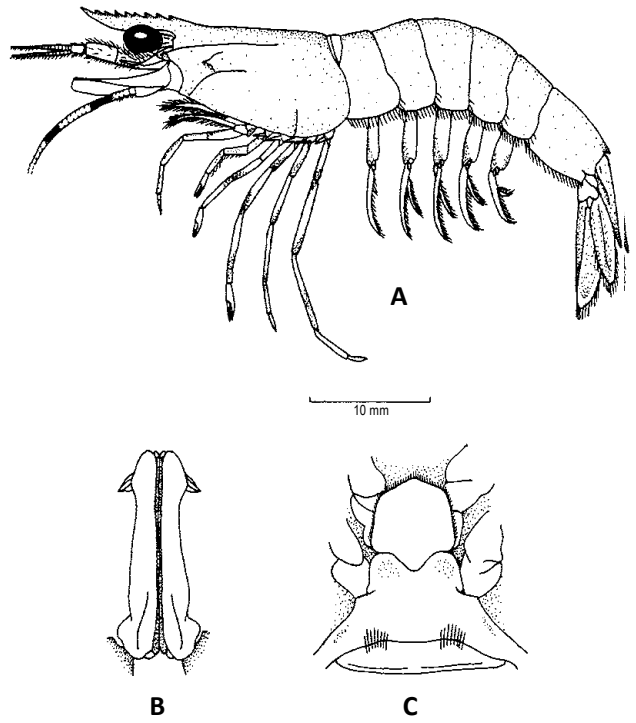

Figure 2: *Batepenaeopsis acclivirostris* (Alcock, [6]). A: Lateral view of the species, B: Patasma, C: Thelycum.

1960: *Parapenaeopsis acclivirostris* (amendment of *Parapeneopsis acclivirostris* Alcock).

1979: Contribution to Marine Sciences, dedicated to Dr. Kurian CV.

Type species: *Parapeneopsis acclivirostris* Alcock, 1905.

Type locality: Persian Gulf.

Material examined: 2 males (38-48 mm) and 1 female (48 mm), ZSI Reg No: C4931/2, F.L.C. Mumbai, Maharastra, Chanda A.

Diagnosis of the species: Body slender, minutely setose; rostrum straight with slightly uptilted tip, armed with 6-9 teeth along entire margin of rostrum, reaching distal end of antennular peduncle in females, shorter in males; epigastric tooth absent; postrostral carina not reaching posterior margin of carapace; carapace with short orbital spine, antennal and hepatic spine prominent; cervical sulcus short, hepatic sulcus distinct and convex, gradually descending below pterygostomian angle, longitudinal suture long and extend upto cardiac region; branchiocardiac sulcus absent; transverse suture prominent, located on branchial region at the level of third pereopod; epipod absent on all pereopods; basial spine present on first and second pereopods but absent on third; antennular flagella equal in length, shorter than carapace; dorsal carination on abdomen starts from third somite, ends at mid posterior margin of sixth somite with a sharp spine; telson unarmed; distomedian projection of median lobe of petasma very small, curving dorsally; distolateral projection of lateral lobe with slender distal part, in dorsal view and directed proximolaterally; anterior plate of thelycum on sternite XIII semicircular, convex with row of hair on anterior margin; posterior plate on sternite XIV broad and trapezoidal.

Remarks

Previously *B. acclivirostris* was known only from east coast of India. The species is being reported here for the first time from west coast of India. As such Racek and Dall's view [11], that Palk strait is the limit of distribution for *B. acclivirostris*, is no more tenable.

Distribution

India: Maharastra, Kerala west coast and Ganjam, Visakhapattnam, Chennai, Palk Strait east coast.

Elsewhere: East coast of South Africa; Mozambique, Madagascar, Persian Gulf, Red Sea, Gulf of Aden, Persian Gulf, Pakistan; Sri Lanka.

Batepenaeopsis tenella

B. tenella was originally described as *Penaeus tenellus* by Bate [12] from Bay of Kobe, Japan. It was first recorded from India by Thomas [13] from Palk Bay and Gulf of Mannar. A brief history of the species with special reference to Indian contributions has been given below.

1888: *Penaeus tenellus* Bate.

1910: *Penaeus* (*Parapnaeopsis*) *tennellus*, De Man.

1911: *Parapenaeopsis tenella* De Man.

Type species

By present designation *Penaeus tenellus* Bate.

Type locality

Bay of Kobe, Japan.

Material examined

No specimen could be collected during the present study. Diagnosis has been given after existing literature.

Diagnosis of the species

Body slender and setose; rostrum straight, not exceeding antennular peduncle, armed with 6-8 dorsal teeth, toothless anterior portion absent; epigastric tooth absent; adrostral carina and sulcus ending little behind penultimate tooth, orbital, hepatic and antennal spines present on carapace, cervical sulcus short, hepatic sulcus prominent, curving anteroventrally below pterygostomian angle; longitudinal suture long, extending posteriorly upto gastric region, transverse suture distinct, placed on branchial region at the level of third pereopod; antennular flagella equal; dorsal carina on abdomen starting from posterior half of fourth somite and terminating at posterior border of sixth somite in a sharp spine; basial spine present on first and second pereopod, third without basial spine; telson unarmed; distolateral projection of lateral lobe of petasma long, broad at midlength strongly directed proximolaterally; distomedian projection short, curving ventrally; anterior plate of thelycum India: Andhra Pradesh to Gulf of Mannar, East coast. broad, semicircular, concave ventrally, with a posterior short extension; posterior plate trapezoidal with anterior margin slightly concave, posterior margin straight.

Distribution

Elsewhere: Sri Lanka; Bangladesh; Malaysia; Indonesia; Gulf of Tonkin; China; Philippines; Hong Kong; Taiwan; Japan; Korea; New Guinea; Northern Australia.

Genus *Helleropenaeopsis* Chanda

Chanda [9] created the genus *Helleropenaeopsis* by splitting *Parapenaeopsis* Alcock.

Diagnosis of the genus

This new genus can be distinguished from the other *Congenera* by the following characters: distolateral projections shorter than distomedian projections, directed anterolaterally; anterior plate of thelycum semicircular with a posteromedian cleft, posterior plate trapezoidal. This genus includes four species viz. *Helleropenaeopsis sculptilis*; *Helleropenaeopsis hardwickii*; *Helleropenaeopsis indica* and *Helleropenaeopsis cultirostris*, found in the ocean around Indian subcontinent (Figure 3).

Type species: By present designation *Penaeus sculptilis* Heller.

Type locality: Java Sea, Indonesia.

List of species under the genus

Helleropenaeopsis cultirostris

Helleropenaeopsis hardwickii

Helleropenaeosis indica

Helleropenaeosis sculptilis

Key to the species under genus *Helleropenaeopsis* Chanda, 2016 found in India

1. Orbital spine present; telson armed with 3-5 pairs of lateral movable spine: *Helleropenaeopsis hardwickii*.

Orbital spine absent; telson unarmed: 2

2. Adrostral carina and sulcus extending behind epigastric tooth; dorsal abdominal carina starting from fourth somite; distal margin of distomedian projections of petasma weavy: *Helleropenaeopsis cultirostirs*.

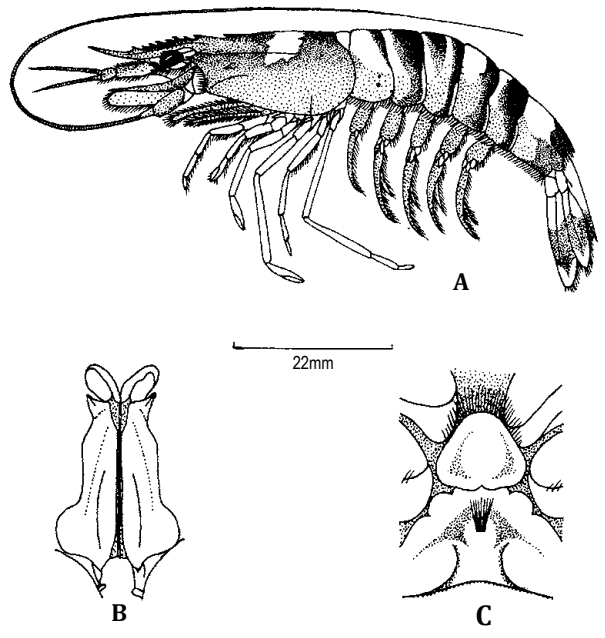

Figure 3: *Helleropenaeopsis sculptilis* (Heller, [16]); A: Lateral view of the species, B: Petasma, C: Thelycum.

Adrostral carina and sulcus not extending behind epigastric tooth; dorsal abdominal carina starting from second somite; distal margin of distomedian projections of petasma semicircular: 3

3. Basal spine present on second pereiopod of male; bluntly angular anterolateral corners of posterior thelycal plate separated from the anterior thelycal plate by a short intervening space: *Helleropenaeopsis sculptilis*.

Basal spine absent on second pereopod of male; rounded anterolateral comers of posterior thelycal plate overlap the anterior thelycal plate: *Helleropenaeopsis indica*.

Helleropenaeopsis cultirostris

H. cultirostris was originally described by Alcock [10] from Orissa coast, East coast of India as a variety of *Parapeneopsis sculptilis*. A brief history of the species with special reference to Indian contributions has been given below.

1906: *Parapeneopsis culptilis cultirostris* Alcock.

1935: *Parapenaeopsis cultirostris* Yu.

1997: *Parapenaeopsis cultirostris* Perez Farfante and Kensley.

Type species

Parapeneopsis sculptilis cultirostris Alcock.

Type locality

Ganjam, Orissa, East coast of India.

Material examined

1 male (68 mm), ZSI Reg No: 4474/9, Sundarbans, Hooghly River, 29.3.1889, F Dey.

Diagnosis of the species

Body slender, minutely setose; rostrum sigmoidal extending beyond antennular peduncle; adrostral sulcus feeble extending behind epigastric tooth; postocular sulcus oblique; cervical and hepatic sulcus distinct, latter running anteroventrally a little behind towards the pterygostomian angle; hepatic and antennal spine prominent; orbital margin of carapace smooth, longitudinal carina long and transverse suture prominent, dorsal carination on abdominal somites starts from fourth segment, sixth abdominal somite with three lateral cicatrices, minute spine on postero-inferior corner, a strong spine on midposterior margin of the somite; telson armed with numerous, minute lateral spines; antennular flagella sub-equal, upper one slightly longer; distomedian lobe of petasma broad, irregularly wavy in distal margin, distolateral projection horn shaped swelling; appendix masculina slender, three segmented.

Distribution

India: Sundarban, West Bengal (Hooghly Delta), Orissa, East coast.

Elsewhere: Malaysia; Indonesia; South China Sea; Japan.

Helleropenaeopsis hardwickii

H. hardwickii was originally described as *Penaeus hardwickii* by Miers [14] from Maharastra coast, Arabian Sea. A brief history of the species with special reference to Indian contributions has been given below.

1878: *Penaeus hardwickii* Miers.

1906: *Parapeneopsis sculptilis hardwickii* Alcock.

1934: *Parapeneopsis hardwickii* Burkenroad.

1949: *Parapenaeopsis hardwickii* Kubo.

1960: Cheung, Hong Kong University.

Type species

Penaeus hardwickii Miers.

Type locality

Maharastra coast, Arabian Sea, India.

Material examined

1 male (60 mm) and 4 females (60-100 mm), ZSI Reg No: C4834/2, Lawsem's Bay Visakhapattnam, Andhra Pradesh, 14.9.1995, Chanda A; 1 male (78 mm), ZSI Reg No: C4775/2, Ratnagiri, Maharastra, 23.4.1983, H.C. Ghosh and Party; 1 male (60 mm) and 5 females (60-100 mm), ZSI Reg No: C4832/2, Ramakrishna Beach, Visakhapattnam, Andhra Pradesh, 15.9.1995, Chanda A; 3 males (60-95 mm) and 3 females (62-101 mm), ZSI Reg No: C4938/2, Dwarka F.L.C. Gujarat, 14.3.1994, Moorthy PK.

Diagnosis of the species

Body minutely setose; rostrum sexually dimorphic, with 8-9+1 dorsal teeth, sigmoidal in female, distal half toothless, upcurved, extending beyond antennular peduncle, in male rostrum slightly down curved, not extending beyond antennular peduncle; adrostral carina ending between epigastric and penultimate rostral tooth, sulcus below epigastric tooth; epigastric tooth conspicuously separated from penultimate tooth; postrostral carina extending up to posterior border of carapace; orbital spine very minute, hepatic and antennal spine prominent, antennal carina very short, cervical sulcus distinct, ending below longitudinal suture, hepatic sulcus slopes anteroventrally towards pterygostomian angle, carina accompanied with sulcus below the level of hepatic spine, pterygostomian angle rounded, longitudinal suture extend up to gastric region posteriorly, transverse suture at the level of third pereopod, branchiocardiac carina indistinguishable; dorsal carina on abdominal somite starts from third somite, ends at posterior margin of sixth somite with a sharp spine; three cicatrices present on sixth somite; telson armed with 3-5 pairs of lateral movable spine; antennular flagella equal in length in both sexes; epipod and basial spine present on first and second pereopod, basis of third pereopod unarmed; distomedian projections of median lobe of petasma wing like, as long as broad, just above lateral lobe, anterior margin crenulated, distolateral projection of lateral lobe of petasma with tapering tip below distomedian projection; anterior plate of thelycum concave ventrally, anterior margin rounded, broader than long; posterior plate flat, with a pair of anterolateral tooth like projection, anteromedian margin convex, bearing a transverse row of long hairs.

Remarks

This species is being recorded for the first time from Gujarat coast and thus extends the distribution northwards in the Western coast.

Distribution

India: Gujarat, Maharastra, Goa, West coast and Ganjam, Orissa; Andhra Pradesh; Chennai, Pondicherry, East coast.

Elsewhere: Bangladesh; Pakistan; Malaysia; Singapore; Borneo, Gulf of Tonkin; South China sea; Taiwan; Japan.

Helleropenaeosis indica

H. indica was originally described as *Parapenaeopsis indica* by Muthu [15] from Kakinada Bay (Lat. 16° 56.5' N, Long. 82° 16.5' E), Bay of Bengal. A brief history of the species with special reference to Indian contributions has been given below.

1972: *Parapenaeopsis indica* Muthu.

2011: *Mirspenaeopsis indica* Sakai and Shinomiya.

Type species

Parapenaeopsis indica Muthu MS.

Type locality

Kakinada Bay, Bay of Bengal, India.

Material examined

No specimens were collected during the study. Diagnosis has been given on the basis of original description given by Muthu MS.

Diagnosis of the species

Body sparsely pubescent; rostrum sigmoid with edentate tip, armed with 4-7+1 dorsal teeth; the postrostral carina extends almost to posterior end of carapace; more than half distal portion toothless, in female exceeding antennular peduncle; epigastric tooth conspicuously separated from penultimate tooth; longitudinal suture extends to 3/4 carapace almost reaching level of vertical suture above base of third leg; post-ocular sulcus present; the hepatic and cervical sulci well defined; the branchiocardiac and orbito-antennal sulci barely defined; cervical and antennal carina not sharply defined; anterior end of hepatic carina sharply defined and stops far short of pterygostomian angle; adrostral carina does not reach epigastric tooth; antennal spine prominent, hepatic larger than epigastric and placed a little posterior to the latter; supraorbital spine distinct, pterygostomian angle without spine but sharply angular in females and blunt in males; basal spine on first leg in both sexes, a much smaller basal spine on second leg in females only; petasma with short fang-like distolateral projections and auriculate proximal expansions; the distomedian projections small, directed anteriorly, open medially; the ventral lips distinctly swollen in mature males; proximal piece of appendix masculina thickened along median border in adult males; distal piece more than twice as long as wide measured near proximal end; thelycum with concave anterior plate wider than long with an evenly rounded anterior margin beset with long setae; posterior sternal plate between the fifth legs with the rounded conical anterolatral lobes overlapping the posterolateral region of the median plate; three groups of long setae, one each on the anterolateral lobes in between a median clump.

Distribution: Kakinada Bay, East Coact of India.

Helleropenaeosis sculptilis

H. sculptilis was originally described by Heller [16] as *Penaeus sculptilis* from Java Sea, Indonesia. It was first recorded from India by Alcock [10] from both coasts. A brief history of the species with special reference to Indian contributions has been given below.

1862: *Penaeus sculptilis* Heller.

1903: *Parapenaeopsis sculptilis* Nobili.

1906: *Parapeneopsis sculptilis* Alcock.

Type species

Penaeus sculptilis Haller.

Type locality

Java Sea, Indonesia.

Material examined

1 female (120 mm), ZSI Reg No: C4903/2, Veraval Sea, Gujarat, 16.12.1992, H.C. Ghosh and Party; 1 male (71 mm), ZSI Reg No: C4850/2, Mungergudi, Machelipattnam, Andhra Pradesh, 5.9.1995. A. Chanda; 4 males (50-110 mm) and 2 females (79-92 mm), ZSI Reg No: C4858/2, Ramachandrapuram, Andhra Pradesh, 22.3.1997, T. Roy and Party; 2 females (90 mm. both), ZSI Reg No: C4779/2, Freserganj, 24 Parganas (South), West Bengal, 14.11.1990, N.C. Nandi; 2 females (89-92 mm), ZSI Reg No: C4940/2, Mahad beach, Maharastra, 31.8.1996, Chanda A.

Diagnosis of the species

Body slender; integument thin, minutely setose rostrum sigmoidal, armed with 7-9+1 dorsal teeth, more than half distal portion toothless, in female exceeding antennular peduncle; epigastric tooth conspicuously separated from penultimate tooth; in large male rostrum down curving, toothless portion absent, not exceeding third segment of antennular peduncle; postrostral carina reaching posterior border of carapace; feebly sulcate or flat, adrostral carina and sulcus not exceeding epigastric tooth posteriorly; orbital spine absent, hepatic and antennal spine prominent, hepatic antennal carina extending half distance between hepatic and antennal spine, cervical sulcus indistinguishable, hepatic sulcus prominent, carina distinguishable at anterior portion and slopes anteroventrally towards pterygostomian angle but not reaching it; longitudinal suture long reaching behind gastric region, transverse suture prominent, placed at the level of third pereopod; median carina on second and third abdominal terga low, prominent from fourth to sixth; antennular flagella subequal, upper one slightly longer than lower, shorter than carapace; epipod and basial spines present on first and second pereopods; basis of third pereopod and telson unarmed; distomedian projection of median lobe of petasma long, rabbit ear-shaped, deeply concave ventrally, diverted anterolaterally; distolateral projection of lateral lobe short, directed laterally with a short tapering tip; anterior plate of thelycum distally rounded, broadly articulating with posterior plate, anterior plate roughly triangular with rounded corners, posterior plate broad, with a median tubercle bearing a tuft of long hairs.

Distribution

India: Entire East coast and West coast of India and Andaman Islands.

Elsewhere: Pakistan; Myanmar; Malaysia; Indonesia; South China Sea; Hong Kong; Philippines; Taiwan; New Guinea; North Australia.

Genus *Kishinouyepenaeopsis* Chanda, 2016

Chanda [9] created the genus *Kishinouyepenaeopsis* by splitting *Parapenaeopsis* Alcock.

Diagnosis of the genus

This new genus can be distinguished from other congenera by the following characters: distolateral projections of petasma longer than distomedian projections, slender, horn-like, diverging proximally, curving inward distally; anterior plate of thelycum rectangular with rounded corners, fused with posterior plate by a posteromedian broad process, posterior plate with a pair of lateral depressed region; a median tuft of long hairs presents behind thelycum. This genus includes two species viz. *Kishinouyepenaeopsis cornuta* and *Kishinouyepenaeopsis maxillipedo*, found in the ocean around Indian subcontinent (Figure 4).

Type species: *Penaeus cornutus* Kishinouye.

Type locality: Ariake-Wan, Japan.

List of species under the genus: *Kishinouyepenaeopsis cornuta, Kishinouyepenaeopsis maxillipedo*

Key to the species under genus *Kishinouyepenaeopsis* Chanda, 2016 found in India

1. Basal spine present on 3rd pereopod; telson unarmed; distolateral projections of petasma lacking dorsal spiniform processes: *Kishinouyepenaeopsis maxillipedo*.

2. Basal spine absent on 3rd pereopod; telson armed with 2-4 pairs of distolateral spine; distolateral projections of petasma with dorsal spiniform processes: *Kishinouyepenaeopsis cornuta*.

Kishinouyepenaeopsis cornuta

K. cornuta was originally described by Kishinouye [17] from Ariake-Wan, Japan as *Penaeus cornutus*. It was first recorded by Muthu [15] from Andhra Pradesh coast, East coast of India. A brief history of the species with special reference to Indian contributions has been given below.

1900: *Penaeus cornutus* Kishinouye.

1911: *Parapenaeopsis cornuta* De Man.

Type species

Penaeus cornutus Kishinouye.

Type locality

Ariake-Wan, Japan.

Material examined

6 males (50-57 mm), ZSI Reg No: C4843/2, Muthukuru F.L.C.

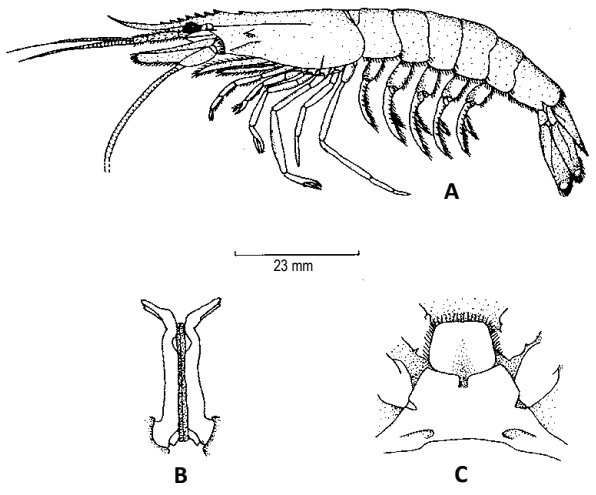

Figure 4: *Parapenaeopsis stylifera stylifera* (H. Milne Edwards, [2]). A: Lateral view of the species, B: Petasma, C: Thelycum.

Nellore Andhra Pradesh, 1.9.1995, A. Chanda, 1 male (72 mm), ZSI Reg No: C4854/2, Lowsom's Bay Visakhapattnam, Andhra Pradesh, 26.3.1997. T. Roy and Party.

Diagnosis of the species

Body slender and setose; rostrum more or less straight, tip slightly upward, armed with 7-8+1 dorsal teeth located through entire dorsal margin except a short distal toothless portion, not extending beyond third antennular segment of peduncle; epigastric tooth conspicuously separated from penultimate tooth; adrostral carina and sulcus ending between epigastric and penultimate tooth, postrostral carina extending upto the posterior border of carapace, carapace with a sharp minute orbital spine; hepatic and antennal spine prominent; cervical carina and sulcus not distinct; hepatic sulcus long starting posterior to hepatic spine and gradually slopping anteroventrally towards pterygostomian angle, ending before pterygostomian angle, a carina accompanied at anterior half of the hepatic sulcus; longitudinal suture short not reaching cardiac region; transverse suture also short and prominent, located on branchial region at the level of third pereopod; antennular flagella equal, shorter than carapace; dorsal carination on abdomen prominent from fourth terga ending at midposterior margin of sixth somite with a sharp spine; epipod and basial spine present on first and second pereopods, basis of third pereopod without spine; telson armed with two to four pairs of very short distolateral fixed spine; distomedian projection of median lobe of petasma very short; distolateral projection of lateral lobe horn-like, diverging proximally, curving inward distally, with a small dorsal spine like process; anterior plate of thelycum oblong, concave ventrally with scattered median hairs, fused posteromedially with posterior plate, posterior plate with a pair of lateral depression.

Remarks

Present observation extends the distribution of the species to the north of Chennai. George [18] collected the species from Chennai, East coast of India. Present observation is the first record of the species from Andhra Pradesh.

K. cornuta is quite similar to the *K. maxillipedo* in general structure of their petasma and thelycum but former can be separated from later by comparatively slender body, a dorsal spine like process present on distal horny projection of lateral lobe of petasma, posterior process of anterior plate of thelycum fused with posterior plate by overlapping with two lateral ridge, a close tuft of hairs behind thelycum. Therefore, these are two distinct species.

Distribution

India: Goa, Maharastra, Kerala, West coast and Chennai; Andhra Pradesh East coast and also from Andaman Islands.

Elsewhere: Sri Lanka; Singapore; Malaysia; Myanmar; Indonesia; South China sea; Philippines; Hong Kong; Taiwan; Japan; New Guinea; Australia.

Kishinouyepenaeopsis maxillipedo

The species *K. maxillipedo* was described by Alcock [10] from Chennai coast, East coast of India as *Parapeneopsis maxillipedo* Alcock. A brief history of the species with special reference to Indian contributions has been given below.

1906: *Parapeneopsis maxillipedo* Alcock.

1942: *Parapenaeopsis maxillipedo* Nataraj

1960: *Parapenaeopsis cornutus* Cheung.

1969: *Parapenaeopsis cornuta maxillipedo* George.

1997: *Parapenaeopsis maxillipedo* Perez Farfante and Kensley.

Type species

Parapeneopsis maxillipedo Alcock.

Type locality

Chennai coast, East coast of India.

Material examined

1 male (70 mm) ZSI Reg No: C4886/2, F.L.C. Chennai, 27.8.1995, T. Roy and Party; 4 males (70-95 mm) and 3 females (72-120 mm), ZSI Reg No: C4859/2, Ramachandrapuram, E. Godavari, Andhra Pradesh, 22.3.1997, T. Roy and Party; 6 males (40-65 mm) and 2 females (56-71 mm), ZSI, Reg No: C4793/2, Pulicot Lake, Andhra Pradesh, 26.8.1995, A Chanda; 1 male (78 mm), ZSI Reg No: C4811/2, F.L.C. Chennai, 26.8.1995, A. Chanda.

Diagnosis of the species

Body minutely setose; rostrum straight, tip uptilted, distal ¼ toothless, strong, armed with 9-10+1 dorsal teeth only; epigastric tooth close to penultimate tooth, post rostral carina reaching posterior border of carapace; adrostral carina and sulcus not extending beyond epigastric tooth; orbital tubercle present antennal and hepatic spine prominent, antennal carina long and extending below the level of hepatic spine; cervical sulcus short, hepatic sulcus indistinguishable, slopes transversely, pterygostomian angle blunt; longitudinal suture short not extending upto gastric region, transverse suture at the level of second pereopod, dorsal carination starts from fourth somite, ends at posterior border of sixth somite with a sharp spine; antennular flagella equal, epipod present on first and second pereopods; basial spine present on first, second and third pereopod; telson unarmed; distomedian projection of median lobe of petasma very small; distolateral projection of lateral lobe of petasma long, slender, horn-like, diverging proximally and curving inward distally, without dorsal spiniform process; anterior plate of thelycum subquadrate, posteriorly depressed, medially fused to posterior plate; posterior plate with a pair of lateral depressions and a median boss; a median tuft of long hair behind thelycum.

Distribution

India: Gujarat, Maharastra, Kerala, West coast and Tamil Nadu and Andhra Pradesh, East coast.

Elsewhere: Sri Lanka; Malaysia; Borneo; Philippines; New Guinea; North Australia.

Genus *Parapenaeopsis* Alcock, 1901

Parapenaeopsis was separated from *Penaeus* by Alcock [1] as a subgenus of the genus *Penaeus*. A brief history of the genus with special reference to the Indian contributions has been given below.

1837: *Penaeus H.* Milne Edwards [Part].

1888: *Penaeus* Bate.

1901: *Peneus (Parapeneopsis)* Alcock.

1905: *Metapeneus* Alcock [Part].

Parapenaeopsis [amendment of *Parapeneopsis* Alcock, under

the plenary powers by the International Commission on Zoological Nomenclature] placed on the official list of Generic Names in Zoology.

Diagnosis of the genus

Genus *Parapenaeopsis* differs from the remaining four genera by following characters: distolateral projections of petasma longer than distomedian projections and directed anterolaterally; anterior plate of thelycum square shaped with a stem-like posterior process, posterior plate deeply notched anteromedially. *Parapenaeopsis* includes 3 species found in the ocean adjacent to Indian subcontinent. Three species found in India viz. *Parapenaeopsis stylifera*; *Parapenaeopsis* nana Alcock and *Parapenaeopsis longirostris* Chanda and Bhattacharya (Figure 5).

P. stylifera has three subspecies *P. stylifera stylifera* Sensu Stricto, *Parapenaeopsis stylifera coromandelica* Alcock; *Parapenaeopsis stylifera cochinensis* George.

Type species: By original designation, *Penaeus styliferus* H. Milne Edwards.

Type locality: Mumbai coast, Maharastra, West coast of India.

List of species under the genus

Parapenaeopsis longirostris

Parapenaeopsis nana

Parapenaeopsis stylifera coromandelica

Parapenaeopsis stylifera stylifera

Parapenaeopsis stylifera cochinensis

Key to the species and subspecies under genus *Parapenaeopsis* Alcock, found in India

1. Telson with lateral spine: 2

   Telson without lateral spine: 4

2. Telson with 4 pairs of lateral spine: 3

   Telson with 1-2 pairs of lateral spine: *Parapenaeopsis stylifera coromandelica* Alcock.

3. Appendix masculina with distolateral process: *Parapenaeopsis stylifera stylifera.*

   Appendix masculina without distolateral process: *Parapenaeopsis stylifera* cochinensis George.

4. Rostrum extending beyond antennular peduncle, dorsal abdominal carina starting from third somite: *Parapenaeopsis longirostris* Chandaand Bhattacharya.

   Rostrum not extending beyond antennular peduncle, dorsal abdominal carina starting from fourth somite: *Parapenaeopsis* nana Alcock.

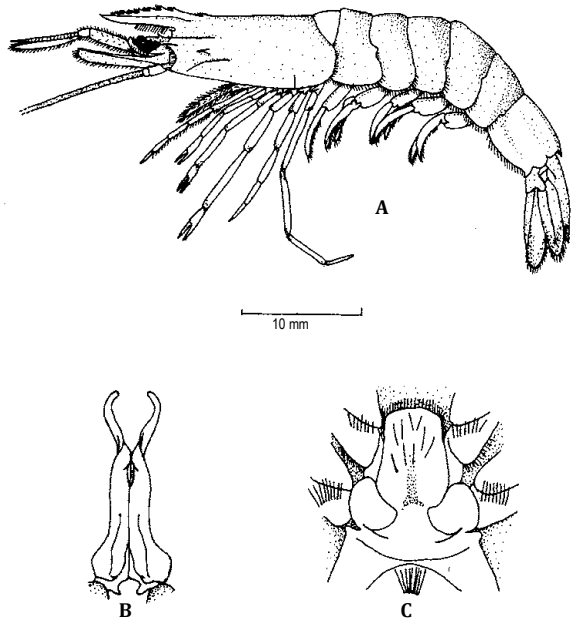

Figure 5: *Kishinouyepenaeopsis cornuta* (Kishinouye, [7]). A: Lateral view of the species. B: Petasma. C: Thelycum.

Parapenaeopsis longirostris Chanda and Bhattacharya, 2004

P. longirostris was described by Chanda and Bhattacharya [19] from Ongaria Ghat, Balaswor, Orissa, East coast of India. A brief history of the species with special reference to Indian contributions has been given below.

2004 *Parapenaeopsis longirostris* Chanda and Bhattacharya.

Material examined

2 males (43-47 mm) and 1 female (64 mm), Reg No: MARC-988, Ongaria Ghat, Orissa, 18-11-1993; S. Talukdar and S.C. Soren, Holotype: 1 female (64 mm); Paratype: 1 male (47 mm); Allotype: 1 male (43 mm). All the type materials were preserved in National Collection of ZSI, Kolkata.

Diagnosis

Body minutely setose; rostrum longer than carapace, sigmoidal, armed with 6+1 dorsal teeth; postrostral carina extending up to posterior margin of carapace; adrostral carina and sulcus ending between epigastric and penultimate rostral tooth, epigastric tooth rudimentary; median sulcus absent on postrostral carina, tip of rostrum slightly downcurved; gastrofrontal sulcus and carina absent, gastroorbital carina absent, orbital and pterygostomian angle sharp, antennal carina ending at half way between antennal and hepatic spine, cervical sulcus very short; hepatic carina and sulcus prominent, hepatic carina beginning posterior to hepatic spine, ending at pterygostomian angle, proximal half of hepatic sulcus curved slightly downwards, longitudinal suture extending up to branchiocardiac region, bracnchiocardiac carina absent; telson with deep median sulcus, ending in a sharp slender spine, petasma slender, gradually narrowing distally; distolateral projections long, directed anterolaterally forming a 'V' shaped structure; median lobe extending upto base of anterolateral projections of lateral lobe; lateral lobe ventrally folded, median lobe gradually narrowing apically; appendix masculina with two parts, one proximal stalk and a distal elongated mascular part, twice as long as wide, with rounded edge; thelycum broad, anterior plate horse-shoe shaped ventrally concave, anterior border with a distinct rounded ridge; posterior plate like a parallelogram and anterior margin with moderately long hairs, absence of coxal plate.

Distribution

Ongaria ghat, Odisha, East Coast of India.

Parapenaeopsis nana Alcock, 1905

P. nana was described by Alcock [6] from Ganjam coast, Orissa, East coast of India. A brief history of the species with special reference to Indian contributions has been given below.

1905: *Parapeneopsis nana* Alcock.

1969: *Parapenaeopsis nana* George.

Type species

Parapeneopsis nana Alcock, 1905.

Type locality

Ganjam, Orissa coast, East coast of India.

Material examined

1 male (45 mm) [Type] ZSI Reg No: 7207/9, Ganjam Coast, Orissa, Alcock.

Diagnosis of the species

Body setose; rostrum sigmoidal, distal tip uptilted, short, not extending beyond distal end of antennular peduncle; armed with 8 dorsal and a epigastric tooth; epigastric tooth conspicuously separated from penultimate tooth; rostral carina not extending upto posterior margin of carapace, adrostral carina and sulcus not extending behind epigastric tooth, a sharp orbital tubercle present, antennal and hepatic spine prominent, antennal carina long upto level of hepatic spine; cervical sulcus short, hepatic sulcus prominent anteriorly accompanied by carina, slopes anteroventrally towards the pterygostomian angle, pterygostomian angle sharp but not spine like; longitudinal suture not reaching gastric region; dorsal carination on abdominal somite starting from fourth somite, ending at midposterior margin of sixth somite with a short spine; telson unarmed; antennular flagella equal in length; distomedian projection of median lobe of petasma short, distolateral projection of lateral lobe of petasma slender, directed laterally at right angle of the long axis to petasma; anterior plate of thelycum leaf shaped, possess rows of long hairs at its anterior margin.

Distribution

India: Ganjam, Orissa to Kakinada, Andhra Pradesh, East coast.

Elsewhere: Sri Lanka.

Parapenaeopsis stylifera coromandelica Alcock, 1906

P. stylifera coromandelica was described by Alcock [10] from Coromandal coast. A brief history of the species with special reference to Indian contributions has been given below.

1906: *Parapeneopsis stylifera coromandelica* Alcock

1962: *Parapenaeopsis coromandelica* Hall.

1969: *Parapenaeopsis stylifera* George.

Type species

Parapeneopsis stylifera coromandelica Alcock.

Type locality

Coromandal coast, east coast of India.

Material examined

2 Females (40-50 mm), ZSI Reg No. C4904/2, Gulf of Kutch: Off Okha, 31.11.1992, H.C. Ghosh and Party; 1 male (46 mm) and 2 females (50-52 mm), ZSI Reg No: C4776/2, Ratnagiri, Maharastra, 23.4.1983, H.C. Ghosh and Party; 38 males (37-62 mm) and 27 females (37-69 mm), ZSI Reg No: C4786/2, Girgano, Choprti (70 mm), ZSI Reg No: C4795/2, Pulicot Lake, Andhra Pradesh, 26.8.1995, A. Chanda; 3 males (56-62 mm) and 8 females (57-72 mm) ZSI Reg No: C4932/2, F.L.C. Mumbai, 1.9.1936, A. Chanda; 5 males (57-69 mm) and 3 female (57-73 mm), ZSI Reg No: C4936/2, Petkilla Port, Ratnagiri, Maharastra, 2.9.1996, A. Chanda; 4 males (62-74 mm) and 5 females (39-78 mm), ZSI Reg No: C4941/2, Satpati, Mumbai, Maharastra, 30.8.1996, A. Chanda.

Diagnosis of the subspecies

Body slender, minutely setose; rostrum sigmoidal, distal more than half toothless, extend beyond third segment of antennular peduncle, armed with 6-8+1 dorsal teeth; epigastric tooth conspicuously separated from penultimate tooth; adrostral carina and sulcus extending little behind epigastric tooth; postrostral carina reaching almost to the posterior border of carapace, orbital spine present but very small, hepatic and antennal spine prominent, antennal carina not prominent, longitudinal suture indistinct, not reaching cardiac region, cervical sulcus shallow, short; hepatic sulcus prominent, horizontal posteriorly, slopes anteriorly with carina towards anteroventral sharp pterygostomian angle; branchiocardiac sulcus absent; transverse suture prominent, located at the level of third pereopod; dorsal carina on abdominal somite beginning from posterior one-third of third somite, ending at midposterior margin of sixth somite in a sharp spine; antennular flagella longer than carapace, subequal, dorsal one slightly longer than lower; epipod and basial spine present on first and second pereopod; basal spine absent on third pereopod; telson armed with one or two pairs of subapical fixed spine; distomedian projection of median lobe of petasma small, curved ventrally; distolateral projection of lateral lobe slender, horn-like, straight, directed anterolaterally, with ventral opening; anterior plate of thelycum slightly concave ventrally, square, with rounded anterolateral corner, a slender stem-like posterior process; lateral plate subrectangular, fused posteriorly, deeply notched anteromedially.

Remarks

Hall [7] elevated Alcock's [10] variety of *P. stylifera coromandelica* into separate specific status considering the reduction of telsonic armature as sufficient for creating a species. But Racek and Dall [11] were of opinion that since all the morphological criteria except telsonic armature and rostral armature in both the forms were in complete agreement, specific separation of Alcock's variety from Milne-Edwards' species could not be attempted. However, they felt that it was necessary to retain their taxonomic distinction at an infra-specific level in view of their geographic separation and proposed two subspecies *P. stylifera stylifera* and *P. stylifera coromandelica* Alcock. George [20] relegated *P. coromandelica* and *P. stylifera* due to their co-existance at Kerala coast and observing the various gradations in the telsonic armature. George [20] also created a new subspecies of *P. stylfera* from Cochin, depending on the variation in characters viz. comparatively smaller petasma, lacking distolateral process in appendix masculina and more pubescent body. Three distinct sub specific statuses were supported during present contribution.

Distribution

India: Entire east and West coast.

Elsewhere: Bangladesh, Sri Lanka; Malaysia; Indonesia; South

China Sea; Hong Kong; Philippines; Taiwan; New Guinea; North Australia.

Parapenaeopsis stylifera stylifera

P. stylifera was originally described as *Penaeus styliferus* by Milne Edwards [2] from Mumbai coast, West coast of India. A brief history of the species with special reference to Indian contributions has been given below.

1837: *Penaeus styliferus* Milne Edwards.

1881: *Penaeopsis styliferus* Bate.

1906: *Parapeneopsis stylifera* Alcock.

1911: *Parapenaeopsis stylifera* De Man.

1965: *Parapenaeopsis stylifera stylifera* Racek and Dall.

Type Species

Penaeus styliferus Milne Edwards.

Type Locality

Mumbai coast, Maharastra, West coast of India.

Material examined

1 female (50 mm), ZSI Reg No: C4900/2, Veraval sea, Gujarat, 16.12.1992, H.C. Ghosh and Party; 3 females (56-58 mm) ZSI Reg No: C4914/2, Subhas Port, Porbandar, Gujarat, 10.12.1992, H.C. Ghosh and Party; 2 females (50-55 mm), ZSI Reg No: C4889/2, Dona Paula, Goa, 31.7.1997, A. Chanda; 1 male (71 mm), ZSI Reg No: C4842/2, Muthukuru F.L.C. Nellore, Andhra Pradesh, 1.9.1995, A. Chanda; 3 males (58-75 mm) and 7 females (56-82 mm), ZSI Reg No: C4873/2, New Digha, West Bengal, 23.2.1995, A. Chanda; 2 males (62-68 mm) and 3 females (29-67 mm), ZSI Reg No: C4878/2, Hospital Ghat, Digha, West Bengal, 22.2.1995. A. Chanda; 4 females (52-61 mm), ZSI Reg No: C4802/2, Palk Bay, Mandapum, Tamil Nadu, 8.8.1997, A. Chanda.

Diagnosis of the species

Body slender, minutely setose; rostrum sigmoidal, strongly upcurved, distal half toothless, extending beyond antennular peduncle, armed with 7-9+1 dorsal teeth only, epigastric tooth conspicuously separated from penultimate tooth; postrostral carina reaching posterior border of carapace; adrostral carina indistinguishable; orbital spine very short, antennal and hepatic spine prominent; antennal carina short, cervical sulcus not marked, hepatic sulcus prominent accompanied with a carina at anterior half, slops anteroventrally towards sharp pterygostomian angle; longitudinal suture long reaching gastric region posteriorly; branchiocardiac sulcus absent; transverse suture prominent and situated at the level of third pereopod on branchial region; dorsal carination prominent from fourth somite and terminating at midposterior border of sixth somite with a short spine, antennular flagella subequal, dorsal one longer than ventral, equal to carapace; epipod and basial spine present on first and second pereopods, basis of third pereopod without spine; telson armed with four pairs of lateral fixed spines; distomedian projection of median lobe of petasma short and curved ventrally; distolateral projections of lateral lobe slender, horn-like, straight, directed anterolaterally and with an opening at ventral side; anterior plate of thelycum square, concave, with a slender stem-like posterior process; lateral plate subrectangular, fused posteriorly, notched anteromedially.

Remarks

Muthu [15] recorded the species from East coast (Kakinada, Andhra Pradesh) of India for the first time. Present study extends the northwoard distribution of the species up to West Bengal

Distribution

India: Entire East and West coast.

Elsewhere: Persian Gulf; Arabian Sea; Pakistan; Sri Lanka.

Parapenaeopsis stylifera cochinensis George, 1975

This variety has been described by George [20] from Cochin water, West coast of India.

1975 *Parapenaeopsis stylifera* cochinensis George, and in 1979, contribution to Marine Science, dedicated to Dr. Kurian CV.

Type of the subspecies

Parapenaeopsis stylifera cochineusis George.

Type Locality

Cochin, Kerala, South-west coast of India.

Material Examined

No specimens were collected during the present study. Diagnosis is given after literature.

Diagnosis of the subspecies

Body pubiscent; petasma small, with small distolateral projections which less divergent; appendix masculina lacking distolateral process.

Distribution

Found only in type locality.

Acknowledgements

Author is extremely indebted to Professor Tanmoy Bhattacharya, Ex-Emeritus Professor, Department of Zoology, Vidyasagar University; Dr. Probodh Kumar Maity, Emeritus scientist-SF, ZSI, Kolkata and Dr. Tusherendu Roy, Scientist-C, ZSI, Kolkata for their endless guidance and inspiration. Author expressed his gratitude to Prof. Samir Kumar Benerjee, Prof. of Zoology, Calcutta University for his inspiration during preparation of manuscript in present format. Author is also grateful to the Director, Zoological Survey of India for granting him a fellowship during which the work has been completed. Author is also extremely indebted to Dr. Goy, subject Editor of Zootaxa and its reviewer for his/her critical comments on the subject to raise the manuscript in its present form. Author's thanks are also extended to the editorial board of the Journal "Poultry, Fishery and Wildlife" for their restless effort for the peer reviewed process.

References

1. Alcock A (1901) A descriptive catalogue of the Indian deep-sea Crustacea Decapoda Macrura and Anomala, in the Indian Museum. Being a revised account of the deep-sea species collected by the Rural Indian marine survey ship "Investigator" pp: 1-286.
2. Edwards HM (1837) Histoire Naturelle des Crustacés, comprenant l'Anatomie, la Physiologie et la Classification de ces Animaux 2: 1-532.
3. Pathan DI, Jalihal DR (1997) Proposed taxonomic revision of some important penaeid prawn Genera (Crustacea, Decapoda) of Konkan coast (west coast of India). J Bombay Nat Hist Soc 94: 496-514.
4. Pérez Farfante I, Kensley B (1997) Penaeoid and Sergestoid Shrimps and Prawns of the World. Keys and Diagnoses for the Families and Genera. Mem Mus nat d'Hist nat 175: 1-233.
5. Sakai K, Shinomiya S (2011) Preliminary report on eight new genera formerly attributed to Parapenaeopsis Alcock (1901) sensu lato (Decapoda, Penaeidae). Crustaceana 84: 491-504.

6. Alcock A (1905) A revision of the "Genus" Peneus, with diagnoses of some new species and varieties. Ann Mag Nat Hist 16: 508-532.

7. Hall DNF (1962) Observations on the taxonomy and biology of some Indo-West Pacific Penaeidae (Crustacea, Decapoda). Fish Publ Col 17: 1-229.

8. De Grave S, Fransen CHJM (2011) Carideorum Catalogus: The recent species of the dendrobranchiate, stenopodidean, procarididean and caridean shrimps (Crustacea, Decapoda). Zoologische Mededelingen 85: 195-589.

9. Chanda A (2016) Diagnosis of genera found in India under family Penaeidae. Lap Lambart Academic Publishing, Germany, pp: 1-81.

10. Alcock A (1906) Catalogue of the Indian Decapod Crustacea in the collection of the Indian Museum. Part III. Macrura. Fasciculus I. The prawns of the Peneus group. Indian Museum, Calcutta pp: 1-55.

11. Racek AA, Dall W (1965) Littoral penaeidae (Crustacea Decapoda) from northern Australia, New Guinea and adjacent waters. Verh K ned Akad Wet 5: 1-119

12. Bate CS (1888) Report on the crustacea Macrura collected by HMS Challenger during the years 1873-76. Rep Sci Res 24: 1-942.

13. Thomas MM (1969) Notes on some interesting penaeid prawns (Crustacea, Decapoda) from south east coast of India. J Mar biol Ass India 11: 191-97.

14. Miers EJ (1878) Notes on the Penaeidae in the collection of the British Museum, with descriptions of some new species. Proc Zool Soc London 1878: 289-310.

15. Muthu MS (1972) Parapenaeopsis indica sp. now (Decapoda, Penaeidae) from the Indian waters. Indian J Fish 16: 174-180.

16. Heller C (1862) Neue Crustacen, gesammelt wahrend der Weltumseglung der kuk.Fregatte "Novara". Verh Zool Bot Ges Wien 12: 519-528.

17. Kishinouye K (1900) Japanese species of the genus Penaeus. J Fish Bur 8: 1-29.

18. George MJ (1969) Systematics-Taxonomic considerations and general distribution. In prawn Fisheries of India. Bull Cent Mar Fish Res Inst 14: 5-48.

19. Chanda A, Bhattacharya T (2004) A new species of the genus Parapenaeopsis Alcock, (Penaeoidea:Penaeidae) from Orissa, India. Proc Zool Soc 57: 23-27.

20. George MJ (1975) On the Penaeid prawn Parapenaeopsis stylifera and a new variety of the species from Cochin. J Mar Biol Ass 15: 420-423.

Citation: Chanda A (2016) A Study on Newly Described Genera *Alcockpenaeopsis, Batepenaeopsis, Helleropenaeopsis, Kishinouyepenaeopsis* and *Parapenaeopsis* from Indian Water. Poult Fish Wildl Sci 4: 147. doi:10.4172/2375-446X.1000147