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Short Communication

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A taxonomic study on trachypenaeid prawns with special reference to Indian records

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Abstract: Burkenroad created two subgenera of the genus *Trachypenaeus* viz., *Trachypenaeus* (*Trachypenaeus*) and *Trachypenaeus* (*Trachysalambria*) in 1934. These two subgenera were raised to the status of genus by Pérez Farfante and Kensley and simultaneously created two new genera for the group namely *Megokris* and *Rimapenaeus*. As such the trachypenaeid group of penaeid prawns consists of four valid genera namely *Trachypenaeus, Trachysalambria, Megokris* and *Rimapenaeus*. During the present study genus *Megokris* is being synonymised under its original genus *Trachypenaeus*. Therefore, the main objective of the present study is to propose a revision to the trachypenaeid group of penaeid prawn and to prepare a comprehensive document for the group recorded from Indian water. The study area represents genus *Trachysalambria* and *Megokris* with three species under each genus.

Keywords: Indian water, *Megokris*, revision, *Rimapenaeus, Trachypenaeus*, *Trachysalambria*.

Shrimps and prawns of various kinds have certainly been a source of protein for human consumption from very early times. Within historical times reference is made to prawns in ancient Chinese and Japanese literature (Farfante & Kensley 1997). In Indian literature, the earliest known penaeid prawn was *Penaeus monodon*, described by Fabricius in 1798. In 1814, the *Penaeoidea* was recognized as a taxonomic group by Rafinesque-Schmaltz. Since then, the literature on many aspects of the systematics and biology of this group has grown enormously because of their commercial importance. Genus *Penaeus* is the actual mother genus of the present genus under study. Genus *Trachypenaeus* was established by Alcock (1901) as a subgenus under genus *Penaeus*. Further, Alcock (1905) raised *Penaeus* (*Trachypenaeus*) into its generic status. Later, Burkenroad (1934) divided the genus *Trachypenaeus* Alcock, 1901 into two subgenera named *Trachypenaeus* (*Trachypenaeus*) and *Trachypenaeus* (*Trachysalambria*). Farfante & Kensley (1997) revised the genus *Trachypenaeus* Alcock, 1901 and divided the genus into four genera such as *Trachypenaeus* sensu lato,

Trachysalambria Burkenroad, 1934 by rising the subgenus *Trachypenaeus* (*Trachysalambria*) into generic status, *Megokris,* Farfante & Kensley, 1997 and *Rimapenaeus*, Farfante and Kensley (1997). After the work of Farfante & Kensley (1997), a comprehensive taxonomic study on the trachypenaeid group of prawns from Indian water has not been conducted, though some fragmented work has been done by some Indian researchers like Radhakrishnan (2012), but all of them are a checklist or

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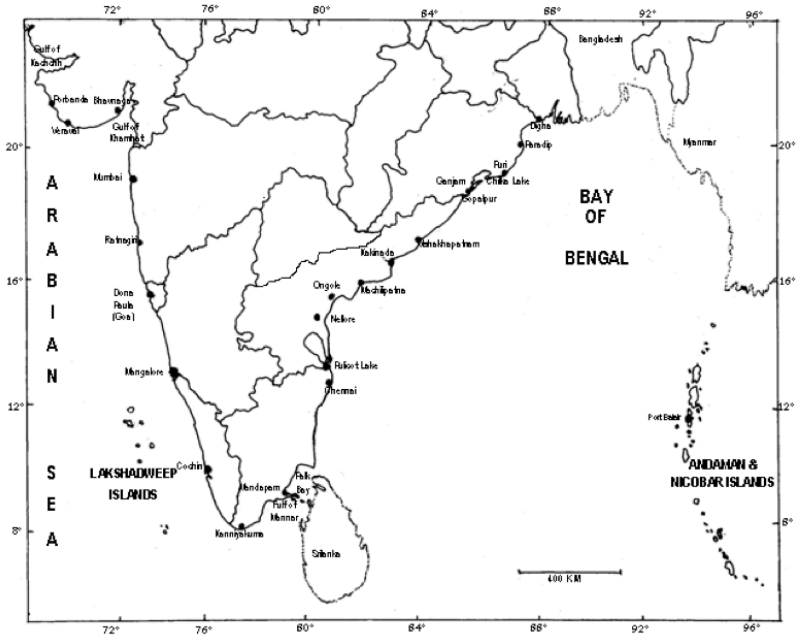

Figure 1. Study area and collection spots along Indian coast

review on existing literature or zoogeography. Therefore, the main objectives of the present study are to prepare a comprehensive document and find out the actual faunal composition of the Trachypenaeid group of prawns found in Indian water.

Materials and Methods

The present study is mainly based on the specimens collected by the author from commercial trawler catch of different fish landing centres throughout the Indian coastline (Fig. 1). 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 have 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. The illustrations have been drawn with the aid of line drawings 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. The genera and species are arranged alphabetically for convenience. In addition, an attempt has been made to include a comprehensive coverage of the literature in the reference section. For all citations of taxon author's name and year of publication have been given.

Results

Systematics

For the present study, trachypenaeid prawn refers to those species of penaeid prawns belonging to the genus *Trachypenaeus* Alcock, 1901, *Trachysalambria* Burkenroad, 1934, *Megokris* Farfante & Kensley, 1997, and *Rimapenaeus* Farfante & Kensley 1997 as they possess close similarity in their morphology and are created from the same genus *Trachypenaeus*. In the present study, the author strongly recommends that due to the similarity between *Trachypenaeus* and *Megokris*, the latter has been considered as a junior synonym of the former (detail has been described in the discussion part). Therefore, three valid genera namely *Trachypenaeus*, *Trachysalambria* and *Rimapenaeus* have been considered as trachypenaeid group of prawns. These three genera can be separated by the following key:

Key to the Indian genera of trachypenaeid prawn

1. 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 ..... *Trachypenaeus* Alcock, 1901.

-- Anterior thelycal plate on sternite XIII without caudal extension, distolateral projection of petasma directed laterally like a wing 2

2. Longitudinal suture of carapace is short, not exceeding epigastric tooth ..... *Trachysalambria* Burkenroad, 1934.

-- Longitudinal suture of carapace is long, extending beyond the level of epigastric tooth ..... *Rimapenaeus* Farfante & Kensley 1997

Remarks: Indian water represent six species of this group under two genera—*Trachysalambria* Burkenroad, 1934 and *Trachypenaeus* Alcock, 1901.

Genus *Trachypenaeus* Alcock, 1901

The genus *Trachypenaeus* was originally created by Alcock (1901) as a subgenus under genus *Penaeus*. Further, Alcock (1905) raised the subgenus to the generic rank and designated it *Penaeus anchoralis* Bate, 1881 as type of the genus. It was Alcock (1901) who reported the genus for the first time from Indian water as a subgenus of genus *Penaeus.*

Diagnosis of the genus (Fig. 2): Body covered with thick setae, pubescent; rostrum short, never extends beyond antennular peduncle; armed with dorsal teeth only; epigastric tooth separated from penultimate tooth by a distinct gap. Orbital spine, antennal spine and hepatic spine prominent; pterygostomian spine and carina absent; cervical sulcus, hepatic sulcus prominent; postocular, orbitoantennal sulcus absent; antennal, gastroorbital, gastrofrontal, hepatic carina absent; hepatic sulcus anterior to hepatic spine; longitudinal suture and transverse suture present; cicatrix absent on sixth abdominal somite; antennal flagella shorter than carapace; basial spine present on first and second pereopod; telson armed with lateral movable spine; petasma symmetrical, semiclosed, variable in shape; appendix masculina subquadrangular with rounded corners; thelycum closed, with plate on sternite XIV deeply excavate anteriorly, median protuberance of the anterior thelycal plate broadly extend posteriorly.

Remarks: Present study reveals that *Trachypenaeus* is represented in India by three species, viz.: *T. granulosus* (Haswell, 1879), *T. pescadoreensis* (Schmitt, 1931a), and *T. sedili* (Hall, 1961). These species can be separated by the following key.

Key to the species found in India

1. Telson armed with one pair of movable spine, epipod present only on pereopod third; distolateral projection of petasma broad, tip curving forward; anterior plate of thelycum distally rounded 2

-- Telson armed with four pairs of movable spine; epipod present on pereopod first, second and third; distolateral projection of petasma narrow horn-like, curving laterally; anterior plate of thelycum distally pointed ..... *T. sedili* (Hall, 1961)

2 The anteromedian plate of the thelycum with a prominent longitudinal ridge, ending in a rounded projection not reaching posterior edge of the thelycum..*T. pescadoreensis* (Schmitt, 1931)

-- The anteromedian plate of the thelycum without a prominent longitudinal ridge, rather than slightly concave and ending in a rounded projection almost reaching the posterior edge of the thelycum..... *T. granulosus* (Haswell, 1879)

Trachypenaeus granulosus (Haswell, 1879)

The species *T. granulosus* was described by Haswell (1879) from Australian water as *Penaeus granulosus*. Schmitt (1926) transferred the species to genus *Trachypenaeus*. Muthu (1971) recorded the species from Kakinada, Andhra Pradesh, eastern coast of India for the first time from Indian water.

Material examined: ZSI. Reg. No. C4949/2, two males (30–80 mm), 07.viii.1997, Palk Bay, Mandapam, Tamil Nadu, A. Chanda.

Diagnosis of the species: Body densely pubescent; rostrum dorsally armed with 9 to 11+1 teeth, reaching to distal part of antennular peduncle or a little beyond; hepatic and cervical sulcus indistinct, longitudinal suture short; abdomen with a small dorsal tubercle on second segment and a middorsal carina on the last four somites; telson armed with a pair of movable lateral spine; epipod present on third pereopod only; petasma with very broad distolateral projections, tips curving forward; distomedian projections small, curving ventrally. In females, anterior plate of thelycum flat, rounded distally with a posterior rounded projection which can be very prominent and is often fused to posterior plate; posterior plate excavated on either side of median convexity (Racek & Dall 1965).

Remarks: Present material is in agreement with the description and illustration of Farfante & Kensley (1997) except that the forwardly curved tip of dorsolateral

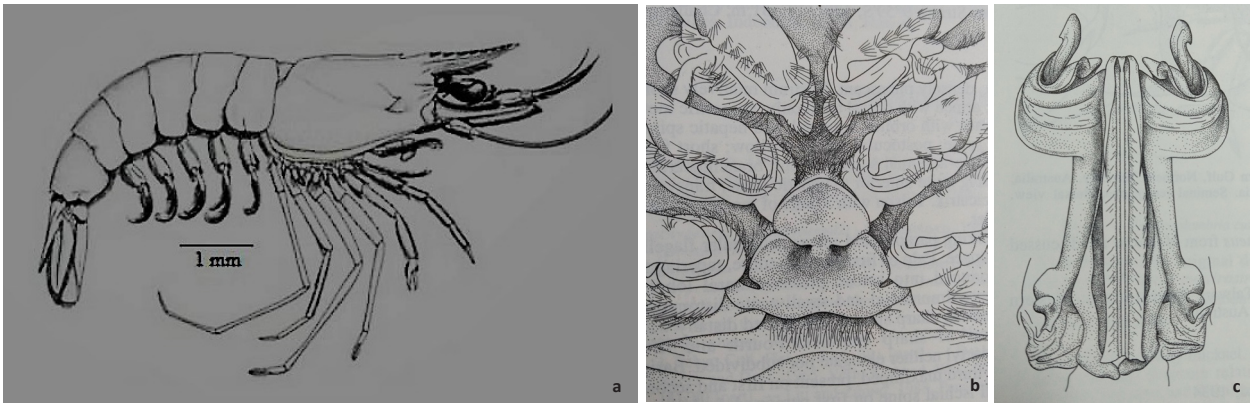

Figure 2. a - *Trachypenaeus anchoralis;* b - thelycum; c - petasma (Figure after Farfante & Kensley, 1997)

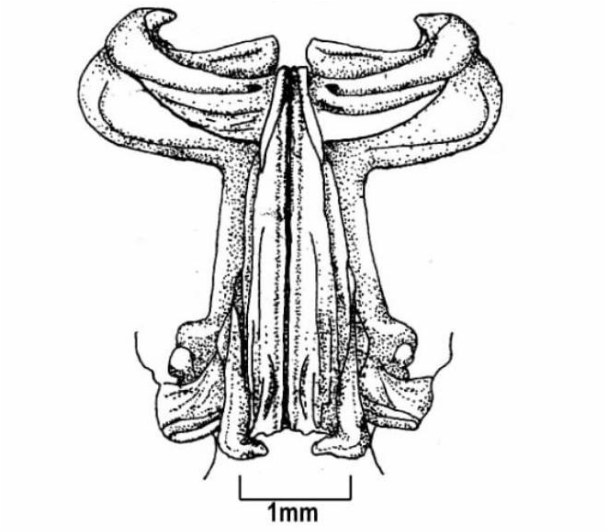

Figure 3. Petasma

projection of petasma does not have a tapering end, but is rather blunt (Fig. 3).

Distribution: Saudi Arabia, Persian Gulf, Pakistan, India (Kakinada, Andhra Pradesh, Palk Bay, Mandapam, Tamil Nadu, eastern coast of India), Sri Lanka, Malaysia, Indonesia, Philippines, Taiwan, New Guinea, Australia.

Trachypenaeus pescadoreensis (Schmitt, 1931)

Schmitt (1931) described the species as *Penaeus pescadoreensis* from the Straits of Formosa. The species has been recorded from India by Radhakrishnan et al. (2012) for the first time.

Material examined: During the present study no material was collected by the author and diagnosis has been given on the basis of literature.

Diagnosis of the species: Body densely pubescent; rostrum dorsally armed with 9+1 teeth, reaching to distal part of antennular peduncle, tip slightly curved upward; hepatic and cervical sulcus indistinct, longitudinal suture not prominent; abdomen with a small dorsal tubercle on second segment and a middorsal carina from half way of third segment and ended at posterior end of six with a small spiny tubercle; telson armed with a pair of movable lateral spine; epipod present on third pereopod only; petasma with very broad distolateral projections, tips curving forward and ending in a point; distomedian projections small, curving ventrally. In females, anterior plate of thelycum with a prominent longitudinal ridge, ending in a rounded projection, not reaching the posterior margin of median plate.

Distribution: Persian Gulf, India (southeastern and southwestern coasts); Malaysia, Singapore, China, Philippines, Hong Kong, Taiwan.

Trachypenaeus sedili (Hall, 1961)

Hall (1961) described the species as *Trachypenaeus sedili* from Malayan water, De Bruin (1965) recorded it from Sri Lankan water extending the distribution westward to the Indian Ocean. It was Thomas (1969), who recorded the species from the Coromandel Coast, east coast of India for the first time from Indian water.

Material examined: ZSI C4852/2, 3 females (42–55 mm), 05.ix.1995, Mungergudi, Machelipattnam, Andhra Pradesh, A. Chanda; CMFRI-AR-279, 1 male (38mm); off Trivandrum (Arabian Sea).

Diagnosis of the species: Body densely pubescent; rostrum armed with 8+1 dorsal teeth, strongly upcurved in female and straight in male; longitudinal suture short, hepatic and cervical sulcus indistinguishable; pterygostomian angle blunt, a small dorsal tubercle on second segment, a middorsal carina on last four segments; telson armed with four pairs of movable spine; first, second and third pereopods with epipod; distolateral projection of petasma narrow, horn-like and curving laterally; anterior plate of thelycum distally pointed and medially concave.

Remarks: Materials collected & examined agreed with the description of Hall (1961) except in number of dorsal teeth which are 8+1 as reported by Thomas' (1969). George (1969), however, observed 9+1 dorsal teeth in his specimen as observed by Hall (1961). Therefore, the number of dorsal teeth of rostrum varies from 8-9+1.

Distribution: Mozambique, India (Machalipattnam, Visakhapatnam, Andhra Pradesh to Trivandram, Kerala), Sri Lanka, Myanmar, Singapore, Strait of Malacca, Gulf of Thailand, Gulf of Tonkin, South China Sea.

Genus *Trachysalambria* Burkenroad, 1934

In 1934, Burkenroad established subgenus *Trachysalambria* under genus *Trachypeneus* Alcock, 1905 with *Penaeus curvirostris* Stimpson, 1860 as type species. The subgenus was elevated as a distinct genus *Trachysalambria* Burkenroad, 1934, by Farfante & Kensley (1997). This genus was first recorded from India by Alcock (1901) as a subgenus of *Penaeus*.

Diagnosis of the genus (Fig. 4): Body densely setose; rostrum relatively short with dorsal teeth only, extending beyond the base of second antennular segment but not beyond the third segment; epigastric tooth distinctly separated from first rostral tooth; carapace with orbital, antennal and hepatic spines prominent; pterygostomian angle usually blunt, always lacking spine; postocular sulcus absent; orbitoantennal sulcus shallow; cervical sulcus weak, short, moderately long or absent; hepatic sulcus marked or indistinct; branchiocardiac carina extremely

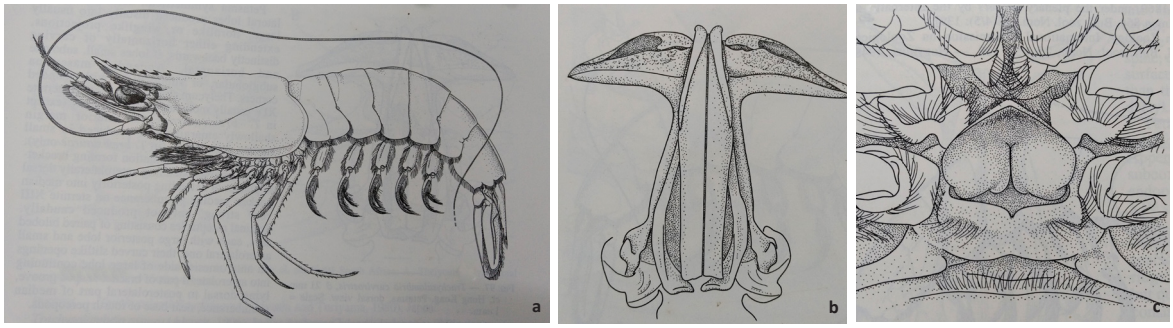

Figure 4. a - *Trachysalambria curvirostris*; b - petasma; c - Thalycum (scale = 10mm, scale = 1mm, scale = 1mm)

weak or lacking; longitudinal suture short, faint, almost indistinct, ending anterior to hepatic spine; transverse suture may be short and well- marked or indistinct; abdomen with sixth somite lacking cicatrix; telson with 1–4, usually 3, pairs of movable lateral spines; antennule lacking parapenaeid spine; antennular flagella shorter than carapace; basial spine lacking on third maxilliped, present on first pereopod and usually on second; ischial spine present or absent on first pereopod; epipod present on first through third pereopods, on second and third, or on third only; petasma symmetrical, semiclosed, with lateral lobes produced distally into usually large, hornlike or winglike projections, extending either horizontally or curving downward; thelycum closed, with plate on sternite XIV broad anterior margin bracket shaped ({) anterior sternal plate on sternite XIII like an inverted heart shaped, anterior angle raised, posterior broad margin divided into two half with a deep cleft, each half with two short lobules posteriorly.

Remarks: In Indian water only three species viz. *T. aspera* (Alcock, 1905) and *T. curvirostris* (Stimpson, 1860) and *T. malaianus* (Balss, 1933) are found which can be distinguished by the following key.

Key to the species

1. Rostrum straight, postrostral carina low, telson with two pairs of lateral movable spine .....*T. aspera* (Alcock, 1905)
-- Rostrum upcurved, postrostral carina high, telson with three pairs of lateral movable.....2

2. Distolateral projection of petasma directed laterally slightly curved downwards, anterior plate of thelycum anteriorly, angular;... .....*T. curvirostris* (Stimpson, 1860)
-- Distolateral projection of petasma straight, directed laterally, tip of lateral projection slightly curved upward, anterior plate of thelycum anteriorly semicircular ..... *T. malaianus* (Balss, 1933)

Trachysalambria aspera (Alcock, 1905)

Alcock (1905) described the species from Ganjam Coast, India as *Trachypeneus asper.* Burkenroad (1934) created two subgenus viz., *Trachypenaeus* (*Trachypenaeus*) and *Trachypenaeus* (*Trachysalambria*). These subgenera were raised to the status of genus by Farfante & Kensley (1997).

Materials examined: ZSI C4861/2, five females (80–90 mm), 25.iii.1997, Bhimapattanam, Andhra Pradesh, T. Roy & party; ZSI C4796/2, three males and one female (36–65 mm), 26.viii.1995, Pulicot Lake, Andhra Pradesh, A. Chanda; ZSI 7218-19/9, three females (70–80 mm), ZSI 1680/7, three females (75–80 mm), ZSI 4054/9, two males (65–70 mm), ZSI 7220/9, two males (75–80 mm), same locality Ganjam, Odisha, Alcock 1906.

Diagnosis of the species: Body densely setose; rostrum straight, not reaching end of second antennular segment, armed only dorsally by 9+1 teeth; antennular flagellum shorter than carapace; postrostral carina low reaching almost posterior border of carapace; a prominent orbital spine; antennal spine very strong, antennal carina reaching posteriorly to the base of hepatic spine, hepatic spine small, pterygostomian angle prominent spine like, hepatic sulcus and cervical sulcus indistinct; longitudinal and transverse suture small but prominent; dorsal abdominal carina starts from second segment like a tubercle high and prominent between third to sixth segment, terminating into a short spine; telson with a pair of fixed subterminal spine and two lateral movable spine; basal spine present on first and second pereopod, an ischial spine present on first pereopod; petasma closed type, T-shaped', distolateral projection of petasma directed laterally; thelycum consists of two plates, anterior plate semicircular, dorsally concave, posterior plate bar shaped.

Remarks: *Trachypenaeus asper* (Alcock, 1905) is very similar to *Trachypenaeus curvirostris* (Stimpson, 1860) in general appearance. Schmitt (1926) synonymised former with the latter depending on the rostral characters. Burkenroad (1934) described *Trachepenaeus* (*Trachysalambria*) *curvirostris* (Stimpson, 1860) as type of the sub genus. Farfante and Kensley (1997) raised the subgenus to generic rank and *Trachypenaeus asper* was included under the genus *Trachysalambria* as a valid species *Trachysalambria aspera* (Alcock, 1905).

Distribution: Persian gulf, India (Odisha, Andhra Pradesh, eastern coast of India; Andaman Sea), Indonesia, Philippines.

***Trachysalambria curvirostris* (Stimpson, 1860)**

Stimpson (1860) described the species from Hong Kong as *Penaeus curvirostris*. Alcock (1905) recorded it for the first time from the Indian coast as *Trachypeneus curvirostris.*

Material examined: 1 male (70 mm) and 1 female (90 mm); ZSI C4899/2; Veraval sea coast, Gujarat; 16.xii.1992; H.C. Ghosh & party. 1 male (90mm) and 1 female (95 mm); ZSI C4856/2; Lowsim's Bay Visakhapattanam, Andhra Pradesh; 26.iii.1997; T. Roy & Party. 1 male (87 mm); CMFRI-AR 278; off Cochin, Arabian Sea. 4 males (30-50 mm); ZSI C4930/2; Gujarat Coast; 16.xii.1992; H.C. Ghosh & party.

Diagnosis of the species: Body densely setose, pubescent; rostrum armed with 9+1 dorsal teeth, reaching tip of second segement of antennular peduncle, strongly upcurved; adrostral carina reaching posteriorly upto first rostral tooth, adrostral sulcus absent, postrostral carina not reaching posterior margin of carapace; cervical and hepatic sulci feeble; longitudinal suture short; transverse suture faint; pterygostomian angle blunt, abdomen with a small median tubercle on second segment and a high middorsal carina from middle of fourth to sixth segment; telson with three pairs of lateral spines; antennular flagella shorter than carapace and peduncle; distolateral spine of first segment diverging from longitudinal axis pointing slightly upwards; epipod present on first three pereopods, a small ischial spine on first pereopod only; petasma with broad wing like distolateral projections, directed laterally and tip slightly curved downwards; thelycum closed, anterior plate concave dorsally and inverted heart shaped, with a median groove posteriorly anterior margin of posterior plate invaginate like a bracket shaped groove extending anterolaterally.

Distribution: Eastern Mediterranean, Natal, South Africa to Tanzania, Red Sea, Madagascar, Yemen to Persian Gulf, India (Odisha, Andhra Pradesh, eastern coast; Veraval, Gujarat; Cochin, Kerala, western coast and also in Andaman Islands), Sri Lanka, Malaysia, Indonesia, Gulf of Tonkin, China, Hong Kong, Taiwan, Philippines, Japan, Korea, New Guinea, Australia.

***Trachysalambria malaianus* (Balss, 1933)**

H. Balss (1933) described the species from Malyan water as subspecies of *Trachypenaeus curvirostris* Stimpson, 1860. Farfante & Kensley (1997) included the species under genus *Trachysalambria* as a valid species. Radhakrishnan et al. (2012) recorded it for the first time from Indian coast (east) as *Trachysalambria fulvus* (Dall, 1957).

Materials examined: During the present study no material was collected by the author and diagnosis has been given on the basis of literature.

Diagnosis: Body densely setose, pubescent; rostrum armed with 7 to 8+1 dorsal teeth, reaching tip of second segment of antennular peduncle, usually straight; adrostral carina reaching posteriorly upto first rostral tooth, adrostral sulcus absent, postrostral carina reaching posterior margin of carapace; cervical and hepatic sulci feeble; longitudinal suture short; transverse suture faint; pterygostomian angle blunt, abdomen with a small median tubercle on second segment and a high middorsal carina from 1/3 of fourth to sixth segment; telson with three pairs of lateral spines, first pair is prominent; antennular flagella shorter than carapace and peduncle; distolateral spine of first segment diverging from longitudinal axis pointing slightly upwards; epipod present on third pereopod only, a small ischial spine on first pereopod is found; petasma with broad wing like distolateral projections, directed laterally and tip slightly curved upwnwards; thelycum closed, anterior plate semicircular anteriorly, with a median short groove posteriorly; anterior margin of posterior plate with a smooth concave groove extending anteriorly.

Distribution: India (Tamil Nadu, eastern coast), Malaysia, Indonesia, Philippines, New Guinea, Australia.

Remarks: Though Radhakrishnan et al. (2012) mentioned the distribution of *Trachysalambria fulvus* (Dall, 1957) from Tamil Nadu, east coast of India but it was Dall et al. (1990) who synonymised the species with *Trachypenaeus malaianus* (Balss, 1933). Later Farfante & Kensley (1997) kept both the species under genus *Trachysalambria*. Farfante & Kensley (1997) doubted about the validity of species *Trachysalambria albicoma* (Hayashi & Toriyama, 1980) and *Trachysalambria malaianus* (Balss, 1933), but they did not mention any comments against *Trachysalambria fulvus* (Dall, 1957). Radhakrishnan et al. (2012) also mentioned that the taxonomic consultation had been needed for confirmation of the species. Therefore, from the above study it may be concluded that the actual valid species will be *Trachysalambria malaianus* (Balss, 1933) and T. *fulvus* and *T. albicoma* will be synonym of *Trachysalambria malaianus* (Balss, 1933) which also needed confirmation through type study but it is certain from Dall's remark that *Trachysalambria fulvus* (Dall, 1957) is the synonym of *Trachysalambria malaianus* (Balss, 1933). Hence, in the present study Indian record of the species is treated as *Trachysalambria malaianus* (Balss, 1933).

Discussion

The author does not agree with the four genus classification for the trachypenaeid group of prawns rather, re-establishment of Burkenroad's (1934) scheme of classification is being suggested for the said group of prawns. Farfante & Kensley (1997) created the genus *Megokris* gen. nov. from *Trachypenaeus* Alcock, 1901 are very close to Burkenroad's subgenus *Trachypenaeus* (*Trachypenaeus*) except for some minor differences in seminal receptacle and distomedian and distolateral projection of petasma (Farfante & Kensley 1997). Both the genera possess epipods on the first and second maxillipod and third pleopods. Exopods present on all maxillipods and pleopods as well as podobranchae present on second maxillipods for both the genera *Megokris* Farfante & Kensley, 1997 and *Trachypenaeus* Alcock, 1901. Pleurobranchae and arthrobranchiae are also similar in both the genera. Hence, these two genera are being suggested for a single genus as *Trachypenaeus* Alcock, 1901.

Similarly, genus *Rimapenaeus* Farfante & Kensley 1997 and *Trachysalambria* Burkenroad, 1934 are closely related in respect to distribution of branchiae, epipods and exopods in the species of both the genera. Again, Farfante & Kensley (1997) distinguished *Trachysalambria* from *Rimapenaeus* by the presence of anterior sternal invigilation of XIV forming a typical second bracket-shaped transverse groove and neither a well- defined median pocket nor a deep cleft interiorly to produce a paired flaps interiorly as in *Rimapenaeus*. They also mentioned distolateral projections of petasma extended almost straight laterally or with their tips curving slightly backwards in *Trachysalambria*. This character is controversial and confusing. They also mentioned that the longitudinal suture of carapace is short in *Trachysalambria*, not exceeding epigastric tooth and in *Rimapenaeus*, suture extends beyond the level of epigastric tooth. The last character is a strong point to create a separate genus for the species under genus *Trachypenaeus* Alcock, 1901. Therefore, the present author accepts the genus *Rimapenaeus* as a valid genus as earlier described by Farfante & Kensley 1997. As such the present author suggests a three genera classification for the Trachypenaeid group of prawns, viz., *Trachypenaeus* Alcock, 1901, *Trachysalambria* Burkenroad, 1934 and *Rimapenaeus* Farfante & Kensley 1997.

References

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", Indian Museum, Calcutta, 286pp.

Alcock, A. (1905). A revision of the "Genus" *Peneus*, with diagnoses of some new species and varieties. *Annals Magazine of natural History* 16(7): 508–532.

Balss, H. (1933). Ueber einige marine Penaeidae (Crustacea: Decapoda) des Malaiischen Archipels. *Treubia* 14(2): 227–236.

Bate, C.S. (1881). On the *penaeidae. Annals and Magazin of Natutal History* 8(5): 169–196.

Burkenroad, M.D. (1934). Littoral *Penaeidea* chiefly from the Bingham oceanographic collection, with a revision of *Penaeopsis* and descriptions of two New Genera and eleven new American Species. *Bulletin of the Bingham Oceanographic Collection* 4(7): 1–109.

Dall, W. (1957). A revision of the Australian species of *Penaeinae* (Crustacea, Decapoda: Penaeidae). *Australian Journal of Marine and Freshwater Research* 8: 136–231.

Dall, W., B.J. Hill, P.C. Rothlisberg & D.J. Sharples (1990). The biology of the *Penaeidae. Advances in Marine Biology* 27: 1–489.

de Bruin, G.H.P. (1965). Penaeid prawns of Ceylon (Crustacea, Decapoda, Penasidae). *Zoologische Mededelingen, Leiden* 41(4): 73–104.

Fabricius, J.C. (1798). Supplementum Entomologiae Systematicae, 1–572.

George, M.J. (1969). Systematics-Taxonomic considerations and general distribution. In prawn Fisheries of India. *Bulletin of Central Marine Fishery Research Institute* 14: 5–48.

Hall, D.N.F. (1961). The Malayan *Penaeidae* (Crustacea, Decapoda). Part II. Further taxonomic notes on the Malayan speceis. *Bulletin of the Raffles Museum* 26: 76–119.

Haswell, W.A. (1879). On the Australian species of *Penaeus*, in the Macleay Museum, Sydney. *Proceedings of the Linian Society of New South Wales* 4: 38–44.

Hayashi, K.I. & M. Toriyama (1980). A new species of the genus *Trachypenaeus* from Japan (Crustacea, Decapoda, Penaeidae). *Bulletin of the Nansei Regional Fisheries Research Laboratory* 12: 69–73.

Farfante, I.P. & B. Kensley (1997). Penaeoid and Sergestoid shrimps and prawns of the World. Keys and diagnoses for the families and genera. *Memoires Du Museum National d'Histoire Naturelle* 175: 1–233.

Muthu, M.S. (1971). On some new records of Penaeid prawns from the east coast of India. *Indian Journal of Fishery* 15: 145–154.

Racek, A.A. & W. Dall (1965). Littoral penaeidae (Crustacea Decapoda) from northern Australia, New Guinea and adjacent waters. *Verhandlingen der Koninklijke nederlandse Akademie van Wetenschappen, afdeeling Natuurkunde,* 56(3): 1–119.

Radhakrishnan (2012). Prawn fauna (Crustacea: Decapoda) of India - An annotated checklist of the Penaeoid, Sergestoid, Stenopodid and Caridean prawns. *Journal of the Marine Biological Association of India* 54(1): 50–72.

Rafinesque-Schmaltz, C.S. (1814). *Précis des découvertes et travaux somiologiques de M. r. C.S. Rafinesque-Schmaltz entre 1800 et 1814 ou choix raisonné de ses principales découvertes en zoologie et en botanique, pour servir d'introduction à ses ouvrages futurs.* 55 pages.Palermo: Royale Typographie Militaire; https://www.biodiversitylibrary.org/item/27701

Schmitt, W.L. (1926). Report on the Crustacea Macrura (Families Peneidae, Campylonotidae and Pandalidae) Obtained by the F.I.S. "Endeavour" in Australian Seas. With notes on the species of "*Penaeus*" described by Haswell and contained, in Part, in the collections of the Macleay Museum, at the University of Sydney. *Zoological (biological) Results of the Fishing Experiments carried out by the F.I.S. "Endeavour"* 5(6): 311–381.

Schmitt, W.L. (1931). Two new species of shrimp from the Straits of Formosa. *Longman Science Journal* 10(2/3): 265–268; 32pls.

Stimpson, W. (1860). Prodromus descriptionis animalium evertebratorum, quae in expeditione ad oceanum Pacificum septentrionalem, a Republica Federata missa, Cadwaladaro Ringgold et Johanne Rodgers Ducibus, observavit et descripsit. *Proceedings of the Academy of natural Sciences, Philadelphia,* 12: 22–47.

Thomas, M.M. (1969). Notes on some interesting penaeid prawns (Crustacea, Decapoda) from south east coast of India. *Journal of the Marine Biological Association of India* 11: 191–197.

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Communications

Short Communications

Notes

Response & Reply

Book Review

Miscellaneous