

A NEW SPECIES OF *METAPENAEUS* (DECAPODA, PENAEIDAE)

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WHILST examining a collection of prawns from the Gulf of Kutch area, three specimens showed clear differences from others. A closer study of the important generic characters made it difficult to assign these specimens to any of the species of *Metapenaeus* Wood-Mason and Alcock described so far, and hence they are reported here as species new to science.

Metapenaeus alcocki sp. nov.

Material: Gulf of Kutch, Northwest coast of India (Lat. 22° 48' N., Long. 70° 03' E.), 3-12 m. depth; 3 specimens 44 mm. ♀ 87 mm. ♀ and 97 mm. ♂, carapace length 11 mm. 19 mm. and 23 mm.

Holotype: ♀ 87 mm., carapace 19 mm. (16-4-1963).

Allotype: ♂ 97 mm., carapace 23 mm. (16-4-1963).

Type specimens (Holotype, female, CMFRI No. 89 and Allotype, male, CMFRI No. 90) are deposited in the reference collection of Central Marine Fisheries Research Institute, Mandapam Camp.

Description: Body more tomentose than glabrous; branchiostegites glabrous except for a pubescent patch below the branchiocardiac carina; frontal region, gastric region and the dorsal half of the cardiac region of the carapace pubescent. Abdomen with moderately large setose patches on all the somites. Rostrum with distal half slightly curved, extending beyond the antennular peduncle by the length of its third segment and reaching the tip of scaphocerite; teeth 9+epigastric. Adrostral carina ending between epigastric and penultimate tooth and adrostral sulcus behind epigastric tooth; postrostral carina ending in a transverse glabrous strip at 1/10 length of the carapace from the posterior margin. Gastrofrontal sulcus indistinct; post ocular sulcus deep and at an angle of 40° to rostrum; orbito-antennal sulcus distinct, ending in front of hepatic spine. Hepatic sulcus descending at about 95° to longitudinal axis in its posterior part and curving towards pterygostomial angle anteriorly. Cervical sulcus straight, ending at 2/5 carapace; branchio-cardiac carina distinct, meeting posterior extension of hepatic spine and ending at 1/10 length of carapace from the posterior margin. Antennal spine well developed; epigastric spine at about 1/4 length of carapace.

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Antennular flagella subequal and $\frac{1}{2}$ length of peduncle. Prosartema exceeding eye, stylocerite attaining $\frac{1}{2}$ basal segment. Scaphocerite extends beyond the tip of the antennular peduncle by the length of its third segment.

Third maxilliped extending beyond the tip of the carpocerite (by $\frac{1}{2}$ the length of dactylus in male); first pereopod reaching beyond middle of carpocerite; second extending beyond tip of carpocerite; third reaching the tip of antennular segment (surpassing by dactyl length in male); fourth reaching beyond base of carpocerite; fifth reaching beyond middle of scaphocerite. Ischium of first pereopod with a strong spine; merus of fifth pereopod of male with a shallow depression bounded anteriorly by a small tooth, margin of the merus anterior to the tooth entire. Since the male specimen is not full grown this feature is not well developed.

Dorsal carination prominent from fourth to sixth abdominal segments, carina of sixth ending in a sharp tooth. Telson dorsally grooved, shorter than inner uropods and with minute spinules on lateral margins.

Petasma of the allotype is shown in Fig. 1, B, C & D. Distolateral projections spout like with distal openings as in *M. ensis* group. Distomedian projections directed anterolaterally overlying distolateral projections; its proximal end being narrow and distal end broad and trilobed.

Distal piece of appendix masculina with rounded dorsal surface and a small depression distoventrally; a few very minute apical setae present.

Thelycum of the holotype is shown in Fig. 1, E. The anterior half of the thelycum generally resembles that of the *M. ensis* group, while the posterior half is more similar to that of *M. affinis* group. Anterior plate tongue like, medially grooved, widest at $\frac{3}{4}$ length from the anterior border and then tapering posteriorly to a narrow plate which is bounded laterally by a pair of oval bosses. Lateral plates glabrous and without elevated earlike lobes; posterior portion of each with a concave inwardly curved plate meeting each other in the middle. Thelycum is posteriorly closed.

Distribution: As yet known only from the type locality.

DISCUSSION

The present species seems to have affinities with three species viz. *Metapenaeus ensis* (de Haan) described by Kubo (1949), Barnard (1950) and Dall (1957) as *M. monoceros*, Racek (1955) as *M. incisipes*, Hall (1958 & 1962) and Racek and Dall (1965), *Metapenaeus affinis* (M. Edw.) as described by Alcock (1906), Burkenroad (1934), Kubo (1954), Hall (1961 & 1962) [synonymised as *M. mutatus* (Lanchaster)] and Racek and Dall (1965) and *Metapenaeus kutchensis* George *et al.* (1963), a species reported recently from the same collection. A comparison of certain diagnostic features of these species is given below.

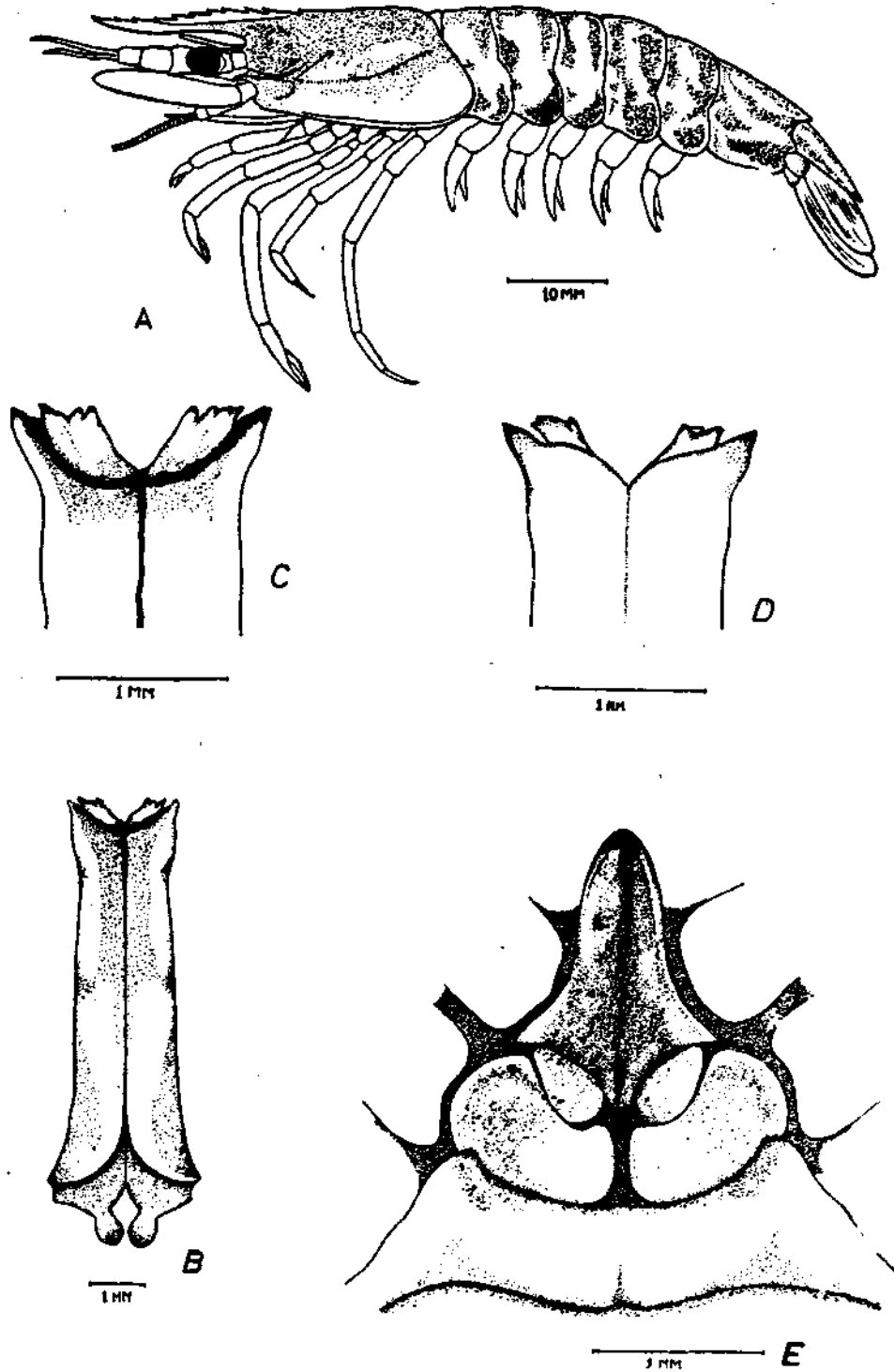


FIG. 1. *Metapenaeus alcocki* sp. nov.; A, ♂, 97 mm. allotype; B, ventral view of petasma of allotype; C, distal ventral view of petasma; D, distal dorsal view of petasma; E, thelycum of holotype.

Item	<i>M. ensis</i>	<i>M. kutchensis</i>	<i>M. affinis</i>	<i>M. alcocki</i>
Pubescence.	Body more tomentose than glabrous.	Body more glabrous than tomentose.	Body more tomentose than glabrous.	Body more tomentose than glabrous.
Rostrum.	Teeth 8-10+1; slightly projecting upwards with ventral upward curve, reaching tip of antennular peduncle.	Teeth 7-8+1; straight with a small crest, reaching slightly beyond tip of antennular peduncle.	Teeth 8-9+1; more curved and less uptilted, reaching beyond tip of antennular peduncle.	Teeth 9+1 distal half slightly curved, reaching beyond tip of antennular peduncle.
Mid-dorsal carination of the abdominal segment.	Traces of carina beginning on 1st somite; 2nd to 6th with distinct carina.	Carination commences from 4th segment.	Carination commences from 2nd segment.	Carination commences from 4th segment.
Ischial spine on 1st pereopod.	Present; blunt and small.	Present; small.	Generally absent; if present small denticle only.	Present; strong and large.
Length of 5th pereopod.	Reaches a little beyond middle of scaphocerite.	Reaches a little beyond middle of scaphocerite	Surpasses the tip of antennal scale by dactyl.	Reaches beyond middle of scaphocerite by dactyl.
Petasma.	Distomedian lobes parallel; very large.	Distomedian lobes more transversely placed with proximal end narrow, distal end broad.	Distomedian lobes ending in a pair of two lipped spouts resembling a pair of short horns.	Distomedian lobes directed anterolaterally with distal end broad and trilobed.
Thelycum.	Posterior tongue-like extension of the anterior median plate bound laterally by a round plate on either side; lateral plates with raised lateral ridges, each with a posterior inwardly curved triangular plate; cup-like structure of the thelycum posteriorly open.	Posterior extension of the anterior median plate not bound laterally by a plate on either side; lateral plates concave, without raised lateral ridges, cut transversely into two unequal segments, with no apparent clusters of setae between them; thelycum posteriorly closed.	Posterior extension of the anterior median plate not bound laterally by a plate on either side; lateral plates flat, cut transversely into two unequal segments, with conspicuous clusters of setae between them; thelycum posteriorly closed.	Posterior extension of the anterior median plate bound laterally by an oval, flat plate on either side; lateral plates having no raised ridges and each with a posterior concave inwardly curved plate meeting each other in the middle; thelycum posteriorly closed.

The above table will show that *M. alcocki* is closely related to *M. affinis* and *M. kutchensis* and its petasma can be considered as a link between these two species. However, in regard to its thelycum, the species differs markedly from both *M. affinis* and *M. kutchensis* but displays certain similarities to *M. ensis*, especially in the an-

terior half of the same. The median plate with the lateral bosses on either side of the posterior extension of this plate resembles that of *M. ensis*, although the shape of the anterior border of this plate differs. But, the lateral plates of *M. alcocki* is strikingly different.

The strong and large ischial spine in the first pereopod and the posterior region of the median plate of the thelycum with two indentations on each side are features which *M. alcocki* shares with Hall's (1962) *M. ensis* var. *baramensis*, of which only female is known. However, the posterior half of the thelycum of Hall's variety is completely different from that of the species under discussion. While this salient difference in the nature of the thelycum is alone sufficient to separate the present species from *M. ensis* var. *baramensis*, other differences like the mid-dorsal carination of the abdominal segments commencing from the fourth segment, rostrum reaching beyond tip of antennular peduncle and longer pereopods make the specific identity of the species clear.

While the petasma of *M. alcocki* shows some affinities with that of *M. conjunctus* Racek and Dall (1965), its thelycum shows clear differences especially in the shape of the median and lateral plates. The thelycum of *M. suluensis* Racek and Dall resembles that of *M. alcocki* in the presence of the plates on the sides of the posterior extension of the anterior plate and the closed nature of the thelycum, but differs in the absence of spinous processes on the lateral plates. Besides, the petasmata of the two species are at pronounced variance.

The present specimens have been obtained from a collection of about 50 prawns from the Gulf of Kutch, a region from where no systematic collection of prawns has been studied in detail. Further collections may bring out the commercial potentiality of the species.

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REFERENCES

- ALCOCK, A. 1906. *Catalogue of the Indian Decapod Crustacea in the collection of the Indian Museum, Part III, Macrura (Penaeus)* : 1-55.
- BARNARD, K. H. 1950. Descriptive catalogue of South African Decapod Crustacea. *Ann. S. Afr. Mus.*, 38 : 1-837.
- 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. *Bull. Bingham Oceanogr. Coll.*, 4(7) : 1-109.
- DALL, W. 1957. A revision of the Australian species of Penaeinae (Crustacea Decapoda : Penaeidae). *Aust. J. Mar. Freshw. Res.*, 8(2) : 136-230.
- GEORGE, P. C., GEORGE, M. J. AND VEDAVYASA RAO, P. 1963. *Metapenaeus kutchensis* sp. nov., a penaeid prawn from the Gulf of Kutch. *J. Mar. biol. Ass. India*, 5(2) : 284-288.
- HALL, D. N. F. 1958. Distinction between *Metapenaeus monoceros* (Fabr.) and *Metapenaeus ensis* (de Haan) (Crustacea Decapoda). *Ann. Mag. Nat. Hist.*, Ser. 13, 1 : 537-544.
- . 1961. The Malayan Penaeidae (Crustacea, Decapoda). Part. II. Further taxonomic notes from the Malayan species. *Bull. Raffles Mus.*, 29 : 76-119.

- HALL, D. N. F. 1962. Observations on the taxonomy and biology of some Indo-West Pacific Penaeidae (Crustacea, Decapoda). *Fish. Publ. Colonial Office, London*, 17 : 1-229.
- KUBO, I. 1949. Studies on the penaeids of Japanese and its adjacent waters. *J. Tokyo Coll. Fish.*, 36(1) : 1-467.
- . 1954. Systematic studies on the Japanese Macrurous Decapod Crustacea. 2. On two penaeids, *Metapenaeus affinis* (H. Milne-Edwards) and *M. burkenroadi*, nom. nov. erected on the Japanese form known as *M. affinis*. *Ibid.*, 41(1) : 89-95.
- RACEK, A. A. 1955. Littoral penaeinae from New South Wales and adjacent Queensland waters. *Aust. J. Mar. Freshw. Res.*, 6(2) : 209-241.
- AND DALL, W. 1965. Littoral penaeinae (Crustacea Decapoda) from Northern Australia, New Guinea, and adjacent waters. *Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd., Natuurkunde Tweede Reeks*, 56(3) : 1-119.