

TRACHYPENAEOPSIS MINICOYENSIS SP. NOV. (PENAEIDAE,
DECAPODA) FROM THE LACCADIVE SEA

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ABSTRACT

The genus *Trachypenaeopsis* Burkenroad is reported for the first time from the Indian Region and a new species *T. minicoyensis* collected from Minicoy Island, Laccadive Archipelago, is described in detail. The present species differs from other known species viz., *T. richtersii* (Miers) and *T. mobilispinis* (Rathbun) in the structure of the petasma, the-lycum and telson. A key to the identification of the known species of the genus is also provided.

INTRODUCTION

The present material was collected from the shallow waters of the western lagoon of Minicoy Island, Laccadive Archipelago, by Mr. M. Ali Manikfan in January 1967 and was kindly passed on to me by Dr. S. Jones. These prawns were found to belong to the genus *Trachypenaeopsis* Burkenroad which is represented by only two species, viz., *T. richtersii* (Miers, 1884) from the Indo-Pacific and *T. mobilispinis* (Rathbun, 1919) from the Antilles. The material differed from these two known species and hence is described here as a new species. This is also the first report of the genus from the Indian Region (between 60°E and 98°E and north of equator).

The type specimens are deposited in the Reference Collection Museum of the Central Marine Fisheries Research Institute, Mandapam Camp. Holotype, female-CMFRI No.157; Allotype, male-CMFRI No.164.

Burkenroad (1934) created the genus *Trachypenaeopsis* to accommodate the two species known at that time, viz., *Metapenaeus mobilispinis* Rathbun, 1919 from the Dutch West Indies and Bahamas, Atlantic Ocean and *Penaeus richtersii* Miers, 1884 from Cerf Island, western Indian Ocean and Hawaii Island, Pacific Ocean. These species were for a long time mistakenly ascribed to the genera *Penaeopsis* and *Metapenaeus* by Rathbun (1906), de Man (1911) and others due to their superficial resemblance. However, the absence of pleurobranch on the thirteenth somite and the unfurcate epipods distinguish them from species of both the above genera. Besides, they differ from *Penaeopsis* in the lack of a parapenaoid spine and the paired fixed teeth distal to the movable lateral spines of the telson, while the

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presence of epipods on the fifth legs and the absence of spines on the basipods of second and third chelipeds separate them from *Metapenaeus*. The genus *Trachypenaeopsis* is closely related to *Atypopenaeus* although it differs in the nature of the antennal spines, short antennular flagella, armature of telson, peculiar petasma and unfurcate epipods. The last mentioned character is unique in this genus as in all known adult Penaeidae the epipods are bifurcate.

Trachypenaeopsis minicoyensis sp. nov. (Fig. 1, A—R)

Material

3 specimens. Western lagoon of Minicoy Island, Laccadive Archipelago. Holotype, female, 31.5 mm (carapace length 8.1 mm); allotype, male, 29.5 mm (c.l. 7.5 mm) and paratype, female, 30 mm (c.l. 8.5 mm). Date of collection: 7.1.1967. Collected by M. Ali Manikfan. Depth of occurrence: 3 metres.

Description

Body glabrous except the tomentose area restricted to anterior and posterior portions of the cervical groove. Rostrum straight, pointed and laterally compressed, about one-fourth length of carapace, tip being slightly raised above dorsal profile and reaching nearly middle of first joint of antennular peduncle (Fig. 1, A). The adrostral carina starts from the base of the terminal tooth, curves down to reach the level of epigastric tooth. Upper border with five to six teeth (two females have five and male has six) excluding epigastric which is situated well behind the rest of the series. Last two rostral teeth are borne on carapace. Rostral teeth are progressively larger backwards, anteriormost one being close to the distal end. Cervical groove is well defined, extending more than half way to mid-dorsal line. Hepatic groove is sigmoidal, commencing a little behind hepatic spine. Antennal spine is stout while supraorbital and hepatic spines are smaller. Hepatic spine is placed anterior to plane of epigastric tooth. Pterygostomian angle is rounded.

Eye 3.8 length of carapace, in longer diameter of cornea. Cornea 1.5 as long as broad. Prosartema falls short of dorsal margin of eye, being only half length of cornea. Stylocerite reaches middle of first antennular segment. Upper flagellum a trifle shorter than lower, and half the length of carapace. Length of third segment of antennular peduncle about 1/5 length of basal segment and 1/2 the second segment. Basicerite with sharp, pointed spine at the lower end, distolaterally. Scaphocerite bears an anterolateral spine and ends short of the tip of antennular peduncle.

Mandible with molar process having concave masticatory surface and a pointed projection at posteromedian angle. Anterior end of cutting edge of incisor process with a notch. Palps reach the base of carapace with subtriangular basal segment and anterior one broad and abruptly pointed at the distal end. It is about 1.4 times as long as wide and 1.8 the length of the basal segment (Fig. 1, F). Maxillary palp two-segmented. Basal segment has a deep constriction at about middle and is ten times the length of the distal segment. There are four spinules on inner side of basal segment, increasing in size from proximal end. Maxilla typical, with short endopod

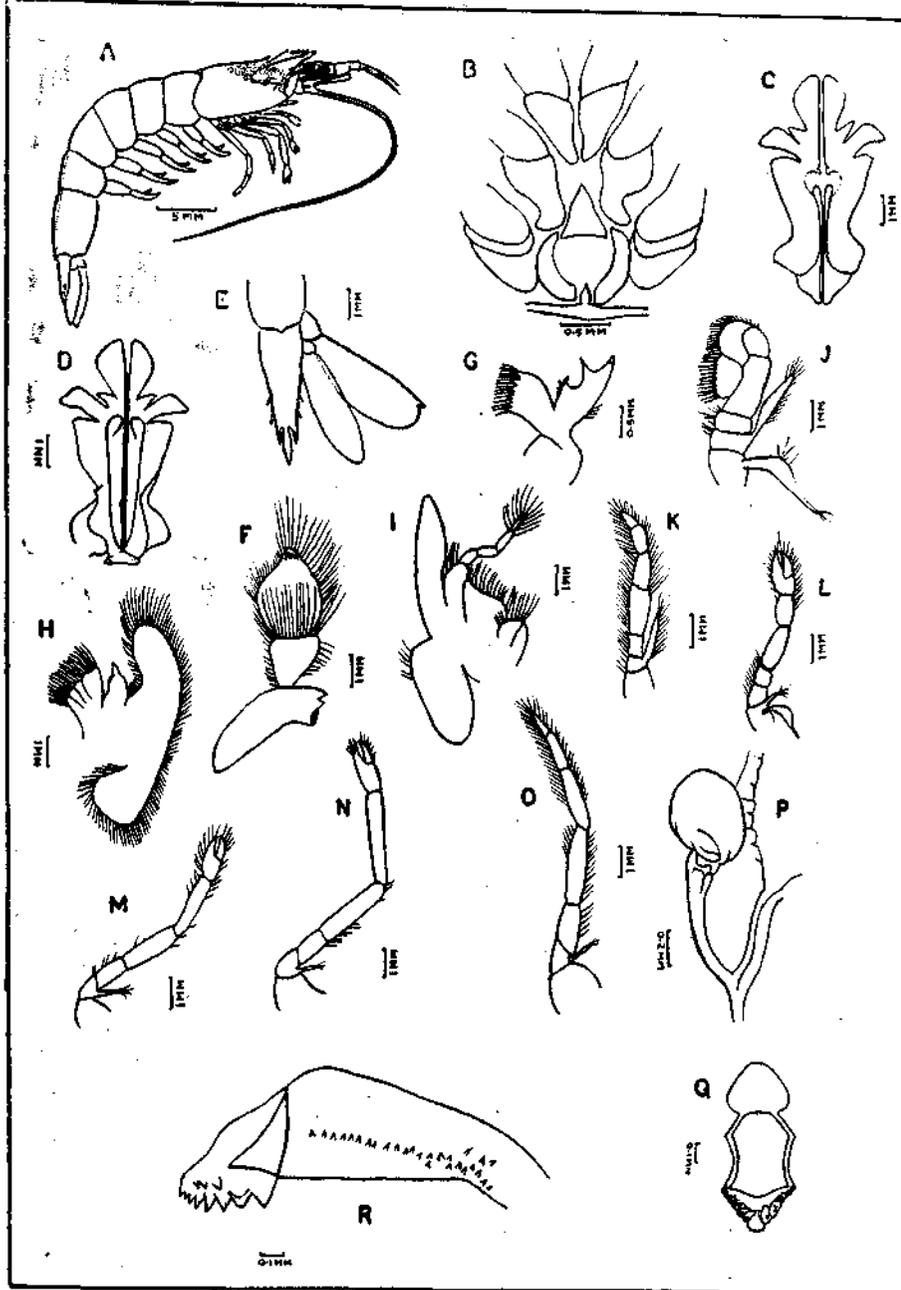


Fig. 1. *Trachypenaopsis minicoyensis* sp. nov. A, Holotype, lateral view; B, thelycum; C, petasma, ventral view; D, same, dorsal view; E, telson with uropod; F, mandible; G, maxillule; H, maxilla; I, first maxilliped; L, first pereiopod; M, second pereiopod; N, third pereiopod; O, fifth pereiopod; P, appendix masculina; Q, upper aspect of urocardiac and prepyloric ossicles; R, inner aspect of cardiac plate. (D, E, I and P dorsal views and rest ventral views).

bearing a few stiff spinules on the inner side. First maxilliped well developed, endopod five-jointed. Epipod also elongated, not bifid, broader than endopod and 2.2 times as long as broad (Fig. 1, I). Second maxilliped has typical shape of an interrogation mark (Fig. 1, J). In the third maxilliped the length of the dactylus bears the following proportions with other segments: ischium 1, merus 2, carpus 1.6 and propodus 1.2. The exopod reaches beyond middle of merus (Fig. 1, K).

The pereopods have proportions in length to dactylus as follows:

	ischium	merus	carpus	propodus
First pereopod	1.2	1.7	1.5	0.9
Second pereopod	1.3	2.1	2.2	0.8
Third pereopod	1.3	2.7	3.3	0.9
Fourth pereopod	1.5	2.5	3.1	1.0
Fifth pereopod	1.5	2.5	2.1	1.2

Abdomen dorsally carinated on fifth and sixth somites only. Carina of sixth somite ends in an acute spinule, posteriorly. Last pleonic segment is 1.8 times as long as wide at the middle and 1.3 the length of carapace. Telson has the typical structure of the genus, rather shorter than the inner ramus of uropod. Mid-dorsal groove broader towards the posterior end. Telson 3.8 times as long as broad at broadest region and armed with three pairs of lateral spines (Fig. 1, E). First of these spines situated at middle of telson, second at two-fifth and last at one-third from tip. Proximal two pairs are simple and movable while last pair has articulating tips. Distal end terminates in a long median spine which is broad in middle, narrow at base and pointed at tip.

Thelycum consists of an anterior and a posterior plate between the bases of fourth and fifth legs and a pair of lateral elevated plates disposed parallel to the longitudinal axis (Fig. 1, B). Anterior plate is in the form of a forwardly directed conical process, as long as wide at base, with a slight constriction at about its middle where bases of fourth legs are in close proximity to it. Posterior plate also has an acute projection in the mid-ventral line between posterior ends of the lateral plates and set close to the anterior edge of the last thoracic sternite. Lateral plates are concave towards inner aspect and with convex outer surface, extending from base of anterior median prominence to that of posterior one. These plates have pointed anterior ends and rounded posterior extremities.

Petasma of the allotype male is 2.3 times as long as broad, maximum breadth being near distal end. Distomedian projections longer than broad, narrow and thin near the tip and broader at the middle. Proximolateral projections diverge from the base, being twice as long as wide and with maximum width at the middle. Distolateral projections between distomedian and proximolateral projections are short, about half the length of proximolateral ones and provided with pointed tips (Fig. 1, C and D).

Appendix masculina has a distal piece considerably enlarged, more or less ovoid, 1.3 times as long as wide, greatest width being across the middle. Basal piece is enlarged, 1.5 times the length of distal piece and 1.8 times as long as broad (Fig. 1, P).

Cardiac plate bears twenty seven spinules arranged in a single row near the posterior end and irregularly disposed towards the other end of the plate (Fig. 1, R). Zygocardiac ossicle has an upper row of three rudimentary teeth and a lower set of well-developed, sharp and pointed teeth. Urocardiac ossicle flat anteriorly with large processes ending in pointed laterally directed apices. Prepyloric has a median tooth with rounded apex and a row of eight to nine teeth on either side decreasing in size towards the sides (Fig. 1, Q).

Specimens preserved in neutralized 5% formaldehyde are cream-coloured, becoming brownish on prolonged storage.

Distribution

Known only from the type locality, western lagoon of Minicoy Island, Laccadive Archipelago.

DISCUSSION

The present species exhibits close resemblance to the other known species viz., *Trachypenaeopsis richtersi* (Miers) and *T. mobilispinis* (Rathbun) in general organisation. But the petasma of *T. minicoyensis* is strikingly different from those of the other two species. There are three pairs of distal projections, of which the anteromedian ones are the longest and the distolaterals the shortest. But, in *T. mobilispinis* the size of these projections increase from the proximal to distal ones while in *T. richtersi* the only pair of lateral projections is longer than the others. The additional projections mentioned by Rathbun (1906) are not shown in her figure of the dorsal view of petasma. Such a pair, if present in the material, should have been visible in the dorsal view. Therefore, it is quite probable that these projections mentioned by her are only protruberances of the cornua, as pointed out by Burkenroad (1934). Thus *T. mobilispinis* shows more affinity to the present species than *T. richtersi*, in the structure of the petasma.

The telson of *T. minicoyensis* resembles that of *T. mobilispinis* in that the distalmost pair of movable spines has articulating extremities, which are not well defined in *T. richtersi*. Besides, the tip of the telson has a constriction at the level of the bases of the distalmost pair of spines. There are two notches at the bases of the telson on the dorsal side in *T. mobilispinis* whereas the notch is single and median in *T. minicoyensis*.

In addition to these differences there are other less important dissimilarities between the present species and the other two. The median anterior elevation of the anterior thelycal plate in *T. richtersi* is slender, five times as long as wide as described

by Kubo (1949), while in *T. minicoyensis* it is stout and about as long as wide. The well-developed epipods and endites of first maxillipeds of *T. minicoyensis* are absent in *T. richtersii*.

Key to the species of the genus Trachypenaeopsis

1. Two pairs of distal projections visible in dorsal view of petasma; distolateral projections longer than distomedian; anterior plate of thelycum 5 times as long as wide. .. *T. richtersii* (Miers)

Three pairs of distal projections visible in the dorsal view of petasma. .. 2

2. Distolateral projections of petasma shortest; anterior plate of thelycum as long as wide. .. *T. minicoyensis* sp. nov.

Proximolateral projections of petasma shortest; anterior thelycal plate in the form of a low, median, longitudinal ridge. .. *T. mobilispinis* (Rathbun)

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