

Two New Records of Palaemonid Prawns from Indian Waters

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Descriptions with suitable illustrations of two species of palaemonid prawns - *Macrobrachium aemulum* and *Palaemon (Palaemon) concinnus* are furnished. *M. aemulum* has been enjoying an isolated distribution in New Caledonia. It is reported for the first time from India and is therefore a clear case of discontinuous distribution. Studies revealed that *M. aemulum* is distinct from *M. nobilii* and the reasons for separating the two species are discussed. New distributional records for *P. (P.) concinnus* in the south-west coast of India are also given.

Macrobrachium aemulum (Nobili, 1906) has been enjoying an isolated distribution, being reported only from New Caledonia (Nobili, 1906; Roux, 1926, Holthuis, 1950; 1980; Kamita, 1967). With the extensive study of prawns of the south-west coast of India, the authors were able to collect the above species as well as to obtain new distributional records of *Palaemon (Palaemon) concinnus* Dana, 1892 from this region. Since the distribution pattern of both the species are of great interest to biology (the former gives a new concept in its distribution pattern), the following taxonomic description is furnished of the species.

Materials and Methods

Two adult males and one berried female of *M. aemulum* were collected from a small river, Pampoorivaikal, near Colachel, south-west coast of India (8°11' 30" N, 77° 15' E) during September 1982. A large number of specimens both males and females of *Palaemon (Palaemon) concinnus* were collected from Manjeswaram and Mahe rivers in North Kerala and all the lakes and estuaries from Vembanad Lake to the Poothura Lake in South Kerala during September, 1982. Collections were made by using cast nets.

The status of both the species has been confirmed by consulting relevant literature.

Results and Discussion

1. *Macrobrachium aemulum* (Nobili, 1906)

Measurements (mm) of male:

Total length - 81, carapace length -25, length of rostrum -11, length of telson - 9.5.

Description

Rostrum short, extending up to the middle of the distal segment of the antennular peduncle: dorsal margin convex, with 11 teeth, first five teeth post-orbital; first four teeth widely spaced than the remaining teeth. Ventral margin with 2-3 teeth, situated in between 9th and 11th dorsal teeth. Small setae present in between the teeth of both dorsal and ventral margins. The rostral formula of the species is 11/2-3 (5 teeth post-orbital) (Fig. 1a). Carapace smooth: antennal and hepatic spines prominent, the latter situated below and behind the level of the former (Fig. 1a). Telson robust: tip of telson reaching the level of the lateral spine of the exopod of the uropod: dorsal margin with two pairs of spines: first pair slightly posterior to the middle of the telson: 2nd pair at the middle of the 1st pair and tip of telson. Distal end of telson also with two pairs of spines; outer pair smaller and immovable; inner

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pair longer and movable and overreaches the tip of telson. In between the inner pair of movable spines are a few plumose setae (Fig. 1b).

Antennules, antennae, mandibles, maxillae, maxillipeds typical. Mandible with apophysis double the size of the incisor process; incisor process tridentate; mandibular palp three segmented; middle segment smallest.

First pair of chelate legs slender, typical in structure (Fig. 1c). Second pair of chelate legs strong, slightly unequal, right or left leg larger. In the larger leg, ischium stout and flat; merus shorter than carpus and about half the size of the chela; carpus shorter than chela; palm about 2.5 times longer than the fingers; slightly flattened, width of palm greater than the width of the distal end of the carpus; the width of the

palm of the large chela narrower than the width of the palm of the short chela; fingers stout, equal sized, with a distinct gap between the fingers when closed, which is narrower than the gap in the short chelate leg; the cutting edges of the fingers with one larger and two smaller denticles in the proximal part and stiff setae on the entire edge. Podomeres closely spinulate (Fig. 1d, f). In the short leg, the ischium stout and flat; shorter than merus; merus about half the size of the chela; the distal end of the merus reaches to the level of the distal end of the antennal scale; carpus shorter than the chela; palm more than twice the length of the fingers; width of the palm greater than the width of the distal end of the carpus; slightly flattened, width of the palm of the short chela is greater than the width of the palm of the large chela; fingers stout and equal sized; with a distinct

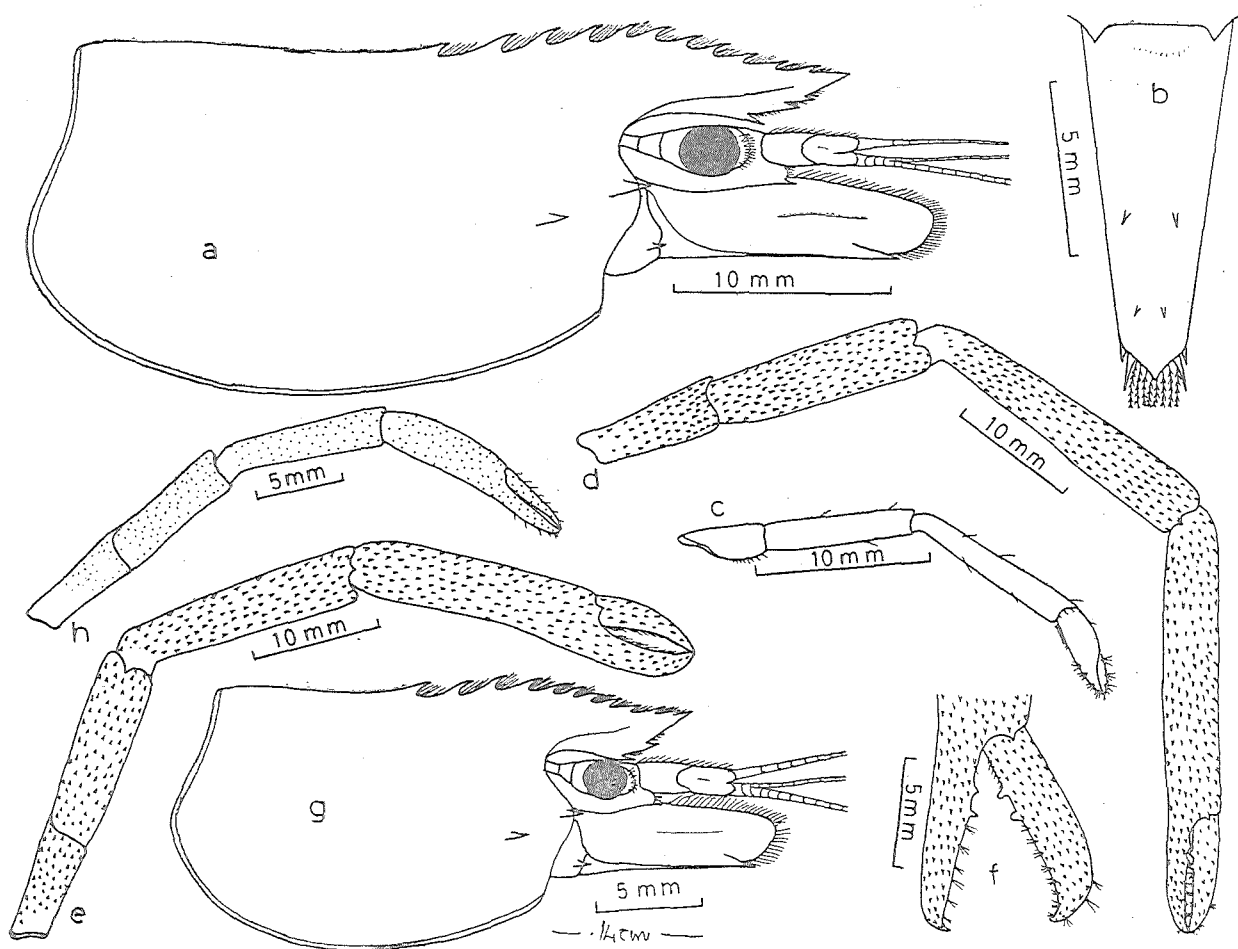


Fig. 1. a-h *Macrobrachium aemulum* (a-f male and g & h female): a-cephalothorax, b-telson, c-1st chelate leg, d-larger 2nd chelate leg, e-smaller 2nd chelate leg, f-finger of larger chela showing denticles, g-cephalothorax, h-2nd chelate leg.

gap between the fingers when closed, which is wider than the gap of the large chela; the cutting edge of the fingers with one or two feeble denticles present proximally, stiff setae present at the cutting edges of the fingers; podomeres closely spinulate (Fig. 1e).

Three pairs of non-chelate legs simple in which ischium shorter than carpus; merus longer than propodus; dactylus simple.

Pleopods and uropods typical in structure.

Measurements (mm) of female

Total length -59, carapace length - 16, length of rostrum - 7, length of telson -7.

Description

Rostrum short, reaching to the middle of the distal segment of the antennular peduncle, upper margin convex with 11 teeth; first four teeth post-orbital, placed more widely spaced than the remaining teeth. Ventral margin with 2 teeth. Carapace smooth (Fig. 1g).

Second chelate leg robust; ischium almost equal to merus; merus shorter than carpus;

carpus shorter than chela; palm swollen; longer than fingers no gap exists between the fingers when closed; podomeres spinulate (Fig. 1h).

Three pairs of non-chelate legs, pleopods and uropods typical.

M. aemulum was originally described by Nobili (1906) under the name *Palaemon* (*Parapalaemon*) *aemulus* and additional details of both young ones and adults were given by later workers (Roux, 1926; Kamita, 1967). A comparison of the measurements of the second chelate legs given by Roux (1926) and Kamita (1967) shows that the measurements of the specimens studied here are in agreement (Table 1).

From the above comparison it may be seen that the specimens from New Caledonia and south-west coast of India show much similarity in their meristic characters. However, some variations noticed are the following:

1. The width of rostrum just in front of the orbit of the present material is slightly

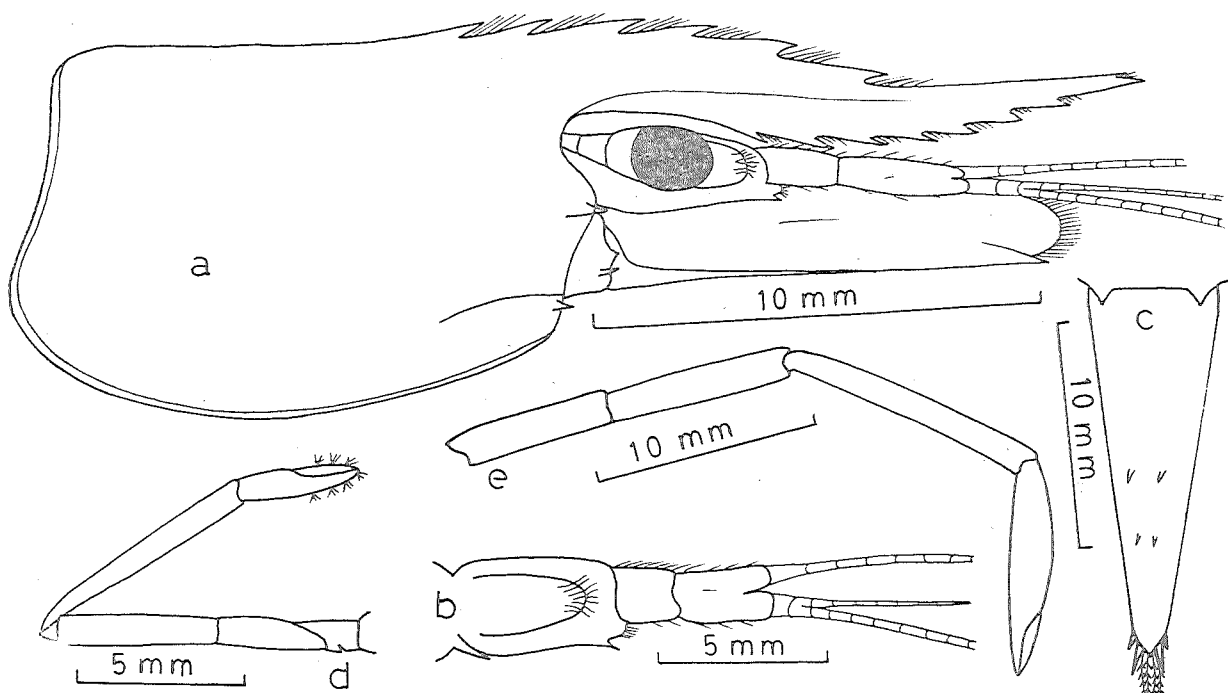


Fig. 2. a-e *Palaemon* (*Palaemon*) *concinnus* (male): a - cephalothorax, b - antennule, c - telson, d - 1st chelate leg, e - 2nd chelate leg

Table 1. Comparative measurements of the different segments of the second chela of *M. aemulum*

Total length (mm)		I	M	C	P	D	
prawn	Large cheliped						
79	80.0	10.0	16.0	22.0	32.0	12.0	Roux (1926)
81	83.5	11.0	16.0	24.5	32.0	9.5	Present specimens
	Small cheliped						
79	65.0	9.0	13.0	18.0	25.0	9.0	Roux (1926)
81	70.5	11.0	13.5	20.0	26.0	8.5	Present specimens

Note: I - ischium; M-merus; C-carpus; P-propodus; D-dactylus

greater than that of New Caledonian specimens (illustration as given by Kamita, 1967).

2. The 2nd cheliped of the present material are slightly unequal in size in which the width of the palm of the large cheliped is lesser than that of the small cheliped.

3. The gap between the fingers when closed is wider in the smaller cheliped than that in the larger cheliped.

The rostral formula of the present species is 4-5, 11/2-3 which comes within the description of Roux (1926), 4-5, 10-13/1-3 are in agreement with that of Kamita (1967). 5, 11 or 13/2-3.

Henderson & Matthai (1910) have described a small species from Walajabad, S.E. India under the name *Palaemon nobilii*. Holthuis (1950) has synonymized it with *M. aemulum*. However, in a later publication by him (1980) it is not a synonym. The present study shows justification in treating them as two separate species based on the following facts.

1. The tip of rostrum in *M. nobilii* is slightly upturned, whereas in *M. aemulum* it is pointed forwards and the upper margin almost convex.

2. The 2nd cheliped of adult males of *M. nobilii* is slender and small while in *M. aemulum* they are strong and robust.

3. The width of the palm is equal to the width of the distal end of carpus of *M. nobilii* whereas in *M. aemulum* the width of the palm is slightly greater than the width of the

distal carpus, this is especially so in the case of the smaller 2nd cheliped.

4. Fingers of *M. nobilii* are slender and only the tips of the fingers are curved, whereas in *M. aemulum* the fingers are robust and the entire fingers are curved so that there is a distinct gap between the fingers.

5. *M. nobilii* is smaller in size (64 mm in TL) whereas *M. aemulum* is medium sized (more than 80 mm in TL).

Thomas (1986) collected one male specimen of *M. aemulum* (*M. aemulum*) from Pullamadam, Palk Bay (33.8 mm TL) which as per his descriptions belong to *M. nobilii*. His specimen possessed 8-10 denticles on the cutting edge of the fingers of the 2nd chela is in variance with 1 or 2 denticles in the present form. However, the compressed palm and unequal 2nd chelate legs and the measurements of podomeres agree with *M. aemulum*.

From the above discussion it is clear that *M. aemulum* is distinct from *M. nobilii*. So far it has only been reported from New Caledonia and Tuamotu islands and has been enjoying an isolated distribution. With the present report, the distribution of the species is extended far to the west and therefore, it is now a clear case of discontinuous distribution.

2. *Palaemon* (*Palaemon*) *concinus* Dana, 1852

Description

Rostrum long, extending in front of the antennal scale; distal end straight or slightly

upturned, rostral formula is 2) 5-7/5-7; distal upper tooth widely separated; carapace smooth; antennal and branchiostegal spines characteristic of the genus present; branchiostegal groove seen just above the branchiostegal spine (Fig. 2a).

Telson typical in structure (Fig. 2c). Antennules typical; three segments in the ratio 4.5:2:3, anterolateral spine prominent but falls short of the convex anterior margin of the basal segment (Fig. 2b); antennae, mandibles, maxillae, maxilipeds typical.

Both chelate legs slender; 2nd pair about 2/3 length of the total length of the body; ischium almost equal to merus or slightly shorter; merus shorter than carpus and chela but longer than palm and fingers, tip of merus reaches to the distal end of antennal scale, carpus longest, palm swollen and cylindrical, finger about 1/3 the length of the chela, fingers equal sized and slender (Figs. 2d, e).

Dutt & Ravindranath (1974) reported this species for the first time from India. The specimens studied agree in general with the detailed descriptions of Holthuis (1950) and Dutt & Ravindranath (1974). In variance with the observations of Dutt & Ravindranath (1974) the present specimens possess two post-orbital teeth (a few females with one post-orbital tooth). The anterolateral spine is prominent, but falls short of the convex anterior margin of the basal segment. However, Holthuis (1950) has reported that the anterolateral spine overreaches the basal segment.

Presence of a prominent dark spot at the junction between abdomen and telson is a characteristic feature of this species.

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