

TWO RARE MONSTRILLOID COPEPODS FROM THE COASTAL WATERS OF BOMBAY

ABSTRACT

Redescriptions of two species of monstrialoid copepod of the genus *Cymbasoma* I.C. Thompson, namely *C. tropica* (Wolfenden), a new record for Indian waters and *C. longispinosum* (Bourne) earlier described from Vizhinjam, South Kerala Coast are given here based on specimens obtained from the plankton of the Bombay Coast. The status and validity of *C. nicobarica* described by Sewell (1949) based on a male specimen has been critically discussed and it is considered here as the male of *C. tropica*.

STUDIES on the monstrialoid copepods from Indian waters are those of Sewell (1949), Krishnaswamy (1953), Desai and Krishnaswamy (1962), Desai and Bal (1962), Thompson (1973, 1977) and Thompson and Meiyappan (1977).

Two rare monstrialoid copepods, namely *Cymbasoma tropica* (Wolfenden, 1906) and *C. longispinosum* (Bourne, 1890) were obtained in the plankton samples collected off Bombay. The former is a new record to the Indian waters, while the latter was reported by one of us (Thompson, 1973) from Vizhinjam, South Kerala Coast. Since specimens of both sexes of *C. tropica* were collected from the same plankton sample, a detailed description is given here. A brief description of *C. longispinosum* is also given since a detailed description of this species has already been given by Thompson (1973) based on material collected off Vizhinjam, South Kerala Coast.

We are grateful to Dr. E.G. Silas, Director, Central Marine Fisheries Research Institute,

Cochin for his guidance, helpful suggestions and critically going through the manuscript.

Cymbasoma tropica (Wolfenden, 1906) (Fig. 1 a-l; Fig. 2 a-g)

Thaumaleus tropicus Wolfenden, 1906, *Fauna and Geography of the Maldivic and Laccadive Archipelagoes*, pp. 1025-1026, pl. 99, figs. 31-33 (Type locality: Maldives, Indian Ocean).

Cymbasoma nicobarica Sewell, 1949, *Sci. Rep. John Murray Exped.*, pp. 142-144, fig. 40 A-D (Type locality: Nankauri Harbour, Nicobar Islands).

Material examined: 2 females and 2 males collected on 12-1-1971 and 3 females collected on 26-3-1971 from the coastal waters off Bombay during surface tow with a half metre plankton net of mesh size 0.33 mm.

Description

Female: (Fig. 1 a-f): TL. 1.80-2.18 mm; body narrow, anterior border of cephalosome rounded and a pair of minute hairs present

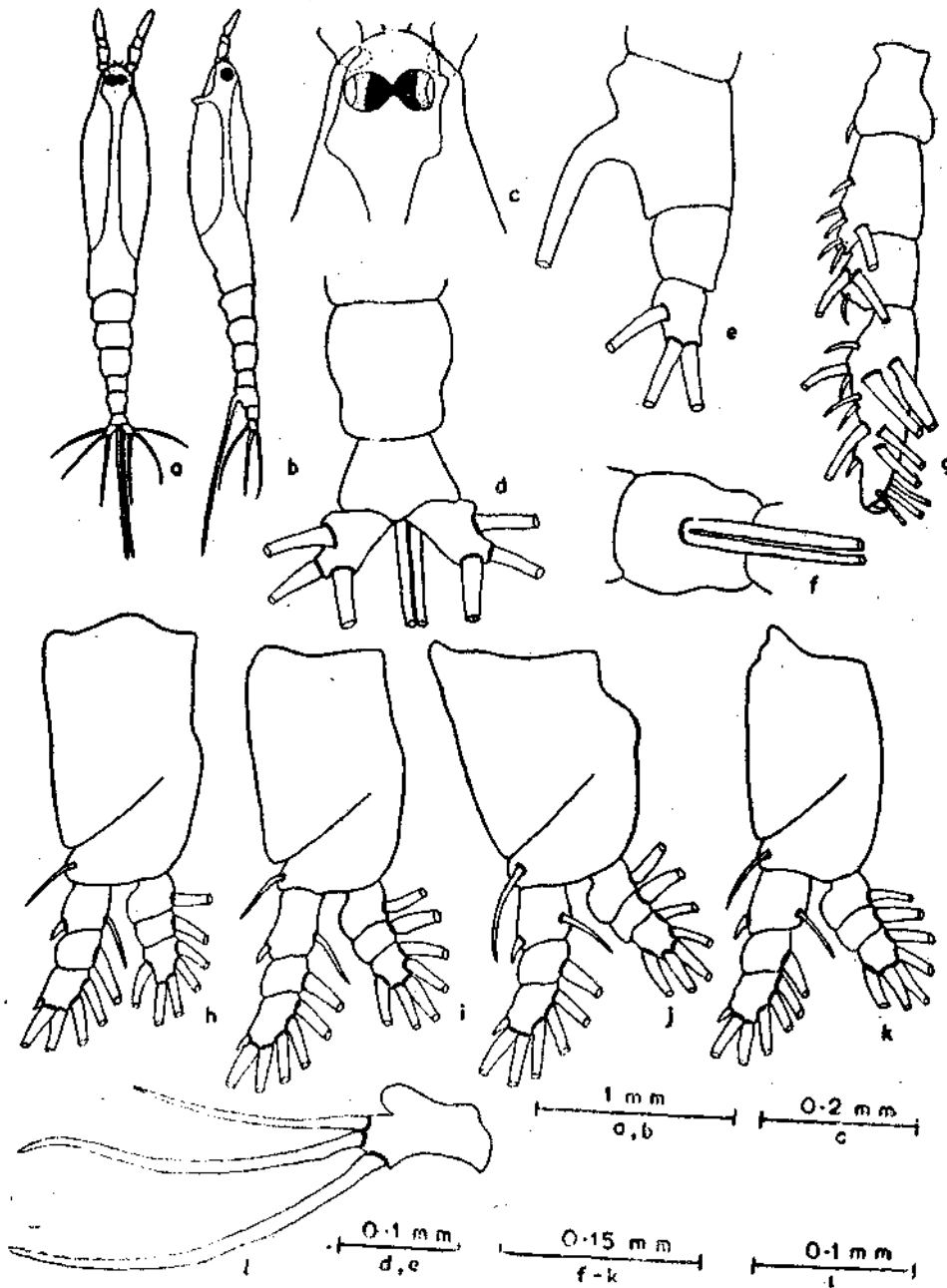


Fig. 1. *Cymbasoma tropica* (Wolfenden). Female: a. dorsal view; b. lateral view; c. anterior region of cephalosome enlarged; d. urosome dorsal view; e. urosome lateral view; f. genital segment ventral view showing the origin of ovigerous spines; g. antennule; h. first swimming leg; i. second swimming leg; j. third swimming leg; k. fourth swimming leg; and l. fifth leg.

in between antennules; cephalosome inflated just behind frontal margin, length breadth ratio being 77.5 : 22.5, about one and a half times combined lengths of metasome and urosome; ratio of cephalosome : rest of body is 58.13 : 41.87; urosome two-segmented, markedly short, about one-eighth total length, genital segment longer than broad, pear-shaped; broader at base, length breadth ratio being 51.4 : 48.6; a pair of ovigerous spines present on ventral side which is about three and a half times length of urosome; second urosome segment broader distally; caudal rami longer than broad, length breadth ratio being 60 : 40, each with three sub-equal setae; mouth placed near anterior region of cephalosome; a pair of well developed and deeply pigmented eyes present; proportionate lengths of various segments of body are as follows :

Cephalo- some Sgm: (CE+1)	Metasome		Urosome		Caudal rami			
	2	3	4	5	1	2		
%	58.13	8.75	7.50	6.88	4.37	6.25	3.75	4.37

A1: (Fig. 1 g): four-segmented, stout, attains less than one third length of cephalosome; last segment longest, but shorter than combined lengths of first three segments; segments with the following proportionate lengths :

Sgm :	1	2	3	4
%	18.62	21.28	15.95	44.15

Swimming legs P1 - P4: (Fig 1 h-k): with three segmented Re and Ri; Re longer than Ri, Re 1 longer than broad; setae and spines on three segments of Re and Ri as follows*

Legs	Re			Ri		
P1	1+I	1+0	4+I	1+0	1+0	5+0
P2	1+I	1+0	5+I	1+0	1+0	5+0
P3	1+I	1+0	5+I	1+0	1+0	5+0
P4	1+I	1+0	5+I	1+0	1+0	5+0

* Spines in Roman and setae in Arabic numerals

Fifth pair of legs: (Fig. 1 l): rudimentary, symmetrical; three plumose setae provided at truncated extremity, innermost of which is much thinner and shorter than other two; inner lobe well defined.

Male: (Fig. 2 a-f): TL. 1.22-1.44 mm; smaller in size than female; cephalosome comparatively short; anterior margin rounded and bears a pair of minute hairs as in female; posteriolateral corners slightly bulged; cephalosome occupies nearly 46% of body length; urosome three-segmented, short, about one-sixth total length; genital segment oval in shape, broader than long, length breadth ratio being 42.86 : 57.14; on its ventral side it is provided with a median genital appendage which bifurcates into two more or less cylindrical processes; second urosome segment broader than long; third urosome segment broader distally; caudal rami longer than broad, each ramus bears four sub-equal setae, of which inner most seta arises from a low rounded swelling on distal margin; proportionate lengths of various segments of body are as follows :

Cephalo- Sgm : (CE + 1)	some		Metasome		Urosome		Caudal rami		
	2	3	4	5	1	2	3	rami	
%	46.01	12.27	11.04	8.59	4.30	4.91	2.45	4.91	5.52

A1: (Fig. 2 g): five-segmented; attains more than half the length of cephalosome and longer than that of female; fourth segment longest; last being thinner and moveably articulated to fourth; segments with following proportionate lengths.

Sgm :	1	2	3	4	5
%	16.06	20.18	13.76	25.69	24.31

P1 - P4 as in female. P5 Absent.

Remarks: Sewell (1949) considered *Cymbasoma tropica* (Wolfenden) as a synonym of *C. thompsoni* (Giesbrecht). But a comparison

of Wolfenden's figures with those of Giesbrecht's (Pl. 46, figs. 7, 27, 31, 36, 40) and also with those of the present material shows that *C. tropica* is a valid species, which can be separated from *C. thompsoni* by the following characters: (1) proportionate lengths of different segments

plankton tow from the coastal waters off Bombay, and as the latter show no differences from the description of *C. nicobarica*, the specimen which was described by Sewell as a new species is considered here as the male of *C. tropica* (Wolfenden).

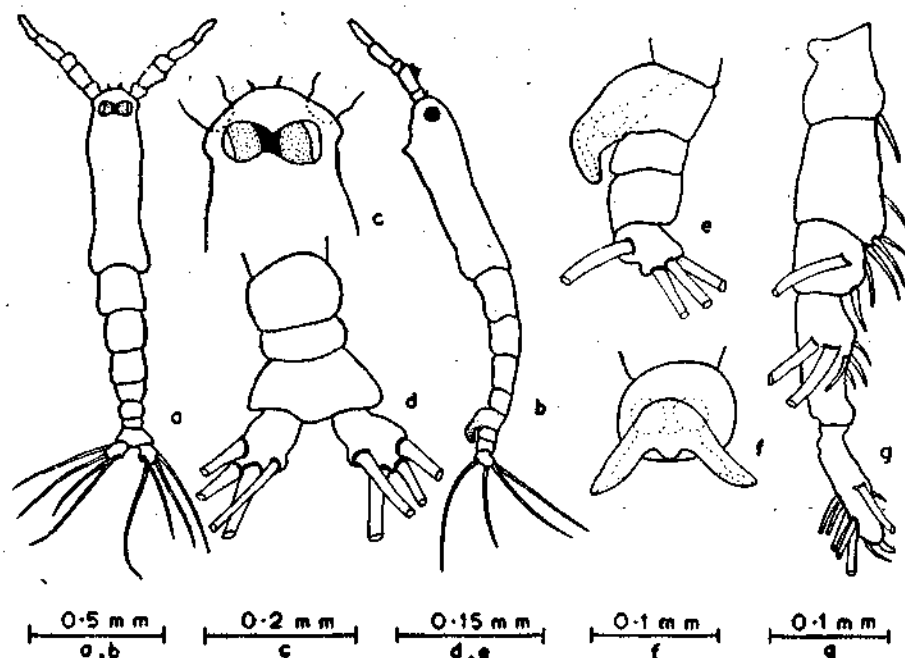


Fig. 2. *Cymbasoma tropica* (Wolfenden). Male: a. dorsal view; b. lateral view; c. anterior region of cephalosome enlarged; d. urosome dorsal view; e. urosome lateral view; f. genital segment ventral view showing the bifurcated genital appendage; and g. antennule.

of body; (2) structure of genital segment; and (3) presence of two minute hairs at the anterior end of cephalosome in *C. tropica*.

Sewell while describing *C. nicobarica* based on a male specimen opined that his specimen may represent the unknown male of Wolfenden's species. The present male specimens agree in all the characters such as structure of the antennule, the presence of two small setae at the anterior region of the cephalosome, the structure of the genital segment and the anal segment and also in the structure of the caudal rami, with the description given by Sewell for *C. nicobarica*. Besides specimens of both females and males were collected in the same

Distribution: Nankauri Harbour—Nicobar Islands (Sewell, 1949), Maldives (Wolfenden, 1906), and the present record of this species from Northern Arabian Sea suggests that it has a wide distribution in the tropical region of Indian Ocean. One of the author (P.K.M.T.) has also examined specimens of this species (female specimens) from the lagoon waters of Minicoy Island—Lakshadweep.

Cymbasoma longispinosum (Bourne, 1890)

Manstrilla longispinosa Bourne 1890, *Quart. Journ. Micro. Soc. N.S.*, p. 575, pl. 37, figs. 1-4 & 10
(Type locality: English Channel, Atlantic Ocean).

Thaumaleus longispinosus Giesbrecht 1892, *Fauna u. Flora Neapel*, pp. 578-584, pl. 5, fig. 10; pl. 46, fig. 1, 12, 13, 23, 30, 38, 42 (Type locality: Mediterranean Sea).

Cymbasoma longispinosum Sars 1921, *Crustacea of Norway*, pp. 19-25, pl. 13; Gurney 1927, *Trans. zool. Soc. Lond.*, p. 169; Thompson 1973, *J. mar. biol. Ass. India*, pp. 616-620, fig. 1.

Material examined: 1 female collected on 5-11-1970 from the coastal water off Bombay.

Description

Female: TL. 2.60 mm; body narrow; cephalosome slightly dilated at mid-length, longer than combined lengths of metasome and urosome; urosome two-segmented; genital segment dorsally quadrate with a pair of ovigerous spines on its ventral side, which are longer than body length and confluent at base

for some distance; ratio of body length: ovigerous spines being 44.37:55.63; caudal rami small with three plumose setae of equal length; mouth placed very close to anterior end of cephalosome; eyes well developed and deeply pigmented.

Distribution: Widely distributed in the Indian, Pacific and Atlantic Oceans and the Mediterranean Sea. In the Indian Ocean from Red Sea (Gurney, 1927), Vizhinjam-Kerala Coast (Thompson, 1973), Bombay waters (Present record). In the Pacific Ocean from Australian Coast (Dakin and Colefax, 1940), Philippines (Wilson, 1950). In the Atlantic Ocean from English Channel (Bourne, 1890), south-west coast of Britain (Isaac, 1974), Gulf of Guinea (Marques, 1961); and from the Mediterranean Sea (Giesbrecht, 1892; Sars, 1921; Rose, 1933).

Central Marine Fisheries Research Institute,
Cochin-682 018.

P. K. MARTIN THOMPSON
D. C. V. EASTERSON

REFERENCES

- BOURNE, G. C. 1890. *Quart. Journ. Micro. Soc. N.S.*, 30 (4): 565-577.
- DAKIN, W. J. AND A. N. COLEFAX 1940. *Univ. Sydney Publ. zool.*, 1 (1): 1-215.
- DAVIS, C. C. 1949. *Trans. Amer. Microsc. Soc.*, 68: 245-255.
- DESAI, H. V. AND S. KRISHNASWAMY 1962. *Proc. Indian Acad. Sci.*, 55B (4): 163-166.
- AND D. V. BAL 1962. *Ibid.*, 56B (3): 131-133.
- GIESBRECHT, W. 1892. *Fauna u. Flora Neapel*, 19: 1-831.
- GURNEY, R. 1927. *Trans. zool. Soc. Lond.*, 22 (2): 139-172.
- ISAAC, M. J. 1974. *J. Mar. biol. Ass. U. K.*, 54 (1): 127-140.
- MARQUES, E. 1961. *Mem. Jta. Inv. Lisboa*, 23 (2): 41-57.
- ROSE, M. 1933. *Faune Fr.*, 26: 1-374.
- SARS, G. O. 1921. *Crustacea of Norway*, 8 (1-6) 1-91.
- SEWELL, R. B. S. 1949. *Sci. Rep. John Murray Exped.*, 9 (2): 17-199.
- THOMPSON MARTIN, P. K. 1973. *J. mar. biol. Ass. India*, 15 (2): 616-620.
- 1977. *Studies on Marine Copepods*. Ph.D. Thesis, Univ. Kerala. Trivandrum. Pp. i-vi, 1-308. Plates 40.
- AND M. M. MEIYAPPAN. 1977 *Indian J. Fish.*, 24 (1 & 2): 206-209.
- WILSON, C. B. 1950. *Bull. U. S. Nat. Mus.*, 100, 14 (4): 141-461.
- WOLFENDEN, R. N. 1906. *Fauna and Geography of the Maldive and Laccadive Archipelagoes*, 2 (27): 989-1040.