

**OCCURRENCE OF *CYMBASOMA LONGISPINOSUM* (COPEPODA:  
MONSTRILLOIDA) FROM THE INDIAN SEAS**

P. K. MARTIN THOMPSON

*Central Marine Fisheries Research Institute, Cochin*

ABSTRACT

A description of the monstrilloid copepod *Cymbasoma longispinosum* (Bourne), recorded for the first time from Indian seas, is given here. The specimens obtained in surface plankton tows off Vizhinjam, Kerala show some variations in morphological characters from the specimens described from Mediterranean and North East Atlantic and these are also discussed.

INTRODUCTION

At present the following eight species and one variety of the monstrilloid copepod genus *Cymbasoma* I. C. Thompson (1888: Genotype - *C. rigidum* Thompson) is known from the Indian Ocean and Adjacent Seas: *Cymbasoma tropicus* (Wolfenden) from the Maldives and the Laccadive Archipelagoes; *C. bullatus* (Scott) and *C. gigas* (Scott) from Malay Archipelagoes; *C. longispinosum* (Bourne), and *C. gracile* Gurney from the Red Sea; *C. nicobarica* Sewell from the Nicobar Islands; *C. bali* Desai and Krishnaswamy from Bombay waters; *C. reticulatum* and *C. bullatus* var *ghardagana* Al Kholy from the Red Sea. Sewell (1949) considered *C. tropicus* (Wolfenden) to be a synonym of *C. thompsoni* (Giesbrecht).

Monstrilloid copepods are relatively rare in the plankton as only the 1st nauplius and adult are free swimming while all other stages are highly modified and occur as internal parasites of polychaetes. Within the host, a gradual transformation into the adult takes place, giving it a definite copepod appearance, but with atrophied gut and without buccal and thoracic appendages. The adults come out from the hosts to function solely as reproductive forms.

*Cymbasoma longispinosum* was first described by Bourne (1890) from the English Channel. Subsequently it has been recorded from the Mediterranean Sea (Giesbrecht, 1892), Coast of Norway (Sars, 1921), French Coast (Rose, 1933), Australian Coast and Philippines—Pacific Ocean (Dakin and Colefax, 1940; Wilson, 1950), and the Gulf of Guinea—Atlantic Ocean (Marques, 1961). The only other record of this species from the Indian Ocean region is that given by Gurney (1921) from the Red Sea. However, no description of this species from the Indian Ocean is available and as such the material in the present collection is described and illustrated here.

I am grateful to Dr. E. G. Silas, Director, Central Marine Fisheries Research Institute, Cochin for his constant guidance, examining the material, critically going through the manuscript and giving valuable suggestions. My thanks are also due to the Ministry of Education, Government of India, for the award of a Senior Research Scholarship.

*Cymbasoma longispinosum* (Bourne) 1890 (Fig. 1 a - p)

*Monstrilla longispinosa* Bourne, 1890, *Quart. Jour. Soc. N. S.*, p. 575, pl. 37, fig. 1-4 & 10.

*Thaumaleus longispinosus* Giesbrecht, 1892, *Fauna und Flora Golfes von Neapel*, pp. 578-584, pl. 5, fig. 10; pl. 46, fig. 1, 12, 13, 23, 30, 38 & 42; Dakin and Colefax, 1940, *Publ. Univ. Sydney Dept. Zool. Monogr.*, p. 117, fig. 205 D. a-d; Davis, 1949, *Trans. Amer. Micro. Soc.*, pp. 247 & 250.

*Cymbasoma longispinosum* Sars, 1921, *Crustacea of Norway*, pp. 19-25, pl. 13; Gurney, 1927, *Trans. Zool. Soc. Lond.*, p. 169; Rose, 1933, *Fauna de France*, pp. 349-350, fig. 449; Wilson, 1950, *U. S. Nat. Mus. Bull.*, p. 197; Marques, 1961, *Mem. Jta. Inv. Lisboa*, p. 54.

**Material**

28 females 1.90 to 3.18 mm in T.L. (mean 2.51 mm) and 3 males 1.21 to 1.72 mm in T. L. (mean 1.39 mm) collected at 2000 hrs on 16-2-1962 from the coastal waters off Vizhinjam, southwest coast of India in surface tow with a half metre organdie net.

**Description**

*Female*: (Fig. 1 a-e) : Body slender, cephalothorax slightly dilated in middle, longer than thorax and urosome segments put together; ratio of cephalothorax: rest of body is 65.37 : 34:63; abdomen two-segmented, markedly short being about one thirteenth of total length; genital segment dorsally quadrate in shape, longer than Abd 2, its ventral face considerably protruberant, with a pair of ovigerous spines (egg-fork) which are longer than body length; ratio of length of body : ovigerous spine is 1.00 : 1.43 ; Abd 2 much narrower than genital segment and constricted at base; caudal furca small, longer than broad and bears three plumose setae of equal length; mouth placed very close to anterior end of cephalothorax; eyes well developed; proportionate lengths of various segments of body as follows:

	Cephalothorax		Thorax			Abdomen		Furca	
Seg:	2	3	4	5	1	2			
%	65.37	8.29	6.83	5.85	4.88	3.90	2.44	2.44	=100

A1 (Fig. 1f): four-segmented, short, stout and attains one fourth of cephalothorax; last segment longest, but not as long as combined length of first three segments. Segments with following proportionate lengths :

Seg:	1	2	3	4	
%	17.0	19.3	16.0	47.7	= 100

*Swimming legs P 1 - P 4* (Fig. 1 g, h): All four pairs alike with three-segmented exopodite and endopodite; Re 1 longer than broad; Re 3 of P 1 has four setae and a spine while Re 3 of P 2, P 3 and P 4 has each five setae and a spine. For further details refer (Table 1).

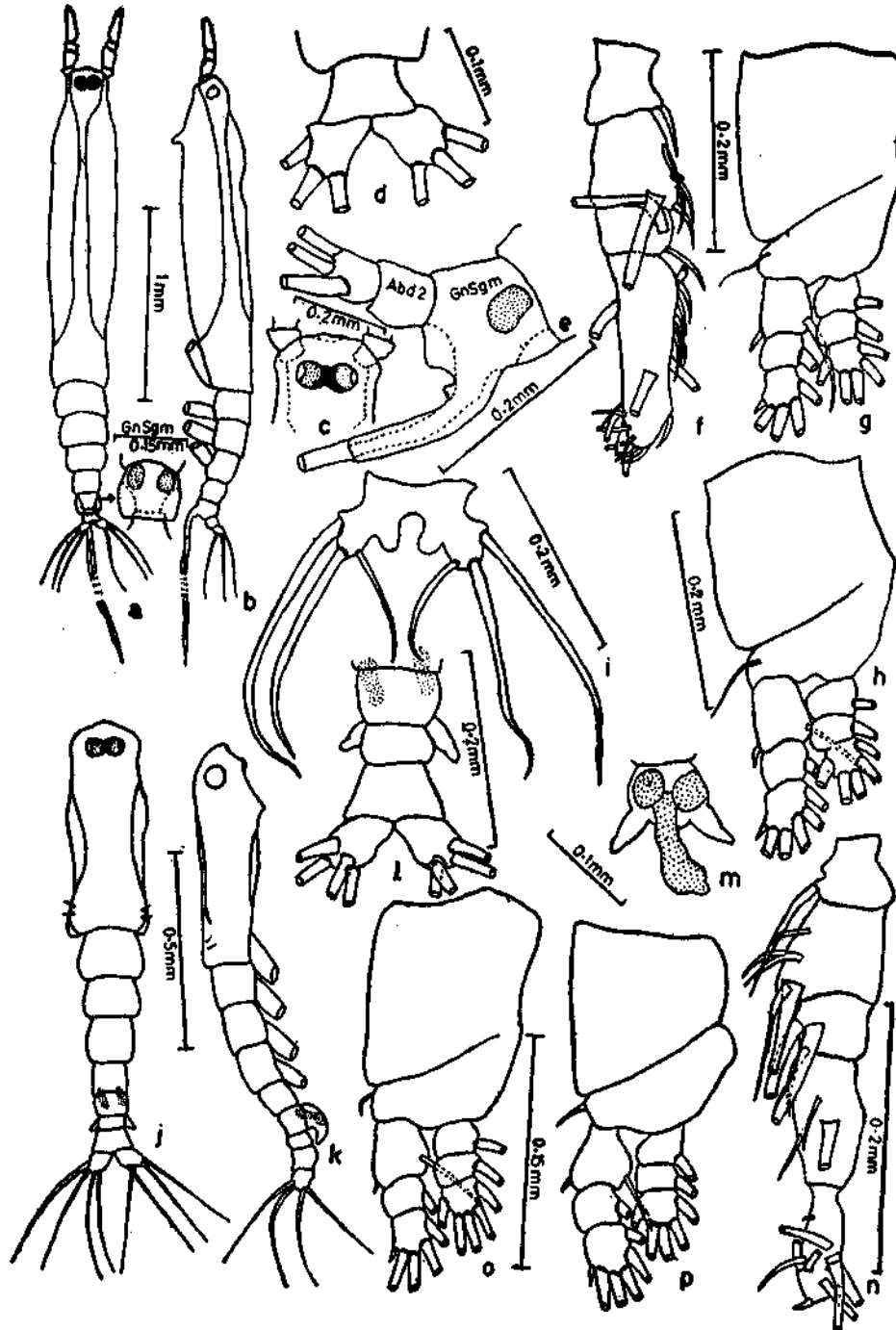


Fig. 1. *Cymbasoma longispinosum* (Bourne). *Female*: a. dorsal view; b. lateral view; c. cephalothorax anterior region enlarged; d. anal segment and furca enlarged; e. abdomen lateral view enlarged; f. antennule; g. 1st swimming leg; h. 2nd swimming leg; i. 5th pair of swimming legs; *Male*: j. dorsal view; k. lateral view; l. abdomen and furca dorsal view enlarged; m. copulatory organ with seminal vesicle; n. antennule; o. 1st swimming leg; and p. 3rd swimming leg.

Table 1. The setae and spine on the three segments of exopodite and endopodite of swimming legs\*

Legs	Exopodite	Endopodite
P 1	1 + I. 1 + 0. 4 + I	1 + 0. 1 + 0. 5 + 0
P 2	1 + I. 1 + 0. 5 + I	1 + 0. 1 + 0. 5 + 0
P 3	1 + I. 1 + 0. 5 + I	1 + 0. 1 + 0. 5 + 0
P 4	1 + I. 1 + 0. 5 + I	1 + 0. 1 + 0. 5 + 0

\* Spines in Roman and Setae in Arabic numerals.

*Fifth pair of Swimming legs, P 5* (Fig. 1 i): rudimentary, symmetrical, provided at truncated extremity with three plumose setae, innermost of which is less than half length of outermost; innerlobe well defined and knob-like. *Male* (Fig. 1 j-m) smaller in size than female; cephalothorax comparatively shorter and dilated at mid length; postero-lateral corners which are slightly bulged out bears a pair of minute nerve hooks on each side. Ratio of cephalothorax : rest of body is 44.78: 55.22; abdomen three-segmented and hardly one seventh of total length. Genital segment (Abd 2) has a bluntly pointed well developed copulatory organ consisting of a pair of long and diverging lobes situated at postero-lateral corners of segment; caudal furca as in female, but with four plumose setae of equal length; proportionate lengths of various segments of body are as follows:

	Cephalothorax		Thorax			Abdomen			Furca	
Seg:	2	3	4	5	1	2	3			
%	44.78	10.45	9.45	9.45	6.97	5.47	3.48	4.98	4.97 = 100	

*Antennule* (Fig. 1 n): five-segmented, comparatively much longer than that of female; first three segments being lamellary and expanded towards inner side, last being thinner and moveably articulated to fourth. Segments with following proportionate lengths:

Seg:	1	2	3	4	5	
%	14.93	18.41	13.93	27.36	25.37	= 100

*Swimming legs* (Fig. 1 o, p) : As in female.

*Fifth pair of legs*: Absent.

#### REMARKS

In the specific characters, specimens of *Cymbasoma longispinosum* from along the southwest coast of India agree with the description of the species from the Mediterranean Sea (Giesbrecht, 1892) and from North East Atlantic (Sars, 1921). However, in the female there are some variations in the proportionate length of the body ratio, and the proportionate length of the innermost seta of P 5. The male specimens also show some variations from the descriptions of the species as given by Giesbrecht (1892) and Sars (1921). The morphological differences seen in the specimens from Vizhinjam, Kerala and from those described from North East Atlantic are given below :

North East Atlantic (Sars, 1921)	Present specimens from Vizhinjam, Kerala
<b>FEMALE :</b>	<b>FEMALE :</b>
2.60—3.16 mm in T.L. Cephalothorax comparatively shorter, the ratio of cephalothorax : rest of the body is 57.73 : 42.27	1.93-3.18 mm in T.L. Cephalothorax comparatively longer, the ratio of cephalothorax : rest of the body is 65.37 : 34.63.
Ovigerous spines in some instances attain twice body length.	Ovigerous spines 1.05 - 1.53 of body length.
Innermost seta of 5th leg a little shorter than outer most, the inner lobe well defined and triangular.	Innermost seta of 5th leg less than half length of outer most, the inner lobe well defined and knob-like.
<b>MALE :</b>	<b>MALE :</b>
1.8—2.3 mm in T. L. Ratio of cephalothorax: rest of body is 46.15: 53.85	1.21 — 1.72 mm in T. L. Ratio of cephalothorax : rest of body is 44.78 : 55.22.
Copulatory organ consists of a pair of comparatively short and diverging lobes.	Copulatory organ consisting of a pair of comparatively long diverging lobes.

The occurrence of this species along the southwest coast of India thus fills in an important gap in its known distributional pattern.

#### REFERENCES

- BOURNE, G. C. 1890. Notes on the genus *Monstrilla* Dana. *Quart. Journ. Micro. Soc. N. S.*, 30 (4) : 565 - 577.
- GIESBRECHT, W. 1892. Systematik und Faunistik der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeres - Abschnitte. *Fauna und Flora Golfes von Neapel. Monogr.*, 19 : 1-831.
- ROSE, M. 1933. Copepodes pelagiques. *Faune de France*, 26 : 1-374.
- SARS, G. O. 1921. Copepoda, Supplement. *Crustacea of Norway*, 7.
- SEWELL, R. B. S. 1949. The littoral and semi parasitic cyclopoida, the monstrilloida and notodelphyoida. *Sci. Rep. John Murray Exped.*, 9 : 17 - 199.
- WILSON, C. B. 1950. Copepods gathered by the United States Fisheries steamer "Albatross" from 1887 - 1909, chiefly in the Pacific Ocean. *U. S. Nat. Mus. Bull.*, 100, 14 (4) : 141 - 441.
- WOLFENDEN, R. N. 1905. Notes on the collection of copepoda. *The Fauna and Geography of Maldive and Laccadive Archipelagoes*, 2 (27) : 989 - 1040.