

**THAUMALEUS QUINTANAROENSIS, A NEW
MONSTRILLOID COPEPOD FROM THE MEXICAN
COASTS OF THE CARIBBEAN SEA**

E. Suárez-Morales

ABSTRACT

A new species of a monstrilloid copepod is described from the coastal waters of eastern Yucatan, Mexico. It is placed in the genus *Thaumaleus* by the presence of two abdominal segments. Characters are provided for distinguishing the new species from Congeners.

Monstrilloid copepods constitute one of the least studied groups of Copepoda, and are distinguished mainly by the lack of cephalic appendages, except the first antennae. A valuable revision of the group was made by Davis (1949), who recognized 35 species and three genera, including *Thespesiopsyllus*, which was later transferred to the Cyclopoida (Fosshagen, 1970). More recently, Isaac (1975) extensively reviewed the Monstrilloida, recognizing 39 species belonging to six genera. Huys and Boxshall (1991) recognize only three valid genera: *Monstrilla*, *Monstrilopsis* and *Thaumaleus*.

Thaumaleus constitutes one of the most common genera of the Monstrilloida, with nearly 15 described species (Isaac, 1975). This genus also comprise several species originally described under *Cymbasoma*, whose validity was successfully questioned by Davis (1949) and more recently by Huys and Boxshall (1991). So far only two species of *Thaumaleus* (*T. quadridens* Davis, 1947, from Florida and *T. boxshalli* Suárez, 1993a, from the eastern coast of the Yucatan Peninsula) have been known to occur in tropical waters of the western north Atlantic Ocean. Other records of monstrillids in the Caribbean Sea off Mexico are from Suárez and Gasca (1992), Suárez and Islas (1993) and Suárez (1993b, 1993c). From plankton samples taken at the Bahía de Ascensión, a shallow water embayment located on the central portion of the eastern coast of the Yucatan Peninsula, an undescribed monstrilloid copepod belonging to the genus *Thaumaleus*, was collected.

***Thaumaleus quintanarooensis* new species**

Type Locality.—Bahía de Ascensión, central portion of eastern coast of the Yucatan Peninsula (19°47.35'N; 87°33.15'W). Water column. Depth: 1.2 m.

Female.—Total body length of five individuals ranged between 1.9 and 2.3 mm with an average of approximately 2.1 ± 0.2 mm. Cephalothorax 0.60 of total body length. Oral papilla located 0.28 of way back along ventral surface of cephalothorax. Naupliar eye present, well developed. Cephalic segment with two small protuberances, one on the frontal portion between oral papilla and antennular basis, the other on anterior portion of head. Both visible in lateral view (Fig. 1C). Ocelli intensely pigmented, with triangular shape in dorsal aspect, rounded in lateral view. Ocelli separated (Fig. 1A).

Antennule length ranged between 0.2–0.4 mm, with an approximated average of 0.3 mm, four-segmented, armed with I;IV;I,1;III,6 spines and setae. Distal antennular segment with four subequal setae aligned near outer distal end.

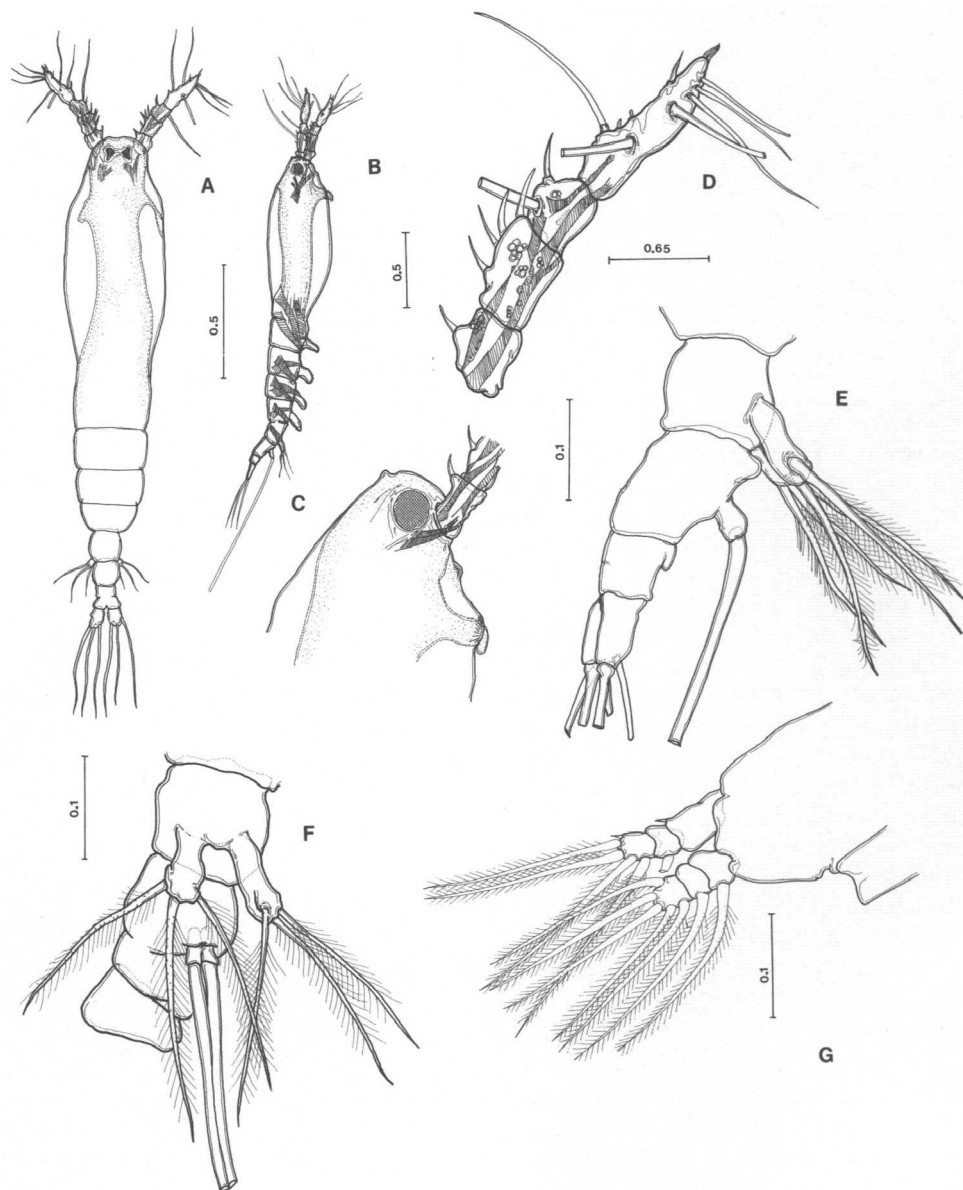


Figure 1. *Thaumaleus quintanarooensis* n. sp. female. Holotype. A) habitus, dorsal; B) habitus, lateral; C) head, lateral; D) right antennule; E) urosome, lateral; F) genital somite and fifth legs, ventral; G) first leg (all scales in mm).

Length ratio of antennular segments being: $43.8:16.6:22.8:16.8 = 100$. Antennule 0.37 of total body length (Fig. 1A, D).

First thoracic pedigerous somite incorporated to cephalothorax. This and succeeding three pedigerous somites each bearing well developed swimming legs, all with triarticulated endopodites and exopodites and with the same armament pattern (Fig. 1G).

Armament formula of swimming legs:

	Basis	Exopodite	Endopodite
Leg 1	0-0	1-0;0-1;1;1,2,2	0-1;0-1;1,2,2
Leg 2	0-0	1-0;0-1;1;1,2,2	0-1;0-1;1,2,2
Leg 3	0-0	1-0;0-1;1;1,2,2	0-1;0-1;1,2,2
Leg 4	0-0	1-0;0-1;1;1,2,2	0-1;0-1;1,2,2

Fifth leg consisting of one segment with a small protuberance on which a single seta is borne. Outer ramus with two setae subequal in length and breadth. All three setae of fifth leg subequal in length (Fig. 1F). Urosome consisting of three segments: fifth pedigerous, genital and one free somite. Ratio of length of genital and free somite being: 50.9:49.1 = 100. Second abdominal (free) segment with incomplete dorsal suture, clearly visible from lateral and dorsal aspects (Fig. 1A, E). Genital complex with one ovigerous spine at least 4.2 times longer than the urosome, and at least 0.47 of total body length.

Furcal rami approximately 1.8 times longer than wide, bearing three well developed terminal setae with almost the same length and breadth.

Male.—Unknown.

Etymology.—Species name makes reference to the Mexican state of Quintana Roo, where the type locality is located.

Material Examined.—Holotype. Female, 1 vial deposited at the National Museum of Natural History, Smithsonian Institution (USNM 251842. Paratype: female, 1 vial deposited at the same institution (USNM 251843).

DISCUSSION

The species here described was placed in the genus *Thaumaleus* by the presence, in the female, of only two abdominal segments (Isaac, 1975). Some species of this genus show a suture around the last abdominal segment, which may appear as an intersegmental division. This feature is clearly present in the new species, *T. quintanarooensis*. Other *Thaumaleus* species sharing this feature are: *T. frondipes* (Scott, 1904), *T. rostratus* Scott, 1904, *T. zetlandicus* Scott, 1904 and *T. rigidus* (Thompson, 1888) (Isaac, 1975). The new species differs from the other species in several characteristics. In *T. quintanarooensis*, the genital segment is about half the length of the urosome, but in *T. zetlandicus* and in *T. rigidus*, the same structure constitutes more than half the length of the urosome. *T. rostratus* has a unique feature which is a cephalic anterior end clearly produced between the antennulae. *T. rigidus* shows four setae on the fifth leg lobe, while the new species shows only three.

Disregarding the presence of a suture on the second urosome somite, and to allow further comparisons with other species of *Thaumaleus*, the new species seems to be related to *T. reticulatus* Giesbrecht, 1892, and matches this species using Isaac's (1975) key for female monstrilloids. However, when comparing the original description and illustrations of *T. reticulatus*, the new species is distinguished by the presence of the suture around the second abdominal segment and also by the structure and armature of the fifth legs. It also differs from *T. reticulatus* on the general aspect of the body and by the fact that in *T. reticulatus*, the cephalic segment is reticulated.

The new species is also very closely related to *T. boxshalli* Suárez, 1992. However, both species differ in some features. In *T. boxshalli*, one of the three setae of the fifth leg—the one borne on the lobe inner margin—is clearly shorter

than the other two; in the new species, the three corresponding setae are almost equal in length. In *T. boxshalli*, ocelli are large, wide and diffuse, medially united with each other; in *T. quintanarooensis* ocelli are not so big, but still intensely pigmented, well defined, and separated. Finally, the presence of a suture on the second urosome somite definitely separates the new species from *T. boxshalli*.

The new species represents the second record of the genus *Thaumaleus* in Bahía de Ascensión and in Mexico, after *T. boxshalli* (Suárez, 1993a).

ACKNOWLEDGMENTS

The planktonic material from Bahía de la Ascensión, Mexico was sorted by R. Ma. Hernández F., from CIQRO. This paper is part of the project: "Zooplankton of the Mexican Caribbean Sea," supported by CIQRO (Proj. No. 01-02-008), and by CONACVT (Prg. No. 1189-N9203).

LITERATURE CITED

- Davis, C. C. 1947. Two monstilloids from Biscayne Bay, Florida. *Trans. Am. Microsc. Soc.* 66: 390–395.
- . 1949. A preliminary revision of the Monstilloidea, with descriptions of two new species. *Trans. Am. Microsc. Soc.* 68: 245–255.
- Fosshagen, A. 1970. *Thespesiopsyllus paradoxus* (Sars) (Copepoda: Cyclopoida) from western Norway. *Sarsia* 42: 33–40.
- Giesbrecht, W. 1892. Systematik und faunistic der pelagischen Copepoden des Golfes von Neapel und der angrenzenden Meeresabschnitte. Monogr. Fauna u. Flora Golfs Neapel. 19: 1–831.
- Huys, R. and G. Boxshall. 1991. Copepod evolution. The Ray Society. London. UK.
- Isaac, M. J. 1975. Copepoda, Suborder: Monstilloidea, Fich. Ident. Zooplankton. Conseil International pour l'exploration de la Mer. Sheets 144/145. 10 pp.
- Scott, T. 1904. Notes on some rare and interesting marine Crustacea. Rep. Fishery Bd. Scotl. 22: 242–260.
- Suárez, E. 1993a. A new species of *Thaumaleus* (Copepoda, Monstilloidea) from the eastern coast of the Yucatan Peninsula. *Crustaceana* 64(1): 85–89.
- . 1993b. *Monstrilla reidae*, a new species of monstilloid copepod from the Caribbean Sea off Mexico. *Bull. Mar. Sci.* 52: 717–720.
- . 1993c. Two new monstilloids (Copepoda: Monstilloidea) from the coastal area of the Mexican Caribbean Sea. *J. Crust. Biol.* 13: 305–313.
- and R. Gasca. 1992. A new species of *Monstrilla* (Copepoda, Monstilloidea) from the coastal zone of the Mexican Caribbean Sea. *Crustaceana* 63(3): 301–305.
- and M. E. Islas. 1993. A new species of *Monstrilla* (Copepoda: Monstilloidea) from a reef lagoon off the Mexican coast of the Caribbean Sea. *Hydrobiologia* 271: 45–48.
- Thompson, I. C. 1888. Copepoda of Madeira and the Canary Islands, with descriptions of new genera and species. *J. Linn. Soc. Lond., Zool.* 20: 145–156.

DATE ACCEPTED: February 15, 1993.

ADDRESS: Centro de Investigaciones de Quintana Roo (CIQRO), Apdo. Postal 424, Chetumal, Quintana Roo, Mexico 77000.