

A new triphorid species (Gastropoda, Triphoridae) from Nichupté lagoon, Yucatán peninsula, Mexico

Un nuevo trifórido (Gastropoda, Triphoridae) de la laguna costera Nichupté, península del Yucatán, México

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ABSTRACT

A new species of triphorid, *Marshallora nichupte* spec. nov., is described from the Nichupté-Bojórquez Lagoons (Yucatán Peninsula, Mexico), probably being endemic to this area. The new species is compared with other Caribbean species of this family.

RESUMEN

Se describe una nueva especie de trifórido, *Marshallora nichupte* spec. nov., de las lagunas costeras de Nichupté-Bojórquez (Península de Yucatán, México), probablemente endémica de esta zona. Se compara con otras especies del Caribe de esta familia.

KEY WORDS: Gastropoda, Triphoridae, Yucatan, Mexico.

PALABRAS CLAVE: Gastropoda, Triphoridae, Yucatán, México.

INTRODUCTION

The Yucatán peninsula is considered within the biogeographic area of the Caribbean. The triphorids from the Caribbean have been the subject of some recent studies, even with the addition of new species, as the papers of DE JONG AND COOMANS (1988), MOOLENBEEK AND FABER (1989), FABER AND MOOLENBEEK (1991), ROLÁN AND FERNÁNDEZ-GARCÉS, (1993a, 1993b, 1994, and 1995) and ROLÁN AND ESPINOSA (1994). The Nichupté Lagoon, Quintana Roo, Mexico, has been the subject of some faunistic inventories made by CARNES (1975), CRUZ-ÁBREGO, FLORES-ANDOLAIS AND TOLEDANO-GRAN-

NADOS (1994) and CRUZ-ÁBREGO AND FLORES-ANDOLAIS (1994). *Triphora nigrocincta* is the only triphorid mentioned in them.

After the study of the material collected by the second author in the Nichupté and Bojórquez Lagoons from 1991 to 1994, a triphorid different from those previously studied and described in the Western Atlantic fauna has been found. This species was considered initially as *Triphora nigrocincta*, but further studies showed it was not this taxon, and so it is here described as a new species.

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Information about the collecting area and the methods employed can be seen in CRUZ-ÁBREGO ET AL. (1994).

Abbreviations used:

AMNH: American Museum of Natural History, New York.
BMNH: The Natural History Museum, London.
CER: E. Rolán collection, Vigo.
IES: Instituto de Ecología y Sistemática, La Habana.

MCZ: Museum of Comparative Zoology, Cambridge.
MNCN: Museo Nacional de Ciencias Naturales, Madrid.
MNHN: Museum National d'Histoire Naturelle, Paris.
UNAM: Instituto de Ciencias del Mar y Limnología, Estación de Puerto Morelos.
USNM: National Museum of Natural History, Washington.
ZMA: Zoölogisch Museum, Amsterdam.

RESULTS

Family TRIPHORIDAE Gray, 1847
Subfamily Triphorinae Gray, 1847
Genus *Marshallora* Bouchet, 1984
Marshallora nichupte spec. nov.

Type material: More than 150 specimens and shells have been collected in less than two metres of depth and are included in the present study. Holotype (Fig. 2), MNCN n° 15.05/18726, 4.6 mm length, from the Nichupté Lagoon. Two paratypes from the same locality to be deposited in each one of the following collections: AMNH, BMNH, IES, MCZ, MNHN, USNM and ZMA; 40 more in CER; the rest of the paratypes are in the collection of the UNAM.

Etymology: The specific name alludes to the type locality.

Description: Shell (Figs. 1-9) of 3.5-5.0 mm in length, 1.2-1.8 mm in width, with 9-12 whorls, narrowly conical, spire about 4 times higher than aperture plus canal.

Colour very variable: most frequently, dark brown with darker suture and base; lighter in apex (Figs. 1-2); sometimes, between light brown to cream (Fig. 3) even with the suture of the same colour, but usually with a dark base. Some empty shells were uniformly white (Fig. 4), perhaps by decoloration, but a few specimens collected alive were also pure white (Fig. 5). In brown shells, the intersection nodules are frequently lighter.

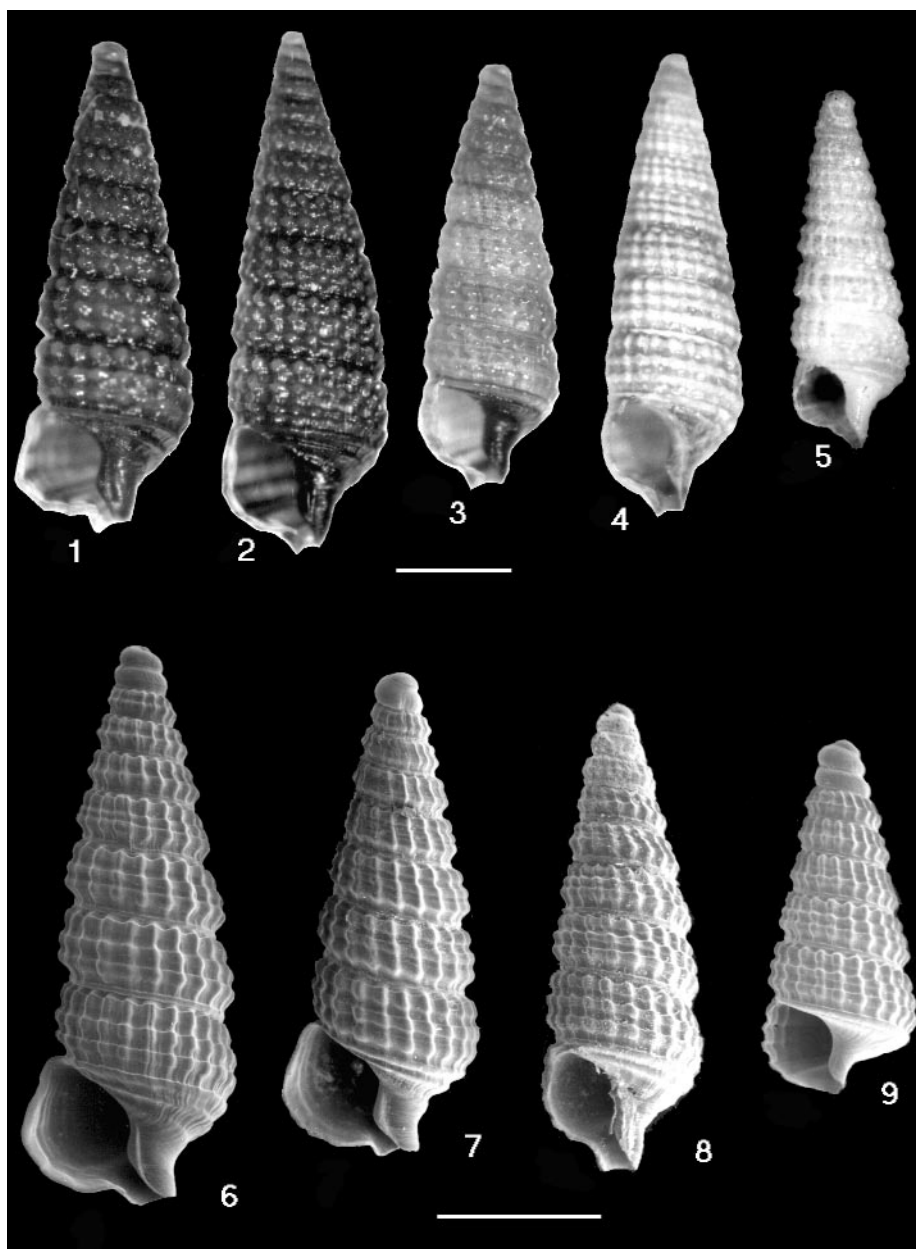
Protoconch (Fig. 11-13) paucispiral, of about 1 1/4 - 2 convex whorls, diameter 0.370-0.450 mm, diameter of first whorl 0.220-0.350 mm. No sculpture except for a few prominent growth lines.

Teleoconch whorls flat-sided or very shallowly convex, sometimes slightly but distinctly angulate at spiral 3, reticulately sculptured with prominent, well-

defined spiral cords and axial costae, nodular intersections, suture shallow but well-defined. No microsculpture is visible even with high magnification. Four spiral cords on body whorl and two on the base, 4th spiral cord partly exposed at suture. 1st and 3rd spiral cords commencing immediately, 3rd being more prominent; 2nd spiral cord appearing as a thread between 2nd and 4th teleoconch whorl, gradually enlarging to resemble 1st spiral by about 5th whorl. 1st - 3rd spiral cords strongly nodular, 4th spiral more weakly nodular, 5th - 6th smooth. Narrow axial costae disappearing below 3rd spiral cord, there being 22-29 on body whorl. Base contracted. Aperture subquadrangular. Outer lip sharp, thin and lighter in colour. Posterior siphonal notch very small or imperceptible. Inner lip thick. Anterior siphonal canal very short and open.

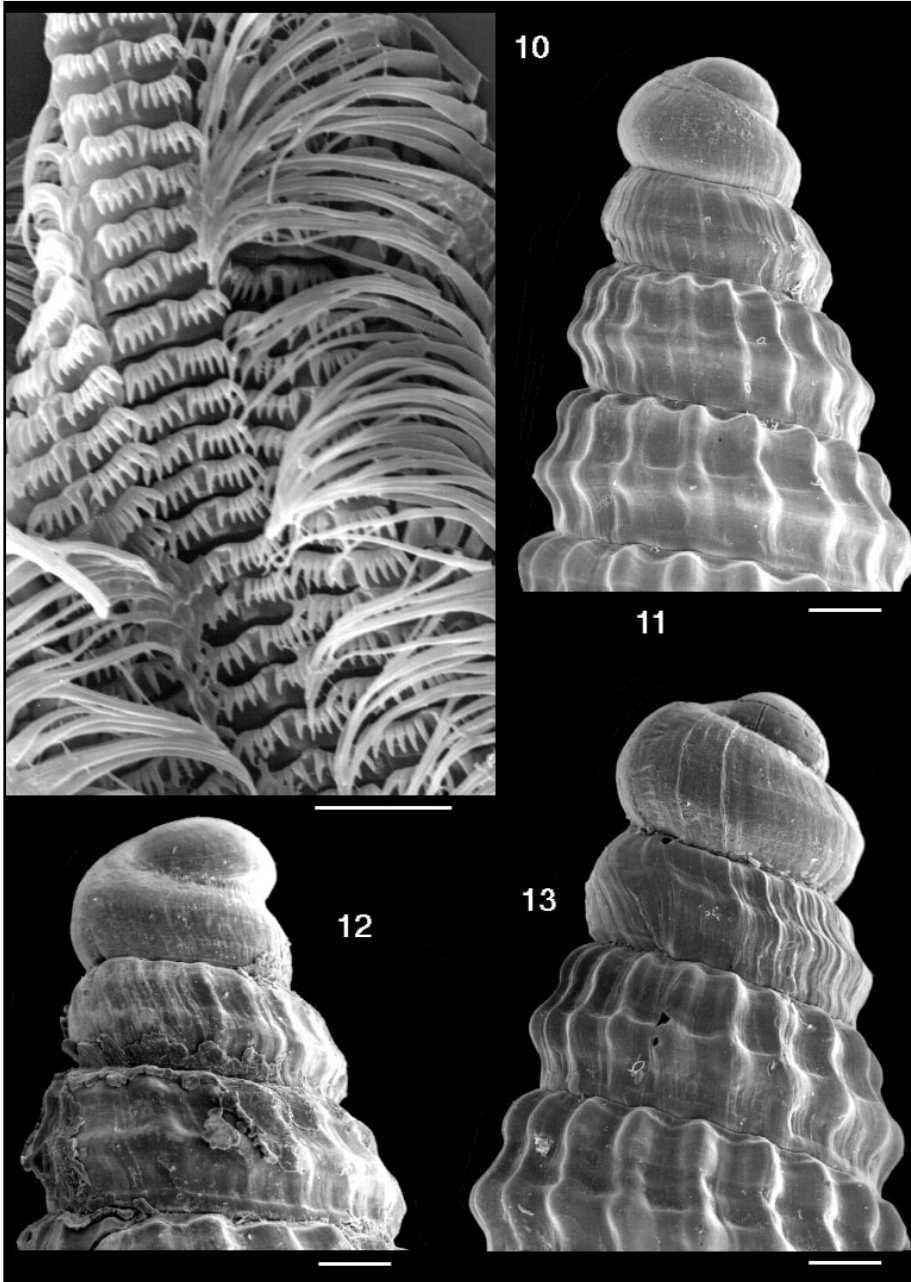
Animal, of the preserved material in alcohol, white.

Operculum translucent white, multispiral and without prominences.



Figures 1-9. *Marshallora nichupte* spec. nov. 1: paratype of brown colour (AMNH); 2: holotype (MNCN) of brown colour; 3: paratype of cream colour (CER); 4: paratype of white colour, collected empty (UNAM); 5: paratype of white colour, collected alive (CER); 6-9: paratypes (CER) (6 and 8 of brown colour and 7 and 9 of cream colour). Scale bars 1 mm.

Figuras 1-9. Marshallora nichupte spec. nov. 1: paratipo de color marrón (AMNH); 2: holotipo (MNCN) de color marrón; 3: paratipo de color crema (CER); 4: paratipo de color blanco, concha vacía (UNAM); 5: paratipo de color blanco, recolectado vivo (CER); 6-9: paratipos (CER) (6 y 8 de color marrón y 7 y 9 de color crema). Escalas 1 mm.



Figures 10-13. *Marshallora nichupte* spec. nov. 10: radula; 11-13: protoconchs (11 and 13 shells of brown colour; 12 shell of white colour; all paratypes in CER). Scale bars, 10: 10 μ m; 11-13: 100 μ m.

Figuras 10-13. Marshallora nichupte spec. nov. 10: rádula; 11-13: protoconchas (11 y 13, conchas de color marrón; 12, concha de color blanco, todos paratipos en CER). Escalas, 10: 10 μ m; 11-13: 100 μ m.

Radula (Fig. 10) with formula (5-6) -1-1-1- (5-6). Central tooth typical of the genus, with two groups of 4-6 sharp cusps. The number of cusps may change within an individual and may be asymmetric. Lateral teeth very similar, with two groups of 5-6 cusps. Marginal teeth narrow, elongated and curved.

Distribution and type locality: Only known from the type-locality, Bojórquez-Nichupté Lagoons, Cancún, Quintana Roo, Mexico.

Remarks: *Marshallora nichupte* spec. nov. is more variable in colour, and there are not differences in the rest of the characters, including the radula, between the specimens with brown or white shells. Also, this species has a very variable size of protoconch, but there are intergrades and no other characters are associated with these differences.

The generic position of *M. nichupte* spec. nov. is based principally on its radula, which is very similar to that of the type species of the genus *Marshallora*, *Marshallora adversa* (Montagu, 1803). A lecithotrophic development can be inferred from the paucispiral protoconch. Lecithotrophy has not been recorded for the genus *Marshallora* until now, but the generic coexistence of lecithotrophic and planktotrophic development is frequent within the same genus in marine gastropods.

In general appearance, *M. nichupte* spec. nov. is very similar to *M. nigrocincta*

(C. B. Adams, 1839) or *M. modesta* (C. B. Adams, 1850), but these species have multispiral protoconchs. The species mentioned by CARNES (1975) as *Triphora nigrocincta* and *Triphora* sp. are probably *M. nichupte*, because the author described its "1 1/2 globose, smooth, glassy, light brown whorls of protoconch".

"*Triphora*" *bartschi* Olsson, 1916, was described with 2-3 whorls of protoconch, smooth in the initial portion, with three strong spiral cords in the middle part and two on the final portion. This fossil species is only known from Yorktown and Duplin Miocene of Virginia and the Carolinas (OLSSON AND HARBISON, 1953).

T. nichupte spec. nov. is more variable in colour than any other triphorid species known from the Caribbean Sea, being also different from those species with little paucispiral protoconchs: "*Triphora*" *calva* Faber and Moolenbeek, 1991 is always brown and it has smaller protoconch with a spiral angulation between the end of the protoconch and the beginning of the teleoconch; *Cheirodonta apexcrassum* Rolán and Fernández-Garcés, 1994 is also always brown, and has two conspicuous spiral cords on the protoconch; *Iniforis carmelae* Rolán and Fernández-Garcés, 1993 and *I. immaculata* Rolán and Fernández-Garcés, 1993 are constantly the first almost white, and the second white, and they have only two spiral nodular cords in most part of the teleoconch; *I. casta* (Hinds, 1843), is white with a constant brown spiral cord.

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BIBLIOGRAPHY

- CARNES, S. F. 1975. Mollusks from southern Nichupté lagoon, Quintana Roo, Mexico. *Sterkiana*, (59): 21-50.
- CRUZ-ÁBREGO, F. N. AND FLORES-ANDOLAIS, F. 1994. Mollusks from Bojórquez Lagoon, Quintana Roo, Mexico: ecological and distributional considerations. *Avicennia*, 2: 13-23.

- CRUZ-ÁBREGO, F. N., FLORES-ANDOLAIS, F. AND TOLEDANO-GRANADOS, A. 1994. Abundancia y distribución de los moluscos gasterópodos de la zona norte del sistema lagunar Nichupté, Cancún, México. *Avicennia*, 2: 1-11.

- DE JONG, K. M. AND COOMANS, H. E. 1988. Marine gastropods from Curaçao, Aruba and Bonaire. E. J. Brill, Leiden, 261 págs.
- FABER, M. J. AND MOOLENBEEK, R. G. 1991. Two new shallow water triphorids and a new name in *Metaxia* from Florida and the West Indies. *Apex*, 6 (3-4): 81-85.
- MOOLENBEEK, R. G. AND FABER, M. J. 1989. Two new *Triphora* species from the West Indies (Gastropoda; Triphoridae). *Basteria*, 53 (4-6): 77-80.
- OLSSON, A. A. AND HARBISON, A. 1953. Pliocene Mollusca of Southern Florida, with special reference to those from North Saint Petersburg. *Academy of Natural Sciences of Philadelphia, Monograph*, 8: 1-457, 65 pls.
- ROLÁN, E. AND ESPINOSA, J. 1994. The family Triphoridae (Mollusca, Gastropoda, prosobranchia) in Cuba 3. The genus *Iso-triphora*, with description of a new species. *Basteria*, 58 (1-2): 63-68.
- ROLÁN, E. AND FERNÁNDEZ-GARCÉS, R. 1993a. La familia Triphoridae en la isla de Cuba 1. El género *Metaxia*. *Bolletino Malacologico*, 28 (9-12): 169-176.
- ROLÁN, E. AND FERNÁNDEZ-GARCÉS, R. 1993b. The family Triphoridae (Mollusca, Gastropoda) in Cuba. 2. The genus *Iniforis* Jousseaume, 1884. *Apex*, 8 (3): 95-106.
- ROLÁN, E. AND FERNÁNDEZ-GARCÉS, R. 1994. The family Triphoridae (Mollusca, Gastropoda) in Cuba. 4. The genera *Monophorus*, *Nototriphora*, *Cosmotriphora* and *Cheirodonta* with the description of three new species. *Apex*, 9 (1): 17-27.
- ROLÁN, E. AND FERNÁNDEZ-GARCÉS, R. 1955. The family Triphoridae (Mollusca, Gastropoda) in Cuba 5. The genera *Marshallora*, *Mesophora*, *Similiphora*, *Eutriphora*, *Latitriphora*, *Aclophora* and other species without generic affiliation. *Apex*, 10 (1): 9-24.

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