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Research note

First record of *Euthyonidiella destichada* (Echinodermata: Holothuroidea) in the Mexican Caribbean

Primer registro de *Euthyonidiella destichada* (Echinodermata: Holothuroidea) en el Caribe mexicano

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Abstract. One specimen of *Euthyonidiella destichada* (Deichmann, 1930) was collected in Puerto Morelos, Quintana Roo, Mexico. This species was previously recorded from Florida, the eastern Gulf of México, Cuba, Belize, Panama, Venezuela, Puerto Rico, and Martinique. This is the first record of this species in Mexico and the Mexican Caribbean; new illustrations of different ossicles are provided.

Key words: new record, Sclerodactylidae, Dendrochirotida, Quintana Roo.

Resumen. Se recolectó un ejemplar de *Euthyonidiella destichada* (Deichmann, 1930) en Puerto Morelos, Quintana Roo, México. Esta especie se registró previamente para Florida, este del golfo de México, Cuba, Belice, Panamá, Venezuela, Puerto Rico y Martinica. Es el primer registro de esta especie en México y el Caribe mexicano; se muestran formas de espículas no ilustradas previamente.

Palabras clave: nuevo registro, Sclerodactylidae, Dendrochirotida, Quintana Roo.

The genus *Euthyonidiella* was described by Heding and Panning (1954). It is characterized by having 15 to 20 tentacles, a calcareous ring with fork tails and tables of the body wall with 2 spires. Currently, this genus consists of 8 species of sea cucumbers distributed in the Atlantic, Pacific, and Indian Oceans. *Euthyonidiella destichada* (Deichmann, 1930) is 1 of the 4 species that occur in the Atlantic Ocean. It has been reported from several points in the Caribbean Sea and the Gulf of Mexico, like Florida, eastern Gulf of Mexico, Belize, Panama and Venezuela, and some islands like Cuba, Puerto Rico and Martinique. The other 3 species of the genus distributed in this ocean are *E. trita* (Sluiter, 1910), *E. dentata* Cherbonnier, 1961, and *E. dubia* Cherbonnier, 1958. Another 3 species occur in the Pacific Ocean, *E. kyushuensis* Heding and Panning, 1954, *E. tungshanensis* (Yang, 1937), and *E. zacae* (Deichmann, 1958). The only species that occurs in the Indian Ocean is *E. ambigua* (Heding, 1942).

The Mexican Caribbean coast is limited to the eastern shoreline of the Yucatán Peninsula, in the state of Quintana Roo. It represents the northern extent of the Mesoamerican Caribbean Reef System, the second-largest reef system in the world (Wilkinson et al., 2009). Several sampling surveys of the echinoderm fauna of this region have been conducted in the last decade (Bravo-Tzompantzi et al., 1999; Laguarda-Figueras et al., 2001, 2002, 2004), notably increasing the knowledge of Mexican echinoderms. Currently, the number of species of sea cucumbers recognized for this region is 33 (Laguarda-Figueras et al., 2005; Solís-Marín et al., 2013). Nevertheless, this project focused mainly on the reef, rocky shores, and sandy bottoms of the reef in Puerto Morelos, Quintana Roo. Other habitats, like eel grasses or algae patches, or other reef formations were superficially or not surveyed. The finding of new records of echinoderms in this area makes it evident that small or cryptic organisms with peculiar or restricted habitats may be overlooked during common sampling, and are

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only noticed when the survey is specialized in certain rare groups with very particular habits. The urbanization of the coast in the state of Quintana Roo, particularly in the Riviera Maya, threatens the stability of the reef formations and other habitats. Records of common and rare species of echinoderms and their particular habitats are important for understanding the distributional patterns of this fauna in the Caribbean Sea and promote its conservation.

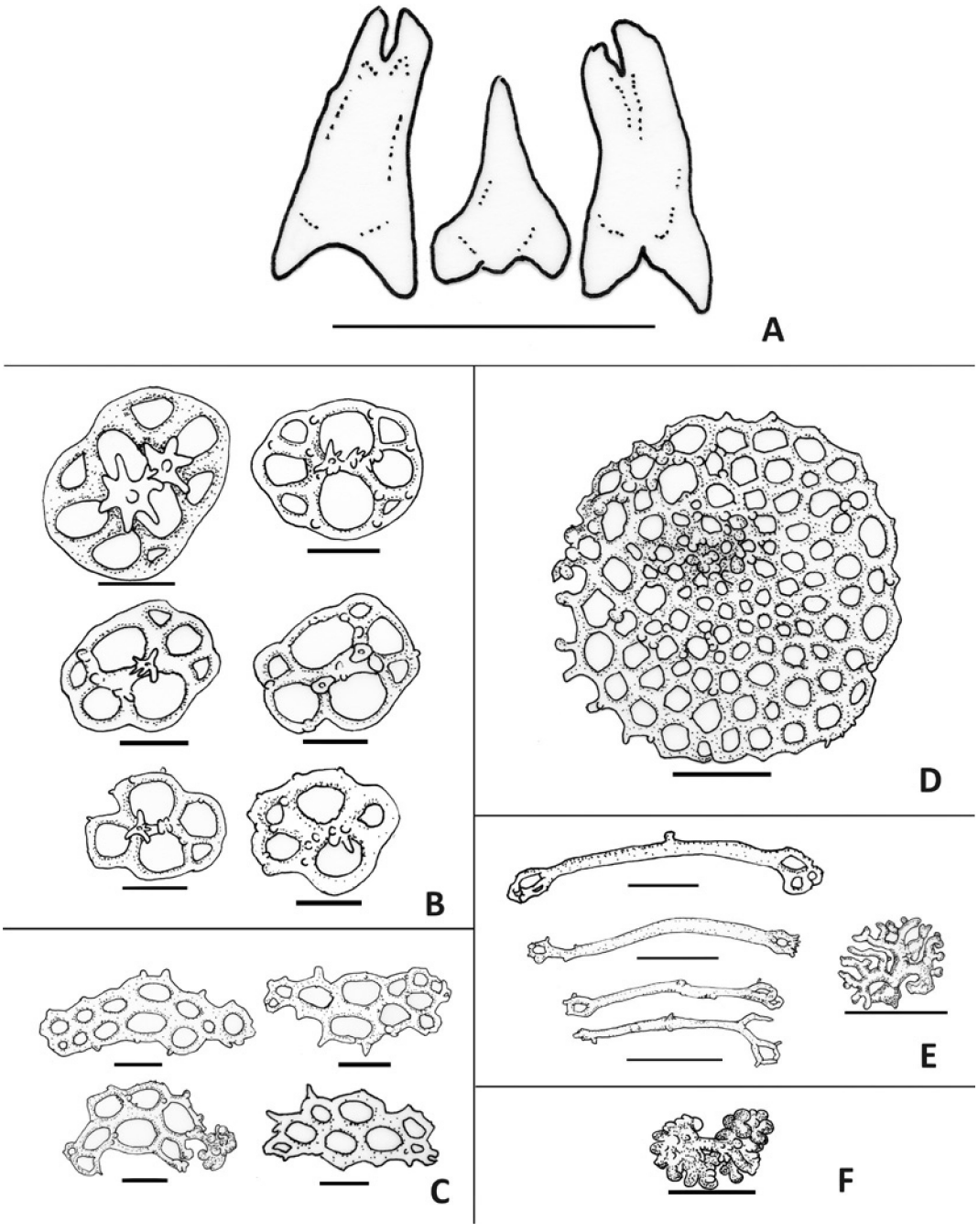

Figure 1. Calcareous structures of *Euthyonidiella destichada*. A, calcareous ring; B, tables from the body wall and tube feet; C, perforated plates from the tube feet; D, endplate; E, rods, and rosette from the tentacles; F, rosette from the introvert. Bar in A= 1mm; in B, C, E and F= 20 µm; in D= 50 µm.

The specimen collected was compared with the original description and plates by Deichmann (1930) and the revision of the genus made by Heding and Panning (1954). The specimen was deposited in the Colección Nacional de Equinodermos of México, Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México.

Redescription

Order Dendrochirotida Grube, 1840
Family Sclerodactylidae Panning, 1949
Genus *Euthyonidiella* Heding and Panning, 1954
Euthyonidiella destichada (Deichmann, 1930)
(Fig. 1)

Euthyonidiella destichada Heding and Panning, 1954: 118, fig. 47; Miller and Pawson, 1984: 9, 14; Martínez, 1991: 42, fig. 4; Hendler et al., 1995: 266, fig. 181; Alvarado, 2011: 275.

Phyllophorus destichadus Deichmann, 1930: 146; pl. 18, fig. 3; H.L. Clark, 1933: 112.

Material examined: ICML-UNAM 5.190.0, 1 specimen (12 mm), Puerto Morelos, Quintana Roo, Mexico (20º51.840' N, 86º51.467' W), 3.1 m depth, collector Vivianne Solís-Weiss, February 26, 2010.

Diagnosis. Tables with oblong smooth disk with 8 holes (usually 4 large and 4 small) in each end; spire with 2 pillars, each ending in 5 or 6 conical spines. Tables from the introvert almost the same type, rosettes also present; tentacles with small rods and rosettes. Tentacles 15 to 20.

Description. Tiny size, 12 mm. Body stout, slightly curved dorsally near the anterior and posterior ends; thin skin, flexible and soft to the touch. Numerous tube feet uniformly scattered over the entire body wall, slightly more numerous ventrally. Uncountable number of tentacles, contracted deep within the mouth. Calcareous ring with long rectangular radials with broad anterior tooth and short posterior prolongations; interradials slightly shorter, with a straight posterior end and a long anterior tapering tooth (Fig. 1A). One small Polian vesicle, 1 small stone canal. Respiratory trees spreading over and attached to the lateral interambulacra and lateroventral muscle band; longitudinal muscles forming narrow ridges in the body cavity; gonads in 2 tufts attached near the middle of the dorsal midline. Tables 45 to 52 µm long, with oblong smooth disk with 8 holes (usually 4 large and 4 small, or with 2 large central holes and 3 slightly smaller in each end); spire composed of 2 rods, sometimes fused at the top, each ending in 5 or 6 conical spines (Fig. 1B). Perforated plates present

Figure 2. Map with the previous records of *Euthyonidiella destichada* (dots) and the new record in México (star).

in tube feet, 78-102 µm long and 37-45 µm across (Fig. 1C); end plate well developed, 147 µm across (Fig. 1D). In tentacles, small rods 40-87 µm long and small rosettes, 21 µm long (Fig. 1E); in introvert, tables of almost the same type as the body wall, and small rosettes 28 µm long (Fig. 1F).

Color. Dark brown to brownish violet, oral and anal ends paler; tube feet white-tipped.

Geographical and bathymetric distribution. Low-tide mark to about 4 m (Hendler et al., 1995). Biscayne Bay and the Dry Tortugas, Florida (Deichmann, 1930; Miller and Pawson, 1984); eastern Gulf of Mexico (Miller and Pawson, 1984); La Parguera, Puerto Rico (Clark, 1933; Hendler et al., 1995); Gulf of Batabanó, La Juventud Island, Cuba (Del Valle et al., 2005); Martinique; Carrie Bow Cay, Belize and Panama (Hendler et al., 1995); North Sucre, Venezuela (Martínez, 1991) and Puerto Morelos, Quintana Roo, Mexico (new record; Fig. 2).

Remarks. This species has been reported in shallow water in eelgrass (Deichmann, 1930), in sand, and below rocks at 4 m depth (Martínez, 1991), and present in sandy and muddy areas associated with turtle grass, and among wave-washed rocks near the shore (Hendler et al., 1995). The present record in Mexico is from dead coral surrounded by sand, close to patches of eelgrass. This may suggest that *E. destichada* is highly plastic and is not specialized for a specific habitat. It is also possible that the dead coral could be a refuge for juveniles that occupy a completely different habitat when a certain size is reached. Yet nothing is known about its natural history (Hendler et al., 1995). Previous descriptions did not report the presence of perforated plates in the tube feet, but we found several of these ossicles in the specimen from Mexico (Fig. 1C). The difference might reside in the length of the specimens (12 mm), unlike previous records which measured between 40 to 100 mm. Possibly, more support from the ossicles is needed when the organism is a juvenile and, consequently, the perforated plates are lost when it reaches a certain length.

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