ELTHUSA ALVARADOENSIS N. SP. (ISOPODA, CYMOTHOIDAE) FROM THE GILL CHAMBER OF THE LIZARDFISH, *SYNODUS FOETENS* (LINNAEUS, 1766)

BY

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ABSTRACT

Elthusa alvaradoensis n. sp. is described and figured. The species, a branchial parasite of the inshore lizardfish, *Synodus foetens* (Linnaeus, 1766), was collected on the coast of central Veracruz, Mexico. *E. alvaradoensis* is characterized by: the wide pleon and pleotelson being notably wider than the pereon, the relatively acute pleonite lateral margins, pleonite 1 as wide as pleonite 2 and pleotelson, short antennule and antenna (with 7 and 12-14 articles, respectively, in adult females and 4 and 7 in males), and the uropodal rami being subequal in length with subacute apices. The new species described here accords well with the generic characters of *Elthusa*, but pereopod 5-7 lack a carina. The distribution of the genus is here extended into the tropical western North Atlantic.

RESUMEN

Elthusa alvaradoensis n. sp. es descrita e ilustrada. La especie es un parásito branquial del "lagarto máximo", *Synodus foetens* (Linnaeus, 1766), fue colectado en la costa central de Veracruz, México. *E. alvaradoensis* es caracterizada por: pleon y pleotelson notablemente más amplios que el pereon, márgenes laterales de los pleonitos relativamente agudos, pleonito 1 tan amplio como el pleonito 2 y el pleotelson, antenula mas corta que la antena (con 7 y 12-14 en hembras adultas y en machos 4 y 7, artículos respectivamente), rami del urópodo con los ápices subagudos y subiguales en longitud. La nueva especie aquí descrita concuerda con las características genéricas de *Elthusa*, pero los pereópodos 5-7 carecen de carina. La distribución del género se extiende en el Atlántico Norte occidental tropical.

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INTRODUCTION

The genus *Elthusa* Schiödte & Meinert, 1884 has a world-wide distribution from temperate to tropical waters, and its species are, with rare exception, parasites that attach to the gills of the host (Bruce, 1990). The genus is little known in the Atlantic, there apparently being no previous records from the Caribbean and Gulf of Mexico (Kensley et al., 2004).

The inshore lizardfish, *Synodus foetens* (Linnaeus, 1766) is an abundant species along the continental shelf of the Gulf of Mexico, being common in shrimp fisheries by-catch. It is distributed from New England to southern Brazil, including Bermuda and the Bahamas, at depths ranging from 10 to 110 m (Fisher, 1978). Two cymothoid species have been previously recorded from *S. foetens*: *Livoneca texana* Pearse, 1952, at Padre Island, Texas (Pearse, 1952; Trilles, 1994) and *Cymothoa excisa* Perty, 1834, also from the Texas coast, occurring inside the hosts mouth (Kensley & Schotte, 1989).

Others cymothoids have also been recorded from lizard fishes: *Elthusa vulgaris* (Stimpson, 1857), which uses a wide range of hosts (Brusca, 1981), has been recorded from the California lizard fish, *Synodus lucioceps* (Ayres, 1855) (as *Lironeca vulgaris*; see Jensen et al., 1979), and *Creniola saurida* (Avdeev, 1977) has been reported from the greater lizard fish, *Saurida tumbil* (Bloch, 1975) in Australian waters (Bruce, 1987).

MATERIALS AND METHODS

Specimens of *Synodus foetens* were collected from the shrimp fishery zone off Alvarado port (18°45′-19°0′N 95°40′-95°57′W), on the central continental shelf of Veracruz, Mexico. Isopods were removed from the gill chamber, were measured for total length (TL, in mm, from anterior margin of head to posterior margin of pleotelson) and for maximum width (W, in mm) to the nearest 0.1 mm. They were preserved in 70% ethanol. Mouthparts and appendages were dissected and figures were drawn using a stereomicroscope with camera lucida.

Type specimens are deposited in the National Crustacean Collection (CNCR) of the Institute of Biology, National Autonomous University of Mexico (UNAM), Mexico City, and the collection of Los Angeles County Museum of Natural History (LACM). All fish names are taken from Froese & Pauly (2005).

Elthusa Schiödte & Meinert, 1884

Elthusa Schiödte & Meinert, 1884: 337; Bruce, 1990: 254.

Elthusa alvaradoensis n. sp. (figs. 1-2)

Material examined. — Holotype: female (ovigerous, TL; W 24.2; 9.6), CNCR 22659. Allotype male (10.7; 3.7), CNCR 22660. Paratypes: 5 females (ovigerous 18.8, 21.5, 23.7, 27.2, 28.3; 6.8, 8.7, 10.5, 10.3, 11.4), 4 males (9.6, 9.7, 10, 10.4; 3.2, 3.4, 3.4, 3.7) CNCR 22661; and 8 specimnes, LACM CR 2004-006.1, Alvarado, Veracruz, Mexico, 18°50′N 95°41′-95°57′W, 26 June 2000, depth 30 m, coll. R. Chávez and A. Rocha from gill chamber of *Synodus foetens* (Linnaeus, 1766).

Site of attachment. — Female occurs in the ventral part of the gill chamber between the second and third gill arches. Male attached beneath the female. The lesions ranged from a slight abrasion of the branchial filaments to their complete removal.

Description of female. — Body about 2.7 times as long as wide, widest at pereonite 5; bilaterally symmetrical, lateral margins sub-parallel; anterior margin of cephalon ventrally flexed, forming lobe between bases of antennae; 2.2-2.3 times as long as wide. Eyes 0.33 times width of cephalon, ovate, black. Coxal plates not conspicuous in dorsal view. Pereon bilaterally symmetrical without hump and not distorted, wide. Pleon wider than pereon, all pleonites visible, pleonite 1 manifestly shorter than 2, pleonites 2-5 subequal in width. Pleotelson ovate, posterior margin indented. Pleotelson 0.67 times as long as wide.

Antennule shorter than antenna, composed of 7 articles, proximal article slightly expanded. Antenna with 12-14 articles. Antennule and antenna not reaching posterior margin of cephalon. Mandible without dorsolateral lobe, palp article 1 longest, article 3 is 0.33 as long as article 2. Maxilla 1 lateral lobe with 4 terminal robust setae, 3 of those long and acute, 1 short and stout. Maxilla 2 with 4 terminal robust setae. Distal segment of maxilliped palp with 2 robust setae.

Propodus of pereopod 1 short, about as long as combined lengths of merus and carpus; ischium about 0.6 length of basis. Pereopods 2 and 3 similar to 1. Pereopods 5-7 similar; ischium of pereopod 7 is 0.7 length of basis.

Pleotelson large, thickened, subquadrate; posterior margin with shallow median notch. Pleopods all lamellar, 1-4 without folds or accessory lobes; endopod of pleopod 5 with ventromesial process. Uropodal rami not exceeding posterior margin of pleotelson; endopod and exopod similar in length; apices subacute.

Description of male. — Body bilaterally symmetrical, dorsum more vaulted than in female, lateral margins straight. Antennule shorter than antenna, composed of 4 articles, proximal article slightly expanded. Antenna with 7 articles. Antennule and antenna not reaching posterior margin of cephalon. Mouthparts similar to those of female. All pleonites visible, pleonite 1 partly concealed by pereonite 7. Pleotelson broadly rounded. Short penes on posterior of sternite 7. Pleopods all simple; pleopod 2 with appendix masculina short and stout, approximately half as long as endopod. Pleopod 3 endopod with transverse suture. Uropod slightly larger than in female, uropod rami exceeding posterior margin of pleotelson.

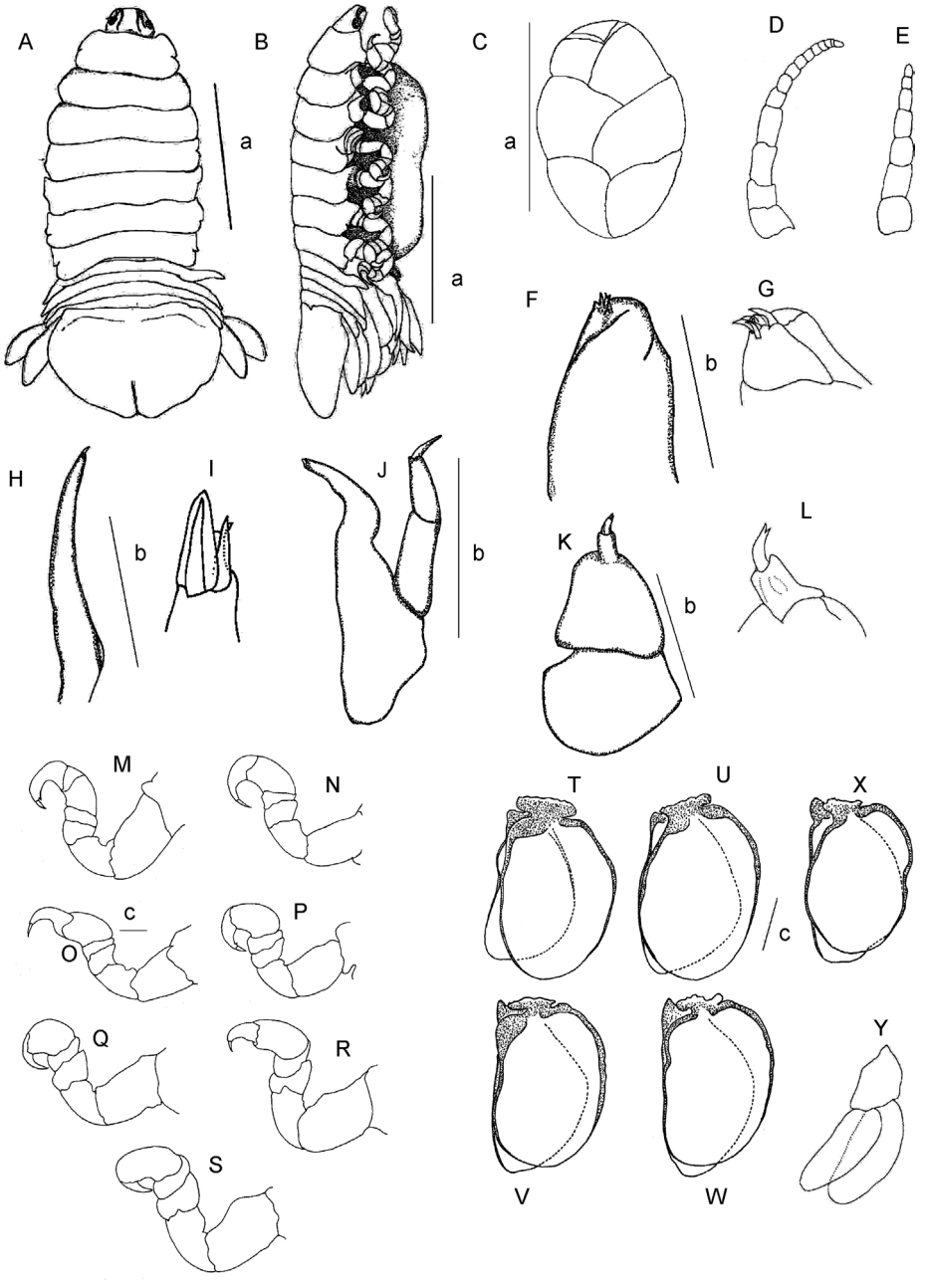

Fig. 1. *Elthusa alvaradoensis* new species. Adult female. A, dorsal view; B, lateral view; C, brood pouch; D, antenna; E, antennule; F, maxilla 1; G, maxilla 1 apex; H, maxilla 2; I, maxilla 2 apex; J, mandible; K, maxilliped; L, maxilliped apex; M-S, pereopods 1-7; T-X, pleopods 1-5; Y, uropod. Scale bars: a, 10 mm for A, B, C; b, 0.1 mm for H, J, K; c, 0.25 mm for M-X.

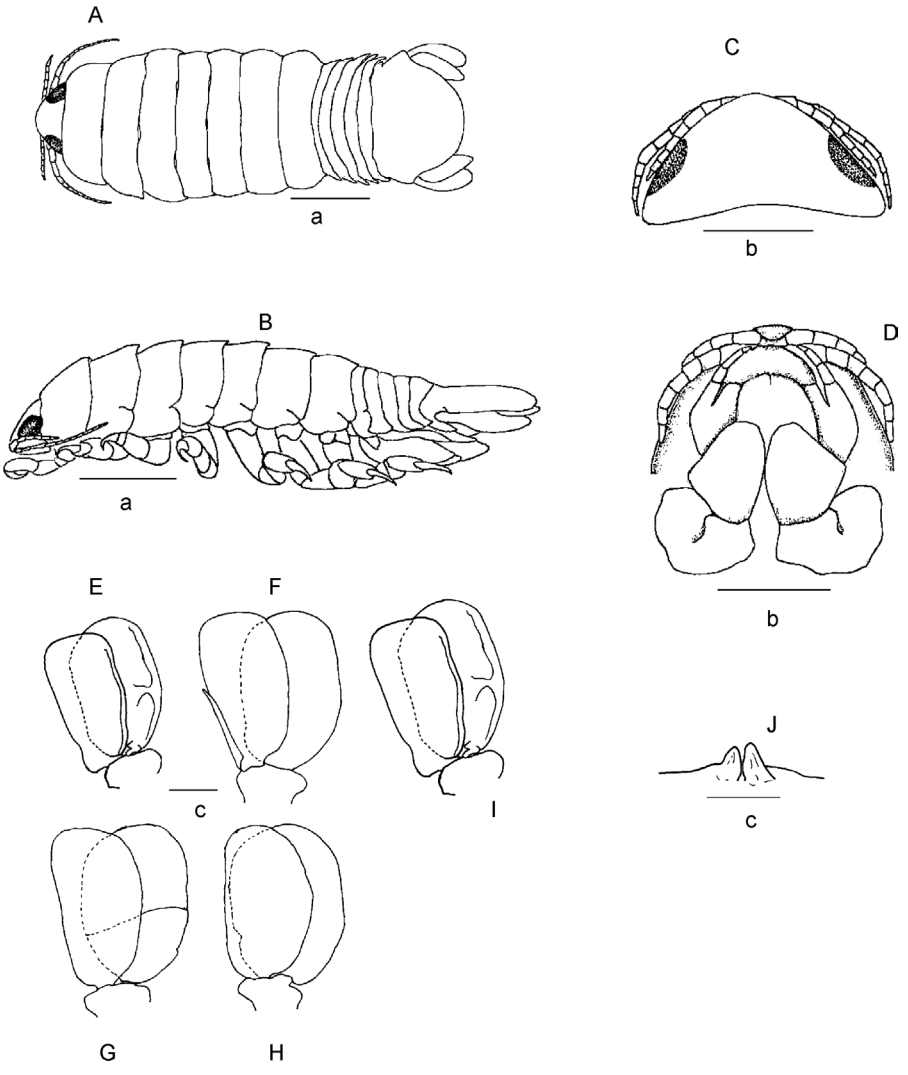

Fig. 2. *Elthusa alvaradoensis* new species. Adult male. A, dorsal view; B, lateral view; cephalon; D, cephalon, ventral view; E-I, pleopods 1-5; J, penes. Scale bars: a, 5 mm for A, B; b, 2 mm for C, D; c, 0.25 mm for E-J.

Colour. — Pale yellow. Without chromatophores.

Size. — A total of 86 isopods were obtained from the 63 parasitized *S. foetens*. Males measured (total length) 10.0-12.0 mm ($\bar{x} = 11.24 \pm 0.62$ mm, $n = 23$, females 14.5-26.3 mm ($\bar{x} = 20.8 \pm 2.4$ mm, $n = 63$); all females were ovigerous.

Remarks. – A revised diagnosis to the genus was presented by Bruce (2004). The new species described here accords well with the generic characters, but pereopods 5-7 lack a carina. *E. alvaradoensis* can be distinguished from all other

species of the genus by: the wide pleon and pleotelson, both being notably wider (1.2×) than the pereon; the relatively acute pleonite lateral margins; pleonite 1 as wide as pleonite 2 and pleotelson; short antennule and antenna (with 7 and 12-14 articles, respectively, in adult females, and 4 and 7 in males); and the uropodal rami being subequal in length, with subacute apices. There are no similar sympatric species. The distribution of the genus is here extended into the tropical western North Atlantic.

Etymology. — Named for the type locality in Alvarado Port on the central continental shelf of Veracruz, Mexico. The species name consequently is an adjective agreeing in gender with the (feminine) generic name.

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