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Nota

Científica

New occurrence of *Acantholochus australiensis* (Byrnes, 1986) (Copepoda: Bomolochidae) parasitizing *Lutjanus argentiventris* (Peters, 1869) (Eupercaria: Lutjanidae) from Teacapán estuary, Sinaloa, Mexico

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► ABSTRACT

During a survey of parasitic copepods from Teacapán estuary, Sinaloa, Mexico, one adult female bomolochid was collected from the nostrils of the yellow snapper, *Lutjanus argentiventris* (Peters, 1869). The specimen was preserved in ethanol, cleared in glycerol, and examined using light microscopy. It was identified as *Acantholochus australiensis* (Byrnes, 1986) based on diagnostic characters, including a 6-segmented antennule, rostral hooks, absence of modified setae on the first antennal segment, two setae on the second endopodal segment of leg 2, and exopodal segments of leg 4 equal in length. This finding represents the first record of *A. australiensis* from the Mexican Pacific and the first in *L. argentiventris*, expanding its known geographical distribution and host range, since it has only been found on sparids in Australian waters. It also represents the first report of an *Acantholochus* species parasitizing a lutjanid fish worldwide.

Keywords: Cyclopoida; eastern tropical Pacific; host record; parasitic copepods; yellow snapper.



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► RESUMEN

Durante un estudio de copépodos parásitos en el estuario de Teacapán, Sinaloa, México, se recolectó una hembra adulta de la familia Bomolochidae en las fosas nasales del pargo amarillo, *Lutjanus argentiventris* (Peters, 1869). El espécimen fue preservado en etanol,



aclarado en glicerol y examinado mediante microscopía óptica. Fue identificado como *Acantholochus australiensis* (Byrnes, 1986) con base en caracteres diagnósticos, incluyendo una anténula de seis segmentos, ganchos rostrales, ausencia de setas modificadas en el primer segmento antenal, dos setas en el segundo segmento endopodal de la pata 2 y segmentos exopodales de la pata 4 de igual longitud. Este hallazgo representa el primer registro de *A. australiensis* en el Pacífico mexicano y el primero en *L. argentiventris*, lo que amplía su distribución geográfica y su rango de hospederos, pues únicamente se había reportado en espáridos en las costas de Australia. También constituye el primer reporte en el mundo de una especie de *Acantholochus* que parasita un lutjánido.

Palabras clave: copépodos parásitos; Cyclopoida; Pacífico oriental tropical pargo amarillo; registro de hospedero.

► INTRODUCTION

Copepoda Milne Edwards, 1840 is a group of mostly microscopic crustaceans which perform fundamental ecological roles as free-living or symbiont organisms (Boxshall & Halsey, 2004). Most symbiotic copepods are parasites, associated with a wide range of vertebrates and invertebrates in almost all aquatic environments (Boxshall & Halsey, 2004). Within parasitic copepods, the family Bomolochidae Sumpf, 1871 has notable species richness, with 169 species distributed across 28 genera (Walter & Boxshall, 2026). Bomolochids are parasites of marine and estuarine fishes worldwide, but despite their impressive diversity, only a few have been reported from Mexico to date (Morales-Serna, Gómez, & Pérez-Ponce de León, 2012).

Acantholochus Cressey, 1984 is a genus of bomolochids composed of 10 species found on the gills or in the nostrils of their fish hosts (Paschoal, Cezar, & Luque, 2013). Half of its representatives are found in the Atlantic and the other half in the Pacific Ocean, infesting fishes of the families Scombridae Rafinesque, 1815, Haemulidae Gill, 1885, Sebastidae Kaup, 1873, Hexagrammidae Jordan, 1888, Jordaniidae Jordan, 1888, Tetraodontidae Bonaparte, 1831, Lophiidae Rafinesque,



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1810 and Sparidae Rafinesque, 1818 (Boxshall & Halsey, 2004; Walter & Boxshall, 2026). Almost all *Acantholochus* species were originally described from the Americas, except for *A. australiensis* (Byrnes, 1986), which was recorded from sparids of the genus *Acanthopagrus* Peters, 1855 off Queensland, Australia (Byrnes, 1986). After its description, this species was never reported from other localities or hosts.

During an investigation of estuarine parasitic copepods from the Mexican coast, a species of *Acantholochus* was found in the nostrils of *Lutjanus argentiventris* (Peters, 1869) (Lutjanidae) from Teacapan estuary, Sinaloa, Mexico. The parasite was collected, identified, and reported in this study.

► MATERIALS AND METHODS

In January 2026, one specimen of *L. argentiventris* (total body length 23.3 cm; standard length 18.7 cm; total body weight 185.2 g) was acquired dead from a local fisherman in Teacapan estuary (22°32'38.83"N; 105°44'58.31"W), Sinaloa, Mexico. The fish was measured using a tape-measure and identified based on the Fish Identification Tool available at FishBase (Froese & Pauly, 2026). Nomenclature and classification of hosts were updated according to Eschmeyer's Catalog of Fishes (Fricke, Eschmeyer, & Fong, 2026). To search for the copepods, the nostrils were dissected and washed with water using a Pasteur pipette over a Petri dish; the contents were observed under a stereomicroscope. Copepods were collected and subsequently preserved in 100% ethanol for morphological analysis. For light-microscope observation, copepods were cleared in 50% glycerol using the wooden slide procedure described by Humes & Gooding (1964). The descriptive terminology and classification of copepods follow Boxshall & Halsey (2004) and Walter & Boxshall (2026), respectively. A voucher specimen was deposited in the Copepoda collection of the Instituto de Ciencias del Mar y Limnología, Unidad Académica Mazatlán (ICML-EMUCOP) under the accession code ICML-EMUCOP-270126-01.



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► RESULTS

A single specimen of a bomolochid (adult female) copepod (Fig. 1A–D) was found in the nostrils. This parasitic crustacean was identified as a member of *Acantholochus* by the lack of modified setae on the first antennal segment, by the presence of rostral hooks, and by the reduced or lack of the accessory process of the maxilliped (Boxshall & Halsey, 2004; Paschoal et al., 2013). Also, the specimen corresponds to *Acantholochus australiensis* in the keys proposed by Morales-Serna & Gómez (2010) and Paschoal et al. (2013), by the 6-segmented antennule, the presence of two setae on the second endopodal segment of leg 2, basal segment of maxilliped without papilla, and by having all exopodal segments of leg 4 equal in length.

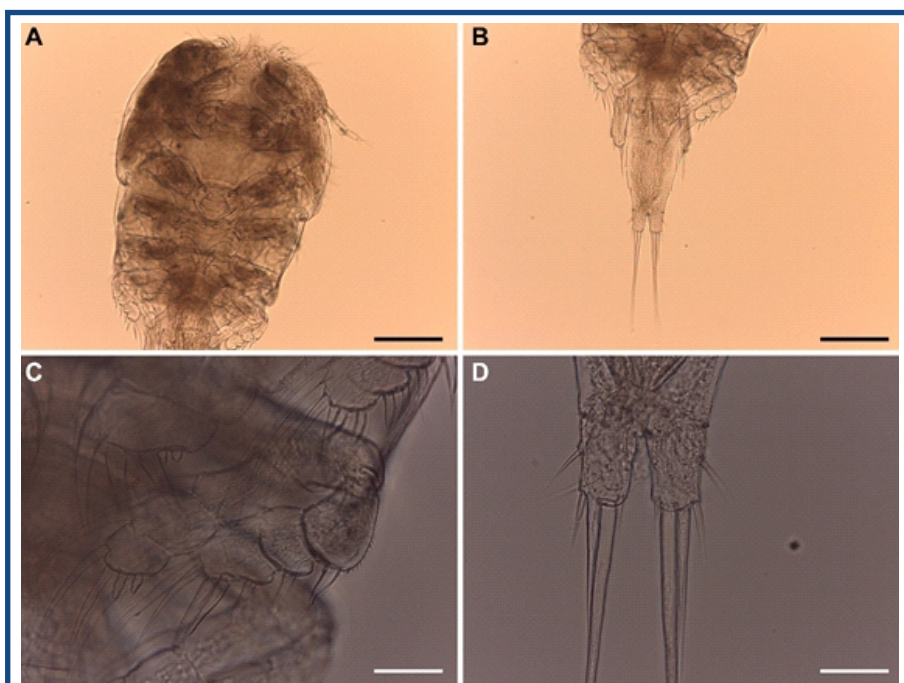


Figure 1 *Acantholochus australiensis* (adult female). A prosome, ventral; B urosome, ventral; C leg 3, ventral; D caudal ramus, ventral. Scale bars: A, B = 200 μ m; C, D = 50 μ m.



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► DISCUSSION

To date, only three species of *Acantholochus* have been reported from Mexico, all from the Pacific coast: *Acantholochus nasus* Cressey, 1984 from the nasal sinuses of *Anisotremus davidsonii* (Steindachner, 1876) and *Orthopristis reddingi* Jordan & Richardson, 1895 (both Haemulidae); *Acantholochus nudiussculus* (Cressey & Cressey, 1980) from the nasal sinuses of *Scomberomorus sierra* Jordan & Starks, 1895 and *S. concolor* (Lockington, 1879) (both Scombridae), all from Baja California; and *Acantholochus zairae* Morales-Serna & Gómez, 2010 from the gill filaments of *Sphoeroides annulatus* (Jenyns, 1842) (Tetraodontidae) from Santa María La Reforma lagoon, Sinaloa (Morales-Serna & Gómez, 2010; Morales-Serna et al., 2012). The present record of *A. australiensis* parasitizing *L. argentiventris* therefore constitutes the first report of this species from the Mexican Pacific and the first record of its occurrence in this host species, expanding both the known geographic distribution and host range of the species. Moreover, this finding increases the number of *Acantholochus* species known from the Mexican Pacific to four and demonstrates that the diversity of the genus in the eastern tropical Pacific is likely higher than previously thought, particularly considering the broad distribution and ecological importance of *L. argentiventris* throughout the tropical eastern Pacific (Froese & Pauly, 2026).

A parasite species with a record across the Pacific Ocean seems unlikely. However, this pattern has been observed in other marine fish parasites. For instance, the trematode *Schikhobalotrema acutum* (Linton, 1910) has been proven to be distributed in Australian waters, and on the Pacific coast of Mexico and in the Gulf of Mexico, parasitizing mainly belonids (needlefishes) of the genus *Tylosurus* Cocco, 1833 (Pérez-Ponce de León et al., 2023). Another example is that of the acanthocephalan *Rhadinorhynchus laterospinus* Lühe, 1911, which has been widely reported in scombrids from the Western Pacific Coast (Japan, China and Vietnam) but also found in the Mexican Pacific (Grano-Maldonado et al., 2025), although in this latter case the distribution is due to its presence in tunid fish which are distributed worldwide.



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The yellow snapper, *L. argentiventris*, is a marine lutjanid species that inhabits inshore coral reefs and estuaries along the eastern tropical Pacific (Froese & Pauly, 2026). Beyond its ecological role as a predator of small fish and crabs, this fish is also widely used as a food resource and an ornamental species (Froese & Pauly, 2026). The commercial importance of the yellow snapper contrasts with the current knowledge of its parasitic fauna, with only an unidentified species of *Bomolochus* von Nordmann, 1832 reported from *Lutjanus peru* (Nichols & Murphy, 1922) from Acapulco Bay –(Villalba-Vasquez et al., 2022). Thus, these findings not only represent the first report of a bomolochid copepod infesting *L. argentiventris* from Mexico, but also the first time an *Acantholochus* species has been found on a lutjanid host. In this sense, these results broaden the host range of Bomolochidae in the country and contribute to the understanding of parasite-host interactions for these parasites.

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