

First record of *Achelia echinata* (Pycnogonida, Ammotheidae) in Brazil

Primer registro de *Achelia echinata* (Pycnogonida, Ammotheidae) en Brasil

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ABSTRACT

A new record of *Achelia echinata*, for the Brazilian coast is provided. The record is based on material from the Pycnogonida collection of the University of São Paulo (USP), demonstrating the importance of studying the contents of existing biological collections.

Keywords: *Achelia*; biological collections; Pantopoda; sea spiders; taxonomy.

RESUMEN

Se proporciona un nuevo registro de *Achelia echinata* para la costa brasileña. El registro se basa en material de la colección Pycnogonida de la Universidad de São Paulo (USP), lo que demuestra la importancia de estudiar los contenidos de las colecciones biológicas existentes.

Palabras clave: *Achelia*; colecciones biológicas; Pantopoda; arañas de mar; taxonomía.

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INTRODUCTION

Achelia Hodge, 1864, one of the twenty accepted genera of family Ammotheidae Dohrn, 1881 (Bamber et al. 2024a). *Achelia echinata* Hodge, 1864 represents the type species. It is characterized by a circular or discoid body in dorsal view; proboscis piriform; scape with one small article; and vestigial chela present (Child 1998). *Achelia* This is considered one of the most problematic genera in Pycnogonida, having an enormous intraspecific variation that makes it difficult to discern variations from speciation limits (Child 2004). Due to abundant character variations and broad geographical distribution, a generic revision is necessary (Arango 2003). Specific variations involve mostly the number of articles in the palps and the quantity of spines present on the coxae of legs one and two (Müller and Krapp 2009).

Presently, 73 species of *Achelia* are accepted (Bamber et al. 2024b), of which four are known for the Brazilian coast, all in the Southeastern region: *A. besnardi* Sawaya, 1951, *A. columnaris* Stock, 1992, *A. gracilis* Verrill, 1900, and *A. sawayai* Marcus, 1940. Recent studies of biological collections have resulted in the expansion of the distribution of *A. sawayai* and *A. gracilis* to the Northeast (Lucena et al. 2019), and provided new records and the description of new species for Brazil (Lucena et al. 2015). Such results enhance the importance of revision the content of existing biological collections (Lewinsohn and Prado, 2006). Herein we present the first record of *Achelia echinata* based on the material deposited in the Pycnogonida collection of the University of São Paulo (USP).

MATERIALS AND METHODS

The studied material was deposited in the collection of the Zoology Museum, University of São Paulo (MZUSP). Photos are produced in a stereomicroscope with an attached camera lucida Leica DFC450, using the software LAS V4.5.

Achelia echinata Hodge, 1864 (Figs. 1 and 2)

Ammothea fibulifera Dohrn, 1881: 141–145, 15, 49, 51, 81, pl. IV, figs. 1–22.

?*Achelia echinata* var. *japonica* Ortmann, 1890: 164.

Ammothea echinata – Sars, 1891: 120–124, pl. XIII, figs. 1a–m.

Ammothea (Achelia) echinata – Bouvier, 1923a: 55.

Ammothea echinata subsp. *orientalis* Losina-Losinsky, 1933: 55–57, 77–78, fig. 7.

Ammothea (Achelia) echinata var. *sinensis* Lou, 1936: 19, figs. 7–9, pls. 2–4.

Material examined: BRAZIL. São Paulo: one male, São Sebastião, Iatch Club Ilhabela, 23°46'22.53"South 45°21'19.74"West, 31 oct. 2013, M. Tavares, J.B. Mendinça, A. Anker & P. Pachelles, MZUSP 017. BRAZIL. São Paulo: one female and two juveniles, São Sebastião, Segredo Beach, 23°49'43.62"South 45°25'21.89"West, 30 oct. 2013, M. Tavares, J.B. Mendinça, A. Anker & P. Pachelles, MZUSP 019. BRAZIL. São Paulo: one juvenile, São Sebastião, São Sebastião Channel, 14 m, 17 apr. 2013, Tavares & Braga, MZUSP 267.

Diagnosis: Trunk discoid, with incomplete segmentation, absent only between segments three and four. Lateral processes contiguous, with one or two dorsal tubercles. Chelifores with a dorsal tubercle on the scape. Palps with eight articles. Legs with long tubercles on all articles. Coxa 1 and 2 with four dorsal tubercles in males, and two in females. Femur with six tubercles on the distal margin. Propodus with three elongated spines in the region of the heel. Auxiliary claws are half the length of the main claw.

Distribution: Mediterranean, the entire coast of the North Atlantic, and the Northwest Pacific (Müller 1993, Kim 2013, Munilla and Soler-Membrives 2014). Brazil: São Paulo (this study).

Type material: Unknown.

Remarks: The juveniles studied herein have almost the same size as the females, but the chelifores are fully formed, with fingers and teeth on fingers (vestigial in adults), and the complete ovigers are complete (Fig. 2d). Furthermore, the juveniles have two spines on the heel (two fewer than in adults). The remaining structures are the same as in the adults. The single male encountered (MZUSP 017) is fragmented, with all appendages detached from the body.

Achelia echinata differs from the remaining Brazilian species by the presence of one pair of elongated tubercles on lateral processes (*A. sawayai* does not have ornamentation of lateral processes, *A. gracilis* has only one short

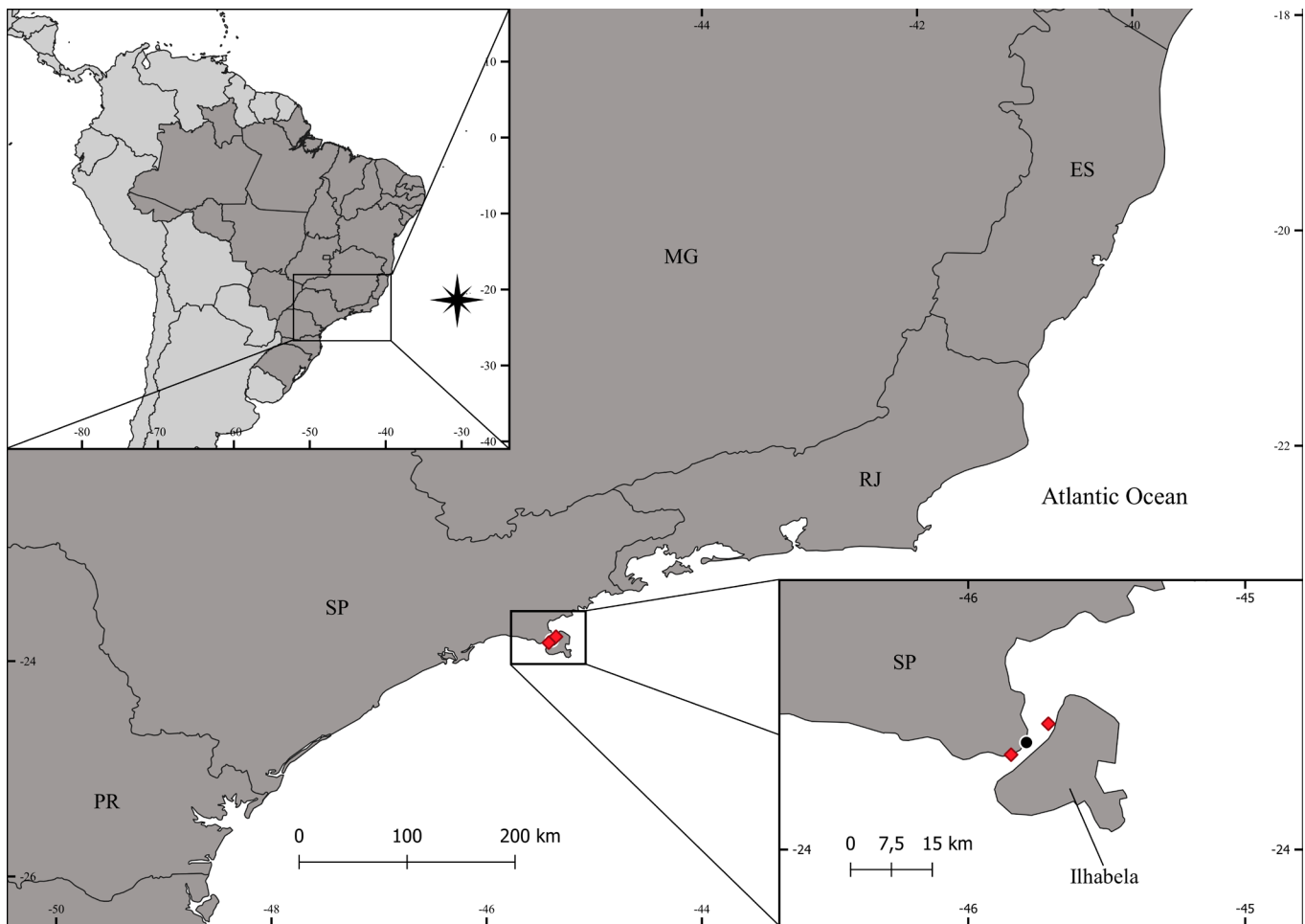


Figure 1. Distribution of *Achelia echinata* Hodge, 1864 in Brazil. Legends: Black circle São Sebastião Channel; red losangles, collected specimens. ES, Espírito Santo State; MG, Minas Gerais State; PR, Paraná State; RJ, Rio de Janeiro State; SP, São Paulo State.

tubercle, and *A. besnardi* has two tubercles on the first and fourth article, and three tubercles on second and third article), in addition to numerous tubercles on all appendages, particularly on legs (as observed only in *Achelia columnaris*, but in this species tubercles are much more numerous). The species studied are similar to those described and illustrated by Turpaeva (2009), Kim (2013), Lehman *et al.* (2014) and Munilla and Soler-Membrives (2014) having segments between 1-2 and 2-3 of the trunk, articles of palps elongate, with three spines on the heel. A few small differences were noted with previous descriptions: some lateral processes have three dorsal tubercles (the normal pattern is two tubercles), chelifores with two dorsal tubercles and one ventral in the distal region, and some legs with four spines on the heel.

Achelia echinata is easily found in algae and hydrozoans along the European coast, is considered an eurioic species

(Munilla and Soler-Membrives 2014). It is strongly resistant to contamination and to variations in salinity, being found in ports (Arnaud 1987). This represents the first record for the Southern Hemisphere and for Brazil, occurring in the region of São Sebastião (State of São Paulo). Because of the uniqueness of this record, we believe it to be dealing with an exotic species, probably dispersed into the Port of São Sebastião, a considerable invasive power, considering its high adaptive capacity. New surveys in the area are necessary in order to monitor the occurrences of this species and its possible patterns of dispersal.

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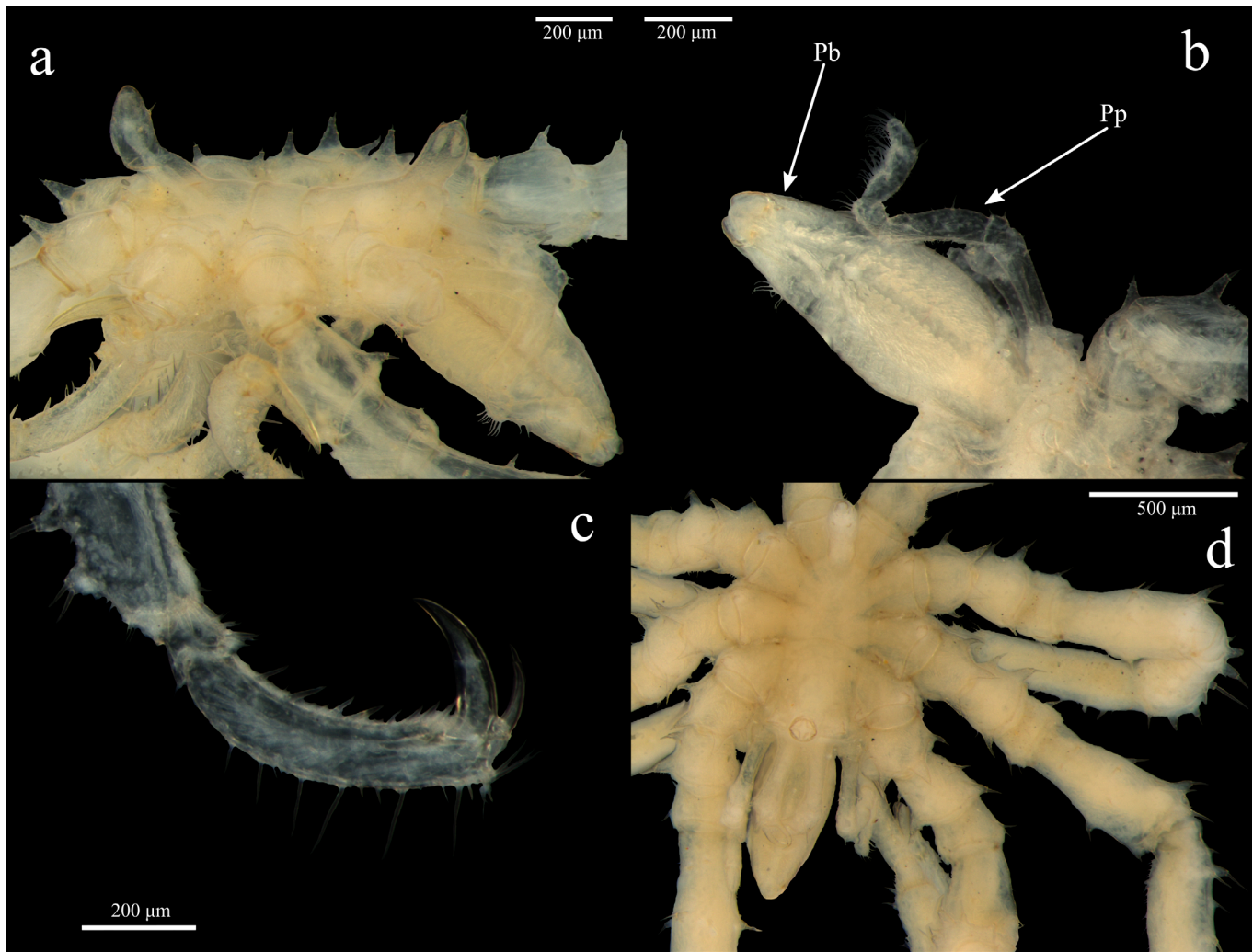


Figure 2. *Achelia echinata* Hodge, 1864 (MZUSP 017) Male. A, lateral view; B, palp; C, propodus. (MZUSP 267) Juvenile. D, dorsal view. Abbreviations: Pb, proboscis; Pp, Palp.

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AUTHOR'S CONTRIBUTION

RAL concept, data gathering and analyses, RAL and MLC writing of paper

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest

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