Panstrongylus geniculatus (Latreille, 1811) (Hemiptera, Reduviidae, Triatominae): first record on Ilha Grande, Rio de Janeiro, Brazil

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Abstract

Panstrongylus geniculatus (Latreille, 1811) is the most widely distributed species in Brazil. This study presents the first report of this species collected inside a building in the “Centro de Estudos Ambientais e Desenvolvimento Sustentável”, at the Vila Dois Rios, Ilha Grande, Rio de Janeiro, Brazil. The new record is important to understand the risk of Chagas disease transmission, mainly because this species is commonly found infected with Trypanosoma cruzi (Chagas, 1909).

Keywords

Chagas disease, Ilha Grande, new records, Trypanosoma cruzi, vector.

Introduction

The blood-sucking insects of the subfamily Triatominae (Hemiptera, Heteroptera, Reduviidae) are vectors of Chagas disease, an infection caused by the flagellate protozoan Trypanosoma cruzi (Chagas, 1909). The subfamily is composed of 151 extant and three fossil species assigned to five tribes and 19 genera (Rosa et al. 2017; Dorn et al. 2018; Lima Cordon et al. 2019; Poinar-Jr 2019). The genus Panstrongylus Berg, 1879 was described, based on P. guentheri Berg, 1879, and has 15 species, nine of them recorded in Brazil (Galvão 2014). Panstrongylus is one of the most important genera for public health, because some species are associated with the transmission of T. cruzi to humans and other mammals (Santos et al. 2003; Patterson et al. 2009).

Panstrongylus geniculatus (Latreille, 1811) is a wild species, often associated with armadillos, and eventually found in human dwellings. Valente et al. (1998) reported the colonization of pigsties near to human dwellings in the Amazon River floodplain, municipality of Muaná, Marajó Island, Pará state, northern Brazil. Intra-domiciliary colonies were also reported from Venezuela (Reyes-Lugo 2009; Reyes-Lugo and Rodriguez-Acosta 2000). This species is widely distributed across South America and has been previously recorded in many states from Brazil: Acre, Amapá, Amazonas, Bahia, Ceará, Distrito Federal, Espírito Santo, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rondônia, Roraima,
São Paulo, and Tocantins (Leite et al. 2007; Silva et al. 2016). The species has already been reported in large urban centers as the city of São Paulo, Brazil (Cerretti-Junior et al. 2018). Here, we report the first record on Ilha Grande, Rio de Janeiro, Brazil and extend the geographical distribution of this species.

Methods

Ilha Grande (23°08ʹ26ʺS, 044°14ʹ50ʺW) is an island in the southeastern Brazil, in the state of Rio de Janeiro, 6 km offshore. The island is covered by Atlantic Forest and crossed by winding trails. There are three protected areas in the island: the State Park of Ilha Grande, the State Biological Reserve of Praia do Sul, and the Marine State Park of Aventureiro. Although the entire island (19,300 ha) is an officially declared protected area, several touristic activities are allowed (Fig. 1).

On 3 November 2019 one specimen of a triatomine (Figs 2, 3) was collected by manual capture in the lobby of the “Centro de Estudos Ambientais e Desenvolvimento Sustentável” (CEADS) building, Universidade Estadual do Rio de Janeiro (UERJ), which is located in Vila Dois Rios, Ilha Grande, Rio de Janeiro, Brazil (Figs 1, 4). The specimen was sent to the Laboratório Nacional e Internacional de Referência em Taxonomia de Triatomíneos at Oswaldo Cruz Institute, Oswaldo Cruz Foundation (Fiocruz), Rio de Janeiro. The specimen was morphologically identified using the dichotomous keys by Galvão (2014) and deposited in the Triatominae Collection at the Oswaldo Cruz Institute (CTIOC).

Results

Panstrongylus geniculatus (Latreille, 1811)

Figures 2, 3, 5

New record. BRAZIL • 1 ♂; Rio de Janeiro: Angra dos Reis, Ilha Grande, Dois Rios; 23°10ʹ46ʺS, 044°11ʹ35ʺW; 2 Nov. 2019; coll. by Solange Ribeiro Peixoto; CTIOC 12434.

Identification. For identification of the genus Panstrongylus the main criterion is the position of the antennae, inserted close to the eyes (Fig. 2). The diagnosis of the species is based on: posterior lobe of pronotum with black band along posterior margin except at humeral area; pronotum with humeral angles rounded and femora black with apex reddish; dark spots on the abdominal venter (Fig. 3).

Discussion

In Brazil, P. geniculatus was recorded in the states of Acre, Amapá, Amazonas, Bahia, Ceará, Distrito Federal, Espírito Santo, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Paraná, Pernambuco, Piáui, Rio de Janeiro, Rondônia, Roraima, São Paulo, and Tocantins. This species is frequently collected in artificial habitats, but the sylvatic habitats, aspects of its biology, ecology, and genetics remain unknown (Galvão 2014; Silva et al. 2016).

Two of us (CD and CG) previously received a photo-
graphic record of a male of this species from Ilha Grande, photographed on 27 July 2018 (Fig. 5). This specimen was found alive in a hotel located in Praia de Passaterra, Enseada do Sítio Forte. Unfortunately, the specimen was not captured (Rafi ur Rahman 2018 pers. comm.).

The extension of the geographical distribution of *P. geniculatus* to Ilha Grande, Rio de Janeiro is consistent with the geographic distribution map published by Leite et al. (2007) and the prediction map for the potential distribution of this species in Brazil presented by Gurgel-Gonçalves et al. (2012) and Galvão (2014). The occurrence of sylvatic species, like *P. geniculatus*, invading sporadically human dwellings, was noted by Caranha et al. (2011) as a major difficulty for vector surveillance programs. On the other hand, insular records of triatomines, although unusual, have already been recorded in the literature (Sousa et al. 1983; Rebello et al. 1998; Valente 1999; Sagua Franco et al. 2000; Rosa et al. 2017). These records show the necessity of entomological surveys of isolated populations on islands.

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Authors’ Contributions
SRP collected the specimen contributed to the preparation of the manuscript; DSR and CD contributed to the preparation of the manuscript; CG studied the specimen and reviewed whole text.

References