CASE REPORT

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Ornithodoros mimon colonizing a residence in Campinas, state of São Paulo, associated with human parasitism

Ornithodoros mimon colonizando uma residência em Campinas, estado de São Paulo, associado a parasitismo humano

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ABSTRACT

Ornithodoros mimon is an argasid tick species usually associated with bats and marsupials and occasionally parasitizes humans inside their homes. This paper reports a tick infestation in a residence in the municipality of Campinas, located in the interior of the state of São Paulo (SP). This report increases *O. mimon* occurrence in SP and corroborates its anthropophilic activity. Further studies are needed to clarify its role as a vector of pathogens. We highlighted the presence of *O. mimon* in an area with a large human population (Campinas) associated with synanthropic animals.

Keywords: Anthropophilic. Argasidae. Soft tick.

RESUMO

Ornithodoros mimon é uma espécie de carrapato argasídeo, geralmente associada a morcegos e marsupiais, sendo ocasionalmente relatada parasitando humanos dentro de seus domicílios. Este trabalho relata a infestação por carrapatos em uma residência no município de Campinas, interior do estado de São Paulo (SP). O presente relato amplia a ocorrência de *O. mimon* no estado de SP, corroborando sua atividade antropofílica, sendo necessários mais estudos para esclarecer o seu possível papel como vetor de patógenos. Destaca-se a presença de *O. mimon* numa área de grande contingente humano (Campinas), associado a animais sinantrópicos.

Palavras-chave: Antropofílico. Argasidae. Carrapato mole.

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Ornithodoros mimon is a species of argasid tick that is usually associated with bats and marsupials. However, it can also parasitize rodents and other vertebrate hosts, such as birds, reptiles, and even humans (Alcantara et al., 2018; Labruna et al., 2014; Ramos et al., 2015). *O. mimon* is geographically distributed throughout South American countries, including Argentina, Bolivia, Brazil, and Uruguay (Barros-Battesti et al., 2011). More specifically, this species has been reported in the states of Ceará, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pernambuco, Rio Grande do Norte, and São Paulo, within different landscapes of the Caatinga, Cerrado, and Pantanal biomes (Costa et al., 2020; Jorge et al., 2022; Labruna et al., 2014; Landulfo et al., 2012; Ramos et al., 2015; Sponchiado et al., 2015).

The presence of *O. mimon* in human dwellings has been reported in at least five different states of Brazil, which led to severe inflammatory responses from its bites by the residents (Labruna et al., 2014; Landulfo et al., 2012). This information, together with the molecular detection of a relapsing fever-causing *Borrelia* in *O. mimon* from Mato Grosso state and of the spotted fever group *Rickettsia* in *Ornithodoros* cf. *mimon* from Rio de Janeiro state, demonstrates the importance of this species for public health (Dantas-Torres et al., 2022; Muñoz-Leal et al., 2021). Extending previous information, this study reported the findings of *O. mimon* colonizing a Campinas residence in the interior of the State of São Paulo (SP), Brazil.

A young woman posted to a Facebook group about having suffered bites and photographed and collected ticks walking on her bedroom walls (Figure 1A-C). Based on this information, one of the authors organized a visit to the site to inspect the residence and attempt to capture ticks. The house in question was in a residential condominium surrounded by a wooded area in the district of Sousas (22°52 S, 46°57′O) on the outskirts of the city of Campinas,

Figure 1 – A–C: Photographs of the tick bites and specimens found by the resident posted on social networks; D–F: Photographs of the resident's room taken at the time of the visit to the residence (arrows indicate the opening in the ceiling of the house where ticks descended at night for human parasitism); G–I: External view of the resident's house, showing the partial removal of the roof and collection of the specimens from the substrate found inside the lining of the residence.

the third most populous municipality in the state of SP (Instituto Brasileiro de Geografia e Estatistica, 2021).

During the room inspection, openings were observed through which ticks descended from the lining of the residence at night (Figure 1D, E, and F). The roof was then partially removed, and a colony of argasid ticks was found in the dry leaf litter, separated from the substrate with sieves and collected in plastic tubes using tweezers (Figure 1G, H, and I). Live immature (larvae and nymphs) and adult (males and females) specimens were collected and transported to the Laboratory of Parasitic Diseases of the Department of Preventive Veterinary Medicine and Animal Health of the Faculty of Veterinary Medicine and Animal Science of the University of São Paulo.

The adult specimens and nymphs were visualized under a stereomicroscope. The unfed larvae were killed in hot water, clarified with 25% KOH, mounted on slides using Hoyer's medium according to Barros-Battesti et al. (2006), and examined under a light microscope. The species was determined according to the original description and redescription (Barros-Battesti et al., 2011; Kohls et al., 1969). Nine males, 14 females, 158 nymphs, and 10 larvae of *O. mimon* were identified. Some specimens were deposited in the tick collection "Coleção Collection de Carrapatos Danilo Gonçalves Saraiva" (accession number CNC-4504).

The owner of the house reported the presence of opossums (*Didelphis* sp.) residing inside the roof lining and was educated regarding the use of acaricides to combat the argasids and shingling of the roof lining to prevent access by synanthropic animals. Human parasitism by *O. mimon* was previously reported in the municipality of Araraquara in the state of SP, approximately 165 km from the locality in the present report (Barros-Battesti et al., 2011). The present report increases the occurrence of *O. mimon* in the state of SP and corroborates its anthropophilic activity. Further studies are needed to clarify its role as a pathogen vector. We also highlighted the presence of *O. mimon* in an area with a large human population (Campinas) associated with synanthropic animals (opossums).

Conflict of Interest

The authors declare no conflict of interest.

Ethics Statement

The study did not require ethical approval.

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