

Occurrence of *Amblyomma rotundatum* Koch, 1844 on *Epicrates assisi* Machado, 1945 in João Pessoa, Paraíba, Brazil

Ocorrência de *Amblyomma rotundatum* Koch, 1844 em *Epicrates assisi* Machado, 1945 em João Pessoa, Paraíba, Brasil

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ABSTRACT: The Caatinga rainbow boa (*Epicrates assisi* Machado, 1945) is a snake belonging to the order Squamata, family Boidae, and subfamily Boinae. It has a wide distribution in Brazil and can be found in the Caatinga biome. The present study aims to report the first occurrence of *Amblyomma rotundatum* on *E. assisi* in the municipality of João Pessoa, Paraíba State (PB). On March 3, 2020, a tick collection was performed on the dorsal region of the head of an *E. assisi*, which was captive at the Arruda Câmara Zoobotanical Park, João Pessoa-PB. After collecting the tick, it was transferred to a flask containing 70° alcohol and sent to the Laboratory of Animal Parasitology of the Federal Rural University of the Semi-Arid (UFERSA) for analysis. Identification was done with the aid of a stereomicroscope using a taxonomic key. The result identified this specimen as a nymph of *A. rotundatum*. The occurrence of this tick species on *E. assisi* is reported for the first time and constitutes new data applicable to the ectoparasites that occur in this host species in Brazil.

KEYWORDS: Herpetology; Parasitology; Ticks.

RESUMO: A jiboia arco-íris da Caatinga (*Epicrates assisi* Machado, 1945) é uma serpente pertencente à ordem Squamata, família Boidae, e subfamília Boinae. Esta possui ampla distribuição no Brasil, podendo ser encontrada no bioma Caatinga. O presente trabalho tem como objetivo relatar a primeira ocorrência de *Amblyomma rotundatum* em *E. assisi* no Município de João Pessoa, no Estado da Paraíba (PB). No dia 03 de março de 2020, foi realizada uma coleta de carrapato na região dorsal da cabeça de uma *E. assisi*, que se encontrava cativa no Parque Zoobotânico Arruda Câmara, João Pessoa-PB. Após a coleta do carrapato, este foi transferido para um frasco contendo álcool 70° e encaminhado ao Laboratório de Parasitologia Animal da Universidade Federal Rural do Semi-Árido (UFERSA) para análise. A identificação foi realizada com o auxílio de estereomicroscópio usando-se chave taxonômica. O resultado identificou o referido espécime como uma ninfa de *A. rotundatum*. A ocorrência dessa espécie de carrapato em *E. assisi* é relatada pela primeira vez e constitui um novo dado aplicável aos ectoparasitos que ocorrem nessa espécie hospedeira no Brasil.

PALAVRAS-CHAVE: Herpetologia; Parasitologia; Carrapatos.

INTRODUCTION

The Caatinga rainbow boa (*Epicrates assisi* Machado, 1945), also known as the Caatinga salamant, is a snake belonging to the order Squamata, family Boidae, and subfamily Boinae. It has aglyphous dentition, thus not being a venomous species, and it draws attention due to its iridescent-color scales when exposed to sunlight, since it has ocelli along the back of the body. *Epicrates assisi* has a wide geographic distribution

in Brazil, and is often found in the Caatinga, and has a crepuscular/ nocturnal habit. The species can reach up to two meters in length, feeding on lizards, birds, and small rodents (DE ALMEIDA; SANTOS, 2011).

Ectoparasitoses are among the main diseases that affect captive reptiles, and due to hemophagia, even at low levels of infestation, ticks can transmit several pathogens of medical and veterinary interest, as well as cause the death or paralysis

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of snakes because of the inoculation of toxins during blood repast (DURDEN; KNAPP, 2005; DANTAS-TORRES et al., 2005, 2008; HANSON et al., 2007; DE MELLO, 2013).

In Brazil, 75 species of ticks are found, 51 in the Ixodidae family and 24 in the Argasidae family. Several of these are found as ectoparasites of reptiles, among which there are species classified in the families Ixodidae and Argasidae in the genera *Amblyomma* and *Ornithodoros* (PEREIRA et al., 2012; DANTAS-TORRES et al., 2019; MARTINS et al. 2019; MUÑOZ-LEAL et al., 2020; ONOFRIO et al., 2020; SOUZA et al., 2020).

The genus *Amblyomma* is represented worldwide by 139 species, of which 33 have been registered for Brazil, thus being the most numerous in the country and including the main species that can parasitize humans and transmit pathogens of Public Health importance (KRAWCZAK et al., 2015; MARTINS et al. 2019). Among the reptiles affected by ticks, snakes of the genus *Epicrates* have already been recorded with infestation by some species of the genus *Amblyomma*, such as *Amblyomma dissimile* Koch, 1844 in *Epicrates striatus fowleri* Sheplan and Swartz, 1974 in the Bahamas (DURDEN; KNAPP, 2005) and *Amblyomma rotundatum* Koch, 1844 in *Epicrates cenchria* (Linnaeus, 1758) in Pernambuco, Brazil (CUNHA et al., 2003).

Considering that in Brazil, especially for the Northeast region of this country, the records of occurrence of ticks for reptiles of the genus *Epicrates* are scarce and sparse, having a long time between one report and another, the present study aims to report the first occurrence of *A. rotundatum* on *E. assisi* in the Municipality of João Pessoa, Paraíba State (PB), which is a captive of the Arruda Câmara Zoobotanical Park.

MATERIAL AND METHODS

The project was submitted to the Ethics Committee on the Use of Animals in Research of the Federal Rural University of the Semi-Arid (UFERSA) (CEUA-UFERSA) and approved (Opinion No. 11/2020). All handling procedures that the animals were submitted during this research followed the specific guidelines of the committee.

On March 03, 2020, a tick collection was performed, according to Pereira et al. (2012), on the dorsal region of the head of a female Caatinga rainbow boa (*E. assisi*), 16 years old and score 2 (on the scale where 1 refers to cachexia and 5, obesity) (Figure 1). The animal was a captive of the Arruda Câmara Zoobotanical Park, João Pessoa-PB. The zoo (CNPJ: 08.806.721/0001-03) is registered with the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) under Registry No. 236567.

To collect the tick specimen, *E. assisi* was physically restrained with the help of a snake-handling hook with a U-shaped tip. Subsequently, only one collected tick specimen was transferred to a flask containing 70° alcohol and sent for analysis to the Laboratory of Animal Parasitology at UFERSA

(LPA-UFERSA). Identification was performed with the aid of a stereomicroscope using the taxonomic key of Martins et al. (2010). After inspection and collection of the ectoparasite, the snake was released and kept in its usual enclosure.

RESULTS AND DISCUSSION

From the analysis of the specimen, it was identified as a tick (a nymph of *A. rotundatum*). The species was confirmed by the presence of two spines on coxa I; two spines, with a very small internal one, on coxa II; and hypostomal formula 2.5/2.5 (Figure 2).

The *A. rotundatum* tick is a widely distributed species in Brazil, abundant in the areas where it occurs and reproduces predominantly by parthenogenesis, although the male has already been described (LABRUNA et al., 2005). The species is mainly native to the Neotropical region of Central and



Figure 1. Species of *Epicrates assisi* MACHADO, 1945 at the Arruda Câmara Zoobotanical Park, João Pessoa-PB.

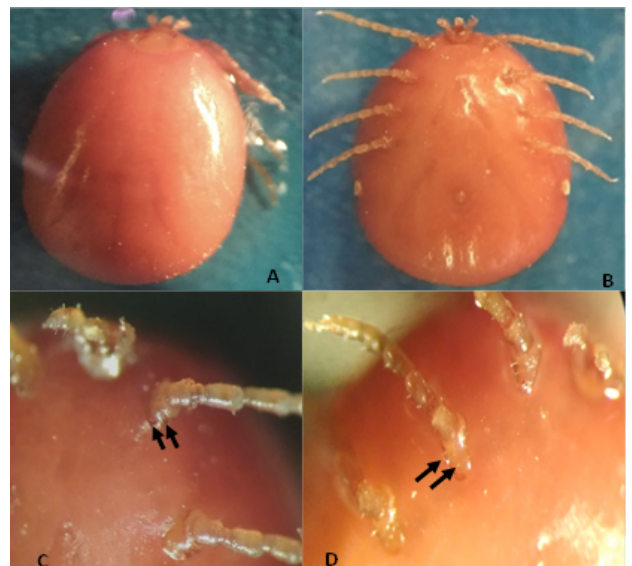


Figure 2. Nymph of *Amblyomma rotundatum* KOCH, 1844 (objective 5.6x): A- Dorsal view; B- Ventral view; C- Coxa spines I; D- Coxa spines II.

South America; however, the tick has been described for the Nearctic region. Thus, the common hosts for these ticks are Anura: Bufonidae and Squamata: Boidae, with crocodylians and mammals being considered exceptional hosts for this ectoparasite (DE MELLO, 2013; GUGLIELMONE et al. 2014).

Of the 33 *Amblyomma* species already reported in Brazil, only four are frequently recorded in amphibians and reptiles in the country: *A. dissimile*, *Amblyomma fuscum* Neumann, 1907; *Amblyomma humerale* Koch, 1844. and *A. rotundatum*. This genus is virtually found in all Brazilian states, with records of infestation on snakes. As examples, we can mention: *A. rotundatum* on *Boa constrictor constrictor* in Rio Grande do Norte (PEREIRA et al., 2012); *A. dissimile* on *Eunectes murinus*, in Pará (DO NASCIMENTO et al., 2017); and *Amblyomma sculptum* Berlese, 1888 - published as *Amblyomma cajennense* (Fabricius, 1787) on *Crotalus durissus*, in Goiás (SZABÓ et al., 2007). The species *A. dissimile* and *A. rotundatum* are the most common ectoparasites of amphibians and reptiles, both distributed in the Neotropics and highly adapted to anthropic environments (DANTAS-TORRES et al. 2008, 2010; GUGLIELMONE et al., 2014; MORAIS et al., 2017; DE ALCANTARA et al., 2018; ODA et al., 2018; SOUZA et al., 2020).

Considering the genus *Epicrates* in Brazil, the occurrence of *A. rotundatum* infestation on these reptiles has been reported only once, on the species *Epicrates cenchria*, in the State of Pernambuco (CUNHA et al., 2003). In the same decade, Dantas-Torres et al. (2010) conducted a research with captive animals in a Zoobotanical Park in Pernambuco and also in the same zoo where the present research was conducted, the Arruda

Câmara Zoobotanical Park in Paraíba, where they recorded the occurrence of nymphs of *Amblyomma* spp for *E. cenchria*.

Thus, after 17 years, the present work records the occurrence of *A. rotundatum* in the genus *Epicrates* in Brazil and records the occurrence of the Ixodidae *A. rotundatum* in the host species *E. assisi* for the first time.

CONCLUSION

The occurrence of *A. rotundatum* on *E. assisi* is reported for the first time and constitutes new data applicable to the ectoparasites that occur in this host species in Brazil. This meeting contributes to the expansion of ecological data, as well as to the conservation of this Boidae. From the present study, future work can be carried out with the aim of understanding the bioecology of these ectoparasites in rainbow boas from the Caatinga and investigate the consequences that the populations of these hosts may suffer in the wild and how the relationship of *A. rotundatum* interferes with the welfare of the host species in captivity.

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