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Redescription of the larva of *Amblyomma oblongoguttatum* Koch, 1844 (Acari: Ixodidae) by light and scanning electron microscopy

FABIO S. BARBIERI¹, LUCIANA G. BRITO¹, DARCI M. BARROS-BATTESTI², KÁTIA M. FAMADAS³,
MARCELO B. LABRUNA⁴ & LUIS MARCELO A. CAMARGO⁵

¹Embrapa Rondônia, 78900-970, Porto Velho, RO, Brazil. E-mail: fabio.barbieri@cpafro.embrapa.br

²Laboratório Especial de Coleções Zoológicas, Instituto Butantan, 05503-900, São Paulo, SP, Brazil

³Departamento de Parasitologia Animal, UFRRJ, 23890-000, Seropédica, RJ, Brazil

⁴Faculdade de Medicina Veterinária e Zootecnia, USP, 05508-900 São Paulo, SP, Brazil

⁵Instituto de Ciências Biomédicas 5, USP, 78965-000, Monte Negro, RO, Brazil

Abstract

The larval stage of *Amblyomma oblongoguttatum* Koch is redescribed using optical and scanning electron microscopy. Unfed larvae were obtained from a colony of *A. oblongoguttatum* originated from engorged females collected on domestic pigs from Monte Negro municipally (10°29'S, 63°32'W), State of Rondônia, Western Amazon, Brazil. Several characters are presented including the chaetotaxy of the idiosoma, palpi and Haller's organ, as well as morphological features of the idiosoma, gnathosoma and legs. In addition, the porotaxy (topographical and numerical patterns of integumentary structures) were presented by using a new nomenclature recently proposed. The chaetotaxy of the larvae of *A. oblongoguttatum*, in general, is similar to other Neotropical *Amblyomma* species. Three types of integumentary structures were observed on the idiosoma: lyrifissures, small glands, and large wax glands. Topographic and numerical patterns of the integumentary structures consisted of 5 pairs of large wax glands (1 dorsal/ 4 ventral), 24 pairs of lyrifissures (11 dorsal/ 13 ventral), and 49 pairs of small glands (28 dorsal/ 21 ventral). These topographic and numerical patterns found for *A. oblongoguttatum* show only minor differences when compared with patterns of other *Amblyomma* larvae, however, a few key features can be used for identification of these species.

Key words: *Amblyomma oblongoguttatum*, larva, description, morphology, chaetotaxy, porotaxy

Introduction

A total of 59 *Amblyomma* species are recorded from the Neotropical region, of which 30 are considered established in Brazil (Dantas-Torres *et al.* 2009). Morphological descriptions for these Neotropical *Amblyomma* species have been published for the adult stage but are seldom available for immature stages, with the exception of an illustrated key for nymphs from Brazil (Martins *et al.* 2010). This oversight occurs because most species are primarily associated with native wildlife, making it difficult to obtain larvae and nymphs from females correctly identified through field collections.

Morphological description of immature tick stages is fundamental to studies of tick ecology and disease relationships, since the correct identification of immature stages, and the specific host species, are important points in the epidemiology of tick-borne disease. In tick morphology, including the genus *Amblyomma*, some integumentary structures such as setae and pores have been used in systematic studies of larvae (Dinnik & Zumpt 1949; Nawar & Madbouly 1985; Klompen *et al.* 1996; Barbieri *et al.* 2007). Sensory setae are the most studied integumentary structure, however their topographical distribution is highly conserved among Neotropical *Amblyomma* species; therefore these setae are of poor systematic value for specific level comparisons (Barbieri *et al.* 2007).

Some authors have utilized the integumentary pores distributed on the idiosoma of the larvae for specific identification of ticks. On the larval idiosoma there are three types of the pores: lyrifissures, small glands, and large