



Description and ontogenetic morphometrics of eggs and instars of *Triatoma costalimai* Verano & Galvão, 1959 (Hemiptera: Reduviidae: Triatominae)

RAQUEL S RAIGORODSCHI¹, DAYSE S ROCHA¹, JOSÉ JURBERG¹ & CLEBER GALVÃO^{1,2}

¹Laboratório Nacional e Internacional de Referência em Taxonomia de Triatomíneos, Instituto Oswaldo Cruz, Fiocruz, Avenida Brasil 4365, 21040-900 Rio de Janeiro, RJ, Brasil. E-mails: clebergalvao@gmail.com; galvao@ioc.fiocruz.br

²Corresponding author

Abstract

The triatomines are characterized by obligate hematophagy throughout their life cycle, and they are responsible for the transmission of *T. cruzi*, the etiological agent of Chagas disease, to humans and other mammals. *Triatoma costalimai* was described by Verano & Galvão (1959) based on nine specimens found among rocks in the municipality of Taguatinga, Goiás State, Brazil. The species was named in honor of Ângelo Moreira da Costa Lima, an entomologist from the Oswaldo Cruz Institute. It is a sylvatic species but has been found in peridomestic areas and human dwellings in the States of Bahia, Goiás, Mato Grosso, and Minas Gerais, Brazil. Nymphs and eggs of *T. costalimai* were described using optical microscopy. The eggs are ellipsoid in shape, and most cells are pentagonal. Nymphs display morphological differences, and the colors, legs, and head maintain the same pattern in most instars. Ontogenetic morphometrics was used to visualize the changes that occur during nymphal development. The results showed the discrimination of all instars, but the largest change occurs between the first and second instars.

Key words: *Triatoma costalimai*, nymphs, eggs, external morphology, Chagas disease

Introduction

The members of the subfamily Triatominae are vectors of *Trypanosoma cruzi* (Chagas, 1909), the causative agent of Chagas disease or American trypanosomiasis, an important public health problem in Latin America. The subfamily is represented by 143 species distributed among 5 tribes and 18 genera (Galvão *et al.* 2003; Schofield & Galvão, 2009). After the successful large-scale campaign to control domestic populations of Triatominae in some South American countries, it is highly important to maintain surveillance of species invading controlled areas. In some situations, only eggs or nymphs, not the adult insects, are found inside human dwellings; therefore, earlier identification of immature forms is important.

Triatoma costalimai was described by Verano & Galvão (1959), based on nine specimens collected among calcareous rocks close to nests of Caviidae in the municipality of Taguatinga, Goiás State, Brazil. The species was named in honor of Angelo Moreira da Costa Lima, an entomologist from the Oswaldo Cruz Institute. Thus far, information is scarce on the role of *T. costalimai* in the epidemiology of Chagas disease. *T. costalimai* is currently included in the *T. infestans* complex, *T. matogrossensis* sub-complex, with seven other species (Schofield & Galvão 2009). It is predominantly a species with wild habits, but has been found in peridomestic areas and human dwellings in the States of Bahia, Goiás, Mato Grosso, Minas Gerais, and Tocantins (Galvão *et al.* 2003; Barbosa *et al.* 2005).

In this article, we provide the first description of eggs and five instars of *T. costalimai*, including an ontogenetic morphometric study of head development.