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short communication

Coloration of the testicular peritoneal sheath as a synapomorphy of triatomines (Hemiptera, Reduviidae)

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Abstract: Recently, were described some morphological characteristics of 18 species of terrestrial hemipteran grouped in the Alydidae, Coreidae, Corimelaenidae, Lygaeidae, Rhopalidae, Scutelleridae, Tingidae and Reduviidae family that presented found variation in coloration of testicular peritoneal sheath (Reddish, Orange, Yellowish or Transparent). Thus, this study aims to analyzed the coloration of the peritoneal sheath in 44 species of triatomines grouped in nine different genera, with the aim of analyze whether the insects of the Triatominae subfamily also show variations in coloration. By means of analysis of the sheath was possible to observe that members of this subfamily have no interspecific differences, because all species have a transparent sheath. Thus, this paper describes the coloring of the peritoneal sheath in 44 species of the subfamily Triatominae and mainly suggests that the transparent color is one synapomorphy of this important group of insect vectors.
Keywords: *testicle, Heteroptera, Triatominae subfamily.*

ALEVI, K.C.C., OLIVEIRA, J., ROSA, J.A., AZEREDO-OLIVEIRA, M.T.V. **Coloração da bainha peritoneal testicular como uma sinapomorfia dos triatomíneos (Hemiptera, Reduviidae).** Biota Neotropica. 14(4): e20140099. http://dx.doi.org/10.1590/1676-06032014009914

Resumo: Recentemente, foram descritas algumas características morfológicas de 18 espécies de hemípteros terrestres agrupados nas famílias Alydidae, Coreidae, Corimelaenidae, Lygaeidae, Rhopalidae, Scutelleridae, Tingidae e Reduviidae que apresentaram grandes variações na coloração da bainha peritonial testicular (avermelhada, alaranjada, amarelada ou transparente). Assim, este estudo teve como objetivo analisar a coloração da bainha peritoneal em 44 espécies de triatomíneos agrupadas em nove gêneros diferentes, com o intuito de analisar se os insetos da subfamília Triatominae também apresentam variações na coloração da bainha. Por meio da análise da bainha, foi possível observar que os membros desta subfamília não apresentaram diferenças interespecíficas, pois todas as espécies analisadas possuem bainha transparente. Assim, o presente trabalho descreve a coloração da bainha peritoneal em 44 espécies da subfamília Triatominae e, principalmente, sugere que a cor transparente é uma sinapomorfia deste importante grupo de insetos vetores.
Palavras-chave: *testículo, Heteroptera, subfamília Triatominae.*

Introduction

Triatomines are hematophagous insects of medico-sanitary importance because they are considered as the main vector of Chagas disease in the human population. These vectors are included in the Hemiptera order, Heteroptera suborder, Reduviidae family and Triatominae subfamily (Lent & Wygodzinsky 1979).

The knowledge of the biology of these vectors is of great importance to public health, because the main way to minimize the incidence of Chagas disease is by controlling populations (Dias & Schofield 1998, Alevi et al. 2012a). The reproductive biology of hemipterans was extensively studied by many aspects, such as anatomical (Barth 1956, Freitas et al. 2008), morphological (Gomes et al. 2013, Rosa et al. 2014), structural (Freitas et al. 2010, Silistino-Souza et al. 2012), ultrastructural (Morielle-Souza et al. 2010, Freitas et al. 2010, Silistino-Souza et al. 2012) and cytogenetic (Alevi et al. 2012a, b, 2013a, b, c, d, 2014a, b).

Recently, Gomes et al. (2013) described some morphological traits of 18 species of terrestrial hemipteran grouped in the

Table 1. Genus and species of Triatominae who had the peritoneal sheath analyzed.

Genus	Species
Cavernicola	*C. pilosa*
Psammolestes	*P. tertius*
Rhodnius	*R. brethesi*, *R. colombiensis*, *R. domesticus*, *R. montenegrensis*, *R. nasutus*, *R. neglectus*, *R. neivai*, *R. palescens*, *R. pictipes*, *R. prolixus*, *R. robustus*
Dipetalogaster	*D. maximus*
Eratyrus	*E. cuspidatus*
Meccus	*M. pallidipennis*, *M. longipennis*
Mepraia	*M. spinolai*
Panstrongylus	*P. lignarius* (= *P. herreri*), *P. megistus*
Triatoma	*T. baratai*, *T. brasiliensis*, *T. b. macromelasoma*, *T. carcavalloi*, *T. costalimai*, *T. infestans*, *T. guazu*, *T. juazeirensis*, *T. klugi*, *T. lectularia*, *T. lenti*, *T. maculata*, *T. melanica*, *T. melanocephala*, *T. platensis*, *T. protracta*, *T. pseudomaculata*, *T. rubrovaria*, *T. rubrofasciata*, *T. sordida*, *T. tibiamaculata*, *T. vandae*, *T. vitticeps*, *T. williami*

Alydidae, Coreidae, Corimelaenidae, Lygaeidae, Rhopalidae, Scutelleridae, Tingidae and Reduviidae family. Among the characteristics, the color of the peritoneal sheath covering the seminiferous tubules was analyzed. The authors found variation in coloration of sheath (Reddish, Orange, Yellowish or Transparent). Thus, this study aims to analyze the peritoneal sheath in 44 species of triatomines grouped in nine different genera (Table 1), with the aim of analyze whether the insects of the Triatominae subfamily also show variations in coloration.

Material and Methods

Exemplars males of 44 species (Table 1) were provided by ''Triatominae Insectarium'' within the Department of Biological Sciences, in the College of Pharmaceutical Sciences, at Sao Paulo State University's Araraquara campus, Brazil (FCFAR/UNESP). The testicles were removed and photographed according to the methodology of Gomes et al. (2013).

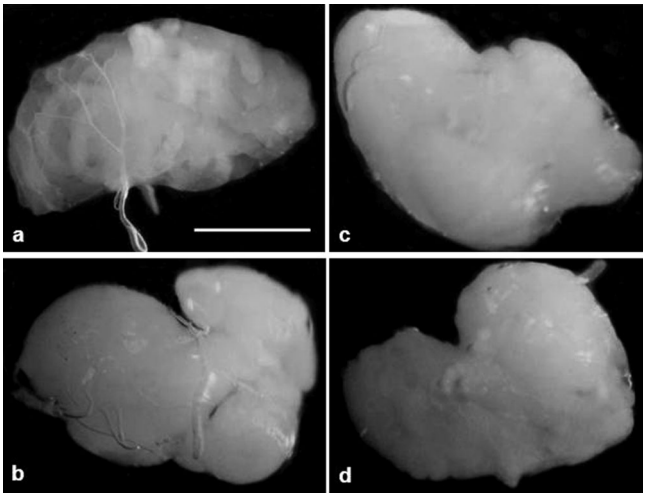

Figure 1. Peritoneal sheath of different genus of the subfamily Triatominae analyzed. Note that in all genus the sheath is transparent. (a) *T. infestans*. (b) *M. pallidipennis*. (c) *P. megistus*. (d) *D. maximus*. Bar: 10 mm.

Results and Discussion

The analysis of the peritoneal sheath of 44 species possible to observe that members of Triatominae subfamily have no interspecific differences, as described by Gomes et al (2013) for phytophagous hemipterans, because all species have a transparent sheath. Like all species of nine genera analyzed show the same coloring, we represent with image the testicle of one species of each genus (Figures 1 and 2).

The insects of the subfamily Triatominae share synapomorphies related to reproductive biology, such as the presence of chromosomes holocentric (Panzera et al. 1996), inverted meiosis for sex chromosomes (Gómez-Palacio et al. 2008), the phenomenon of nucleolar persistence during meiosis (Tartarotti & Azeredo-Oliveira 1999, Alevi et al. 2014c), nucleolar inactivation during spermiogenesis (Alevi et al. 2014b), presence seven testicular follicles (Schreiber et al. 1968) and testicular peritoneal sheath transparent (this paper), demonstrating that during the evolution and speciation of the triatomines, the reproductive aspects undergone few modifications.

Thus, this paper describes the coloring of the peritoneal sheath in 44 species of the subfamily Triatominae and mainly suggests that the transparent color is one synapomorphy of this important group of insect vectors.

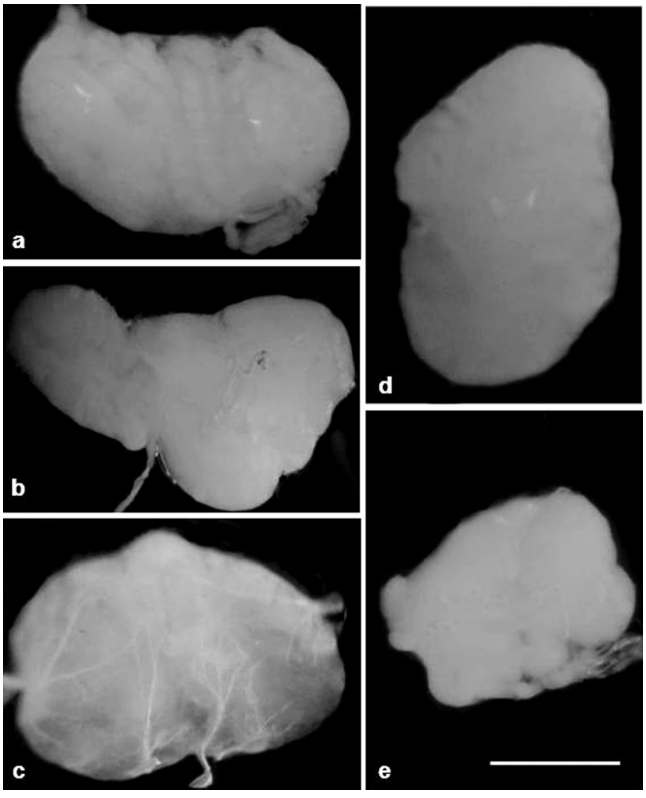

Figure 2. Peritoneal sheath of different genus of the subfamily Triatominae analyzed. Note that in all genus the sheath is transparent. (a) *M. spinolai*. (b) *E. cuspidatus*. (c) *P. tertius*. (d) *R. montenegrensis*. (e) *C. pilosa*. Bar: 10 mm.

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