A new species of *Lizerius* Blanchard (Hemiptera: Drepanosiphidae) from Brazil

Suzan B. Z. Cunha & Carlos R. Sousa-Silva

Received 4 June 2018
Accepted 10 May 2019
Published 15 July 2019
DOI 10.1590/1678-4766e2019022

**ABSTRACT.** In this study a new aphid species of the genus *Lizerius* Blanchard, 1923 (Hemiptera: Drepanosiphidae) is described. Samplings were carried out in the municipalities of Porto Ferreira and Pedregulho, state of São Paulo, Brazil, over plants of *Persea americana* Mill, 1768 and *Terminalia brasiliensis* Spreng, 1825. Morphological characteristics of apterous and alate are described and represented by drawings.

**KEYWORDS.** Brazilian Aphid, Lizeriini, *Persea americana*, *Terminalia brasiliensis*.

The genus *Lizerius* Blanchard, 1923 belongs to the tribe Lizeriini placed by Quednau (1974) in the Aphididae. Quednau (1974) also points out that Lizeriini is a “primitive” tribe of South American aphids and recognize the subgenera *Lizerius* and *Paralizerius*, distinguishing them by: (i) number of distal setae present in the head region; (ii) absence of pleural setae in the abdominal tergites; and (iii) type and localization of the processes occurring in the body of the apterous forms. Heie (1982) and Ilharco (1992) consider Lizeriini belonging to the family Drepanosiphidae and do not recognize the above mentioned subgenera. In the present study, we followed the classification of Ilharco (1992).

Until now, 11 species of *Lizerius* are known in the Neotropics, all of them, except *L. pustulatus* Quednau, 2010, already recorded in Brazil (Quednau, 2010; Cunha & Sousa-Silva, 2016). The current known geographical distributions for species of this genus are: *L. ocoteae* Blanchard, 1923 recorded in Brazil, Argentina and Uruguay; *L. acuinae* (Holmam, 1974) in Brazil and Cuba; *L. tuberculatus* (Blanchard,1939) in Brazil, Argentina, Venezuela and Mexico; *L. brasiliensis* Quednau, 1974, Brazil and Uruguay; *L. cermelii* Quednau 1974, Brazil, Argentina and Venezuela; *L. pichurin* Quednau 2010, Brazil and Venezuela (Costa et al., 1972; Eastop et al., 1993; Quednau, 2010); and the following species *L. costai*

**MATERIAL AND METHODS**

Samplings were carried out in Porto Ferreira State Park, Porto Ferreira municipality and in Furnas do Bom Jesus State Park, Pedregulho municipality, state of São Paulo, southeastern Brazil, in the period between April 2014 and March 2016. In each locality aphid samples were taken by actively searching all types of plants (trees, bushes and herbaceous) along previously existing trails. Each locality was sampled monthly, with a total sampling effort of 96 hours at each place. Aphids were collected, transferred to plastic recipients and preserved in ethanol 90%. Plant branches, flowers or seeds, whenever present, were also preserved and herborized for posterior species identification by specialists. Aphids were mounted on glass slides following the procedure...
recommended by Ilharco & Gomes (1981). The specimens were identified using specialized literature (Quednau, 1974, 2010; Ilharco, 1992; Blackman & Eastop, 2016).

RESULTS

Lizerius jorgei sp. nov.

(Figs 1-10)

urn:lsid:zoobank.org:act:2ADD1B26-C043-4FA4-AB53-E9782CDDABB


Etymology: This new species is named in honor of the aphid collector Jorge Luís da Cunha.

Diagnosis. Lizerius jorgei sp. nov. is very similar to L. brasiliensis and L. costai. The apterous form of L. jorgei is distinguished from L. brasiliensis by bearing finger-like processes in the spinal body region and being devoid of spinal setae in each abdominal tergite; the alate form is distinguished by the absence of mammiform processes in the head and pronotum, the absence of spinal setae in each abdominal tergite and the presence of processes only in VI, VII and VIII tergites. Alate females of L. jorgei are distinguished from alate females of L. costai by possessing mammiform processes in abdominal tergits VI, VII and VIII, bearing much lower number of secondary rhinaria present in each antennal segment.

DESCRIPTION

Apterous viviparous female. Alive aphid with vivid yellow color, small greenish stripes at thorax and at three first segments of abdomen and black triommatidium. Specimens cleared and mounted in slides present body completely membranous with the last rostral segment bearing small sclerotization.

Figs 1-5. Lizerius jorgei sp. nov., apterous viviparous female: 1, body (100x magnification); 2, cauda (400x magnification); 3, rostrum (400x magnification); 4, antenna (400x magnification); 5, hind tarsus (400x magnification).
A new species of *Lizerius* Blanchard (Hemiptera: Drepanosiphidae) from Brazil

Cunha & Sousa-Silva

Morphological characters. Characteristics based on the analysis of 24 apterous viviparous female (Figs 1-5). Body entirely pale, measuring 1.25-2.05 mm in length (Fig. 1). Eyes reduced to triommatidium. Antennae 5-segmented, with total length range of 0.400-0.875 mm; 0.3-0.6 times as long as body. III antennal segment 0.17-0.44 mm, IV 0.07-0.17 mm, base of V antennal segment 0.07-0.16 mm; processus terminalis 0.03-0.04 mm and 0.18-0.57 times as long as base of V (Fig. 4). Rostrum 4-segmented extending until mesocoxae, with one pair of primary setae and one pair of secondary setae; apical segment obtuse (0.09-0.11 mm), 0.81-1.4 times as long as II segment of hind tarsus (Fig. 3). Fore femora normal, not enlarged, hind tibiae with many hairs, most localized, being the hairs longest near the tarsi with 0.012-0.027 mm length; first tarsal segments with 3-5 ventral setae reaching 0.020-0.037 mm; second segment hind tarsus reaching 0.07-0.11 mm long (Fig. 5). Siphunculi ring-like in 5th abdominal tergite. Knob of cauda finger-like (0.17-0.24 mm), bearing a constriction at basal one-third and with eight caudal hairs (Fig. 2). Anal plate bilobated with 3-4 long setae in the apical margin of each lobe, which are longer than others present in the middle region of the lobes. Four gonapophyses with 2-3 gonochaetaes. Body with 12 pairs of long finger-like processes distributed as following. Two pairs in the head; one anterior and short (0.10-0.22 mm) and the other posterior and long (0.27-0.42 mm). In the thoracic region there are one lateral pair in the pronotum (0.32-0.56 mm), one lateral pair in the mesonotum (0.31-0.71 mm) and one spinal pair in the mesonotum (0.41-0.73 mm). In the abdomen the following pairs of processes are observed: 1st tergite, lateral pair (0.24-0.46 mm), 2nd tergite, lateral pair (0.32-0.51 mm), 3rd tergite, lateral pair (0.32-0.52 mm), 4th tergite, spinal pair (0.38-0.70 mm), 5th tergite, absent, 6th tergite, lateral pair (0.27-0.50 mm), 7th tergite, lateral pair (0.24-0.35 mm) and 8th tergite, spinal pair (0.30-0.44 mm) (Fig. 1).

Alate viviparous female. Alive aphids with vivid yellow color and dark brown thorax; compound eyes black and red triommatidium. Specimens cleared and mounted in slides present body completely membranous with the last rostral segment bearing small sclerotization.

Morphological characters. Characteristics based on the analysis of 20 alate viviparous female (Figs 6-8). Body entirely pale, measuring 1.15-1.62 mm in length (Fig. 6). Head with setae varying length between 0.0075-0.010 mm. Epicranial suture absent. Antennae 6-segmented, with total length range of 0.750-0.925 mm, 0.49-0.82 times as long as body; III antennal segment 0.29-0.39 mm, IV 0.12-0.15 mm, V 0.12-0.17 mm, base of VI antennal segment 0.10-0.15 mm; processus terminalis 0.02-0.04 mm and 0.15-0.30 times as long as base of VI. Secondary rhinaria oval to elliptic; 18-29 secondary rhinaria in III antennal segment, evenly distributed over all the segment and 0-6 at IV antennal segment (Fig. 8). Rostrum 4-segmented, extending until procoxae; apical segment obtuse (0.08-0.10 mm), 0.72-1.00 times as long as II segment of hind tarsus. Fore wings with dark pigmented costal veins and pterostigma, cubital vein strongly delimitated, tip of the veins weakly developed. Hind wings with two oblique veins (Fig. 6). Fore femora normal, not enlarged and hind tibiae with many hairs, the longest of them reaching 0.0015-0.0027 mm length and located at the apical half of tibia, near the tarsi. First segment of hind tarsi with 2 dorsal setae and 4-6 long ventral setae. Second segment of hind tarsi reaching 0.09-0.11 mm (Fig. 7).

---

Figs 6-8. *Lizerius jorgei* sp. nov., alate viviparous female: 6, body and wings (100x magnification); 7, hind tarsus (400x magnification); 8, antennae (400x magnification).
Caudal knob finger-like, 0.13-0.21 mm and with 8-9 caudal hairs. One pair of small lateral mammiform processes in the 6th tergite (0.01-0.027 mm), one pair in the 7th tergite (0.015-0.028 mm) and one pair of small spinal mammiform processes in the 8th tergite (0.015-0.03 mm) are observed in the abdomen of alate specimens (Fig. 6). Other features similar to apterous forms.

**Alate male specimen.** Alive aphids with vivid yellow color, dark brown thorax; compound eyes black and red triommatidium. Specimens cleared and mounted in slides present body completely membranous with the thoracic region darker than in females, very dark legs and last rostral segment with small sclerotization.

**Morphological characters.** Characteristics based on the analysis of one alate male form (Figs 9, 10). Body pale with dark thoracic region and very dark legs. It differs from alate females by having high number of secondary rhinaria and several rhinaria in V and VI antennal segments, which are similar in size and shape of rhinaria present at segment III; and by possessing V antennal segment slightly larger than females (Fig. 10). Body slightly smaller than females (Fig. 9). Other features similar to alate viviparous females.

**DISCUSSION**

During samplings, the presence of apterous and alate females of *Aphis spiraecola* Patch, 1914 (Hemiptera: Aphididae) was observed co-occurring with *L. jorgei* sp. nov. and the predator *Harmonia axyridis* (Pallas, 1773) (Coleoptera, Coccinellidae). It is possible that *T. brasiliensis*, a native plant of Brazil, is the preferential host of *L. jorgei* since all the specimens collected in this plant were more vigorous than those collected in *P. americana*. Nevertheless, more sampling and observations are required to gather sufficient evidence to this hypothesis.

**Acknowledgments.** We thank to Dr F.W. Quednau for making available the literature, the biologist Ernesto Pedro Dickfeldt for the identification of the host plants and to the Conselho Nacional de Desenvolvimento Científico and Tecnológico (CNPq) for the scholarship grant to the first author. We also thank two anonymous referees for corrections and suggestions to the manuscript.

Figs 9, 10. *Lizerius jorgei* sp. nov., alate male: 9, body and wings (100x magnification); 10, antennae (400x magnification).
REFERENCES


