

## Scientific Note

# Occurrence of the psyllid *Trioza tabebuiae* Burckhardt & Santana, 2001 (Hemiptera: Triozidae) in Argentina, a potential pest of the Pink Trumpet tree *Handroanthus heptaphyllus* (Vell.) Mattos, 1970 (Lamiales: Bignoniaceae)

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Edited by: Daniell R. R. Fernandes<sup>1</sup>

Received: April 05, 2023. Accepted: May 16, 2023. Published: September 06, 2023.

**Abstract.** In Argentina, *Handroanthus heptaphyllus* (Vell.) Mattos, 1970 (Pink Trumpet tree) is a relevant tree for its wood, ornamental and other important uses. *Trioza tabebuiae* Burckhardt & Santana, 2001 (Hemiptera: Triozidae) is an important pest of some ornamental plants species of the family Bignoniaceae. This psyllid causes serious damages in leaves of *Handroanthus* Mattos, 1970 trees, curving its margins, which reduce the photosynthetic area when occur in high infestations. Here, we report for the first time the presence and damage produced by the psyllid *T. tabebuiae* on bignonaceous tree *H. heptaphyllus* in Argentina. This new record is important to generate preventive and management measures for this potential pest in Argentina, due to the economic importance of *H. heptaphyllus* trees and its wide distribution in the country, and the role of *T. tabebuiae* as a pest.

**Keywords:** jumping plant-lice, Lapacho negro, ornamental plant, Psylloidea.

Within the large botanical family Bignoniaceae, the genus *Handroanthus* Mattos, 1970 includes 30 species of trees, seven of which registered in Argentina. One of them is exotic, *Handroanthus chrysotrichus* (Mart. ex DC.) Mattos, and six species are native: *Handroanthus albus* (Cham.) Mattos, *Handroanthus heptaphyllus* (Vell.) Mattos, *Handroanthus impetiginosus* (Mart. ex DC.) Mattos, *Handroanthus lapacho* (K. Schum.) Grose, *Handroanthus ochraceus* (Cham.) Mattos, and *Handroanthus pulcherrimus* (Sandw.) Grose (Lozano & Zapater 2008; Zapater et al. 2009; IBODA 2022). *Handroanthus heptaphyllus*, known as Pink Trumpet tree for the color of its flowers, or Lapacho negro for the color of its wood, is a deciduous tree up to 20 - 30 m high. This species has several uses, mainly as a forest plant, for the great economic value and its wood quality. Moreover, it is used as an ornamental plant in parks and avenues, as a medicinal plant (because it contains substances such as saponins and lapachol), and for dyeing (Lozano & Zapater 2008; Valdovinos & de Paula 2017; Cantero et al. 2019).

The native distribution of *H. heptaphyllus* in Argentina is a U-shaped strip that comprises the provinces of Formosa, Chaco, Santa Fe, Entre Ríos, and a large part of Corrientes and Misiones (Lozano & Zapater 2008). However, Pink Trumpet trees as well as other *Handroanthus* species, are planted in many avenues and parks in different places from center and north of the country as ornamental plants (Lozano & Zapater 2008), which makes that these trees have a much wider and difficult to register distribution in Argentina.

Psyllids or jumping plant-lice (Hemiptera: Psylloidea) are generally highly host specific phloem-feeding hemipterans. Due to their feeding habits, some species can be major pests of cultivated and ornamental plants and cause severe damage (Burckhardt 1994; 2008). The superfamily comprises seven families (Burckhardt et al. 2021), being Triozidae the second largest, with 70 genera and about 1,000 species

worldwide (Ouvrard 2022). The genus *Trioza* Foerster, 1848 (Hemiptera: Triozidae) is the most diverse within the family and includes several species of economic importance, for instance: *Trioza erytreae* (Del Guercio, 1918) (Hemiptera: Triozidae) as an important pest of citrus and other Rutaceae; *Trioza eugeniae* Froggatt, 1901 (Hemiptera: Triozidae) attacks myrtaceous trees; and *Trioza perseae* Tuthill, 1959 (Hemiptera: Triozidae), a major pest of avocado, forming galls on its leaves (Hollis & Martin 1997; Percy 2014).

The psyllid *Trioza tabebuiae* Burckhardt & Santana, 2001 (Hemiptera: Triozidae) is considered an important pest of ornamental and cultivated Bignoniaceae trees such as *H. albus*, *H. chrysotrichus* and *H. heptaphyllus* in several states of Brazil. The feeding of immature stages induces the upwards curving of the margins of the young leaves producing rolls, so that the plant loses photosynthetic area and in important infestations, all the leaves are distorted (Santana & Burckhardt 2001; Santana et al. 2005; Burckhardt & Queiroz 2012; Barreto et al. 2020). The aim of this scientific note is to record for the first time the presence of the psyllid *T. tabebuiae* in Argentina, associated with bignonaceous tree *H. heptaphyllus*.

During the autumn of 2019, samplings were carried out on trees of *H. heptaphyllus* located at the Estación Experimental Agropecuaria Concordia - INTA (Instituto Nacional de Tecnología Agropecuaria), Concordia, Entre Ríos province, Argentina (31°22'27.9"S 58°07'00.9"W, 41 masl). Specimens were collected with an insect aspirator and preserved in 70% ethanol. Then, in the laboratory, part of the specimens was slide-mounted following Queiroz et al. (2017). For taxonomic identification, the key and description by Burckhardt & Queiroz (unpubl. data) and Santana & Burckhardt (2001) were used. Images were taken with a camera Leica DFC 295 attached to a Biotraza XSZ146AT microscope. Series of partially focused digital images were stacked using the Helicon Focus software (Version 6.7) to produce

final images with enhanced quality. The map with the locality of the samplings in South America and previous records of *T. tabebuiae* for the following Brazilian states: PR (Santana & Burckhardt 2001), MG, SC, SP, MT (Barreto et al. 2020), RS (Marsaro et al. 2021) was made with QGIS 3.20.0 open source and free. The examined specimens were deposited in the entomological collection of the Museo de La Plata, Buenos Aires, Argentina.

A total of 122 specimens (39 males, 53 females and 30 immatures) were collected, which were identified as *T. tabebuiae* (Figs. 1, 2), representing the first record of this species in Argentina, and the first record of the association with the bignonaceous trees *H. heptaphyllus* in the country (Fig. 6). Moreover, the damage produced by *T. tabebuiae* - leaves with rolled margins that forming a tubular structure - was observed in the Pink Trumpet trees (Fig. 3).

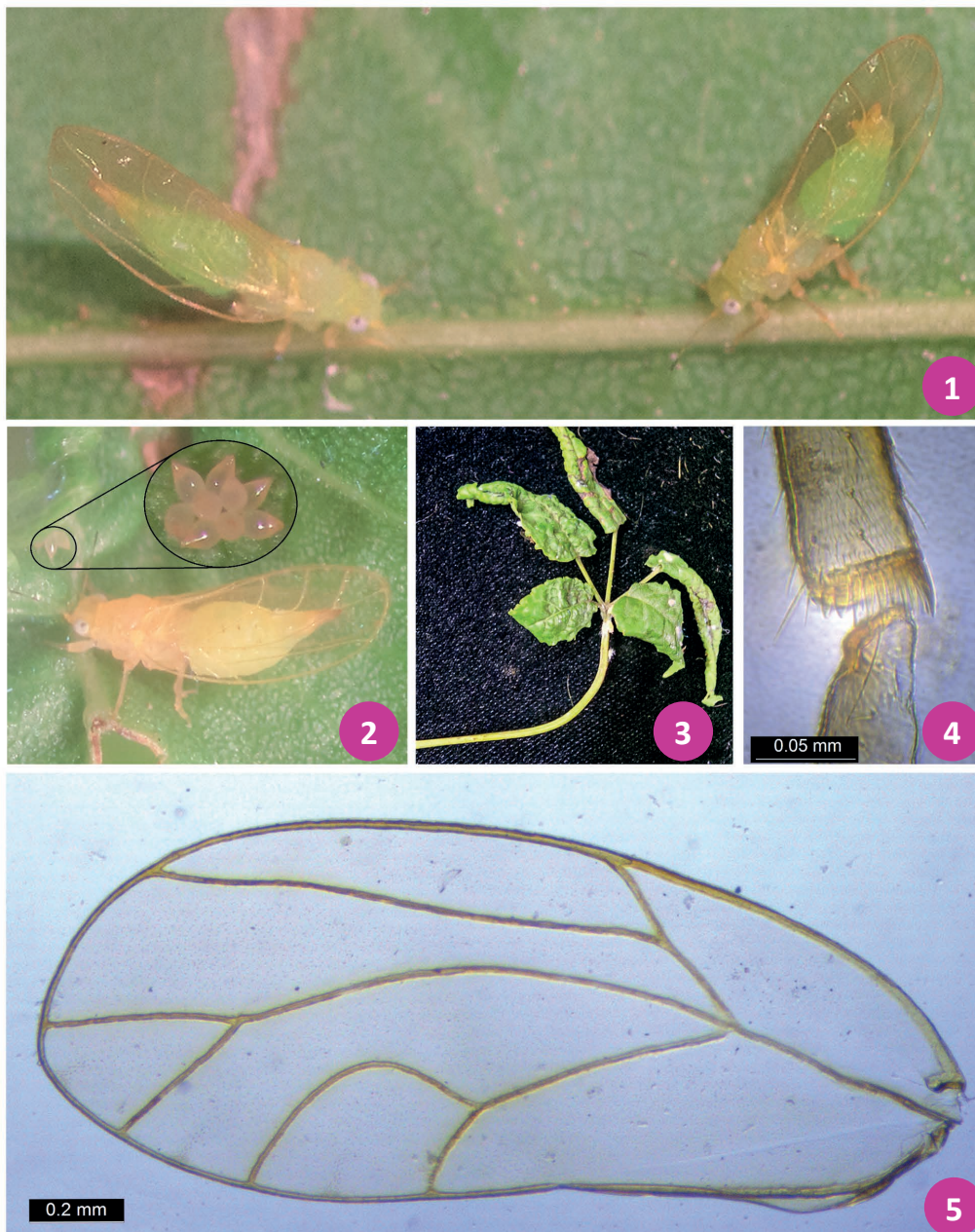
*Trioza tabebuiae* is separated from other *Trioza* species by the absence of sclerotized spurs on the metatibia; in addition to the following complex of characters: genal processes subacute; ninth antennal segment with a long apical seta, segment 10 with two unequal terminal setae; forewing (Fig. 5) oblong-oval, vein R+M+Cu with exact trifurcation of veins R, M and Cu; vein Rs almost straight and long; surface spinules in all cells; metatibia with an apical crown of 18 yellowish spurs (Fig. 4); metabasitarsus without black spurs. The male

proctiger has long posterior lobes; the paramere is rounded apically, with inward directed apical sclerotized tooth. The female genitalia are cuneate, basally with spaced setae and apically with peg setae. The eggs (Fig. 2) are wide basally, strongly narrowing to apex which ends in a long filament. These characters were compared with the original description by Santana & Burckhardt (2001).

Currently, twelve species belonging to genus *Trioza* are recorded in Argentina (Baliotte et al. 2023), including now *T. tabebuiae*. An unusual trait of this species is its association with the plant family Bignoniaceae. In addition to a questioned record from North America, *T. tabebuiae* is the only representative of the Psylloidea associated with the family Bignoniaceae in the world (Santana & Burckhardt 2001; Queiroz et al. 2009).

The important and characteristic damage produced by *T. tabebuiae* on *H. heptaphyllus* in Argentina, beside to the lack of records of natural enemies of this psyllid, makes this new record an important target topic for future research.

Due to the economic importance of *H. heptaphyllus* trees and its wide distribution in the country, and the role of this psyllid species as a pest in nearby region such as Brazil, more exhaustive monitoring is required to generate preventive and management measures for this potential pest in Argentina.



**Figures 1-5.** 1, *Trioza tabebuiae* Burckhardt & Santana, 2001 adults, the female is on the left side and male is on the right side of the picture; 2, *T. tabebuiae* adult female and details of eggs; 3, damage on leaves of *Handroanthus heptaphyllus* (Vell.) Mattos with presence of *T. tabebuiae* adults and immatures; 4, apex of metatibia of the *T. tabebuiae* (scale bar: 0.05mm) specimen observed; 5, forewing of the *T. tabebuiae* (scale bar: 0.2mm) specimen observed.



**Figure 6.** South America distribution of *Trioza tabebuiae* Burckhardt & Santana, 2001 (Hemiptera: Triozidae). The blue dots are the previous reports and the red dot the new record of the species.

## Acknowledgments

We thank Alicia Zapater for her help with plant identifications, and the anonymous reviewers for their invaluable suggestions.

## Funding Information

CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas) and INTA (Instituto Nacional de Tecnología Agropecuaria).

## Authors' Contributions

JPRB collected the specimens; CB identified the material and produced the images and maps; CB, GD and DAA wrote the original and revised draft of the manuscript. All authors discussed the results and contributed to its final version.

## Conflict of Interest Statement

The authors declare no conflict of interest.

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