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Guerothrips moundi, gen. et sp.n. (Thysanoptera, Thripidae) from Chiapas, Mexico

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Abstract

Guerothrips moundi gen. et sp. n., (Thripidae, Thripinae) is described from flowers of the herbaceous plant *Waltheria indica* (Sterculiaceae) found in Tapachula, Chiapas, Mexico. *G. moundi* is a member of the *Frankliniella* genus-group, but is distinguished by the presence of sternal discal setae on the abdomen. The available specimens are all brachypterous.

Key words: Thrips, *Frankliniella* group, new genus, *Waltheria indica*, Central America

Resumen

Se describe un género y una especie nueva de Thripidae, *Guerothrips moundi*, capturada en las flores de la planta herbácea *Waltheria indica* (Sterculiaceae) en Tapachula, Chiapas, Mexico. *Guerothrips moundi* es un miembro del grupo de géneros de *Frankliniella*, pero se distingue por la presencia de sedas discales en los esternitos. Los ejemplares estudiados son todos braquípteros.

Introduction

Mexico is one of the world's megadiverse countries (Neyra & Durand-Smith 1998). In this territory insects are the most abundant and most diverse group of organisms. The Mexican insect fauna comprises approximately 100,000 species, from which only about 48,000 species have been recorded (Llorente-Bousquets & Ocegueda 2008). Compared to other groups, the biological diversity of the Thysanoptera fauna has been poorly studied. Out of 6000 described species of thrips in the world (Buckman *et al.* 2013), only 608 have been recorded from Mexico (Johansen & Mojica 1996; Johansen & Mojica 2003). Chiapas is one of the Mexican States with the highest biological richness (González-Espinosa *et al.* 2005), but only 65 thrips species have been formally reported for this vast area (León-Cortés *et al.* 2005). Presumably this is a consequence of the limited amount of field studies and collecting efforts. Data concerning the thrips fauna of Chiapas has been published by Dr. Roberto Johansen and co-workers (Johansen 1981a; Johansen 1981b; Johansen & García Aldrete 1973). Considering the geographic location of Mexico, with a wide array of ecosystems that include the arid areas of Northern Mexico, the temperate subhumid central plateau, and the humid tropical regions of the Southeast, there should be many species of thrips that have not yet been recorded, and even many new species. The purpose of this contribution is to describe a new genus and species of Thripidae.

Thrips were collected from flowers of *Waltheria indica* (Sterculiaceae) near a mango orchard located in Tapachula, Chiapas. This is a humid tropical region of the country where the Suchiate River forms the border with Guatemala (Fig. 16). Adults (both sexes) and larvae were found living in the flowers (Figs 14–15). The plant is widespread in the area, especially in disturbed agro-ecosystems, and the genus includes about 50 pantropical

species, of which 17 are found in Mexico. Tapachula is located in southeast Mexico and is the southernmost city in North America. This is a tropical region of the country that shares a border with Guatemala. It includes the Tacana and Tajomulco volcano cordillera, and the river Suchiate watershed. The flowers were shaken over a plastic white plate and the thrips were collected into AGA liquid. The thrips were macerated in 5% NaOH cold solution to remove the body contents and were originally mounted in slides using Hoyer media and some specimens were remounted into Canada balsam by Laurence Mound to avoid deterioration of the specimens. The authors follow the taxonomic nomenclature proposed by Mound (2013).

***Guerothrips* gen. n.**

Thripidae-Thripinae with females and males brachypterous. Antennae 8-segmented (Fig. 7), sense cones on III (Fig. 8) and IV forked, IV–VI with microtrichia. Head with three pairs of ocellar setae (Fig. 1), pair III arise inside ocellar triangle; compound eyes with 2 pigmented facets; mouth cone short, barely extending between fore coxae; maxillary palps slender, 3-segmented. Pronotum with 5 pairs of long setae (Fig. 3), dorsal surface with transverse striations not closely spaced; prosternal ferna well developed. Mesonotum transversely reticulate, with three pairs of setae, median pair close to posterior margin (Fig. 5). Metanotum with weak sculpture medially but longitudinal lines laterally, median setae near anterior margin; campaniform sensilla present (Fig. 5). Mesothoracic furcal spinula developed; metathoracic furca with well developed spinula. Tarsi 2-segmented. Fore wing (Fig. 6) curving forward slightly at apex, first and second veins with setal rows regular and complete, scale with five veinal setae and one discal seta; fringe cilia wavy. Abdominal tergites with transverse lines of sculpture laterally not reaching the middle area of the tergites, without craspedum on their posterior margins, campaniform sensilla far from posterior margin; three pairs of setae almost equal in size placed laterally, median pair small and variable with distance between their bases very long, about 9 times their length; ctenidia terminate just anterior to setae S3 on tergites VI–VII; ctenidia on abdominal tergite VIII anterior to the spiracles; tergite VIII with posteromarginal comb of long fine microtrichia (Fig. 11); tergite X with longitudinal split dorsally. Sternites without marginal craspedum, III–VII with three pairs of posteromarginal setae; discal setae present as follows III with 7, IV with 9, V with 11, VI with 12, VII with 8 (Fig. 10); sternite II with two pairs of posteromarginal setae, and one or two discal setae (Fig. 9). Male sternites III–VII each with ellipsoidal pore plate medially (Figs 12–13); tergite IX without stout setae.

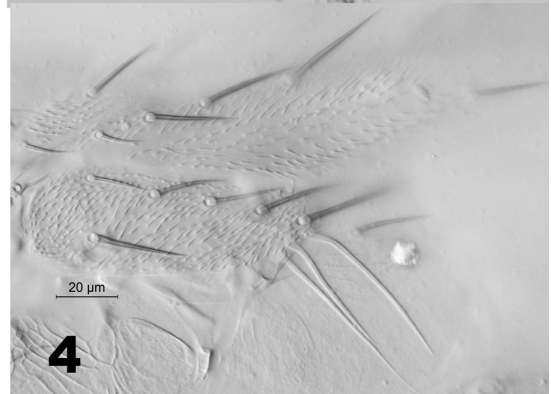
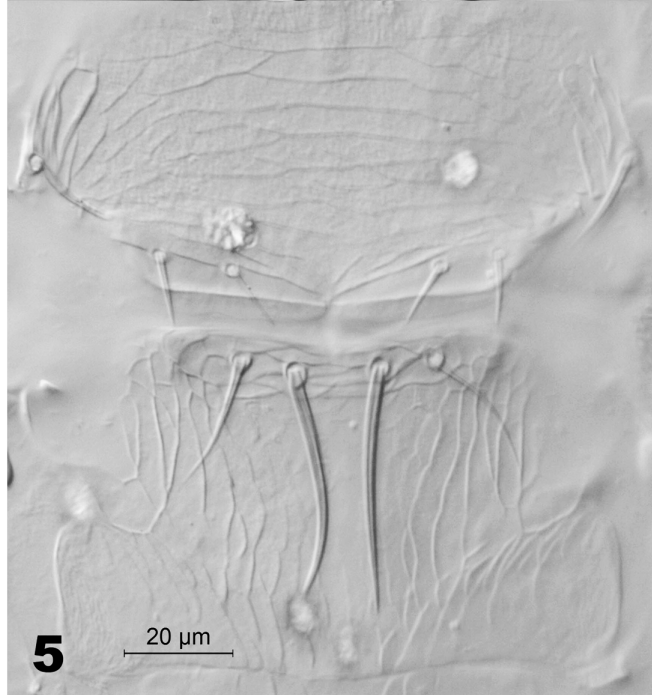
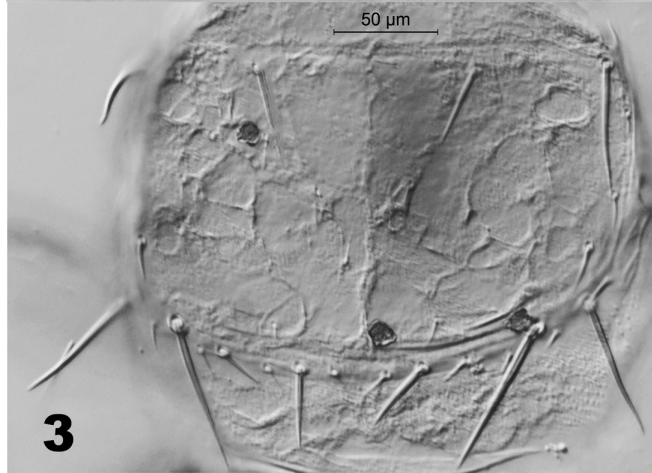
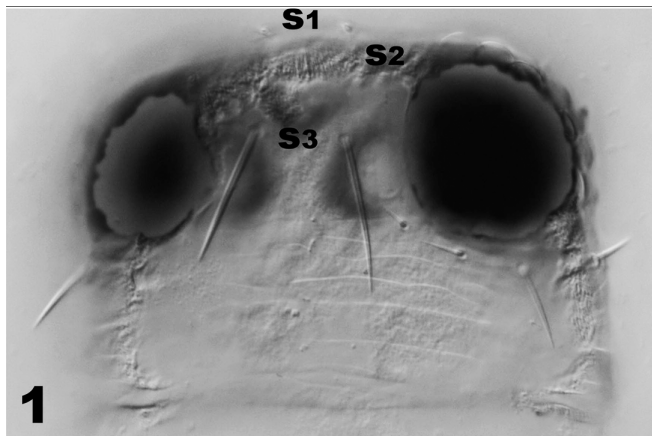
Type species *Guerothrips moundsi* **sp. n.**

Relationships

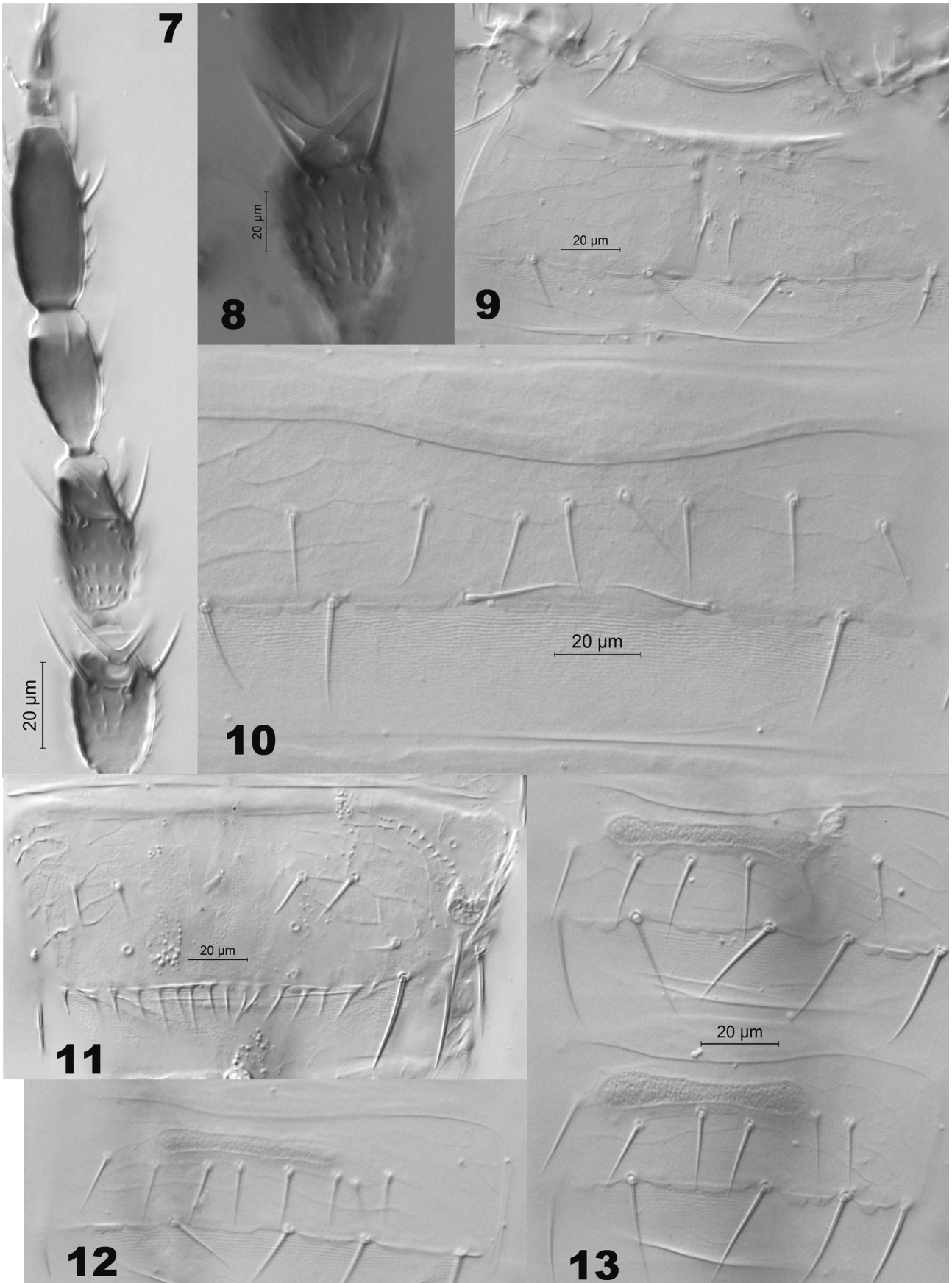
This genus shares the following character states with *Frankliniella*: 8-segmented antennae; three pairs of ocellar setae; four pairs of major pronotal setae; both veins of fore wing with complete row of setae; metanotum with median seta at anterior margin; tergites V–VIII with paired lateral ctenidia (Mound 2001), on VIII arising anterior to spiracle. However this new species has discal setae on the abdominal sternites and this character is not present in any species of *Frankliniella*, although some specimens of *F. williamsi* and *F. gossypiana* have one or two discal setae on sternite II. *Aneristothrips* from Argentina is similar to *Frankliniella* and *Guerothrips* in most characteristics but the mouth cone is exceptionally long, a craspedum is present on the posterior margin of the tergites, and the median setae on the metanotum are far back from the anterior margin (Mound & Marullo 1996). *Aneristothrips claripennis* (Moulton 1933) has developed the pronotal setae and it has been collected in Brazil (Cavalleri *et al.* 2006). The other species in this genus, *Aneristothrips rostratus* has been recorded only from Argentina (De Santis 1957). *Baileyothrips*, *Desertathrips*, *Psydrothrips* and *Xerothrips* all have 8–9 antennal segments and sternal discal setae, but lack tergal ctenidia, males have a glandular opening between sternites II–III, and the fore wing setal rows are interrupted or irregular on both veins (de Borbón 2008).

***Guerothrips moundsi* sp. n.**

Female brachypterous. Body yellow. Antennal segments I–II pale yellow, III–V with apices increasingly darker yellow, VI–VII brown. Fore wing pale with no dark margins.



FIGURES 1–6. *Guerothrips moundi* sp. n. (1) Head; (2) Habitus; (3) Pronotum; (4) Scale; (5) Meso and Metanotum; (6) Fore wing.



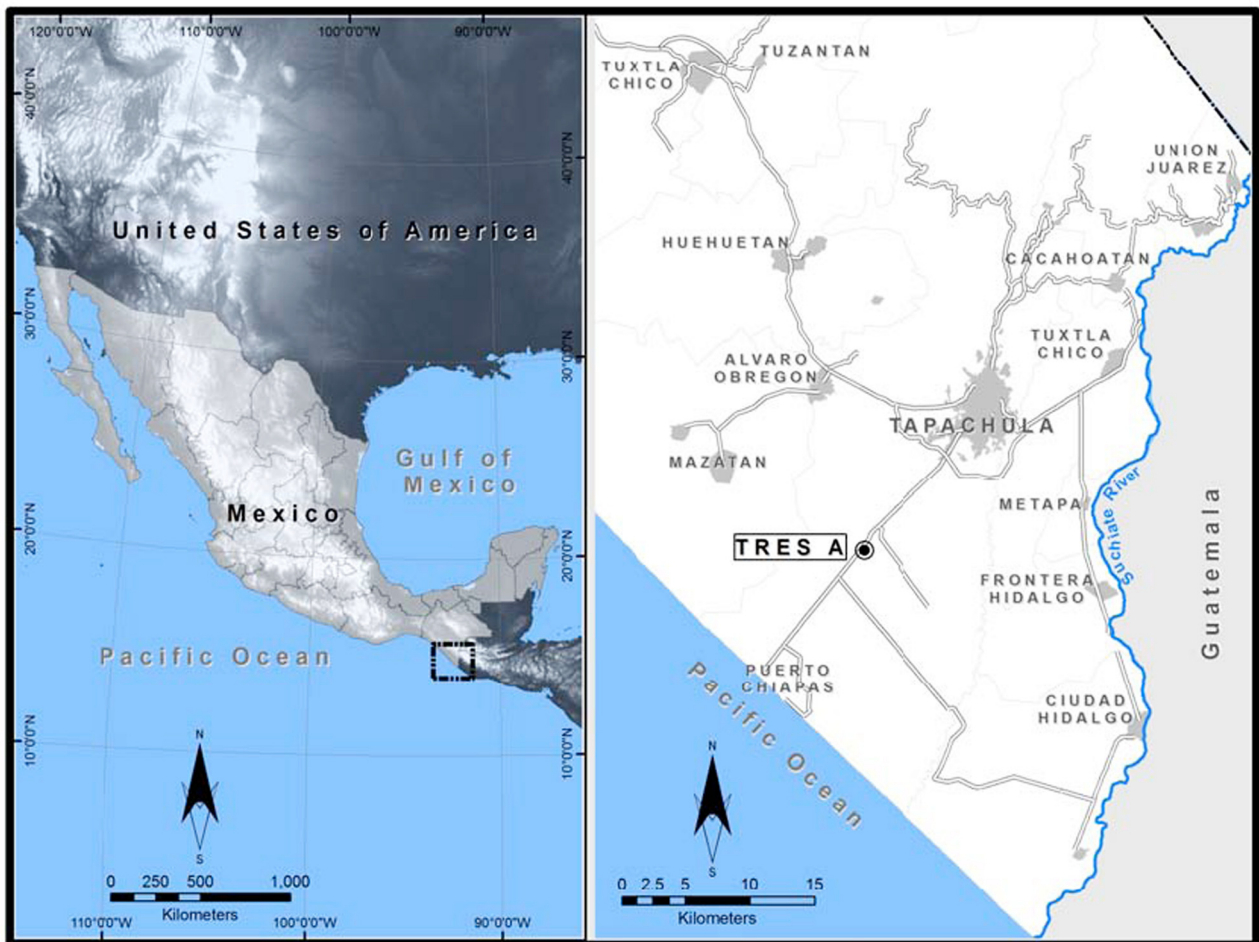
FIGURES 7–13. (7) Antenna; (8) Antennal segment III; (9) Sternite II; (10) Sternite VII; (11) Tergite VIII; (12) Male sternite III; (13) Sternites V–VI (Pore plates).



14



15



16

FIGURES 14–16. (14–15) *Waltheria indica*, plant with flowers; (16) Map of Mexico showing the collection site of *Guerothrips moundi* sp. n. at “Tres A” mango orchard.

Measurements (holotype female in microns). Distended body length 1293. Head, length 82, width 108; ocellar setae III 32, postocellar setae III long 20. Antennal segments length (width) 18 (17); 34 (17); 36 (14); 36 (14); 34 (14); 43 (15); 8 (5); 12 (4). Pronotum length (width) 142 (237); pronotal setae aa 63; am 44; pa 69, pm 42; discal setae 13. Metanotal setae length median pair 44; lateral pair 25. Tergite VI setae B1 12, B2 12. Fore wing length 464; first vein with 17 setae; second vein with 14 setae.

Male brachypterous. Similar to female in color and structure but smaller. Tergite VIII with a complete posteromarginal comb; tergite IX without pairs of stout thorn-like setae.

Measurements (paratype male in microns). Body length distended 1020. Head, length 72, width 100; ocellar setae III 28; SII 8; SI 4; postocellar seta III long 18, Antennal segments length (width) I 17 (18); II 27 (17); III 34 (14); IV 31 (14); V 30 (12); VI 34 (14); VII 8 (5); VIII 12 (3). Pronotum length (width) 86(127); Pronotal setae aa 34; am 21; pa 34, pm 20; discal setae 6. Metanotal setae length; median pair 39; lateral pair 22. Fore wing length 422.

Material examined. Holotype female brachypterous, **MEXICO**, Tapachula, Chiapas, from flowers of *Waltheria indica*, 6.i.2012 (Antonio Girón & Uriel Garay) (deposited in the Natural History Museum, London). Paratypes: 4 brachypterous females and 1 brachypterous male collected with the holotype. One paratype female will be deposited in the entomological collection of ECOSUR (Tapachula, Chiapas, Mexico) and other female in the Senckenberg Museum (Frankfurt, Germany). One female and one male will be deposited in the Neiker collection of Insects.

Etymology. The name of the genus is derived from the Mexican Spanish word “guero” (clear) and the species is dedicated to Laurence Mound in recognition to his career devoted to the study of the biology of thrips and his interest in transmitting his knowledge to young entomologists.

Phylogenetic considerations. Taking into account the importance of the *Frankliniella* genus (economic and faunistic) we prefer to segregate this species and create a new genus, in the expectation that further species could have discal setae on the sternites. In this way it is possible to maintain the stability of the diagnosis of *Frankliniella*, which contains a high level of complexity and variation. *Frankliniella* is a genus of about 200 species, 90% of which are from the Neotropics (Jacot-Guillarmod 1974; Mound & Marullo 1996). Despite this species diversity, the genus is remarkably homogenous in the range of body form (Mound & Nakahara 1994). However, these authors listed several exceptions to the diagnostic characters of *Frankliniella*, such as the number of antennal segments, (three species have 7 antennal segments), and variation in the development of the pronotal anteromarginal and anteroangular setae. Due to the high intraspecific variability of some of the characters used for separate populations, such as the swelling of the pedicel of antennal segment III or the comb of tergite VIII, species recognition in *Frankliniella* is particularly difficult in the Neotropics (Mound & Marullo 1996; Goldarazena *et al.* 2012).

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