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Brailovskylus mexicanus, a new genus and species from Mexico and Central America (Heteroptera: Scutelleridae: Pachycorinae)

Brailovskylus mexicanus, un nuevo género y especie de México y Centroamérica (Heteroptera: Scutelleridae: Pachycorinae)

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ABSTRACT

Brailovskylus mexicanus, a new genus and species of Pachycorinae (Heteroptera: Scutelleridae) from Mexico and Central America is described and illustrated. The new genus is related to *Symphylus* Dallas, 1851, and *Stethaulax* Bergroth, 1891, but differs from these in the length of the ostiolar peritreme and in the male and female genitalia.

Key Words: *Stethaulax*, *Symphylus, Crathis, Lobothyreus, Homaemus, Sphyrocoris,* Neotropics.

RESUMEN

Se describe e ilustra a *Brailovskylus mexicanus*, género y especie nueva de Pachycorinae (Heteroptera: Scutelleridae) de México y Centroamérica. El nuevo género está relacionado con *Symphylus* Dallas, 1851, y *Stethaulax* Bergroth, 1891, pero difiere de éstos en la longitude de peritrema ostiolar, además de la genitalia del macho y de la hembra.

Palabras clave: *Stethaulax*, *Symphylus, Crathis, Lobothyreus, Homaemus, Sphyrocoris,* Neotropico.

There are numerous species of scutellerids in the New World tropics that are similar in appearance and have an elongate ostiolar peritreme (Weiler *et al.* 2017). Most are currently placed in the genus *Symphylus* Dallas, 1851, but Eger *et al.* (2015) indicated that this genus is in need of revision and a number of these species probably belong in other genera or represent undescribed genera. Specimens of an undescribed genus and species that resembles *Symphylus* but differs in the length of the ostiolar peritreme and in the male and female genitalia were found in various collections and are described and illustrated here.

MATERIAL AND METHODS

Terminology for genitalia follows Dupuis (1970) and McDonald (1966). Photos were taken and edited using Auto-Montage™ software (Syncroscopy, Cambridge, UK). All measurements are given in mm with the mean first, followed by the range in parentheses. Label data are given as they appear on the label. If there are multiple labels these are indicated by 1), 2), etc. Repositories for specimens are as follows: Donald B. Thomas collection, Edinburgh, TX (DBT); Instituto Nacional de Biodiversidad, San Jose, Costa Rica (INBio); the author's personal collection, Tampa, FL (JEE); the Georgia Museum of Natural History, University of Georgia, Athens, GA (UGA); and Instituto de Biologia, Universidad Nacional Autónoma de México, Mexico City, Mexico (UNAM).

RESULTS

Brailovskylus Eger, new genus

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Description. Medium sized, oval, dorsum densely and uniformly punctured (Figs. 1-2), punctures on venter not as dense, sparse laterally on propleura and mesially on abdomen (Fig. 5). Pronotum and scutellum forming smooth curve in lateral view, pronotum slightly higher than scutellum (Fig. 3).

Head (Fig. 6) porrect or slightly declivent, triangular, narrowly rounded apically, lateral margins slightly to moderately sinuate, mandibular plates a little shorter than clypeus, dorsum moderately convex, lateral and anterior margins not elevated or carinate; antennal segments cylindrical; rostrum just reaching base of abdomen or to posterior margin of third sternite.

Pronotum about twice as wide as long, evenly convex, lacking transverse impression, anterolateral margins slightly convex, posterior margin straight to slightly concave. Ostiole located about 1/3 of distance from metacoxae to lateral margin of metapleura (Fig. 4); peritreme slightly elevated, parallel-sided or narrowing slightly toward apex, elongate, slightly angled anterad, distance from apex of peritreme to anterior margin of metapleuron and anterolateral corner of evaporative area equivalent to or less than width of peritreme at apex. Thoracic sterna shallowly sulcate.

Posterolateral angles of abdominal sternites 3-7 acuminate or with very short spines; spiracles not associated

with distinct calli. Posterior margin of seventh sternite broadly and deeply concave in both sexes, mesial half of concavity shallowly concave or transverse and slightly elevated; male genital cup and female genital plates broadly exposed (Figs. 7, 9).

Male genital cup exposed in ventral and caudal views. Parameres 'L'-shaped (Fig. 15); proctiger simple, lightly sclerotized, with bands of setae at anterior and posterior margin; theca with two conjunctival appendages, vesica enclosed by tubular median penal lobe (Figs. 13-14).

Female genital plates exposed, genital chamber with long sclerotized groove. Spermathecal duct relatively long and branched, one branch terminating in large oval spermathecal diverticulum the other in the spermathecal pumping region (Fig. 10). Pumping region (Fig. 11) with well developed proximal and distal flanges and a simple oval bulb connected to the pump by a long, sclerotized, convoluted duct.

Type species. *Brailovskylus mexicanus*.

Etymology. I am pleased to dedicate this genus to Harry Brailovsky in recognition of his friendship and extensive contributions to our knowledge of the Heteroptera.

Comments. *Brailovskylus* is closely related to *Symphylus* and *Stethaulax* Bergroth, 1891, but is easily distinguished by the elongate ostiolar peritreme which nearly reaches the anterior margin of the metapleuron. It shares this character with *Lobothyreus* Mayr, 1864, *Crathis* Stål, 1861, *Homaemus* Dallas, 1851, and *Sphyrocoris* Mayr, 1864, but the shape of the peritreme is different than in those genera (see Figs. 40, 41, and 43 in Eger *et al.* 2015 and Figs. 9, 13, 14, and 19 in Weiler *et al.* 2017) and resembles that of *Symphylus* and *Stethaulax* (Fig. 44 in Eger *et al.* 2015 and Figs. 20 and 21 in Weiler *et al.* 2017). In the key to genera by Eger *et al.* (2015), *Brailovskylus* will key to couplet 13 with *Crathis* and *Lobothyreus*. It can be separated from these genera by having a relatively flat head with lateral margins relatively straight. The heads of *Crathis* and *Lobothyreus* are strongly convex and the lateral margins are distinctly concave.

The genitalia are closer to those of *Stethaulax* than those of *Symphylus*. *Symphylus* has hatchet-shaped parameres and the first conjunctival appendages are lightly sclerotized, elongate and acute (McDonald 1966) while in *Brailovskylus* the parameres are 'L'-shaped and the first conjunctival appendages are oval with a sclerotized tooth on the lateral margin. In *Symphylus* the spermathecal duct is not branched as it is in *Brailovskylus*. *Stethaulax* has hook-shaped parameres and both pairs of conjunctival appendages are elongate, membranous proximally with a large sclerotized thorn distally (McDonald 1966). Both *Brailovskylus* and *Stethaulax* have a branched spermathecal duct with a membranous oval spermathecal diverticulum.

***Brailovskylus mexicanus* Eger, new species**

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Dorsal color light brown with dense dark brown punctures, these rather evenly distributed, but denser on head. Color pattern variable; males relatively uniformly colored, sometimes with large dark macule on each lateral margin of scutellum (Fig. 2); females typically with dark inverted horseshoe-shaped pattern on pronotum and extending onto scutellum, and invariably with pale apical scutellar macule (Fig. 1). Venter light brown with dark punctation and usually without maculation (Fig. 5). Body length ♂ 9.72 (8.80-10.45), ♀ 10.69 (10.00-11.45).

Head uniformly light brown with dense dark brown punctures evenly distributed (Fig. 6). Head length ♂ 2.38 (2.15-2.55), ♀ 2.58 (2.40-2.90); head width ♂ 3.41 (3.10-3.60), ♀ 3.54 (3.10-3.90); interocular width ♂ 2.03 (1.85-2.15), ♀ 2.15 (2.00-2.40); interocellar width ♂ 1.19 (1.00-1.30), ♀ 1.29 (1.1-1.5). Antennae light brown, apical half of third and most of fourth and fifth segments darker. Length of antennal segments 1: ♂ 0.57 (0.50-0.60), ♀ 0.58 (0.50-0.65); 2: ♂ 0.74 (0.65-0.85), ♀ 0.73 (0.70-0.80); 3: ♂ 0.69 (0.60-0.80), ♀ 0.72 (0.70-0.80); 4: ♂ 1.10 (1.00-1.30), ♀ 1.13 (1.00-1.25); 5: ♂ 1.21 (1.10-1.40), ♀ 1.21 (1.05-1.35). Rostrum light brown, segment 4 usually darker; length of rostral segments 1: ♂ 0.82 (0.70-0.95), ♀ 0.90 (0.80-1.00); 2: ♂ 1.6 (1.40-1.75), ♀ 0.1.73 (1.5-2.1); 3: ♂ 0.90 (0.80-1.10), ♀ 1.00 (0.90-1.25); 4: ♂ 0.87 (0.80-0.90), ♀ 0.96 (0.90-1.10)

Anterior margin of pronotum shallowly concave, anterolateral margins slightly and uniformly convex, posterolateral margins sinuous, posterior margin straight or slightly concave. Pronotum length ♂ 3.22 (2.8-3.6), ♀ 3.45 (3.20-3.90); pronotum width ♂ 6.46 (5.60-7.00), ♀ 6.97 (6.40-7.70). Legs light brown with dark brown macules, tarsi darker apically, tibiae sulcate for entire length.

Scutellum reaching end of abdomen, leaving most of exocorium exposed. Scutellum length ♂ 6.04 (5.40-6.80), ♀ 6.77 (5.80-7.40); scutellum width ♂ 5.46 (4.80-6.00), ♀ 5.95 (5.40-6.70).

Posterior margin of genital cup broadly convex on either side of moderately deep central concavity (Fig. 8). Cup with elevated ridge on either side and with parameres oriented against lateral wall. Parameres with shank long and cylindrical, apical portion somewhat quadrate, with two lobes, posterior lobe broad and acute, anterior lobe with small tooth (Fig. 15). First pair of conjunctival appendages oval, slightly sclerotized with sclerotized tooth on apical lateral margin, second pair elongate, membranous proximally, with large acute sclerotized horn apically (Figs. 12-14).

Eighth gonocoxae simple, posterior margins relatively straight, angled posteriorly, rounded and contiguous mesally; ninth laterotergites simple, contiguous, not surpassing posterior margin of tenth sternite; eighth laterotergites also simple, posterior margins broadly convex

(Fig. 7).

Type Material. HOLOTYPE: H. Brailovsky A., Estacion de Biologia Chamela, Jalisco, Noct., 7-IX-79 (♀ UNAM).

PARATYPES: (17♂♂, 17♀♀) 1) México: Oaxaca, Parque Nacional Huatulco, Est. El Sabanal, 109 msnm, 15°48'10"N, 96°11'0904"O, T.L. 1, 02-06-2005, S. Zaragoza, 2) Colección del Instituto de Biologia, UNAM. México, D.F. (♂ UNAM); 1) Estacion de Biologia Chamela-Jalisco, México, VIII-81, A. Pescador, 2) Colección del Instituto, de Biologia, UNAM., México, D.F. (♂ UNAM); 1) MEXICO: Jalisco, Cuitzmala 290msnm, 22-23/1995, Col. G. Nogueiras, 2) Colección del Instituto de Biologia, UNAM., México, D.F. (♂ UNAM); Mozimba, Acapulco, Guerrero, México, 14-III-80/W. Lopez (♂ UNAM); MEXICO: Jalisco, Est. Biol. Chamela, 12-XII-1988, I Ramirez (♂ UNAM); COSTA RICA: Guanacaste, Parque nacional Santa Rosa, Río Poza Salada, 10.799 N, 85.652 W, 24.vii.1987, el. 10 m/ Holzenthal, Morse, Clausen (♂ UNAM); Aqua Cera, 40 km west Tuxtla Gutierrez, Chiapas, Mex. VI-21-87 (♂ DBT); MEXICO: Guerrero: 46 km. N. Chilpancingo (K54) 580m. 4/6Aug77, E. Fisher, P. Sullivan (♂ DBT); 1) MEXICO: Chiapas, El Aguacero, elevation 680m, vi-17-18-1990, 2) collector: W. B. Warner (2♂♂ DBT); MEXICO: OAXACA, BAHIAS HUATULCO, 2-3 JULY 1989, D. THOMAS, J. BURNE (2♂♂ DBT); MEXICO: Chiapas, El Aguacero 16 Km., W. Ocozocautla, 15-VI-87, D. B. Thomas Coll. (♂ DBT); MEXICO: Chiapas, Aguacero, 10-VI-1986, D. B. Thomas (♂ DBT); GUATEMALA: Zacapa Dept., Sierra de las Minas, Santa Clara, Marble Quarry Rd. NE of Teculutan, N15°02.64', W89°40.13', 575 m, 17 May 2006, Kristen N. Landolt (♂ JEE); H. Brailovsky A., Estacion de Biologia Chamela Jalisco, Noct., 24-VII-76 (♂ UNAM); H. Brailovsky A., Estacion de Biologia Chamela Jalisco, Noct., 9-VIII-75 (♀ UNAM); H. Brailovsky A., Estacion de Biologia Chamela Jalisco, Noct., 1-IX-75 (♀ UNAM); H. Brailovsky A., Estacion de Biologia Chamela Jalisco, Noct., 30-IX-77 (♀ UNAM); MEXICO: JALISCO Estacion de Biologia Chamela, 25-IX-85 R.A. Usela (♀ UNAM); M. A. Mvrrola [?], Chamela, Jalisco, 1-IV-77 (♀ UNAM); 1) México: Chiapas, Rizo de Oro 1-VII-1999, A. Ibarra M. Balcazar, 2) Colección del Instituto de Biologia, UNAM., México, D.F. (♀ UNAM); 1) México: Jalisco, Tuxcacuesco, El camichin, 853msnm 03-04-VII-2013, G. Nogueira, 2) Colección del Instituto de Biologia, UNAM., México, D.F. (♀ UNAM); MÉXICO: Guerrero, Zihuatenajo km 16, Zihuatanejo Lázaro Cárdenas, 23 msnm 17/XI/2006, 17°43'41" N 100°36'25" W. G. Ortega, C. Mayorga, L. Cervantes (♀ UNAM); 1) Finca Jenny, 30 km N. de Liberia, Prov. Guana. COSTA RICA, 240m. 1-6 NOV 1994 E. Araya, L_N_317150_363700 #4429, 2) COSTA RICA INBIO, CR1002 193490 (♀ INBio); 1) Finca Jenny, 30 km N. de Liberia, Prov. Guana. COSTA RICA, 240m. 2-24 ENE, 1995 E. Araya, L_N_317150_363700 #4792, 2) COSTA RICA INBIO, CR1002 143961 (♀ INBio); GUATEMALA: Zacapa, rd. to San Lorenzo, mv + bl, 14 Oct 2006, R. Turnbow (♀ UGA); MEXICO: Jalisco, Chamela 1/8-X-85, F. D. Parker, T. L. Griswold (♀ UGA); MEXICO: CHIAPAS, CHICOASEN, 1 JUNE 91, S. ASHE, RATCLIFFE, THOMAS (♀ DBT); GUATEMALA: Suchitepequez, Volcan Atitla Finca Tarrales, 14°31.37"N, 91°08.17"W, 755 meters elevation, Kristen N. Landolt, 3 June 2005 (♀ JEE); COSTA RICA: Guanacaste, Parque Nacional Santa Rosa, Río Poza Salada, 10.799 N, 85.652 W, 24.vii.1987, el. 10 m, Holzenthal, Morse, Clausen (♀ JEE); COSTA RICA: Guanac: OTS Palo Verde Sta., 10°21'N 85°21'W, 4/6-VII-76 EMFisher (♀ DBT).

Etymology. There may be more descriptive or inventive specific epithets, but most of the specimens of this species are from Mexico, and because Harry Brailovsky has contributed tremendously to the study of Mexican Heteroptera it seemed appropriate to have the name '*mexicanus*' associated with the type species of a genus named after him.

Comments. Nothing is known of the biology of this species. Some labels bear the word 'Noct.' which I assume indicates collected at night, possibly at light and the label on a single specimen from Guatemala read 'mv + bl' which I assume indicates mercury vapor and black light.

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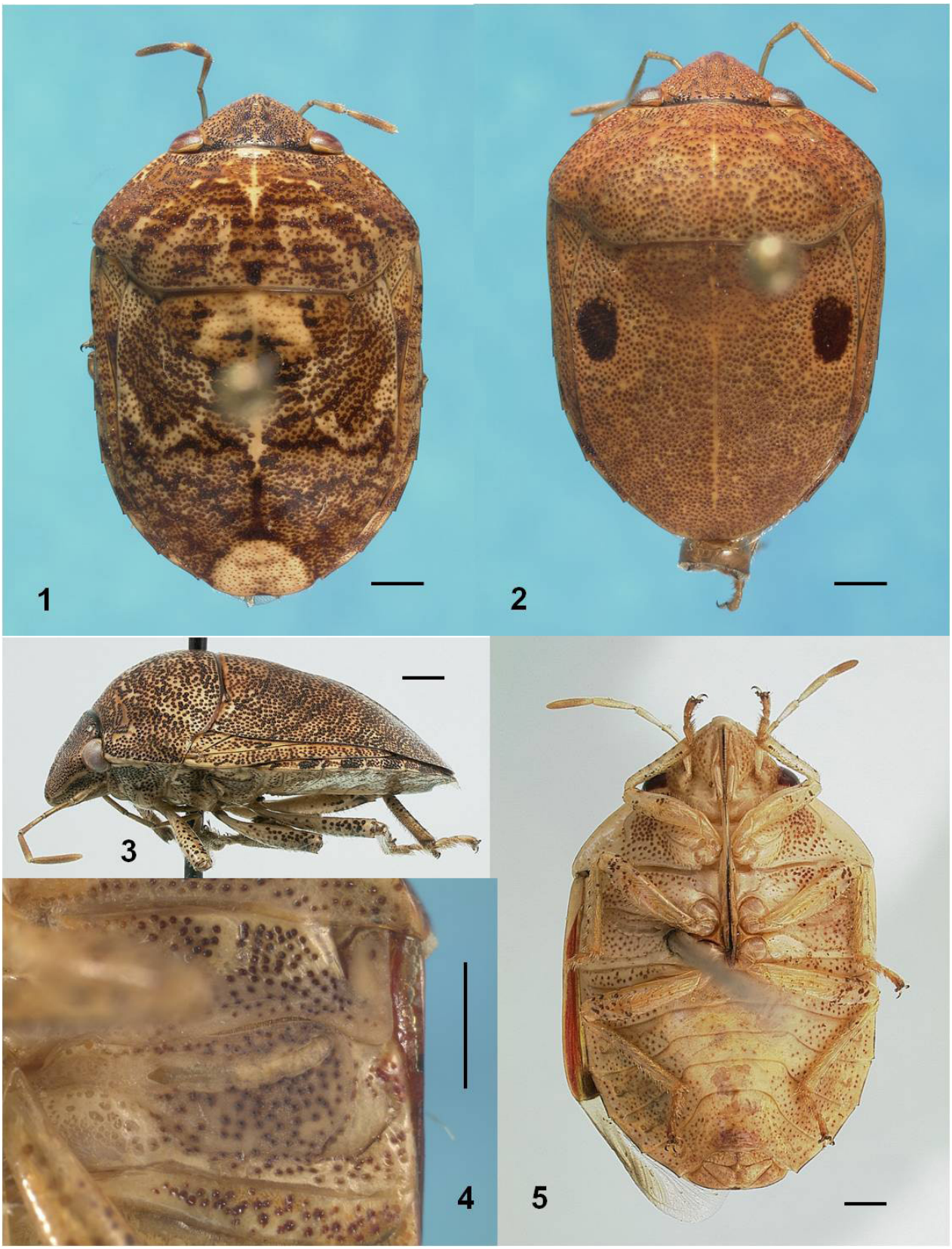
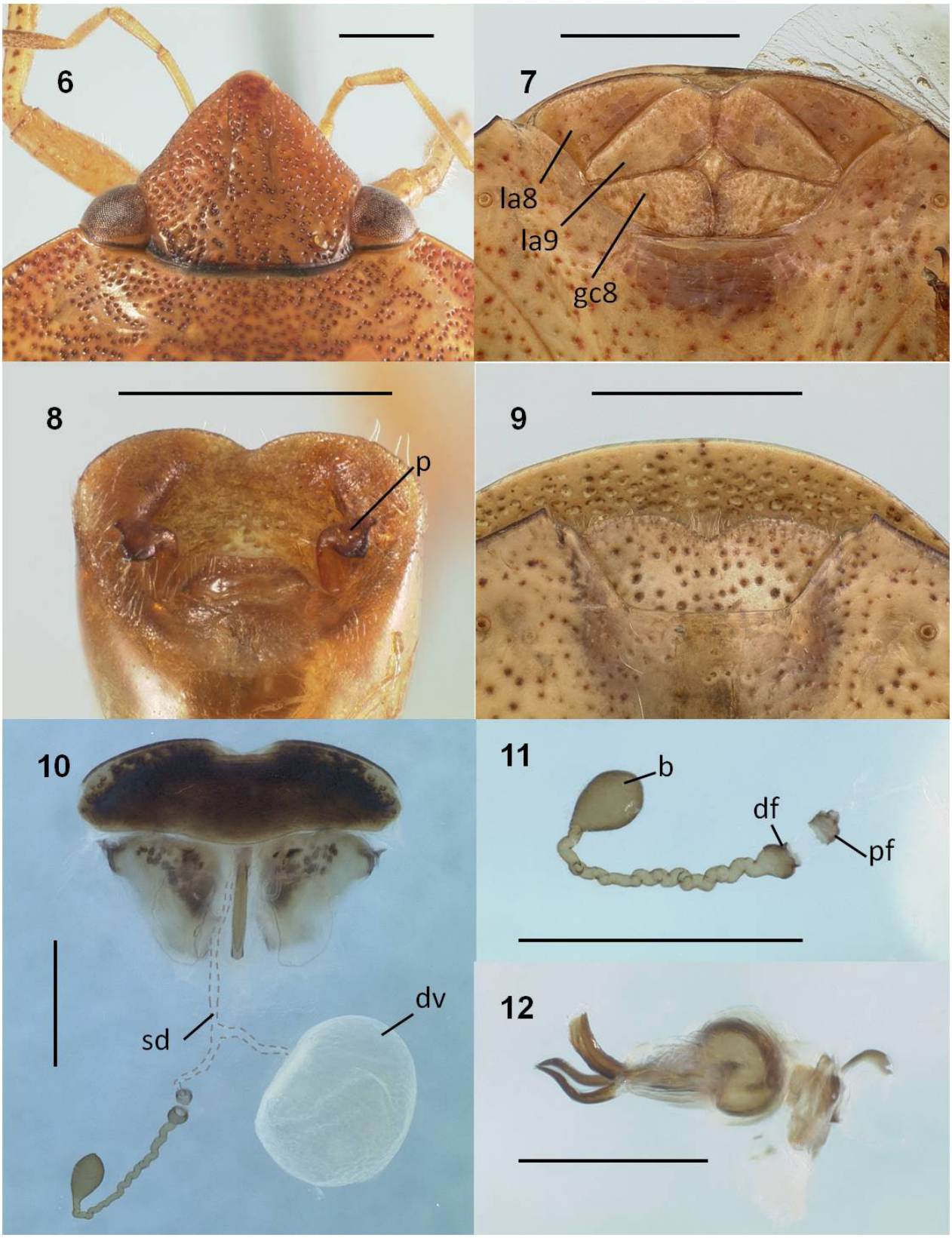
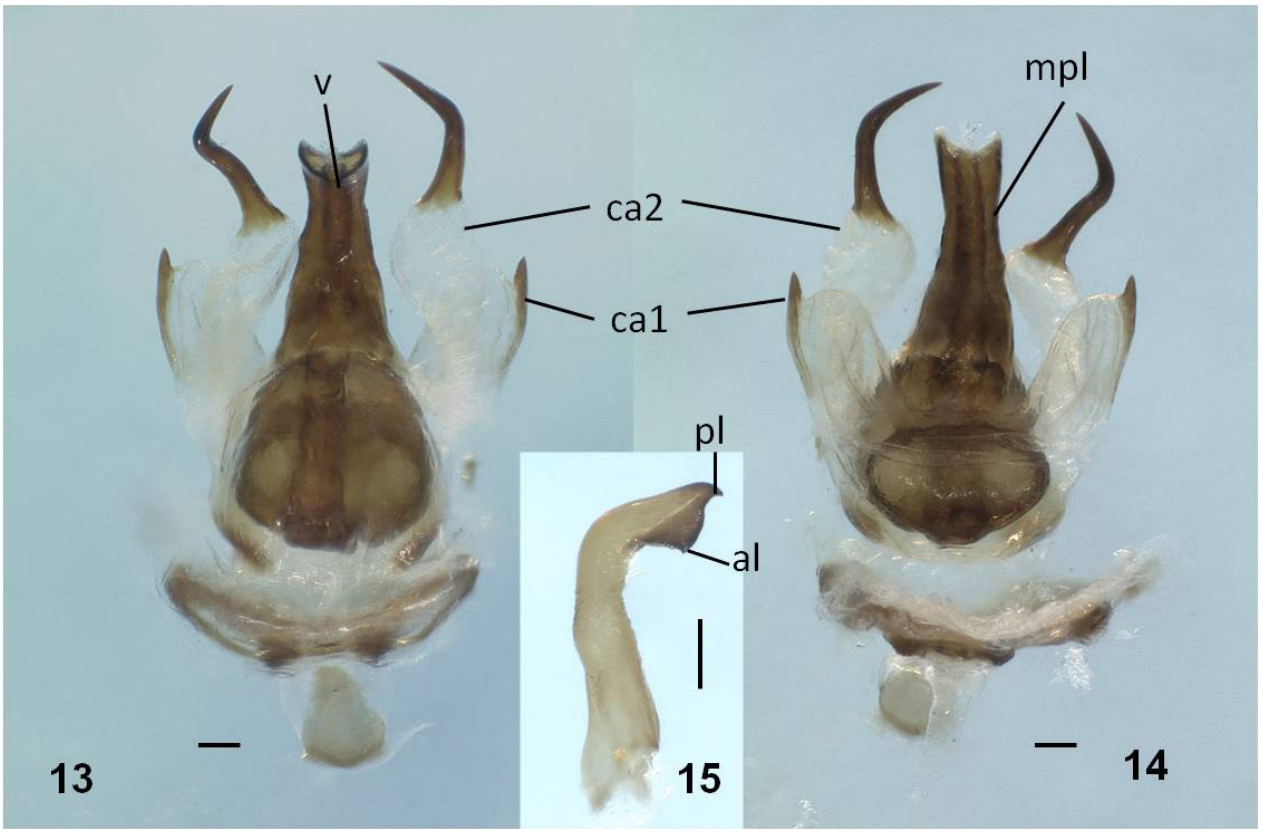


Figures. 1-5. *Brailovskylus mexicanus*. Figs. 1-2 dorsal view, Fig. 1 female, Fig. 2 male; Fig. 3 lateral view; Fig. 4, meso- and metapleura showing ostiolar peritreme; Fig. 5, ventral view, female. Dimensional lines equal 1.0 mm.



Figures. 6-12. *Brailovskylus mexicanus*. Fig. 6 head; Fig. 7 female genital plates (la8 = eighth laterotergites, la9 = ninth laterotergites, gc8 = eighth gonocoxites); Fig. 8 male genital cup, dorsal view (p = parameres); Fig. 9 ventral view of male genital cup at termination of abdomen; Fig. 10 female internal genitalia (sd = spermathecal duct, dv = spermathecal diverticulum); Fig. 11 spermathecal pumping region (b = spermathecal bulb, pf = proximal flange, df = distal flange); Fig. 12 aedeagus, lateral view. Dimensional lines equal 1.0 mm.



Figures. 13-15. *Brailovskylus mexicanus*. Figs 13-14, aedeagus, Fig. 13 dorsal view, Fig. 14 ventral view (v = vesica, ca1 = first conjunctival appendages; ca2 = second conjunctival appendages, mpl = median penal lobe); Fig. 15 paramere, ental view (al = anterior lobe, pl = posterior lobe). Dimensional lines equal 0.1 mm.