

New Species of the Genus *Ochrotrichia* Mosely (Trichoptera: Hydroptilidae) from Mexico and Panama

JOAQUIN BUENO-SORIA AND RALPH W. HOLZENTHAL

[JBS] Instituto de Biología, UNAM. Departamento de Zoología. Apdo. Postal 70-153, México D. F., 04510. México. (e-mail: bueno@servidor.unam.mx)

[RWH] Department of Entomology, University of Minnesota, St. Paul, MN 55108, U.S.A. (e-mail: holze001@tc.umn.edu)

ABSTRACT

Twenty one new species of the genus *Ochrotrichia* Mosely are described and the male genitalia of *Ochrotrichia affinis*, *O. alargada*, *O. amorfa*, *O. bractea*, *O. catarina*, *O. citra*, *O. compacta*, *O. cuspidatus*, *O. delgada*, *O. indefinida*, *O. involuta*, *O. ixtlahuaca*, *O. leona*, *O. regiomantana*, *O. spina*, *O. spinula*, *O. unicornia*, *O. yavesia*, from Mexico and *O. assita*, *O. curvata* and *O. longispina*, from Panama are illustrated. *O. aldama* (Mosely) is recorded for the first time for Panama.

Key Words: Trichoptera, Hydroptilidae, Mexico, Panama, new species, *Ochrotrichia*.

Numerous Neotropical Region. species of the genus *Ochrotrichia* Mosely (1934) have been described by Botosaneanu (1977, 1995, 1995, 1998, 2002), Bueno and Holzenthal (1998), Bueno and Santiago (1981, 1992, 1997), Denning and Blickle (1972), Flint (1964, 1967, 1972), Flint and Bueno (1999), Flint et al. (1999), and Harris and Moulton (1993). We have found and described twenty-one new species from Mexico and Panama, in this paper.

Most of the species here described could be considered members of some of the species groups proposed by Flint (1972). However, some of them do not fit clearly into those groups.

MATERIALS AND METHODS

Male genitalia were cleared in a 10% solution of KOH for 24 hours. They were then studied under a compound microscope, using an excavated slide with glycerin. Male genitalia drawings of lateral, dorsal and ventral views were made using a camera lucida. Most of the species described from Panama were collected by Wolda; Mexican. species were collected by Bueno-Soria and Barba-Alvarez in several collecting trips within the Mexican Republic. All the species here described were grouped using, the inferior appendages shape and distribution of spines on segment X. We followed the classification presented by Marshall (1979) and Flint et al. (1999) for the family and subfamily levels. The type material has been deposited in the Colección Nacional de Insectos (CNIN) of the Instituto de Biología, UNAM and National Museum of Natural History (NMNH) in Washington D. C., as it is indicated by the acronyms.

aldama group*Ochrotrichia aldama* (Mosely)*Ochrotrichia alargada* n. sp.*Ochrotrichia assita* n. sp.*Ochrotrichia citra* n. sp.*Ochrotrichia compacta* n. sp.*Ochrotrichia catarina* n. sp.**arranca group***Ochrotrichia leona* n. sp.**tarsalis group***Ochrotrichia indefinida* n. sp.**tenanga group***Ochrotrichia involuta* n. sp.*Ochrotrichia longispina* n. sp.**lometa group***Ochrotrichia delgada* n. sp.*Ochrotrichia ixtlahuaca* n. sp.*Ochrotrichia spina* n. sp.*Ochrotrichia cuspidatus* n. sp.*Ochrotrichia spinula* n. sp.*Ochrotrichia regiomontana* n. sp.*Ochrotrichia yavesia* n. sp.*incerta sedis**Ochrotrichia curvata* n. sp.*Ochrotrichia affinis* n. sp.*Ochrotrichia amorfa* n. sp.*Ochrotrichia bractea* n. sp.*Ochrotrichia unicornia* n. sp.***Ochrotrichia aldama* (Mosely)**

(Fig. 1)

Polytrichia aldama Mosely, 1937:185*Ochrotrichia* (*O.*) *aldama*: Flint 1972:5

Distribution.— MEXICO: Chiapas, Esmeralda, male BMNH. PANAMA: Barro Colorado Island, 11-17-i-1989, H. Wolda 1 male (NMNH) new record.

***Ochrotrichia alargada* Bueno and Holzenthal, new species**

(Fig. 2)

This species and *Ochrotrichia aldama* have the inferior appendage with rectangular shape in lateral view. However, *O. alargada* can be recognized because the basal portion of tergum X bear a very long sclerotized bars and its apical portion have two short, sinuous, hook-like processes.

Male.— Length of forewing 2 mm. Color in alcohol dark brown. Segment

IX deeply depressed and produced anteriorly, in lateral view with elongate posterodorsal lobe. Segment X with basal portion very long, membranous, with two lateral sclerotized bars, apical portion with two short, sinuous, hook-like processes. Inferior appendages symmetrical, in lateral view with the basal portion narrow and elongate, enlarged posteriorly, appearing slightly rectangular, with two groups of black peg-like setae, one cluster anterodorsally and one row on the rounded apex. Phallus long and thread-like.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Guerrero: Municipio de Taxco: Teusisapan: Rio Temazcalapa, 12 km. NW Ahuehuepan, el. 1052 m, Rta 51, 18° 25.56' N, 99° 42.5' W, 28. xii. 1994, R. Barba and D. Ocaña (CNIN). Paratypes. Same data as the holotype but 28.ii.1995, R. Barba & A. Rojas 1 male (CNIN); same but, 27.v.1995, R. Barba & A. Ocampo, 3 males (CNIN).

Etymology.— The species epithet, *alargada*, means elongated in Spanish, referring to its elongate tenth tergum.

Ochrotrichia citra Bueno and Holzenthal, new species

(Fig. 3)

This species is a member of the *aldama* group and appears closely related to *Ochrotrichia aldama* because it has two plates on segment X of approximately equal size. However, unlike *O. aldama* *O. citra* has the left process narrow and the right one broad; the inferior appendages in lateral aspect show an elongate, rounded posterodorsal lobe with posteroventral margin angulated.

Male.— Length of forewing, 2 mm. Color in alcohol, yellow, pale. Segment IX depressed and produced anteriorly with posterodorsal corner slightly elongate and angulate. Segment X divided longitudinally into right and left processes; right process with basomesal flap partially overlying on left process, left process with dark tip and ventrally directed. Inferior appendages in lateral aspect with elongate rounded apicodorsal lobe with small apicoventral angulate lobe, bearing a line of black peglike setae along posterior margin. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo Rta. Malpasito-Carlos A. Madrazo, Ejido Villa de Guadalupe, 1ª seccion Cascada Cerro de las Flores, el. 540 m, 17° 21' 39" N, 93° 37' 29" W, 26.vi.1999, J. Bueno and R. Barba, (CNIN). Paratypes: With the same data as the holotype, 2 males (CNIN), 2 males (NMNH), same but 16.iii.2000, J. Bueno, R. Barba and A. Rojas, 10 males (CNIN).

Etymology.— *citra*: Latin for close, near. Referring to the close similarities of the genitalic shape with *O. aldama* (Mosely).

Ochrotrichia compacta Bueno and Holzenthal, new species

(Fig. 4)

This species closely related to *Ochrotrichia aldama* is another member of the *aldama* group, characterized by the slightly elongate inferior appendages. However, *O. compacta*, can be separated from the species of this group by the appearance of two, short, stout spine-like processes on segment X.

Male.— Length of forewing 2 mm. Color in alcohol dark brown, covered

with a large number of brown hairs. Segment IX depressed and produced anteriorly. Segment X divided longitudinally in two, short, stout processes of approximately equal size, left process with darkened apex, curved ventrad in lateral aspect; right process with a basomesal flap partially overlying on left process, apex narrower and slightly acute. Inferior appendages in lateral view slightly angulated, bearing lines of black peglike setae on apex and along ventral side. Phallus long, thread-like.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo, Rta. Malpasito-Carlos A. Madrazo, Ejido Villa de Guadalupe 1^a sección Cascada Cerro de Las Flores, el. 540 m, 17° 21' 39" N, 93° 37' 29" W, 16.iii.2000, J. Bueno, R. Barba, A. Rojas (CNIN). Paratypes: With the same data as the holotype, 7 males (CNIN), 2 males (NMNH).

Etymology.— *compacta*: Latin for thick, firm, compact. The name alludes to the short, compact aspect of segment X and inferior appendages.

Ochrotrichia indefinida Bueno and Holzenthal, new species
(Fig. 5)

This species could be considered a member of the *tarsalis* group; it appears related to *Ochrotrichia caimita* by having a broad plate covering much of the dorsal part of segment X and having elongated parallel-sided inferior appendages. However, *O. indefinida* can be recognized by the presence of a short, serrated, spine-like process on the midbasal portion of segment X and by the phallus with wide midsection covered by a thin membrane.

Male.— Length of forewing 2 mm. Color in alcohol light-brown. Segment IX depressed and slightly produced anteriorly, in lateral view with a small lobe produced anterodorsally. Segment X membranous, midbasal region with a short serrate process; apical region on left side with a stout, short, plate with acute, sclerotized, beak-like apex; in lateral aspect, appearing like a hook-like sclerite. Inferior appendages symmetrical and elongate, apex rounded bearing a band of black peglike setae around apex, ventral margin, and on midbasal ridge. Phallus appears with basal section wide, midsection covered by a thin membrane; apical region slender, with preapical wide section.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo, km 5 Ruta Malpasito-Carlos A. Madrazo, Arroyo las Flores Villa de Guadalupe 2TM sección Los Chimalapas, el. 545 m, 17° 22' 05" N, 93° 36' 25" W, 16.iii.2001, J. Bueno, R. Barba and A. Rojas (CNIN). Paratype. With same data as the holotype 1 male (CNIN).

Etymology.— *indefinida*: Spanish word for indefinite. This name makes reference to the unclear definition of the structures that form segment X.

Ochrotrichia involuta Bueno and Holzenthal, new species
(Fig. 6)

This species is a member of the *tenanga* group and appears related to *Ochrotrichia palitla* because of the long processes of segment X, and the elongate, parallel-sided inferior appendages which bear a band of black peglike setae around the apex, ventral margin, and on the midbasal ridge. However, *O. involuta* differs by having on segment X a stout, middorsal, black tipped spine, curved to the right.

Male.— Length of forewing 2 mm. Color in alcohol pale yellow. Segment IX depressed and produced anteriorly. Segment X in dorsal view with a stout, mid-dorsal, dark tipped spine curved to right, with a long thin spine-like process on the right side and a small basidorsal spine-like process; apical plate with three curved spine-like processes; in lateral view on right side a long, slender spine-like process; underneath a long ventral process, apical plate with two ventrally curved spine-like processes. Inferior appendage symmetrical, elongate, with a band of black peglike setae on apex, ventral margin, and midbasal ridge. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Guerrero: km 7 Route Taxco-Ixcateopan, 17.vi.1987, J. Bueno, H. Brailovsky, E. Barrera, (CNIN).

Etymology.— The species epithet *involuta* refers to the convoluted shape of the spines of segment X.

Ochrotrichia catarina Bueno and Holzenthal, new species
(Fig. 7)

This species could appear to be another member of the *aldama* group; it appears to be related to *O. aldama* by having elongate, parallel-sided inferior appendages with a band of black peglike setae around apex and ventral margin. However, *O. catarina* can be recognized from that species by two different size spine-like processes on segment X and a short basal process on left side with apex notched.

Male.— Length of forewing 3 mm. Color in alcohol dark-brown. Segment IX depressed and produced anteriorly. Segment X in dorsal view with two different size spine-like processes: one shorter on left side and one longer on right side with a very small basolateral spine-like processes on right side, left spine-like process with apical half ending in a short, conical process; in lateral view, left process with apex notched; right process long, slightly sinuate, with apex ventrally curved. Inferior appendages, elongate, symmetrical, with a band, of black peglike setae around apex and ventral margin. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Oaxaca: Santa Catarina La Chatao, el. 2160 m, 17° 15' 58" N 96° 28' 15" W, 5-6-xii-1999, A. Rojas (CNIN).

Etymology.— The species epithet, *catarina*, refers to the name of the area in the state of Oaxaca, where the holotype was collected.

Ochrotrichia curvata Bueno and Holzenthal, new species

(Fig. 8)

Based on the elongated shape of inferior appendages and the lack of black peg-like setae on the apex and ventral margin, this species appears very different from any of the species groups proposed by Flint (1972). *Ochrotrichia curvata* can be recognized by the presence of two, long, curved spines on segment X.

Male.— Length of forewing, 3 mm. Color in alcohol, yellow pale. Segment IX depressed and largely produced anteriorly. Segment X with two, elongate, hook-like processes, curved from left with apex directed to right, with wide, basal, flat plate, covering half of dorsum; in lateral view appears one, long, straight, spine-like process, and one shorter spine, basally curved with acute apex. Inferior appendages symmetrical; in lateral view elongate, dorsal margin slightly sinuous with rounded apex, in ventral view with wide mid section; mid apical section parenthesis-like with apex rounded and slightly serrated. Phallus long and thread-like.

Female.— Unknown

Type Material.— Holotype, male. PANAMA: Chiriqui: Fortuna Dam site near Hornitos, el. 1050 m, 8° 55' N, 82° 16' W, 16-29.xi.1977, H. Wolda, (NMNH).

Etymology.— *curvata*: Name in apposition. Referring to the curved spines of tenth tergum.

Ochrotrichia longispina Bueno and Holzenthal, new species

(Fig. 9)

Inferior appendages which are very long and slender with a band of black peglike setae around the apex show that this species is another member of the *tenanga* group. A relationship to *O. oblongata* Bueno and Santiago is indicated by the lack of numerous processes and spines on segment X. *O. longispina* can be distinguished by the symmetrical and straight shape of inferior appendages and the sclerotized apex of segment X.

Male.— Length of forewing, 1.5 mm. Color in alcohol, dark brown. Segment IX deeply depressed and produced anteriorly. Segment X with two long, spine-like processes arising at midlength, strongly sclerotized with apex curved in lateral and dorsal view. Inferior appendage elongated, symmetrical, straight, and slender, bearing a band of black peglike setae around apex, and half length of ventral margin. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. PANAMA: Chiriqui: Fortuna Dam site nr Hornitos, el. 1050 m, 8° 55' N, 82° 16' W, 14-20.xii.1976, H. Wolda, (NMNH). Paratype: COSTA RICA: Alajuela: Reserva Forestal San Ramón, Río San Lorencito and Tribs., elev. 980 m, 10° 21' N, 84° 07' W, 30.iii.-1.iv.1987, Holzenthal, Hamilton, Heyn, 1 male (NMNH).

Etymology.— *longispina*: Latin feminine for elongate, referring to the elongate appearance of the spines of segment X.

Ochrotrichia assita Bueno and Holzenthal, new species

(Fig. 10)

This species would be another member of the *aldama* group Flint, (1972) and closely related to *Ochrotrichia aldama* by the elongate shape and longitudinally divided segment X. *Ochrotrichia assita* can be separated from that species by a short, stout, spine-like basodorsal process on segment X and by the longer size of the inferior appendages.

Male.— Length of forewing, 3 mm. Color in alcohol yellow pale. Segment IX depressed and greatly produced anteriorly. Segment X with a short, stout basodorsal spine-like process; a long plate longitudinally divided into right and left processes of approximately equal size, right process with tip directed dorsomesally, left process with apex directed ventrad. Inferior appendage in lateral aspect rectangular, elongate and broad, apical margin and midventral ridge with a group of long, black, peglike setae. Phallus long with basal region wider.

Female.— Unknown

Type Material.— Holotype, male. PANAMA: Chiriqui Fortuna Dam site near Hornitos, el. 1050 m, 8° 55' N, 82° 16' W, 4.i.7.iii.1978, H. Wolda, (NMNH).

Etymology.— *assita*: Latin feminine for near, referring to the close resemblance with *O. aldama*.

Ochrotrichia affinis Bueno and Holzenthal, new species

(Fig. 11)

This species appears closely related to *Ochrotrichia amorfa* because of the sigmoid shape of the inferior appendage with apical black peg-like setae. However, the presence of only two elongate spine-like processes on right side of segment X, make *O. affinis* distinguishable from that species.

Male.— Length of forewing, 1.5 mm. Color in alcohol, light brown. Segment IX deeply divided dorsally and slightly produced anteriorly. Segment X, in dorsal view, with large, flat, sinuous plate, with a single, elongate, spine-like process on right side, and shorter basodorsal spine-like process on center. Inferior appendages symmetrical, slightly triangular, with a long, curved, anterodorsal lobe with two, black, peg-like setae at apex; posteroventral margin with a group of black peglike setae; in dorsal aspect with a digitiform lobe; inner surface of apical section ellipsoidal with several black peglike setae; in ventral view, elongate with inner margin straight with a row of black peglike setae. Phallus with a slender apical tube arising from an enlarged basal tube.

Female.— Unknown.

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo Ejido Villa de Guadalupe, 1ª sección Cascada Cerro de Las Flores, el. 540 m, 17° 21' 39" N, 93° 37' 29" W, 26.vi.1999, J. Bueno and R. Barba (CNIN).

Etymology.— *affinis*: Latin for related to. Referring to the similar shape of the inferior appendage with *O. amorfa*.

Ochrotrichia amorfa Bueno and Holzenthal, new species

(Fig. 12)

This species is closely related to *Ochrotrichia affinis* as suggested by the sigmoid shape of the inferior appendage. However, *Ochrotrichia amorfa* can be distinguished by the presence of an elongate, curved, fingerlike, process with darkened apex on left inferior appendage.

Male.— Length of forewing, 1.5 mm. Color in alcohol, dark brown. Segment IX deeply divided dorsally and slightly produced anteriorly. Segment X in dorsal view with three, short, spine-like processes basally situated; underneath a sclerotized plate with long, straight process on right side and a short, angulated, process on left side. Inferior appendages asymmetrical, in lateral aspect, sigmoid, with a tuft of large black peg-like setae on posteroventral margin, with dorsomesal, elongate, curved, finger-like process with darkened apex. Phallus long and slender threadlike.

Female.—Unknown

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo, Arroyo las Flores, Villa de Guadalupe 2ª sección, Los Chimalapas km 5 Ruta Malpasito-Carlos A. Madrazo, el. 540 m, 17° 22' 05" N, 93° 36' 25" W, 1.xii.1998, J. Bueno and R. Barba (CNIN). Paratype. The same data as the holotype, 1 male (CNIN).

Etymology.— *amorfa*: Spanish word that means without shape; referring to the asymmetrical contour of the inferior appendages.

Ochrotrichia bractea Bueno and Holzenthal, new species

(Fig. 13)

On the basis of the sigmoid shape of the inferior appendage this species appears to be slightly related to *Ochrotrichia amorfa*, *O. affinis*, and *O. eyipanla* Bueno. However, *O. bractea* can be distinguished from those species by a large, convex, ellipsoidal plate of segment X, covered with a group of small, scale-like spines as well as by the phallus that is slightly wider in the basal portion with the apical region tapering to acute apex.

Male.— Length of forewing, 2 mm. Color in alcohol, dark brown. Segment IX deeply divided dorsally and slightly produced anteriorly. Segment X with large ellipsoidal convex plate, covered with a group of scale-like spines on left side, with apex ending in a flap-like process ventrally directed; right side with a large spine-like process. Inferior appendage broadly triangular, posterior border with a row of black peg-like setae. Phallus long with basal portion slightly wider than apical, apex tapering acutely.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Morelos: Municipio de Huautla, Reserva de la Biósfera de Huautla, el. 900 m, 18° 20' 10", 18° 34' 20" N, 98° 51' 20", 99° 08' 15" W, 12. iii. 1996, E. González and S. Zaragoza (CNIN).

Etymology.— *bractea*: Latin for scale. This name is related to the scale-like aspect of the small spines on segment X.

Ochrotrichia delgada Bueno and Holzenthal, new species

(Fig. 14)

Ochrotrichia delgada appears to be considered another member of the *lometa* group by the presence of spines on segment X. However, *O. delgada* can be recognized by the narrow and elongate left inferior appendage and bifurcate apex of the right inferior appendage in dorsal aspect.

Male.— Length of forewing, 2 mm. Color in alcohol, fuscous. Segment IX depressed and produced anteriorly. Segment X in dorsal view with basal region bearing two different sized spines on right side, one long spine on left side; and middorsally with a stout, dark, spine; apical region with a slightly sclerotized plate; in lateral view on right side with two basidorsal, spines; on left side with two sets of spines; apical region with long hood-like membranous, triangular, ventrally situated process. Inferior appendage of right side apically elongated with a long dark tipped spine slightly surpassing the apex, with a short stout spine on ventral region; left inferior appendage narrow and elongate, with a short, dark apex spine at midventral. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Tabasco: Municipio de Huimanguillo, km 5 Ruta Malpasito-Carlos A. Madrazo, Arroyo Las Flores, Villa de Guadalupe 2^a sección Los Chimalapas, el. 545 m, 17° 22' 05" N, 93° 36' 25" W, 16.iii.2000, J. Bueno, R. Barba, and A. Rojas (CNIN). Paratype: Same data as the holotype 1 male (CNIN).

Etymology.— *delgada*: Spanish word for thin, referring to the elongated and thin inferior appendage.

Ochrotrichia ixtlahuaca Bueno and Holzenthal, new species

(Fig. 15)

Because of the elongate shape of the inferior appendage, *Ochrotrichia ixtlahuaca* is considered another member of the *lometa* group, very close to *Ochrotrichia ildria* on the basis of a long lateral spine on right side of segment X. However, *O. ixtlahuaca* can be distinguished by the presence of three spines on segment X and the wider shape of inferior appendage, characters not observed in *O. ildria*.

Male.— Length of forewing, 2 mm. Color in alcohol, fuscous. Segment IX depressed and produced anteriorly. Segment X with a long lateral spine on right side and a long membranous hoodlike plate, with a short darkened basidorsal spine; in lateral aspect, on right side, with a short basidorsal spine and a long spine; underneath with two different sized spines, ventralmost longer and slightly curved ventrad; on left side at midlength appear two long spines. Inferior appendages elongate, symmetrical in dorsal and ventral view; tapering to a pointed dark apex; left inferior appendage with small, preapical, ventral lobe; midbasal ridge with scattered black peglike setae. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Hidalgo: Ixtlahuaco, Ruta 105 Hotel Campestre Conchita, el. 1420 m, 20° 53' 04" N, 98° 41' 47" W, 3.vi.2000, J. Bueno and R. Barba. (CNIN).

Etymology.— *ixtlahuaca*: refers in feminine name of Ixtlahuaco, the place in the state of Hidalgo, where the holotype was collected.

Ochrotrichia spina Bueno and Holzenthal, new species

(Fig. 16)

This is another member of the *lometa* group and appears related to *O. ixtlahuaca* on the basis of the elongate shape of the inferior appendages, and by the presence on segment X of a short, dark tipped, spine with dark apex. However, *Ochrotrichia spina* can be distinguished from that species by the presence of one large, lateral spine on the right side of segment X.

Male.— Length of forewing, 2 mm. Color in alcohol, fuscous. Segment IX depressed and produced anteriorly. Segment X in dorsal view bearing a stout midlength spine-like process; in lateral aspect appears a middorsal dark tipped spine with apex upturned; and a large, stout, spine-like process slightly curved with lateral plate notched at apex; apical process with apex curved ventrad, with a membranous, slightly sclerotized circular flap. Inferior appendages appears symmetrical in dorsal and ventral view; in lateral view elongate, tapering to a dark apex; midbasal lobe with a group of black peglike setae. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Veracruz: Puente Río Jamapa, Route Coscomatepec–Huatusco, el. 1320 m, 27.x.2000, J. Bueno. R. Barba (CNIN). Paratype: Same data as the holotype 1 male (CNIN).

Etymology.— *spina*: Latin for feminine of thorn. The name makes reference to the stout spine on the right side of segment X.

Ochrotrichia cuspidatus Bueno and Holzenthal, new species

(Fig. 17)

Ochrotrichia cuspidatus is a member of the *lometa* group and is closely related to *Ochrotrichia buccata* by the presence, on right side of segment X, of one lateral spine, and by the elongate shape of inferior appendage in lateral view. *O. cuspidatus* can be distinguished by the presence on segment X of two, short, dark tipped spines with apex upturned, one middorsally and one on left side, and by the presence of two, elongate, spine-like processes on the right side.

Male.— Length of forewing, 2 mm. Color in alcohol, fuscous. Segment IX depressed and produced anteriorly. Segment X in lateral view on right side, with basal region with a stout, short, spine and two dark tipped spines, one with apex upturned, in dorsal view with one middorsally and one on left side, with two elongate spines on right side; apical region curved ventrad, with a slight sclerotized circular flap on right side. Inferior appendages in ventral view asymmetrical; in lateral view elongate, tapering to a pointed apex with a black peglike seta; preapical ventral lobe small, with midbasal ridge bearing scattered black peg-like setae. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Guerrero: Municipio Taxco, Teusisapan, Río Temascalapa, 12 km. NW Ahuehuepan Rta. 51, el. 1052 m, 18° 25.56' N, 99° 42.5' W, 10.iv.1995, R. Barba & D. Ocaña, (CNIN). Paratypes. MEXICO Veracruz: Municipio Tlilapan, Arroyo Quetzalan "Los Manantiales"

km 5 Ruta Orizaba-Zongolica, el. 1160 m, 18° 47' .42" N; 97° 06' .08 W, 7.iii.2000, Bueno, Barba, Rojas, 7 males. (CNIN).

Etymology.— *cuspidatus*: Latin for pointed end. This name indicates the inferior appendages acute apex.

Ochrotrichia spinula Bueno and Holzenthal, new species
(Fig. 18)

This species is a member of the *lometa* group. It appears to be related to *Ochrotrichia poblana* by the presence of a developed midventral spine on inferior appendages. However, *O. spinula* can be separated from that species by the presence, of a large spine with tiny spines on the surface underneath segment X, and a long dorsal spine slightly curved to right.

Male.— Length of forewing, 2.5 mm. Color in alcohol, dark brown. Segment IX deeply divided dorsally and slightly produced anteriorly. Segment X in dorsal aspect with three spines on right side; two with dark apex arising contiguously, dorsalmost curved; underneath, on right side, a large spine with few small spines on surface; apical plate a flat lobe curved ventrally. Inferior appendage elongate apex produced into a darkened point and small thin spine on midventral surface; a row, of black, peg-like setae on dorsal margin an mesally at midlength. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Chiapas: Reserva de la Biosfera El Triunfo, 8.v.1995, E. Barrera (CNIN). Paratypes. Same data as the holotype, 2 males (CNIN).

Etymology.— *spinula*: Latin for small spine. The name makes reference to the thin spines on the midventral margin of inferior appendages.

Ochrotrichia regiomontana Bueno and Holzenthal, new species
(Fig. 19)

This species is a member of the *lometa* group by the presence of a broad, angled, spur on the right side of segment X and is closely related to *Ochrotrichia panamanensis*. However, *Ochrotrichia regiomontana* can be recognized by the presence of a short, curved, basal, dark tipped spine on left side of segment X, character not observed in *O. panamanensis*.

Male.— Length of forewing, 2 mm. Color in alcohol, pale brown. Segment IX deeply depressed and produced anteriorly. Segment X with two, short, stout, basal spines, left one with darkened apex; right one stout, and ventrally curved; apical process with tip pointed and angled to right, with a slightly sclerotized circular flap on its right; in lateral view with two basal spines, curved ventrad. Inferior appendages elongate, tapering to a dark, pointed apex with; a preapical lobe, bearing a small cluster of black peg-like setae. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Nuevo Leon, Municipio Santiago, Potrero Redondo, 10.vi.1985, A. Contreras, (CNIN).

Etymology.— *regiomontana*: female eponym from the city of Monterrey in the state of Nuevo Leon, Mexico.

Ochrotrichia yavesia Bueno and Holzenthal, new species

(Fig. 20)

This species is another member of the *lometa* group. It is closely related to *Ochrotrichia logana* and *O. lometa* by the presence of spines on segment X. However, *O. yavesia* can be separated from these species by the presence of three short spines on segment X, whereas in *O. logana* and *O. lometa* has four longer spines.

Male.— Length of forewing, 3 mm. Color in alcohol, fuscous. Segment IX depressed and produced anteriorly. Segment X in dorsal aspect with three short slightly curved spines, two situated on left side and one on right side; in lateral aspect, on left side with short spines curved with dark apex and underneath segment X, with stout straight spine. Inferior appendage elongate with tip produced into a dark point; midventral lobe small; midbasal ridge with scattered black peg-like setae. Phallus long, threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Oaxaca: Santa Maria de *Yavesia* (water plant), el. 1930 m, 17° 13' 36" N, 96° 25' 35" W, 16.viii.2001, J. Bueno, R. Barba, A. Ibarra (CNIN). Paratypes: Same data as the holotype, 6 males (CNIN)

Etymology.— *yavesia*: Referring to the name of the area where the holotype was collected.

Ochrotrichia unicornia Bueno and Holzenthal, new species

(Fig. 21)

Because of the irregular shape of the inferior appendages in lateral view, *Ochrotrichia unicornia* appears not closely related to any of the species described here. However, *O. unicornia* can be easily recognized by the long, narrow, longitudinally divided plate of segment X, and inferior appendages with posterodorsal finger-like processes.

Male.— Length of forewing 3 mm. Color in alcohol brown, covered with a large amount of brown hairs. Segment IX depressed and produced anteriorly. Segment X, in dorsal aspect, with a long, narrow, plate, longitudinally divided; in lateral aspect, on left side with a long, curved ventrad, process. Inferior appendages asymmetrical; left inferior appendage elongate, posterior margin bifurcated in finger-like process and a short wide process with a group of black peg-like setae on top; ventral margin with a short process bearing a group of black peg-like setae on apex; right inferior appendage in lateral aspect slightly conical with short finger-like process on dorsal margin, and two, short, wider processes on ventral margin with black peg-like setae on apex. Phallus, long and threadlike.

Female.— Unknown

Type Material.— Holotype, male. MEXICO: Oaxaca: Santa Maria de *Yavesia* (water Plant), el. 1930 m, 17° 13' 36" N, 96° 25' 35" W, 16.viii.2001, J. Bueno, R. Barba, A. Ibarra (CNIN).

Etymology.— *unicornia*: Spanish word for unicorn. The name refers to the horn-like appearance of the inferior appendage process in lateral view.

Ochrotrichia leona Bueno and Holzenthal, new species

(Fig. 22)

Based on the atypical and asymmetrical shape of the inferior appendages, with an elongated finger-like dorsal lobe, this species seems to be another member of the *arranca* group. However, *Ochrotrichia leona* can be recognized from the rest of the species of this group by the presence on segment X, of a long, thin, curved spine on right side and a short, stout, spine-like process, on left side; with inferior appendage in lateral view elongated with dorsal margin bearing two, short, rounded lobes and a ventral process with a group of black peg-like setae.

Male.—Length of forewing, 3 mm. Color in alcohol, dark brown. Segment IX deeply divided dorsally and slightly produced anteriorly. Segment X on left side with one short, stout spine basilaterally situated, with a longer spine on same side; apex slightly acute, appearing like a third spine; right side with a thin, long, curved spine. Inferior appendages asymmetrical; in lateral view elongated with apex bifurcated into two short, rounded lobes; dorsal margin with both corners bearing a short, rounded lobes; ventral margin bearing a group of black peg-like setae. Phallus long and slender, threadlike.

Female.—Unknown

Type Material.—Holotype, male. MEXICO: Distrito Federal: Desierto de Los Leones, Arroyo San Borja, el. 2650 m, 19° 18.140' N: 99° 18.648' W, 16-viii-1997, J. Bueno and R. Barba, (CNIN).

Etymology.—*leona*. This is the feminine of Lion in Spanish. Referring to the name of the place, where the holotype was collected.

ACKNOWLEDGMENTS

We thank Oliver S. Flint Jr., Fernando Muñoz and William López-Forment for the review and suggestions to the manuscript; Rafael Barba-Alvarez for his help in collecting and preparing the material studied; Martha Espinosa-Farrera for the male genitalia drawings; Sr. Felipe Villegas for the Scan drawings; Nancy Adams Specialist-Manager Collection for her help during the staying of J. Bueno-Soria at the National Museum of Natural History, Smithsonian Institution; and the anonymous reviewers for their time and effort to improve the manuscript.

LITERATURE CITED

- Botosaneanu, L. 1977. Trichopteres (imagos) de Cuba capturés par moi-même en 1973. *Fragmenta Entomologica*, 13(2): 231-284.
- Botosaneanu, L. 1995. Caddis Flies (Trichoptera) from the Dominican Republic (West Indies) I. The Hydroptilidae. *Bulletin De L'Institut Royal Des Sciences Naturelles De Belgique, Entomologie*, 65: 21-33
- Botosaneanu, L. 2002. An annotated checklist of caddisflies from the Caribbean islands, with distribution and bibliography (Insecta, Trichoptera). *Bulletin de la Société Entomologique de France* 107(1): 79-108.
- Botosaneanu, L. and M. Alkins-Koo. 1993. The Caddis Flies (Insecta: Trichoptera) of Trinidad and Tobago, West Indies. *Bulletin De L'Institut Royal Des Sciences Naturelles De Belgique, Entomologie*, 63: 5-45.
- Botosaneanu, L. and E. J. Hyslop. 1998. A systematic and biogeographic study of the caddisfly

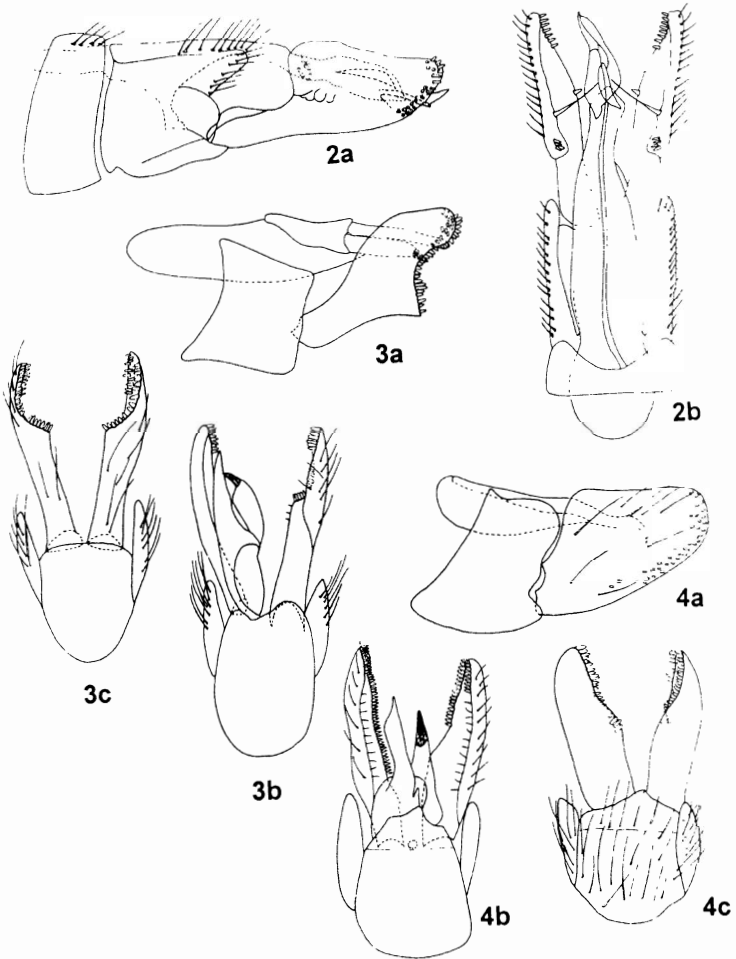


Fig. 2. *Ochrotrichia alargada* sp nov. Male genitalia. 2a, Lateral view. 2b, Dorsal view.

Fig. 3. *Ochrotrichia citra* sp nov. Male genitalia. 3a, Lateral view. 3b, Dorsal view. 3c, Ventral view.

Fig. 4. *Ochrotrichia compacta* sp nov. Male genitalia. 4a., Lateral view. 4b, Dorsal view. 4c., Ventral view.

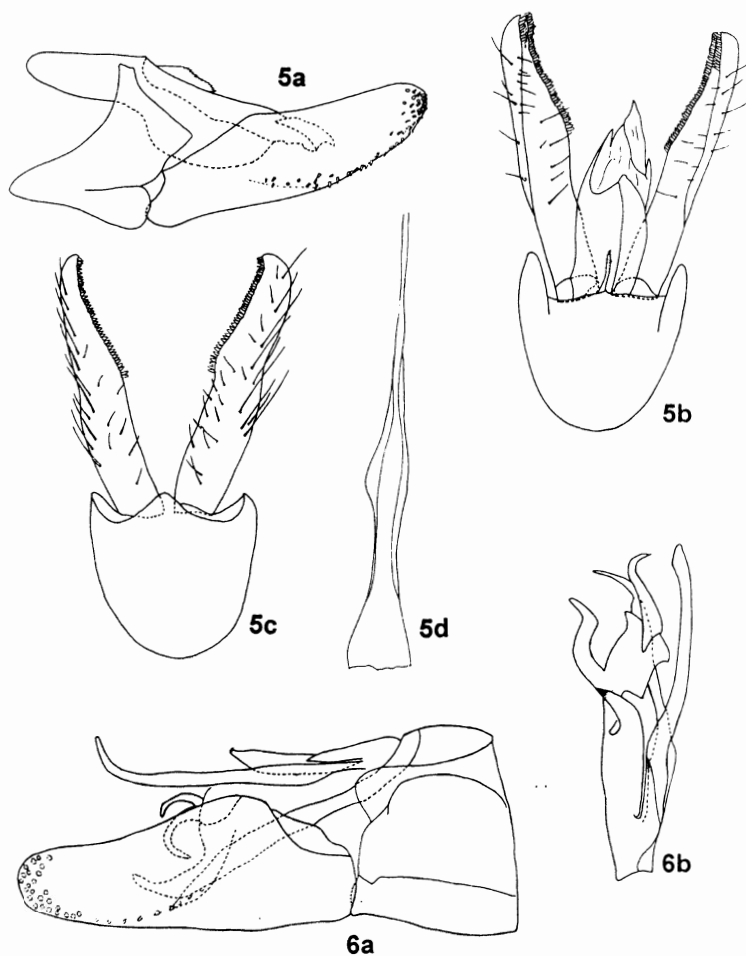


Fig. 5. *Ochrotrichia indefinida* sp. nov. Male genitalia. 5a, Lateral view. 5b, Dorsal view. 5c, Ventral view. 5d, Phallus dorsal view.

Fig. 6. *Ochrotrichia involuta* sp. nov. Male genitalia. 6a, Lateral view. 6b, Dorsal view of segment X.

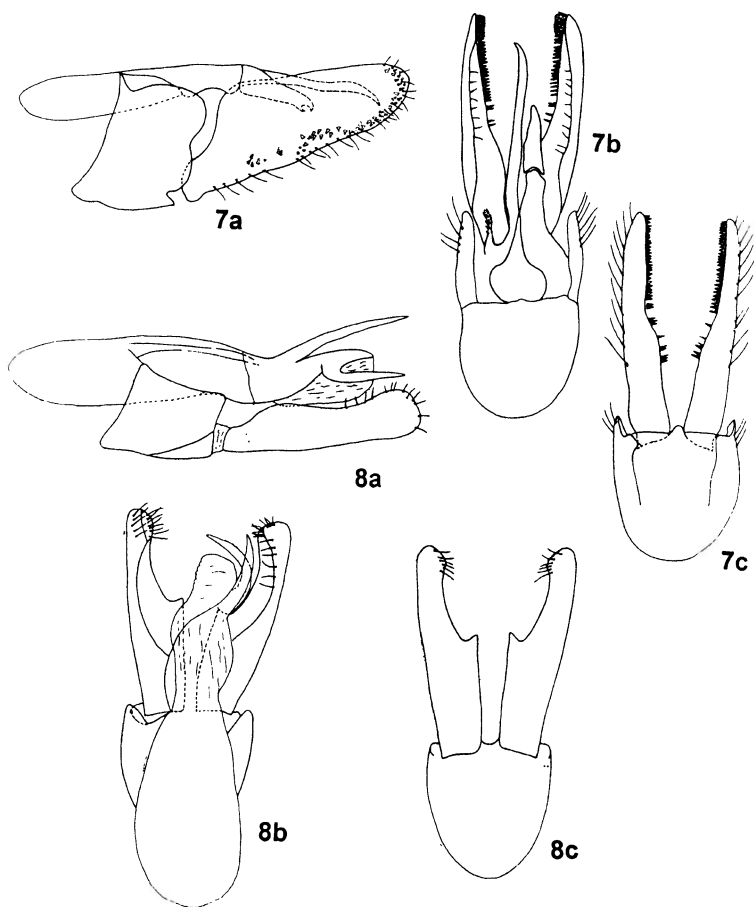


Fig. 7. *Ochrotrichia catarina* sp. nov. Male genitalia. 7a, Lateral view. 7b, Dorsal view. 7c, Ventral view.

Fig. 8. *Ochrotrichia curvata* sp. nov. Male genitalia. 8a, Lateral view. 8b, Dorsal view. 8c, Ventral view.

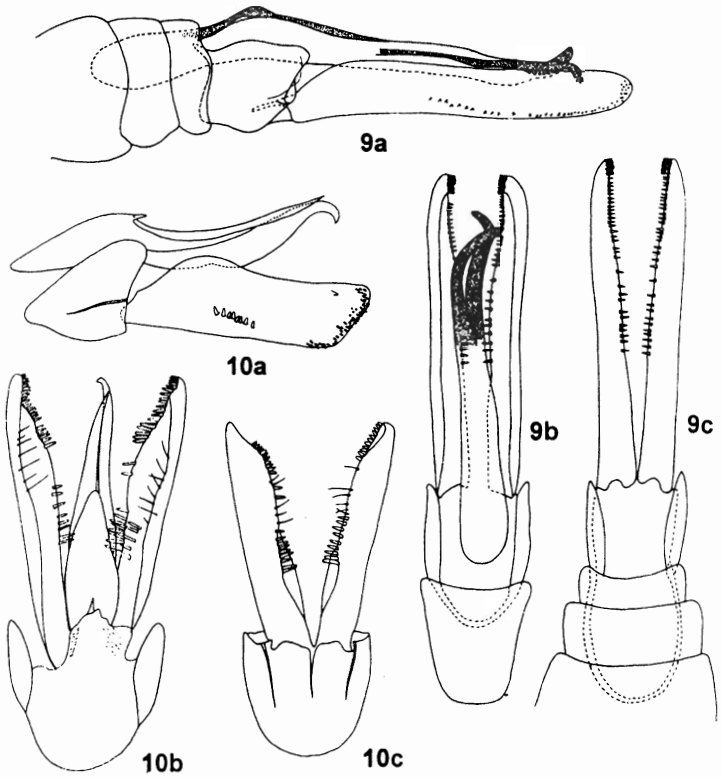


Fig. 9. *Ochrotrichia longispina* sp. nov. Male genitalia. 9a, Lateral view. 9b, Dorsal view. 9c, Ventral view.

Fig. 10. *Ochrotrichia assita* sp. nov. Male genitalia. 10a, Lateral view. 10b, Dorsal view. 10c, Ventral view.

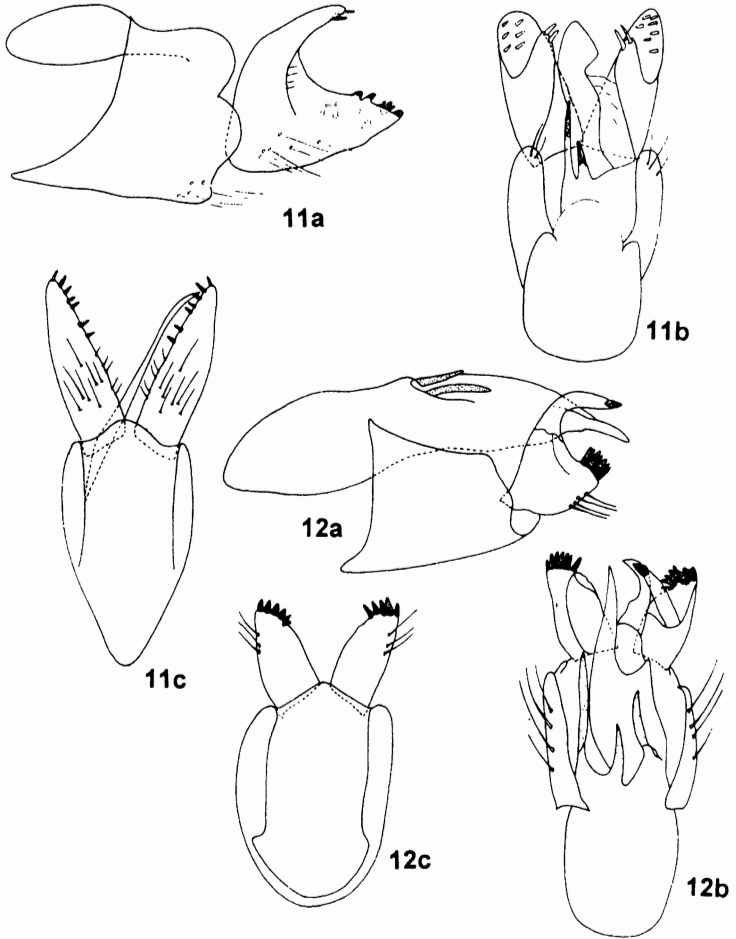


Fig. 11. *Ochrotrichia affinis* sp nov. Male genitalia. 11a. Lateral view. 11b. Dorsal view. 11c. Ventral view.

Fig. 12. *Ochrotrichia amorfa* sp nov. Male genitalia. 12a, Lateral view. 12b, Dorsal view. 12c, Ventral view.

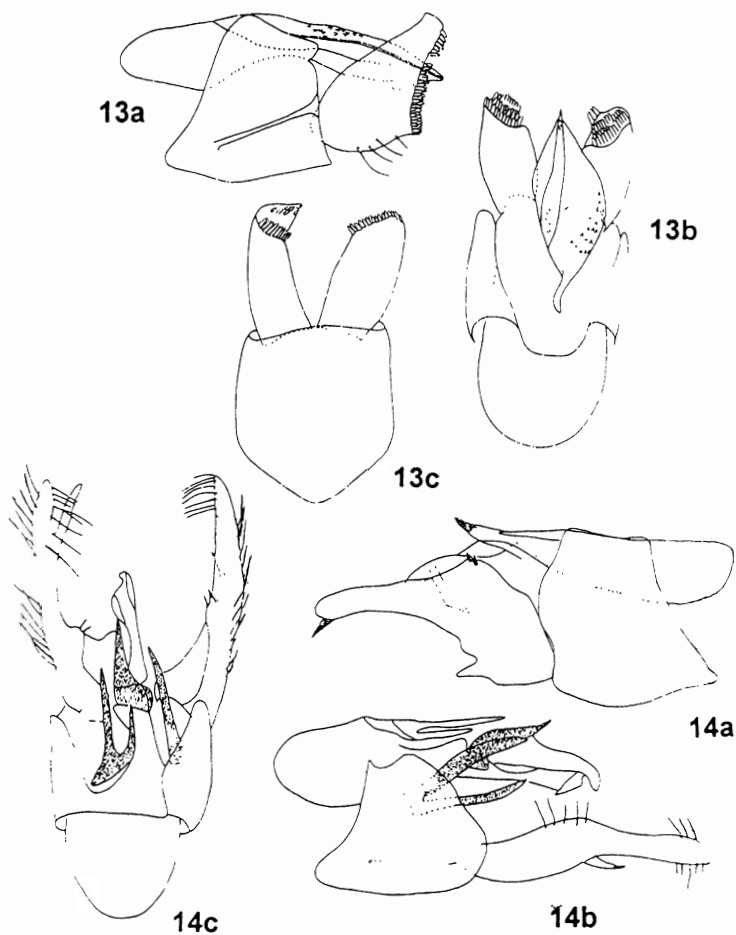


Fig. 13. *Ochrotrichia bractea* sp. nov. Male genitalia. 13a, Lateral view. 13b, Dorsal view. 13c, Ventral view.

Fig. 14. *Ochrotrichia Delgada* sp. nov. Male genitalia. 14a, Lateral view. 14b, Left lateral view. 14c, Dorsal view.

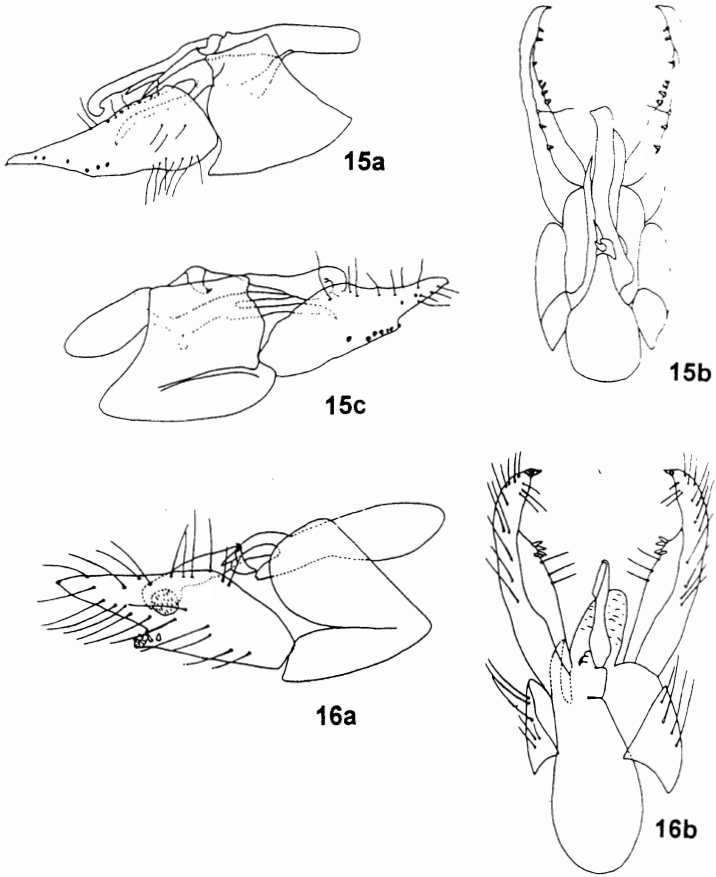


Fig. 15. *Ochrotrichia ixtlahuaca* sp nov. Male genitalia. 15a, Lateral view. 15b, Dorsal view. 15c, Left lateral view.

Fig. 16.- *Ochrotrichia spina* sp nov. Male genitalia. 16a, Lateral view. 16b, Dorsal view.

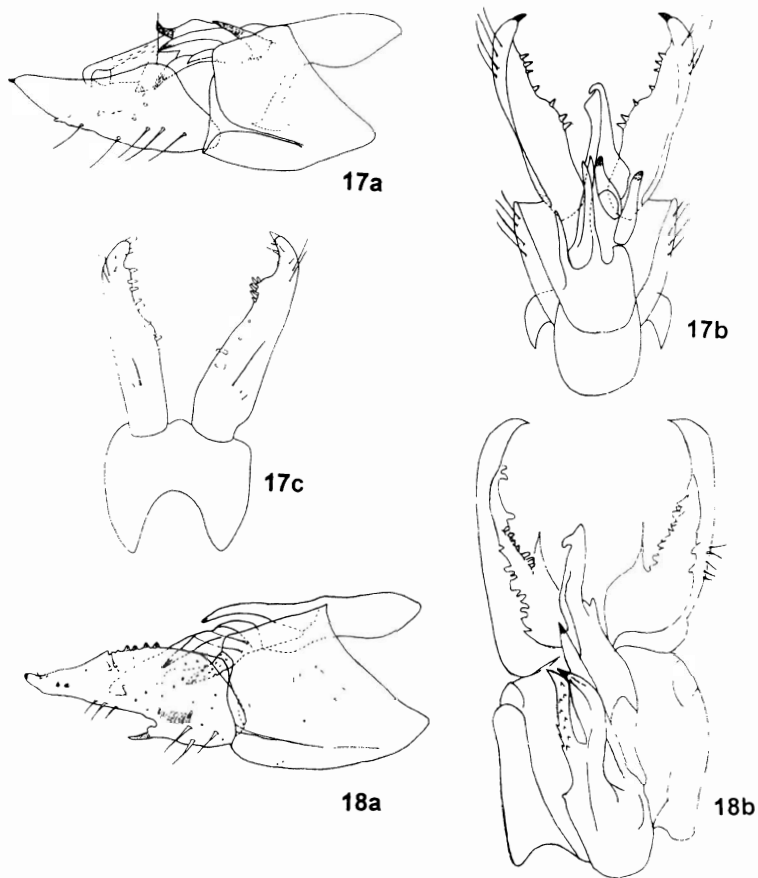


Fig. 17. *Ochrotrichia cuspidatus* sp. nov. Male genitalia. 17a, Lateral view. 17b, Dorsal view. 17c, Ventral view.

Fig. 18. *Ochrotrichia spinula* sp. nov. Male genitalia. 18a, Lateral view. 18b, Dorsal view.

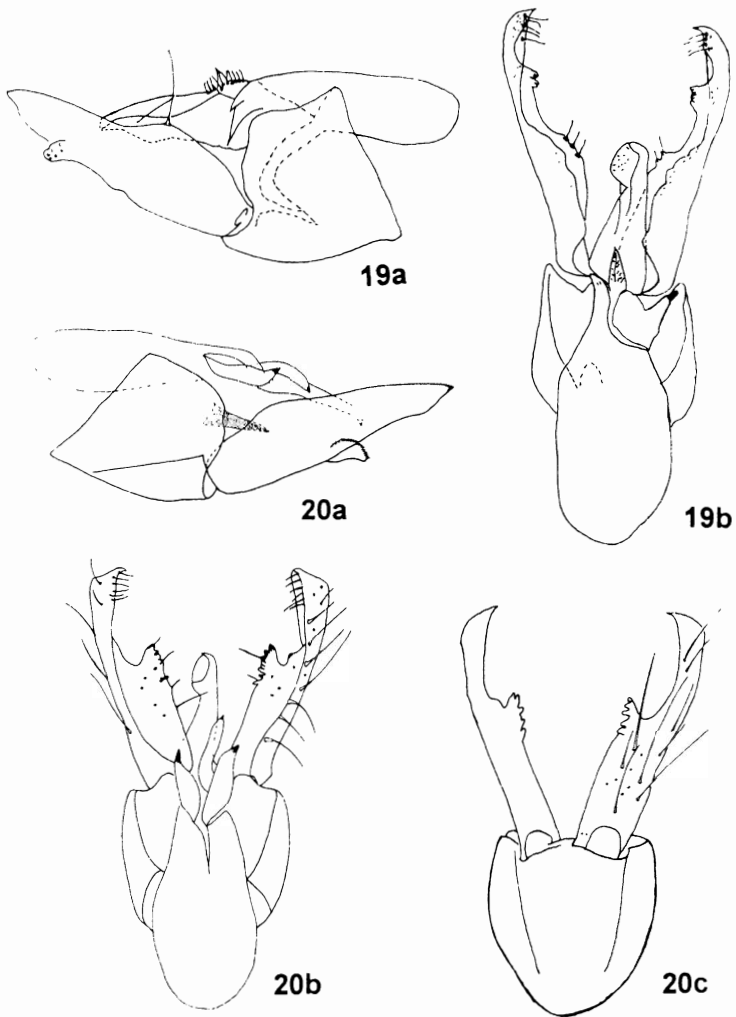


Fig. 19. *Ochrotrichia regiomontana* sp. nov. Male genitalia. 19a, Lateral view. 19b, Dorsal view.

Fig. 20. *Ochrotrichia yavesia* sp. nov. Male genitalia. 20a, Lateral view. 20b, Dorsal view. 20c, Ventral view.

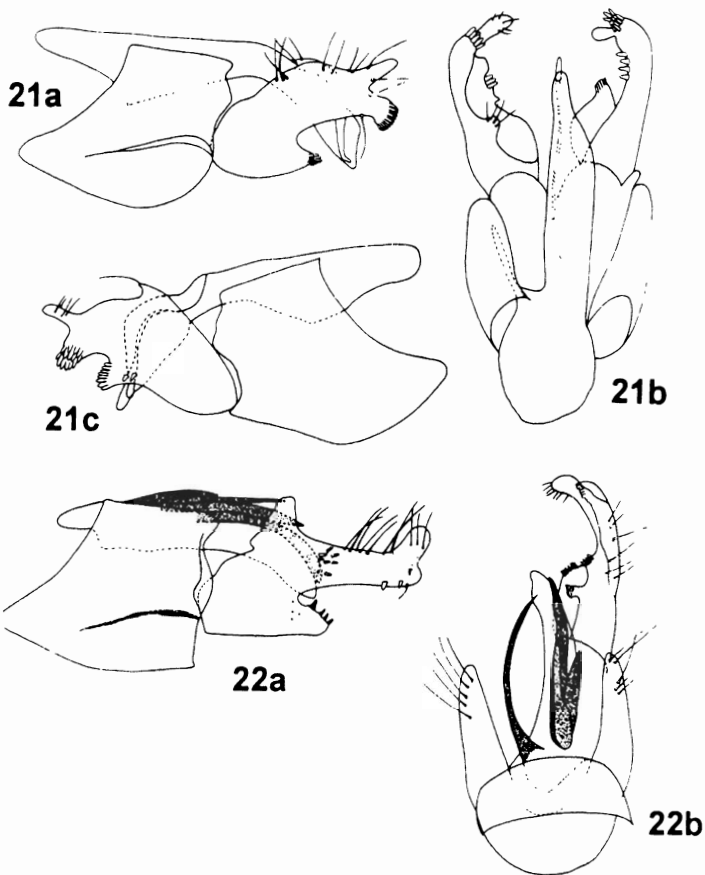


Fig. 21. *Ochrotrichia unicornia* sp nov. Male genitalia. 21a, Lateral view. 21b, Dorsal view. 21c, Right lateral view.

Fig. 22. *Ochrotrichia leona*, sp. nov. Male genitalia. 22a, Lateral view. 22b, Dorsal view.

- fauna of Jamaica (Insecta: Trichoptera). Bulletin De L'Institut Royal Des Siences Naturelles De Belgique, Entomologie, 68: 5-28.
- Bueno-Soria, J. and R. Holzenthal. 1998. Studies in aquatic insects XIV: Description of eight new species of *Ochrotrichia* Mosely (Trichoptera: Hydroptilidae), from Costa Rica. Proceedings of the Biological Society of Washington, 11(3):604-612.
- Bueno-Soria, J. & S. Santiago Fragoso. 1981. Una nueva especie del género *Ochrotrichia* Mosely (Trichoptera:Hydroptilidae) del Edo. de Hidalgo, México. Anales del Instituto de Biología de la Universidad Nacional Autónoma de México 51,Serie Zoología (1) 383-388.
- Bueno-Soria, J. & S. Santiago-Fragoso. 1992. Studies in aquatic insects, XI: Seven new species of the genus *Ochrotrichia* (*Ochrotrichia*) from South America (Trichoptera:Hydroptilidae). Proceedings of the Entomological Society of Washington, 94:439-446.
- Bueno-Soria, J. and S. Santiago-Fragoso. 1997. Studies in Aquatic Insects, XII: Descriptions of nineteen new species of the genus *Ochrotrichia* Mosely (Trichoptera: Hydroptilidae) from Mexico and Central America. Proceedings of Entomological Society of Washington, 99 (2): 359-373.
- Denning, D. G. and R. L. Blickle. 1972. A Review of the Genus *Ochrotrichia* (Trichoptera: Hydroptilidae). Annals of the Entomological Society of America. Vol. 65(1):141-151.
- Flint, O. S. Jr. 1964. The Caddisflies (Trichoptera) of Puerto Rico. *Technical Paper of the Agricultural Experiment Station, University of Puerto Rico*, 40:1-80.
- Flint, O. S. Jr. 1967. Studies of Neotropical Caddis Flies, IV. New Species from Mexico and Central America. Proceedings of the United States National Museum, 123 (3608): 1-24.
- Flint, O. S. Jr. 1972. Studies of Neotropical Caddisflies, XIII: The Genus *Ochrotrichia* from Mexico and Central America (Trichoptera:Hydroptilidae). Smithsonian Contributions to Zoology 118: 1-28.
- Flint, O. S. Jr. and J. Bueno-Soria.1999. Studies of Neotropical Caddisflies LVIII: New species of the genus *Ochrotrichia* Mosely (Trichoptera: Hydroptilidae) from Peru. Proceedings of the Entomological Society of Washington 101: (4) 739-736.
- Flint, O. S. Jr, R. W. Holzenthal and S. C. Harris. 1999. Catalog of the Neotropical Caddisflies (Insecta:Trichoptera). Ohio Biological Survey, Columbus, Ohio. iv+ 239p.
- Harris, S. C. and S. R. Moulton. 1993. New Species of *Ochrotrichia* (*Ochrotrichia*) from the Southwestern United States and Northern Mexico. (Trichoptera: Hydroptilidae). Journal of New York Entomological Society, 101(4): 542-549.
- Marshall, J. E. 1979. A Review of the Genera of the Hydroptilidae (Trichoptera). Bulletin of British Museum (Natural History), Entomology, 39(3):1-239.
- Mosely, M. E. 1934. New Exotic Hydroptilidae. Transactions of the Royal Entomological Society of London, 82:137163.
- Mosely, M. E. 1937. Mexican Hydroptilidae (Trichoptera). The Transactions of the Royal Entomological Society of London, 86(10):151-190.

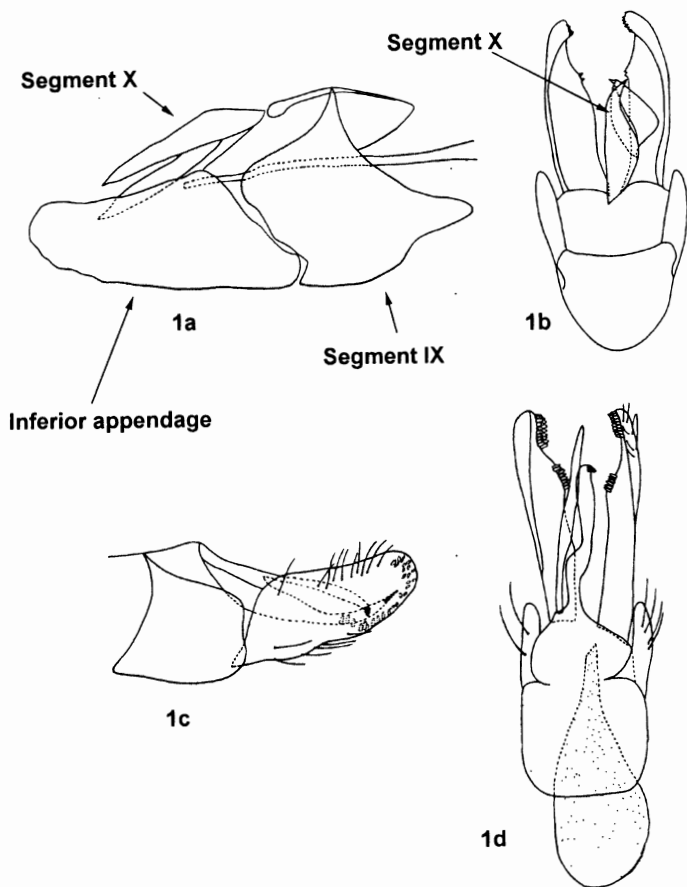


Fig. 1. *Ochrotrichia aldama* Mosely. Male genitalia from Barro Colorado, Panama. 1a, Lateral view. 1b, Dorsal view. *Ochrotrichia aldama* Mosely from Tabasco Mexico. Male genitalia. 1c, Lateral view. 1d, Dorsal view.