

MEXICAN SPECIES OF PARASITOID WASPS OF THE GENUS *MARIETTA* (HYMENOPTERA: APHELINIDAE)

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ABSTRACT

A key to females and notes on 5 species of the Mexican fauna of the genus *Marietta* are given. *Marietta montana* n. sp. from the Biosphere Reserve "El Cielo", State of Tamaulipas, México, is described and illustrated.

Key Words: *Marietta* n. sp., Tamaulipas, México

RESUMEN

Se presenta una clave y notas acerca de las 5 especies conocidas de la fauna mexicana del género *Marietta*. Se describe e ilustra *Marietta montana* n. sp. de la Reserva de la Biosfera "El Cielo" del Estado de Tamaulipas, México.

The world fauna of the genus *Marietta* includes 19 species (Hayat 1998), seven of which are known in the Nearctic region (Woolley 1997), including three in México. Species of the genus *Marietta* are almost always hyperparasitoids of Homoptera, including Diaspididae, Coccidae and other families. Beardsley & Tsuda (1990) noted *Marietta pulchella* Howard as a primary parasitoid of *Conchaspis angracei* Cockerell (Fam. Conchaspidae), which is common species of scale insect in México (Miller 1996).

The genus *Marietta* often referred to in earlier literature as *Perisopterus*, a junior synonym, was first recorded from México by Howard (1895), who described *M. mexicana* from Guadalajara. In addition to the three species previously known from México, we found *M. graminicola* Timberlake 1925, collected in the State of Tamaulipas, and a new species, *M. montana* Myartseva & Ruíz-Cancino, reared from a diaspine scale in Tamaulipas.

MATERIALS AND METHODS

Specimens of the parasitoid genus *Marietta* were collected by sweeping in several landscapes of México and reared from different hosts of scale insects (Homoptera: Coccoidea). One *Marietta* species, reared in 1998 in La Perra, Reserve "El Cielo", Tamaulipas, México, from an unidentified *Melanaspis* species (Homoptera: Diaspididae) on

Pinus trees, including *P. patula*, is described here as new to science.

Parasitoids were reared under laboratory conditions from scale insects collected on young twigs of *Pinus* trees in mountain landscapes. Some adult parasitoid individuals were mounted on card points, others were stored in 75% alcohol and later some females and males were mounted on slides in Canada balsam. The morphology of these specimens was studied. The senior author illustrated the morphological structures from slide preparations using a stereoscope and drawing apparatus (by increasing $\times 280$, $\times 400$).

Some *Marietta* specimens were received for study from Dr. V. A. Trjapitzin. The species identification was carried out using the key of world fauna of the genus *Marietta* (Hayat 1986). The original description of *Marietta mexicana* (Howard 1895) and other publications containing information about Mexican species of the genus *Marietta* were analyzed.

An illustrated key to females and notes on five Mexican species of *Marietta* are provided, as well as information on the genus *Marietta*.

Genus: *Marietta* Motschulsky, 1863;

Type species: *Marietta leopardina* Motschulsky, 1863;

Synonymy: *Perisopterus* Howard, 1895;

Pseudaphelinus Brèthes, 1918.

KEY TO FEMALES OF THE KNOWN MEXICAN SPECIES OF *MARIETTA*

1. Antennal scape subtrapezoidal, less than 2 \times as long as wide, with irregular fuscous patch in the middle (Fig. 1).
Fore wing with apical margin widely hyaline *M. graminicola* Timberlake

- Antennal scape narrower, at least 2.5× as long as wide, with one or more narrow blackish longitudinal, transverse bands. Fore wing with apical margin not hyaline 2
- 2. Antennal scape with one blackish longitudinal band along the middle (Fig. 2). Fore wing with apical margin infuscated *M. pulchella* (Howard)
 - Antennal scape with two blackish longitudinal or oblique transverse bands or with one transverse band (Figs. 3-5). Fore wing with fuscous band not touching apical margin 3
- 3. Antennal scape more than 3× as long as wide, with two blackish longitudinal bands (Fig. 3). Clava with fuscous base and apex. *M. mexicana* (Howard)
 - Antennal scape 3× or less as long as wide, with two blackish oblique transverse bands in the middle, or with one transverse band (Figs. 4-5) 4
- 4. Antennal scape with two complete oblique transverse bands (Fig. 4). Clava uniformly fuscous *M. picta* (André)
 - Antennal scape with one oblique transverse band, not touching its dorsal margin (Fig. 5). Clava with fuscous base and apex *M. montana* n. sp.

Marietta montana Myartseva & Ruíz-Cancino, n. sp.
(Figs. 6-13)

Description

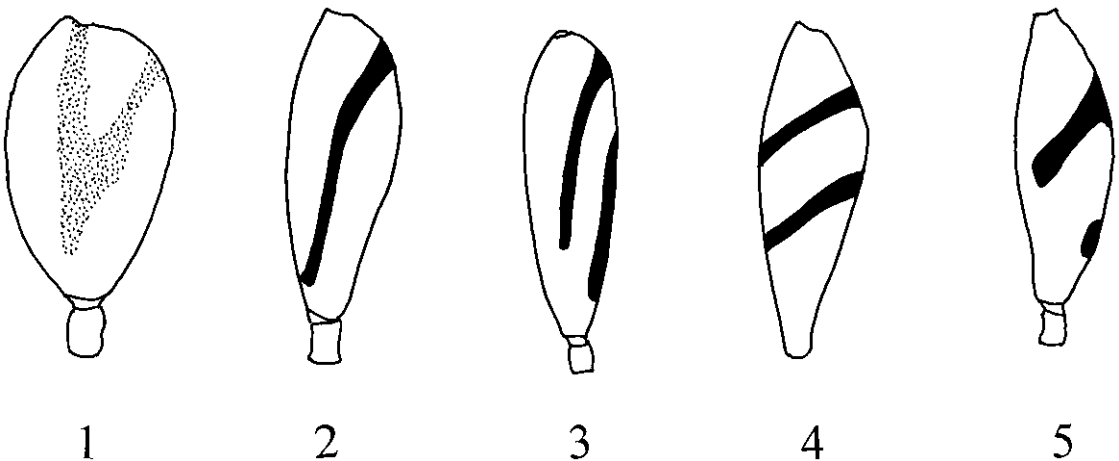
Female (Figs. 6-11).

Length: 0.80-0.93 mm, mean of 2 specimens in alcohol 0.93 mm and of 3 specimens on pins 0.80 mm.

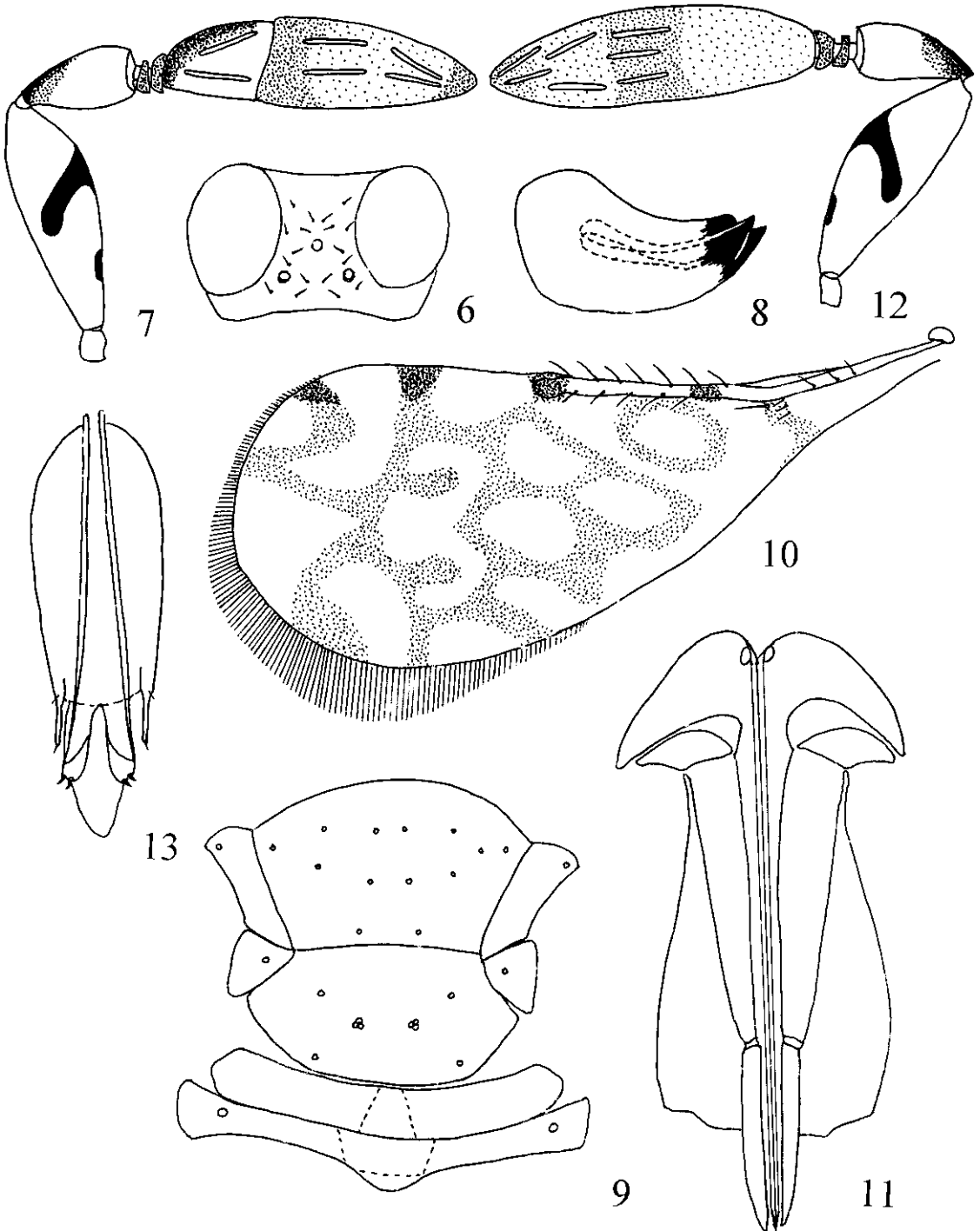
Coloration: Head yellow, with slight orange tinge; occiput with brown band around foramen, darker on its sides; lower margin of face narrowly brownish; apices of mandibles dark brown to black; maxillary and labial palpi whitish; setae on frontovertex and face fuscous. Scape pale yellowish-white, with a short incomplete brown-blackish oblique transverse band and small blackish spot below on the ventral margin; pedicel pale yellowish-white except brown-blackish basal part, especially dorsally, two funicle segments brownish; first segment of clava in basal 1/3, second segment in basal half and on apex infuscated. Pronotum

whitish, with two elongate fuscous spots on each side; mesoscutum and scutellum yellowish or orange-yellowish; mesopleuron, metanotum and propodeum whitish-yellow. Fore wing whitish, ornamented with irregular fuscous pattern as in Fig. 10. Legs pale yellowish-white, with blackish bands: fore tibia with two bands, middle and hind tibia each with three bands; basitarsus, tibial spur, two last tarsal joints of middle leg fuscous, basitarsus and two last tarsal joints of fore and hind legs fuscous. Gaster largely dusky dorsally, sides of tergites whitish-yellow, with black margins and two longitudinal spots on each. Expanded part of ovipositor brownish-black.

Structure: Head of the same width as mesosoma (in dried specimens wider than mesosoma), 1.5× wider than long, and approximately 1.5× wider than high. Frontovertex length slightly more than width (Fig. 6). Ocelli in slightly obtuse triangle, distance from hind ocellus to eye and occipital margin approximately 1.5× the diameter of ocellus. Antennal (Fig. 7) radicle (R), scape (S), pedicel (P), two flagellar segments (F₁, F₂) and two



Figs. 1-5. Antennal scape of *Marietta* species: 1-*M. graminicola* Timberlake, 2-*M. pulchella* (Howard), 3-*M. mexicana* (Howard), 4-*M. picta* (André) (by Jasnosh, 1966), 5-*M. montana*, sp. Nov.



Figs. 6-13. *Marietta montana*, n. sp.: 6-frontovertex, 7-antenna, female, 8-mandible, 9-mesosoma, 10-fore wing, 11-ovipositor, 12-antenna, male, 13-male genitalia.

clava segments (F_3 , F_4) with the following ratios of length to width: R-6.5:6.5, S-45:15, P-25:10, F_1 -4:6, F_2 -4:8, F_3 -25:15, F_4 -42:16. Flagellar segments F_3 -

F_4 with 2 and 2,2 linear sensillae in two rows, respectively. Clava 1.5× longer than scape. Mandibles with two teeth and short truncation (Fig. 8).

Maxillary and labial palpi 2- and 1-segmented, respectively. Mesosoma (Fig. 9) with broad mesoscutum, 1.5× as wide as long, with 12-14 setae situated in 3 rows symmetrically, with reticulate sculpture; scutellum with 2 pairs of setae and similar sculpture to mesoscutum; the base of each setae on mesoscutum and scutellum surrounded by small brownish spot; each side lobe and axilla with one seta. Fore wing (Fig. 10) 2.6× as long as wide; the longest marginal cilia more than 5.6× shorter than the maximum width of wing. Costal cell short; submarginal vein with 3-4 setae; marginal vein a little longer than submarginal vein, with 6-7 setae along anterior margin; stigmal vein very short; basal part of wing glabrous. Disc of wing with two hyaline cells under stigmal vein in transverse row, apex with a triangular hyaline cell. Metasoma slightly longer than mesosoma; ovipositor protruding from apex, 2.2× as long as middle tibia; valvulae II 1.8 times as long as valvulae III (Fig. 11).

Male (Figs. 12-13).

Length: 0.66-0.93 mm, mean of 2 specimens in alcohol 0.93 mm, and one specimen on pin 0.66 mm.

Coloration: Similar to female.

Structure: Differs from the female by rounded apex of gaster, by the 3—segmented flagellum (clava undivided) (Fig. 12). Length: width ratios of antennal segments R-F₃ as follows: R-2,0, S-3,0, P-2,2, F₁-0,5, F₂-1,6, F₃-3,8; relative length of each segment to F₁ length: R-2,5, S-12,0, P-6,0, F₁-1,0, F₂-1,2, F₃-16,2. Clava with 3,2,2 linear sensillae in three rows, respectively. Clava 1.4× longer than scape. Genitalia (Fig. 13): phallobase 3.6× as long as wide, digitus 1.5× as long as paramere; each digitus with two teeth, each paramere with one seta at apex.

Comments

Marietta montana n. sp. is similar in coloration and structure to *Marietta picta* (André) and especially to *Marietta mexicana* (Howard). *M. montana* can be distinguished from *M. mexicana* which has one brown transverse band on scape, the apical segment of scape clava more than 2× longer than first segment, the disc of fore wing before linea calva with two hyaline cells in the middle; a longer marginal fringe; the body not so extensively fuscous; the placoid sensillae on scutellum situated anterior to level of the second pair of setae, which are closer to apex of scutellum; and the propodeum with a distinctly elevated median triangular area. Females and males of *M. montana* can be distinguished from *M. picta* which has one brown transverse band on scape, infuscated clava on base and apex, and a different fore wing color pattern.

Holotype: female (card mounted). Paratypes: 2 females and 1 male card mounted; 1 female, 2 males in Canada balsam; 2 females, 2 males in 75% alcohol. México, Tamaulipas, Gómez Farías, Reserve "El Cielo", La Perra (1900 m) 23-X-1998, S. N. Myartseva, all reared from diaspine scales *Melanaspis* sp. on *Pinus* spp.

Deposition

Female holotype and one male paratype (card mounted) are deposited in the National Museum of Natural History, Washington, D.C., USA; one female paratype (card mounted) is in the Department of Zoology, Institute of Biology, National Autonomous University of México (UNAM), México City; the remaining paratype specimens are deposited in the Insect Museum-UAM Agronomía y Ciencias, Autonomous University of Tamaulipas (UAT), Ciudad Victoria, Tam., México.

Etymology

Marietta montana is named for its inhabitation of the mountains of the Sierra Madre Oriental, at La Perra, Gómez Farías (1900 m).

NOTES ON OTHER MEXICAN SPECIES OF *MARIETTA* EXAMINED

1. *M. graminicola* Timberlake, 1925

Material: México, Tamaulipas: Hidalgo, "El Tigre", VIII. 1992, 1 female (O. Escamilla); Gómez Farías, Reserve "El Cielo", Canindo, 4-X-1995, 1 female (V. Trjapitzin); Ciudad Victoria, UAT, X-1995, 1 female (V. Trjapitzin).

Using Hayat (1986) we determined that specimens collected in México belong to the species *M. graminicola*. Literature: Coronado-Padilla & Sosa-Esquiliano, 1966:43 (México); Contreras-Coronado, 1972: 27-30 (México, ex *Antonina graminis* Maskell); Rivera-Guillot, 1972:15 (México); De Santis, 1979:317 (México); Hayat, 1986:10 (?México).

Distribution: México, ?USA, Hawaii.

2. *M. mexicana* (Howard, 1895)

Material: México, Morelos, Cuernavaca, UAEM: 20-25-VIII-1995, 1 female (V. Trjapitzin); 7-IV-1996, 1 female (E. Chouvakhina); 30-IV-1996, 1 female (G. Peña-Chora); all ex *Parasaissetia nigra* (Nietner) (Homoptera: Coccidae), new host record for *M. mexicana*, on *Ficus benjamina*; San Luis Potosí, 11-XI-1999, 2 females (S. Myartseva), ex white scale; 4 females and 2 males (S. Myartseva) ex *Ceroplastes* sp.

Literature: Howard, 1895: 21-23 Guadalajara, ex *Ceroplastes* sp., *Pseudococcus agavis* MacGregor as *juccae*, *Coccus hesperidum* Linnaeus; García-Martell, 1973: 19 (Morelos, Cuernavaca);

Domínguez & Carrillo, 1976:195 (Chapingo, *ex Saissetia oleae* Olivier); De Santis, 1979:317 (México); Hayat, 1986: 13 (México); Alvarado-Mejía & González-Hernández, 1990:43 (México, *ex Lecanodiaspis rufescens* Cockerell, *Quadraspidiotus perniciosus* Comstock, *Aphytis holoxanthus* De Bach).

Distribution: Nearctic, Neotropical, Japan.

3. *M. picta* (André, 1878).

Literature: Rivera-Guillot, 1972:15 (México); De Santis, 1979:317-318 (México); Hayat, 1986: 13-15, 1998: 56-57 (México).

M. picta was has only been reported once in Mexican publications, more than 20 years ago. This species is widely distributed in the Palaearctic region.

Distribution: Nearctic, Palaearctic, India.

4. *M. pulchella* (Howard), 1881

Material: México, Tamaulipas, Ciudad Victoria: 12-X-1998, 1 female; 30-XII-1998, 1 male; 8-I-1999, 1 female (S. Myartseva), all *ex Saissetia oleae* (Olivier) (Homoptera: Coccidae), new host for *M. pulchella*, on *Nerium oleander*.

Literature: Hayat, 1986: 15 (México); De Santis & Fidalgo, 1994: 95 (México).

Distribution: Nearctic, Neotropical.

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