

## A new parasitoid species (Hymenoptera: Chalcidoidea: Aphelinidae) of a soft scale insect (Hemiptera: Coccidae) from Mexico

### Новый вид паразитоида кокцид (Hymenoptera: Chalcidoidea: Aphelinidae) из Мексики

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A new aphelinid species, *Mexidalgus veracruzanus* sp. nov., was reared from *Mesolecanium mayteni* (Hempel, 1900) (Hemiptera: Coccidae) from the State of Veracruz, Mexico. This coccid species, previously known only from Brazil, is a new record for Mexico and a new host for the aphelinid genus *Mexidalgus* Myartseva, 2014.

Новый вид афелинид *Mexidalgus veracruzanus* sp. nov. выведен из *Mesolecanium mayteni* (Hempel, 1900) (Hemiptera: Coccidae) в штате Веракрус Мексики. Этот вид кокцид, ранее известный только из Бразилии, является новым для фауны Мексики и новым хозяином для афелинид рода *Mexidalgus* Myartseva, 2014.

**Key words:** Mexico, host, Aphelinidae, Coccidae, *Mexidalgus*, *Mesolecanium*, new species

**Ключевые слова:** Мексика, хозяин, Aphelinidae, Coccidae, *Mexidalgus*, *Mesolecanium*, новый вид

## INTRODUCTION

Aphelinidae is one of the most intensively studied families of Chalcidoidea in Mexico since 1998. This family of chalcidoid wasps includes primary and secondary parasitoids mainly of hemipteran hosts (Hemiptera: Aleyrodidae, Diaspididae, Coccidae, Aphididae). The diversity of the

aphelinid fauna of Mexico increased from 74 species in 9 genera in 2000, to 205 species in 14 genera in 2014 (Myartseva & Evans, 2008; Kim & Heraty, 2012; Myartseva, 2014; Myartseva et al., 2010, 2012, 2013, 2014a, 2014b).

The family Aphelinidae comprises 14 genera; of these the following three were described from Mexico: *Dirphys* Howard, 1914, *Neophytis* Kim & Heraty, 2012 and *Mexidalgus* Myartseva, 2014. The latter ge-

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nus is distinguished from all other known genera of Coccophaginae by the following combination of characters: female antennae 7-segmented, club 2-segmented; mandible with two short teeth and truncation, apical margin with small serrations; third valvulae of ovipositor absent (possibly second valvifer and third valvula are very closely fused); male antennae 7-segmented, club 2-segmented, apical segment of club elongate; mandible reduced, without teeth, about half as long as female mandible; genitalia shorter than mid tibia; third to sixth gastral tergites medially with an area of large pegs. The type species, *M. toumeyellus* Myartseva, 2014, was reared from a *Toumeyella* Cockerell, 1895 species (Coccidae) collected on cactus *Myrtillocactus geometrizans* (Mart.) Console in the Mexican state Hidalgo (Myartseva et al., 2014b).

In this article, a new species, *M. veracruzanus* sp. nov., reared from soft scale *Mesolecanium mayteni* (Hempel, 1900), collected on an unidentified plant in the state of Veracruz, Mexico, is described.

## MATERIAL AND METHODS

During our study of aphelinid wasps we used predominantly the following methods based on Noyes (1982): leaves and twigs of various plants infested with hemipteran insects were collected; specimens (colonies of coccids) were transferred to the laboratory and kept them in sealed plastic containers for parasitoid emergence; subsequently, the emerged parasitoids were labelled and preserved in vials with 75% alcohol; some of female and male specimens were mounted in Canada balsam on microslides. Measurements were taken and drawings of important morphological structures were made from the slide-mounted specimens.

Type material is deposited in the Entomological Research Museum of the University of California, Riverside, USA (UCRC) and the Insects Museum of the Autonomous University of Tamaulipas, Ciudad Victoria, Tamaulipas, Mexico (UAT).

## TAXONOMIC PART

Order **HYMENOPTERA**

Family **APHELINIDAE**

Subfamily **COCCOPHAGINAE**

Genus *Mexidalgus* Myartseva, 2014, in Myartseva et al., 2014b

*Mexidalgus veracruzanus* sp. nov.  
(Figs 1–5)

*Holotype*. Adult female, **Mexico**, Veracruz State, Tampico Alto, ex *Mesolecanium mayteni* (Hempel) on unidentified plant, 21 May 2014, coll. D.A. García-Guerrero (UCRC).

*Paratypes*. Four adult males, same data as for holotype; three males, same data except collected on 18 March 2014 (UCRC; UAT).

*Description*. *Adult female* (holotype). Length of body 0.9 mm.

*Colouration*. Head black, frontovertex dark yellow with interocellar area black, interantennal prominence yellow, clypeus brown. Antennae dark, scape dirty yellow. Mesosoma black, metanotum medially and side lobes dirty yellow. Fore wings hyaline. Legs black; fore tibiae dirty yellow, its apical bristle yellow, mid and hind tibiae with apical bristle black, all tarsi white with apical segment infuscate. Metasoma and ovipositor black.

*Structure*. Head about 1.2 times as wide as high. Frontovertex about 0.5 times as wide as head width, with scattered setae, two longer setae in front of anterior ocellus. Eyes setose, about 1.8 times as long as cheeks (lateral view). Malar sulcus present. Clypeus semicircular, with two pairs of setae. Mandible with two short teeth and wide truncation, apical margin finely serrate. Antennae (Fig. 1) inserted immediately above the lower margin of eyes. Distance between toruli about 1.3 times as long as distance from torulus to eye and about 0.8 times as long as distance to mouth margin. Antennal radicle short, as wide as long. Scape about 3.0 times as long as wide. Pedicel 1.7 times as long as wide. First segment of funicle about 2.5 times as long as wide, sec-



**Figs 1–6.** *Mexidalgus* species. *M. veracruzanus* sp. nov., female (1, 2) and male (3–6); *M. toumeyellus* Myartseva, 2014, male (6). 1, antenna; 2, ovipositor; 3, adult specimen; 4, head; 5, 6, genitalia.

ond and third segments slightly shorter and subequal in length, each 2.0 and 1.7 times as long as wide, respectively. Club 2-segmented, slightly wider than funicle and shorter than two preceding segments of funicle combined. First and second flagellar segments each with 2+3 linear sensilla in two rows, third-fifth segments with 4+4 sensilla in two rows. Sculpture of mesoscutum re-

ticulate. Mid lobe of mesoscutum with numerous scattered setae, 4 longer setae at the base. Side lobe with four setae. Axilla with three setae. Scutellum with three pairs of long setae. Metanotum with a row of six-seven short thin setae on anterior margin of each side. Propodeum divided medially. Fore wing uniformly setose, a little more than 2.0 times as long as wide, with mar-

**Table 1.** Comparison of *Mexidalgus veracruzanus* sp. nov. and *M. toumeyellus*.

	<i>M. veracruzanus</i> sp. nov.	<i>M. toumeyellus</i>
Female		
Antenna coloration	brown, scape dirty yellow	dirty yellow, scape and pedicel brown
Scutellum coloration	black	apical 2/3 yellow
Sensilla on flagellum	short, in two rows	long, in one row
Axilla	three setae, the same length	two setae, basal seta longer
Side lobe	four setae	two setae
Male		
Antenna coloration	dirty yellow; segments 2–4 of funicle light yellow, first segment and pedicel infuscate	brown
Flagellum	first segment of funicle shorter than segments 2–4	segments 1–4 of funicle subequal in length
Genitalia	0.6 times as long as mid tibia, its phallobase 1.2 times as long as wide (Fig. 5)	0.7 times as long as mid tibia, its phallobase 1.5 times as long as wide (Fig. 6)

ginal fringe very short (3:37). Submarginal vein with five long setae along its anterior margin. Marginal vein longer than submarginal vein and with 11 long setae along its anterior margin. Stigmal vein short. Postmarginal vein very short. Hind wing with marginal fringe 0.2 times as long as maximum width of wing. All tibiae with short setation. Tarsal formula 5-5-5. Mid tibial spur about 0.7 times as long as basitarsus of middle leg, which have 8 short peg like along inner margin. Hind tibia with stout setae on external margin and also with apical bristle 0.5 times as long as basitarsus of hind leg. First and second metasomal tergites laterally with two and four setae, respectively, third to sixth tergites with rows of setae along posterior margin each, seventh tergite with group of 11 setae on apical middle, two apical setae more long. Ovipositor (Fig. 2) not protruded, about 0.7 times as long as mid tibia. Sternites above base of ovipositor with median group of slender setae.

*Male* (Fig. 3). Length of body 0.65–0.7 mm.

**Colouration.** Head as in female. Antennae dirty yellow, with second, third funicular segments and fourth segment basally light yellow, pedicel and first segment of funicle infuscate, fifth segment slightly infuscate. Mesosoma as in female. Mid tibia with yellow apical half, hind tibia with white apical bristle. Metasoma as in female.

**Structure.** Head 1.3 times as wide as high. Frontovortex with short setae, about 0.6 times as wide as head width. Ocelli in rectangle triangle. Eyes 1.3 times as long as cheeks (lateral view). Mandible reduced, without teeth and with two slender setae. Antennae (Fig. 4) inserted immediately under the level of lower margin of eyes. Distance between toruli about as long as distance from torulus to eye and about 1.4 times as long as to mouth margin. Antennal radicle short, slightly wider than long (5:6). Scape 4.0 times as long as wide. Pedicel about as long as wide. First segment of funicle shorter than other segments, 1.5 times as long as wide. Second to fourth segments subequal in length, all 2.0 times as long as

wide. Apical segment elongate, 3.2 times as long as wide. Club 2-segmented, slightly shorter than funicle. First flagellar segment with one long sensillum, second to fifth segments with two long sensilla each. Side lobe with three setae. Axilla with two setae. Metanotum with two slender setae along anterior margin laterally and with short semicircular process medially. Fore wings and legs as in female, but marginal fringe about 0.2 times as long as wing width. Seventh tergite of metanotum with four setae. Third to sixth metasomal sternites medially with strong pegs. Genitalia (Fig. 5) 0.6 times as long as mid tibia and its phallobase 1.2 times as long as wide.

**Variability.** All males are virtually identical in body length and structure, with no obvious variation.

**Etymology.** The species name is derived from the Spanish “Veracruz”, the name of the Mexican state where the species was collected.

**Comparison.** *Mexidalgus veracruzanus* sp. nov. differs from the type species of the genus, *M. toumeyellus*, by the characters given in Table 1.

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