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(Lepidoptera: Tortricidae) in Mexico**

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## A New Species of *Apanteles* Foerster (Hymenoptera: Braconidae) Parasitic of Two Blackberry Leafrollers (Lepidoptera: Tortricidae) in Mexico

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ABSTRACT: A new species of *Apanteles* from Mexico is described and illustrated. *Apanteles montezumae* Sánchez, Figueroa and Whitfield, new species, attacks *Argyrotaenia montezumae* Walsingham and *Amorbia cuneana* (Walsingham) (Lepidoptera: Tortricidae) on *Rubus* sp. in Michoacan state, Mexico.

KEY WORDS: Neotropical, parasitoid, taxonomy, Microgastrinae, *Argyrotaenia montezumae*, *Amorbia cuneana*

*Apanteles* Foerster is the largest microgastrine genus, with approx. 1000 described spp. (Yu *et al.*, 2012). The majority of species of *Apanteles* attack many concealed host caterpillars in Pyraloidea, Tortricoidea, Gelechioidea and Tineoidea (Mason, 1981). Muesebeck (1957) provided keys to seven microgastrine parasitoid species on *Diatraea*. Mason (1974) and Fernández-Triana (2010) provided a key to species parasitizing Tortricidae. Muesebeck (1921) made a key to identifying 164 species in North America; Brèthes (1922, 1926), Muesebeck (1922, 1926, 1928, 1929, 1933, 1947, 1956, 1958, 1965), Walley (1937), Blanchard (1941, 1943, 1947, 1959a, b), Mason (1959, 1974, 1975), Marsh (1975), and DeLoach (1980) provided descriptions for new species in America. Whitfield (1995) compiled a checklist of the Microgastrinae of North America. Whitfield *et al.* (2001) studied species of *Apanteles* attacking Lepidoptera in *Bombus* colonies and described a new species from South America. Fernández-Triana (2010) described five new species of *Apanteles* from Canada and Alaska. Fernández-Triana *et al.* (2014) described 186 new species of *Apanteles* from Costa Rica and provided keys to Mesoamerican species. Marsh (1979), Austin and Dangerfield (1989), Yu *et al.* (2012), Coronado-Blanco (2013) and Fernández-Triana *et al.* (2014) registered 14 valid species from Mexico: *A. albinervis* (Cameron), *A. angaleti* Muesebeck, *A. bruchi* Blanchard, *A. deplanatus* Muesebeck, *A. diatraeae* Muesebeck, *A. epinotiae* Viereck, *A. etiellae* Viereck, *A. megathymi* Riley, *A. mimoristae* Muesebeck, *A. minator* Muesebeck, *A. oscarhavezi* Fernández-Triana, *A. paranthrenidis* Muesebeck, *A. samarshalli* Fernández-Triana, and *A. scutellaris* Muesebeck. This is likely a tiny proportion of the species actually present in Mexico, since there are many areas that have not been intensely surveyed. Now, the number of braconid wasp species recorded of Mexico has been estimated at 764 (Coronado-Blanco *et al.*, 2014), indicating a poor knowledge on the Mexican

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braconid fauna. The objective of this study is to describe and illustrate a new species of *Apanteles* from Mexico, which was reared from *Argyrotaenia montezumae* and *Amorbia cuneana* on *Rubus* sp. This parasitoid recorded the highest percent of parasitism with these leafroller species and it was the species that appeared more frequently in a field study performed in two commercial plantings of blackberry (Martínez *et al.*, 2014).

### Material and Methods

Our description of the new species is based on 48 specimens. To validate the new species we examined the holotype of the nominal species *Apanteles aristoteliae* Viereck (deposited in the Smithsonian Institution National Museum of Natural History, Washington, DC) and revised the references mentioned in the Introduction section. Measurement data are based on the analysis of five females and five males and are given in millimeters. The terminology used in the descriptions follows Sharkey and Wharton (1997) and Whitfield *et al.* (2001). Photographs were taken with a Zeiss Stemi 2000-C stereoscope equipped with a Canon G9 digital camera. The illustrations were prepared using Adobe Illustrator 10.0.3. Acronyms used for collections are: CIIDIR-IPN Unidad Oaxaca, Santa Cruz Xoxocotlán, Oaxaca, México; IIAF, Instituto de Investigaciones Agropecuarias y Forestales, Universidad Michoacana de San Nicolás de Hidalgo, México; USNM Smithsonian Institution, National Museum of Natural History, Washington, D.C., USA and INHS, Illinois Natural History Survey, Champaign, Illinois, USA.

### Systematics

***Apanteles montezumae* Sánchez, Figueroa and Whitfield, new species**  
(Fig. 1a–h)

#### *Female*

*Body length:* 2.85–3.15 mm. Fore wing length: 2.88–2.96 mm

*Color:* body black, except palpi and tibial spurs pale yellow; eye silver; tarsomeres of fore and middle legs, basal area of tibiae of middle and hind legs, fore tibia, and distal area of fore femur yellow; laterotergites and median tergites dark brown; wings with all veins pale yellow except C+Sc+R, R1, r, 2RS, 2M and stigma brown.

*Head:* ovoid; face distinctly punctate, wider than high (1.19–1.31 times); malar space slightly longer (1.16 times) than width of base of mandible, with malar suture shallow and narrow; vertex distinctly punctate; ocelli translucent honey yellow, in a strongly obtuse angle; lateral ocelli more than two times as far from one another (2.4 times) as either is from anterior ocellus; antenna length 2.27–2.61 mm, with 16 flagellomeres, distal 7–8 flagellomeres more than two times as long as broad and with two ranks of placodes; first and second flagellomeres same length, first and second flagellomeres 2.75 and 2.88 times their widths respectively; 7th and 8th flagellomeres distinctly more than 2 times longer than wide.

*Mesosoma:* Pronotum weakly sculptured and shiny throughout, with clearly defined lateral furrow forking posteriorly into two crenulated grooves; mesonotum punctate over most of surface, with more longitudinal confluent sculpturing along posterior courses of notauli; scutellum elongated-triangular, weakly and indistinctly punctate. Propodeum more rugulose anteriorly than posteriorly, with clearly

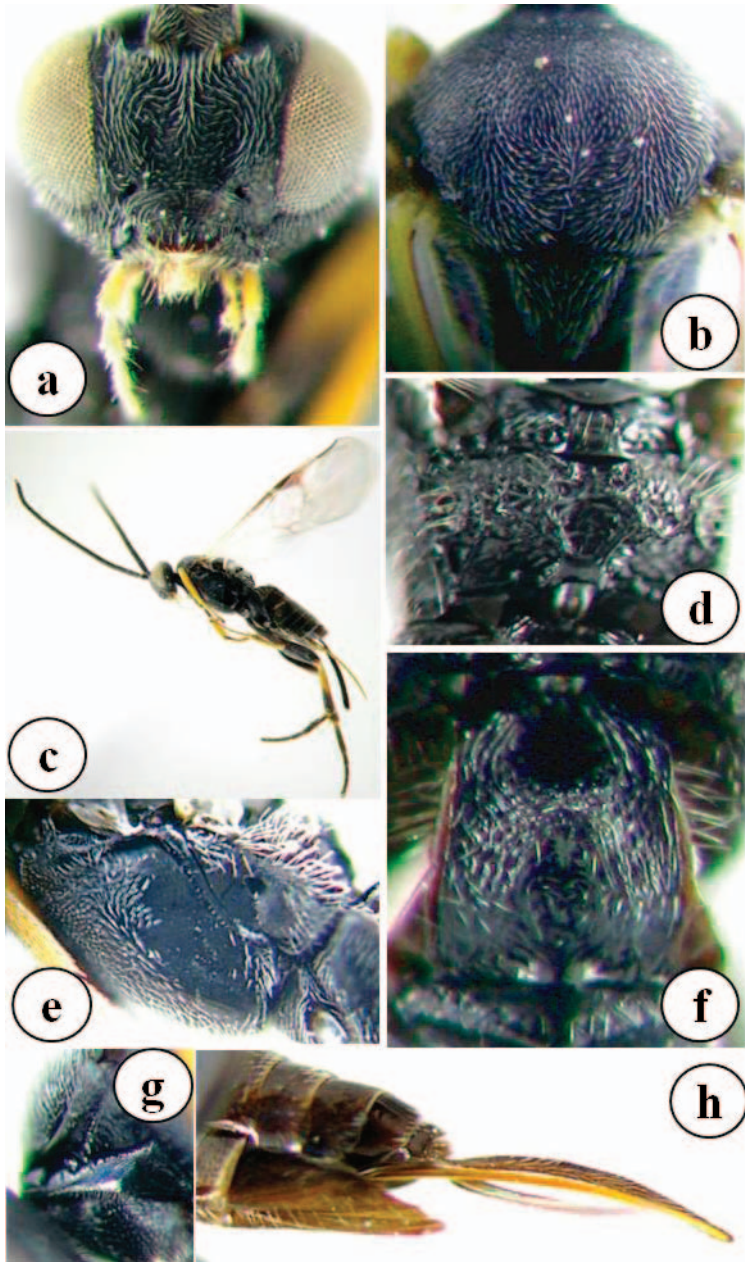


Fig. 1. *Apanteles montezumae* n. sp. Female: a. anterior view of head, b. dorsal view of mesosoma, c. female habitus, d. dorsal view of propodeum, e. lateral view of mesosoma, f. dorsal view of tergum 1, g. lateral view of pronotum, h. lateral view of hypopygium.

carinate pentagonal areola (1.25 times wider than long) and a transverse carina laterally complete as costula. Legs: Hind femur, tibia and basitarsus 3.26–3.68, 5.00–7.50 and 2.94–5.00 times their widths respectively. Inner hind tibia spurs 0.56 as long as hind basitarsus. Wings: Fore wing with R1 extending 0.8 of distance beyond

stigma to distal tip to end of 3RS fold. Vein r 2.18–2.42 times longer than 2RS, angles between them indistinct.

*Metasoma*: Median tergite I more or less rectangular, rugulose with some striae, 1.2 times longer than broad. Median tergite II smooth, 4.75 times as broad as long medially. Hypopygium 0.6 times as long as ovipositor sheaths, medially desclerotized and folded, apically weakly acuminate. Ovipositor sheath about same length as hind tibia, slender, weakly decurved and evenly hairy over most of length, apically pointed dorsally. Length of ovipositor: 1.39–1.51 mm, ovipositor long and curved.

#### Male

Similar to female, smaller, length of body 2.12 mm, length of antenna: 2.72 mm, tergite I 1.24 times longer than wide.

*Types*: Holotype female MEXICO, Michoacán, Los Reyes, Rancho Santino, 13-IX-2009, host: *Argyrotaenia montezumae*, Ignacio López C. (IAAF). Allotype male MEXICO, Michoacán, same locality as holotype, 5-XII-2009, host: *A. montezumae*, Ignacio López C. Paratypes: MEXICO, Michoacán: 2 females and 4 males same data as allotype; 2 females and 3 males Los Reyes, Rancho Santino-Atapan, 21-XI-2009; 1 female and 7 males same locality, 11-XI-2009, host: *A. montezumae*, Ignacio López C.; 3 females and 1 male Los Reyes-Tangancicuaro 2-X-2007, host: *A. montezumae*, Ignacio López C.; 2 females and 1 male Rancho Barreno 11-XI-2009, host: *A. montezumae*, Ignacio López C.; 1 female Rancho Huatarillo 11-XI-2009, host: *A. montezumae*, Ignacio López C.; 7 females and 5 males Rancho Huatarillo, 11-IX-2010, host: *Amorbia cuneana*, Ornella Barreto; 3 females IIAF, Km 9 Carr. Morelia-Zinapécuaro, Tarímbaro, host: *A. cuneana*, 18-X-2010, Ornella Barreto. Paratypes deposited in IIAF, CIIDIR, USNM and INHS.

*Etymology*: The specific name refers to a host *Argyrotaenia montezumae*.

*Hosts*: *Argyrotaenia montezumae* (Walsingham) and *Amorbia cuneana* (Walsingham) on *Rubus* sp. (blackberry).

*Distribution*: MEXICO (Michoacán).

*Diagnosis*: Distinguished from *A. aristoteliae* by the following combination of characters: *A. montezumae* has a large areola on the propodeum (1.25 times wider than long), while in *A. aristoteliae* is narrowly oval (0.5 broad than long); median tergite I in *A. montezumae* is 1.25 longer than wide, whereas in *A. aristoteliae* it is 2.30 longer than wide; hypopygium is longer in *A. montezumae*.

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