Journal *of* Melittology
Bee Biology, Ecology, Evolution, & Systematics
No. 117, pp. 1–9 5 August 2024

The cleptoparasitic bee genus *Odyneropsis* in México (Hymenoptera: Apidae, Epeolini)

Arturo Roig-Alsina[1]

Abstract. A new species of cleptoparasitic bees ***Odyneropsis chamelae*** Roig-Alsina, new species, is described from the state of Jalisco, México. *Odyneropsis apache* Griswold and Parker, described from southwestern USA, is reported for the first time in México. *Odyneropsis apicalis* Ducke was the only species previously known to occur in México and a lectotype is designated. Notes on the variability of *O. apicalis* in color and morphology, a key to the Mexican species, and distributional data are presented.

INTRODUCTION

Odyneropsis Schrottky is one of the eight genera of cleptoparasitic bees of the tribe Epeolini. The genus currently consists of eleven species and is exclusive to the New World, ranging from southern United States to northern Argentina (Michener, 2007). Its species can be grouped into two distinctive, non-overlapping size classes. Rigthmyer (2004), in her phylogenetic study of the Epeolini, proposed recognizing these two groups as subgenera. The subgenus *Odyneropsis* proper includes the larger species, 14 to 17 mm long, while the smaller species, 13 mm long or less, all belong in the subgenus *Parammobates* Friese.

The genus *Odyneropsis* is represented in México by three species, all of which belong to the nominotypical subgenus. Females of these species are characterized by a peculiar pseudopygidial area on the fifth metasomal tergum, with an ovoid raised structure formed by claviform setae. Species of *Odyneropsis* (*Parammobates*) are diverse in South America, but at least one species reaches as far north as Costa Rica, and eventually might be found in southern México.

[1] División Entomología, Museo Argentino de Ciencias Naturales, Av. A. Gallardo 470, 1405, Buenos Aires, Argentina. E-mail: arturo@macn.gov.ar
doi: https://doi.org/10.17161/jom.i117.22379

ISSN 2325-4467

Hosts are only known for two species, both belonging to *Odyneropsis* s. str.: *O. apicalis* Ducke was reared from cells of the colletid bee *Ptiloglossa fulvopilosa* Cameron in Trinidad (Rozen, 1966), and *O. gertschi* Michener was found parasitizing nests of *Ptiloglossa guinnae* Roberts in Costa Rica (Roberts, 1971).

MATERIAL AND METHODS

Specimens studied belong to the following institutions. Acronyms are used in the list of material studied to indicate depositories of the specimens. Names of the people who loaned the material are in parentheses. AMNH, American Museum of Natural History, New York (J.G. Rozen, Jr.); BBSL, Bee Biology & Systematics Laboratory, Utah State University, Logan (T. Griswold); IBUNAM, Instituto de Biología, Universidad Nacional Autónoma de México, México City (R. Ayala); ICN-MHN, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá (F. Fernández); FSCA, Florida State Collection of Arthropods, Gainesville (L.A. Stange); LACM, Natural History Museum of Los Angeles County, Los Angeles (R.R. Snelling); MACN, Museo Argentino de Ciencias Naturales, Buenos Aires; MNHN, Muséum National d'Histoire Naturelle, Paris (C. Villemant); SEMC, Snow Entomological Collection, University of Kansas, Lawrence, Kansas (C.D. Michener, R. Brooks); USNM, United States National Museum, Smithsonian Institution, Washington D.C. (S.G. Brady).

The following abbreviations are used: the maximum diameter of the median ocellus (MOD) is taken as a reference to express the length of the pubescence and other structures; the diameter of a puncture (PD) is used to express separation between punctures; the metasomal terga (T) and sterna (S) are identified with Arabic numerals; in the list of material studied F stands for female, and M for male.

SYSTEMATICS

Genus *Odyneropsis* Schrottky

Odyneropsis Schrottky, 1902: 432–433. Type species: *Odyneropsis holosericea* Schrottky, 1902, by original designation (= *Rhathymus armatus* Friese, 1900).

DIAGNOSIS: Species of *Odyneropsis* Schrottky are readily distinguished by the parallel inner orbits of the eyes, the relatively large ocelli, the large pterostigma that enters the marginal cell, and the scarce patches of squamiform, appressed pubescence that characterize most other epeolines. Other features that distinguish the genus are the median longitudinal carina of the clypeus and the female pseudopygidial area on T5, with a basal structure formed by modified setae, either U-shaped or ovoid.

Key to Mexican species of *Odyneropsis*

1. Body integument entirely ferruginous. Pubescence yellowish (Fig. 1)….. .....*O. apache* Griswold & Parker
—. Integument of body black, some specimens with dark reddish-brown legs. Pubescence either dark brown or white…..... **2**
2(1). Pubescence white (Fig. 5). Axilla strongly produced (Figs. 7–9), mesal length of apical point 0.43–0.50× of total length of mesal margin. Semierect hairs of scutum simple or with one or two short basal branches…..... *O. chamelae*, n. sp.

—. Pubescence brown to dark brown, except white patch on hind coxa, and in some specimens, small white lateral patch on mid coxa and few white hairs on lower corner of posterolateral angle of propodeum. Axilla short to moderately produced (Figs. 2–4), mesal length of apical point 0.23–0.35× of total length of mesal margin. Semierect hairs of scutum with numerous branches along the rachis..... *O. apicalis* Ducke

Odyneropsis apache Griswold & Parker
(Fig. 1)

Odyneropsis apache Griswold & Parker, 1999: 217–218 (holotype female, USA, Arizona, Santa Cruz Co., Sycamore Canyon, near Ruby, 16/17.VIII.1961, Werner, Bequaert, BBSL, not examined).

Figure 1. *Odyneropsis apache* Griswold & Parker, female, lateral view. Scale line = 1 mm.

Diagnosis: This species is readily distinguished by its ferruginous body, the yellowish pubescence, and the deeply infuscate wings. It is very similar in punctation and morphology to the other two Mexican species. The three species form a group within *Odyneropsis* s. str. characterized by a sturdy first metasomal segment and proportionally shorter legs. Besides differences in color, *O. apache* lacks the branched hairs that cover the scutum of *O. apicalis*, and the vertex is punctate throughout, lacking the impunctate, polished areas present in *O. chamelae*. For a full description of *O. apache*, the reader is referred to Griswold and Parker (1999).

Distribution: México, state of Jalisco. USA, state of Arizona.

Material studied: México. 1 F, Guadalajara, Crawford (LACM).

Odyneropsis apicalis Ducke
(Figs. 2–4)

Odyneropsis apicalis Ducke, 1909: 307 (Lectotype female, México, Veracruz, Orizaba, Sumichrast, Coll. O. Sichel 1867, MNHN, examined, present designation). Rozen, 1966: 20–22, figures 33–38 (description of mature larva). Ayala *et al.*, 1996: 461. Ayala, 2004: 201.

Figures 2–4. *Odyneropsis apicalis* Ducke, female. **2**. Mesosoma, posterior view. **3**. Axilla and scutellum, dorsal view. **4**. Axilla and scutellum, lateral view. Scale lines = 1 mm.

DIAGNOSIS: This species is distinguished by the black integument and the fuscous pubescence of the body, except for a patch of white pubescence on the upper surface of the hind coxa. A few Mexican specimens may additionally bear a small white lateral patch on the mid coxa and a few white hairs on the lower corner of the posterolateral angle of the propodeum. Specimens from northern South America may also have whitish hairs on the dorsal surface of the pronotal collar. The dark forewings may have a whitish to translucent apex. This characteristic, when present, is diagnostic for the species, but some specimens may have the wings entirely dark. Ducke (1909) acknowledged this color variation of the wings in the original description of the species.

REDESCRIPTION: Female. Length, 13.0–15.5 mm (lectotype 15.0 mm); length of forewing, 11.7–14.5 mm (lectotype 14.5 mm). *Color*. Integument black. Wings infuscate, forewing with or without pale apex. Veins and pterostigma dark brown to black, but when pale apex present distal veins yellowish brown. *Pubescence*. Brown to dark brown, paler on face and dorsal surface of pronotal collar; patch of white pubescence on upper surface of hind coxa always present. Some specimens with white lateral patch on mid coxa and white hairs on lower corner of posterolateral angle of propodeum. Dense, appressed pubescence on face only around antennal sockets. Scutum with semierect, branched hairs 0.4–0.6× MOD, and erect, simple, sparser hairs 0.6–0.8× MOD. Propodeum with erect pubescence not hiding integument. *Sculpture.* Frons and vertex densely punctate throughout; some specimens with band of sparser punctures between lateral ocellus and eye. Longitudinal median carina of clypeus weak, usually fading on apical half of clypeus. Scutum with small punctures (diameter 30–40 μ),

separated by polished interspaces 0.2–0.4× PD. Mesopleuron with similar punctation. Punctures on metasomal terga smaller, on disc of T2 15-20 μ in diameter, separated by less than a PD. *Structure*. Labrum 1.7x as broad as long, with pair of small apical denticles separated by shallow emargination. Clypeus moderately protuberant, in lateral view protruding in front of eyes by less than half of eye width (0.4×). Axilla with lateral margin nearly straight, scarcely longer than mesal margin; produced pointed apex variable, from short (0.23× of total length of mesal margin), conical, and not keeled dorsally, to rather long (0.38×), compressed, and dorsally keeled; proportions between lengths of lateral margin, mesal margin, and free portion of mesal margin in Mexican specimens 1.02–1.08:1:0.23–0.35; lateral margin 0.51–0.61× scutellar width. Scutellum bigibbous; gibbae with conical, polished summits, directed backwards. Hind basitarsus shorter than intertegular span (0.83–0.87×).

Male. Length, 14.0–16.8 mm; length of forewing, 12.5–14.5 mm. Color, pubescence and punctation similar to those of female. Hind basitarsus slender, shorter than in female, 0.76–0.78× intertegular span. Pygidial plate parallel-sided with truncate apex. Sterna without apical fringes of hairs.

Comments: The color of the forewing varies considerably in this species. In some specimens, the pale apex encompasses the entire marginal cell, the third submarginal cell, the apex of the second medial cell, and all the apex beyond the closed cells. At the other extreme of variation, some specimens have entirely infuscated wings. Intermediates occur, including specimens with a faint pale preapical cloud.

There is also variation in the length of the produced apex of the axilla and its shape, as described above. I found no clear association between variation in the morphology of the axilla and variation in the color of the wings. Within México, I did not find any association between the two former variables and the provenance of the specimens either, but specimens from northern South America consistently have a longer projection of the axilla (0.40–0.42× of total length of the mesal margin), and the produced pointed apex in lateral view is narrower and rather digitiform. I see no other morphological differences between South American and Mexican specimens, and I interpret this as populational variation within the species.

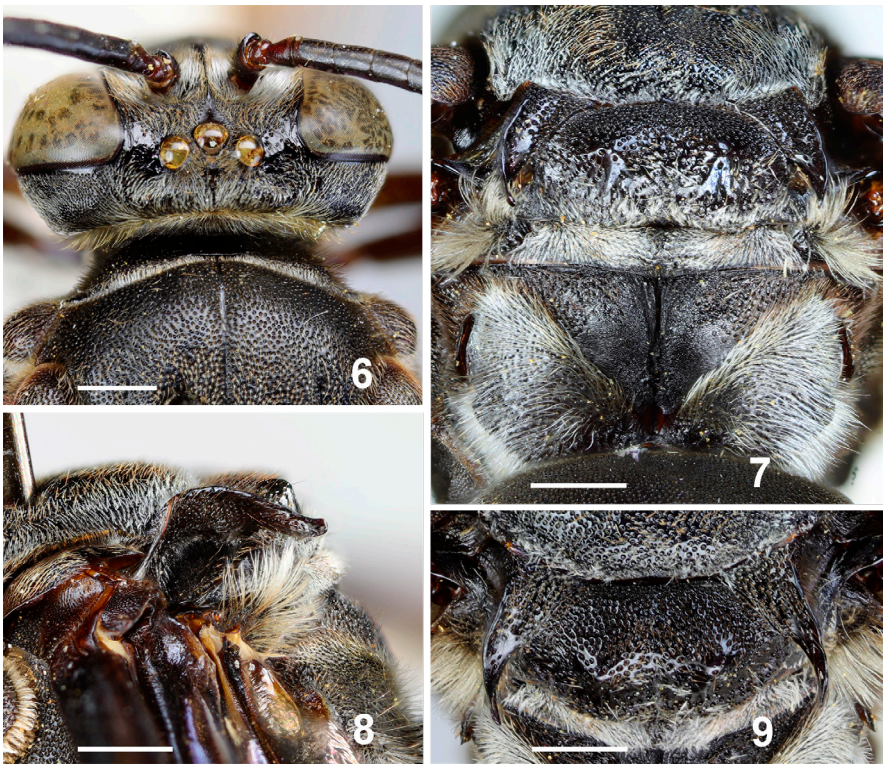
The lectotype bears the following labels: green label "Museum Paris/ Mexique/ (Sumichrast)/ Coll. O. Sichel 1867"; white label "Mex/ Sum/ 64"; white label "22/ [female symbol]/ Oriz."; white label "Odyneropsis/ apicalis Ducke/ type [female symbol]"; a red lectotype label of mine.

Distribution: México: Guerrero, Hidalgo, Jalisco, Michoacán, Nuevo León, Oaxaca, San Luis Potosí, Tamaulipas, and Veracruz. Panamá, Colombia, Trinidad, and Ecuador.

Material studied: México. Guerrero: 1 M, La Pintada, El Paraíso, 31.III.1984, R. Ayala (IBUNAM). Hidalgo: 1 F, Tlanchinol, 2,5 km E, 14.X.1990, Rodríguez (IBUNAM). Jalisco: 1 F, Guadalajara (LACM). Michoacán: 1 F, Ario de Rosales, 1800 m, 28.X.1987, R. Ayala (IBUNAM). Nuevo León: 1 F, Mesa de Chipinque, ca. Monterrey, 19/22. VI.1976, C. Porter (SEMC). San Luis Potosí: 1 F, Hotel Covadonga, Ciudad Valle, 2/3.VI.1977, C. Porter, A. Cerbone (MACN). Tamaulipas: 1 M, 64 km N Cd. Victoria, Rta. 85, 17.VI.1975, C. Porter & H. Weems (FSCA). Veracruz: 1 F, lectotype, Orizaba, Sumichrast (MNHN); 2 M, paralectotypes (MNHN); 1 M, Catemaca, 30.V.1964, J.C. & D. Pallister (AMNH). Panamá. Canal Zone: 1 F, Barro Colorado Island, 5.VII.1956, C.W. & M.E. Rettenmeyer (SEMC). Colombia. Magdalena: 1 M, Minca, San Lorenzo, 2040 m, 8.IV.1987, A. Otero & L. Vasquez (ICN-MHN). Trinidad. 2 F, Nariva Swamp, III.1964, F.D. Bennett, reared from cell of *Ptiloglossa fulvopilosa* Cameron (AMNH). Ecuador. Los Ríos: 1 F, Pichilingüe, ca. Quevedo, 30.VI/2.VII.1975, C. Porter (FSCA).

Odyneropsis chamelae Roig-Alsina, new species
ZooBank: urn:lsid:zoobank.org:act:E7858CAC-09D0-432C-9D23-62879AA824A7
(Figs. 5–9)

Figure 5. *Odyneropsis chamelae*, new species, holotype female, lateral view. Scale line = 1 mm.



Figures 6–9. *Odyneropsis chamelae*, new species, male paratype. **6**. Head and anterior portion of mesosoma, dorsal view. **7**. Mesosoma, posterior view. **8**. Axilla and scutellum, lateral view. **9**. Axilla and scutellum, dorsal view. Scale lines = 1 mm.

Diagnosis: This species is distinguished by the black integument, the extensive white pubescence, and the strongly produced axillae. The ocellocular area has a polished band from the lateral ocellus to the eye margin; the band is impunctate or with a few scattered punctures (Fig. 6).

Description: Female holotype. Length, 17.0 mm; length of forewing, 14.0 mm. *Color*. Integument black, except reddish pedicel and first flagellomere. Wings deeply infuscate, with dark brown to black veins and pterostigma. *Pubescence*. White, short and sparse on most of body. Dense patches of white pubescence restricted to outer side of antennal socket, dorsal surface of pronotal collar, medially on metanotum, apex of mid coxa, and lateral and dorsal surfaces of hind coxa. Propodeum with hairs longer and denser on posterolateral angles, but not hiding integument. Scutum with abundant semierect hairs 0.25–0.45× MOD (these hairs simple or with one or two short basal branches), and erect, simple, sparse hairs 0.5–0.7× MOD. *Sculpture.* Frons and vertex densely punctate, but ocellocular area with polished, impunctate band from lateral ocellus to eye. Longitudinal median carina of clypeus strong, reaching apical margin of clypeus. Scutum with small punctures (diameter 40-60 μ), separated by irregular polished interspaces 0.2–0.9× PD. Mesopleuron with similar punctation. Punctures on metasomal terga smaller, on disc of T2 25–35 μ in diameter, separated by 0.2–1.0× PD. *Structure*. Labrum 1.82× as broad as long, with pair of small apical denticles separated by shallow emargination. Clypeus moderately protuberant, in lateral view protruding in front of eyes by less than half of eye width (0.4×). Axilla with lateral margin sinuous, with apex bent mesad; produced pointed apex compressed, dorsally keeled, in lateral view digitiform; proportions between lengths of lateral margin, mesal margin, and free portion of mesal margin 1.03:1:0.43; lateral margin 0.71× scutellar width. Scutellum bigibbous; gibbae with conical, polished summits, directed backwards. Hind basitarsus shorter than intertegular span (0.83×).

Male. Length, 14.0–16.0 mm; length of forewing, 13.5–14.4 mm. Color, pubescence and punctation similar to those of female. Length of free portion of mesal margin of axilla in studied males 0.45–0.50× total length of mesal margin. Hind basitarsus slender, 0.76–0.80× intertegular span. Pygidial plate parallel-sided with truncate apex. Sterna without apical fringes of hairs.

Etymology: The specific name refers to the type locality.

Distribution: México, state of Jalisco.

Material studied: México, Jalisco. Holotype female, Chamela, 7.X.1985, A. Rodríguez P. (IBUNAM). Following paratypes: 1 M, same data as holotype (IBUNAM); 3 M, Chamela, 19.X.1985, R. Ayala (IBUNAM, 1 M at MACN); 1 M, Chamela, 2.X.1985, R.J. McGinley (USNM); 1 M, Chamela, 1.X.1985, J.G. Rozen (AMNH); 5 M, Estación de Biología Chamela, 16.VII.1988, E. Ramírez, trampa Malaise (IBUNAM, 1 M at MACN).

ACKNOWLEDGEMENTS

I am grateful to the curators of the collections listed in the section Material and Methods for the loan of specimens. I am specially indebted to Ricardo Ayala, who lent me the specimens of *Odyneropsis chamelae* for study and description. I thank Víctor H. Gonzalez and an anonymous reviewer for their comments and corrections that improved the manuscript.

REFERENCES

Ayala, R. 2004. Fauna de abejas silvestres (Hymenoptera, Apoidea). In: García Aldrete, N. & R. Ayala (Eds.) *Artrópodos de Chamela:* 193-219. Instituto de Biología, UNAM; México; xi + 223 pp.

Ayala, R., T. Griswold, & D. Yanega. 1996. Apoidea (Hymenoptera). In: Llorente, J., A.N. García-Aldrete, & E. González-Soriano (Eds.) *Biodiversidad, Taxonomía y Biogeografía de Artrópodos Mexicanos: Hacia una Síntesis de su Conocimiento:* 423–464. Instituto Biología, UNAM; Mexico; xii + 660pp.

Ducke, A. 1909. *Odyneropsis* Schrottky, genre d'abeilles parasites mimétiques (Hym). *Bulletin de la Société entomologique de France* 18: 306–309.

Friese, H. 1900. Neue exotische Schmarotzerbienen. *Entomologische Nachrichten* 26 (5): 65–67.

Griswold, T. & F.D. Parker. 1999. *Odyneropsis*, a genus new to the United States, with descriptions of other new cleptoparasitic Apidae (Hymenoptera: Apoidea). In: Byers, G.W., R.H. Hagen, & R.W. Brooks (Eds.). *Entomological Contributions in Memory of Byron A. Alexander:* 217–219. University of Kansas Natural History Museum Special Publication 24; Lawrence, Kansas; iv + 252 pp.

Michener, C.D. 2007. *The Bees of the World* [2nd Edition]. Johns Hopkins University Press; Baltimore, MD; xvi+[i]+953 pp., +20 pls.

Rightmyer, M.G. 2004. Phylogeny and classification of the parasitic bee tribe Epeolini. *Scientific papers, Natural History Museum, the University of Kansas* 33: 1–51.

Roberts, R.B. 1971. Biology of the crepuscular bee *Ptiloglossa guinnae* n. sp. with notes on associated bees, mites, and yeasts. *Journal of the Kansas Entomological Society* 44 (3): 283–294.

Rozen, J.G., Jr. 1966. The larvae of Anthophoridae (Hymenoptera, Apoidea), Part 2. The Nomadinae. *American Museum Novitates* 2244: 1–38.

Schrottky, C. 1902. Ensaio sobre as abelhas solitarias do Brazil. *Revista do Museo Paulista* 5: 330–613, pls. XII-XIV.

ZooBank: urn:lsid:zoobank.org:pub:E58CCFFF-C994-41D2-A32C-9FB36525D05D

Journal of Melittology

A Journal of Bee Biology, Ecology, Evolution, & Systematics

The *Journal of Melittology* is an international, open access journal that seeks to rapidly disseminate the results of research conducted on bees (Apoidea: Anthophila) in their broadest sense. Our mission is to promote the understanding and conservation of wild and managed bees and to facilitate communication and collaboration among researchers and the public worldwide. The *Journal* covers all aspects of bee research including but not limited to: anatomy, behavioral ecology, biodiversity, biogeography, chemical ecology, comparative morphology, conservation, cultural aspects, cytogenetics, ecology, ethnobiology, history, identification (keys), invasion ecology, management, melittopalynology, molecular ecology, neurobiology, occurrence data, paleontology, parasitism, phenology, phylogeny, physiology, pollination biology, sociobiology, systematics, and taxonomy.

The *Journal of Melittology* was established at the University of Kansas through the efforts of Michael S. Engel, Victor H. Gonzalez, Ismael A. Hinojosa-Díaz, and Charles D. Michener in 2013 and each article is published as its own number, with issues appearing online as soon as they are ready. Papers are composed using Microsoft Word® and Adobe InDesign® in Lawrence, Kansas, USA.

Journal of Melittology is registered in ZooBank (www.zoobank.org), and archived at the University of Kansas and in Portico (www.portico.org).

http://journals.ku.edu/melittology
ISSN 2325-4467