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A NEW SPECIES OF *HOMALOTYLUS* (HYMENOPTERA: ENCYRTIDAE) FROM MEXICO, PARASITOID OF *AZYA ORBIGERA ORBIGERA* (COLEOPTERA: COCCINELLIDAE)[1]

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ABSTRACT: A new species of the encyrtid wasp genus *Homalotylus* Mayr is described from the state of Tamaulipas in Mexico. The type series of *H. shuvakhinae* sp. n. was reared from the coccinellid *Azya orbigera orbigera* (Mulsant), a predator of the coccid *Protopulvinaria pyriformis* (Cockerell). A key to the three related species from the *flaminius* group of *Homalotylus* is provided.

Key Words: Encyrtidae, *Homalotylus,* taxonomy, *Azya orbigera orbigera,* parasitoid, Mexico.

In 2000, Elisaveta Ya. Shuvakhina reared a series of *Homalotylus* Mayr (Hymenoptera: Encyrtidae) in the garden of Hacienda Santa Engracia, an historic hotel located near Ejido Benito Juárez, Municipio Hidalgo, Tamaulipas, Mexico. The adult parasitoids emerged from larvae of the ladybird beetle *Azya orbigera orbigera* (Mulsant) (Coleoptera: Coccinellidae) feeding upon the coccid *Protopulvinaria pyriformis* (Cockerell) (Hemiptera: Sternorrhyncha: Coccidae) on an undetermined plant. These parasitoids represent a previously unknown species of *Homalotylus,* which we describe herein as *H. shuvakhinae* n. sp. This is the first known host record of a *Homalotylus* from the coccinellid genus *Azya* Mulsant.

Terms for morphological features are those of Gibson (1997). Acronyms for depositories of specimens are as follows: BMNH, The Natural History Museum, London, England, UK; EMUT, Entomological Museum, Centro de Investigación, U.A.M. Agronomía y Ciencias, Universidad Autónoma de Tamaulipas, Ciudad Victoria, Tamaulipas, Mexico; UCRC, Entomology Research Museum, University of California, Riverside, California, USA; USNM, National Museum of Natural History, Washington, D.C., USA; ZISP, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia. An abbreviation used in the text is: F = antennal funicle segment.

Genus *Homalotylus* Mayr, 1876

Type species: *Encyrtus flaminius* Dalman, 1820; by subsequent designation by Ashmead (1900). Synonyms: *Nobrimus* Thomson, 1876; *Mendozaniella* Brèthes, 1913; *Hemaenasioidea* Girault, 1916; *Anisotylus* Timberlake, 1919; *Lepidaphycus* E. Blanchard, 1936; *Neoaenasioidea* Agarwal, 1966.

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Taxonomy. *Homalotylus* is a well-known genus and its generic diagnosis is available elsewhere (Timberlake 1919). Depending on the classification, the genus *Homalotylus* is placed either in the tribe Homalotylini, subtribe Homalotylina (Trjapitzin 1973, 1989) or the tribe Aphycini (Anis and Hayat 1998) of the subfamily Encyrtinae. The senior author does not agree, however, with Anis and Hayat's (1998) synonymy of Homalotylini under Aphycini because these seem to be two very different evolutionary lines of Encyrtinae, infesting basically different groups of hosts: Homalotylini parasitize active larvae of Coccinellidae and Chrysopidae whereas Aphycini attack more or less sedentary Pseudococcidae, and their respective oviposition behaviors are completely different.

The new taxon described herein belongs to the *flaminius* species group of *Homalotylus* as defined by Timberlake (1919). In this group of species, the ovipositor is not exserted and hardly visible except in distorted specimens, or only slightly exserted. *Homalotylus shuvakhinae* sp. n. clearly belongs to the subgroup of the *flaminius* species group in which the head is notably higher than wide in frontal view. The new species from Mexico is closely related to *H. flaminius* (Dalman) and *H. eytelweinii* (Ratzeburg) in having the ocellar triangle distinctly acute. These three species can be distinguished from each other using the following key.

Key to species of *Homalotylus* related to *H. shuvakhinae* sp. n., females.

1 First and third segments of metatarsus white.....*H. flaminius* (Dalman)

or All segments of metatarsus black or dusky 2

2 Tegula with a white base. Mesotarsus white (except distal segment dusky).....
.....*H. eytelweinii* (Ratzeburg)

or Tegula entirely black. Mesotarsus with basal segment black, second to fourth segments light, and distal segment dusky.....*H. shuvakhinae*, sp. n.

Biology. Primary parasitoids of larvae and pupae of various Coccinellidae. Trjapitzin and Ruíz Cancino (1998, 2001) indicated host associations of the two species of *Homalotylus* from Mexico, both of which are unrelated to the new taxon described in this communication.

Homalotylus flaminius in Europe and Asia parasitizes coccinellids of the tribe Scymnini (Klausnitzer & Klausnitzer 1972, Klausnitzer, 1976). According to the determined specimens in ZISP and also Noyes (2002), *H. flaminius* is known from Bulgaria, Georgia, Israel, Mongolia, Russia, Spain, Sweden, and Uzbekistan.

Homalotylus eytelweinii parasitizes coccinellids of the tribes Chilocorini, Coccinellini, Hippodamiini and Psylloborini (Klausnitzer & Klausnitzer 1972, Klausnitzer, 1976). According to the determined specimens in ZISP and also Noyes (2002), it is known from many countries in the Palaearctic region (from Spain to Japan) as well as from India and Thailand in the Oriental region, Republic of South Africa in the Afrotropical region, and Guatemala in the Neotropical region.

Homalotylus shuvakhinae sp. n., described below, is known only from the type locality in Tamaulipas, Mexico. Its host, *Azya orbigera orbigera,* belongs to the tribe Azyini of the subfamily Coccinellinae; distribution records of this species in the USA are all from southern Florida (Gordon 1985).

Homalotylus shuvakhinae V. Trjapitzin and S. Triapitsyn, NEW SPECIES
(Figs. 1-3)

Diagnosis. See the key and comments above.

Female. Length 1.84-2.03 mm (holotype 1.84 mm). Color. Body black, with slight metallic shine. Frontovertex with faint bronze luster. Antenna black except F6 and clava yellowish-white (apical half of F5 sometimes whitish). Mesonotum with slight violet-bronze-greenish luster; mesopleura with similar, but fainter, luster. Tegula entirely black. Forewing with transverse dark band reaching posterior margin. Legs mostly black, including mesotibial spur (except in one paratype where it is brownish white); mesotarsus with apex of first segment more or less light, second to fourth segments light (yellowish or brownish), and fifth segment dusky.

Head about 1.2 x higher than wide. Frontovertex narrow; vertex 1/4 to 1/5 head width. Ocelli in slightly acute triangle (somewhat less than 60∞). Distance between posterior ocelli less than distance between posterior ocelli to anterior ocellus (4/5 to 5/6); distance from posterior ocellus to eye margin 2 x (or a little less) more than distance between posterior ocelli. Occipital margin slightly concave. Malar space height less than eye height (as 3-4:7). Distance between lower eye margin 3 x more than width of vertex. Inner head margin almost straight (or only slightly convex).

Antenna (Fig. 1) inserted near oral margin. Scape slender, almost 8 x as long as wide. Pedicel about 1/3 length of scape, 2 x as long as wide. F1 slightly longer than wide, about half length of pedicel; F2 and F3 similar to F1; F4 slightly wider than preceding funicle segments; F5 subquadrate; F6 a little wider than long. Clava 3-segmented, about as long as combined length of 3 preceding flagellar segments, obliquely truncate dorsally almost from the base of first claval segment.

Mesosoma. Pronotum short, 7 x wider than long medially, its posterior margin concave. Mesoscutum 1.3-1.7 x as wide as long; notauli not reaching posterior margin of mesoscutum, with apices very close to each other but not meeting. Posterolateral angle of axilla transversely truncate and divided by short, thin keel. Scutellum about as long as wide and about as long as mesoscutum. Propodeum very short medially, 4-5 x shorter than scutellum; posterior part of propodeum strongly concave medially and acute laterally (in dorsal view).

Wings not abbreviated. Forewing (Fig. 2) 2.6-2.7 x as long as its maximum width. Costal cell narrow. Venation as in Fig. 3; marginal vein about 1.5 x as long as wide; stigmal vein almost straight, not strongly widening towards its rounded apex; postmarginal vein about as long as stigmal vein, angle between them about 30∞. Linea calva narrow, 7 x as long as wide, not exceeding limits of dark band, closed beneath by 6 discal setae.

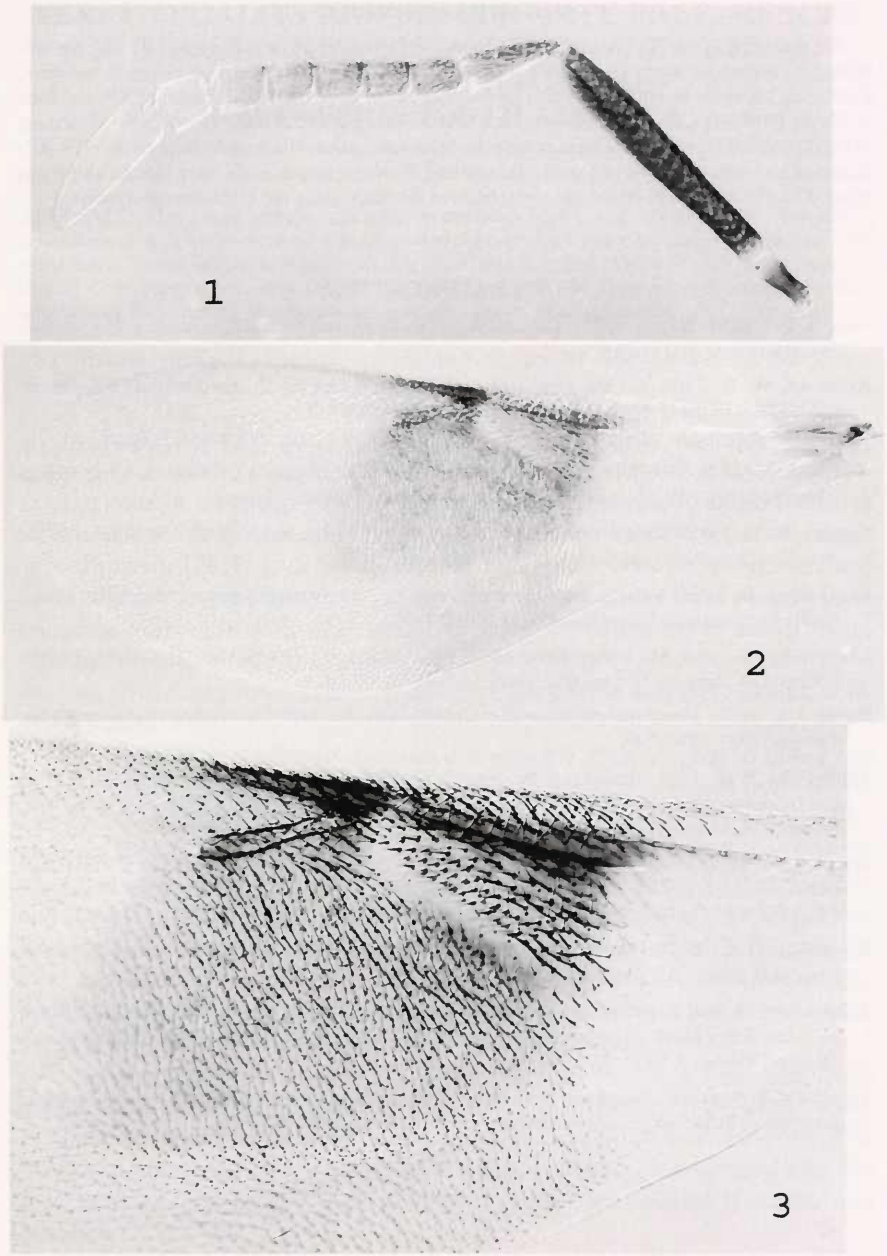
Metasoma about as long as mesosoma. Ovipositor either not exserted or only slightly exserted beyond apex of gaster. Pygostyles at level of 2/7 length of gaster (from its apex).

Sculpture. Frontovertex, mesopleura, and propodeum with microcellulate sculpture. Mesonotum minutely reticulate; scutellum microcellulate, almost matte.

Male. Unknown.

Type material: Holotype female on card, labeled: 1. "MÉXICO, Tam., Cd. Victoria: Sta. Engracia. Jardín del hotel, 14.II.2000 (E. Ya. Chouvakhina)"; 2. "Ex. *Azya orbigera orbigera* Mulsant en *Protopulvinaria pyriformis"*; 3. *"Homalotylus shuvakhinae* Trjapitzin & S. Triapitsyn HOLOTYPE ♀." Holotype deposited in ZISP. Paratypes: same data as holotype, 5 females on cards [BMNH, EMUT, UCRC, USNM, and ZISP] and 1 female on slide [UCRC].

Etymology. This species is named after the collector, Mrs. Elisaveta Yakovlevna Shuvakhina (Chouvakhina), the wife and mother of the senior and junior authors, respectively.



Figures 1-3. *Homalotylus shuvakhinae,* new species (female). (1) Antenna; (2) Forewing; (3) Forewing venation.

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