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FIRST HOST RECORD FOR *ACANTHAEGILIPS* (HYMENOPTERA: FIGITIDAE: ANACHARITINAE) AND DESCRIPTION OF A NEW SPECIES FROM VENEZUELA

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ABSTRACT

A new *Acanthaegilips* species from Venezuela is described, i.e., *Acanthaegilips notiobiellus* **sp. nov.** Diagnostic characters of the new species and data about its biology, distribution and morphological variability are presented. We report here the first known host of *Acanthaegilips* as *Notiobiella cixiiformis* (Gerstaecker, 1888) (Neuroptera: Hemerobiidae).

Key words: *Acanthaegilips*, biology, new species, *Notiobiella*, Venezuela

RESUMEN

En el presente trabajo, se describe una nueva especie de *Acanthaegilips* de Venezuela. Se dan los caracteres diagnósticos de ésta así como datos sobre su biología, área de distribución y variabilidad morfológica. Adicionalmente, se cita el primer hospedador conocido de *Acanthaegilips*: *Notiobiella cixiiformis* (Gerstaecker, 1888).

Palabras clave: *Acanthaegilips*, biología, nueva especie, *Notiobiella*, Venezuela

Anacharitinae is a subfamily of Figitidae (Hymenoptera: Cynipoidea) defined by 3 synapomorphies (Ros-Farré et al. 2000): rounded and continuous pronotal plate, mandibles broadly overlapping and triangular-shaped head in frontal view. The subfamily currently includes 9 described genera (Mata-Casanova & Pujade-Villar 2013a): *Acanthaegilips* Ashmead, 1897; *Acanthaegilopsis* Pujade-Villar, 2013; *Aegilips* Haliday, 1835; *Anacharis* Dalman, 1823; *Calofigites* Kieffer, 1909; *Hexacharis* Kieffer, 1907; *Proanacharis* Kovalev, 1996; *Solenofigites* Díaz, 1979; and *Xyalaspis* Hartig, 1843.

Acanthaegilips includes 15 species (Mata-Casanova & Pujade-Villar, 2013b), and all of them are present in the Neotropical region. It possesses a true scutellar spine derived from the cirscumscutellar carina. It can be distinguishable from *Acantahaegilopsis* and *Xyalaspis* – the other Anacharitinae genera with a true scutellar spine - by the presence of an oblique groove in the mesopleuron and a non-coriaceous malar furrow (Ros-Farré et al. 2000). The biology of most of the anacharitines remains unknown, although the aphid-feeding larvae of Hemerobidae (Neuroptera) have been described as the hosts of *Solenofigites lautus* Díaz, 1979 (Díaz 1979), *Anacharis australiensis* Ashmead, 1901 and *Xyalaspis victoriensis* (New 1979), *Anacharis immunis* (Walker, 1835) (Kyerich 1984), *Aegilips atricornis* Fergusson, 1985, *A. nitidula* (Dalman, 1823), *Anacharis eucharioides* (Dalman, 1818) and *Xyalaspis petiolata* Kieffer, 1901 (Fergusson 1986), and *Anacharis melanoneura* Ashmead, 1887 (Cave & Miller 1987). In the case of *Acanthaegilips,* no hosts have been recorded prior to this study.

In this study, *Acanthaegilips notiobiellus* **sp. nov.** from Venezuela is described, and *Notiobiella cixiiformis* (Gerstaecker, 1888) (Neuroptera: Hemerobiidae) is here recorded for the first time as the first known host of *Acanthaegilips*.

Material and Methods

The specimens and material examined in this study are from the Entomological Museum José Manuel Osorio (MJMO-UCOB), Universidad Centroccidental "Lisandro Alvarado" (Barquisimento, Lara, Venezuela). Six undetermined specimens were studied: 2 males and 4 females.

Morphological terms used are taken from Richards (1977), Ronquist (1995) and Ros-Farré et al. (2003). For the determination of the specimens we used the keys of Ros-Farré et al. (2003). All measurements are relative except for the body length. Measurements and abbreviations include: F1–F12, first and subsequent flagellomeres; POL, post-ocellar distance, which is the distance between the inner margins of the posterior ocelli; OOL, ocular-ocellar distance, which is the shortest distance between the inner margin of the compound eye and the outer edge of the posterior ocellus; LOL, lateral–frontal ocellar distance, which is the distance between the edges of the lateral and frontal ocelli. Antennal formula includes scape, pedicel and flagellomeres length and relative width in brackets.

The images of *Acanthaegilips notiobiellus* **sp. nov.** included herein were made in 'Serveis Científico-Tècnics' of the University of Barcelona with a FEI Quanta 200 ESEM scanning electron microscope under at a low voltage (10.0 kV), while the images of *A. occultus* were made with a Stereoscan S-360 (Cambridge Instruments) scanning electron microscope under a low voltage (1.0 kV). In order to preserve the type material none of the specimens were coated.

Results

Acanthaegilips notiobiellus Mata-Casanova & Pujade-Villar **sp. nov.** (Fig. 1)

Material Examined

HOLOTYPE ♂ deposited in UB with the following labels: "El Cercado, Lara, Venezuela, 10° 7' N, 69° 14' W, 500 m, 20.II.2012, E. Arcaya leg" (white label), "Larva de *Notiobiella rubrostigma* (= *N. cixiiformis*) en *Cedrela odorata,* 20.II.2012 " (white label), "Holotype of *Acanthaegilips notiobiellus* **n. sp**. design. N. Mata-Casanova & J. P-V, 2013" (red label). Paratypes: (1♂ & 4♀; 1♂ & 3♀ deposited in UB, 1♀ in MJMO): "El Cercado, Lara, Venezuela, 10° 7' N, 69° 14' W, 500 m, 20.II.2012, E. Arcaya leg".

Additional Material

Four ♀♀ deposited in MJMO: "El Cercado, Lara, Venezuela, 10° 7' N, 69° 14' W, 500 m, 20.II.2012, E. Arcaya leg".

Description

Length. Body: 2.3 mm. Wing: 2 mm. Antenna: 2 mm (♂), 1.8 mm (♀).

Coloration. Head, mesosoma and metasoma black. Antennae yellowish brown, the scape and pedicel being lighter and the last 4 flagellomeres dark brown. Mandibles yellowish brown with darker teeth. Front, middle legs and coxae yellowish brown; hind legs and coxae brown.

Head. Head glabrous except for a line of hairs that runs along gena behind the postocular furrow; malar furrow very weak and slightly curved (Fig. 1A). Lateral carina absent, occipital carina strong. Malar space 0.6 times the height of the compound eye. Transfacial line 1.1 times the height of the compound eye. Diam of the toruli equal to the distance between the toruli and the compound eye and shorter than the distance between the toruli. Compound eyes glabrous. POL:OOL:LOL ratio is 6:5:2 (in males) and 5:4:2 (in females); the diameter of the ocelli is 2.5 in both sexes.

Antennae. Cylindrical flagellomeres, without pubescence. Male antennae without dorsolaterally expanded flagellomeres (Fig. 1C). Male antennal formula: 7(3), 2.5(2.5), 9(2.5), 8(2.5), 7(2.5), 7(2.5), 7(2.5), 7(2.5), 7(2.5), 6(2.5), 6(2.5), 6(2.5), 5(2.5), 8(2). Female antennal formula: 9(3), 3(2.5), 7(2), 6(2), 6(2), 6(2), 5(2.5), 5(2.5), 4.5(2.5), 4(2.5), 4(2.5), 4(2.5), 8(2.5). Placodeal sensilla starting on F1 in males and F2 in females.

Mesosoma. Lateral pronotal carinae projecting dorsomedially forming a much raised pronotal crest (Fig. 1D). Anterior pronotal plate with a few scattered hairs near dorsolateral margins and weakly transversely carinate. Pronotum alutaceous and densely pubescent, lateral surface with areolate sculpture, more apparent in the anterior margin (Fig. 1D). Mesoscutum with areolate sculpture, 1.2 times wider than long in dorsal view (Fig. 1F). Median mesoscutal impression from ¼ to ⅓ of the total length of the mesoscutum. Notauli complete. Line of hairs on the anterior and lateral margins of the scutum absent. Scutellum in dorsal view of the same length as that of the mesoscutum. Scutellar foveae in anterior part with 2 or 3 internal short longitudinal carinae dividing the anterior area of each fovea, scutellar foveae smooth with few irregular sculpture near its posterior margin (Fig. 1F). Lateral pit of the scutellar foveae absent. Scutellar spine broad, narrowing abruptly before apex. Scutellar disc in lateral view steeply sloping to base of scutellar spine, which is directed upwards at base and later straight. Mesopleural impression rather narrow, weakly curved in the apical part and with few coarse transverse carinae. Mesopleural triangle sparsely pubescent with some oblique carinae. Propodeum with areolate sculpture, lateral and median propodeal carinae present, transversely

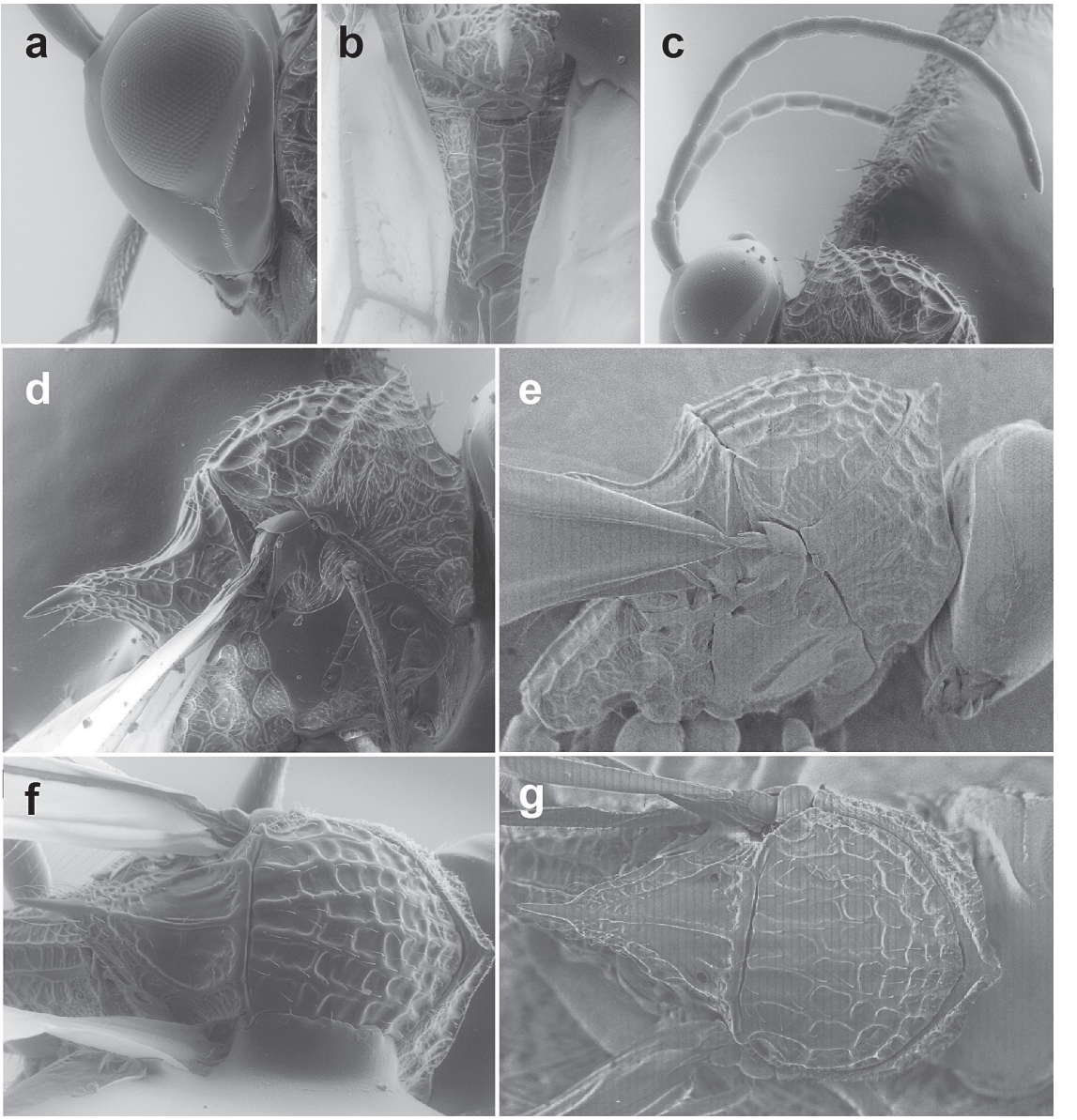

Fig. 1. *Acanthaegilips notiobiellus*: malar area in lateral view (a); propodeum (b), and male antennae (c); mesosoma in lateral view of: (d) *A. notiobiellus* and (e) *A. occultus.* Mesosoma in dorsal view of: (f) *A. notiobiellus* and (g) *A. occultus.*

carinated in the region comprised between the lateral carinae (Fig. 1B).

Wings. Pubescent. Radial cell of the forewing open, 2.7 times longer than wide. R1 practically non-existent. Marginal pubescence of the wing denser at the apical third.

Metasoma. Petiole as long as wide. Petiole dorsally smooth, laterally and ventrally costate. Third abdominal tergum dorsally 1.2 times the length of the fourth tergum. Fifth and sixth abdominal terga not visible from dorsal view.

Etymology

The specific name comes from the name of its host genus, *Notiobiella.*

Biology

The specimens were obtained from cocoons made by 20 field-collected early instars of *Notiobiella cixiiformis* (Gerstaecker, 1888) (Hemerobiidae: Neuroptera) that were predating on psyllid nymphs on

Cedrela odorata L. (Sapindales: Meliaceae). Only 10 of the larvae reached the adult stage.

Distribution

Neotropical. Recorded only from Venezuela.

Diagnosis.

The new species is morphologically close to *A. occultus* Ros-Farré & Pujade-Villar, 2003, from which it differs by having a longer median mesoscutal furrow, straighter last third of the scutellar spine, lacking lateral pits, having 2 or 3 longitudinal carinae in the scutellar foveae and a densely pubescent pronotum (median mesoscutal furrow shorter, scutellar spine curved downwards, lateral pits present and only 1 longitudinal carinae dividing the scutellar foveae (Fig. 1F) and pronotum not so pubescent (Fig. 1E) in *A. occultus*).

Discussion

The genus *Acanthaegilips* is divided in 2 easily distinguishable morphological groups (Pujade-Villar et al. 2009): the first group only includes *A. colombiensis* and *A. venezuelensis,* both of which have carinate sculpture on the mesoscutum; the second group comprises the rest of the species of *Acanthaegilips* and it is characterized by the presence of areolate sculpture on the mesoscutum. The newly described species is located within the second group and is morphologically similar to *A. occultus*; the differences have been mentioned in the diagnosis.

The differences between the male and the female of *A. notiobiellus* **sp. nov.** are only present in those characters related to sexual dimorphism, i.e., aspect of metasoma, number of flagellomeres and the disposition of the placodeal sensilla in the antennae. This is the case in most known anacharitines, except the Indian species, *Xyalaspis dimorphica* (Mata-Casanova et al. in press).

According to several authors (Díaz 1979; New 1979; Kierych 1984; Fergusson 1986; Ronquist 1999) Anacharitinae attack aphid-feeding larvae of Chrysopidae and Hemerobiidae (Neuroptera). Nevertheless, no host of *Acanthaegilips* was mentioned before this study. The studied material was collected from cocoons of the brown lacewing, *Notiobiella cixiiformis*. This corresponds with the previous knowledge of the Anacharitinae biology. Despite *Notiobiella* being present in regions were anacharitines have been cited (Banks 1932), this is the first time that an anacharitine is described as attacking this genus.

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