

Description of Four New Species of Genus *Acanthaegilips* Ashmead, 1897 (Hymenoptera: Figitidae: Anacharitinae) from Colombia

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Abstract

There are four new species of the Neotropical Anacharitinae genus *Acanthaegilips* Ashmead, 1897: *A. boyacensis* sp. n., *A. curvis* sp. n., *A. timidus* sp. n., and *A. truncatus* sp. n. The diagnostic characters of this new species and data about their morphological variability and similarities with other *Acanthaegilips* species are discussed. An updated key of genus *Acanthaegilips* is included.

Introduction

Anacharitinae is one of the 11 subfamilies of microcynipoid wasps included in Figitidae (Paretas-Martínez *et al* 2011). They can be easily distinguished from other figitids by the presence of three characters (Ros-Farré *et al* 2000): (1) rounded and continuous pronotal plate, (2) mandibles broadly overlapping and (3) triangular-shaped head in anterior view. The subfamily currently includes nine 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 is one of the three Anacharitinae endemic to the Neotropical region, along with *Calofigites* and *Solenofigites*. Species of *Acanthaegilips* have an oblique groove on the mesopleuron similar to *Solenofigites*; however, *Acanthaegilips* can be distinguished from *Solenofigites* by having an elongated scutellar spine, large scutellar foveae and modified male flagellomeres (in some species); all of these characteristics are absent in *Solenofigites*. The

Anacharitinae are known to attack the aphid-feeding larvae of Hemerobiidae (Díaz 1979; New 1979; Kierych 1984; Fergusson 1985; Miller & Lambdin 1985; Cave & Miller 1987); *Acanthaegilips* is no exception, and it has been recorded from the cocoons of the hemerobiid *Notiobiella cixiiformis* (Gerstaecker, 1888) (Mata-Casanova *et al* 2014).

Prior to this work, *Acanthaegilips* included 16 species (Mata-Casanova *et al* 2014), mostly concentrated in Northern South America. Venezuela had the highest record of *Acanthaegilips* species, with nine recorded species there (Ros-Farré *et al* 2003; Pujade-Villar *et al* 2009a; Pujade-Villar *et al* 2009b; Restrepo-Ortiz *et al* 2010; Mata-Casanova *et al* 2014), with Colombia a close second with seven species (Restrepo-Ortiz *et al* 2010; Mata-Casanova & Pujade-Villar 2013b). In the present work, four new species of *Acanthaegilips* from Colombia are described: *A. boyacensis* Mata-Casanova & Pujade-Villar sp. n., *A. curvis* Mata-Casanova & Pujade-Villar sp. n., *A. timidus* Mata-Casanova & Pujade-Villar sp. n. and *A. truncatus* Mata-Casanova & Pujade-Villar sp. n. Their morphological features and affinities with other *Acanthaegilips* species are discussed. Considering that the last key of genus *Acanthaegilips* is the one found in Ros-

Farré *et al* (2003), an updated key on the genus has been included, taking into account the species described since then and the interesting morphological features they present.

Material and Methods

The material examined was collected in the period 2000–2004 with Malaise traps as part of the project “Biodiversidad Insectos de Colombia”, carried out by the Instituto Alexander von Humboldt (IAvH; Villa de Leiva, Colombia), the University of Kentucky (UK; Lexington, USA) and the Natural History Museum of Los Angeles (NHM; Los Angeles, USA). It is deposited in IAvH and the Universitat de Barcelona (UB, Barcelona, Spain). Fourteen undetermined specimens have been studied: eight females and six males.

Morphological terms used are those of Richards (1977) and Ronquist (1995). For the determination of 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; post-ocular distance (POL) is the distance between the inner margins of the posterior ocelli; ocular-ocular distance (OOL) is the shortest distance between the inner margin of the compound eye and the outer edge of the posterior ocellus and lateral–frontal ocular distance (LOL) is the distance between the edges of the lateral and frontal ocelli. Antennal formula includes scape, pedicel and flagellomere length and relative width in brackets.

The SEM images included were made in ‘Serveis Científico-Tècnics’ of the University of Barcelona. The field-emission gun environmental scanning electron microscope (FEI Quanta 200 ESEM) was used for high-resolution imaging, under a low voltage (12.0 kV) and without gold-coating of the specimens in order to preserve the material.

Results

Key to the species of *Acanthaegilips* Ashmead, 1897

1. Mesoscutum smooth; notauli tenuous and incomplete (Fig 1a–c) 2
 - Mesoscutum carinate or areolate; notauli complete, although in some specimens are hard to distinguish from the heavily areolate sculpture (Figs 1d–h and 2) 4
2. Scutellum shorter than mesoscutum in dorsal view (Fig 1a).
 - *A. timidus* Mata-Casanova & Pujade-Villar sp. n
 - Scutellum longer than mesoscutum in dorsal view (Fig 1b, c). 3
3. Radial cell closed; post-ocular furrow absent; malar furrow slightly curved (Fig 3e) (only male known).....

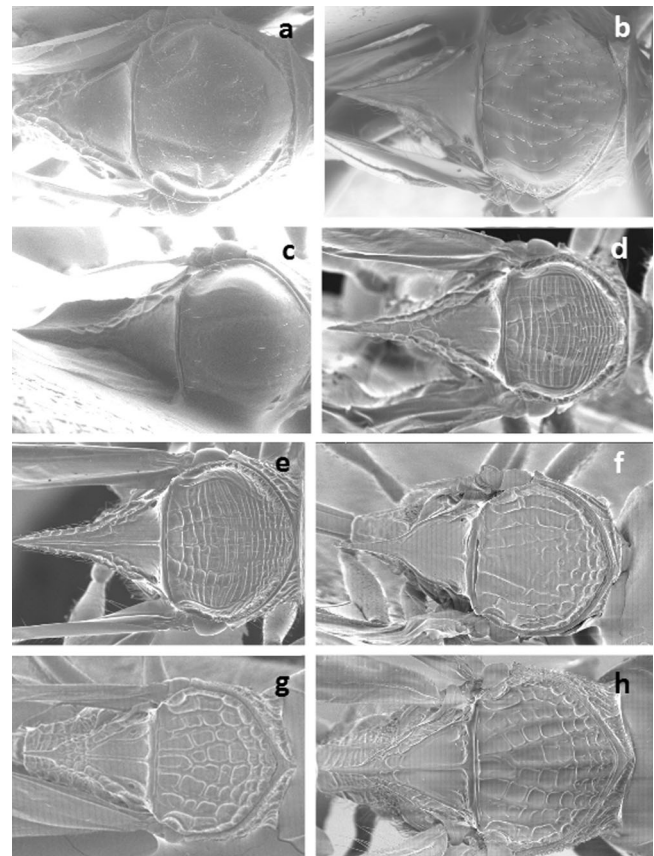


Fig. 1 Mesosoma in dorsal view of *A. timidus* sp. n. (a), *A. boyacensis* sp. n. (b), *A. curvis* sp. n. (c), *A. colombiensis* (d), *A. venezuelensis* (e), *A. alienus* (f), *A. dentis* (g) and *A. carinatus* (h).

- *A. boyacensis* Mata-Casanova & Pujade-Villar sp. n
- Radial cell open, post-ocular furrow present; malar furrow strongly curved and reaching the post-ocular furrow (Fig 3f) (only female known).....
- *A. curvis* Mata-Casanova & Pujade-Villar sp. n
- 4. Mesoscutum transversely carinated (Fig 1d, e).....5
 - Mesoscutum areolate (Figs 1f–h and 2).....6
- 5. Malar furrow strongly curved (Fig 3f); median mesoscutal impression not divided (Fig 1d).
 - *A. colombiensis* Pujade-Villar & Restrepo-Ortiz, 2010
 - Malar furrow slightly curved (Fig 3e), median mesoscutal impression internally divided into two cells (Fig 1e).....
 - *A. venezuelensis* Ros-Farré & García, 2010
- 6. Scutellum concave, strongly inclined on each side of the median scutellar carina; male flagellomeres never modified, propodeum with three longitudinal ridges without any sculpture between; notauli not formed by a row of cells.
 - *A. alienus* Ros-Farré & Pujade-Villar, 2003
 - Scutellum flat; male antennae with some flagellomeres from F1 to F6 dorsolaterally expanded (Fig 3i, j); propodeum areolate, notauli consisting in a row of cells.....7

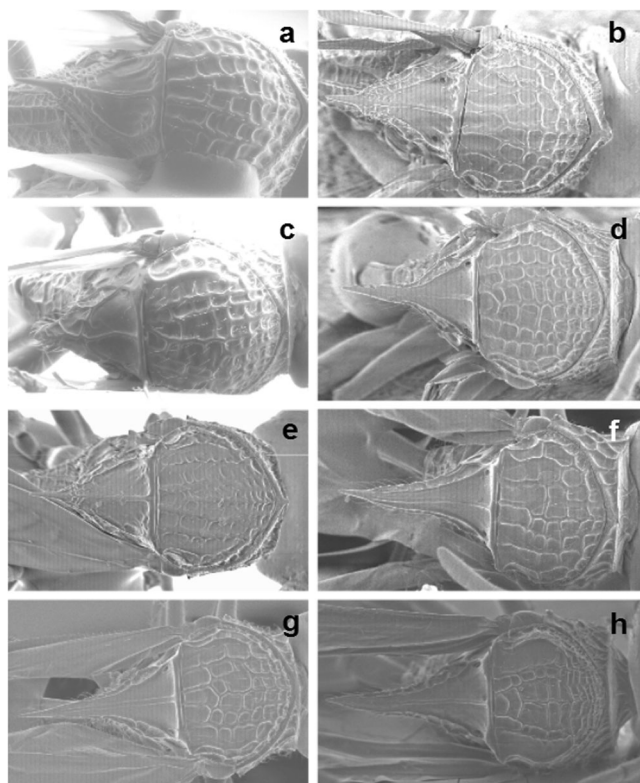


Fig. 2 Mesosoma in dorsal view of *A. notiobiellus* (a), *A. occultus* (b), *A. truncatus* sp. n. (c), *A. huggerti* (d), *A. exiguus* (e), *A. braziliensis* (f), *A. levis* (g) and *A. palmirae* (h).

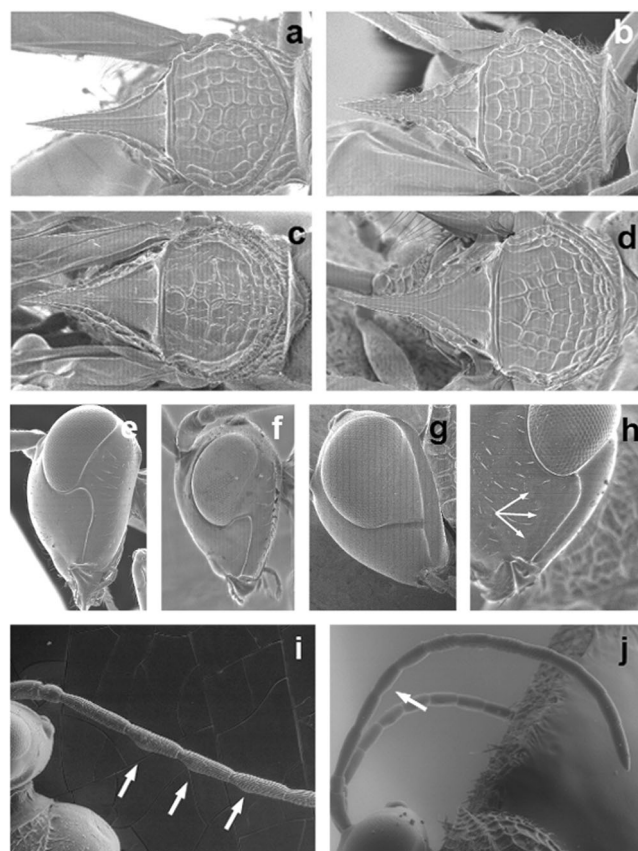


Fig 3 Mesosoma in dorsal view of *A. masneri* (a), *A. macropennis* (b), *A. diazae* (c) and *A. ashmeadi* (d). Detail of malar area of *A. venezuelensis* (e), *A. colombiensis* (f), *A. dentis* (g) and *A. palmirae* (h). Detail of male flagellomeres of *A. timidus* (i) and *A. notiobiellus* (j).

- 7. Radial cell open.8
- Radial cell closed.....17
- 8. Malar furrow straight to slightly curved, usually connected with post-ocular furrow (Fig 3g).9
- Malar furrow strongly curved, post-ocular furrow absent (Fig 3e).15
- 9. Scutellar foveae with an internal longitudinal carina (foveal carina) dividing them into two areas each (Figs 1g, h and 2a, b); pronotal plate produced into a sharp and strongly raised dorsal tooth in lateral view (Fig 4a–d); petiole as wide as long, sometimes slightly wider than long.10
- Scutellar foveae without any internal longitudinal carina dividing them (Figs 2c–h and 3a–d); pronotal plate with a small and short dorsal tooth in lateral view (Figs 4e, f and 5a–d); petiole 1.5 to 2 times wider than long.13
- 10. Malar and post-ocular furrows strongly impressed (Fig 4a); foveal carina reaching the posterolateral margin of the scutellar foveae (Fig 1g) (only female known). *A. dentis* Ros-Farré & Pujade-Villar, 2003
- Malar furrow effaced; post-ocular furrow weak but with a line of hairs running below the post-ocular and malar furrows; foveal carinae less evident and not reaching the posterolateral margin of the scutellar foveae.11

- 11. Lateral surface of pronotum with coarse transverse carina in ventral part and with areolate sculpture in dorsal part (Fig 4b).*A. carinatus* Ros-Farré & Pujade-Villar, 2003
- Lateral surface of pronotum completely areolate; lateral pits of scutellar fovea presents.12
- 12. Median mesoscutal furrow ¼ to 1/3 of mesoscutum length; two or three foveal carinae present (Fig 2a); lateral pits of scutellum absent; scutellar spine curved downwards.....
-*A. notiobiellus* Mata-Casanova & Pujade-Villar, 2014
- Median mesoscutal furrow ¼ or less than mesoscutum length, one foveal carina present (Fig 2b), lateral pits of scutellum present; scutellar spine straight in lateral view. *A. occultus* Ros-Farré & Pujade-Villar, 2003
- 13. Scutellum shorter than mesoscutum in dorsal view (Fig 2c); scutellar spine blunt-ended (Fig 4e).....
- *A. truncatus* Mata-Casanova & Pujade-Villar sp. n
- Scutellum as long as mesoscutum in dorsal view, sometimes longer; scutellar spine spike-ended.....14
- 14. Scutellar disc narrows abruptly posteriorly and the scutellar spine is entirely slender (Fig 2d); scutellar spine straight in lateral view; lateral pit of scutellar fovea deep. *A. huggerti* Sporrang & Ros-Farré, 2003

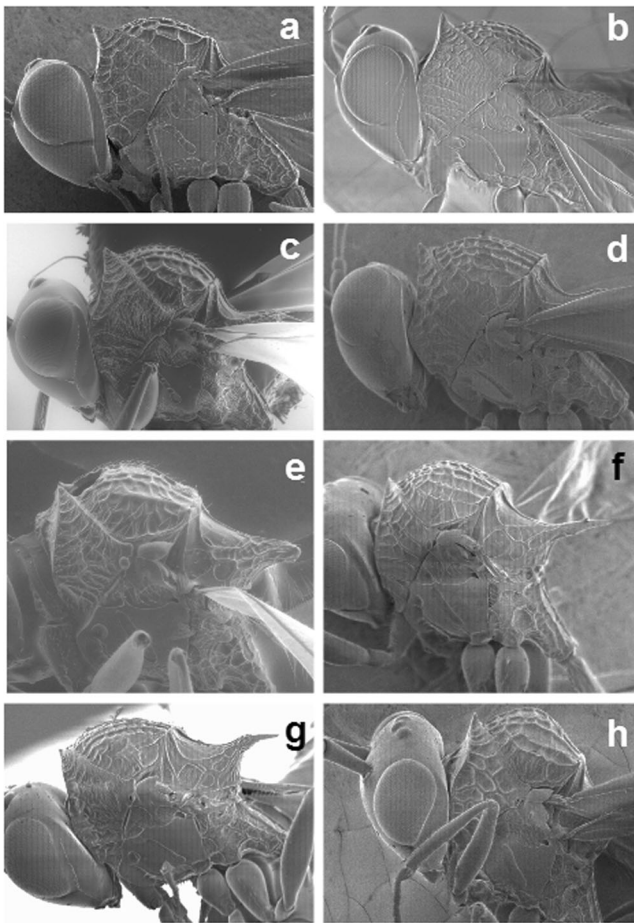


Fig 4 Mesosoma in lateral view of *A. dentis* (a), *A. carinatus* (b), *A. notiobiellus* (c), *A. occultus* (d), *A. truncatus* sp. n. (e), *A. huggerti* (f), *A. exiguus* (g) and *A. braziliensis* (h).

- Scutellar spine narrowing abruptly before apex (Fig 2e); scutellar spine curved downwards in lateral view; lateral pit of fovea superficial and indistinct (only male known).....
..... *A. exiguus* Ros-Farré & Pujade-Villar, 2003
- 15. Scutellar carina visible, in lateral view, running from pronotum to median sulcus; scutum in profile with a distinct hump; pronotal plate with a pointed dorsal tooth when viewed laterally (Fig 4h).
..... *A. braziliensis* Ashmead, 1896
- Scutellar carina absent; scutum curved in profile but not humped; pronotal plate dorsally raised but not ending in a pointed dorsal tooth when examined laterally.16
- 16. Mesoscutum completely areolate (Fig 2g); malar area smooth (only female known).
..... *A. levis* Ros-Farré & Pujade-Villar, 2003
- Mesoscutum surface between notauli and parapsidal signum smooth (Fig 2h); coriaceous line present anterior in front of malar furrow (Fig 3h) (only

- female known).....
.....*A. palmirae* Mata-Casanova & Pujade-Villar, 2013
- 17. Pronotal plate ending dorsally in a small tooth; petiole laterally costate (Fig 5a) (only female known).
..... *A. masneri* Sporrang & Ros-Farré, 2003
- Pronotal plate rounded dorsally; petiole laterally entirely smooth or slightly carinate anteriorly.....18
- 18. Scutellar foveae smooth anteriorly; reticulate posteriorly (Fig 3b) (more clear on females), male placodeal sensilla present and abundant from F1 to the end of the antenna.
..... *A. macropennis* Sporrang & Ros-Farré, 2003
- Scutellar foveae entirely smooth; male placodeal sensilla dorsally absent on F1 and dorsally scarce or absent on at least some of the following flagellomeres.....19
- 19. Notauli complete; mesoscutum with weak areolate sculpture, smooth between parapsidal signum and parascutal impression; parapsidal signum strongly raised and conspicuous (Fig 3c); male placodeal sensilla present on F1, dorsally absent from F1 to F5 and sparse from F6 to F7 (only male known).
..... *A. diazae* Ros-Farré & Pujade-Villar, 2003
- Notauli incomplete or not even present, reaching 1/2 the length of mesoscutum; mesoscutum coarsely areolate; parapsidal signum quite conspicuous and not raised (Fig 3d); male placodeal sensilla dorsally absent on F1 and F2, sometimes also on F3; and very scarce on F4.....*A. ashmeadi* Ros-Farré & Pujade-Villar, 2003

Acanthaegilips boyacensis sp.n. Mata-Casanova & Pujade-Villar

Diagnosis. Species belonging to *Acanthaegilips* with a smooth mesoscutum. *Acanthaegilips boyacensis* n. sp. is very similar to *A. curvis* n. sp., but it presents a closed radial cell, a slightly curved malar furrow and lacks a post-ocular furrow (in *A. curvis* n. sp., radial cell open, malar furrow strongly curved and connected to a clearly distinguishable post-ocular furrow).

Description. (Only male known)

Length. Body 2.8 mm. Wing 2.9 mm. Antenna 2.7 mm.

Colour. Head, mesosoma and metasoma black. Antennae dark brown, scapus black and pedicel. Mandibles reddish brown with darker teeth. Legs brownish, coxae darker.

Head. Head glabrous; 1.2 times wider than high in anterior view and 2 times wider than long in dorsal view. Malar furrow slightly curved, post-ocular furrow absent (Fig 2e). Genal

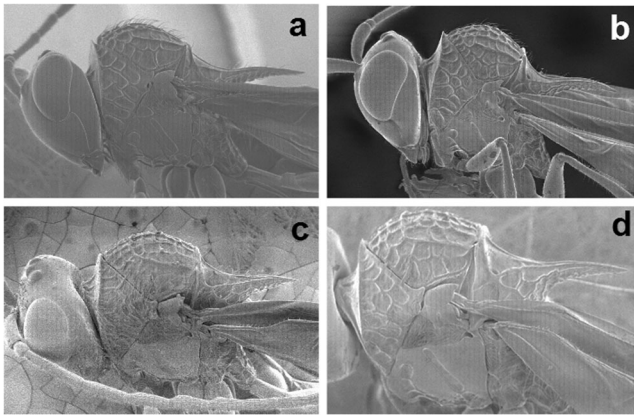


Fig. 5 Mesosoma in lateral view of *A. masneri* (a), *A. macropennis* (b), *A. diazae* (c) and *A. ashmeadi* (d).

carina absent, occipital carina strong. Malar space length 0.8 times that of compound eye height. Transfacial line 1.4 times longer than compound eye height. Diameter of toruli bigger than ocular-torular distance but shorter than intertoruli distance. Compound eyes glabrous. POL/OOL/LOL ratio is 7:4.5:2 in males; ocelli diameter 2.5.

Antennae. Flagellomeres cylindrical, glabrous. Male antennae with second to fourth flagellomeres not dorsolaterally expanded. Male antennal formula: 11(4), 3(3), 13(3), 10(3), 9(3), 9(3), 9(3), 8(3), 8(3), 8(3), 7.5(3), 7(3), 7(3), 9(3). Placodeal sensilla starting at F1 but not abundant until F4.

Mesosoma. Lateral pronotal carinae not dorsomedially projected to form raised tooth (Fig 2a). Pronotal plate smooth and glabrous. Pronotum smooth except for few tenuous transverse carinae, densely pubescent. Mesoscutum completely smooth (Fig 1c), 1.2 times wider than long in dorsal view. Median mesoscutal impression absent. Notauli tenuous, indistinct in anterior half of mesoscutum. Hair line on anterior and lateral margins of scutum absent. Parapsidal signum absent, tenuous sulcus present instead. Scutellum 1.1 times longer than mesoscutum in dorsal view. Interfoveal line absent, dorsal scutellum smooth with indistinguishable scutellar foveae (Fig 1c); scutellum laterally areolate. Lateral pits of scutellar foveae present next to scutellar margin. Scutellar spine short and pointed, not distinguished from scutellum, about 1/2 of scutellar length. Scutellar disc in lateral view gradually descending towards terminus of spine. Mesopleural impression narrow, straight, without trace of internal carinae (Fig 2a). Mesopleural triangle smooth, densely pubescent. Propodeum areolate, lateral and median propodeal carinae present, transversely carinate in region between lateral carinae.

Wings. Pubescent. Radial cell of forewing closed, 3.1 times longer than wide. R1 complete. Marginal pubescence of wing denser at apical third.

Metasoma. Petiole as long as wide, slightly shorter than third coxa. Petiole dorsally smooth, latero-ventrally costate. Third abdominal tergum 1.1 times longer than fourth tergum in dorsal view. Fifth and sixth abdominal terga not visible from dorsal view.

Type Material. Holotype ♂ deposited in IAvH with the following labels: “Colombia, Boyacá, PNN Iguaque, El Boquerón, 5°25'N 73°27'W, 2600 m, Malaise, 1-27.XII.2002: P. Reina leg” (white label); “Holotype ♂ of *A. boyacensis* desig. Mata-Casanova” (red label).

Derivatio Nominis. The specific name makes reference to the Colombian province of Boyacá, the place where the only known specimen of the species was found.

Biology. Unknown.

Distribution. Neotropical. Only collected from Colombia.

Acanthaegilips curvis sp.n. Mata-Casanova & Pujade-Villar

Diagnosis. This species has a smooth mesoscutum and tenuous notauli, characters not seen in other *Acanthaegilips* species except for *A. boyacensis* n. sp. and *A. timidus* n. sp. It has an elongate scutellum, a character that separates it from *A. timidus* n. sp. (scutellum shorter than mesoscutum in *A. timidus* n. sp.). *A. curvis* can be separated from *A. boyacensis* n. sp. by having an open radial cell and post-ocular furrow (radial cell closed and post-ocular furrow absent in *A. boyacensis* n. sp.).

Description. (Only female known)

Length. Body 2.5 mm. Wing 2.8 mm. Antenna 2.3 mm.

Colour. Head, mesosoma and metasoma black. Antennae dark brown, scapus black and pedicel. Mandibles reddish brown with darker teeth. Legs brownish, coxae darker.

Head. Head glabrous; 1.1 times wider than high in anterior view, 2 times wider than long in dorsal view. Malar furrow strongly curved, connected with post-ocular furrow (Fig 2f). Genal carina absent, occipital carina strong. Malar space length 0.7 times that of compound eye height. Transfacial line 1.2 times longer than compound eye height. Diameter of toruli bigger than ocular-torular distance but shorter than intertoruli distance. Compound eyes glabrous. POL/OOL/LOL ratio is 7:5:3 in females; ocelli diameter 2.

Antennae. Flagellomeres cylindrical, glabrous. Female antennal formula: 10(3.5), 3(3), 10(2), 8(2), 8(2), 7.5(2), 7.5(2), 7(2), 7(2.5), 6(3), 6(3), 5(3), 9(3). Placodeal sensilla starting at F6 in females.

Mesosoma. Lateral pronotal carinae not dorsomedially projected to form raised tooth (Fig 2b). Pronotal plate smooth and glabrous. Pronotum smooth with some transverse carinae, presence of some scarce long hyaline hairs in upper pronotum. Mesoscutum completely smooth (Fig 1a), 1.3 times wider than long in dorsal view. Median mesoscutal impression absent. Notauli tenuous, indistinct in anterior half of mesoscutum. Hair line on anterior and lateral margins of scutum absent. Parapsidal signum very tenuous. Scutellum 1.2 times longer than mesoscutum in dorsal view. Interfoveal line absent, dorsal scutellum smooth with indistinguishable scutellar foveae (Fig 1a); scutellum laterally areolate. Lateral pits of scutellar foveae small, next to scutellar margins. Scutellar spine short, pointed, about 1/2 of scutellar total length. Scutellar disc in lateral view gradually descending towards terminus of spine. Mesopleural impression narrow, straight, with weak internal carinae (Fig 2b). Mesopleural triangle smooth, sparsely pubescent. Propodeum areolate, lateral and median propodeal carinae present, transversely carinate between lateral carinae.

Wings. Pubescent. Radial cell of forewing open, three times longer than wide. R1 absent. Marginal pubescence of wing denser at apical third.

Metasoma. Petiole as long as wide, 0.7 times of third coxa length. Petiole dorsally smooth, latero-ventrally costate. Third abdominal tergum as long as fourth tergum in dorsal view. Fifth and sixth abdominal terga not visible from dorsal view.

Type Material. Holotype ♀ deposited in IAvH with the following labels: "Colombia, Cundinamarca, PNN Chingaza, Charrascales, 4°34'N 73°45'W, 2990 m, Malaise, 4-24.IV.2002: F. Guzman". (white label); "Holotype ♀ of *A. curvis* desig. Mata-Casanova" (red label).

Derivatio Nominis. The specific name makes reference to the curved malar furrow, the key character that casts the species apart from the closely related *A. boyacensis* n. sp.

Biology. Unknown.

Distribution. Neotropical. Only collected from Colombia.

Acanthaegilips timidus sp.n. Mata-Casanova & Pujade-Villar

Diagnosis. This species has a smooth mesoscutum and short scutellar spine. The smooth mesoscutum is also present in

A. variabilis sp. n., but *A. variabilis* sp. n. presents a short scutellar spine and dorsolateral expanded second, third and fourth flagellomeres in males (scutellar spine longer than mesoscutum and no modified male flagellomeres in *A. variabilis* sp. n.).

Description. (Female)

Length. Body 2.1–2.5 mm. Wing 2.5–2.9 mm. Antenna 2.4–2.5 mm.

Colour. Head, mesosoma and metasoma black. Antennae dark yellowish brown. Mandibles yellowish brown with darker teeth. Legs yellowish brown, coxae and femurs darker. Wing veins dark brown.

Head. Head glabrous; 1.1 times wider than high in anterior view, 2.1 times wider than long in dorsal view. Malar furrow apparent and slightly curved, connected with post-ocular furrow. Genal carina absent, occipital carina strong. Malar space length 0.6 times of compound eye height. Transfacial line as long as compound eye height. Diameter of toruli equal to ocular-torular distance but bigger than intertoruli distance. Compound eyes glabrous. POL/OOL/LOL ratio is 5:5:2; ocelli diameter 2.

Antennae. Flagellomeres cylindrical, glabrous. Female antennal formula: 11(3), 3(3), 13(2), 11(2), 10(2), 10(2), 7.5(2), 7.5(2), 6(3), 6(3), 6(3), 5(3), 9(3). Placodeal sensilla starting at F5.

Mesosoma. Lateral pronotal carinae not dorsomedially projected to form raised tooth (Fig 2c). Pronotal plate smooth. Pronotum smooth, with some scarce transverse carinae; lower half alutaceous, upper half with sparse long hyaline hairs. Mesoscutum completely smooth (Fig 1d), 1.2 times wider than long in dorsal view. Median mesoscutal impression absent. Notauli tenuous, indistinct in anterior half of mesoscutum. Hair line on anterior and lateral margins of scutum absent. Parapsidal signum absent. Scutellum as long as mesoscutum in dorsal view. Interfoveal line absent, dorsal scutellum smooth with indistinguishable scutellar foveae (Fig 1d); scutellum laterally areolate. Laterals pit of scutellar foveae absent. Scutellar spine short and pointed but never distinguished from scutellum, about 1/3 of scutellar length. Scutellar disc in lateral view gradually descending towards terminus of spine. Mesopleural impression narrow, straight, without traces of internal carinae (Fig 2c). Mesopleural triangle coarsely sculptured, glabrous. Propodeum coriaceous and areolate, presence of an irregular median carina.

Wings. Pubescent. Radial cell of forewing closed, 3.8 times longer than wide. R1 complete. Marginal pubescence of wing denser at apical third.

Metasoma. Petiole as long as wide, slightly shorter than third coxa. Petiole dorsally smooth, latero-ventrally costate. Third abdominal tergum as long as fourth tergum in dorsal view. Fifth and sixth abdominal terga not visible from dorsal view.

Male. Same as female, except for longer antenna relative to body, with second to fourth flagellomeres dorsolaterally expanded and placodeal sensilla starting at F1; male antennal formula: 8(2.5), 3(2), 10(2.5), 9(2.5), 9(2.5), 9(2), 8(2), 8(2), 8(2), 8(2), 7.5(2), 7(2), 7(2), 9.5(2). POL:OOL:LOL ratio is 5:4:2; ocelli diameter 2.

Type Material. Holotype ♀ deposited in IAvH with the following labels: "Colombia, Cauca, PNN Munchique, Sector La Romelia, 2°38'N 76°54'W, 2640 m, Malaise, 27.VII-9.VIII.2004: H. Pino leg." (white label); "Holotype ♀ of *A. timidus* desig. Mata-Casanova" (red label). Paratypes (4♀ & 2♂): "1♀, Colombia, Magdalena, PNN Sierra Nevada de Santa Marta, El Ramo, 10°48'N 73°39'W, 2500 m, Malaise, 29.I.15.II.2001: J. Cantillo leg" (deposited in IAvH); "1♀, Colombia, Boyacá, SFF Iguaque, Cabaña Chaina, 5°25'N 73°27'W, 2600 m, Malaise, 30.IV-17.V.2001: P. Reina leg" (deposited in IAvH); "1♀, Colombia, PNN Cueva de los Guácharos, Alto el Mirador, 1°38'N 76°6'W, 1980 m, Malaise, 2-5.XII.2001: D. Campos leg" (deposited in UB); "1♂, Colombia, Valle del Cauca, Farallones de Cali, Cgto. La Meseta, 3°34'N 76°40'W, 2080 m, Malaise, 10-25.IX.2003: S. Sarria & M. Losso leg" (deposited in IAvH); "1♂, Colombia, Valle del Cauca, Farallones de Cali, Cgto. La Meseta, 3°34'N 76°40'W, 2080 m, Malaise, 24.IX-9.X.2003: S. Sarria & M. Losso leg" (deposited in UB); "1♀, Colombia, Cauca, PNN Munchique, Sector La Romelia, 2°38'N 76°54'W, 2640 m, Malaise, 27.VII-9.VIII.2004: H. Pino leg" (deposited in UB).

Derivatio Nominis. The specific name makes reference to the short scutellar spine and the smooth mesoscutum, which is in contrast with the elongated spine and areolate sculpture of mesoscutum that we can see in most species of the genus.

Biology. Unknown.

Distribution. Neotropical. Only collected from Colombia.

Acanthaegilips truncatus Sp.N. Mata-Casanova & Pujade-Villar

Diagnosis. Species very close to *A. exiguus* Ros-Farré & Pujade-Villar, 2003 and *A. huggerti* Sporrang & Ros-Farré, 2013, to which it shares an open radial cell, presence of post-ocular furrow and absence of foveal carinae in scutellar foveae. However, it can be easily distinguished from these species by having a truncated scutellum, shorter than mesoscutum, a character only shared with *A. timidus* sp. n.

(scutellum longer than mesoscutum in the other described *Acanthaegilips* species).

Description. (Female).

Length. Body 2.4–2.6 mm. Wing 2.4–2.8 mm. Antenna 2.3–2.4 mm.

Colour. Head, mesosoma and metasoma black. Antennae yellowish brown, scapus and pedicel darker. Mandibles yellowish brown with darker teeth. Legs yellowish brown, dark brown coxae. Wing veins dark yellowish.

Head. Head glabrous; 1.2 times wider than high in anterior view, 1.9 times wider than long in dorsal view. Malar furrow apparent and curved, connected with post-ocular furrow (Fig 2g). Genal carina absent, occipital carina strong. Malar space times 0.6 times of compound eye height. Transfacial line as long as compound eye height. Diameter of toruli bigger than intertoruli and ocular-torular distance. Compound eyes glabrous. POL:OOL:LOL ratio is 6:5.5:2.5; ocelli diameter 2.

Antennae. Flagellomeres cylindrical, glabrous. Female antennal formula: 11(3.5), 3.5(2), 12(2), 9(2), 8(2), 7.5(2), 7(2.5), 6(2.5), 6(3), 5(3), 5(3), 5(3), 9(3). Placodeal sensilla starting at F2.

Mesosoma. Lateral pronotal carinae not dorsomedially projected to form raised tooth (Fig 2d). Pronotal plate rugose, with a few scattered hairs near dorsolateral margins. Pronotum alutaceous and pubescent, lateral surface with areolate sculpture, stronger in posterior pronotum. Mesoscutum with areolate sculpture (Fig 1b), 1.2 times wider than long in dorsal view. Median mesoscutal impression short, less than ¼ of mesoscutum total length. Notauli complete, comprised by cells (Fig 1b). Hair line on the anterior and lateral margins of the scutum absent. Parapsidal signum present and strong. Scutellum in dorsal view 0.7 times of mesoscutum total length in dorsal view. Scutellar foveae smooth with few irregular sculpture near its posterior margin; absence of internal longitudinal carinae (Fig 1b). Laterals pit of scutellar foveae present. Scutellar spine short, truncated, about 1/3 of scutellar length. Scutellar disc in lateral view gradually descending towards terminus of spine. Mesopleural impression narrow and straight, without traces of any internal carinae (Fig 2d). Mesopleural triangle smooth and sparsely pubescent. Propodeum coriaceous and areolate, presence of an irregular median carina.

Wings. Pubescent. Radial cell of forewing open, 3.3 times longer than wide. R1 complete. Marginal pubescence of wing denser at apical third.

Metasoma. Petiole as long as wide, shorter than third coxa. Petiole dorsally smooth, latero-ventrally costate. Third abdominal tergum as long as fourth tergum in dorsal view. Fifth and sixth abdominal terga not visible from dorsal view.

Male. Same as female, except for longer antenna relative to body, with second to fourth flagellomeres dorsolaterally expanded and placodeal sensilla starting at F1; male antennal formula: 8(3), 3(2.5), 7.5(2), 7.5(2), 8(2), 8(2), 7(2), 7(2), 7(2), 6(2), 6(2), 6(2), 6(2), 8(2). POL/OOL/LOL ratio is 6:5:3; ocelli diameter 2.

Type Material. Holotype ♀ deposited in IAvH with the following labels: “Colombia, Cauca, PNN Munchique, Sector La Romelia, 2°38′N 75°54′W, 2640 m, Malaise, 24.V-9.VI.2004: E. Fino leg” (white label); “Holotype ♀ of *A. truncatus* desig. Mata-Casanova” (red label). Paratypes (1♂ & 1♀): “1♀, Colombia, Boyacá, SFF Iguaque, Cabaña Mamarramos, 5°25′ N 73°27′W, 2855 m, Malaise, 19.IV-6.V.2000: P. Reina leg” (deposited in IAvH); “1♂, Colombia, Boyacá, SFF Iguaque, Qda. Carrizal, 5°25′N 73°27′W, 3350 m, Malaise, 1-23.IX.2000: P. Reina leg” (deposited in UB).

Derivatio Nominis. The specific name makes reference to the short and truncate scutellar spine.

Biology. Unknown.

Distribution. Neotropical. Only collected from Colombia.

Discussion

The four newly discovered species expand the morphological characters associated with *Acanthaegilips*. *Acanthaegilips truncatus* sp. n. has a strong areolate mesoscutum, like most of *Acanthaegilips* species (Ros-Farré *et al* 2003, Mata-Casanova & Pujade-Villar 2013a, 2013b); however, the scutellar spine is truncate and shorter than the total length of the mesoscutum (Figs 2c and 4e), a feature that casts it apart from the rest of areolate *Acanthaegilips* species. The other three species, *A. timidus* n. sp., *A. boyacensis* n. sp. and *A. curvis* n. sp., have a smooth mesoscutum with incomplete notauli (Fig 1a–c); this feature has never been previously seen in *Acanthaegilips*: the previously described species of the genus had either an areolate mesoscutum or carinate one (Pujade-Villar *et al* 2009a) and always presented complete notauli.

The three species with smooth mesoscutum can be divided into two categories according to the shape and length of the scutellar spine. While *A. timidus* n. sp. has a short scutellar spine (Fig 1a) (like *A. truncatus* n. sp.), *A. boyacensis* n. sp. and *A. curvis* n. sp. have a longer scutellar spine like in the rest of the *Acanthaegilips* species (Fig 1b, c). This characteristic is not

enough to consider as theme to be of different species; it is not strange to see sexual dimorphism regarding the radial cell in *Acanthaegilips* (Ros-Farré *et al* 2000) and taking into account that the two specimen studies belong to different sexes, it was difficult to assess if they are of different species. However, there are also differences regarding the malar area: while *A. boyacensis* n. sp. presents a slightly curved malar furrow and lacks post-ocular furrow, *A. curvis* n. sp. presents both malar and post-ocular furrow, the first being strongly curved and connected to the former. This feature is not due to sexual dimorphism and has taxonomic importance, hence separating the specimens in two different species.

Considering that the last species key for *Acanthaegilips* is the one found in Ros-Farré *et al* (2003), we thought that an updated key of the genus should be included, taking into account the species described since then and the interesting morphological features they present.

The bulk of known *Acanthaegilips* species diversity is located in Venezuela and Colombia—most probably due to a collection bias. The description of these four new species increases the Colombian *Acanthaegilips* diversity to 11 species, surpassing Venezuela as the country with the most species of this genus. Despite being only found in Colombia, it is very plausible for these species to have a larger distribution area. More research should be done in order to confirm this statement and unveil more aspects about their biology that remain unknown for now.

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Nomenclature ZooBank registration can be found for *A. boyacensis*: <http://zoobank.org/urn:lsid:zoobank.org:act:00528B91-53D7-4D4F-9EE4-901BF5B1E218>; *A. curvis*: <http://zoobank.org/urn:lsid:zoobank.org:act:F95792F9-3CoB-41C4-A62D-F298B439FBFE>; *A. timidus*: <http://zoobank.org/urn:lsid:zoobank.org:act:6ADA87D4-BDBA-4C5D-BB37-17A7FB9A9C3E>; *A. truncatus*: <http://zoobank.org/urn:lsid:zoobank.org:act:88C5E5E1-453F-4FD2-8706-ADCE4057E5D6>.

References

- Cave RD, Miller GL (1987) Notes on *Anacharis melanoneura* (Hymenoptera: Figitidae) and *Charitopes mellicornis* (hymenoptera: Ichneumonidae) parasitizing *Micromus posticus* (Neuroptera: Hemerobiidae). *Entomological News* 98:211–216
- Díaz NB (1979) Himenópteros Neotropicales parasitoides de Neuropteros I, Cynipoidea. *Revista de la Sociedad Entomológica Argentina* 38(1–4):21–28
- Fergusson NDM (1985) British species of the parasitic cynipid wasp genus *Aegilips* (Hymenoptera: Cynipoidea, Anacharitinae). *J Nat Hist* 19: 811–818
- Kierych E (1984) Notes on the genus *Prosynapsis* D. T. et Kieff. (*Synapsis* Först) with a list of *Anacharis* Dalm. Species occurring in Poland

- (Hymenoptera, Cynipoidea, Anacharitidae). *Annales Zoologici* 37(11): 335–339
- Mata-Casanova N, Pujade-Villar J (2013a) *Acanthaegilopsis malagasy* gen. n. and sp. n. Of Anacharitinae (Hymenoptera: Cynipoidea: Figitidae) from Madagascar and the Comoros. *African Entomology* 21(1):161–164
- Mata-Casanova N, Pujade-Villar J (2013b) Nuevas aportaciones al conocimiento de *Acanthaegilips* en Colombia (Hymenoptera: Figitidae: Anacharitinae). *Revista colombiana de Entomología* 39(1):71–75
- Mata-Casanova N, Selfa J, Arcaya E, Sosa F, Tormos J, Pujade-Villar J (2014) First host record for *Acanthaegilips* (Hymenoptera: Figitidae: Anacharitinae) and description of a new species from Venezuela. *Fla Entomol* 97(2):461–464
- Miller GL, Lambdin PL (1985) Observations on *Anacharis melanoneura* (Hymenoptera: Figitidae), a parasite of *Hemerobius stigma* (Neuroptera: Hemerobiidae). *Entomological News* 96:93–97
- New TR (1979) An Australian species of *Xyalaspis* Hartig (Hymenoptera: Figitidae). *J Aust Entomol Soc* 18:177–180
- Paretas-Martínez J, Restrepo-Ortiz CX, Buffington M, Pujade-Villar J (2011) Systematics of Australian Thrasorinae (Hymenoptera, Cynipoidea, Figitidae) with descriptions of Mikeiinae, new subfamily, two new genera, and three new species. *Zookeys* 108:21–48
- Pujade-Villar J, Restrepo-Ortiz CX, García JL, Ros-Farré P (2009a) Redescrición de *Acanthaegilips* Ashmead 1897 y descripción de dos nuevas especies (Figitidae: Anacharitinae). *Dugesiana* 16(2):57–65
- Pujade-Villar J, Restrepo-Ortiz CX, Ros-Farré P, García JL (2009b) *Acanthaegilips* Ashmead, 1897 (Cynipoidea, Figitidae: Anacharitinae) de Venezuela. *Entomotropica* 24(1):23–30
- Restrepo-Ortiz CX, Ros-Farré P, Díaz NB, García JL, Pujade-Villar J (2010) Nuevos aportes al conocimiento del género *Acanthaegilips* (Hymenoptera: Figitidae). *Revista de la Sociedad Entomológica Argentina* 69(1–2):09–16
- Richards OW (1977) Hymenoptera. . In: *Handbooks for the identification of British insects*. 2nd Edn. 6(1): 1–100. British Museum and Royal Entomological Society, London
- Ronquist F (1995) Phylogeny and early evolution of the Cynipoidea (Hymenoptera). *Syst Entomol* 20:309–335
- Ros-Farré P, Ronquist F, Pujade-Villar J (2000) Redescription of *Acanthaegilips* Ashmead, 1897, with characterization of the Anacharitinae and Aspiceratinae (Hymenoptera: Cynipoidea: Figitidae). *Zool J Linnean Soc* 129:467–488
- Ros-Farré P, Sporrang M, Ronquist F, Pujade-Villar J (2003) Revision of the Neotropical genus *Acanthaegilips* (Hym., Cynipoidea, Figitidae). *Papéis Avulsos de Zoologia* 43(2):11–30