

Research articleSubmitted: April 8th, 2019 - Accepted: September 4th, 2019 - Published: November 15th, 2019**New genera, species, and records of Trichogrammatidae
(Hymenoptera: Chalcidoidea)**

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Abstract

The following new genera and species are described: *Adryas indica* sp. nov., *Chaetogramma* (*Chaetogrammina*) *asensillatum* sp. nov., *Chaetostricha brevifuniculata* sp. nov., *Chaetostricha huberi* sp. nov., *Haeckeliana africana* sp. nov., *Haeckeliana bicornis* sp. nov., *Haeckeliana brevimarginata* sp. nov., *Haeckeliana densiciliata* sp. nov., *Haeckeliana ipersensillata* sp. nov., *Haeckeliana longiterbrata* sp. nov., *Haeckeliana macrosensillata* sp. nov., *Haeckeliana malaysiana* sp. nov., *Haeckeliana pachivenata* sp. nov., *Haeckeliana trilingisensillata* sp. nov., *Hayatia longicornis* sp. nov., *Hydrophylita pacifica* sp. nov., *Indonesiagramma bistigmatum* gen. nov., sp. nov., *Masnerigramma sinicum* gen. nov., sp. nov., *Oligosita dolichogaster* sp. nov., *Oligosita kenyota* sp. nov., *Oligosita microciliata* sp. nov., *Probrachista biclavata* sp. nov., *Probrachista longiciliata* sp. nov., *Probrachista triclavata* sp. nov., *Pseudogrammina bifasciatipenne* sp. nov., *Pseudogrammina longifrangata* sp. nov., *Pseudoligosita biclavata* sp. nov., *Pseudoligosita ipersensillata* sp. nov., *Pseudoligosita macrosensillata* sp. nov., *Trichogramma unicum* sp. nov. New data and records are reported for *Chaetogramma caudata* (De Santis) and *Probrachista nepalensis* Viggiani.

Key words: egg parasitoid, *Adryas*, *Chaetogramma*, *Chaetostricha*, *Haeckeliana*, *Hayatia*, *Hydrophylita*, *Indonesiagramma*, *Masnerigramma*, *Oligosita*, *Probrachista*, *Pseudogrammina*, *Pseudoligosita*, *Trichogramma*.

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Introduction

The family Trichogrammatidae (Hymenoptera: Chalcidoidea) includes internal egg parasitoids of several orders of insects, mostly Hemiptera, Coleoptera, Lepidoptera and Diptera. Although widely distributed, their small size (from about 0.2 mm to 1.5 mm) and fragility make their collecting and study difficult. At present about 100 genera are recognized, including 1006 valid species (Noyes 2019); *Trichogramma* Westwood (241 spp.) and *Oligosita* Walker (97 spp.) are the largest (Noyes 2019).

Through the courtesy of John Huber, I have received, on loan for study, the unidentified material (461 pinned specimens) of Trichogrammatidae (Hymenoptera: Chalcidoidea) deposited in the Canadian National Collection of Insects, Ottawa, Canada. The study of this valuable material revealed undescribed taxa and interesting new records, reported in the present paper.

Material and methods

The specimens studied were slide-mounted in Canada balsam phenol, but some of them were kept and examined also on pin cards. All the material was examined under a

Leica stereoscope and a Zeiss Axiophot with phase contrast. Both instruments were used also to take pictures by a Canon Powershot 545. The nomenclature follows Doutt & Viggiani (1968) and Pinto (2006). The following terms and acronyms are used:

BPS	basiconic peg sensillum
C	club segment
CU1	first branch of cubital vein track
CU2	second branch of cubital vein track
F	funicular segment
FS	flagelliform setae
M	median vein track
MV	marginal vein
PLS	placoid sensilla
PM	premarginal vein (= parastigma)
PSM	postmarginal vein
R	radius
r-m	crossvein track
RP	radial process
RS	recurved sensillum
RS1	radial sector (vein track 1 st Abcissa)
RS2	radial sector (vein track 2 nd Abcissa)
SC	subcostal vein
SV	stigmal vein
3V	third valvula of the ovipositor.

All type material of the new species described in this paper will be deposited in the Canadian National Collection of Insects, Ottawa, Canada.

Results

Adryas Pinto and Owen, 2004

The genus *Adryas* includes 11 species (Noyes 2019), characterized by a female antenna without funicle, with 3-5 segmented club, but never with 5 segments completely separated; fore wing with MV and PM confluent. Species currently described are distributed in the Central and South American tropics.

Adryas indica sp. nov.

(Figs 1-2)

Diagnosis. Antenna with club very short, 1.3× as long as wide, with 5 asymmetrical segments, C5 as long as C2 with a subtrapezoidal profile, slightly longer than wide (20:18) and apically with a subcylindrical end, bearing a seta three times longer; distal margin of the last segment, just below the apical seta, with a patch of about 16 RS, as long as C5. Fore wing 1.9× as long as wide, PM slightly wider than the distal end of MV, about twice as long as wide and bearing 2 rather long setae, MV with 4 marginal main setae; disc moderately setose with about 18 setal tracks and several scattered setae mostly at beginning of discal ciliation; ovipositor short, slight longer than hind tibia (50:45), inserted at the middle of gaster and not extruded.

Description. Female. Body dark brown, legs with the two basal tarsomeres light yellow; fore wing with brownish veins and dusky behind venation, except a lighter area behind PM and base of MV. Length: 0.8 mm. Maxillary palp about 3 times as long as wide, with a peg-like sensillum as long as half apical seta, inserted near the distal margin. Antenna with scape 3× as long as wide, pedicel 0.7× as long as scape, club very short, 1.3× as long as wide, with 5 asymmetrical segments, C1 transverse, 3× as wide as long, C2 slightly wider than C1 but twice longer, C3 and C4 shorter than C1, C5 as long as C2 with a subtrapezoidal profile, longer than wide (20:18) and apically with a subcylindrical end, bearing a seta 3× longer; 1, 2, 2 PLS respectively on C1, C2, C3 and 3 on C5; distal margin of the last segment, just below the apical seta, with a patch of about 16 RS, as long as C5. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae, and surface with a sculpture of subpolygonal cells, rather transversely oriented to the mid line of the sclerite; propodeal disc sutrapezoidal. Fore wing 1.9× as long as wide, ratios PM, MV, SV, 18:23:16, PM slightly wider than the distal end of MV, about twice as long as wide and bearing 2 rather long setae, MV with 4 marginal main setae; disc moderately setose with about 18

setal tracks and several scattered setae mostly at beginning of discal ciliation, one single seta on the membrane between PM and beginning of discal ciliation, RS1 present; fringe longest setae one-eighth of the discal width. Legs normal with subequal tarsomeres and mid spur as long as basitarsomere. Gaster conic-ovate, longer than mesosoma (10:6); ovipositor short, slight longer than hind tibia (50:45), inserted at the middle of gaster and not extruded.

Taxonomic remarks. This is the first record of the genus from the Oriental region. The new species can be assigned to Group A by Pinto & Owen (2004) of the rather broad genus *Adryas*, for having asymmetrical antennae and a patch of recurved setae on terminal club segment. Among the four species included in this group, *A. indica* shows the antennae with a terminal patch of long RS as in *A. plurifumosa*, but differs in having distinct club features, exhibiting also differences in wing venation (MV and PM not confluent) and shape of the propodeal disc.

Etymology. Named in reference to the country where the species was collected.

Material examined. Holotype ♀ (slide), **India:** Arunachal Pradesh, Etalin environs, 700 m, 28°36'56''N, 95°53'21''E, 19-25.v.2012, L. Dembický lgt.

Chaetogramma Doult, 1975

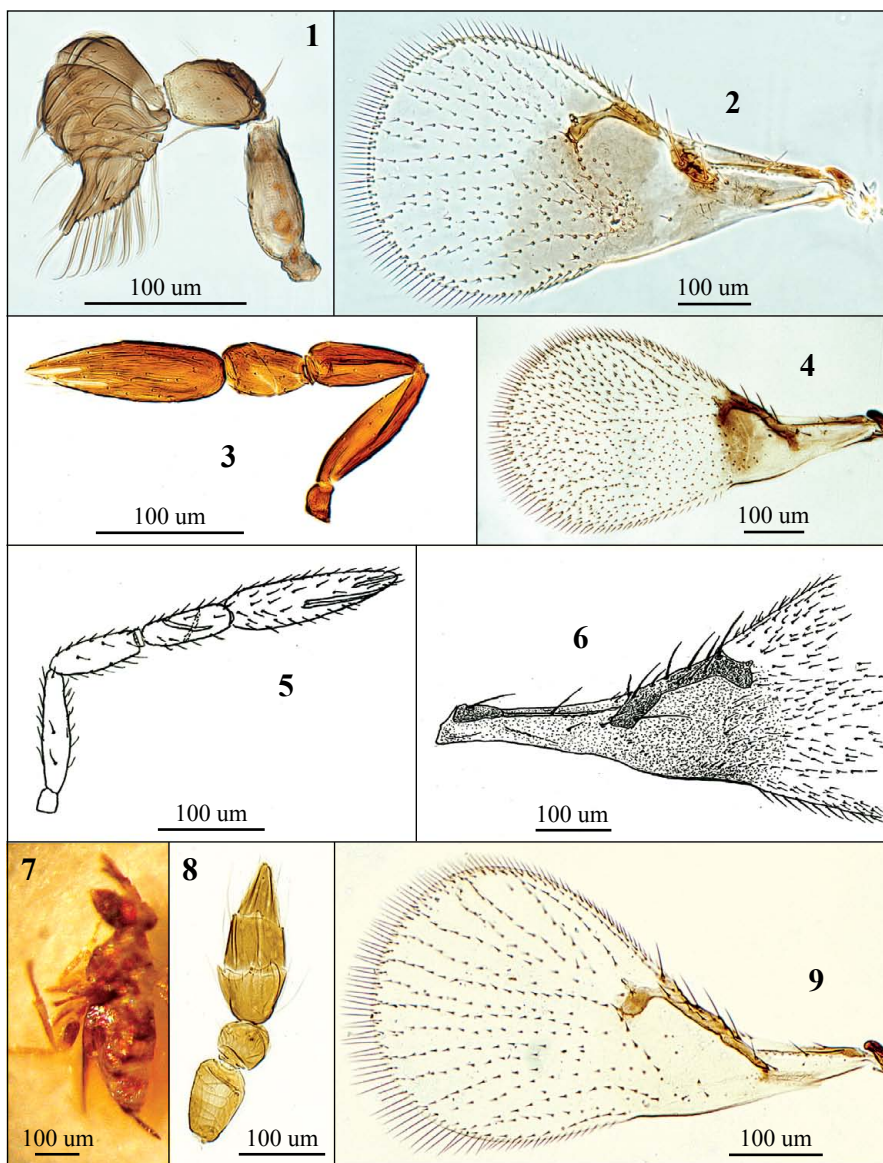
The genus *Chaetogramma* is characterized by female antenna with 1-2 segmented funicle and unisegmented club. Fore wing densely setose. 6 species, recorded from Asia, Africa, North and South America, are known.

Chaetogramma (Chaetogrammina) asensillatum sp. nov.

(Figs 3-4)

Diagnosis. Funicular segment transversely divided, without PLS; veins with MV 3× as long as wide, at base without a poorly sclerotized trait, light in color, same as the apex of the PM.

Description. Female. Body dark brown, fore wing hyaline, veins brown, blade below the veins infuscated, more marked below the base of the PM and the SV; first two basal tarsomeres of the legs lighter. Length: 0.6 mm. Antenna with pedicel one-third longer than funicle, the latter transversely divided in a cup-shaped F1 and a transverse F2, both without PLS; club as long as pedicel and funicle combined; distal third of the club with 3-4 PLS. Mesosoma shorter than metasoma (5:7). Mid lobe of mesoscutum and scutellum each with 2 pairs of setae, both with a faint reticulation. Propodeum short in the middle; as long as metanotum. Fore wing twice as long as wide, MV longer than PM (15:11), disc rather densely setose, with linear setal tracks RS2 and r-m indicated, RS1 not distinct, fringe short, one eighth of the discal width. Gaster ovate,



Figs 1-9 – *Adryas indica* sp. nov., female. **1**, antenna; **2**, fore wing. *Chaetogramma* (*Chaetogrammina*) *asensillatum* sp. nov, female. **3**, antenna; **4**, fore wing. *Chaetogramma caudata* (De Santis), female. **5**, antenna; **6**, fore wing. *Chaetostricha brevifuniculata* sp. nov, female; **8**, antenna; **9**, fore wing.

with ovipositor rather short, not extruded, 1.5× as long as hind tibia; hypogynium extended to the basal half of the ovipositor.

Taxonomic remarks. Most of the variations of the *Chaetogramma* species concern the funicle of the antenna, which can be uni-segmented, partially or completely bisegmented. The new described species belongs to the latter group as do *C. hisarense* Yousuf and Shafee and *C. maculata* Hayat. From these species and the other known species *C. asensillatum* differs mostly by the shape of the two funicular segments and the absence of PLS on them. The subgenus *Chaetogrammina* is here recorded the first time for the New World.

Etymology. The species name refers to the lack of PLS on funicle segments.

Material examined. Holotype ♀ (slide), USA: California, San Bernardino County, 7 mi. E Phelan, Baldy Mesa road, 16-22.v.1981, J.T.Huber lgt.

Chaetogramma caudata (De Santis, 1997)
(Figs 5-6)

Additional notes. This species was described in the new genus *Brachistagrapha* by De Santis (1997), subsequently synonymized with *Chaetogramma* Doult by Pinto & Viggiani (2004). After the study of the typical material the

following notes are added: antenna with funicle partially and transversally divided in two segments and with 1 PLS; fore wing with MV at base poorly sclerotized, distally enlarged as the sessile SV; ovipositor slightly exerted, 1.5× as long as hind tibia; body length 0.82 mm. This species is near *C. occidentalis* Doult, from which differs mostly for the longer funicle.

Material examined. Holotype ♀ (slide), **Argentina:** Loreto, Misiones, R. A., 10 April 1936, A. Ogloblin lgt; paratype: 1 ♀ same data of the holotype, except 17 April 1936.

Chaetostricha Walker, 1851

The genus *Chaetostricha* includes 24 species widespread, except in Central and South America (Pinto 2006; Noyes 2019). They are characterized by having antenna with 2-segmented funicle and 3-segmented antenna; front tibia with one or more spines; male genitalia simple, tubular.

Chaetostricha brevifuniculata sp. nov.

(Figs 7-9)

Diagnosis. Female. Antenna with a subglobular funicle; fore wing 1.8× as long as wide; fore tibia with one prominent spine; ovipositor extending from level of middle coxae and exerted one-fourth the length of the gaster, 3.6× as long as hind tibia; hypogynium long, extending to the end of gaster.

Description. Female. Body yellowish brown, gaster with 3-4 darker stripes; fore wing hyaline with a faint infuscation below the veins; legs lighter from tibiae. Length: 0.7 mm. Antenna with pedicel twice as long as funicle, the latter subglobular, with F1 discoidal, club longer than pedicel and funicle combined (20:15); club with segments of the same length and wider at level of distal part of C1. Mesosoma shorter than metasoma (7:13); midlobe of mesoscutum and scutellum each with 2 pairs of setae and striate sculpturing; metanotum and propodeum medially short. Fore wing typical of the genus, 1.8× as long as wide, MV one-third longer than PM; disc with 17 rows of setae and fringe one-eighth of its width. Legs with subequal tarsomeres. Gaster conic-ovate with long ovipositor extending from the level of middle coxae, 3.6× as long as hind tibia, exerted one-fourth the length of the gaster.

Taxonomic remarks. Of the known species of *Chaetostricha*, only *C. thanatophora* Pinto is described from North America (Pinto 1990). *C. brevifuniculata* differs considerably from this species by the subglobular funicle, longer ovipositor and hypogynium.

Etymology. The name refers to the short funicle.

Material examined. 1 ♀ (slide), **USA:** California, San

Bernardino County, 7 mi. E Phelan, Baldy Mesa road, 16-22. v.1981, J. T. Huber lgt.

Chaetostricha huberi sp. nov.

(Figs 10-12)

Diagnosis. Antenna with a subcylindrical funicle; fore wing 2.1× as long as wide; fore tibia with one prominent spine; ovipositor inserted at base of the gaster and exerted only one-fifth of the gaster length, 2.4× as long as hind tibia; hypogynium long, extending beyond the end of gaster.

Description. Female. Body dark brown, fore wing hyaline with faint infuscation below the veins; legs with distal part of the tibiae and tarsomeres lighter. Length: 0.9 mm. Antennal funicle subcylindrical, with F1 short, about one-third of F2; club 1.3× as long as pedicel and funicle combined. Mesosoma shorter than metasoma (10:18); mid lobe of mesoscutum and scutellum each with 2 pairs of setae and a longitudinally reticulate sculpture. Metanotum and propodeum medially short. Fore wing 2.1× as long as wide, MV twice as long as PM, discal setae rather dense, arranged in more than 17 rows not all complete and distinct. Ovipositor extending from the base of the conic gaster and exerted one-fifth of the gaster length, 2.4× as long as hind tibia, hypogynium long, extending beyond the end of gaster.

Taxonomic remarks. The new species is near *C. brevifuniculata* but differs by the subcylindrical funicle, longer fore wing, shorter ovipositor and hypogynium, extending beyond the end of gaster. From *C. thanatophora* Pinto (Pinto 1990) the new species differs for having one prominent spine on front tibia (3-5 in *C. thanatophora*), hypogynium long, extending beyond the end of gaster (in *C. thanatophora* relatively short, extending about half abdominal length). The comparison of the new described species *C. brevifuniculata* and *C. huberi* with most of the Palearctic species is at present unfeasible because their poor description and availability of type material.

Etymology. The species is named after the collector J. T. Huber.

Material examined. 1 ♀ (slide), **USA:** California, San Bernardino County, 7 mi. E Phelan, Baldy Mesa road, 16-22. v.1981, J. T. Huber lgt.

Haeckeliana Girault, 1912

The genus *Haeckeliana* is distinguished by the antenna without funicle and a five-segmented club, with PLS largely (females) or completely (males) free on the antennal surface; two-segmented maxillary. At present 11 species are known from several regions of the world (Australia, Asia, North and South America), except Europe (Noy-

es, 2019). According to Pinto (2005) there are two general phenotype of *Haeckeliana* species in the New World, one characterized by the body compact, gibbous, dark brown as in *H. minuta* Viggiani and another with the body more slender and lighter in color as in *H. sperata* Pinto.

***Haeckeliana africana* sp. nov.**

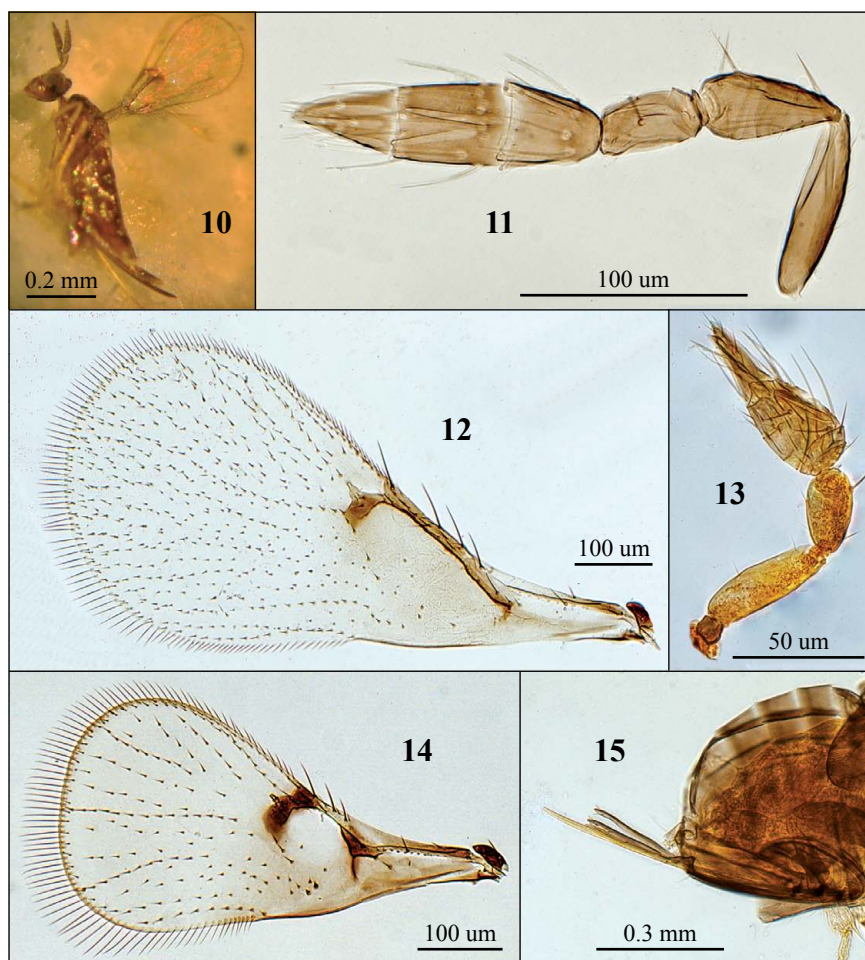
(Figs 13-15)

Diagnosis. Antenna without PLS like robust FS; fore wing with a rather wide disc, 1.8× as long as wide, MV longer than PM (14:9), RP as long as SV, disc with rows of setae widely separated by bare areas; gaster round ovate, ovipositor 2.8× as long as hind tibia, extruded about half of gaster length, 3V narrow, about 14× as long as wide; body colour yellow brown, fore wing faintly infuscated with a brown spot on the SV.

Description. Female. Body yellowish brown, fore wing hyaline with faint infuscation below the veins, but with a marked brown spot on SV; legs with distal part of the tib-

iae and tarsomeres 1 and 2 lighter. Length: 0.6 mm. Antenna with scape 3× as long as wide, 1.5× as long as pedicel, club conical, 2.6× as long as wide, C1 laminar, C2 short, slightly longer than C1, C3 transverse, 3× as long as C2, C4 a little shorter and narrower than C3, C5 tapering twice as long as wide, C3-C5 with some PLS and long FS. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with a longitudinally reticulate sculpture; placoid sensilla on scutellum located at about middle level between the two pairs of setae. Metanotum and propodeum medially short. Fore wing with a rather wide disc, 1.8 times as long as wide, MV longer than PM (14:9), RP as long as SV; disc with rather sparse ciliation, arranged in 12-13 rows of setae widely separated by bare areas; longest fringe setae one-fifth of the discal width. Metasoma slightly shorter than mesosoma. Gaster ovate; ovipositor extending from its base, extruded about half of gaster length, 3V narrow, about 14 times as long as wide.

Taxonomic remarks. The antenna of the new species *H. africana* has the club segments without PLS like strong FS



Figs 10-15 – *Chaetostricha huberi* sp. nov., female. **10**, habitus; **11**, antenna; **12**, fore wing. *Haeckeliana africana* sp. nov., female. **13**, antenna; **14**, fore wing; **15**, gaster.

as in *C. magna* Girault, *C. magniclavata* Yousuf & Shafee, but both species show not exerted ovipositor and other different characters. This is the first record of the genus from Africa.

Etymology. After the name of the continent where the species was collected.

Material examined. Holotype ♀ (slide), **Republic of South Africa:** Northwest Province, Sun City environs, 23-25.i.2006, L. Masner lgt.

***Haeckeliana bicornis* sp. nov.**
(Figs 16-17)

Diagnosis. Antenna with club conical, 2.8× as long as wide, C1 short and transverse, C2 asymmetrical, twice wide than long with 1 PLS emerging externally to the segment, C3 asymmetrical, slightly longer than C2 with 1 emergent PLS reaching the end of C4, the latter is as long as wide and 1 PLS reaching the half of C5; this segment is very narrow, twice as long as wide, appearing branched, with 2 basal PLS like FS and 1 distal PLS that with the distal part of C5 forms a fork. Fore wing 1.8× as long as wide, MV about as long as PM, both respectively enlarged toward the distal and the basal end, disc with 18-20 rows of setae widely separated by bare areas; longest fringe setae about one-ninth of the discal width. Gaster conic-ovate, ovipositor not extruded, 1.6× as long as the hind tibia.

Description. Female. Body brown, fore wing hyaline, with faint infuscation below the veins, legs with distal part of tibiae and tarsi lighter. Length: 0.5 mm. Antenna with scape twice as long as pedicel, which is rather suboval, club conical, 2.8× as long as wide, C1 short and transverse, C2 asymmetrical, twice wide than long with 1 PLS emerging externally to the segment, C3 asymmetrical, slightly longer than C2 with one emergent PLS reaching the end of C4, the latter is as long as wide and with 1 PLS reaching the half of C5; this segment is very narrow, twice as long as wide, appearing branched, with 2 basal PLS like FS and 1 distal PLS that with the distal part of C5 forms a fork; C3 and C4 with some long FS. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with a longitudinally reticulate sculpturing; placoid sensilla located at level of the first pair of setae on scutellum. Metanotum and propodeum medially short. Fore wing 1.8× as long as wide, MV about as long as PM, both respectively enlarged toward the distal and the basal end, MV with 3 marginal main setae and 4-5 on the vein; RP slightly shorter than SV, the latter sessile, as long as the distal width of the MV; disc with 18-20 rows of setae widely separated by bare areas; longest fringe setae about one-ninth of the discal width. Gaster conic-ovate, ovipositor not extruded, 1.6× as long as the hind tibia.

Taxonomic remarks. The new species *H. bicornis* has antennal club similar to *H. nigra* Lin and *H. longituba* Lin, but in the mentioned species the terminal segment is not apparently bifid and the ovipositor is extruded.

Etymology. After the shape of terminal club segment.

Material examined. Holotype ♀ (slide), **Bolivia:** Santa Cruz, 5 Km SSE Buena Vista, 440 m, 17°29'925''S, 63°39'128''W, 15-24.xii.2003, S. and J. Peck lgt.

***Haeckeliana brevimarginata* sp. nov.**
(Figs 18-20)

Diagnosis. Similar to *H. bicornis*, but C1-C4 more transverse, combined 1.4× as long as wide (in *H. bicornis* 1.6×). Fore wing 1.6× as long as wide; MV 0.6× as long as PM, with 3 marginal main setae and a cluster of 7-8 setae on the vein. Ovipositor not extruded, 1.8× as long as the hind tibia.

Description. Female. Body chestnut brown, antennae greyish, fore wing hyaline with MV and SV dark brown and with a faint infuscation below the veins, legs with light tarsi. Length: 0.5 mm. Antenna as in *H. bicornis*, but C1-C4 more transverse, combined 1.4× as long as wide (in *H. bicornis* 1.6× as long as wide). Fore wing 1.6× as long as wide; MV 0.6× as long as PM, with 3 marginal main setae and a cluster of 7-8 setae on the vein. Ovipositor not extruded, 1.8× as long as the hind tibia.

Taxonomic remarks. For the short marginal vein and the not exerted ovipositor, the new species *H. brevimarginata* is similar to *H. magna* Girault, but in the latter species the antennal club is longer and without PLS like robust FS.

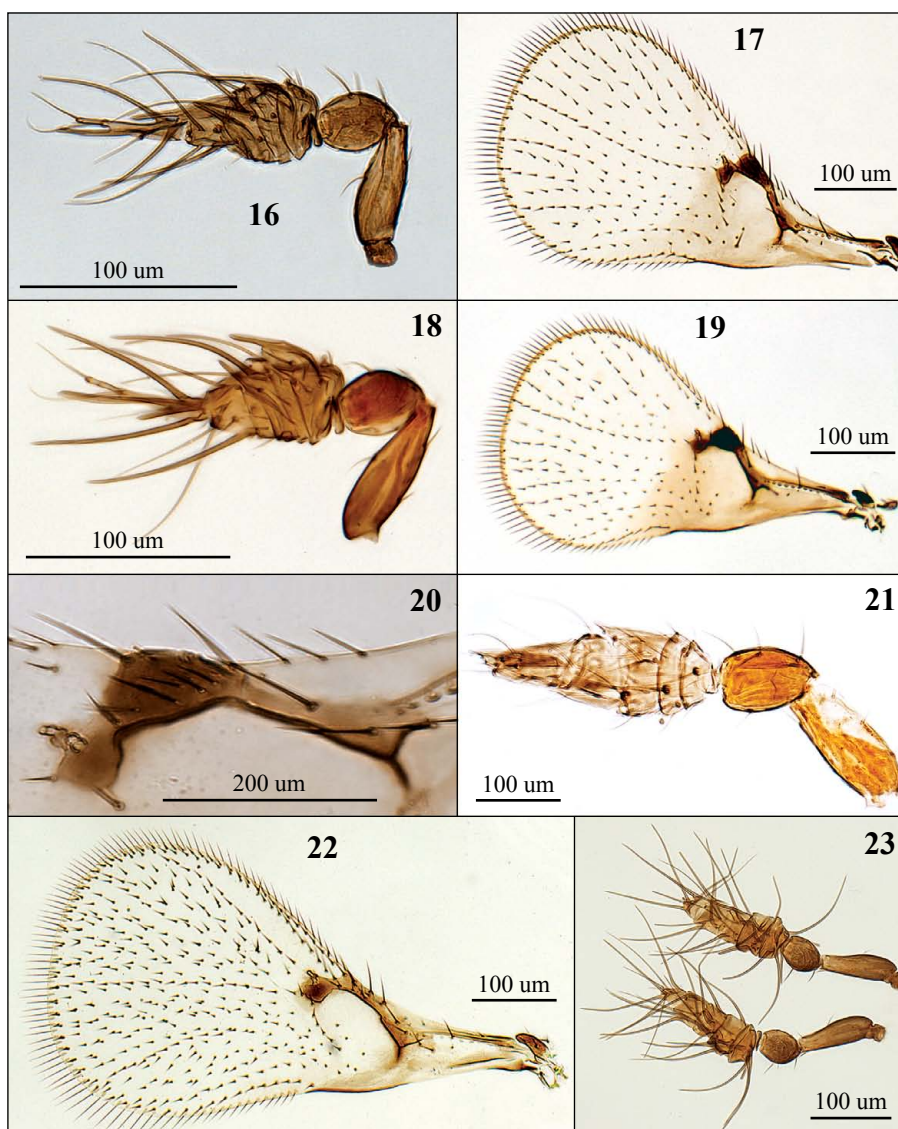
Etymology. After the short marginal vein.

Material examined. 1 ♀, **French Guyana:** Kaw Mountains, Patawa, 4° 35.562'N, 52° 12.425'W, 20.xi-11.xii.2006, K. Sarv lgt.

***Haeckeliana densiciliata* sp. nov.**
(Figs 21-22)

Diagnosis. Antenna without PLS like FS, fore wing with disc uniformly setose and only 5 regular rows; RP shorter than SV, gaster conic-ovate, ovipositor twice as long as the hind tibia, extending from its base and extruded for about one-fourth of the gaster length, with 3V short, about 4.6× as long as wide; body colour yellow brown; without brown spot near SV.

Description. Female. Body yellow brown, fore wing hyaline with faint infuscation below veins, legs lighter than body. Length: 0.5 mm. Antenna with scape short, twice as



Figs 16-23 – *Haeckeliana bicornis* sp. nov., female. **16**, antenna; **17**, fore wing. *Haeckeliana brevimarginata* sp. nov., female. **18**, antenna; **19**, fore wing; **20**, particular of veins. *Haeckeliana densiciliata* sp. nov., female. **21**, antenna; **22**, fore wing. *Haeckeliana ipersensillata* sp. nov., male. **23**, antenna.

long as wide, 1.3× as long as pedicel, club conical, 2.5× as long as wide, C1 not laminar, twice as long as wide, C2 transverse, same length of C1, C3 twice as long as C2, C4 as long as wide, C5 conical, about twice as long as wide, C3-C5 each with 1-2 PLS shortly emerging externally; FS relatively short, a few on C4, not longer than C5. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with longitudinally reticulate sculpturing; placoid sensilla on scutellum located at about middle level between the two pairs of setae. Metanotum and propodeum medially short. Fore wing 1.75× as long as wide, MV relatively narrow, 3 times as long as wide, as long as PM, SV petiolate; RP shorter than SV; disc uniformly setose, with RS1 marked as also RS2, r-m, M, CU1 and CU2; longest fringe setae one-eighth of discal width. Gaster conic-ovate,

ovipositor twice as long as the hind tibia, extending from its base and extruded, for about one-fourth of the gaster length, with 3V short, about 4.6× as long as wide.

Taxonomic remarks. For body color *H. densiciliata* appears rather similar to *H. sperata* Pinto, but the new species differs in details of the antennal club, fore wing ciliation and the slightly exerted ovipositor.

Etymology. The name species refers to the density of the setae on the fore wing disc.

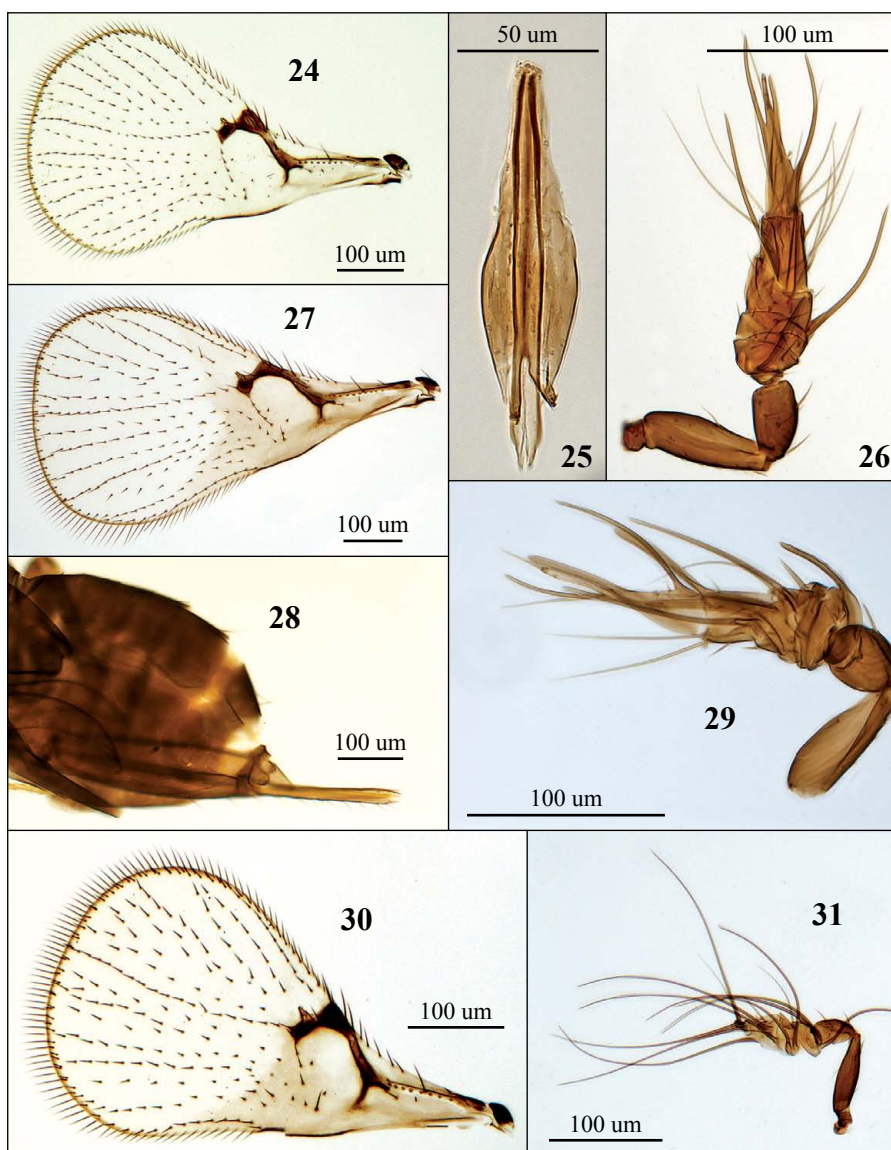
Material examined. Holotype ♀ (slide), **Republic of South Africa:** Kruger National Park, Skukuza, 15-18. xii.1985, M. Sandborne lgt.

***Haeckeliana ipersensillata* sp. nov.**

(Figs 23-25)

Diagnosis. Antenna with club 5-segmented, as long as scape and pedicel combined, C1 and C2 transverse, half as long as wide, C3 and C4 slightly longer and narrower, C5 conic about as long as the preceding C4, all segments with several PLS like long FS. Fore wing large, 1.6× as long as wide, MV short and subtriangular, shorter than PM (9:13), setae on the disc arranged in 18 rows well differentiated by bare interspace. Genitalia with elongate genital capsule, pointed parameres, narrow volsellae, with two small digital spines, aedeagus with long apodemes, twice as long as its body.

Description. Male. Body dark brown, fore wing hyaline, legs with distal end of the tibiae and tarsi light. Length: 0.65 mm. Antenna with scape slightly shorter than twice the pedicel, basal half a bit enlarged, club 5-segmented as long as scape and pedicel combined, C1 and C2 transverse, half as long as wide, C3 and C4 slightly longer and narrower, C5 conic about as long as the preceding C4, all segments with several PLS like long FS. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with longitudinally reticulate sculpturing; placoid sensilla on scutellum located at about middle level between the two pairs of setae. Metanotum and propodeum medially short. Fore wing large, 1.6× as long as wide, MV short and subtriangular, shorter than PM (9:13), SV rather narrow, subrec-



Figs 24-31 – *Haeckeliana ipersensillata* sp. nov., male. 24, fore wing; 25, genitalia. *Haeckeliana longiterebrata* sp. nov., female. 26, antenna; 27, fore wing; 28, gaster. *Haeckeliana macrosensillata* sp. nov., female. 29, antenna; 30, fore wing. *Haeckeliana malaysiana* sp. nov., male. 31, antenna.

tangular, as long as the distal width of the MV; setae on the disc arranged in 18 rows well differentiated by bare interspace. Metasoma slightly longer than mesosoma. Genitalia length 0.15 mm, with elongate genital capsule, pointed parameres, narrow volsellae with two small digital spines, aedeagus with long apodemes, twice as long as its body.

Taxonomic remarks. The new species *H. ipersensillata* appears unique based on the combination of antenna and fore wing characters. At present are known only the males of *H. longicilia* Lou & Cao, *H. orissaina* Hayat and *H. sperata* Pinto (2005). The male of *H. ipersensillata* differs from that of *H. sperata* having antenna more compact, with C5 conic, about as long as the preceding C4, with more PLS on each club segment and MV short, subtriangular, wider than PV.

Etymology. After the numerous sensilla on the antenna.

Material examined. Holotype ♂ (slide), USA: Florida, Alachua County, Gainesville AEI, 29°35'53"N, 82°21'54"W, 6.xi-10.xii.2003, D. B. Wahl lgt.

***Haeckeliana longiterebrata* sp. nov.**
(Figs 26-28)

Diagnosis. Antenna with club conic, 3× as long as wide, first three segments transverse, C4 asymmetric, about twice as long as wide, C5 one-fifth longer than C4; C1 with PLS reaching the distal end of C3, 1 long PLS like FS inserted at base of C3 and C4 as long as C1-C4 combined, C5 with 2 PLS like FS not longer than the mentioned segment; some long setae mostly on C4; fore wing with MV not subtriangular, slightly enlarged distally, shorter than PM; gaster conic-ovate with ovipositor extruded for one-third of the gaster length.

Description. Female. Body dark brown, legs with tarsomeres pallid yellow, fore wing with brownish veins and faintly infuscated Length: 0.6 mm. Antenna with pedicel one-third shorter than scape, club conic, 3× as long as wide, first three segments transverse, C4 asymmetric, about twice as long as wide, C5 one-fifth longer than C4; C1 with PLS reaching the distal end of C3, 1 long PLS like FS inserted at base of C3 and C4, as long as C1-C4 combined, C5 with 2 PLS like FS not longer than the mentioned segment; some long setae mostly on C4. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with surface longitudinally striate. Fore wing 1.8× as long as wide, MV not subtriangular, slightly enlarged distally, shorter than PM (12:15), discal ciliation arranged in 15 rows, mostly with bare interspaces, fringe short, with longest setae one-eighth of the discal width. Gaster conic-ovate, longer than mesosoma (45:30), ovipositor inserted at base of the gaster, 3× as long as hind tibia, and extruded for one-third of the gaster length.

Taxonomic remarks. The new species is near *H. minuta* Viggiani (1992), but differs by the PLS sensilla on the antennal club, the longer MV, the shape of the gaster and the longer extruded ovipositor.

Etymology. After the long ovipositor.

Material examined. Holotype ♀ (slide), Brasil: São Paulo, São Carlos, Canchin Farm, 4-6.i.1996, M. J. Sharkey lgt.

***Haeckeliana macrosensillata* sp. nov.**
(Figs 29-30)

Diagnosis. Antenna with some robust PLS, at least on C1, C4 and C5; fore wing with MV enlarged distally, subtriangular, slight shorter than PM, very short fringe; gaster conic-ovate with ovipositor extruded for one-third of the gaster length.

Description. Female. Body compact, dark brown, distal end of tibiae and tarsi light, fore wing hyaline with brown venation. Length: 0.45 mm. Antenna with scape 3× as long as wide, pedicel one-third shorter than scape, club conic, 2.5× as long as wide, first three segments transverse, C4 as long as wide, C5 twice as long as C4; robust PLS not longer than club length. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with surface longitudinally striate; placoid sensilla on scutellum located at about middle level between the two pairs of setae. Fore wing 1.8× as long as wide, MV enlarged distally, subtriangular, slight shorter than PM (9:10), SV one-third shorter than MV and narrower (5:3), discal ciliation arranged in 16 rows, mostly with bare interspaces, fringe short, with longest setae one-eleventh of the discal width. Gaster conic-ovate, longer than mesosoma (8:7); ovipositor inserted at base of the gaster, about twice as long as hind tibia, and extruded for one-third of the gaster length.

Taxonomic remarks. The new species is near *H. minuta* and *H. pachivenata*, but from the first species differs mostly by robust and long PLS and the distally wider MV and from the latter by the extruded ovipositor and the enlarged MV.

Etymology. From the robust and long club sensilla.

Material examined. Holotype ♀ (slide), French Guyana: Regina Kaw Mountains, Patawa, 4°33.56'N, 52°12.43'W, x.2008, J. A. Cerda lgt.

***Haeckeliana malaysiana* sp. nov.**
(Figs 31-33)

Diagnosis. Antenna with club 5-segmented as long as scape and pedicel combined, C1 and C2 transverse, half

as long as wide, C3 and C4 slightly longer and narrower, C5 conic about as long as the preceding C4, all segments with several PLS like long FS. Fore wing large, 1.6× as long as wide, MV short and subtriangular, shorter than PM (9:13), SV rather narrow, subrectangular, as long as the distal width of the MV; setae on the disc arranged in 18 rows well differentiated by bare interspaces. Genitalia typical of the genus.

Description. Male. Body dark brown, fore wing hyaline, legs with far end of the tibiae and tarsi light. Length: 0.60 mm. Antenna with scape slightly shorter than twice the pedicel, basal half a bit enlarged, club 5-segmented as long as scape and pedicel combined, C1 and C2 transverse, half as long as wide, C3 and C4 slightly longer and narrower, C5 conic, about as long as the preceding C4, all segments with several PLS like long FS. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with a longitudinally reticulate sculpture; placoid sensilla on scutellum located at about middle level between the two pairs of setae. Metanotum and propodeum medially short. Fore wing large, 1.6× as long as wide, MV short and subtriangular, shorter than PM (9:13), SV rather narrow, subrectangular, as long as the distal width of the MV; setae on the disc arranged in 18 rows well differentiated by bare interspaces. Metasoma slightly longer than mesosoma. Genitalia length 0.15 mm, with elongate genital capsule, pointed parameres, narrow volsellae with two small digital spines, aedeagus with long apodemes, twice as long as its body.

Taxonomic remarks. The new species *H. malaysiana* appears unique for the combination of antenna and fore wing characters. Among the species of which is known the male (*H. longicilia* Lou & Cao, *H. orissaina* Hayat, *H. sperata* Pinto, *H. ipersensillata* sp. nov. and *H. trilingisensillata* sp. nov.), *H. malaysiana* is near *H. longicilia* Luo & Cao from China (Lou et al. 1997), but differs by the antennal PLS longer than club length and shorter fore wing fringe.

Material examined. Holotype ♂ (slide), **Malaysia:** Sabah, Danum Valley, Field Centre, 227m, 4.96984°N, 117.80149° E, 5-10.viii.2012, J.H., A.M. & A. W. Skevington lgt.

***Haeckeliana pachivenata* sp. nov.**

(Figs 34-35)

Diagnosis. Antenna with PLS like long FS on club segments and long and narrow C5. Fore wing large, 1.6× as long as wide, with setae in 18 rows separate by bare interspaces; MV and PM short and thick, MV slightly longer and wider than PM, and with a group of 8 setae on the basal half.

Description. Female. Body dark brown, fore wing with MV and SV marked darker than PV, and an infuscation

below the veins; legs with tarsi light. Length: 0.6 mm. Antenna with scape 3× as long as wide, pedicel half length of scape, club conic with C5 very narrow, slightly longer than the preceding segments combined (18:15); C1-C5 transverse and asymmetrical, C2-C5 each with 1-2 PLS extended transversally on the segment and protruding externally; on C3-C5 are present some long PLS like FS. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae rather short and with a longitudinally reticulate sculpturing; placoid sensilla on scutellum located at level nearer the basal pair of seta. Metanotum and propodeum medially short. Fore wing large, 1.6× as long as wide, with setae in 18 rows separate by bare interspaces, MV and PM short and thick, MV slightly longer and wider than PM and with a group of 8 setae on the basal half, SV slightly shorter than MV (10:12) with a rather narrow and long petiole, about as long as stigma. Gaster conic-ovate; ovipositor short, inserted at level of the fifth tergite and sloping toward the dorsum of gaster, 1.5× as long as the hind tibia, not exerted, with 3V very short, about one-sixth of the ovipositor length.

Taxonomic remarks. The new species is unique in having antennal C5 very long and narrow, wide fore wing and peculiar venation.

Etymology. After the thick marginal vein.

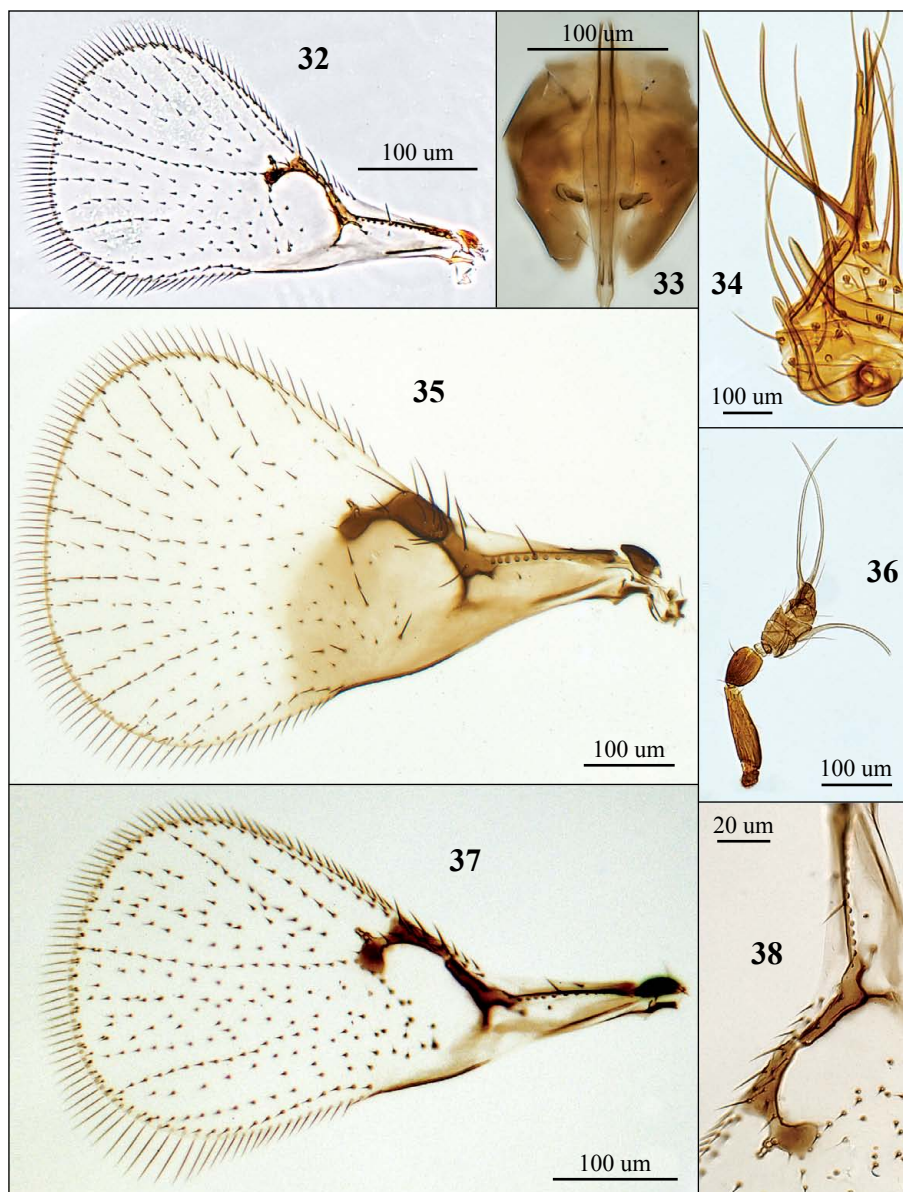
Material examined. Holotype ♀ (slide), **French Guyana:** 18,4 km SSE, Roura, 240m, 29.v-10.vi. 1997, S. Ashe & R. Brooks lgt. Paratype: 1♀, **French Guyana:** 8,4 km SSE Roura, 4°40.69'N, 52°17.47'W, 200m, 25-29.v. 1997, J. Ashe & R. Brooks lgt.

***Haeckeliana trilingisensillata* sp. nov.**

(Figs 36-40)

Diagnosis. Antennal club 5-segmented, rather short, as long as scape and with 3 PLS like FS, one on each of the last three club segments. Fore wing 1.7× as long as wide, MV as long as PM, only slightly enlarged distally as the base of PM; disc with rather sparse setation and with only 7-8 marked rows with bare lateral areas; longest fringe setae one-fifth of the discal width. Genitalia with genital capsule elongate, length 0.17 mm, about as long as the narrow aedeagus; apodemes of the latter as long as its body; parameres pointed, volsellae with two strong and curved digital spines; intervolsellar process present.

Description. Male. Body dark; fore wing hyaline; legs with distal part of tibiae and tarsi pale. Length: 0.4 mm. Antenna with scape 3.3× as long as wide, pedicel half of the scape, club 5-segmented, short as long as scape, twice as long as wide, C1 and C2 transverse and asymmetrical, C3 largest 3 times as long as wide, C4 twice as long as wide, C5 conical as long as C4, last three club segments



Figs 32-38 – *Haeckeliana malaysia* sp. nov., male. **32**, fore wing; **33**, genitalia. *Haeckeliana pachivenata* sp. nov., female. **34**, antenna; **35**, fore wing. *Haeckeliana trilogisensillata* sp. nov., male. **36**, antenna; **37**, fore wing; **38**, particular of the veins.

each with 1 PLS like long and robust FS, the shortest on C3 as long as the club and the longest on C4 and C5 1-1.8× as long as club; on each club segment 1-3 setae, not longer than C1-C3 combined. Mid lobe of mesoscutum and scutellum each with 2 pairs of setae and with a longitudinally and narrow reticulate striate-like sculpturing; placoid sensilla on scutellum located at level nearer the basal pair of setae. Metanotum and propodeum medially short, the latter with a subtriangular dorsellum. Fore wing 1.7× as long as wide, MV as long as PM, only slightly enlarged distally as the base of PM, SV half of the MV, shortly petiolate, with the stigma a little wider than the MV distal end, disc with rather sparse setation and with only 7-8 marked rows with bare lateral areas, longest fringe setae one-fifth

of the discal width. Gaster as long as mesosoma. Genitalia length 0.17 mm, with phallobase elongate, about as long as the narrow aedeagus; apodemes of the latter as long as its body; parameres pointed, volsellae with two strong and curved digital spines; intervolsellar process present.

Taxonomic remarks. The male of *H. trilogisensillata* differs from that of the known species of the genus mostly for the number and length of PLS on the antennal club and the male genitalia with two strong and curved digital spines on the volsellae.

Etymology. The name species refers to the three long sensilla on the antennal club.

Material examined. Holotype ♂ (slide), **South Korea:** Kangwon-doHuncheon, Nam-myeon, Hudong-li, 14.vi-6.vii.2003, P. Tripotin lgt.

Hayatia Viggiani, 1982

The genus *Hayatia* includes 8 species worldwide, from India (3), China (3), Mediterranean countries (1) and Cape Verde Islands (1). They have antenna with one-segmented funicle and three-segmented club, but the male antenna shows a different shape, with numerous PLS; the genus is also characterized by complex genitalia.

Hayatia longicornis sp. nov.

(Figs 41-44)

Diagnosis. Antenna with ring-like funicular segment; C3 longest and narrow club segment; fore wing $2.5\times$ as long as wide, disc sparsely setose with longest fringe setae $0.5\times$ of the discal width; male genitalia complex as in other species.

Description. Male. Body yellow, with brown sides of pronotum and propodeum; one dark brown stripe on each of the basal three abdominal segments, same colour of the subsequent tergites; antennae brownish as legs, except parts of tibiae and tarsi lighter: fore wing with brownish veins and disc faintly infumated. Length: 0.7 mm. Antenna with scape $3\times$ as long as wide, pedicel shorter twice as long as wide, F1 very short, ring-like, club with segments progressively slender, C1 $1.8\times$ as long as wide, widest of the club segments, C2 as long as C1, $3.7\times$ as long as wide, C3, the longest club segment, $6.2\times$ as long as wide, apparently distinct in a basal part $1.5\times$ longer than the distal part, the latter ending with two prominent sensilla forming like a fork; 4, 3, 2 PLS respectively on one surface of the club segments. Mid lobe of mesoscutum and scutellum each with one pair of setae, long as the length of last sclerite. Metanotum and propodeum very narrow in the middle. Fore wing rather narrow, $2.5\times$ as long as wide, ratios SC, PM, MV, SV: 19:11:19:8, with one short seta on the SC, 2 and 3 long setae respectively on PM and MV; disc sparsely setose, longest fringe setae $0.5\times$ the discal width. Legs normal, with metatarsomere slightly longer than the subsequent segments. Gaster ovate, with ridged tergites; genitalia complex as in other species.

Taxonomic remarks. The present record is the first of the genus *Hayatia* from Africa. In the key by Hayat (2009) to the males of the genus *Hayatia*, the new species runs near *H. indica* Viggiani, but differs mainly in having a different shape and ratios of the club segments.

Etymology. After the long antennae.

Material examined. Holotype ♂ (slide), **Nigeria:** Oyo Ibadan, IITA compound, x.1987, J. S. Noyes lgt.

Hydrophylita Ghesquière, 1946

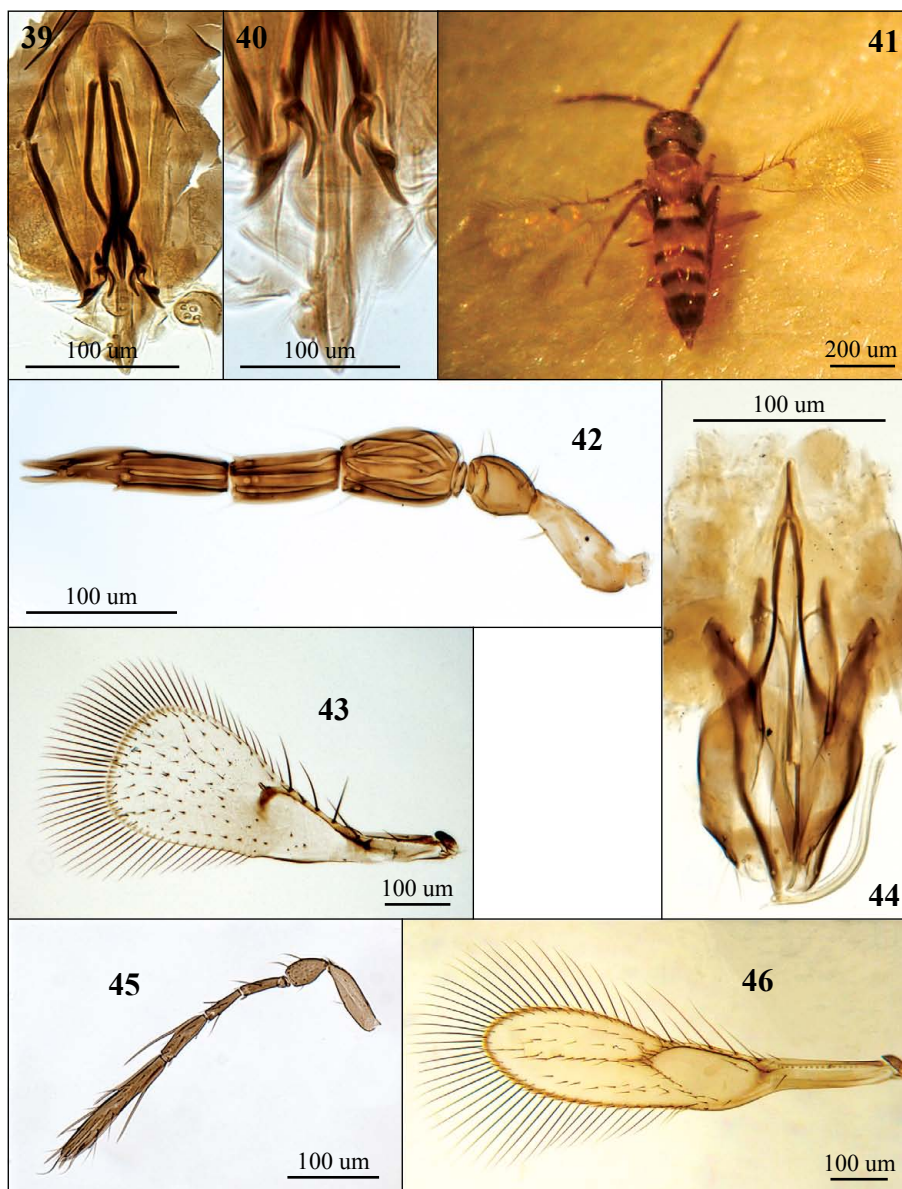
The genus is characterized by species with body rather elongate, female antenna with two-segmented funicle and usually three-segmented club or with last two segments fused; fore wing very narrow, about $10\times$ as long as wide and distally pointed (subgenus *Hydrophylita*) or wider and not pointed apically (subgenus *Lutzimicron*). Currently 5 species are included in the genus *Hydrophylita*, recorded mostly from North and South America.

Hydrophylita (Lutzimicron) pacifica sp. nov.

(Figs 45-49)

Diagnosis. Antenna with last two club segments completely fused, C1 one-fifth longer than F2; fore wing around $4\times$ as long as wide, blade with a wide bare area below the MV and disc sparsely setose, only with a few vein tracks; ovipositor long, emerging from the level of basal margin of scutellum and not extruded, $2.6\times$ as long as hind tibia.

Description. Female. Body dark brown, fore wing faintly infumated, legs pale brown. Length: 0.7 mm. Head as wide as mesosoma. Mandible with external two teeth strong and sharp. Maxillary palp two-segmented, second palpomere one half shorter than the first and with two terminal long setae and a rod like sensillum. Labial palp short, about as long as wide. Antenna elongate, formula 1,1,(2) 2,2, scape $4\times$ as long as wide, pedicel one half of the scape, first anellus very short, cupuliform, second anellus subtriangular in profile, twice longer than the first, F1 and F2 subequal, $4\times$ as long as wide, narrower than the club segments, club with the last 2 segments completely fused, C1 one-fifth longer than F2, $4\times$ as long as wide, C2 (= C2+C3) $2.3\times$ as long as F2; all antennomeres, except anelli, with a few setae, F1 and F2 without PLS, but each with a distal spatulate sensillum; C1 with 1 PLS like FS as long as the own segment and one distal spatulate sensillum, C2 with 6 PLS like FS. Mid lobe of mesoscutum longer than wide (25:20) with a reticulate sculpture and two pairs of long setae, scutellum one-fourth shorter than mid lobe of mesoscutum, with setae and sculpture as the latter. Metanotum short about one-fourth length of scutellum, propodeum twice as long as wide. Fore wing subspatulate $4.3\times$ as long as wide, ratios SC, PM, MV, PSM and SV: 40:8:30:6:3. SC, PM and MV respectively with 1, 2 and 3 main setae; 2 setae before the base and 1 after the PM; blade with a wide bare area below the MV and disc with an arched RS1 reaching almost the hind wing margin, the vein tracks RS2, r-m and CU1; and a few sparse setae between RS2 and r-m; longest fringe setae as long as discal width. Hind wing with a very narrow membrane bordered with marginal short setae, longest fringe setae $4\times$ as long as discal width. Legs normal with hind basitarsomere slightly longer than the following segment and twice as long as tibial spur. Gaster conic-ovate; ovipositor long,



Figs 39-46 – *Haeckeliania triongisensillata* sp. nov., male. **39**, genitalia; **40**, particular of genitalia. *Hayatia longicornis* sp. nov., male. **41**, habitus. **42**, antenna, **43**, fore wing; **44**, genitalia. *Hydrophylita pacifica* sp. nov., female. **45**, antenna; **46**, fore wing.

emerging from the level of basal margin of scutellum, not extruded, 2.6× as long as hind tibia.

Male. Very similar to the female for the general features of the body, wings and legs. Antennal formula 1,1 (2) 2,3, F1 and F2 narrow, subequal, 5× as long as wide, club 3-segmented with C1 slightly shorter than F2 (32:35), C2 one-third shorter than C1, and C3 one-fifth longer than C2; funicular and club segments with some setae, mostly not longer than the own segment; C2 and C3 with 1-2 PLS like FS. Genitalia with narrow genital capsule, 0.15 mm in length, with parameres twice as long as volsellae, the latter with two very small digital spines, aedeagus 1.3× as long as genital capsule, with body 1.4× as long as apodemes, distally pointed.

Taxonomic remarks. Among the five species of *Hydrophylita* described (Noyes 2019) the new species is close to *H. emporos* Shih & Polaszek (Shih et al. 2013) for having the two last club segments completely fused and other characters. However, *H. pacifica* shows fore wing shorter, with markedly different ciliation, F1 and F2 subequal, C1 longer than F2.

Etymology. The specific name refers to the Pacific Ocean where the collected place is located.

Material examined. Holotype ♀ (slide), **Fiji**: Tavua, 5 km N Korovou, 17°28'55"S, 177°54'21"E, 46 m, 2.x. 2011, L. Masner lgt. Paratype. 1 ♂ (slide), same data of holotype.

Hydrophylita (Lutzimicron) sp. near pacifica
(Figs 50-51)

This species is very similar to *H. pacifica* sp. nov. for several characters, mostly the antennae, but the fore wing, which has a wide bare area below the MV as in the mentioned species, shows a disc rather densely setose, with vein tracks not distinctly marked. Additional material is needed to evaluate the taxonomic position of this species.

Material examined. 1 ♀, **Vietnam:** Cao Bang, Phia-Oac Mts, Phia-Den environs, 800-1200 m, 22°34'02"N, 105°52'14"E, 30.v-7.vi.2011, E. Jendek lgt.

***Indonesiagramma* gen. nov.**

Type species: *Indonesiagramma bistigmatum* sp. nov.

Diagnosis. Antenna with enlarged scape, 2 anelli and 3-segmented ovate club. Maxillary palp two-segmented. Mid lobe of mesoscutum and scutellum both with two pairs of setae. Fore wing rather broad, 1.9× as long as wide, venation with PM arched to the MV with an enlarged base shaped like the stigma of the SV; RS1 absent; CU2 strongly curved from the level of the SV to the base of the PM. Male. Antenna with 5 postanellar segments, each with long FS. Genitalia with an elongate phallobase, distally with parameres and digital volsellae.

***Indonesiagramma bistigmatum* sp. nov.**
(Figs 52-59)

Diagnosis. Female. Antenna short, with enlarged scapus, almost twice as long as wide, short pedicel one-third longer than wide, 2 anelli, club compact and ovate, 3-segmented, one-fifth longer than scape, 2.5× as long as wide. Fore wing rather broad, 1.9× as long as wide, venation with PM arched to the MV with an enlarged base shaped like the stigma of the SV; RS1 absent; Cu2 strongly curved from the level of the SV to the base of the PM, disc sparsely setose, longest fringe setae, one-fourth of the discal width. Gaster conic-ovate, ovipositor extending from the middle of gaster and extruded, 2.2× as long as hind tibia, 3V very narrow, 15 times as long as wide.

Male. Similar to female. Antenna with club distinctly 5-segmented, all club segments with whorls of FS, the longest as C3 and C4 combined. Genitalia with an elongate genital capsule, basally narrowed, with parameres ending with a spine, and digital volsellae with 2 very short spines; aedeagus long and narrow, longer than genital capsule (65:50), with apodemes distally fused.

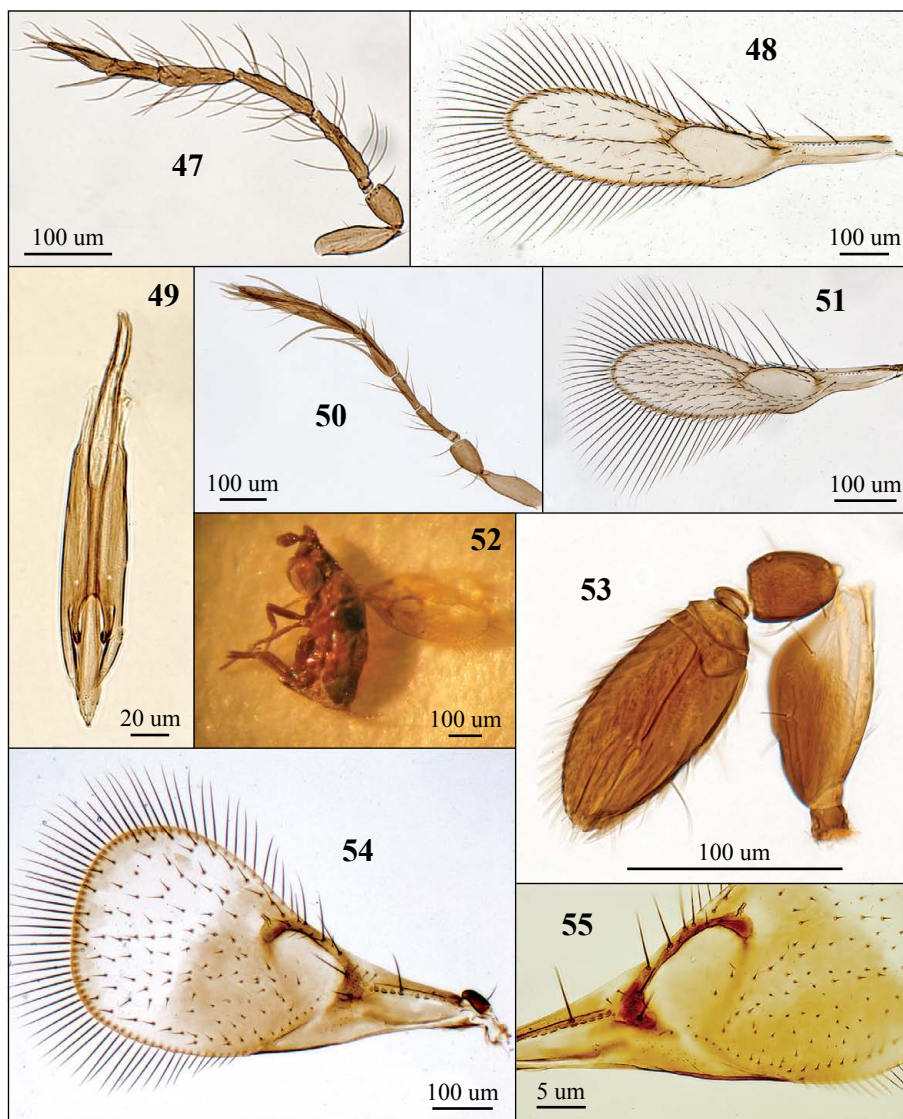
Description. Female. Length: 0.6 mm. Body dark brown, fore wing with basal 2/3 of disc broadly fumate. Antenna short, with enlarged scape twice as long as wide, short pedicel one third longer than wide, 2 anelli, club compact

and ovate, 3-segmented, one-fifth longer than scape, 2.5× as long as wide, C1 short, transverse, as long as the 2 anelli combined, C2 about same length of C1 but with sinuate distal margin, C3 1.6× as long as wide, covered with short setae and with 6-8 PLS, distal half of ventral side with a patch of rod like sensilla. Maxillary palp 2-segmented, with the second one-half length of the first, apically with a clavate sensillum. Mid lobe of mesoscutum and scutellum each with two pairs of setae, 0.6× as long as the distal margin of the mid lobe, scutellar placoidea sensilla placed near the distal pair of setae, sculpturing not well marked. Fore wing rather broad, 1.9× as long as wide, MV confluent to PM; MV rather narrow, as long as PM, base of PM enlarged and extended like the stigma of the SV; SC twice as long as MV, SV petiolate, as long as MV, costal cell with 2-3 setae, disc sparsely setose, RS1 absent; RS2, r-m tracks not completely marked, Cu2 strongly curved toward the level of the SV to the base of the PM; basal end of PM below toward the hind margin of the blade with a band of microporous sensilla; setae on the SC, PM and PM long as the longest fringe setae, the latter one-fourth of the discal width. Hind wing with 3 rows of setae on the blade. Legs normal with meso-tibial spur slightly shorter than the basitarsomere. Gaster 1.8× as long as mesosoma, gaster conic-ovate; ovipositor extending from the middle of gaster and extruded, 2.2× as long as hind tibia, 3V very narrow, 15× as long as wide.

Male. As the female, but antenna with scape one third as long as wide, with the ventral margin showing 1-2 sinuities, pedicel about half length of scape, club distinctly 5-segmented, C1 and C2 transverse, twice as long as wide, C3 and C4 subequal, as long as wide, C5 subconic, about twice as long as wide; all club segments with whorls of FS, the longest as C3 and C4 combined. Genitalia with an elongate genital capsule, 0.15 mm long, basally narrowed, with parameres ending with a spine, and digital volsellae with 2 very short spines; aedeagus long and narrow, longer than genital capsule (65:50), with apodemes distally fused.

Taxonomic remarks. The new genus appears unique for the combination of female and male antennae, fore wing venation and male genitalia. Based on several characters (maxillary palp, setae on midlobe of mesoscutum, scutellum and male genitalia), *Indonesiagramma* is assigned to the tribe Trichogrammatini. The shape of the female antennal club of the new genus recalls that of *Kyuvia* Pinto & George, a genus recorded from Subsaharan Africa (Pinto & George 2004), included in the tribe Chaetostichini, which species have fore wing, male antenna and genitalia markedly different. For fore wing shape and venation *Indonesiagramma* recalls some species of *Adryas* Pinto & Owen, another genus assigned to the Chaetostichini.

Etymology. The name of the genus refers to the country where the specimens were collected and that of the species to the shape of the wing venation.



Figs 47-55 – *Hydrophylita pacifica* sp. nov., male. **47**, antenna; **48**, fore wing; **49**, genitalia. *Hydrophylita* sp. near *pacifica* sp. nov., female. **50**, antenna; **51**, fore wing. *Indonesiagramma bistigmatum* sp. nov., female. **52**, habitus; **53**, antenna; **54**, fore wing; **55**, particular of venation.

Material examined. Holotype ♀ (slide), **Indonesia:** Sumatra, Aceh Gunung Leuser Nat. Park, Ketambe Res. Station, 350 m, 3°41'N, 97°39'E, 1-30.x.1999, D. C. Darling lgt. Paratype: 1 ♂ (slide), same data of the holotype.

***Masnerigramma* gen. nov.**

Type species: *Masnerigramma sinicum* sp. nov.

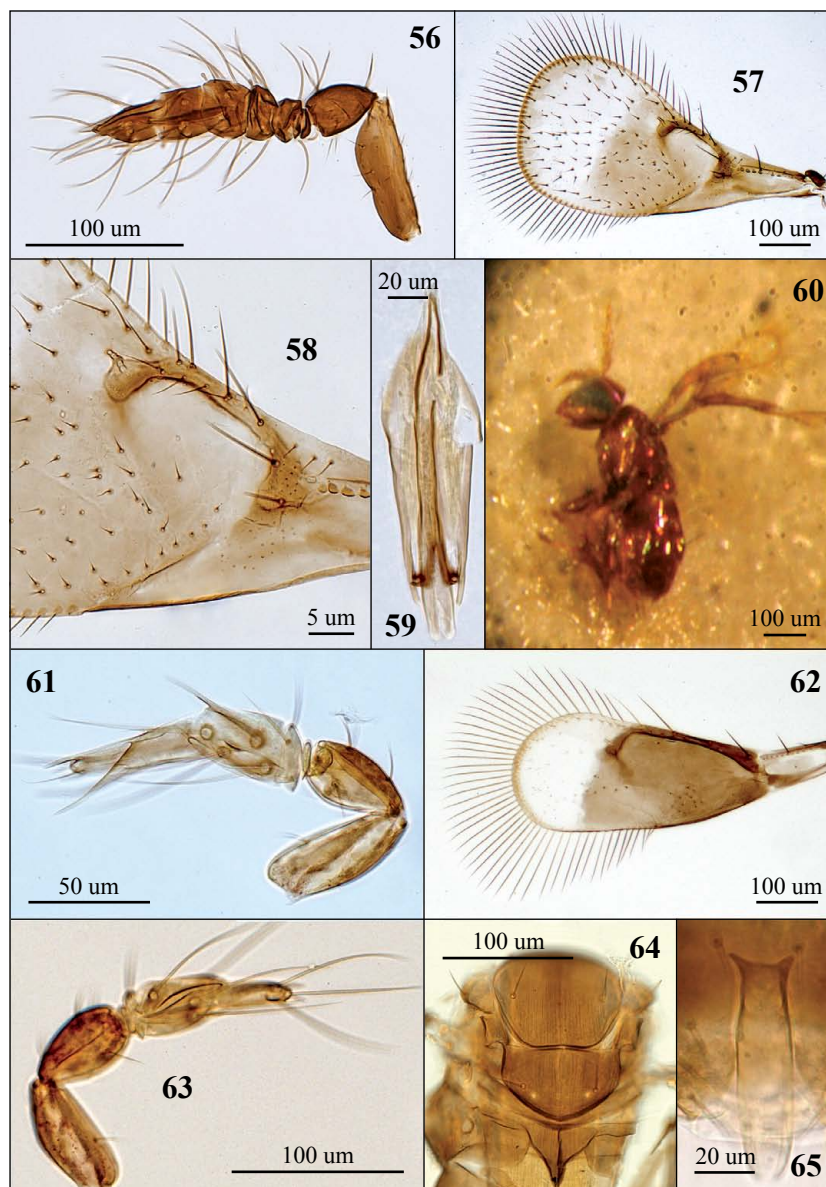
Diagnosis. Female. Antennal formula 11(1)3, club elongate, with some long PLS and FS, but without RS. Maxillary palp one-segmented. Mid lobe of mesoscutum and scutellum each with one pair of setae. Fore wing with long venation, PM collinear with the MV and progressively enlarged to its base; costal cell extremely reduced and with-

out setae. Male as the female; genitalia simple, without genital capsule, parameres and volsellae, as in Oligositini.

***Masnerigramma sinicum* sp. nov.**

(Figs. 60-65)

Diagnosis. Female antenna rather short, with scape a little longer than pedicel (12:10), club twice as long as pedicel, with C1 very short, transverse, one third of C2, the latter half of the conical C3. Fore wing 3× as long as wide, with long venation, PM collinear with the MV, both combined 5× the elongate SV; base of the PM enlarged; disc mostly bare, fringe longest setae 0.8× the discal width. Propodeum in the middle with a shield-like dorsellum. Gaster ovate, ovipositor inserted near its middle, slightly exerted,



Figs 56-65 – *Indonesiagramma bistigmatum* sp. nov., male. **56**, antenna; **57**, fore wing; **58**, particular of venation; **59**, genitalia. *Masnerigramma sinicum* sp. nov., female. **60**, habitus; **61**, antenna; **62**, fore wing. Male. **63**, antenna; **64**, mesoscutum; **65**, genitalia.

1.3× as long as hind tibia. Male genitalia simple, without genital capsule, parameres and volsellae, as in Oligositini.

Description. Female. Body dark brown, fore wing with a marked infumation from below PM to SV; legs with extremity of the tibiae and first two tarsomeres lighter. Length: 0.6 mm. Antenna rather short, with scape a little longer than pedicel (12:10), club twice as long as pedicel, slightly wider than the latter, with C1 very short, transverse, one-third of C2, C3 conical, twice of C2; C2 and C3 with 1-2 PLS extended externally and a few FS. Maxillary palp one-segmented. Mid lobe of mesoscutum and scutellum each with one pair of setae; placoid sensilla on scutellum, internally near the base of the setae; sculpture

not clearly marked. Fore wing 3× as long as wide, with long venation, PM collinear with the MV, both combined 5× length of the elongate SV; base of the PM enlarged; costal cell extremely reduced and without setae; disc mostly bare, RS1 not present, with a row of setae along the distal half of the anterior margin and other sparse cilia at level of r-m and M tracks; a group of microsetae is present near the discal hind margin about midway between level of base of PM and SV; fringe longest setae 0.8× the discal width. Metanotum medially very short and propodeum in the middle with a shield-like dorsellum. Legs normal with tibial spur of the middle leg slightly shorter than basitarsomere. Gaster rather round, ovipositor inserted near its middle, slightly exerted, 1.3× as long as hind tibia.

Male. Similar to the female, but antenna with C3 as long as C2, and distally with 3 long setae, each of the mentioned segments with PLS not markedly extended externally; genitalia simple, without genital capsule, parameres and volsellae, as in *Oligositini*, 4× as long as wide, basally truncate and externally angled and more sclerotized, length 0.06 mm.

Taxonomic remarks. The new genus shares some characters, mainly wing venation, with *Adryas* Pinto & Owen (2004), at present including 11 species, known from Central and South America. Tentatively this genus was placed in the subtribe Chaetostichini, but some of the species, namely *A. bochica* Pinto & Owen and *A. iris* Pinto & Owen, have mid lobe of mesoscutum with one pair of setae, as in *Oligositini*. This complex appears rather varied, mostly for antenna and fore wing characteristics; probably when more information will be accumulated, in particular on the male genitalia, a rearrangement may be evaluated. The new genus *Masnerigramma* clearly is to be included in the *Oligositini* for several characters (one pair of setae on mid lobe of mesoscutum and scutellum and type of male genitalia).

Etymology. The genus name is referred to the collector L. Masner and that of the species to the country where the species was collected.

Material examined. Holotype ♀ (slide): **China:** Guangdong province, Guanzhou Forest Park, 23°09.149'N, 113° 21 383'E, 3-5.x.2009, L. Masner lgt. Paratypes. 2 ♂ (slide), same data of the holotype.

Gen *Oligosita* Walker, 1851

Widespread genus including about 100 species having antenna with one-segmented funicle and three-segmented club, gaster tergites without longitudinal striations and male genitalia simple, tubular (Pinto & Viggiani 2004).

***Oligosita dolichogaster* sp. nov.**
(Figs 66-69)

Diagnosis. Antenna with funicular segment subcylindrical, 3x as long as wide, slightly shorter than pedicel (6:7), club conical, 5× as long as wide, ratio length C1, C2, C3: 4:6:5, C2 and C3 each with 2 PLS, and C3 with a terminal clavate sensillum, 0.6× as long as its own segment. Fore wing 3.3× as long as wide, ratios PM, MV, SV: 25:35:10; longest fringe setae half discal width; disc without distinct vein tracks with sparse microsetae, mostly in the middle area below SV. Gaster conic, rather narrow, 2.2× as long as wide, with long ovipositor, inserted at base of gaster and exerted as long as last hind tarsomere, 2.6× as long as hind tibia.

Description. Female. Body yellowish, with brown pronotum, pleural area of mesosoma, and with a stripe at base of gaster and another at level of tergite VII; antenna with dusky club; legs with brown on mid and hind coxae, femora and tibiae, all distal tarsomeres brown; exerted part of the ovipositor brown; fore wing faintly infumate, more marked at level of PM and SV. Length: 1.2 mm. Antenna with scape slightly longer than pedicel (10:7), funicular segment subcylindrical, 3× as long as wide, slightly shorter than pedicel (6:7), club conical, 5× as long as wide, ratio length C1, C2, C3: 4:6:5, C2 and C3 each with 2 PLS, and C3 with a terminal clavate sensillum 0.6× as long as its own segment. Mid lobe of mesoscutum and scutellum each with one pair of setae, metanotum very short and propodeum with disc subtriangular, ridged. Fore wing 3.3× as long as wide, ratios PV, MV, SV: 25:35:10; longest fringe setae half discal width; disc without distinct vein tracks with sparse microsetae mostly in the middle area below SV. Legs normal with basitarsomere about one-third longer than the subsequent tarsomere. Gaster conic, rather narrow, 2.2× as long as wide, with long ovipositor, inserted at base of gaster and exerted as long as last hind tarsomere, 2.6× as long as hind tibia.

Taxonomic remarks. Among the known species of *Oligosita*, namely of the *collina* group as defined by Nowicki (1936) and Viggiani (1976), the new species is unique for the shape of gaster and ovipositor.

Etymology. After the long (in Greek “dolichos”) ovipositor.

Material examined. Holotype ♀ (slide), **Kenya:** Nyanza, Ruma Nat. Park, 1264 m, 0°38.835'S, 34°20.157'E, 4-18.ii.2006, R. Cope lgt.

***Oligosita kenyota* sp.nov.**
(Figs 70-72)

Diagnosis. Clavate apical sensillum as long as the last club segment on which it is inserted; fore wing with a slightly fumose blade and only with two rows of setae (tracks r-m and M) on the disc; ovipositor 2.1× as long as the middle tibia.

Description. Female. Body yellowish with a brown band extended on IV and V tergite of gaster; antenna with brownish on funicle and club; fore wing hyaline with a very faint infumation on the blade; legs with hind coxa brown as the 3V of the ovipositor. Length: 0.6 mm. Antenna with scape one-third as long as pedicel, funicular segment longer than wide (6:4), club 3.6× as long as wide, excluding the apical clavate sensillum, which is as long as C3, C2 subcylindrical, shorter than C3 (6:8), each club segment with 1-2 PLS and a few setae. Mid lobe of mesoscutum and scutellum each with a pair of setae. Metanotum medially short. Propodeum with disc subtriangular,

ridged. Fore wing rather narrow, 3.6× as long as wide, MV 1.6× as long as PM, SV elongate, subrectangular, as long as PM and with stigma not enlarged, disc largely bare, except two rows each of 6-7 microsetae on the track of r-m and M, fringe longest setae 0.6× of the discal width. Legs with hind basitarsomere slightly longer than the following segment (15: 13). Gaster longer than mesosoma (10:8), ovipositor inserted at base of gaster and not exerted, 2.1× as long as the middle tibia, with short 3V, one-seventh of the entire ovipositor length.

Taxonomic remarks. The new species is to be included in the *collina* group, in which the species are characterized by the prominent and clavate apical placoid sensillum on the female antennal club. Among the African species, clearly belonging to this group, *O. kenyota* is near

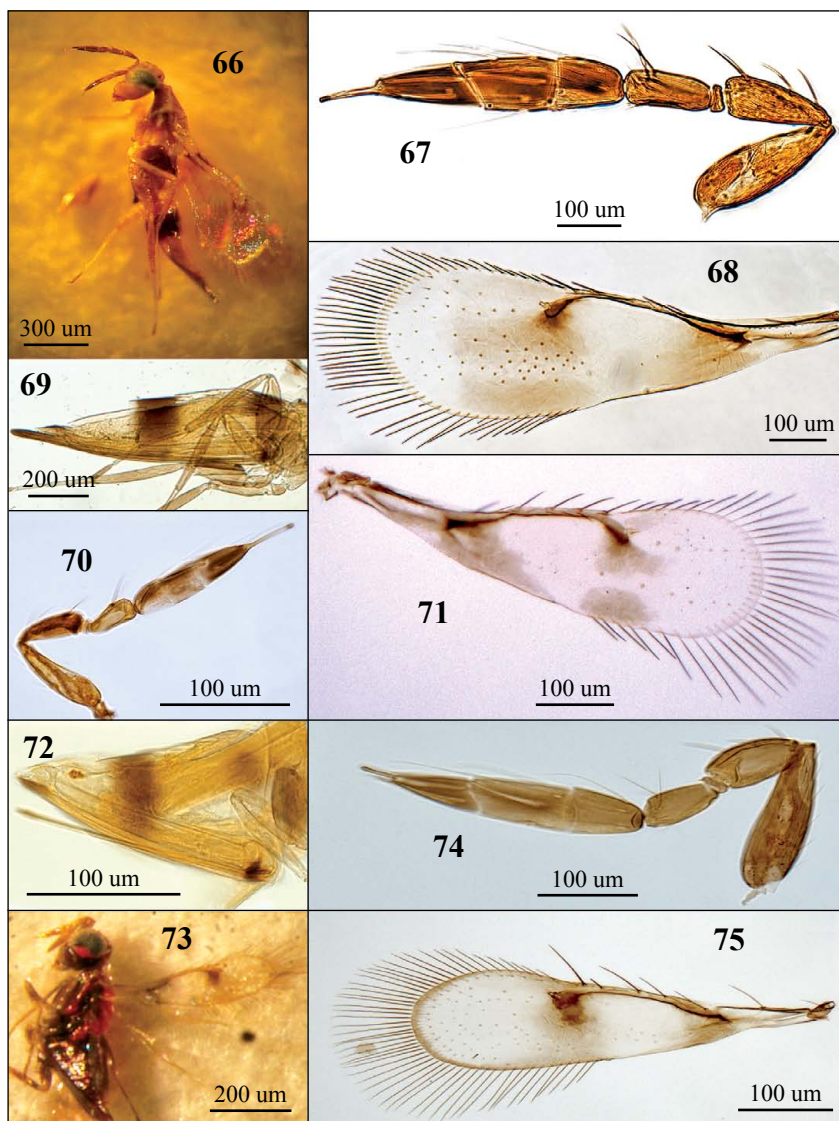
O. aquatica (Kieffer) (Kieffer 1910) from Rwanda, but the latter species shows the clavate apical sensillum of the club shorter than C3, fore wing with longer discal fringe and ovipositor inserted at middle of the gaster.

Etymology. After the country in which the species was collected.

Material examined. Holotype ♀ (slide), **Kenya:** Taita-Taveta Co, SW of Mwatate, 3°31'43.62''S, 38°20'25.62''E, 20-30.i.2017, J. Skevington lgt.

***Oligosita microciliata* sp. nov.**
(Figs 73-75)

Diagnosis. Body dark with red head vertex, frons and ge-



Figs 66-75 – *Oligosita dolichogaster* sp. nov., female. 66, habitus; 67, antenna; 68, fore wing; 69, gaster. *Oligosita kenyota* sp. nov., female. 70, antenna; 71, fore wing; 72, gaster. *Oligosita microciliata* sp. nov., female. 73, habitus; 74, antenna; 75, fore wing.

nae; mesoscutum with red band and patches on gaster. Antenna with club conical, 4.5× as long as wide. Fore wing with sparse microsetae on the disc, not in rows, fringe longest setae as long as 0.7× of discal width; ovipositor extended from the base of gaster, not exerted, about twice as long as the hind tibia.

Description. Female. Body color rather variable, but typically dark red, with head red vertex, frons and genae; mesoscutum with red band and patches on gaster; antenna greysh, with darker last club segment. Fore wing with faint infumation and black spot below SV. Legs with distal part of tibia and first two tarsomeres lighter. Length: 0.7 mm. Antenna with scape elongate 2.3× as long as wide, one anellus, funicular segment subcylindrical, as long as pedicel, club conical, 4.5× as long as wide, with C2 slightly longer than C1 and C3 (10:8), each club segment with 1-2 PLS and a few rather short setae; C3 with the clavate spical sensillum as long as one-third of the segment. Mid lobe of mesoscutum and scutellum each with a pair of setae and with a longitudinally reticulate sculpture. Metanotum medially short and with a ridged oriented sculpture from both lateral sides to the middle. Propodeum with subtriangular, ridged disc. Fore wing 3× as long as wide, MV 3× as long as PM, disc with sparse microsetae and without marked vein tracks, fringe longest setae as long as 0.7× discal width. Legs with basitarsomere as long as the subsequent segments combined or slightly shorter. Gaster longer than mesosoma (10:8), ovipositor extended from the base of gaster, not exerted, about twice as long as hind tibia.

Taxonomic remarks. The new species, which is assigned to the *collina* group, shares with the Nearctic species *O. americana* Girault (Viggiani 1981) the long ovipositor, but the latter species has a shorter club (3 times as long as wide), normal discal setae, longest fringe setae about 0.5× as long as discal width, and different body coloration.

Etymology. The name refers to the short setae on the fore wing disc.

Material examined. Holotype ♀ (slide), **Canada:** Ontario, Mer Bleue, 45°23.64'N, 75°30.40'W, 3-10.vi.2016, C. Boudreault, H. Goulet & J.Fernández lgt. Paratypes: 2 ♀ (on pinned card), **Canada:** Ottawa Stony Swamp, 45°23'33''N, 75°32' W, 27.v-3.vi.2016, J. Buffam, H. Goulet & J.Fernández lgt.; 1 ♀ (on pinned card), **Canada:** Ontario, Fletcher Wildlife Garden, 18-27.v.2016, J. Buffam, H. Goulet & J. Fernández lgt; 1 ♀ (on pinned card), **Canada:** Saskatchewan, 18 km S Maple Creek, 3000', 10.vii.2005, J. R. Vockeroth lgt; 1 ♀ (on pinned card), **USA:** Alaska, Sourdough, Richardson Highway, 606 m, 62°31.65'N, 145°30.96'W, 21.vii.2009, H. Goulet & C. Boudreault lgt; 1 ♀ (on pinned card), **USA:** Missouri, Wayne County, Williamsville, x.1987, J. T. Becker lgt.

Probrachista Viggiani, 1968

The genus includes 2 species, *P. nepalensis* Viggiani from Nepal and *P. bharatensis* Hayat from India (Noyes 2019). In the first species, type of the genus, the antenna shows one funicular segment and the club three-segmented, but C1 is slightly dissociated from C2, appearing somewhat funicle-like, with the ovipositor considerably exerted. The second species has a compact 3-segmented antennal club and not exerted ovipositor.

Probrachista biclavata sp. nov.

(Figs 76-77)

Diagnosis. Antenna with club 2-segmented, with a few long setae, fore wing 2.2× as long as wide, disc densely setose, from the level of the SV and with a short bare area around the mentioned vein, longest fringe setae one-fifth of the discal width. Gaster conic-ovate, longer than mesosoma (7:4), with ridged tergites, ovipositor extended from the middle of gaster, not exerted, 1.3× as long as hind tibia.

Description. Female. Body dark brown, fore wing completely infumated. Length: 0.4 mm. Head with rather long setae on vertex; maxillary palp one-segmented. Antenna with short scape, about twice as long as wide, as long as pedicel, funicular segment slightly longer than wide (10:8), club 5× as long as wide, two-segmented, C1 and C2 subequal in length, each with a few setae, the longest as long as C2 or slightly longer and with 1-2 PLS, last segmented showing a pointed rod-like sensillum, 0.6× as long as C2. Mid lobe of mesoscutum and scutellum each with one pair of setae and with a ridged sculpture. Fore wing 2.2× as long as wide, MV and PM directly confluent, and combined, 5× as long as SV, the latter with a short basal constriction and orthogonally oriented to the anterior wing margin, disc densely setose, from the level of the SV, with a short bare area around the mentioned vein, longest fringe setae one-fifth of the discal width. Metanotum very narrow in the middle, about half of propodeum. Legs with tarsomeres subequal. Gaster conic-ovate, longer than mesosoma (7:4), with ridged tergites, ovipositor extended from the middle of gaster and not exerted, 1.3× as long as hind tibia.

Taxonomic remarks. *P. biclavata* differs from the known species mostly by the club shape.

Etymology. After the 2-segmented club.

Material examined. Holotype ♀ (on slide), **Malaysia:** Sabah, Danum Valley, Field Centre, 227 m, 4.96984°N, 117.80149°E, 5-10.viii.2012, J. H., A. M. & A. W. Skevington lgt.

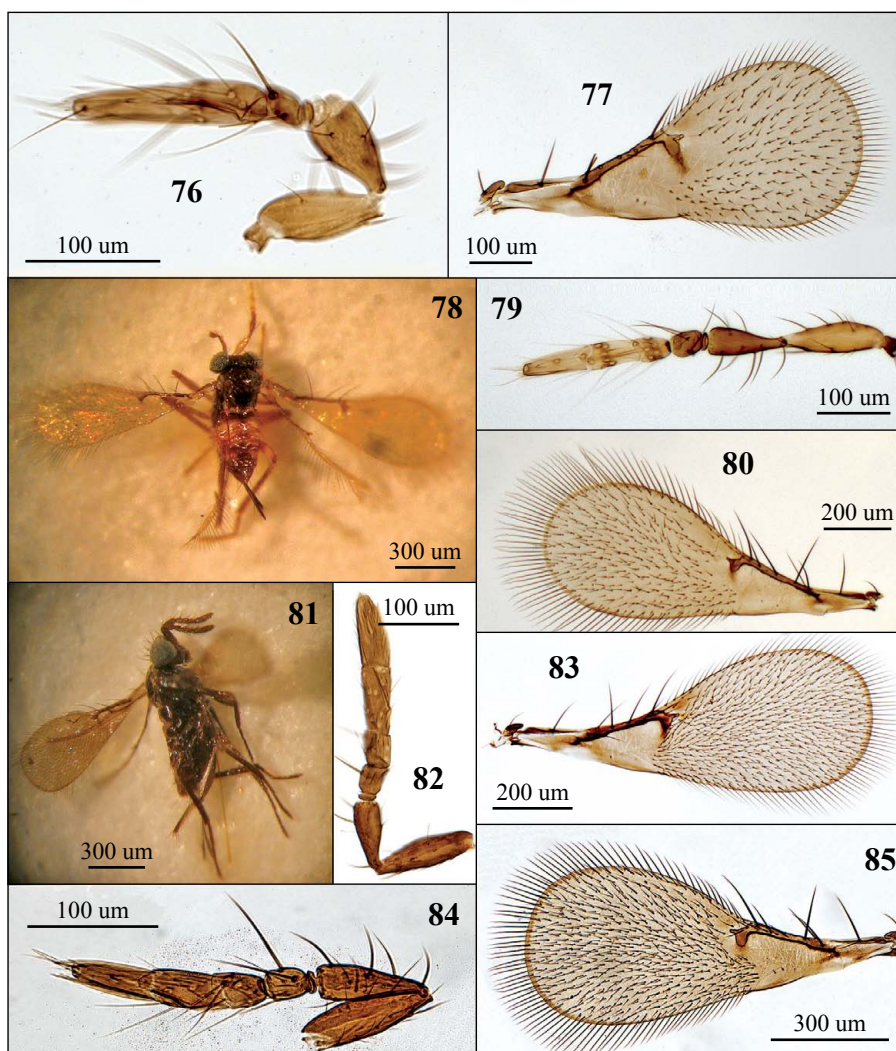
***Probrachista longiciliata* sp.nov.**

(Figs 78-80)

Diagnosis. Fore wings faintly infumated. Legs fuscous. Antenna with a narrow 3-segmented club, all club segments with only long setae, at most as long as last segment. Fore wing with longest fringe setae one-third of discal width. Ovipositor extended from the base of gaster and exerted 0.7× the length of the same, 2.7× as long as hind tibia.

Description. Female. Body dark brown, antennae light brown, legs fuscous, and gaster lighter with brown basal band on each tergite, fore wing rather slightly infumated. Length: 0.7 mm. Antenna with scape 3× times as long as wide, pedicel long, 0.7× as long as scape, both with robust setae, funicular segment slightly longer than wide, club

rather narrow, 6× as long as wide, with C1 shorter (0.7) than C2, and C3 slightly longer than C2; C2 and C3 with 1-2 PLS and only long setae, at most a little longer than last segment, the latter with a terminal rod like sensillum as long as half C3. Mid lobe of mesoscutum and scutellum each with one pair of long setae, longer than scutellum, metanotum medially very short, propodeum with the distal margin in the middle sinuate and about one-third as long as scutellum. Fore wing 2.5× as long as wide, PM and MV combined 5× as long as SV, disc densely setose from the level of the SV and with a subtriangular bare area beyond the stigma and around the SV; longest fringe setae one-third of the discal width. Legs normal, with middle basitarsomere as long as subsequent segment and distal tarsomere half as long as each of the preceding segments. Gaster conic-ovate, longer than mesosoma (11:8), with ridged tergites, ovipositor extended from the base of



Figs 76-85 – *Probrachista biclavata* sp. nov., female. 76, Antenna; 77, fore wing. *Probrachista longiciliata* sp.nov., female. 78, habitus, 79, antenna; 80, fore wing. *Probrachista nepalensis* Viggiani. 81, female; 82, antenna; 83, fore wing. *Probrachista triclavata* sp.nov., female. 84, antenna; 85, fore wing.

gaster and exerted 0.7× the length of the same, 2.7× as long as hind tibia.

Taxonomic remarks. The new species shows a rather narrow 3-segmented antennal club, not compact as in *P. bharatensis*, but near *P. nepalensis*. From the latter species *P. longiciliata* differs mostly by the club shape and its elongate setation.

Etymology. The name refers to the long setae on the antennal club.

Material examined. Holotype ♀ (slide), **Kenya:** Western Kakamega, Rondo, 0°13.66'N, 34°53.12'E, 1630 m, 17-31.vii.2006, R. Copeland lgt.

***Probrachista nepalensis* Viggiani, 1968**
(Figs 81-83)

Additional note. At present the species is known only from 3 female specimens collected in East Nepal. To the original description (Doutt & Viggiani 1968) here are added some notes based on new records of the species in Vietnam, which help in the identification of the species. As reported in the original description the antenna shows a funicle and a club both apparently 2-segmented; in fact, the first club segment is similar to the funicular segment, mostly for bearing long setae, which are numerous, but short on the subsequent club segments. This shape of antenna is unique for *P. nepalensis*.

Material examined. 1 ♀ (on pin card), **Vietnam:** Cao Bang, Phia-Oac Mts, Phia-Den environs, 800-1200 m, 22°34'01''N, 105°52'14''E, 30.v-7.vi.2011, E.Jendek lgt. 1 ♀ (on slide), **Vietnam:** Vihn Phue, Melhin Biodiversity Station, 80-200 m, 21°23'04''N, 105°42'44''E, 9-12.vi.2011, E.Jendek lgt.

***Probrachista triclavata* sp. nov.**
(Figs 84-85)

Diagnosis. Antenna with a 3-segmented club, all club segments only with long setae, at least as long as the own segment. Fore wing with longest fringe setae one-third of discal width. Ovipositor extended from the base of gaster and exerted 0.6× the length of the same, 2.3× as long as hind tibia.

Description. Female. Body dark brown, as antennae, legs and gaster, fore wing markedly infumated. Length 0.8 mm. Antenna with scape 4× as long as wide, pedicel long, 0.8× as long as scape, funicular segment slightly longer than wide, club rather narrow, 6× as long as wide, with C1 shorter than C2 (7:10), and C3 slightly longer than C2 (13:10); all club segments with 2-3 PLS, C3 with a terminal rod like sensillum; funicle and club segments all

with long setae, at least as long as their own segment. Mid lobe of mesoscutum and scutellum each with one pair of long setae; metanotum medially very short, propodeum with the distal margin in the middle sinuate. Fore wing 2.2× as long as wide, PM and MV directly confluent, combined 5× as long as SV, disc densely setose from the level of the SV and with a reduced subtriangular bare area beyond the stigma and around the SV; longest fringe setae one-fourth of the discal width. Legs normal, with distal tarsomere half the length than each of the preceding segments. Gaster conic-ovate, longer than mesosoma (13:6), with ridged tergites, ovipositor extended from the base of gaster and exerted 0.6× the length of the same, 2.3× as long as hind tibia.

Taxonomic remarks. The new species shows a 3-segmented antennal club as in *P. longiciliata*, but differs from the latter species by the antennae shape, fore wing ciliation, and leg colour.

The genus *Probrachista* Viggiani was based mostly on the different antennal formula from *Brachista* Walker (*sensu* Nowicki 1936; Doutt & Viggiani 1968), including 3 Palearctic species and one Indian species, at present under *Chaetostrichella* Girault (Pinto 1993). In the latter genus all species have one-segmented club. None of the new species here described in *Probrachista* shows this character, but one has 2-segmented club, an intermediate state between the known *Probrachista* and *Chaetostrichella*. The new findings suggest a further taxonomic evaluation of the mentioned genera and their possible inclusion in *Pseudoligosita*.

Etymology. The name refers to the 3-segmented club.

Material examined. Holotype ♀ (slide), **Vietnam:** Hue province, Back Ma Nat. Park, 16-20.iv.2012, 900-1140 m, 16°11'33'' N, 107°50'52'' E, E. Jendek lgt.

Genus *Pseudogrammina* Ghesquière, 1946

***Pseudogrammina bifasciatipenne* sp. nov.**
(Figs 86-87)

Diagnosis. Antenna with subequal funicular segments, as long as wide, fore wing with a infusate area from base to the SV level, and another interrupted infusate band between SV and the wing distal margin, fringe with longest setae one-half of the discal width, ovipositor short, slightly extruded, as long as hind tibia.

Description. Female. Body brown with funicular segments of antennae and legs from end of tibiae and first two tarsal segments light yellow. Eyes red brown. Fore wing with an infusate area from the base to the SV level and with another interrupted, infusate band between the SV and the wing distal margin. Length: 0.4 mm. Mandible with a pos-

terior spine, one external pointed tooth followed internally by 3 small teeth. Maxillary palp small, one-segmented. Antenna with elongate scape, twice as long as pedicel, one anellus, funicle 2-segmented, both as long as wide, club twice as long as wide, slightly shorter than scape (28:30). Mid lobe of mesoscutum wider than long (18:13), longer than scutellum (13:8), both with a subpolygonal reticulation and intrarecticular striations, each with 2 pairs of setae; metanotum one-third shorter than scutellum; propodeum as long as metanotum, with disc slightly developed and distally with a round margin, both with same sculpture of scutellum. Fore wing $2.3\times$ as long as wide, ratios SC, PM, MV, SV: 15:8:12:5, costal cell narrow and bare, setae on SC, PM and MV respectively 1, 2 and 2, the setae on the MV, as long as MV or slightly shorter, inserted at base and in middle of the vein, disc sparsely setose, longest fringe setae one-half of the discal width. Legs normal with subequal tarsomeres. Gaster conic-ovate, longer than mesosoma (6:5), ovipositor short, with base inserted in the middle of gaster, slightly extruded, and as long as hind tibia.

Taxonomic remarks. At present one species is included in this genus, *P. fasciatipenne* Girault from Australia (Queensland) and illustrated by Doutt & Viggiani (1968). Unfortunately the characters described by the mentioned authors do not allow a reliable comparison, but the new species differs at least from *P. fasciatipenne* by the brown marking and the long fringe of the fore wing. The genus *Pseudogrammina* is here recorded for the first time from New Zealand.

Etymology. The species name is referred to the fore wing infuscation pattern.

Material examined. Holotype ♀ (slide), **New Zealand:** Auckland province, Swanson University Reserve, 16.iii.2009, 36°5262'S, 174°33.76'E, H. Goulet lgt. Paratype 1 ♀ (on pin card), **New Zealand:** Auckland province, Swanson University Reserve, 16.iii.2009, 36°5262'S, 174°33.76'E, H. Goulet lgt.

***Pseudogrammina longifrangata* sp. nov.**
(Figs 88-90)

Diagnosis. Antenna with first funicular segment subcylindrical, fore wing with only the infuscation from base to the level of SV, fringe maximum length $0.6\times$ of the discal width, ovipositor $0.7\times$ of the hind tibia.

Description. Female. Length: 0.4 mm. Body brown with funicular segments of antennae and legs from end of tibiae and first two tarsal segments light yellow. Fore wing with a fumated area from base to the SV level. Antenna with scape $2.7\times$ as long as pedicel, first funicular segment subcylindrical, one-third longer than wide, second funicular segment as long as wide, club twice as long as wide, api-

co-ventrally truncate and with a patch of RS. Mid lobe of mesoscutum, scutellum and metanotum as in *P. bifasciatipenne*, but disc of propodeum subrectangular, not prominent. Fore wing with veins as in *P. bifasciatipenne*, but with the infumated area only from base to the SV level and fringe $0.6\times$ of the discal width. Ovipositor $0.7\times$ of the hind tibia.

Taxonomic remarks. The new species is very close to *P. fasciatipenne* Girault, but differs by the longer first funicular segment of the antenna and fore wing fringe.

Etymology. Species named after the long fore wing fringe.

Material examined. Holotype ♀ (slide), **New Zealand:** Auckland province, Swanson University Reserve, 16.iii.2009, 36°5262'S, 174°33.76'E, H. Goulet lgt.

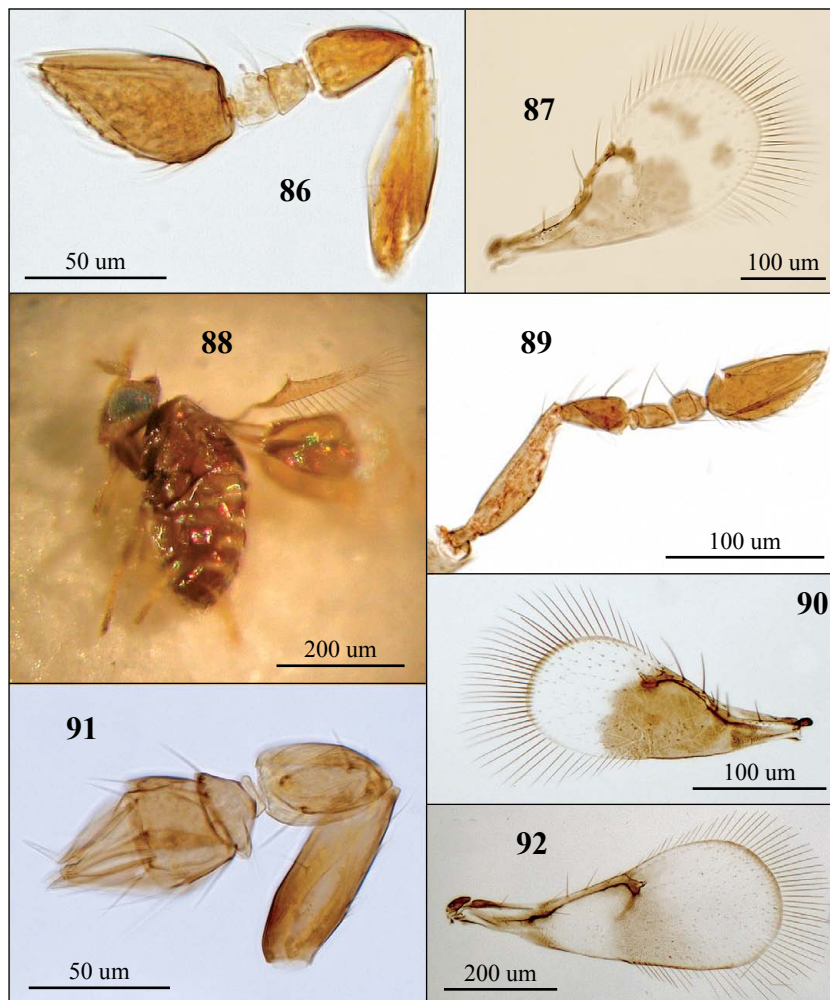
Genus ***Pseudoligosita*** Girault, 1913

The genus *Pseudoligosita* shows characters rather similar to those of *Oligosita*, but at least the basal tergites of the gaster have longitudinal striations. It includes 55 species and has a worldwide distribution (Pinto & Viggiani 2004; Noyes 2019).

***Pseudoligosita biclavata* sp. nov.**
(Figs 91-92)

Diagnosis. Antenna with funicular segment transverse, cup-shaped, one-third wider than long, club short, slightly longer than wide (10:8), two-segmented. Fore wing $2.5\times$ as long as wide, MV $2.5\times$ times as long as PM, disc with sparse setae and the area between R and RS2 tracks bare, longest fringe setae $0.40\times$ the discal width. Ovipositor not exerted, $1.3\times$ as long as hind tibia.

Description. Female. Body chestnut brown, fore wing faintly infumated, with more marked dark bands below PM and SV, legs with first two tarsomeres light. Length: 0.5 mm. Antenna with scape $3\times$ as long as wide, pedicel about half of the scape length, funicular segment transverse, cup-shaped, one-third wider than long, club short, slightly longer than wide (10:8), two-segmented, each segment with 2-3 PLS and a few short setae, C2 distally with a rod-like sensillum, half the length of the segment, obliquely oriented. Mesoscutum and scutellum each with one pair of setae, longitudinally reticulate, mid lobe of mesoscutum $1.4\times$ as long as scutellum; metanotum short in the middle, one-fifth the length of scutellum; propodeum slightly longer with the distal margin uniformly curved in the middle. Fore wing $2.5\times$ as long as wide, MV $2.5\times$ as long as PM, disc with sparse setae and the area between R and RS2 tracks bare, longest fringe setae $0.40\times$ of the discal width. Legs with hind femur rather narrow, $3\times$ as long as wide and basitarsomere one-third longer than the subse-



Figs 86-92 – *Pseudogrammina bifasciatipenne* sp. nov., female: **86**, antenna; **87**, fore wing. *Pseudogrammina longifrangata* sp. nov., female: **88**, habitus; **89**, antenna; **90**, fore wing. *Pseudoligosita biclavata* sp. nov., female: **91**, antenna, **92**, fore wing.

quent segment. Gaster longer than mesosoma (8:6), conic-ovate with ridged tergites, ovipositor not exerted, 1.3× as long as hind tibia.

Taxonomic remarks. The new species is unique in having short, 2-segmented club, disc of fore wing with sparse microsetae, the area between R and RS2 tracks bare, longest fringe setae 0.40× of the discal width and ovipositor not exerted, 1.3× as long as hind tibia. For having 2-segmented club *P. biclavata* is similar to *P. distincta* (Silvestri) (Silvestri 1915), but in the latter species the funicle is as long as wide, club twice as long as wide, hind leg with femur rather enlarged as coxa, twice as long as wide and ovipositor 1.6× as long as hind tibia (measures taken by the author on the type material).

Etymology. After the 2-segmented club.

Material examined. Holotype ♀ (slide), **South Africa:** Western Cape, Farm Bitline, 31.73696°S, 19.13531°E, 768

m, 23.ix – 3.x.2005, J. Schmidt lgt. Paratype ♀ (slide), **South Africa:** Western Cape, Shepard's Valley Farm, 31.7932°S, 19.1027°E, 523 m, 20-30.ix.2005, J. Schmidt lgt.

***Pseudoligosita ipersensillata* sp. nov.**

(Figs 93-95)

Diagnosis. Antenna with funicular segment transverse, short, twice wider than long, C1 about half the length of the funicular segment, C2 as wide as C1 but 5× longer, C3 conic, longer than C2 (12:10), C2 and C3 with 6-12 PLS like FS. Fore wing 2.3× as long as wide, disc rather sparsely setose, with around 10 rows of setae, longest fringe setae 0.4× as long as discal width. Ovipositor short, not exerted, as long as hind tibia.

Description. Female. Body light chestnut, fore wing hyaline with a very faint infuscation, fore legs from femur, mid legs totally, and hind legs from tibia, yellowish. Length: 0.7 mm. Antenna with scape rather short, twice as

long as pedicel, funicular segment transverse, short, twice wider than long, C1 about half the length of the funicular segment, C2 as wide as C1 but 5× longer, C3 conic, longer than C2 (12:10), funicular segment with two long setae, and at least 2 BPS, as on C1, C2 with 10-12 PLS like FS, some reaching half of the subsequent segment, and BPS on distal margin, C3 with 6-7 PLS like FS, the terminal 0.7× as long as the relative segment; near its base 1 BPS. Mid lobe of mesoscutum and scutellum each with one pair of long setae, the first 1.9× as long as scutellum; metanotum short in the middle, one-third the length of scutellum; propodeum slightly longer with the distal margin, uniformly curved in the middle. Fore wing 2.3× as long as wide, MV 1.8× as long as PM, SV petiolate, slightly shorter than PM (8:10), disc rather sparsely setose, with around 10 rows of setae, longest fringe setae 0.4× as long as discal width. Legs with tarsomeres subequal, but basitarsomere of the front legs shorter than the subsequent segment (5:7). Gaster conic-ovate, longer than mesosoma (10:7), with ridged tergites, ovipositor short, extended from distal third of gaster and not exerted, as long as hind tibia.

Taxonomic remarks. The species is unique for the short C1 and the numerous long sensilla on the last two club segments.

Etiology. After the numerous sensilla on the antennae.

Material examined. Holotype ♀ (slide), **Indonesia:** Sumatra, Aceh Gunung Leuser Nat. Park, Ketambe Res. Station, 350 m, 3°41'N, 97°39'E, 1-30.x.1999, D. C. Darling lgt. Paratype 1♀ (on pin card), same data of holotype.

***Pseudoligosita macrosensillata* sp.nov.**
(Figs 96-97)

Diagnosis. Antenna with funicular segment wider than long (7:5), club conical, 3.3× as long as wide, C2 and C3, respectively with 2 and 4 robust PLS like FS, some curved and extended externally far from the relative segment. Fore wing 2.5× as long as wide, MV 1.7× as long as PM, disc with setae mostly arranged in around 12 rows, longest fringe setae 0.4× as long as discal width. Ovipositor extended from the distal third of the gaster, not exerted, about as long as hind tibia.

Description. Female. Body light chestnut, tergites of gaster basally with a darker band, the legs mostly yellowish; fore wing infuscated. Length: 0.7 mm. Antenna with scape 3.6× as long as wide, pedicel 0.7× as long as scape, funicular segment wider than long (7:5), club conical, 3.3× as long as wide, C1 as long as the funicular segment, C2 cylindrical, longer than wide (10:7), C3 conical, as long as the preceding segment; funicular segment and C1 without PLS, but only with rather long setae, C2 and C3, respectively with 2 and 4 robust PLS like FS, some curved and

extended externally far from the relative segment. Mesoscutum and scutellum each with one pair of setae, longitudinally reticulate. Metanotum and propodeum short in the middle and subequal in length. Fore wing 2.5× as long as wide, MV 1.7× as long as PM, SV petiolate, shorter than PM (7:13), disc with setae mostly arranged in around 12 rows, longest fringe setae 0.4× as long as discal width. Gaster twice as long as mesosoma, with ridged tergites, ovipositor extended from the distal third of the gaster, not exerted, about as long as hind tibia.

Taxonomic remarks. The new species is unique in the club sensilla in combination with the fore wing characters.

Etiology. The name of species refers to the robust sensilla on club segments.

Material examined. Holotype ♀ (slide), **Papua New Guinea:** East New Britain, Bainings Mts, DPI Base Camp, 04°26'36''S, 151°49'02''E, 27.v-30.vi.1999, R. Mararuai & M. Kalamen lgt. Paratype. 1♀ (on pin), same data of holotype.

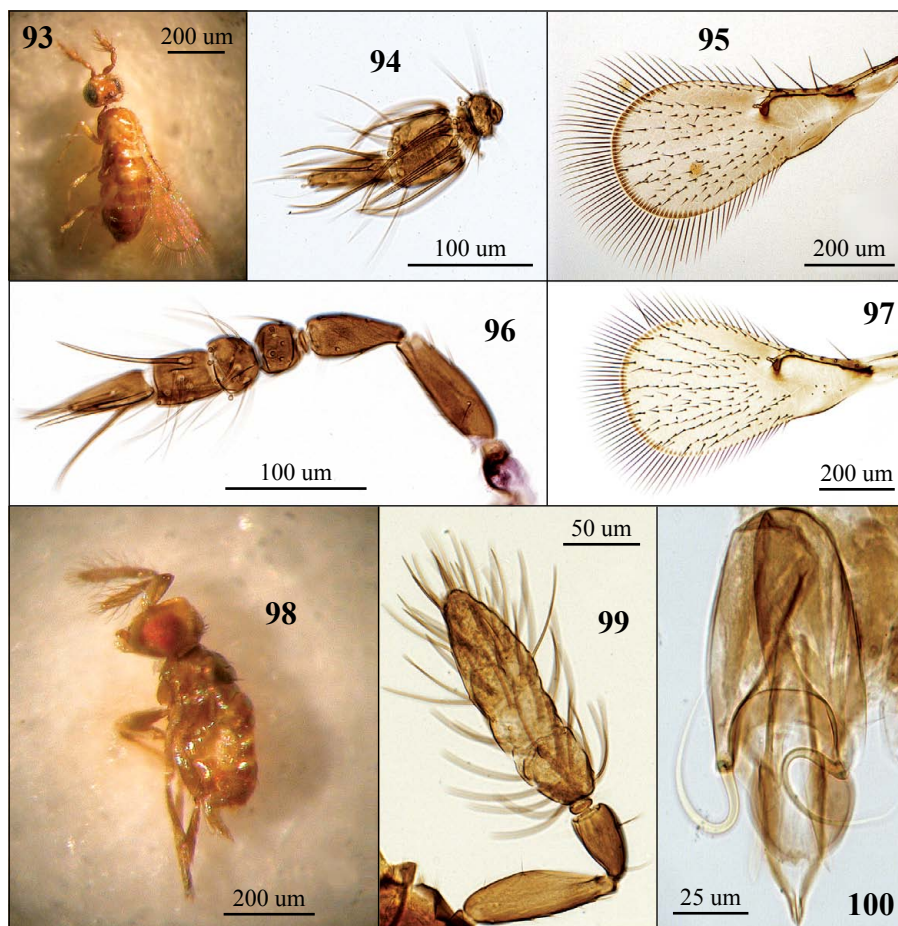
***Trichogramma* Westwood, 1833**

The genus *Trichogramma* Westwood, including 241 species (Noyes 2019), is the largest genus of Trichogrammatidae and certainly the most investigated. According to Pinto (2006) "the characteristic sinuate fore wing with RS1 track and 2F/1C antennal formula in females separate *Trichogramma* from other genera".

***Trichogramma unicum* sp. nov.**
(Figs 98-100)

Diagnosis. Antenna with unisegmented club, 3.6× as long as wide, with FS at most one-third longer than the maximum club width. Genitalia with genital capsule 1.4× as long as wide, antero-dorsal aperture twice as long as wide, distal lamina well developed and subdiscoidal, intervolsellar process present; parameres very narrow, curved, seta-like; volsellae elongate about 4× as long as wide, without digital spines; aedeagus with body rather short, slightly longer than the apodemes, distally pointed.

Description. Male. Body brown; head with yellowish vertex. Length: 0.5 mm. Mandible distally trunked with five marginal small teeth and on the internal margin, subapically, with a socked tooth. Maxillary palp twice as long as wide, with an apical seta slightly longer than the palpus length and one spiniform sensillum about as long as the palpal length. Antenna with a short radicle, as long as wide, scape twice as long as pedicel, one anellus, club unisegmented, 3.6× as long as wide, with FS at most one-third longer than the maximum club width. Ratios head,



Figs 93-100 – *Pseudoligosita ipersensillata* sp. nov., female. **93**, habitus; **94**, antenna; **95**, fore wing. *Pseudoligosita macrosensillata* sp. nov., female. **96**, antenna; **97**, fore wing. *Trichogramma unicum* sp. nov., male. **98**, habitus; **99**, antenna; **100**, genitalia.

mesosoma, metasoma length: 3.5:5:7. Mid lobe of mesoscutum subtrapezoidal, with a reticulate sculpturing and two pairs of setae, twice as long as scutellum. Metanotum and propodeum very short medially. Wings lacking. Tegula of the fore wing with one seta. Genitalia, length 0.13 mm, genital capsule 1.4× as long as wide with anterodorsal aperture twice as long as wide, distal lamina well developed, subdiscal, intervolsellar process present; parameres very narrow, curved seta-like; volsellae elongate about 4 times as long as wide, without digital spines; aedeagus with body rather short, slightly longer than the apodemes, distally pointed.

Taxonomic remarks. The apterous new species, described on a male, is assigned to the genus *Trichogramma* on the basis of shared characteristics of mandibles, antennae and male genitalia, but the latter appear unique for the shape of the dorsal lamina, parameres and volsellar digiti. For some characters (distal enlarged dorsal lamina, in dorsal view concealing parameres and volsellae) *T. unicum* may be tentatively placed in the *drepanophorum* group of *Trichogramma* (Pinto & Oatman 1996). Once the female

and/or the winged male will be discovered the present taxonomic placement can be reconsidered.

Etymology. The species name is referred to the unique features of the male genitalia.

Material examined. Holotype ♂ (slide), **New Zealand:** South Island, Craigieburn Forest Park, 829 m, 2-4.iii.2009, 43°08'33''S, 171°44'21''E, H. Goulet lgt.

Concluding remarks

The findings reported in the present paper widen the geographical distribution of several genera and species of Trichogrammatidae. A representative of the genus *Adryas* is firstly recorded from the Oriental region and species of *Hayatia* and *Probrachista* from Africa. Interesting new data concern the delimitation of some genera as *Pseudoligosita* and *Probrachista*, taking into account the variations of the antennal formula. After more than one century the genus *Pseudogrammina*, known only from Australia, is

recorded from New Zealand. A wider knowledge is done on the poorly known genus *Haeckeliana*, one of the largest genera of Trichogrammatidae with the vast majority of species, including many from the New World, awaiting description (Pinto 2006).

The ten new species of the genus, described in the present paper, confirm this view and point out the remarkable interspecific variations concerning particularly the antennal shape and sensilla, and the fore wing venation in these small insects.

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