

# Three new species of the *Macrophya histrio* group (Hymenoptera: Tenthredinidae) with a key to species from China

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**Abstract:** Three new species, *Macrophya nigrihistrio* Li, Liu & Wei **sp. nov.**, *M. parahistrioides* Li, Liu & Wei **sp. nov.** and *M. tianquanensis* Li, Liu & Wei **sp. nov.**, of the genus *Macrophya* Dahlbom (Hymenoptera: Tenthredinidae) from China are described. A key to Chinese species of the *Macrophya histrio* group is provided.

**Key words:** Symphyta; Tenthredinoidea; taxonomy; sawflies

## 中国钩瓣叶蜂属密纹钩瓣叶蜂种团三新种及分种检索表（膜翅目：叶蜂科）

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**摘要：**记述中国钩瓣叶蜂属密纹钩瓣叶蜂种团 *Macrophya histrio* group 3 新种：黑脊钩瓣叶蜂 *M. nigrihistrio* Li, Liu & Wei **sp. nov.**，拟密纹钩瓣叶蜂 *M. parahistrioides* Li, Liu & Wei **sp. nov.**和天全钩瓣叶蜂 *M. tianquanensis* Li, Liu & Wei **sp. nov.**，提供了密纹钩瓣叶蜂种团中国已知种类分种检索表。

**关键词：**广腰亚目；叶蜂总科；分类；叶蜂

## Introduction

*Macrophya* Dahlbom, 1835, the third largest genus in the subfamily Tenthredininae (Hymenoptera: Tenthredinidae), contains 309 species worldwide of which 170 species have been recorded in China until December 2019 (Li *et al.* 2018a, b, c, d, 2019a, b; Liu *et al.* 2018, 2019a, b, c; Xie *et al.* 2018).

The *Macrophya histrio* group is a medium-sized group with 8 extant species worldwide. It includes the following: from North Burma (*M. histrio* Malaise, 1945 in Malaise 1945), Japan (*M. kisuji* Togashi, 1974 in Togashi 1974), Nepal (*M. kathmanduensis* Haris, 2000 in Haris 2000), Laos (*M. hergovitsi* Haris & Roller, 2007 in Haris 2007), 5 species from China (*M. histrio*, *M. histrioides* Wei, 1998 in Wei & Nie 1998; *M. latidentata* Li, Liu & Wei 2016 in

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Liu *et al.* 2016; *M. xanthosoma* Wei, 2005 in Wei & Xiao 2005 and *M. wui* Wei & Zhao, 2010 in Zhao *et al.* 2010). They are similar in general morphology and form a distinct species group. Here, three new species of the *M. histrio* group from China, namely *Macrophya nigrihistrio* Li, Liu & Wei **sp. nov.**, *M. parahistrioides* Li, Liu & Wei **sp. nov.** and *M. tianquanensis* Li, Liu & Wei **sp. nov.**, are described, and a key to the 8 species from China is provided.

## Material and methods

The specimens were examined with a Motic-SMZ-171 stereomicroscope. Images of the imagines were taken with a Nikon D700 digital camera or a Leica Z16APO. The genitalia were examined with a Motic BA410E microscope, and images of the genitalia were taken with Motic Moticam Pro 285A. Composite images with an extended depth of field were created from stacks of photos using the software Helicon Focus (HeliconSoft, Kharkiv, Ukraine) and further processed with Adobe Photoshop CS 11.0.

Morphological descriptions of these new species are based on the holotypes. The terminology of genitalia follows Ross (1945) and that of general morphology follows Viitasaari (2002). For a few terms, including middle fovea, lateral fovea, and lateral walls, we follow Takeuchi (1952).

All holotypes and paratypes of these new species are deposited in the Insect Collection of Central South University of Forestry and Technology, Changsha, Hunan, China (CSCS).

Abbreviations used in text and illustrations are as follows: OOCL — The distance between a lateral ocellus and the occipital carina, or the hind margin of the head where this carina would be if it was developed (Benson 1954); OOL — The distance between an eye and a lateral ocellus; POL — The distance between the mesal margins of the 2 lateral ocelli.

## Taxonomy

### The *Macrophya histrio* group

Diagnosis. The main characteristics of *Macrophya histrio* group were provided by Li *et al.* (2016) and Li *et al.* (2018d).

Remarks. The specific characters correspond to a small species group of *Macrophya*. Diagnostic characters of the *M. histrio* group are: dorsum of all abdominal terga with distinct and dense microsculpture; lateral sides of abdominal tergum 7 with broad and long maculae; claw with inner tooth broader and longer than outer tooth; serrulae sub-triangular, and distinctly protruding, hairs on annuli dense.

In China, the *M. histrio* group includes 5 previously known species and the 3 new species described here. They can be separated using the following key.

### Key to the known species of the *Macrophya histrio* group from China

1. Apical 2/3 of fore wing with smoky macula clearly, basal 1/3 hyaline; apical half of hind wing with pale smoky macula, basal half hyaline; lancet with 27 serrulae ..... *M. latidentata* Li, Liu & Wei
- Wings hyaline, without smoky macula absolutely; lancet with 22–24 serrulae ..... 2
2. Mesopleuron entirely black, without yellowish white macula absolutely (Fig. 3E); lateral sides of abdominal tergum 7 with obtuse and small yellowish white maculae (Fig. 3F) .....  
..... *M. tianquanensis* Li, Liu & Wei **sp. nov.**

- Mesopleuron with yellowish white macula more or less; lateral sides of abdominal tergum 7 with long yellowish white maculae clearly ..... 3
- 3. Center of mesepisternum with “Z”-like yellowish white macula clearly ..... 4
- Center of mesepisternum with transverse “—”-like yellowish white macula clearly ..... 6
- 4. Upper temple with yellowish white maculae on posterior margin; basal 3/4 of hind femur yellowish white, apical 1/4 black; middle 3/5 of hind tibia with yellowish white, broad ring; metepimeral appendage entirely yellowish white ..... *M. xanthosoma* Wei
- Upper temple entirely black; base of hind femur with yellowish white maculae not longer than 1/2 times length of hind femur; middle of hind tibia with yellowish white maculae shorter than 1/2 length of hind tibia; metepimeral appendage entirely black ..... 5
- 5. Postocellar area with “∩”-like yellowish white maculae, 2.3 times broader than long; metepimeral appendage distinctly larger than diameter of a cenchrus; scape largely black; abdominal tergum 9 entirely black, laterally without yellowish white macula ..... *M. wui* Wei & Zhao
- Postocellar area entirely yellowish white, 1.8 times broader than long; metepimeral appendage smaller than diameter of a cenchrus; scape largely yellowish white; abdominal tergum 9 not entirely black, laterally with distinct yellowish white macula ..... *M. histrio* Malaise
- 6. Postocellar area entirely black (Fig. 1A); postocellar area elevated, 2.1 times broader than long (25 : 12) (Fig. 1C); fore wing with vein cu-a joining cell 1M at basal 1/4, vein 2r joining cell 2Rs at apical 1/3, cell 2Rs slightly longer than cell 1Rs, anal cell with a middle petiole 2 times longer than vein 1r-m, slightly shorter than vein cu-a (Fig. 1A); petiole of anal cell in hind wing about 3/5 length of vein cu-a (Fig. 1A); metepimeral appendage with a distinct basin, 1.5 times broader than diameter of a cenchrus (Fig. 1F); outer side of hind coxa entirely black, without yellowish white absolutely (Fig. 1A) ..... *M. nigrihistrio* Li, Liu & Wei **sp. nov.**
- Postocellar area with yellowish white macula more or less; other characteristics not different from the former at the same time ..... 7
- 7. Metepimeral appendage with a distinct basin, 1.8 times broader than diameter of middle ocellus, slightly larger than a cenchrus; base on outer side of hind coxa with yellowish white macula narrowly; basal 1/3 of hind femur yellowish white, apical 2/3 black; lateral sides of abdominal terga 2–6 entirely black, lateral corners of abdominal tergum 7 with long yellowish white maculae, lateral corners of abdominal tergum 8 with small yellowish white maculae ..... *M. histrioides* Wei
- Metepimeral appendage with a distinct basin, 2.5 times broader than diameter of middle ocellus, clearly larger than a cenchrus (Fig. 2E); base on outer side of hind coxa with yellowish white macula broadly (Fig. 2A); basal 3/4 of hind femur yellowish white, apical 1/4 black (Fig. 2A); lateral corners of abdominal terga 2–8 with yellowish white maculae bands (Figs. 2A, F) ..... *M. parahistrioides* Li, Liu & Wei **sp. nov.**

### 1. *Macrophya nigrihistrio* Li, Liu & Wei **sp. nov.** (Fig. 1)

Description. Holotype, ♀. Body length 9 mm (Fig. 1A). Body black; following parts yellowish white: basal half of mandibles, palp largely, labrum, clypeus, posterior margin of pronotum, mesoscutellum large, “V”-like macula on mesonotum, one double triangular small maculae on parapsis, mesoscutellum, center largely of mesoscutellar appendage, mesoscutellum, “—”-like transverse macula on center of mesepisternum, a small macula on posterior margin of katapimeron, maculae on posterior corner of metepimeron, small maculae on lateral corners of abdominal terga 2–6, large maculae on lateral sides of abdominal tergum 7, small maculae on lateral sides of abdominal tergum 8, abdominal tergum 10, apex of all coxae, all trochanters, base and anterior sides of fore and middle femora, anterior sides of fore and middle tibiae except for apex with black maculae, anterior sides largely of fore and middle

basitarsi, basal half of hind femur, a long macula 1/2 times longer than hind tibia and a small macula on dorsal side of hind tarsomere 1. Body short and dense, silver; sheath hairs slightly long, pale blackish brown. Wings hyaline, without smoky macula, stigma and veins blackish brown (Fig. 1A).

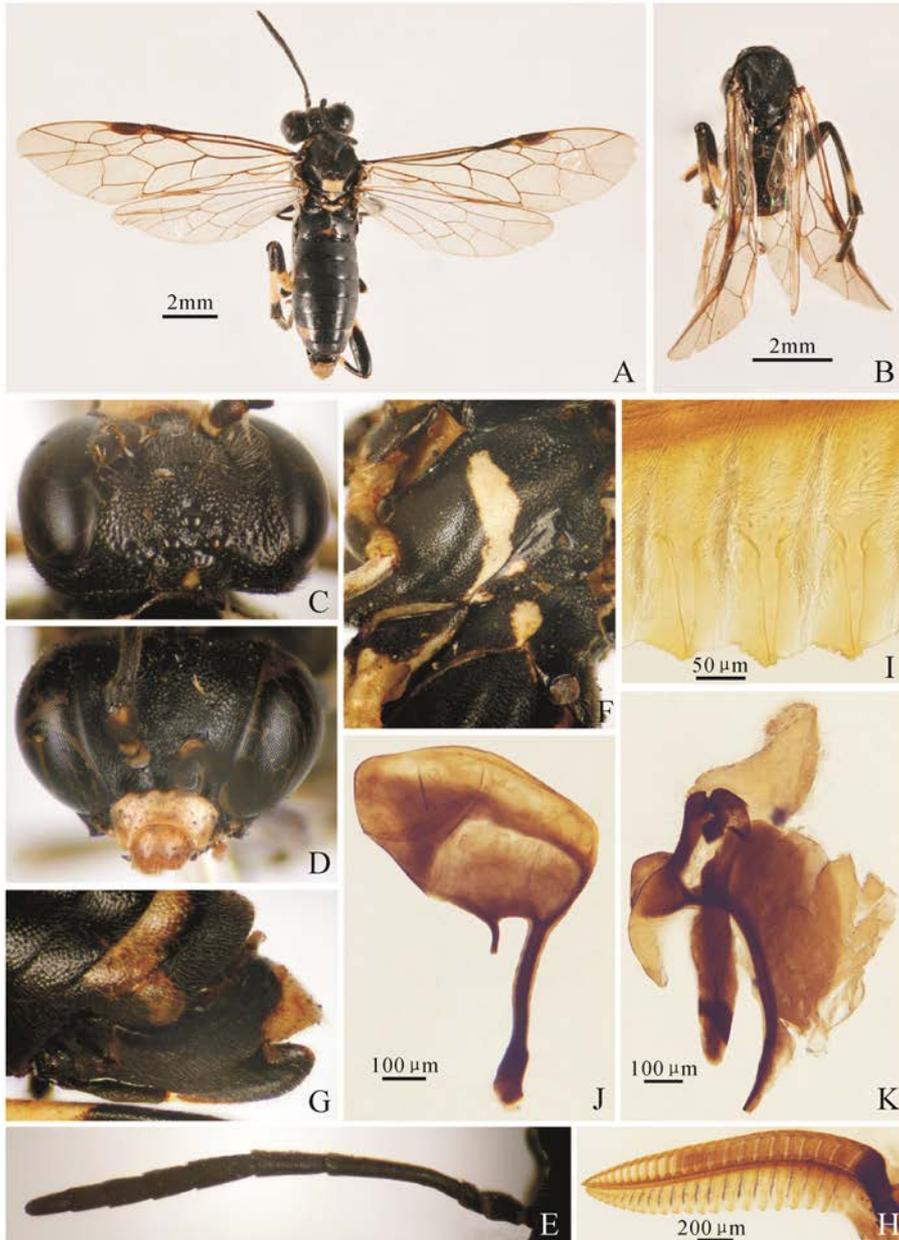


Figure 1. *Macrophya nigrihistro* Li, Liu & Wei **sp. nov.** ♀, holotype. A. Female adult, dorsal view; B. Male adult, dorsal view; C. Female head, dorsal view; D. Female head, frontal view; E. Female antenna; F. Female mesopleuron and metapleuron; G. Ovipositor sheath, lateral view; H. Lancet; I. The 8th–10th serrulae; J. Penis valve; K. Gonoforceps.

Dorsum of head less shiny; frons densely punctate, interspaces between punctures very narrow, with weak microsculpture (Fig. 1C); labrum and clypeus shiny, labrum with shallow punctures, clypeus with some large and sparse punctures, surface of clypeus with fine microsculpture (Fig. 1D); inner side of vertex with small polished area and some punctures and fine microsculpture. Pronotum and mesonotum less shiny, punctures on mesonotum as small as punctures on head, without polished interspaces between punctures, but with fine microsculpture; mesoscutellum less shiny, center of mesoscutellum with some large punctures and fine microsculpture; mesoscutellar appendage shiny, with some shallow punctures and fine microsculpture; metascutellar appendage without clear puncture, but with fine microsculpture. mesepisternum shiny, with dense and slightly rugose punctures, upper half with large punctures, lower half with small punctures; anepimeron dull, roughly and densely wrinkled; anterior margin of katepimeron smooth and shiny, without puncture or microsculpture; posterior area largely of katepimeron with rugose punctures and distinct microsculpture; lateral side of metepisternum dull, minutely and densely punctate, ventral side sparsely punctate, interspaces between punctures with fine microsculpture; metepimeron shiny, middle area with some shallow punctures, microsculpture fine but distinct, upper region slightly rugose; posterior corner of metepimeron mostly polished, with a distinct and flat basin, and more fine punctures in basin (Fig. 1F). Lateral sides of abdominal tergum 1 shallowly punctate, microsculpture weak but clear; other abdominal terga with weak and dense microsculpture, dorsal sides with sparse and minute punctures. Hind coxa and outer surface of hind femur densely punctate, interspace shiny and broader than diameter of punctures. Surface of sheath coriaceous.

Middle parts of labrum elevated, anterior margin of labrum truncate; clypeus slightly flat, broader than distance between lower corner of eyes, lateral sides clearly convergent forward; anterior margin deeply arcuate and incised to  $2/5$  length of clypeus, lateral corners sub-triangular, short and obtuse (Fig. 1D); malar space 0.3 times diameter of middle ocellus; frons elevated, middle area slightly depressed, slightly higher than top of eyes in lateral view; middle fovea shallow; lateral foveae deep, furrow-like; interocellar furrow distinct, postocellar furrow indistinct; POL : OOL : OOCL = 10 : 24 : 13; postocellar area elevated, 2.1 times broader than long (25 : 12), anterior  $1/2$  of lateral furrow shallow and posterior  $1/2$  deep, clearly divergent backwards; head narrowed behind eyes in dorsal view, occipital carina complete (Fig. 1C). Antenna slender, as long as head and thorax together, clearly shorter than abdomen; antennomere 2, 1.2 times longer than broad (9 : 7.5); antennomere 3, 1.8 times length of antennomere 4 (35 : 19), and 1.1 times length of antennomeres 4 and 5 together (35 : 31), antennomeres 4–8 compressed and dilated, antennomeres 6–9 reduced, the ratio being 11 : 10 : 9 : 11 (Fig. 1E). Mesoscutellum elevated, top roundish, without middle carina and not protruding, as high as top of mesonotum in lateral view; mesoscutellum and metascutellum with short and low middle carinae; posttergite with short and low middle carina; dorsal-posterior platform of mesepimeron equal to diameter of lateral ocellus; metepimeral appendage with a distinct basin, larger than a cenchrus and about 1.6 times as broad as diameter of middle ocellus; mesopleuron and metapleuron as in Fig. 1F; distance between cenchri 2 times width of a cenchrus. Inner tibial spur of hind leg 0.7 times length of hind tarsomere 1 (2 : 3); hind tarsomere 1 slender, slightly longer than following 4 tarsomeres together (9 : 8); claw with inner tooth slightly longer than outer tooth. Ovipositor sheath

distinctly longer than hind tarsomere 1 (23 : 18), apical sheath 1.1 times the length of basal sheath (20 : 19), apical margin roundish in lateral view (Fig. 1G). Fore wing with vein cu-a joining cell 1M at basal 1/4, vein 2r joining cell 2Rs at apical 1/3, cell 2Rs slightly longer than cell 1Rs, anal cell with a middle petiole 2 times the length of vein 1r-m, slightly shorter than vein cu-a; petiole of anal cell in hind wing about 3/5 length of vein cu-a. Lancet of female with 22 serrulae (Fig. 1H), serrulae sub-triangularly protruding, middle serrulae each with 1 proximal and 4–6 distal subbasal teeth, distance between serrulae as long as a serrula, annular spine bands narrow, hairs on annuli dense, 8th–10th serrulae as in Fig. 1I.

Male. Male color and structure similar to female (Fig. 1B); following parts yellowish white: lateral sides of abdominal terga 1–3, ventral sides of abdomen, middle coxa, ventral side of hind coxa, middle and hind trochanters, middle femur and tibia except for outer side with black maculae, middle tarsomeres largely, basal 1/3 of hind femur and dorsal side in subapex with a small macula of hind tibia; following parts entirely black: mesonotum, mesoscutellum, mesoscutellar appendage and metanotum; penis valve as in Fig. 1J; gonoforceps as in Fig. 1K.

**Holotype.** ♀, (CSCS) **China**, Zhejiang Province, Mt. Tianmu, 1250–1547 m, 06-VI-1989, Lianmin WANG leg. **Paratypes.** 1♀, (CSCS) **China**, Zhejiang Province, Lin'an District, Mt. Tianmu, 11-VI-1993, Ling TENG leg; 1♂, (CSCS) **China**, Zhejiang Province, Mt. Tianmu, Xianrending, 02–04-VI-1990, Yonggen LOU leg; 1♀, (CSCS) **China**, Zhejiang Province, Mt. Tianmu, 04-VI-1994; 1♀, (CSCS) **China**, Hubei Province, Mt. Shennongjia, 25-VII-2010, Maoling SHENG leg; 1♀, (CSCS11063) **China**, Zhejiang Province, Mt. Tianmu, Xianrending, E 119°25.26', N 30°20.59', 1506 m, 13-VI-2011, Zejian LI leg; 1♀, (CSCS) **China**, Hubei Province, Mt. Shennongjia, Wenshui Forest Farm, 1700–2000 m, Feng CHEN leg; 2♀, (CSCS12156) **China**, Zhejiang Province, Lin'an District, Mt. Tianmu, 1420 m, 19-VI-2012; 2♀, (CSCS12154) **China**, Zhejiang Province, Lin'an District, Mt. Tianmu, 1506 m, 05-VI-2012.

Variety. Female, postocellar area with small yellowish macula or postocellar area entirely yellowish white; mesoscutellum not entirely yellowish white, short area with black macula; base on outer side of hind coxa with small yellowish white macula or stripe; hind tarsomere 1 entirely black, without yellowish white macula absolutely.

Etymology. The new species epithet "*nigrihistrio*" is derived from the two Latin words "*nigra*-" and "*histrio*", referring to lateral sides of abdominal terga 2–6 of this new species with obtuse yellowish white maculae.

Remarks. The female of this new species is very similar to *M. histrioides* Wei, 1998, the former in having metepimeral appendage with a distinct basin, 1.5 times broader than diameter of a cenchrus; outer side of hind coxa entirely black, without yellowish white absolutely. *M. histrioides*: metepimeral appendage with a larger basin, 2 times broader than diameter of a cenchrus; outer side of hind coxa with long yellowish white macula clearly.

Distribution: China (Hubei, Zhejiang).

## 2. *Macrophya parahistrioides* Li, Liu & Wei sp. nov. (Fig. 2)

Description. Holotype, ♀. Body length 9.5 mm (Fig. 2A). Body black; following parts yellowish white: palp largely, basal half of mandibles, labrum, clypeus, posterior corners of pronotum, a long square macula of mesoscutellum, mesoscutellum, transverse macula on

center part of mesepisternum, a small macula on lower corner of katepimeron, posterior corner of metepisternum, narrow band on posterior margin of abdominal tergum 1; lateral corners of abdominal terga 2–8 with maculae row (lateral corners with the largest maculae of abdominal tergum 7), abdominal tergum 10, apical part largely and some stripes on outer side of fore coxa, base and some stripes on outer side of middle coxa, basal margin and some stripes on outer side of hind coxa, all trochanters, bases and some stripes on anterior side of fore and middle femur, basal 3/4 with long macula of hind femur, some stripes on anterior side of fore and middle tibiae, middle 2/5 with long macula of hind tibia (ventral side with black maculae largely) and fore and middle tibial spurs. Body short and dense, silver; sheath hairs slightly long, pale blackish brown. Body short and dense, silver; sheath hairs slightly long, pale blackish brown. Wings hyaline, without smoky macula, stigma and veins blackish brown (Fig. 2A).

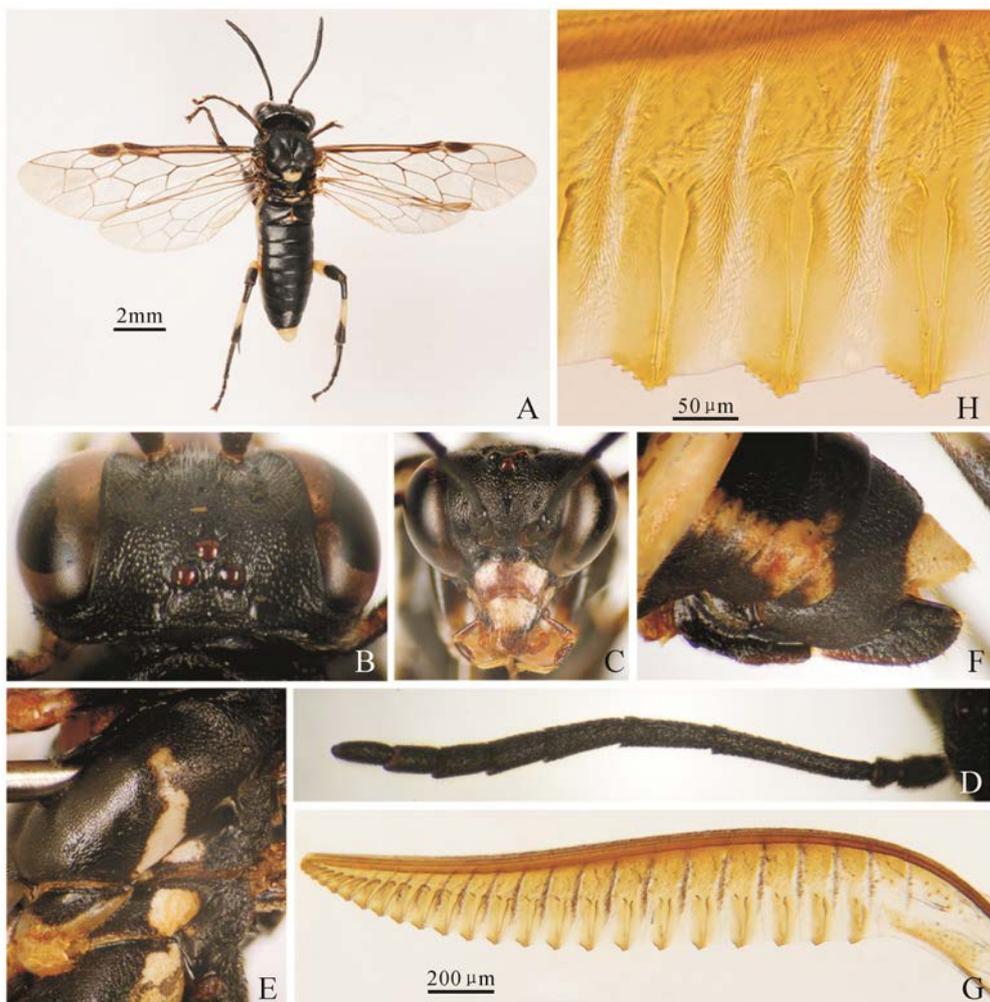


Figure 2. *Macrophya parahistrioides* Li, Liu & Wei sp. nov. ♀, holotype. A. Adult, dorsal view; B. Head, dorsal view; C. Head, frontal view; D. Antenna; E. Mesopleuron and metapleuron; F. Ovipositor sheath, lateral view; G. Lancet; H. The 8th–10th serrulae.

Dorsum of head less shiny; frons densely punctate, interspaces between punctures very narrow, microsculpture weak (Fig. 2B); labrum and clypeus shiny, labrum with shallow punctures, clypeus with some large and sparse punctures, surface of clypeus with fine microsculpture (Fig. 2C); inner side of vertex with small polished area and some punctures and fine microsculpture. Pronotum and mesonotum less shiny, punctures on mesonotum as small as punctures on head, without polished interspaces between punctures, but with fine microsculpture; mesoscutellum less shiny, center of mesoscutellum with some large punctures and fine microsculpture; mesoscutellar appendage dull, with some shallow punctures and fine microsculpture; metascutellar appendage dull, without clear punctures, but with fine microsculpture. Mesepisternum less shiny, with dense and slightly rugose punctures, interspaces polished and narrowed between punctures; anepimeron dull, roughly and densely wrinkled; anterior margin of katepimeron smooth and shiny, without punctures or microsculpture; posterior area largely of katepimeron with rugose punctures and distinct microsculpture; lateral side of metepisternum dull, minutely and densely punctate, ventral side sparsely punctate, interspaces between punctures with fine microsculpture; metepimeron shiny, middle area with some shallow punctures, microsculpture fine but distinct, upper region slightly rugose; posterior corner of metepimeron mostly polished, with a distinct and flat basin, and more fine punctures in basin (Fig. 2E). Lateral sides of abdominal tergum 1 shallowly and clearly punctate, microsculpture weak but clear; other abdominal terga with weak and dense microsculpture, dorsal sides with sparse and minute punctures. Hind coxa and outer surface of hind femur densely punctate, interspace shiny and broader than diameter of punctures. Surface of sheath coriaceous.

Middle parts of labrum elevated, anterior margin of labrum truncate and shallow; clypeus slightly flat, broader than distance between lower corner of eyes, lateral sides clearly convergent forward; anterior margin deeply arcuate and incised to 1/4 length of clypeus, lateral corners sub-triangular, short and obtuse (Fig. 2C); malar space 0.3 times diameter of middle ocellus; frons elevated, middle area slightly depressed, slightly higher than top of eyes in lateral view; middle fovea shallow; lateral foveae deep, furrow-like; interocellar furrow distinct, postocellar furrow indistinct; POL : OOL : OOCL = 6.5 : 24 : 13; postocellar area elevated, 2.3 times broader than long (27 : 12), anterior 1/2 of lateral furrow shallow and posterior 1/2 deep, clearly divergent backwards; head narrowed behind eyes in dorsal view, occipital carina complete (Fig. 2B). Antenna slender, as long as head and thorax together, clearly shorter than abdomen; antennomere 2, 1.2 times longer than broad (9 : 8); antennomere 3, 1.8 times length of antennomere 4 (51 : 28), and 1.1 times the length of antennomeres 4 and 5 together (51 : 53), antennomeres 4–8 compressed and dilated, antennomeres 6–9 reduced, the ratio being 18 : 17 : 15 : 18 (Fig. 2D). Mesoscutellum slightly elevated, top roundish, without carinae and not protruding, as high as top of mesonotum in lateral view; mesoscutellar appendage with slightly acute middle carina, metascutellum with short and low middle carinae; posttergite with short and low middle carina; dorsal-posterior platform of mesepimeron equal to diameter of lateral ocellus; metepimeral appendage with a distinct basin, larger than a cenchrus and about 1.6 times as broad as diameter of middle ocellus; mesopleuron and metapleuron as in Fig. 2E; distance between cenchri 2.5 times width of a cenchrus. Inner tibial spur of hind leg 0.7 times length of hind tarsomere 1 (13 : 20); hind tarsomere 1 slender, slightly longer than following 4 tarsomeres together (20 : 19); claw with inner tooth clearly

longer and broader than outer tooth. Ovipositor sheath distinctly longer than hind tarsomere 1 (6 : 5), apical sheath as long as basal sheath, apical margin roundish in lateral view (Fig. 2F). Fore wing with vein cu-a joining cell 1M at basal 1/4, vein 2r joining cell 2Rs at apical 1/4, cell 2Rs slightly longer than cell 1Rs, anal cell with a middle petiole 2 times the length of vein 1r-m, as long as vein cu-a; petiole of anal cell in hind wing about 1/2 length of vein cu-a. Lancet of female with 23 serrulae (Fig. 2G), serrulae sub-triangularly protruding, middle serrulae each with 1 proximal and 5–6 distal subbasal teeth, distance between serrulae as long as a serrula, annular spine bands narrow, hairs on annuli dense, 8th–10th serrulae as in Fig. 2H.

Male. Unknown.

**Holotype.** ♀, (CSCS) **China**, Taiwan, Nan-tou-Hsien, Sungkang, 2000 m, 04-V-1984, K. Ra. Leg.

Etymology. The new species epithet “*parahistrioides*” is derived from the Greek word “*para*” and the Latin name “*histrioides*”, referring to this new species being very similar to *M. histrioides* Wei, 1998.

Remarks. The female of this new species is very similar to *M. histrioides* Wei, 1998, the former in having an metepimeral appendage with a distinct basin, 2.5 times broader than diameter of middle ocellus, clearly larger than a cenchrus; base on outer side of hind coxa with yellowish white macula broadly; basal 3/4 of hind femur yellowish white, apical 1/4 black; lateral corners of abdominal terga 2–8 with yellowish white maculae bands. *M. histrioides*: metepimeral appendage with a distinct basin, 1.8 times broader than diameter of middle ocellus, slightly larger than a cenchrus; base on outer side of hind coxa with yellowish white macula narrowly; basal 1/3 of hind femur yellowish white, apical 2/3 black; lateral sides of abdominal terga 2–6 entirely black, lateral corners of abdominal tergum 7 with long yellowish white maculae, lateral corners of abdominal tergum 8 with small yellowish white maculae.

Distribution: China (Taiwan).

### 3. *Macrophya tianquanensis* Li, Liu & Wei sp. nov. (Fig. 3)

Description. Holotype, ♀. Body length 8.5 mm (Fig. 3A); following parts yellowish white: palp largely, base of mandibles, labrum, clypeus except for base with black maculae, posterior margin of pronotum, mesoscutellum except for black macula at frontal area, mesoscutellar appendage largely, a small macula at center of metascutellum, faint macula on lateral margin of abdominal tergum 7, abdominal tergum 10, all trochanters, apical margin on anterior side of fore femur, some stripes on anterior side of fore and middle tibiae, narrow macula on outer side of hind coxa, basal 2/7 on outer side of hind femur and middle 1/3 with broad ring of hind tibia. Body short and dense, silver; sheath hairs slightly long, pale blackish brown. Wings hyaline, without smoky macula, stigma and veins blackish brown (Fig. 3A).

Dorsum of head less shiny; frons densely punctate, interspaces between punctures very narrow, microsculpture weak (Fig. 3B); labrum and clypeus shiny, labrum with shallow punctures, clypeus with some large and sparse punctures, surface of clypeus with fine microsculpture (Fig. 3C); inner side of vertex with small polished area and some punctures and fine microsculpture. Pronotum and mesonotum less shiny, punctures on mesonotum as small as punctures on head, without polished interspaces between punctures, but with fine microsculpture; mesoscutellum less shiny, center of mesoscutellum with some large punctures

and fine microsculpture; mesoscutellar appendage dull, with some shallow punctures and fine microsculpture; metascutellar appendage dull, without clear punctures, but with fine microsculpture. Mesepisternum less shiny, with dense and slightly rugose punctures, interspaces polished and narrowed between punctures, upper half with large punctures, lower half with small punctures; anepimeron dull, roughly and densely wrinkled; anterior margin of katepimeron smooth and shiny, without punctures or microsculpture; posterior area largely of katepimeron with rugose punctures and distinct microsculpture; lateral side of metepisternum dull, minutely and densely punctate, ventral side sparsely punctate, interspaces between punctures with fine microsculpture; metepimeron shiny, middle area with some shallow punctures, microsculpture fine but distinct, upper region slightly rugose; posterior corner of metepimeron mostly polished, with a distinct and flat basin, and more fine punctures in basin (Fig. 3E). Lateral sides of abdominal tergum 1 shallowly and clearly punctate, microsculpture weak but clear; other abdominal terga with weak and dense microsculpture, dorsal sides with sparse and minute punctures. Hind coxa and outer surface of hind femur densely punctate, interspace shiny and broader than diameter of punctures. Surface of sheath coriaceous.

Middle parts of labrum elevated, anterior margin of labrum truncate and shallow; clypeus slightly flat, broader than distance between lower corner of eyes, lateral sides clearly convergent forwards; anterior margin deeply arcuate and incised to 1/3 length of clypeus, lateral corners sub-triangular, short and obtuse (Fig. 3C); malar space 0.2 times diameter of middle ocellus; frons elevated, middle area slightly depressed, slightly higher than top of eyes in lateral view; middle fovea shallow; lateral foveae deep, furrow-like; interocellar furrow distinct, postocellar furrow indistinct; POL : OOL : OOCL = 7 : 23 : 13; postocellar area elevated, 2.5 times broader than long (30 : 12), anterior 2/3 of lateral furrow deep and posterior 1/3 shallow, clearly divergent backwards; head narrowed behind eyes in dorsal view, occipital carina complete (Fig. 3B). Antenna slender, as long as head and thorax together, slightly shorter than abdomen; antennomere 2, 1.25 times longer than broad (5 : 4); antennomere 3, 1.85 times the length of antennomere 4 (50 : 27), and slightly shorter than antennomeres 4 and 5 together (50 : 52), antennomeres 4–8 compressed and dilated, antennomeres 6–9 reduced, the ratio as 13 : 12 : 9 : 12 (Fig. 3D). Mesoscutellum slightly elevated, top roundish, without carinae and not protruding, as high as top of mesonotum in lateral view; mesoscutellar appendage with slightly acute middle carina, metascutellum with short and low middle carinae; posttergite with short and low middle carina; dorsal-posterior platform of mesepimeron equal to diameter of lateral ocellus; metepimeral appendage with a distinct basin, larger than a cenchrus and about 1.2 times as broad as diameter of middle ocellus; mesopleuron and metapleuron as Fig. 3E; distance between cenchri 2.5 times width of a cenchrus. Inner tibial spur of hind leg 0.7 times length of hind tarsomere 1 (2 : 3); hind tarsomere 1 slender, as long as following 4 tarsomeres together; claw with inner tooth clearly broader and slightly longer than outer tooth. Ovipositor sheath distinctly longer than hind tarsomere 1 (19 : 15), apical sheath as long as basal sheath, apical margin roundish in lateral view (Fig. 3F). Fore wing with vein cu-a joining cell 1M at basal 1/6, vein 2r joining cell 2Rs at apical 1/3, cell 2Rs slightly shorter than cell 1Rs, anal cell with a middle petiole 1.5 times longer than vein 1r-m, slightly shorter than vein cu-a; petiole of anal cell in hind wing about 1/3 length of vein cu-a. Lancet of female with 22 serrulae (Fig. 3G), serrulae sub-triangularly protruding, middle serrulae each with 1 proximal and 4–6 distal subbasal teeth, distance

between serrulae as long as a serrula, annular spine bands narrow, hairs on annuli dense, 8th–10th serrulae as Fig. 3H.

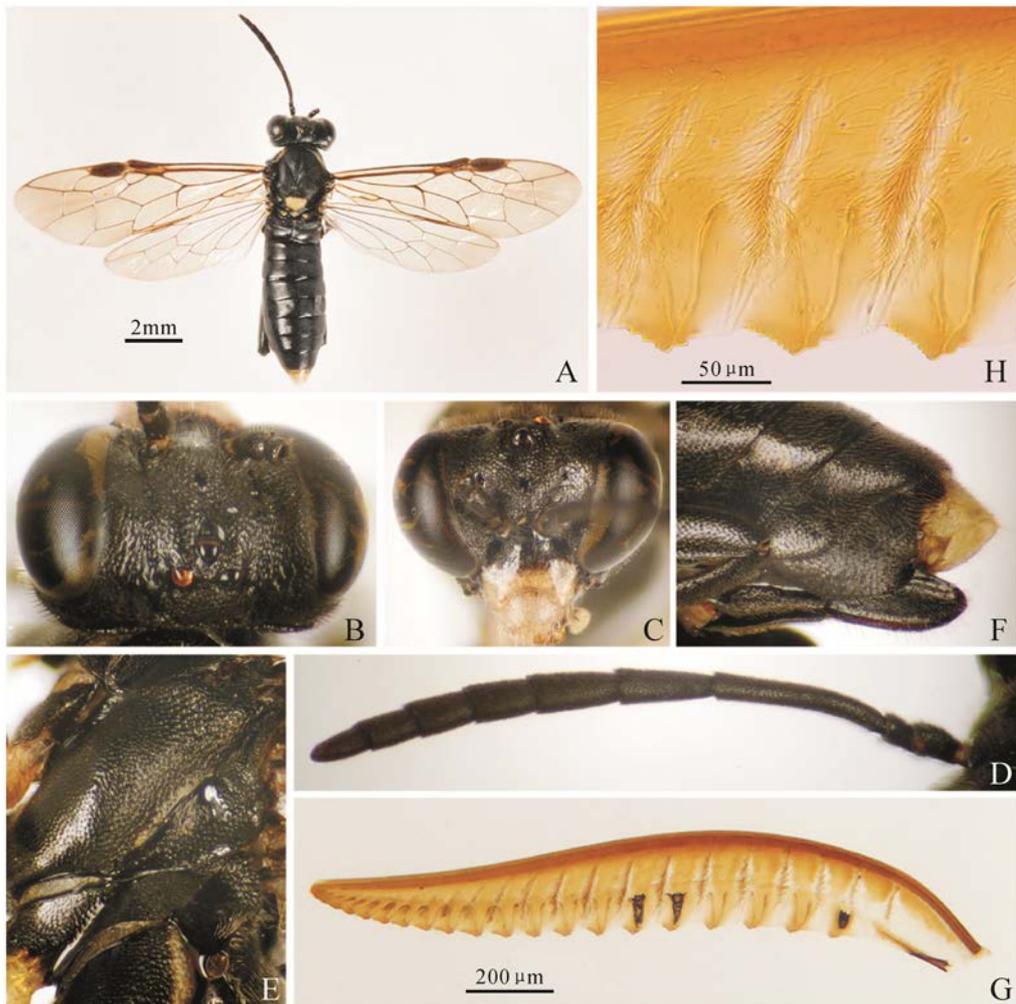


Figure 3. *Macrophya tianquanensis* Li, Liu & Wei sp. nov. ♀, holotype. A. Adult, dorsal view; B. Head, dorsal view; C. Head, frontal view; D. Antenna; E. Mesopleuron and metapleuron; F. Ovipositor sheath, lateral view; G. Lancet; H. The 8th–10th serrulae.

Male. Unknown.

**Holotype.** ♀, (CSCS) **China**, Sichuan Province, Tianquan Country, Mt. Labahe, 1800–2000 m, 12-VII-2003, Wei XIAO leg.

**Etymology.** The new specific name “*tianquanensis*” is derived from the locality of the new species which is Tianquan County, Sichuan Province in China.

**Remarks.** The female of this new species is very similar to *M. histrioides* Wei, 1998, the former in having clypeus not entirely white, base with black macula; posterior margin of mesepisternum with obtuse small white macula, metapleuron entirely black; lateral sides of abdominal tergum 7 with obtuse small white maculae; fore wing with vein cu-a joining cell

1M at basal 1/6, cell 2Rs slightly shorter than cell 1Rs, anal cell with a middle petiole 1.5 times longer than vein 1r-m; basal 2/7 on outer side of hind femur white; metepimeral appendage with a distinct basin, as broad as a cenchrus. *M. histrioides*: clypeus entirely white; middle part of mesepisternum with clearly transverse white macula, posterior corner of metepisternum with white macula; lateral sides of abdominal tergum 7 with clearly long white maculae; fore wing with vein cu-a joining cell 1M at basal 1/4, cell 2Rs clearly longer than cell 1Rs, anal cell with a middle petiole 2 times longer than vein 1r-m; basal 1/3 on outer side of hind femur white; metepimeral appendage with a distinct basin, clearly larger than a cenchrus.

Distribution: China (Sichuan).

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