

Review of the *Aglaostigma laticinctum* subgroup (Hymenoptera: Tenthredinidae) with descriptions of two new species from China

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Abstract: Two new species of the *Aglaostigma laticinctum* subgroup belonging to *A. tertium* group, are described and illustrated in this study: *A. leucogaster* Liu, Li & Wei **sp. nov.** and *A. rufitegula* Liu, Li & Wei **sp. nov.** The *Aglaostigma laticinctum* subgroup is proposed here for the first time, with a brief discussion of its diagnostic features. Additionally, a key to all known species of the *A. laticinctum* subgroup from China is provided.

Key words: Tenthredinoidea; sawfly; taxonomy

<http://zoobank.org/3754DA77-1F35-4ACD-B20F-BA8B3E959673>

中国宽环钝颊叶蜂次种团评述暨二新种（膜翅目：叶蜂科）

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摘要: 记述中国四环钝颊叶蜂种团 *Aglaostigma tertium* group 宽环钝颊叶蜂次种团 *Aglaostigma laticinctum* subgroup 2 新种: 白腹钝颊叶蜂 *A. leucogaster* Liu, Li & Wei **sp. nov.** 和红鳞钝颊叶蜂 *A. rufitegula* Liu, Li & Wei **sp. nov.**。首次提出了宽环钝颊叶蜂次种团 *A. laticinctum* subgroup, 并讨论了该次种团的鉴别特征。提供了中国宽环钝颊叶蜂次种团分种检索表。

关键词: 叶蜂总科; 叶蜂; 分类

Introduction

Aglaostigma Kirby, 1882, a moderately large genus (Hymenoptera: Tenthredinidae), contains 54 known species and 2 known subspecies worldwide. *Aglaostigma* includes 5 subgenera: *Aglaostigma*, *Astochus*, *Bivena*, *Macrophyopsis* and *Neurosiobla* (Taeger *et al.* 2010). In China, 38 valid species of *Aglaostigma* have been recorded (Liu *et al.* 2024a, b). In

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our study, three species including two new species and a known species, are similar in general morphology and form a distinct species subgroup within the genus *Aglaostigma*. Here, the *A. laticinctum* subgroup is proposed and defined for the first time. Two new species from China are reported and illustrated: *A. leucogaster* Liu, Li & Wei **sp. nov.** and *A. rufitegula* Liu, Li & Wei **sp. nov.** A key to the known species from China is provided.

Material and methods

Specimens were collected using entomological sweep nets in the forests of Guangxi, Hunan and Jiangxi, China.

The specimens were examined with a Motic-SMZ-171 stereomicroscope. Images of adults were taken with a Nikon D700 digital camera and a Leica Z16APO microscope. The genitalia were examined with a Motic BA410E microscope and photographed with a Motic Moticam Pro 285A. Images were focus-stacked using Helicon Focus (HeliconSoft, Kharkiv, Ukraine) and further processed with Adobe Photoshop CS 11.0. The terminology of genitalia follows Ross (1945) and that of general morphology follows Viitasaari (2002). For a few terms (e.g., middle fovea and lateral fovea), we follow Takeuchi (1952).

The holotype and all paratypes are deposited in the Asian Sawfly Museum, Nanchang, China (ASMN). Specimens of other species examined in this research are deposited in the Asian Sawfly Museum, Nanchang, China (ASMN).

Abbreviations. OOCL — distance between the lateral ocellus and the occipital carina or the hind margin of the head; OOL — shortest distance between the compound eye and the lateral ocellus; POL — distance between the margins of the lateral ocelli.

Taxonomy

The *Aglaostigma laticinctum* species subgroup

Diagnosis. Antennae entirely black; labrum, clypeus, narrow macula in middle and lower parts of inner orbit, broad macula in middle and upper parts of posterior orbit, prenotum largely, abdominal tergum 3 and hind trochanter entirely white; frontal area of head, inner side of inner orbit, temple largely, postocellar area entirely with coarse and dense punctures and microsculpture, less shiny; malar space as broad as the diameter of median ocellus; postocellar area elevated, with weak middle longitudinal ditch, 2× broader than long; antennae filiform, as long as head and thorax together, slightly shorter than abdomen; flagellomere 3 longer than flagellomere 4, slightly shorter than flagellomeres 4 and 5 together; posterior corner of metepimeron broad and round, mesoscutellum flat; claw of hind leg with broad and large inner tooth, slightly broader and longer than outer tooth; denticles of lancet small and many, middle serrulae usually with 1–2 proximal and 10–14 distal denticles, middle annuli with 4–6 small and clear ctenidial teeth.

Key to the species of the *Aglaostigma laticinctum* subgroup from China

1. Hind tibia and tarsomeres entirely black, without reddish macula absolutely (Fig. 3). China (Guangxi, Hunan, Jiangxi)..... *A. leucogaster* Liu, Li & Wei **sp. nov.**

- Hind tibia and tarsomeres largely with reddish maculae, partly black 2
2. Body length 8 mm (Fig. 1A); abdominal tergum 6 entirely black (Fig. 1A); tegula largely brown, partly black (Fig. 2C); cell 2Rs in fore wing slightly shorter than cell 1Rs; vein cu-a joining lower margin of cell 1M at basal 1/5; vein 2r joining upper margin of cell 2Rs at middle; anal cell in hind wing with a short petiole, clearly shorter than vein cu-a (Fig. 1A). China (Hunan, Jiangxi)..... *A. laticinctum* He, Wei & Zhang
- Body length 10.5 mm (Fig. 5A); abdominal tergum 6 basal half white, apical half black (Fig. 5A); tegula entirely reddish brown, partly black (Fig. 5F); cell 2Rs in fore wing longer than cell 1Rs; vein cu-a joining lower margin of cell 1M at basal 1/3; vein 2r joining upper margin of cell 2Rs at apical 2/5; anal cell in hind wing with a short petiole, 2/3× longer than vein cu-a (Fig. 5A). China (Hunan)
..... *A. rufitegula* Liu, Li & Wei **sp. nov.**

1. *Aglaostigma laticinctum* He, Wei & Zhang, 2005 (Figs 1, 2)

Aglaostigma laticinctum He, Wei & S.B. Zhang, 2005: 619.

Holotype. ♀, **China**, Hunan, Mt. Hengshan, Nantianmen, alt. 1,100–1,110 m, 11-IV-2004, Shaobing ZHANG leg. **Paratypes.** 1♀, **China**, Hunan, Mt. Hengshan, Nantianmen, alt. 1,100–1,110 m, 11-IV-2004, Weixing LIU leg.; 1♂, **China**, Hunan, Mt. Hengshan, Nantianmen, alt. 1,100–1,110 m, 11-IV-2004, Yingke HE leg.

Description. The original description is given by He *et al.* (2005).



Figure 1. *Aglaostigma laticinctum* He, Wei & Zhang, 2005. ♀, holotype; ♂, paratype. A, B. Female adult, dorsal and lateral views; C, D. Male adult, dorsal and lateral views. Scale bars = 2 mm.

Host plants. Unknown.

Remarks. This species belongs to the *A. laticinctum* subgroup and is similar to *A. bicolor* Wei, 2002 and *A. tertium* Zinovjev, 1994 in morphological characteristics (Figs 1, 2).

Aglaostigma laticinctum has the antennae entirely black; abdominal tergum 1 and tergum 3, terga 7–10, narrow macula in middle and lower parts of inner orbit, broad macula in middle and upper parts of posterior orbit white; hind femur brown; cell 2Rs slightly shorter than cell 1Rs; posterior corner of metepimeron broad and round; antennae short, as long as head and thorax together.

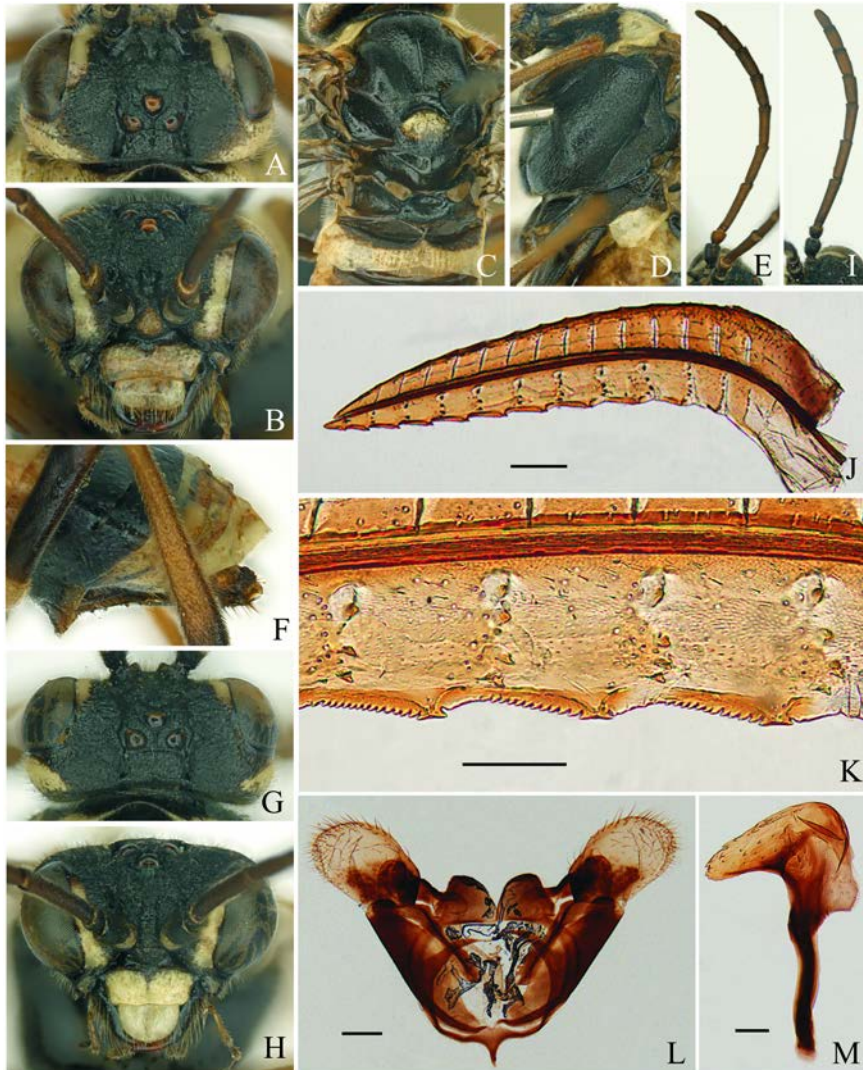


Figure 2. *Aglaostigma laticinctum* He, Wei & Zhang, 2005. ♀, holotype; ♂, paratype. A, B. Female head, dorsal and frontal views; C, D. Female mesopleuron and metapleuron, dorsal and frontal views; E. Female antenna, lateral view; F. Ovipositor sheath, lateral view; G, H. Male head, dorsal and frontal views; I. Male antenna, lateral view; J. Lancet; K. The 4th–6th serrulae; L. Gonoforceps; M. Penis valve. Scale bars = 200 µm (J, L); 100 µm (K, M).

2. *Aglaostigma leucogaster* Liu, Li & Wei sp. nov. (Figs 3, 4)

<http://zoobank.org/67A15A80-9E7C-40BC-86D4-121D0C88D84C>

Description. Female, body length 10 mm (Figs 3A, 3B).

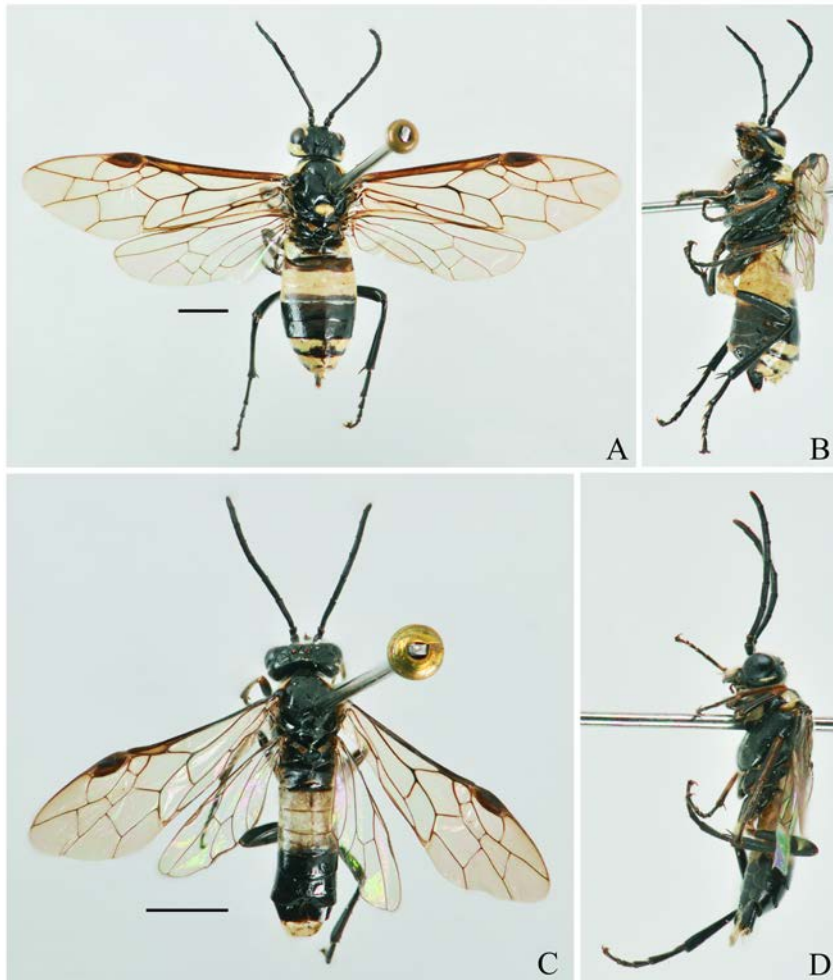


Figure 3. *Aglaostigma leucogaster* Liu, Li & Wei **sp. nov.**, ♀, holotype; ♂, paratype. A, B. Female adult, dorsal and lateral views; C, D. Male adult, dorsal and lateral views. Scale bars = 2 mm.

Colour. Body black; following parts white: labrum, clypeus, a small macula at center of supraclypeal area, narrow macula in middle and lower parts of inner orbit, broad macula in middle and upper parts of posterior orbit, prenotum largely, mesoscutellum largely at center, lower half of metepimeron, abdominal terga 1–2 except for black maculae dorsally, abdominal tergum 3 entirely, abdominal tergum 4 except for black maculae at apex dorsally, abdominal terga 7–9 largely and abdominal tergum 10 entirely. Legs largely black; stripes at anterior side of fore femur, a small macula at anterior side of middle femur and hind trochanters entirely white. Body hairs silver. Wings hyaline, pterostigma blackish brown, vein C dark brown, other veins blackish brown.

Punctuation. Frontal area of head, inner side of inner orbit, temple largely, postocellar area entirely with coarse and dense punctures and microsculpture, less shiny; others of head smooth, strongly shiny (Fig. 4A). Prenotum largely, mesoscutellum and mesoscutellar

appendage and white macula of metepimeron smooth, strongly shiny (Figs 4C, 4D). Prenotum partly with sparse punctures and weak microsculpture, mesopleuron with dense microsculpture and coarse punctures.

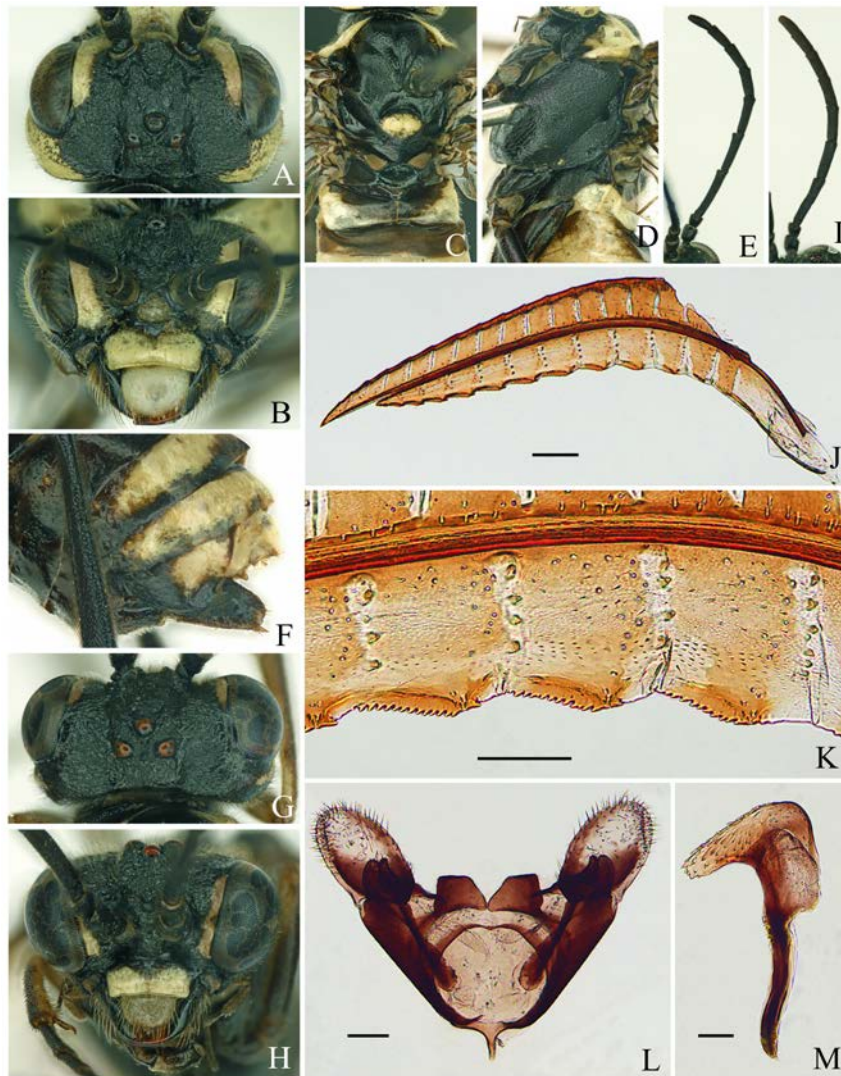


Figure 4. *Aglaostigma leucogaster* Liu, Li & Wei **sp. nov.**, ♀, holotype; ♂, paratype. A, B. Female head, dorsal and frontal views; C, D. Female mesopleuron and metapleuron, dorsal and lateral view; E. Female antenna, lateral view; F. Ovipositor sheath, lateral view; G, H. Male head, dorsal and frontal views; I. Male antenna, lateral view; J. Lancet; K. The 4th–6th serrulae; L. Gonoforceps; M. Penis valve. Scale bars = 200 μm (J, L); 100 μm (K, M).

Anterior margin of labrum round; apical margin of clypeus slightly truncate, lateral margins slightly convergent forward; malar space as broad as the diameter of median ocellus; inner margins of eyes slightly convergent downward (Fig. 4B); median fovea nest-shaped

broadly and deeply, lateral foveae open, convergent with frontal ridge furrows; interocellar furrow and postocellar furrow slightly weak; lateral postocellar furrow broad and deep, slightly parallel backward, POL : OOL : OOCL = 45 : 45 : 82; postocellar area elevated, with weak middle longitudinal ditch, posterior part not depressed, with occipital carina 2× broader than long; vertex 0.5× broader than diameter of eyes; temple in dorsal view 0.5× broader than diameter of eyes, lateral sides almost parallel (Fig. 4A). Antennae filiform, as long as head and thorax together, slightly shorter than abdomen; flagellomere 3 longer than flagellomere 4 (105 : 85), slightly shorter than flagellomeres 4 and 5 together (105 : 160), length ratio of apical flagellomeres 6–9 as 60 : 55 : 53 : 50 (Fig. 4E). Posterior corner of metepimeron broad and round, mesoscutellum flat (Fig. 4D); hind femur extended to bottom of abdomen, metabasitarsus slightly longer than following 3 tarsomeres together, slightly shorter than following 4 tarsomeres together, inner tibial spur of hind leg shorter than half of metabasitarsus; claw of hind leg with broad and large inner tooth, slightly broader and longer than outer tooth. Cell 2Rs in fore wing longer than cell 1Rs, outer and lower corner of cell 2Rs strongly extended; vein cu-a joining lower margin of cell 1M at basal 1/3, vein cu-a joining lower margin of cell 1M at middle; anal cell in hind wing with a petiole, as long as vein cu-a; cell 1M closed, short square; cell Rs open. Valvula 3 as long as valvifer 2, ovipositor sheath in lateral view as shown in Fig. 4F. Lancet with 13 serrulae (Fig. 4J), middle serrulae with 1 proximal and 10–13 distal denticles, denticle small and many, middle annuli with 4–6 small and clear ctenidial teeth as shown in Fig. 4K.

Male. Body length 7 mm (Figs 3C, 3D); colour and structures similar to female, but body length slightly slender and shorter than female; mesoscutellum entirely black; abdominal tergum 2 and tergum 4 partly black, others white; head in dorsal view as shown in Fig. 4G, head in frontal view as shown in Fig. 4H, antennae in lateral view as shown in Fig. 4I; vein cu-a in fore wing joining lower margin of cell 1M at basal 1/4, vein 2r joining upper margin of cell 2Rs at apical 2/5; apical margin of harpe round, longer than broad, gonoforceps as shown in Fig. 4L; apical 1/3 of valviceps transverse and broad, penis valve as shown in Fig. 4M.

Holotype. ♀, **China**, Hunan, Shaoyang City, Mt. Yunshan, Shengli Temple, 26°38.859' N, 110°37.026' E, alt. 1,145 m, 21-IV-2011, Zejian LI & Li WEI leg. **Paratypes.** 3♀1♂, **China**, Hunan, Wugang City, Mt. Yunshan, Shengli Temple, 26°38.859' N, 110°37.026' E, alt. 1,145 m, 14-IV-2012, Zejian LI leg. (CSCS12008); 1♀, **China**, Hunan, Wugang City, Mt. Yunshan, Shengli Temple, 26°38.859' N, 110°37.026' E, alt. 1,145 m, 09-IV-2012, Zejian LI & Zaiyang PAN leg.; 1♀, **China**, Hunan, Mt. Hengshan, alt. 700 m, 15-III-2004, Yingke HE leg.; 1♀, **China**, Guangxi, Mt. Maoer, 25°52' N, 110°29' E, alt. 1,160 m, 24-III-2020.

Host plants. Unknown.

Variation. Some specimens show the hind tibia being reddish brown indistinctly.

Etymology. The species epithet "*leucogaster*" refers to several abdominal terga of the new species being white.

Remarks. This species belongs to the *A. laticinctum* subgroup and is similar to *A. laticinctum* He, Wei & Zhang, 2005 in morphological characteristics. *Aglaostigma leucogaster* has the tegula largely brown, partly black; all legs largely black, partly white; cell 2Rs in fore wing longer than cell 1Rs, vein cu-a joining lower margin of cell 1M at basal 1/3; anal cell in hind wing with a short petiole, as long as vein cu-a; mesoscutellum in male

entirely black. *A. laticinctum* has the tegula entirely black; all legs largely reddish brown, partly black; cell 2Rs in fore wing slightly shorter than cell 1Rs, vein cu-a joining lower margin of cell 1M at basal 1/5; anal cell in hind wing with a short petiole, clearly shorter than vein cu-a; mesocutellum in male not entirely black, with a white macula at center.

3. *Aglaostigma rufitegula* Liu, Li & Wei sp. nov. (Fig. 5)

<http://zoobank.org/02456A9F-A28E-45A0-8DDB-5C3BAE8CD719>

Description. Female body length 10.5 mm (Figs 5A, 5B).

Colour. Body black; following parts white: labrum, clypeus, a small macula at center of supraclypeal area, narrow macula in middle and lower parts of inner orbit, broad macula in middle and upper parts of posterior orbit, prenotum largely, mesoscutellum largely at center, lower half of metepimeron, abdominal tergum 1 except for black maculae at basal 1/3 dorsally, abdominal tergum 2 except for black maculae at basal 2/3 dorsally, abdominal terga 3–4 entirely, abdominal tergum 6 at apical half, abdominal terga 7–10 except for lateral corners with black maculae. Tegula reddish brown. Legs largely black; following parts reddish brown: small maculae at apex of fore and middle femurs, middle and hind tibiae except for basal margins and apex with black maculae; all tarsi dark reddish brown. Body hairs silver. Wings hyaline, pterostigma blackish brown, vein C dark brown, other veins blackish brown.

Punctuation. Frontal area of head, inner side of inner orbit, temple largely, postocellar area entirely with coarse and dense punctures and microsculpture, less shiny; others of head smooth, strongly shiny (Figs 5C, 5D). Prenotum largely, mesoscutellum and mesoscutellar appendage and white macula of metepimeron smooth, strongly shiny (Figs 5F, 5G). Others of prenotum with sparse punctures and weak microsculpture, mesopleuron with dense microsculpture and coarse punctures.

Anterior margin of labrum round; apical margin of clypeus slightly truncate, lateral margins slightly convergent forward; malar space as broad as the diameter of median ocellus; inner margins of eyes slightly convergent downward; median fovea nest-shaped broadly and deeply, lateral foveae open, convergent with frontal ridge furrows (Fig. 5D); interocellar furrow and postocellar furrow slightly weak; lateral postocellar furrow broad and deep, slightly parallel backward, POL : OOL : OOCL = 40 : 55 : 80; postocellar area elevated, with weak middle longitudinal ditch, posterior part not depressed, with occipital carina 2× broader than long; vertex 0.5× broader than diameter of eyes; temple in dorsal view 0.5× broader than diameter of eyes, lateral sides almost parallel (Fig. 5C). Antennae filiform, as long as head and thorax together, slightly shorter than abdomen; flagellomere 3 longer than flagellomere 4 (100 : 75), slightly shorter than flagellomeres 4 and 5 together (100 : 145), length ratio of apical flagellomeres 6–9 as 55 : 52 : 50 : 46 (Fig. 5E). Posterior corner of metepimeron broad and round, mesoscutellum flat (Fig. 5G); hind femur extended to bottom of abdomen, metabasitarsus slightly longer than following 3 tarsomeres together, slightly shorter than following 4 tarsomeres together, inner tibial spur of hind leg shorter than half of metabasitarsus; claw of hind leg with broad and large inner tooth, slightly broader and longer than outer tooth. Cell 2Rs in fore wing longer than cell 1Rs, outer and lower corner of cell 2Rs strongly extended; vein cu-a joining lower margin of cell 1M at basal 1/3, vein cu-a joining lower margin of cell 1M at apical 2/5; anal cell in hind wing with a petiole, 2/3× longer than vein cu-a; cell 1M closed, short square; cell Rs open. Valvula 3 as long as valvifer

2, ovipositor sheath in lateral view as shown in Fig. 5H. Lancet with 13 serrulae (Fig. 5I), middle serrulae with 1 proximal and 10–12 distal denticles, denticles small and many, middle annuli with 5–6 small and clear ctenidial teeth as shown in Fig. 5J.

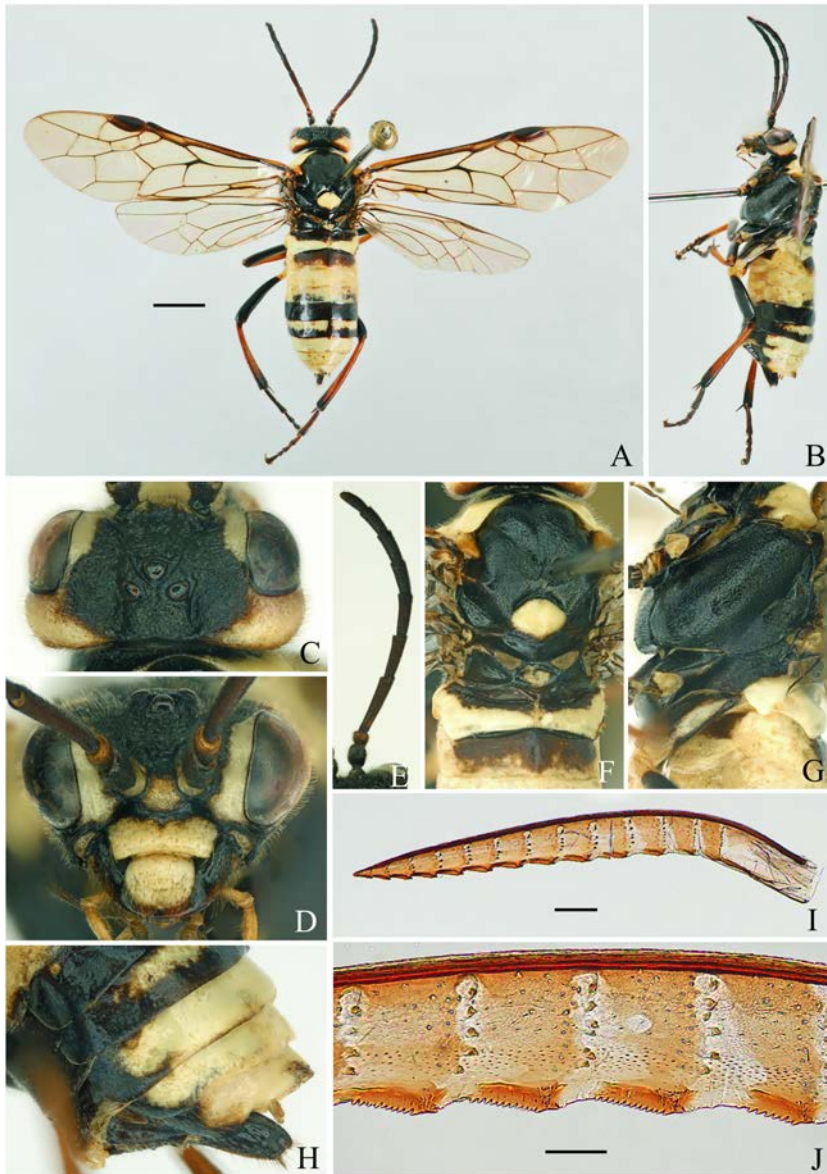


Figure 5. *Aglaostigma rufitegula* Liu, Li & Wei **sp. nov.**, ♀, holotype. A, B. Female adult, dorsal and lateral views; C, D. Female head, dorsal and frontal views; E. Female antenna, lateral view; F, G. Female mesopleuron and metapleuron, dorsal and lateral views; H. Ovipositor sheath, lateral view; I. Lancet; J. The 3th–6th serrulae. Scale bars = 2 mm (A); 200 μ m (I); 100 μ m (J).

Male. Unknown.

Holotype. ♀, **China**, Hunan, Wugang City, Mt. Yunshan, Shengli Temple, 26°38.859' N,

110°37.026' E, alt. 1,145 m, 14-IV-2012, Zejian LI leg. (CSCS12008).

Host plants. Unknown.

Etymology. The species epithet “*rufitegula*” refers to the tegula of this new species being reddish brown.

Remarks. The species belongs to the *A. laticinctum* subgroup and is similar to *A. laticinctum* He, Wei & Zhang, 2005 in morphological characteristics. *Aglaostigma rufitegula* has the body length of 10.5 mm; abdominal tergum 6 white at basal half, black at apical half; tegula entirely reddish brown; cell 2Rs in fore wing longer than cell 1Rs, vein cu-a joining lower margin of cell 1M at basal 1/3, vein 2r joining upper margin of cell 2Rs at apical 2/5; anal cell in hind wing with a short petiole, 2/3× longer than vein cu-a. *A. laticinctum* has the body length of 8 mm; abdominal tergum 6 entirely black; tegula largely brown, partly black; cell 2Rs in fore wing slightly shorter than cell 1Rs, vein cu-a joining lower margin of cell 1M at basal 1/5, vein 2r joining upper margin of cell 2Rs at middle; anal cell in hind wing with a short petiole, clearly shorter than vein cu-a.

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