

# Four new species and a key to species of the *Siobla sturmii* group (Hymenoptera: Tenthredinidae)

Xingyu TANG<sup>1</sup>, Gengyun NIU<sup>2</sup>, Meicai WEI<sup>1, 2①</sup>

1. *Lab of Insect Systematics and Evolutionary Biology, Central South University of Forestry and Technology, Changsha, Hunan 410004, China*

2. *College of Life Sciences, Jiangxi Normal University, Nanchang, Jiangxi 330022, China*

**Abstract:** Four new species: *Siobla elevatina* Niu & Wei **sp. nov.**, *S. emeiensis* Niu & Wei **sp. nov.**, *S. kangba* Niu & Wei **sp. nov.**, and *S. taegeri* Niu & Wei **sp. nov.** are described and illustrated. A key to species of *Siobla sturmii* group is given.

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

## 侧跗叶蜂属欧亚侧跗叶蜂种团四新种暨已知种检索表（膜翅目：叶蜂科）

唐星雨<sup>1</sup>, 牛耕耘<sup>2</sup>, 魏美才<sup>1, 2①</sup>

1. 中南林业科技大学昆虫系统与进化生物学实验室, 湖南 长沙 410004; 2. 江西师范大学生命科学学院, 江西 南昌 330022

**摘要:** 记述中国侧跗叶蜂属欧亚侧跗叶蜂种团 *Siobla sturmii* group 4 新种: 凸缘侧跗叶蜂 *Siobla elevatina* Niu & Wei **sp. nov.**, 峨眉侧跗叶蜂 *S. emeiensis* Niu & Wei **sp. nov.**, 康巴侧跗叶蜂 *S. kangba* Niu & Wei **sp. nov.** 和泰戈侧跗叶蜂 *S. taegeri* Niu & Wei **sp. nov.**。编制了 *Siobla sturmii* 种团已知种分种检索表。

**关键词:** 叶蜂; 广腰亚目; 叶蜂总科; 分类

## Introduction

*Siobla* was divided into nine species groups by Niu & Wei (2010a). Then a morphologically distinctive species, *S. iridipennis*, representing one more group in this genus was proposed by Niu & Wei (2020). Among the ten groups, the *S. sturmii* group is the largest and characterized by the densely punctured mesoscutellum, valviceps of penis valve broad, hyaline wings, black mesoscutellum, dark hind trochanter and black or reddish brown antenna. 21 species were assigned to the *S. sturmii* group in Niu & Wei (2010a). Among them, 14 species are still valid. While *S. pacifica* (Smith, 1874) and *S. frigida* (Mocsáry, 1909) were synonymized with *S. sturmii* (Klug, 1817) by Shinohara *et al.* (2013); *S. rufoscapa* Wei, 2002 was synonymized with *S. villosa* Malaise, 1931; *S. similis* Mocsáry, 1909 was synonymized with *S. ruficornis* (Gimmerthal 1834); *S. tuberculatana* Wei, 2002 (Wei & Nie, 2002) was synonymized with *S. malaisei* Mallach, 1933 (Niu & Wei 2020). *S. atra* and *S. fumipennis* were assigned to the *S. formosana* group (Niu & Wei 2013a). In addition, 13 species were

Accepted 15 April 2020. Published 25 June 2020. Published online 4 June 2020.

① Corresponding author, E-mail: weimc@126.com

recently described (Niu & Wei 2010b, 2011, 2013b; Niu *et al.* 2012, 2015; Shinohara *et al.* 2013).

Here we describe 4 new species from Sichuan and Yunnan, China, and present a revised identification key for the 31 known species of the *S. sturmii* group.

## Material and methods

Specimens were examined with a Leica S8APO dissection microscope. Adult images in Fig. 1 were taken with a Nikon D700 digital camera and the series of images were montaged using Helicon Focus (©HeliconSoft). Detailed images in Figs. 2, 3, and 4 were taken with a Leica Z16 APO/DFC550. Images in Figs. 5 and 6 were taken with a dissection microscope. All images were further processed using Adobe Photoshop CS 6.0. The terminology follows Niu & Wei (2010a). Abbreviations used are: OOL — distance between the eye and outer edge of lateral ocellus; POL — distance between the mesal edges of the lateral ocelli; OCL — distance between a lateral ocellus and the occipital carina or hind margin of the head.

Specimens examined during this study are deposited in: the Asian Sawfly Collection, Nanchang, China (ASC); Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (SDEI). Original figures are available on <https://figshare.com/account/home#/projects/28269>.

## Taxonomy

### Key to species of the *Siobla sturmii* group

1. Supraantennal tubercles narrowly and strongly elevated, posterior end abruptly cut-off, not merged with frontal wall. China (Gansu, Shaanxi, Beijing, Henan, Hubei, Sichuan)..... *S. malaisei* Mallach
- Supraantennal tubercles normal, obtusely elevated, posterior end not abruptly cut-off, merging to low frontal walls ..... 2
2. Female. Pulvilli of hind tarsus very large, first pulvillus not shorter than second tarsomere, distance between first and second pulvilli slightly longer than first pulvillus; several apical annular sutures distinct..... 3
- Female and male. Pulvilli small, first pulvillus much shorter than second tarsomere, distance between first and second pulvilli 2–3 times as long as first pulvillus; annular sutures indistinct ..... 4
3. Female. Body robust; malar space as long as the diameter of lateral ocellus; punctures on temple dense without interspaces; clypeus black; POL : OOL : OCL = 10 : 29 : 21, marginal carina of postocellar area about as high as marginal carina of temple; apical serrulae low and almost flat, annular sutures oblique; hairs on dorsum of head straight, not curved at apex; sheath as long as middle tibia, about 0.8 times apical breadth of hind tibia, apical sheath 1.5 times as long as basal sheath. China (Gansu, Henan) (male compare couplet 12) ..... *S. villosa* Malaise
- Female. Body slender; malar space longer than diameter of lateral ocellus; punctures on temple sparse, with interspaces as broad as diameter of puncture; apical margin of clypeus red; POL : OOL : OCL = 7 : 24 : 14, marginal carina of postocellar area distinctly higher than marginal carina of temple; apical serrulae protruding, annular sutures hardly oblique; hairs on dorsum of head dense and long, curved at apex; sheath 1.2 times length of middle tibia, about as broad as apical breadth of hind tibia, apical sheath 2 times as long as basal sheath. China (Sichuan, Yunnan) (male compare couplet 12) ..... *S. elevatina* Niu & Wei **sp. nov.**
4. Abdominal tergites 2–4 distinctly microsculptured, if microsculptures faint, then antennal flagellum largely

- reddish brown and tergite 1 at least densely microsculptured in anterior half..... 5
- . Abdominal tergites 2–4 highly polished without microsculptures or punctures, if sometimes with faint microsculptures, then antennal flagellum entirely black and tergite 1 faintly microsculptured.....40
5. At least apical 4 antennomeres black entirely; if ventral sides of some apical flagellomeres pale brown (not reddish), then female serrulae strongly protruding and truncate at apex, and ventral side of hind coxa with a large red macula in male ..... 6
- . Antennal flagellum reddish brown, sometimes dorsal side of flagellum or third and fourth antennomeres partly (female) or 1–4 antennomeres largely (male) black; female serrulae not truncate at apex, ventral side of hind coxa without a large red macula in male..... 17
6. Abdominal tergites black, at most lateral side of tergite 2 with a small pale spot ..... 7
- . Abdominal tergite 2 or 3, or 2 and 3 largely or entirely yellow brown to reddish brown ..... 13
7. At least basal half of hind tibia reddish brown or yellowish brown ..... 8
- . Hind tibia black, at most basal spot dark red..... 9
8. Male. Hairs on dorsum of head blackish brown; basal 2/3 of hind tibia, and hind tarsi reddish brown; malar space 0.5 times diameter of lateral ocellus; temple about 0.6 times eye length in dorsal view. China (Sichuan) (female compare couplet 16) .....*S. kangba* Niu & Wei **sp. nov.**
- . Female and Male. Hairs on dorsum of head blackish brown; basal half of hind tibia, most of metabasitarsus black. In male, malar space 0.3 times diameter of lateral ocellus; temple about 0.45 times eye length in dorsal view. Japan (color variation in female compare couplet 11)..... *S. japonica* Shinohara Wei & Niu
9. Female. Hairs on dorsum of head and thorax silver or pale brown, about as long as or slightly longer than diameter of lateral ocellus and hardly curved at apex; hairs on mesepisternum slightly longer than diameter of lateral ocellus, straight or weakly curved at apex; metabasitarsus not less than 5 times as long as broad..... 10
- . Female and male. Hairs on dorsum of head and thorax black brown, about 2 times as long as diameter of lateral ocellus and distinctly curved at apex; hairs on mesepisternum longer than 2 times diameter of lateral ocellus, strongly curved at apex; metabasitarsus 4 times as long as broad ..... 11
10. Female. Pterostigma black brown; postocellar area 1.5 times as broad as long; apical breadth of hind tibia 0.75 times breadth of sheath in lateral view; first abdominal tergite polished, not coriaceous; mesoscutellum rather flat, length of anterior slope about 1.6 times length of posterior slope (hind tibia largely or entirely, hind tarsus largely black in male). China (Taiwan) (male compare couplet 14)..... *S. tenuitibialis* Niu & Wei
- . Female. Pterostigma pale brown; postocellar area 1.3 times as broad as long; apical breadth of hind tibia as broad as sheath in lateral view; first abdominal tergite coriaceous; mesoscutellum roundly elevated, length of anterior slope about as long as posterior slope (hind tibia largely and hind tarsus entirely reddish brown in male, compare couplet 14). China (Shaanxi, Hubei, Sichuan, Hunan, Yunnan) ..... *S. femorata* Malaise
11. Male. China..... 12
- . Female. Japan ..... *S. japonica* Shinohara, Wei & Niu
12. Male. Pterostigma pale brown; malar space linear; head strongly narrowed behind eyes in dorsal view; abdominal tergites 1–2 weakly microsculptured. China (Gansu, Henan) (female compare couplet 3) ..... *S. villosa* Malaise
- . Male. Pterostigma black brown; malar space slightly shorter than radius of lateral ocellus; head weakly narrowed behind eyes in dorsal view; abdominal tergites 1–3 distinctly microsculptured. China (Sichuan, Yunnan) (female compare couplet 3) ..... *S. elevatina* Niu & Wei **sp. nov.**
13. Ventral side of hind coxa with a large red macula; pterostigma dark brown to black brown, and abdominal segments 2–4 entirely red, mesoscutellum densely punctured. Male..... 14
- . Hind coxa without red spot; pterostigma pale brown, if pterostigma black brown, then abdominal tergites 3–5 black entirely and mesoscutellum sparsely punctured with broad and shiny interspaces..... 15

14. Male. Hind tibia and hind tarsus largely or entirely black; postocellar area 1.5 times as broad as long; valviceps of penis valve very narrow, not distinctly broadened toward base; apex of harpe distinctly narrower than base. China (Taiwan) (female compare couplet 10) ..... *S. tenuitibialis* Niu & Wei
- . Male. Hind tibia largely and hind tarsus entirely reddish brown; postocellar area 1.3 times as broad as long; valviceps of penis valve narrow at apex and distinctly broadened toward base; apex of harpe as broad as base. China (Shaanxi, Hubei, Sichuan, Hunan, Yunnan) (female compare couplet 10) ..... *S. femorata* Malaise
15. Base of hind femur in both sexes with a distinct red ring; pronotum in female with a narrow but distinct red margin, tegula reddish brown; pronotum in male with a very narrow red margin and tegula black; abdominal segments 2–4 reddish brown, lateral sides of tergite 3, tergite 4 largely and tergite 5 entirely black; posterior part of mesoscutellum distinctly elevated. China (Gansu, Shaanxi, Hubei) ..... *S. clavicornis* Wei & Niu
- . Hind femur entirely black; pronotum with a broad reddish brown margin posteriorly; tegula black with narrow pale outer margin; abdominal tergites 2–5 yellow brown to reddish brown, central part of tergite 2 black; mesoscutellum flat ..... 16
16. Male. Malar space distinctly broader than diameter of lateral ocellus; flagellum of antenna stout and distinctly compressed, third antennomere 3 times as long as broad, fourth antennomere 2 times as long as broad; abdominal sternites and harpes entirely yellow brown. China ((Sichuan) (female unknown) ..... *S. compressicornis* Malaise
- . Female. Antennal flagellum not distinctly compressed, third antennomere not less than 5 times as long as broad, fourth antennomere not less than 3 times as long as broad; at least abdominal sternites 6–7 black (malar space in male distinctly narrower than diameter of lateral ocellus, harpes dark brown, compare couplet 8). China (Sichuan) ..... *S. kangba* Niu & Wei **sp. nov.**
17. Hind tibia and tarsus entirely black ..... 18
- . Hind tibia partly reddish brown or yellow brown ..... 19
18. Female. Hairs on mesepisternum black brown; antenna entirely yellow brown; lateral furrows of postocellar area strongly divergent backwards; body very robust; metabasitarsus 4.2 times as long as broad. China (Jilin); Russia (Vladivostok) (male compare couplet 38) ..... *S. grossa* Malaise
- . Female and male. Hairs on mesepisternum silver; antenna yellow brown, base of second and of third antennomeres black; lateral furrows of postocellar area faintly divergent backwards; body normal, not robust; metabasitarsus 5.2 times as long as broad. China (Gansu, Ningxia, Shaanxi, Beijing, Shanxi, Hebei, Henan, Hubei, Sichuan, Hunan, Guangxi) ..... *S. liui* Wei
19. Female ..... 20
- . Male ..... 30
20. Apex of clypeus red; pronotum with a broad red margin posteriorly, broadest part of red margin broader than 2 times diameter of lateral ocellus ..... 21
- . Clypeus entirely black; pronotum black, without red margin, or red margin very narrow, with broadest part at most about radius of lateral ocellus ..... 23
21. Female. Abdominal tergite 9 black; basal pale spot of hind femur minute or absent; second trochanter of hind leg black. China (Heilongjiang, Jilin, Qinghai, Shaanxi, Hebei); Russia (E. Siberia); Japan; Korea; European part of Russia; Finland; Latvia (male compare couplet 32) ..... *S. ruficornis* (Gimmerthal)
- . Abdominal tergite 9 yellow brown; second trochanter and basal 1/5–1/4 of hind femur reddish brown ..... 22
22. Female. Abdominal tergite 8 largely or entirely yellow brown. China (Shaanxi, Hubei) (male compare couplet 32) ..... *S. qinba* Niu & Wei
- . Female. Abdominal tergite 8 black. China (Gansu, Ningxia, Shaanxi, Hebei) (male compare couplet 37) ..... *S. centralia* Niu & Wei
23. Hairs on dorsum of head black brown or dark brown ..... 24
- . Hairs on dorsum of head silver or silver brown ..... 25

24. Female. Malar space about as long as diameter of middle ocellus; abdominal tergite 9 largely yellow brown; vein C largely black brown; hairs on mesonotum blackish brown; abdominal tergites 2–3 hardly microsculptured, shiny. China (Heilongjiang, Jilin, Liaoning, Shanxi, Hebei); Russia (E. Siberia); Central Asia; Japan; Korea; Europe (pale female compare couplet 27; male compare couplet 39)···*S. sturmii* (Klug)
- Female. Malar space 0.8 times diameter of middle ocellus; abdominal tergite 9 black; vein C in forewing largely pale brown; hairs on mesonotum brown; abdominal tergites 2–3 distinctly microsculptured, less shiny. China (Heilongjiang, Jilin); Russia (E. Siberia); Japan (male compare couplet 39)·····*S. jucunda* (Mocsáry)
25. Female. Abdominal tergites black, lateral side of tergite 2 with pale spot; at least antennomere 3 black. China (Sichuan) (male compare couplet 34)·····*S. chengi* Niu & Wei
- At least some tergites entirely yellow brown; antennal flagellum reddish brown or yellow brown, at most extreme base of antennomere 3 black ······ 26
26. Female. Malar space 0.6–0.7 times diameter of middle ocellus; basal 2/5–3/5 of hind femur in outer side reddish brown; abdominal tergites 2–4 entirely yellow brown, tergites 8–9 black; hairs on dorsum of head dense and pale brown, not longer than diameter of lateral ocellus. China (Heilongjiang, Jilin, Gansu, Shaanxi, Henan, Hubei, Sichuan) (male compare couplet 33) ······*S. vulgaris* Niu & Wei
- Malar space 1.0–1.3 times diameter of middle ocellus; hind femur entirely black, or less than basal 1/5 of hind femur in outer side reddish brown; at least lateral side of abdominal tergite 4 black; if about basal 1/3 of hind femur reddish brown, then tergite 4 entirely black, and tergite 9 with a distinct pale macula; hairs on dorsum of head sparse, if denser then it is dark brown····· 27
27. Hairs on dorsum of head dense, straight, not longer than diameter of lateral ocellus; abdominal tergites 4 and 8 black; lower anterior corner of mesepisternum with a distinct shiny patch without microsculptures and punctures. China (Heilongjiang, Jilin, Liaoning, Shanxi, Hebei); Russia (E. Siberia); Central Asia; Japan; Korea; Europe (darker female compare couplet 24; male compare couplet 39) ······*S. sturmii* (Klug)
- Hairs on dorsum of head sparse, at least slightly longer than diameter of lateral ocellus, apex more or less curved; abdominal tergites 4 and 8 largely white or yellow brown; lower anterior corner of mesepisternum densely punctured and distinctly microsculptured, without a distinct shiny patch ······ 28
28. Female. Posterior margin of pronotum reddish brown; base of second and third antennomeres black. China (Sichuan) (male compare couplet 36) ······*S. plesia* Malaise
- Pronotum entirely black, if with a narrow reddish margin then antenna entirely reddish brown····· 29
29. Female. Postocellar area 1.3–1.4 times broader than long; pterostigma yellow brown; posterior margin of pronotum reddish brown; broadest part of apical sheath about 2 times middle breadth of metabasitarsus; fourth abdominal tergite largely or entirely black. China (Yunnan) (male compare couplet 36) ······*S. yunanensis* Haris & Roller
- Female. Postocellar area 1.6–1.7 times broader than long; pterostigma dark brown or black brown; posterior margin of pronotum black; broadest part of apical sheath about 1.1–1.4 times middle breadth of metabasitarsus; fourth abdominal tergite entirely yellow brown. China (Shaanxi) (polished female compare couplet 42; male compare couplet 34)·····*S. shaanxi* Niu & Wei
30. Hairs on dorsal side of head pale brown or silver ······ 31
- Hairs on dorsal side of head black brown to black ······ 35
31. Broad posterior margin of pronotum reddish brown, broadest part of it about 1.5 times diameter of lateral ocellus ······ 32
- Pronotum entirely black, or narrow posterior margin of pronotum reddish brown, broadest part about 0.5 times diameter of lateral ocellus····· 33
32. Male. Antenna stout, third antennomere slightly shorter than or about as long as shortest distance between eyes; hind femur entirely black; apical 2–3 abdominal sternites black. China (Heilongjiang, Jilin, Qinghai,

- Shaanxi, Hebei); Russia (E. Siberia); Japan; Korea; European part of Russia; Finland; Latvia (female compare couplet 21) ..... *S. ruficornis* (Gimmerthal)
- . Male. Antenna slender, third antennomere distinctly longer than shortest distance between eyes; hind femur usually partly reddish brown on basal part; abdominal sternites entirely yellow brown. China (Shaanxi, Hubei) (female compare couplet 22) ..... *S. qinba* Niu & Wei
33. Male. Malar space linear; abdominal sternites entirely pale brown; hairs on dorsum of head straight, about as long as diameter of lateral ocellus; outer side of hind femur largely reddish brown. China (Heilongjiang, Jilin, Gansu, Shaanxi, Henan, Hubei, Sichuan) (female compare couplet 26) ..... *S. vulgaris* Niu & Wei
- . Malar space about 1/3 diameter of lateral ocellus; apical 2–3 abdominal sternites black; hairs on dorsum of head distinctly curved at apex, much longer than diameter of lateral ocellus; outer side of hind femur usually largely or entirely black, seldom with a small reddish brown macula ..... 34
34. Male. Basal 3 antennomeres black, at most apical 1/3 of third antennomere reddish brown; postocellar area flat, middle part slightly higher than lateral parts, about 1.3 times as broad as long, lateral furrows distinctly divergent backwards. China (Sichuan) (female compare couplet 25) ..... *S. chengi* Niu & Wei
- . Male. Antenna yellow brown to reddish brown, outer side of first antennomere, basal half of second antennomere and basal 1/4–1/3 of third antennomere black; middle part of postocellar area distinctly higher than lateral parts, about 1.6 times as broad as long, lateral furrows weakly divergent backwards. China (Shaanxi) (female compare couplets 29 and 42) ..... *S. shaanxi* Niu & Wei
35. Hairs on dorsum of head long and distinctly curved at apex ..... 36
- . Hairs on dorsum of head straight, not curved at apex ..... 37
36. Male. Dorsal side of flagellum black; pronotum and hind femur black entirely; mesoscutellum roundly elevated. China (Yunnan) (female compare couplet 29) ..... *S. yunanensis* Haris & Roller
- . Male. Apical 6 antennomeres reddish brown, dorsal side without black macula; narrow posterior margin of pronotum reddish brown; basal half of hind femur reddish brown in outer side; mesoscutellum hardly elevated. China (Sichuan) (female compare couplet 28) ..... *S. plesia* Malaise
37. Male. Posterior margin of pronotum distinctly reddish brown; postocellar area almost 2 times broader than long; metabasitarsus partly black. China (Gansu, Ningxia, Shaanxi, Hebei) (female compare couplet 22) .....  
..... *S. centralia* Niu & Wei
- . Reddish line on posterior margin of pronotum indistinct or absent; postocellar area about 1–1.5 times broader than long ..... 38
38. Male. Abdominal sternites entirely black; metabasitarsus robust, 4.2 times as long as broad; body robust, postocellar area elevated with a distinct middle carina. China (Jilin); Far East of Russia (Vladivostok) (female compare couplet 18) ..... *S. grossa* Malaise
- . Basal 2–3 sternites yellow brown; metabasitarsus slender, more than 5 times as long as broad; body normal, postocellar area hardly elevated with a fine middle carina ..... 39
39. Male. Malar space linear; hairs on dorsum of mesonotum dark brown; abdominal sternites 4–5 largely yellow brown; abdominal tergites 2–3 distinctly microsculptured, less shiny. China (Heilongjiang, Jilin); Russia (E. Siberia); Japan (female compare couplet 24) ..... *S. jucunda* (Mocsáry)
- . Male. Malar space 0.35–0.4 times diameter of middle ocellus; hairs on dorsum of mesonotum black; abdominal sternites 4–5 largely black; abdominal tergites 2–3 faintly microsculptured, shiny. China (Heilongjiang, Jilin, Liaoning, Shanxi, Hebei); Russia (E. Siberia); Central Asia; Japan; Korea; Europe (female compare couplets 24 and 27) ..... *S. sturmii* (Klug)
40. Apical 5–6 antennomeres largely or entirely yellow brown ..... 41
- . Antenna entirely black ..... 45
41. Female ..... 42
- . Male ..... 44

42. Female. Hairs on dorsum of head pale brown; pterostigma black brown. China (Shaanxi) (variation female compare couplet 29; male compare couplet 34)..... *S. shaanxi* Niu & Wei
- . Hairs on dorsum of head black; pterostigma pale brown or yellow brown ..... 43
43. Female. Basal 3/5 of forewing distinctly infuscate, apical 2/5 hyaline; abdominal tergite 4 yellow brown; vein R as long as free part of vein Sc, vein R+M 2 times as long as vein R. China (Sichuan) (male compare couplet 44) ..... *S. basifusca* Niu & Wei
- . Female. Basal 3/5 of forewing not darker than apical 2/5; abdominal tergite 4 largely or entirely black; vein R about half length of free part of vein Sc, vein R+M 3–4 times as long as vein R. N. Myanmar. (male unknown)..... *S. longepilosa* Malaise
44. Male. Middle furrow of mesoscutal middle lobe very deep; apex of pedicel and third antennomere largely reddish brown; wings slightly infuscate; malar space about as long as radius of middle ocellus; mesoscutellar appendage shorter than diameter of lateral ocellus, distinctly oblique, with dense microsculptures, dim; abdominal tergites 5–8 strongly shiny, impunctate. China (Sichuan) (female compare couplet 43) ..... *S. basifusca* Niu & Wei
- . Male. Middle furrow of mesoscutal middle lobe vestigial, almost absent; scape and pedicel entirely and third antennomere largely black; wings distinctly yellowish infuscate; malar space shorter than 1/3 diameter of middle ocellus; mesoscutellar appendage longer than diameter of lateral ocellus, almost flat, central part hardly microsculptured, shiny; abdominal tergites 5–8 with some shallow but distinct punctures. China (Tibet) (female unknown)..... *S. chayuica* Niu & Wei
45. Female and male. All abdominal sternites and apical sheath entirely yellow brown; lateral side of first tergite with distinct pale spot; central or apical part of pterostigma distinctly darker than base of stigma. China (Tibet)..... *S. xizangensis* Xiao, Huang & Zhou
- . Apical 2 sternites, apical sheath largely and first tergite entirely black; color of pterostigma uniform..... 46
46. Pterostigma yellow brown; hairs on dorsum of head silver or pale brown..... 47
- . Most of pterostigma and vein C largely black brown; hairs on dorsum of head black brown, if hairs pale brown then hind tarsus in female black brown ..... 48
47. Female and male. Anterior part of postocellar area in both sexes slightly higher than posterior part, anterior part sometimes with a low middle carina; head behind eyes in female as long as eye in dorsal view; abdominal tergites 2–4 yellow brown; apical sheath beyond apex of abdomen about 1.3–1.5 times longer than broad. China (Yunnan)..... *S. taegeri* Niu & Wei **sp. nov.**
- . Female and male. Anterior part of postocellar area in both sexes not higher than posterior part, posterior half usually with a sharp middle carina; head behind eyes in female 1.2 times as long as eye in dorsal view; abdominal tergites 2–3 yellow brown, tergite 4 black; apical sheath beyond apex of abdomen about 1.8 times longer than broad. China (Tibet)..... *S. muotuoensis* Niu & Wei
48. Female and male. Wings in both sexes hyaline; abdomen and hind tarsus black brown; antenna stout, third antennomere 2 times as long as fourth antennomere; malar space in female 0.75 times diameter of lateral ocellus. N. E. India..... *S. brevisantenna* Saini & Vasu
- . If wings hyaline and without smoky macula, then hind tarsus entirely pale; antenna slender, third antennomere distinctly less than 2 times as long as fourth one; malar space in female not shorter than diameter of lateral ocellus..... 49
49. Female and male. Wings darker at apex; in female, hairs on dorsum of head silver brown; hind tarsus black brown; 2nd abdominal tergite black with pale spot on lateral, 2nd to 5th sternites yellowish brown, punctures on temple with obvious interspaces; in male, malar space 0.4 times diameter of lateral ocellus; hairs on dorsum of head 2 times longer than diameter of lateral ocellus; punctures on temple coarse and dense; harpe largely yellowish brown. China (Sichuan) ..... *S. emeiensis* Niu & Wei **sp. nov.**
- . Wing color uniform; in female, hairs on dorsum of head dark brown; hind tarsus yellowish brown or pale

- yellow; 2nd abdominal tergite black or sternites black, punctures on temple in both sexes minute and dense, without interspaces; in male, malar space as long as diameter of lateral ocellus; hairs on dorsum of head shorter than 2 times diameter of lateral ocellus; harpe largely dark brown to black brown ..... 50
50. Female and male. Abdominal tergite 2 and sternite 2 in female yellow brown, apex of sheath pale brown; pale part of legs yellow brown; metabasitarsus in both sexes slightly longer than following 3 tarsomeres together; two tibial spurs of hind leg in male pale brown. China (Tibet) ..... *S. uncinata* Niu & Wei
- . Female and male. Abdominal tergite 2 and all sternites in female black, sheath entirely black; pale part of legs white; metabasitarsus in both sexes slightly shorter than following 3 tarsomeres together; outer tibial spur of hind leg in male dark brown, inner tibial spur pale brown. China (Tibet) .....  
..... *S. albomaculata* Niu & Wei

1. *Siobla elevatina* Niu & Wei sp. nov. (Figs. 1A, B, 2A–F, 4A, E, 5E, 6E)

Female (Holotype). Body length 11 mm (Fig. 1A). Head, thorax and antenna black, most of mouthparts, apex of clypeus, distinct posterior margin of pronotum and tegula yellow brown, a dot on dorsum of scape pale brown; abdomen and sheath shiny yellow brown, tergite 1 entirely, anterior margin of tergite 2, posterior margin of tergite 4, tergites 5–6 entirely, small middle spot on tergite 7, small lateral spot on tergite 9 and a basal spot on ovipositor sheath black. Legs yellow brown, coxa, trochanter, hind femur entirely and apical fourth of hind tibia black, ventral side of fore and middle coxae with distinct yellow spot. Wings hyaline, basal half of vein C, R1 entirely, base of vein A and entire pterostigma yellow brown, apical half of vein C dark brown, other veins mostly black brown. Body hairs silver brown.

Clypeus coarsely punctured with shiny interspaces; dorsum of head and thorax densely punctured, interspaces between punctures on temple about as broad as diameter of ocellus, surface finely and densely microsculptured; interspaces on mesonotum narrower than diameter of ocellus and finely microsculptured; interspaces on anterior slope of mesoscutellum narrower than diameter of ocellus and distinctly microsculptured, punctures on posterior slope extremely dense and without shiny interspace, center of mesoscutellar appendage smooth; metapostnotum largely smooth; elevated area of mesepisternum densely punctured without distinct interspace, anterior margin of mesepisternum sparsely punctured, interspaces smooth and shiny, posterior margin microsculptured; venter of mesepisternum sparsely and shallowly punctured, interspaces feebly microsculptured, inner anterior corner smooth and naked; bottom of anepimeron densely microsculptured, katepimeron finely microsculptured with narrow posterior margin smooth; upper band of metepisternum shallowly punctured and densely microsculptured, venter sparsely punctured, surface smooth; elevated upper margin of metepimeron coarsely punctured, anterior part and posterior corner smooth, middle part microsculptured; anterior half of tergite 1 densely microsculptured, posterior half feebly microsculptured, tergites 2–9 finely and densely microsculptured, tergites 3–10 shallowly and sparsely punctured.

Hairs on dorsum of head sparse and soft, about 2.2–2.5 times diameter of ocellus, apex distinctly curved; hairs on mesepisternum 2.5 times diameter of ocellus. Apex of clypeus truncate, malar space 1.1 times diameter of ocellus; inner margins of eyes clearly convergent downwards, shortest distance between eyes 1.2 times longest axis of eye; supraantennal tubercles weakly elevated, broad and almost flat; frontal ridge obscure, frons with several irregular longitudinal carinae; middle fovea broad and shallow, bottom flat, lateral foveae deep and punctiform; interocellar furrow narrow and deep, postocellar furrow fine and shallow;



postocellar area 1.6 times as broad as long, weakly elevated and clearly below top of ocellus, without middle carina; lateral furrows broad and deep, very short, slightly curved and distinctly divergent backwards; in dorsal view temple slightly shorter than eye, anterior third distinctly convex and posterior two thirds distinctly narrowed backwards; POL : OOL : OCL = 7 : 24 : 14; occipital carina low and complete, lateral corner of marginal carina of postocellar area acute and clearly higher than occipital carina on temple. Antenna stout, clearly shorter than vein C and as long as head, thorax and tergite 1 together, pedicellum 1.1 times as long as broad, length of antennomere 3 1.5 times antennomere 4, subapical antennomeres slightly enlarged but not compressed, antennomere 7 about 1.8 times as long as broad. Mesoscutellum roundly elevated and as high as top of mesoscutum, without carina or acute peak; mesoscutellar appendage without middle carina; mesepisternum without ventral thorn. Apical breadth of hind tibia almost as broad as lateral breadth of ovipositor sheath; metabasitarsus short and stout, shorter than following 3 tarsomeres together (9 : 10), about 4.1 times as long as broad; pulvilli of hind tarsus quite large, length of first pulvillus 0.8 times apical breadth of basitarsus, distance between first and second pulvilli as long as second pulvillus. Ovipositor sheath 1.2 times length of middle tibia, ventral margin straight, apical sheath 1.9 times as long as basal sheath; lancet with 12 serrulae, annular sutures distinct, serrulae oblique and weakly protruding, area below pore line of middle annuli about as long as broad.

**Male.** Body length 9 mm (Fig. 1B). Body including antenna and mouthparts black, hairs on dorsum of head black brown, hairs on mesepisternum pale brown; legs black, dorsum of fore and middle femora largely, fore and middle tibiae and their tarsi entirely yellow brown; punctures and structures similar to female except: malar space 0.6 times diameter of ocellus; eyes large with distance between eyes as long as longest axis of eye; in dorsal view length of temple 0.8 times as long as eye, lateral sides distinctly narrowed backwards; tarsal pulvilli small; tergite 1 more densely microsculptured; subgenital plate slightly longer than broad, apical margin roundish; valviceps of penis valve very broad (Fig. 5A), gonoforceps as in Fig. 5E.

**Variation.** A female collected from Yunnan has a black clypeus and tergites 4 and 7 with large black maculae.

**Holotype.** ♀, **China**, Sichuan, Mt. Emei, Leidongping, E.103°19.890', N.29°32.476', alt. 2400 m, 02-VII-2006, Hu ZHOU leg. (ASC). **Paratypes.** 1♀, **China**, Sichuan, Luding, Hailuogou, alt. 2600–2700 m, 17-VII-2003, Weixing LIU leg. (ASC); 1♀, **China**, Yunnan, Deqin, Meri Snow Mountain, E.98.805°, N.28.425°, alt. 2700 m, 20-VI-2009, Yihai ZHONG leg. (ASC); 1♂, **China**, Sichuan, Mt. Emei, Leidongping, E.103.327°, N.29.546°, alt. 2350 m, 07-VII-2009, Meicai WEI leg. (ASC); 1♂, **China**, Yunnan, Deqin 10 km SW: Meri Mts., E.98.805°, N.28.425°, alt. 2700 m, 20-VI-2009, SM Blank, AD Liston & A Taeger leg. (SDEI).

**Etymology.** The specific epithet refers to the elevated posterior carina of postocellar area.

**Remarks.** This new species is similar to *S. villosa* Malaise, 1945 except for: body smaller; female malar space broader than diameter of ocellus; interspaces between punctures on temple about as broad as diameter of ocellus, surface finely and densely microsculptured; POL : OOL : OCL = 7 : 24 : 14; marginal carina of postocellar area clearly higher than lateral occipital carina; apical serrulae protruding and annular sutures not strongly oblique; hairs on dorsum of head long and soft, apex curved; ovipositor sheath 1.2 times as long as middle tibia, lateral

breadth of sheath about as broad as apical breadth of hind tibia; apical sheath 1.9 times as long as basal sheath; male malar space 0.6 times diameter of ocellus and pterostigma black.

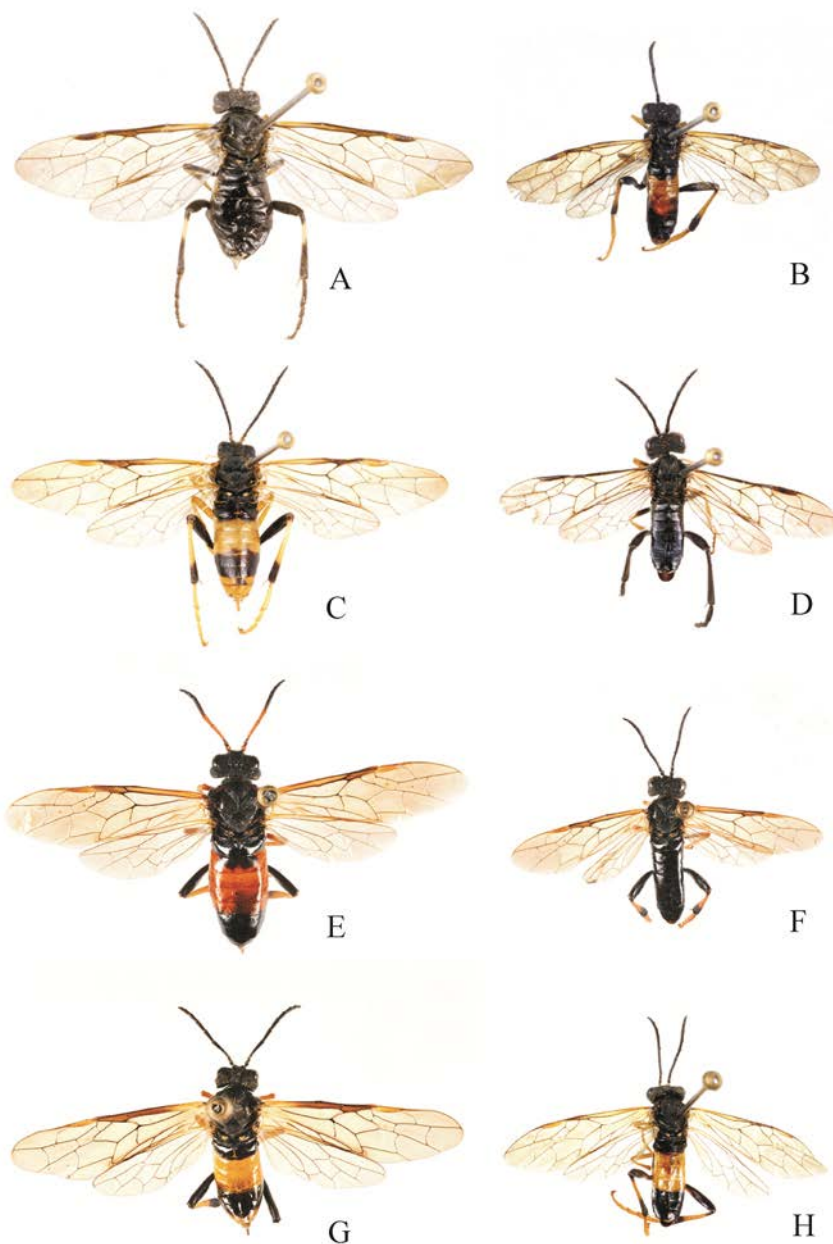


Figure 1. *Siobla* species, adults, dorsal views. A. *S. elevatina* sp. nov., ♀; B. *S. elevatina* sp. nov., ♂; C. *S. emeiensis* sp. nov., ♀; D. *S. emeiensis* sp. nov., ♂; E. *S. kangba* sp. nov., ♀; F. *S. kangba* sp. nov., ♂; G. *S. taegeri* sp. nov., ♀; H. *S. taegeri* sp. nov., ♂.

**2. *Siobla emeiensis* Niu & Wei sp. nov.** (Figs. 1C, D, 2G–L, 4B, F, 5B, F, 6B, F)

Female (Holotype). Body length 10 mm (Fig. 1C). Body and antenna black, lateral margin of tergite 2, middle spot of lateral of tergite 8, dorsum of tergite 9, middle triangular spot on tergite 10, sternites 2–5 entirely, sternites 6–7 partly and cercus pale brown. Legs black, anterior stripe on fore femur pale brown, fore tibia and tarsus, basal two thirds of middle tibia, subbasal third of hind tibia yellow white, middle tarsus largely yellow brown, hind tarsus black brown, tibial spurs pale brown. Wings hyaline, apical sixth with dark brown macula, vein R1 pale brown, pterostigma and other veins black brown, extreme base of pterostigma paler. Body hairs silver brown.

Clypeus irregularly rugose, punctures indistinct, less shiny; labrum finely punctured; punctures on dorsum of head large and dense, interspaces between punctures on temple narrower than diameter of ocellus, surface distinctly microsculptured; mesoscutal middle lobe densely punctured, interspaces between punctures narrower than ocellus, feebly microsculptured; mesoscutal lateral lobe sparsely punctured, surface smooth and shiny; punctures on anterior slope of mesoscutellum dense, interspaces smooth, narrower than ocellus, posterior slope extremely densely punctured, mat; mesoscutellar appendage smooth; parapsis densely microsculptured and shallowly punctured; anterior slope of metascutellum densely microsculptured; anterior and posterior margins of metapostnotum microsculptured, middle part smooth; elevated area of mesepisternum densely punctured without distinct interspace, anterior margin and posterior part of mesepisternum sparsely punctured, interspaces smooth and shiny; venter of mesepisternum sparsely and minutely punctured, interspaces smooth and shiny, inner anterior corner smooth and strongly shiny, naked; bottom of anepimeron feebly microsculptured, katepimeron densely microsculptured with anterior and posterior margins smooth; upper band of metepisternum hardly punctured, feebly microsculptured, venter sparsely punctured, surface smooth; elevated upper margin of metepimeron coarsely punctured, concaved lower part largely smooth, narrow margins densely microsculptured, posterior corner smooth; abdominal tergite 1 smooth, not microsculptured or punctured laterally, tergites 2–9 faintly microsculptured, tergites 3–10 shallowly and sparsely punctured.

Hairs on dorsum of head sparse and curved at apex, about 2–2.1 times diameter of ocellus. Anterior margin of clypeus weakly and roundly protruding; malar space 1.1 times diameter of ocellus; supraantennal tubercles weakly elevated, much broader than high and merged with obtuse frontal walls; middle fovea broad and deep, lateral foveae small and deep; inner margins of eyes weakly convergent downwards, shortest distance between eyes 1.2 times longest axis of eye; interocellar furrow narrow and deep, postocellar furrow broad and faint; postocellar area elevated, about as high as top of ocelli; breadth about 1.5 times length, without middle carina; lateral furrows deep, slightly curved and weakly divergent backwards; in dorsal view temple 0.9 times as long as eye, anterior half roundly convex, posterior half distinctly narrowed; occipital carina distinct and complete, furrow in front of occipital carina shallow. Antenna stout, clearly shorter than vein C, as long as head and thorax together, clearly shorter than abdomen, pedicellum 1.2 times as long as broad, antennomere 3 1.6 times as long as antennomere 4, subapical antennomeres clearly enlarged but not compressed, antennomere 7 about 1.8 times as long as broad. Mesoscutellum roundly elevated and as high as top of mesoscutum, without carina or peak; mesoscutellar appendage without middle carina; mesepisternum without ventral thorn. Apical breadth of hind tibia as broad as lateral breadth of

ovipositor sheath; metabasitarsus as long as following 3 tarsomeres together, about 5.3 times as long as broad; pulvilli of hind tarsus large, length of first pulvillus 0.6 times apical breadth of basitarsus, distance between first and second pulvilli 2 times as long as second pulvillus. Ovipositor sheath 1.1 times length of middle tibia, apical sheath 1.5 times as long as basal sheath; lancet with 16 serrulae, annular sutures distinct in lower third, serrulae short and distinctly protruding, area below pore line of annulus 9 about 1.7 times as long as broad.

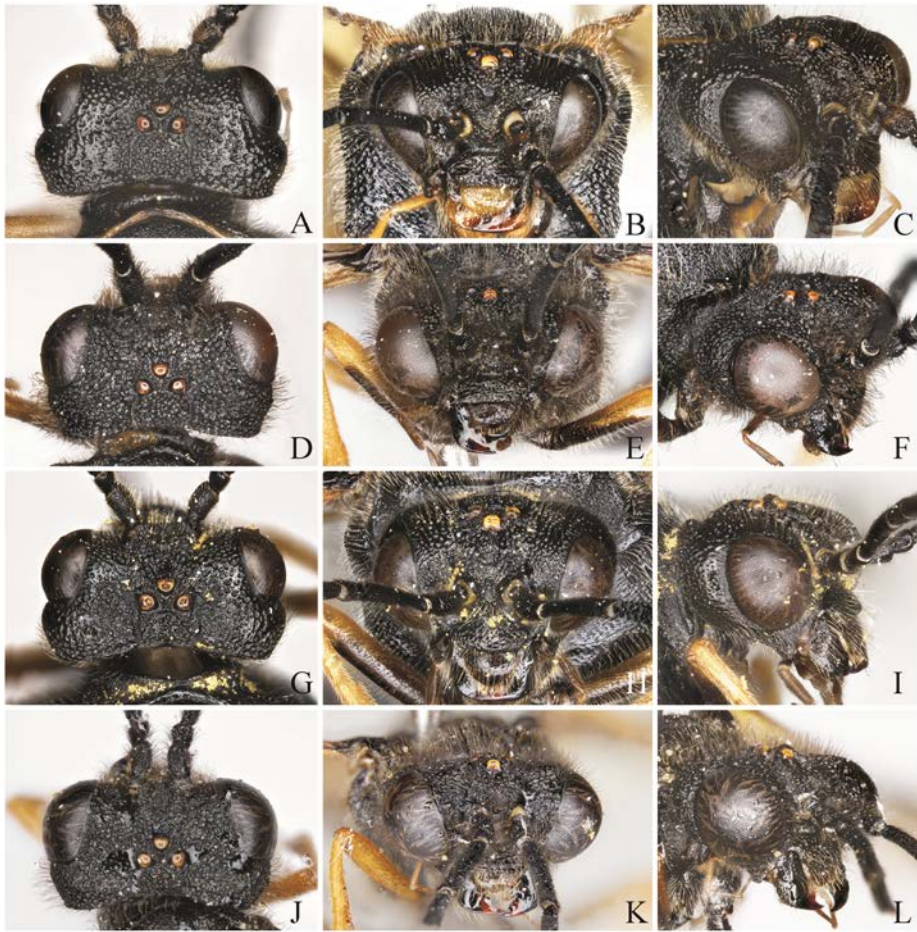


Figure 2. Heads of *Siobla elevatina* Niu & Wei **sp. nov.** and *S. emeiensis* Niu & Wei **sp. nov.** A–F. *Siobla elevatina* Niu & Wei **sp. nov.** A. ♀, dorsal view; B. ♀, frontal view; C. ♀, lateral view; D. ♂, dorsal view; E. ♂, frontal view; F. ♂, lateral view. G–L. *Siobla emeiensis* Niu & Wei **sp. nov.** G. ♀, dorsal view; H. ♀, frontal view; I. ♀, lateral view; J. ♂, dorsal view; K. ♂, frontal view; L. ♂, lateral view. Scale bar = 1 mm.

Male. Body length 9 mm (Fig. 1D). Similar to female except for: wings infuscate, abdominal tergites 2–5 largely and sternites 2–5 entirely yellow brown, sternites 6–9 and genitalia pale brown; most of fore femur, anterior of middle femur, fore and middle tibiae and tarsi, basal two thirds of hind tibia and entire hind tarsus orange; hairs on dorsum of head black brown, hairs on mesepisternum pale brown; malar space narrower than radius of ocellus;

eyes large with distance between eyes 0.8 times as long as longest axis of eye; in dorsal view length of temple 0.7 times as long as eye, lateral sides distinctly narrowed backwards; subgenital plate slightly longer than broad, apical margin roundish; valviceps of penis valve broad (Fig. 5B), gonoforceps as in Fig. 5F.

Variation. No variation was found within same sex.

**Holotype.** ♀, **China**, Sichuan, Mt. Emei, Jinding, alt. 3070 m, 13-VI-2007, Shaobing ZHANG leg. (ASC). **Paratypes.** 1♀, **China**, Sichuan, Mt. Emei, Leidongping, E.103°19.890', N.29°32.476', alt. 2400 m, 02-VII-2006, Hu ZHOU leg. (ASC); 1♂, **China**, Sichuan, Mt. Emei, Jinding, E.103°20.188', N.29°31.369', 3076 m, 03-VII-2006, Yihai ZHONG leg. (ASC).

Etymology. The species is named after the type locality.

Remarks. This new species is similar to *S. albomaculata* Niu & Wei, 2015 but differs from the latter by the following: pterostigma with a pale basal spot, forewing with a small apical infuscate macula in female and entirely infuscate in male; the lateral sides of female abdominal tergite 2 and sternites 2–5 entirely yellow brown; the white ring in the hind tibia much shorter than half length of tibia, the hind tarsus black brown; body hairs pale; frons with several irregular longitudinal carinae; apical sheath in lateral view not narrower than apical breadth of hind tibia; the female lancet with distinct annular sutures in lower third, serrulae protruding and area below pore line short and high; harpes pale, valviceps short and broad.

### 3. *Siobla kangba* Niu & Wei sp. nov. (Figs. 1E, F, 3A–F, 4C, G, 5C, G, 6C, G)

Female (Holotype). Body length 12 mm (Fig. 1E). Black; maxillary palpomeres 2–3 pale brown, most of antennomeres 1–3, broad posterior margin of pronotum, abdominal segments 2–5 reddish brown, tergite 2 with a middle black spot, tergites 8–10 each with a small middle brown spot, cercus yellow brown. Fore and middle legs yellow brown, coxa and trochanter entirely, posterior third of fore femur and posterior half of middle femur black; hind leg black, basal 0.8 of tibia yellow brown, tarsus orange; tibial spurs pale brown. Wings almost hyaline, apex slightly infuscate, middle and apex of vein C dark brown, vein R1 and pterostigma pale brown, other veins largely black brown. Body hairs pale brown.

Clypeus densely punctured with narrow shiny interspaces; punctures on dorsum of head dense, interspaces between punctures on temple as broad as diameter of ocellus, surface distinctly microsculptured; mesoscutal middle lobe densely punctured, interspaces between punctures narrower than ocellus, feebly microsculptured; punctures on anterior slope of mesoscutellum not very dense, interspaces microsculptured, about as broad as diameter of ocellus, posterior slope extremely densely punctured, mat; mesoscutellar appendage smooth; anterior slope of metascutellum finely microsculptured; metapostnotum finely and densely microsculptured; elevated area of mesepisternum densely punctured without distinct interspace, anterior margin and posterior part of mesepisternum sparsely punctured, interspaces weakly microsculptured; venter of mesepisternum sparsely and minutely punctured, interspaces feebly microsculptured, inner anterior corner with a small smooth and naked area; bottom of anepimeron smooth on anterior half and microsculptured on posterior half, katapimeron densely microsculptured with narrow posterior margin smooth; upper band of metepisternum shallowly punctured and coarsely microsculptured, venter sparsely punctured, surface smooth; elevated upper margin of metepimeron coarsely punctured, concaved lower part largely smooth, narrow margins densely microsculptured, posterior corner smooth; abdominal tergite



1 smooth, hardly microsculptured, tergites 2–9 distinctly microsculptured, tergites 3–10 shallowly and sparsely punctured.



Figure 3. Heads of *Siobla kangba* Niu & Wei **sp. nov.** and *S. taegeri* Niu & Wei **sp. nov.** A–F. *Siobla kangba* Niu & Wei **sp. nov.** A. ♀, dorsal view; B. ♀, frontal view; C. ♀, lateral view; D. ♂, dorsal view; E. ♂, frontal view; F. ♂, lateral view. G–L. *Siobla taegeri* Niu & Wei **sp. nov.** G. ♀, dorsal view; H. ♀, frontal view; I. ♀, lateral view; J. ♂, dorsal view; K. ♂, frontal view; L. ♂, lateral view. Scale bar = 1 mm.

Hairs on dorsum of head sparse and short, straight, about 0.5 times diameter of ocellus; hairs on mesepisternum as long as diameter of ocellus. Anterior margin of clypeus weakly and roundly protruding; malar space 1.1 times diameter of ocellus; supraantennal tubercles weakly elevated, much broader than high and merged with obtuse frontal walls; middle fovea broad and deep, lateral foveae small and deep; inner margins of eyes distinctly convergent downwards, shortest distance between eyes 1.2 times longest axis of eye; interocellar furrow narrow and deep, postocellar furrow shallow and faint; postocellar area elevated, almost as high as top of ocelli; breadth about 1.4 times its length, without middle carina, marginal carina

distinct; lateral furrows deep, slightly curved and clearly divergent backwards; in dorsal view temple 0.85 times as long as eye, anterior half roundly convex, posterior half distinctly narrowed; occipital carina low and complete. Antenna stout, clearly shorter than vein C, slightly shorter than head and thorax together, pedicellum 1.3 times as long as broad, antennomere 3 1.7 times as long as antennomere 4, subapical antennomeres slightly enlarged, not compressed, antennomere 7 about 1.5 times as long as broad. Mesoscutellum weakly elevated and clearly below top of mesoscutum, without carina or peak; mesoscutellar appendage broad, without middle carina; mesepisternum without ventral thorn. Apical breadth of hind tibia 0.8 times as broad as lateral breadth of ovipositor sheath; metabasitarsus slightly longer than following 3 tarsomeres together (8 : 7), about 5 times as long as broad; pulvilli of hind tarsus medium-sized, length of first pulvillus 0.5 times apical breadth of basitarsus, distance between first and second pulvilli 3 times as long as second pulvillus. Ovipositor sheath 1.1 times length of middle tibia, apical sheath 1.5 times as long as basal sheath; lancet with 18 serrulae, annular sutures indistinct, serrulae distinctly protruding with acute inner corner.

Male. Body length 9 mm (Fig. 1F). Body black, only narrow posterior margin of pronotum pale brown; color of legs similar to female; punctures and structures similar to female except for: malar space as long as radius of ocellus; eyes large with shortest distance between eyes 0.8 times longest axis of eye; in dorsal view length of temple 0.6 times as long as eye, lateral sides distinctly narrowed backwards; hairs on dorsum of head black brown and about as long as diameter of ocellus, hairs on mesepisternum slightly longer than diameter of ocellus; subgenital plate slightly longer than broad, apical margin roundish; valviceps of penis valve as Fig. 5C, gonoforceps as in Fig. 5G.

Variation. Body length of female varies within 11–13 mm and the black macula on the apex of hind tibia varies a little.

**Holotype.** ♀, **China**, Sichuan, Luhuo, Zhuwo Town, E.100°18.077', N.31°38.372', alt. 3413 m, 30-VI-2009, Gengyun NIU leg. (ASC). **Paratypes.** 3♂, **China**, Sichuan, Luhuo, Zhuwo Town, E.100°18.077', N.31°38.372', alt. 3413 m, 30-VI-2009, Meicai WEI leg. (ASC); 2♀, **China**, Sichuan, Kangding, Maiba Village, E.101°34.856', N.30°03.631', 3525 m, 01-VII-2009, Zejian LI leg. (ASC).

Etymology. This new species is named after the type locality.

Remarks. This new species is similar to *S. clavicornis* Niu & Wei, but differs from it by the following: female malar space broader than diameter of ocellus; postocellar area about 1.4 times as broad as long; antenna stout and the subapical antennomeres hardly enlarged; tegula black, the abdominal segments 2–5 reddish brown; hairs on dorsum of head straight and not longer than diameter of ocellus; mesoscutellum not distinctly elevated and clearly below top of mesoscutum; male abdomen entirely black and hairs on head black brown; serrulae of female lancet distinctly protruding and acute at apex.

#### 4. *Siobla taegeri* Niu & Wei sp. nov. (Figs. 1G, H, 3G–L, 4C, G, 5D, H, 6D, H)

Female (Holotype). Body length 10 mm (Fig. 1G). Black, abdominal tergites 2–4 entirely, sternites 2–5, tergites 7–8 largely, dorsum of tergite 9 and cercus yellow brown, tergite 10 and apical margin of sheath pale brown. Legs black, apical 0.75 of fore femur, apical half of middle femur, fore and middle tibiae and tarsi entirely, basal 0.65 of hind tibia except for

extreme base, hind tarsi entirely yellow brown, tibial spurs pale brown. Wings hyaline, basal 0.2 of vein C, base of vein A and pterostigma entirely pale brown, vein R1 dark brown, other veins largely black brown. Body hairs silver.

Clypeus densely punctured with narrow shiny interspaces; punctures on dorsum of head extremely dense, interspaces between punctures on temple indistinct; punctures on mesoscutal middle lobe and lateral lobes quite dense, smaller than punctures on head, interspaces between punctures much narrower than ocellus, feebly microsculptured; punctures on anterior slope of mesoscutellum very dense, interspaces indistinct, posterior slope extremely densely punctured, mat; mesoscutellar appendage smooth at middle and densely microsculptured laterally; anterior slope of metascutellum densely microsculptured; middle third and posterior margin of metapostnotum smooth, other part of metapostnotum finely and densely microsculptured; elevated area of mesepisternum densely punctured without distinct interspace, anterior margin and posterior part of mesepisternum weakly punctured; venter of mesepisternum sparsely and minutely punctured, interspaces smooth, shiny, inner anterior corner with a small smooth and naked area; bottom of anepimeron densely microsculptured, katepimeron densely microsculptured with narrow posterior margin smooth; upper band of metepisternum shallowly punctured and rugose, venter very sparsely punctured, surface smooth; elevated upper margin of metepimeron coarsely punctured, concave lower part largely smooth, narrow margins densely microsculptured, posterior corner smooth; abdominal tergite 1 smooth, without microsculptures, laterally shallowly punctured; tergites 2–9 hardly microsculptured, tergites 5–10 shallowly and sparsely punctured laterally.

Hairs on dorsum of head sparse and soft, distinctly curved at apex, about 1.5 times diameter of ocellus; hairs on mesepisternum 1.5 times as long as diameter of ocellus. Anterior margin of clypeus truncate; malar space 1.1 times diameter of ocellus; supraantennal tubercles weakly elevated, much broader than high and merged with obtuse frontal walls; middle fovea broad and shallow, with flat bottom and not connected to frontal basin; lateral foveae small and deep; inner margins of eyes distinctly convergent downwards, shortest distance between eyes 1.3 times longest axis of eye; interocellar furrow narrow and deep, postocellar furrow distinct; postocellar area weakly elevated anteriorly and declined backwards, clearly below top of ocelli, breadth about 1.4 times its length, with faint middle carina, marginal carina distinct, not higher than lateral occipital carina; lateral furrows broad and deep, distinctly curved and clearly divergent backwards; distance between outer margin of lateral ocelli as long as distance between posterior margin of lateral ocellus and posterior margin of head; in dorsal view temple 1.05 times as long as eye, anterior third roundly convex, posterior two thirds distinctly narrowed; occipital carina low and complete. Antenna thin, clearly shorter than vein C, as long as head, thorax and abdominal tergite 1 together, pedicellum 1.3 times as long as broad, antennomere 3 1.6 times as long as antennomere 4, subapical antennomeres slightly enlarged, not compressed, antennomere 7 about 2 times as long as broad. Mesoscutellum roundly elevated and as high as top of mesoscutum, without carina or peak; mesoscutellar appendage broad, with a low middle carina; mesepisternum without ventral thorn. Apical breadth of hind tibia 1.25 times as broad as lateral breadth of ovipositor sheath; metabasitarsus 5.5 times as long as broad and 1.2 times as long as following 3 tarsomeres together; pulvilli of hind tarsus small, length of first pulvillus 0.3 times apical breadth of basitarsus, distance between first and second pulvilli 3 times as long as second pulvillus. Ovipositor sheath narrow, as long as



middle tibia, apical sheath 1.5 times as long as basal sheath; lancet with 15 serrulae, annular sutures indistinct, serrulae soft, weakly protruding with obtuse inner corner.

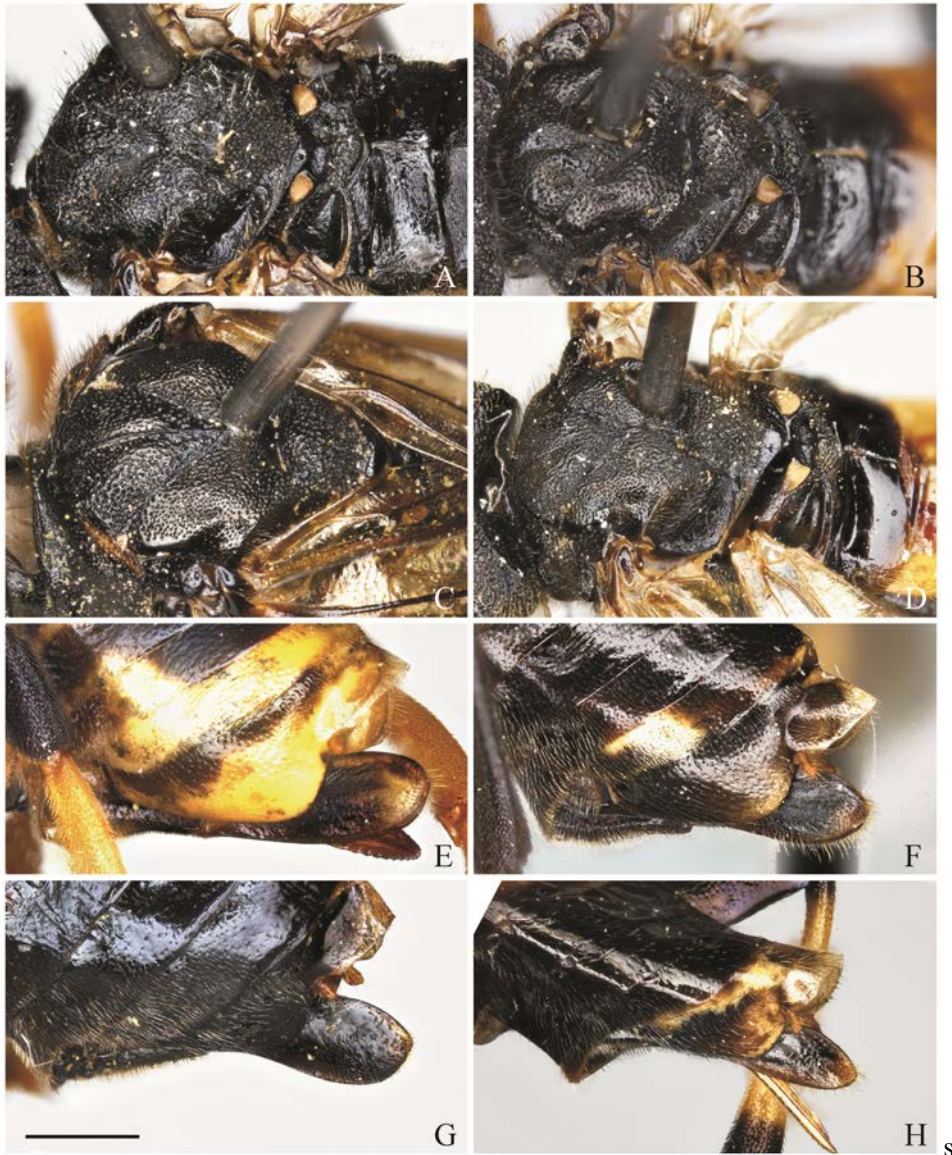


Figure 4. Thoraces and ovipositor sheaths of *Siobla* spp. A–D. Thoraces, dorsal views. A. *S. elevatina* **sp. nov.**, ♀; B. *S. emeiensis* **sp. nov.**, ♀; C. *S. kangba* **sp. nov.**, ♀; D. *S. taegeri* **sp. nov.**, ♀. E–H. Ovipositor sheaths, lateral views. E. *S. elevatina* **sp. nov.**, ♀; F. *S. emeiensis* **sp. nov.**, ♀; G. *S. kangba* **sp. nov.**, ♀; H. *S. taegeri* **sp. nov.**, ♀. Scale bar = 1 mm.

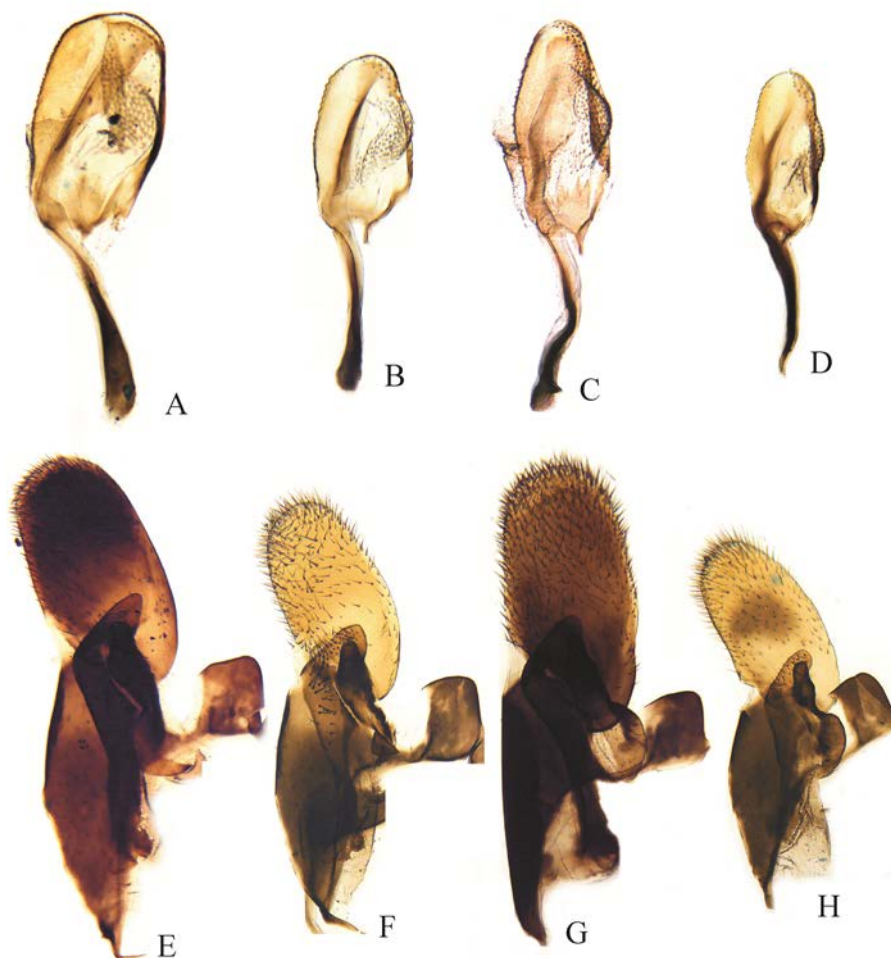


Figure 5. Penis valves and gonoforceps of *Siobla* spp. A–D. Penis valves. A. *S. elevatina* **sp. nov.**; B. *S. emeiensis* **sp. nov.**; C. *S. kangba* **sp. nov.**; D. *S. taegeri* **sp. nov.** E–H. Gonoforceps. E. *S. elevatina* **sp. nov.**; F. *S. emeiensis* **sp. nov.**; G. *S. kangba* **sp. nov.**; H. *S. taegeri* **sp. nov.**

Male. Body length 8.5–9 mm (Fig. 1H). Color, punctuation and structures similar to female except for: malar space as long as radius of ocellus; eyes large with shortest distance between eyes equal to longest axis of eye; in dorsal view length of temple 0.9 times as long as eye, lateral sides strongly narrowed backwards; apical margin of subgenital plate roundish; valviceps of penis valve as in Fig. 5D, gonoforceps as in Fig. 5H.

Variation. The posterior part of tergite 3 and entire tergite 4 are black in one female paratype. The base of hind femur in a few males is reddish brown.

**Holotype.** ♀, **China**, Yunnan, Lushui, Fengxueyakou, E.998.683°, N.25.973°, alt. 3150 m, 06-VI-2009, Wei XIAO leg. (ASC). **Paratypes.** 2♀3♂, data same as the holotype except Yihai ZHONG and Wei XIAO leg. (ASC); 1♂, **China**, Yunnan, Lushui, Pianma, E.98.717°, N.25.976°, alt. 2550 m, 04-VI-2009, Yihai ZHONG leg. (ASC); 2♂, **China**, Yunnan, Lushui, Yaojiaping, E.98.710°, N.25.975°, alt. 2550 m, 06-VI-2009, Wei XIAO leg. (ASC); 3♀1♂, **China**, Yunnan, Mt. Gongshan, E.98.500°, N.27.800°, alt. 3031 m, Wei XIAO and Yihai

ZHONG leg. (ASC); 1♀, **China**, Yunnan, Deqin, Mt. Meri Snow Mountain, E.98.805°, N.28.425°, alt. 2700 m, Yihai ZHONG leg. (ASC); 1♂, **China**, Yunnan, Mt. Gaoligong, E.98°41.033', N.25°58.358', alt. 2500–3200 m, 07-VII-2005, Yang LIN leg. (ASC); 1♀1♂, **China**, Yunnan, Pianma env., +25.97300, +98.70800, alt. 2500 m, 03-VI-2009, SM Blank, AD Liston & A Taeger leg. (SDED); 1♂, **China**, Yunnan, Pianma env., +25.97300, +98.68500, alt. 3150 m, 04-VI-2009, SM Blank, AD Liston & A Taeger leg. (SDED).

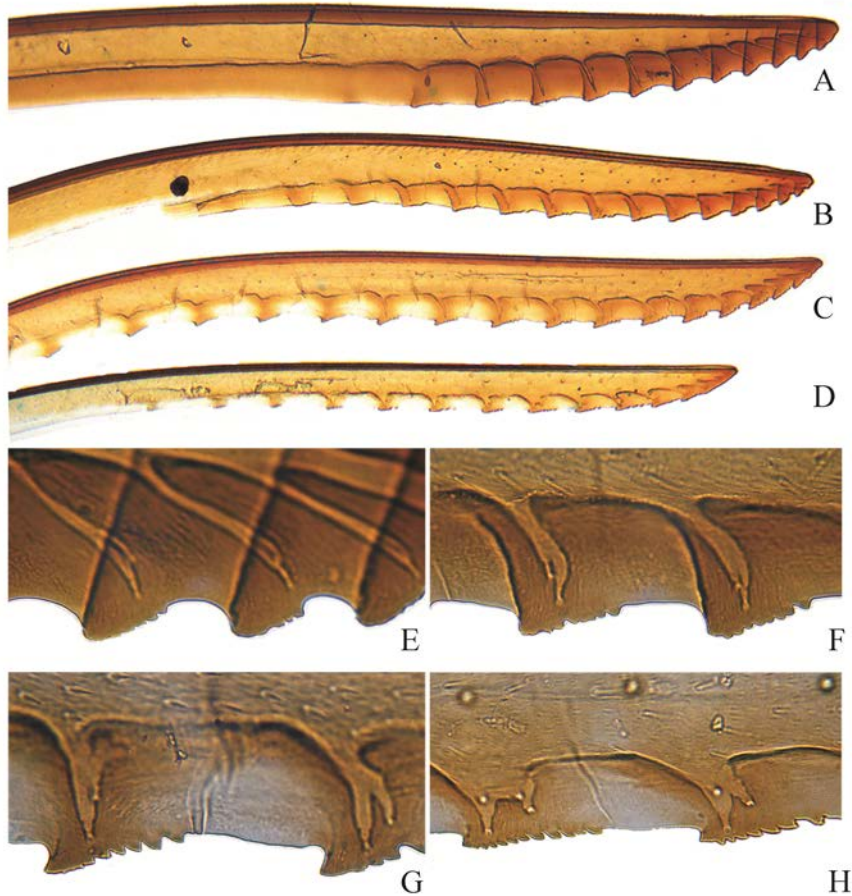


Figure. 6 Lancets and middle serrulae of *Siobla* spp. A–D. Lancet. A. *S. elevatina* **sp. nov.**; B. *S. emeiensis* **sp. nov.**; C. *S. kangba* **sp. nov.**; D. *S. taeger* **sp. nov.** E–H. Middle serrulae. E. *S. elevatina* **sp. nov.**; F. *S. emeiensis* **sp. nov.**; G. *S. kangba* **sp. nov.**; H. *S. taegeri* **sp. nov.**

**Etymology.** This new species is named after the surname of the collector of a paratype, Dr. A. Taeger.

**Remarks.** This new species is similar to *S. muotuoensis* Niu & Wei, 2015 but differs from the latter by the following: the anterior part of the postocellar area higher than posterior part and with a short middle carina; in dorsal view temple hardly longer than eye; the abdominal tergites 2–4 yellow brown; sheath broad in lateral view; the inner anterior corner of mesepisternum smooth and naked; the valviceps broad and round at apex.

## Acknowledgements

This research was supported by the National Natural Science Foundation of China (31501885, 31970447) and the Foundation of Hunan Educational Committee (2016-2330). Our thanks are also due to anonymous reviewers.

## References

- Gimmerthal BA. 1834. Einige in Livland aufgefunden und benannte Sägewespen (Tenthredinae). *Bulletin de la Société Impériale des Naturalistes de Moscou*, 7: 122–128.
- Klug F. 1817. Die Blattwespen nach ihren Gattungen und Arten zusammengestellt. *Der Gesellschaft Naturforschender Freunde zu Berlin Magazin für die neuesten Entdeckungen in der gesamten Naturkunde*, 8[1814](2): 110–144.
- Malaise R. 1931. Blattwespen aus Wladiwostok und anderen Teilen Ostasiens. *Entomologisk Tidskrift*, 52(2): 97–159.
- Mallach N. 1933. Neue chinesische Blattwespen (Zugleich 2. Beitrag zur Kenntnis der Blattwespenfauna Chinas). *Bulletin of the Fan Memorial Institute of Biology, Peiping/Beiping*, 4: 269–277.
- Mocsáry A. 1909. Chalastogastra nova in collectione Musei nationalis Hungarici. *Annales Historico-naturales Musei Nationalis Hungarici*, 7: 1–39.
- Niu GY, Liu T, Chu B & Wei MC. 2015. Four new species and a key to species of *Siobla* (Hymenoptera, Tenthredinidae) from Tibet, China. *Entomotaxonomia*, 37(4): 303–313.
- Niu GY & Wei MC. 2010a. Revision of the *Siobla* annulicornis, acutiscutella and sheni groups (Hymenoptera: Tenthredinidae). *Zootaxa*, 2643: 45–65.
- Niu GY & Wei MC. 2010b. Five new species of *Siobla* Cameron (Hymenoptera, Tenthredinidae) from China. *Acta Zootaxonomica Sinica*, 35(4): 911–921.
- Niu GY & Wei MC. 2011. Revision of the *Siobla* (Hymenoptera: Tenthredinidae) from Taiwan, with descriptions of three new species and three new synonyms. *The Japanese Journal of Systematic Entomology*, 17(2): 155–176.
- Niu GY & Wei MC. 2013a. Revision of the *Siobla formosana* groups (Hymenoptera: Tenthredinidae). *Zootaxa*, 3746(1): 41–68.
- Niu GY & Wei MC. 2013b. Two new species of *Siobla* Cameron (Hymenoptera, Tenthredinidae) from Sichuan, China. *Acta Zootaxonomica Sinica*, 38(3): 597–602.
- Niu GY & Wei MC. 2020. Review of some species of *Siobla* (Hymenoptera: Tenthredinidae). *Zoological Systematics*, 45, [in press].
- Niu GY, Xiao W & Wei MC. 2012. Seven new species and a key to species of *Siobla* (Hymenoptera: Tenthredinidae) from Shaanxi, China. *Entomotaxonomia*, 34(2): 399–422.
- Shinohara A, Niu GY & Wei MC. 2013. Revision of the *Siobla* (Hymenoptera: Tenthredinidae) from Japan. *Zootaxa*, 3746(1): 1–40.
- Smith F. 1874. Descriptions of new species of Tenthredinidae, Ichneumonidae, Chrysididae, Formicidae & c. of Japan. *Transactions of the Entomological Society of London for the Year, 1874*: 373–409.
- Wei MC & Nie HY. 2002. Four new species and two new subspecies of the genus *Siobla* Cameron (Hymenoptera: Tenthredinidae) from Henan province. In: Shen XC & Zhao YQ (Eds.), *Insects of the Mountains Taihang and Tongbai Regions*. (The Fauna and Taxonomy of Insects in Henan, Vol. 5[2003]). China Agricultural Science and Technology Press, Beijing, pp. 119–126.