



## Nine new species of the Oriental leafhopper genus *Salka* Dworakowska (Hemiptera: Cicadellidae: Typhlocybinae) from China

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### Abstract

Generic characteristics of *Salka* Dworakowska are given and nine new species, *Salka crassiprocessa*, *S. lamella*, *S. jianfengensis*, *S. diaoluoensis*, *S. nangongensis*, *S. longiprocessa*, *S. jiangshiensis*, *S. longihamata* and *S. singularis* spp. n. from China are described and illustrated. A key to males and a species checklist of Chinese *Salka* are provided.

**Key words:** Homoptera, Auchenorrhyncha, Erythroneurini, taxonomy

### Introduction

The Oriental leafhopper genus *Salka* Dworakowska, 1972 belongs to the Typhlocybinae tribe Erythroneurini with *Zygina nigricans* Matsumura, 1932 as its type species. It was subsequently reviewed by Sohi & Mann (1994) and Dworakowska (1994, 2006); forty-four species are known, including 20 species from China. In the present work, nine new species from China are described and illustrated. All specimens examined are deposited to the collection of the Entomological Museum of Northwest A & F University (NWAUFU), China.

### *Salka* Dworakowska, 1972

*Salka* Dworakowska, 1972: 778; Chiang & Knight, 1990: 229; Sohi & Mann, 1994: 31

Type species: *Zygina nigricans* Matsumura, 1932

Body sandy beige to brownish-black. Head somewhat narrower than pronotum. Anterior margin of vertex slightly produced with coronal suture present. Face with lorum large; frontoclypeus broad. Pronotum about twice as long as vertex. Fore wing semitransparent, with brochosome field brown to brownish-black, 1<sup>st</sup> and 3<sup>rd</sup> apical cell very large and broad, 2<sup>nd</sup> apical cell narrow, 4<sup>th</sup> apical cell short and broad (Fig. 1). Hind wing venation usual for Erythroneurini (Fig. 2).

Abdominal apodemes small, not or slightly exceeding 3<sup>rd</sup> sternite (Figs. 89, 90).

**Male genitalia:** Genital capsule well sclerotized. Anal tube appendage present or absent. Pygofer with dorsal appendage present, movably articulated; with or without ventral appendage; setosity consists of one or more macrosetae cephalad of attachment of anal tube, group of various sized macrosetae at cephalo-ventral angle of lobe, few short stout setae at caudal margin and short slender setae scattered on surface of lobe. Subgenital plate with 2 or more macrosetae in oblique row or 3 macrosetae forming a triangle some distance from base. Apex of paramere various. Connective U- or Y-shaped, with or without distinct central lobe. Penis shaft tubular, gonopore subapical or less commonly apical on ventral surface.

*Distribution:* India (Tamil Nadu, W. Bengal, Meghalaya, Sikkim); Nepal (Uhléri, Kathmandu Valley, Ghara, Taplejung Distr., Sangu); Vietnam (Lao-cai); Philippines (Mindanao); Indonesia (Java, Soukaboemi I., E Java, Tjibodas); Myanmar; Malaysia; Brunei; China (Fujian, Hubei, Hainan, Yunnan, Taiwan).

### Species checklist of Chinese *Salka*

- S. abbotta* Chiang & Knight, 1990: 230, fig. 22. China (Taiwan)  
*S. addonica* Chiang & Knight, 1990: 231, fig. 23. China (Taiwan)  
*S. arenaria* Sohi & Mann, 1994: 32, figs. 1–8. China (Taiwan)  
*S. armata* Dworakowska, 1976: 34, figs. 295–303. China (Taiwan)  
*S. asna* Dworakowska, 1976: 33, figs. 283–294. China (Taiwan)  
*S. belanda* Sohi & Mann, 1994: 33, figs. 9–18. China (Taiwan)  
*S. canara* Sohi & Mann, 1994: 34, figs. 19–30. China (Taiwan)  
*S. crassiprocessa* Zhang, Yang and Huang: figs. 1–11. **new species**, China (Yunnan)  
*S. diacora* Chiang & Knight, 1990: 233, fig. 24. China (Taiwan)  
*S. diaoluensis* Zhang, Yang and Huang: figs. 27–32. **new species**, China (Hainan)  
*S. extrela* Chiang & Knight, 1990: 234, fig. 25. China (Taiwan)  
*S. fujiwara* Chiang & Knight, 1990: 235, fig. 26. China (Taiwan)  
*S. hadija* Sohi & Mann, 1994: 38, figs. 49–57. China (Taiwan)  
*S. jaga* Sohi & Mann, 1994: 38, figs. 58–65. China (Taiwan)  
*S. jianfengensis* Zhang, Yang and Huang: figs. 21–26. **new species**, China (Hainan)  
*S. jiangshiensis* Zhang, Yang and Huang: figs. 47–53. **new species**, China (Fujian)  
*S. lamella* Zhang, Yang and Huang: figs. 12–20. **new species**, China (Yunnan)  
*S. lobata* Dworakowska, 1976: 35, figs. 304–311. China (Taiwan)  
*S. longihamata* Zhang, Yang and Huang: figs. 54–61. **new species**, China (Yunnan)  
*S. longiprocessa* Zhang, Yang and Huang: figs. 39–46. **new species**, China (Yunnan)  
*S. musica* Sohi & Mann, 1994: 41, figs. 85–94. China (Taiwan)  
*S. nangongensis* Zhang, Yang and Huang: figs. 33–38. **new species**, China (Yunnan)  
*S. nigricans* (Matsumura, 1932), Dworakowska, 1972: 777, figs. 105–115. China (Taiwan)  
*S. rubronigra* Sohi & Mann, 1994: 45, figs. 120–130. China (Taiwan)  
*S. singularis* Zhang, Yang and Huang: figs. 62–70. **new species**, China (Yunnan)  
*S. sinica* Sohi & Mann, 1994: 47, figs. 139–147. China (Hubei)  
*S. triangula* Chiang & Knight, 1990: 238, fig. 28. China (Taiwan)  
*S. xepima* Sohi & Mann, 1994: 49, figs. 158–167. China (Taiwan)  
*S. zoza* Sohi & Mann, 1994: 50, figs. 168–177. China (Taiwan)

### Key to males of *Salka* from China

- |   |   |   |
|---|---|---|
| 1 | Pygofer side with dorsal appendage only .....                     | 2                                       |
| - | Pygofer side with dorsal and ventral appendage .....              | 10                                      |
| 2 | Apex of penis with pair of processes .....                        | 3                                       |
| - | Apex of penis without pair of processes .....                     | 6                                       |
| 3 | Base of penis with pair of processes (Fig. 45).....               | <i>S. longiprocessa</i> <b>sp.nov.</b>  |
| - | Base of penis without pair of processes .....                     | 4                                       |
| 4 | Penis with pair of subapical serrate lamellae (Figs. 19, 20)..... | <i>S. lamella</i> <b>sp.nov.</b>        |
| - | Penis without pair of subapical serrate lamellae.....             | 5                                       |
| 5 | Dorsal apodeme of penis thin, club-shaped (Fig. 11) .....         | <i>S. crassiprocessa</i> <b>sp.nov.</b> |
| - | Dorsal apodeme of penis broad, nearly round (Fig. 38) .....       | <i>S. nangongensis</i> <b>sp.nov.</b>   |
| 6 | Penis with single basal atrium process (Figs. 69, 70).....        | <i>S. singularis</i> <b>sp.nov.</b>     |
| - | Penis without basal atrium process .....                          | 7                                       |

7	Penis shaft without processes (Figs. 60, 61).....	<i>S. longihamata</i> <b>sp.nov.</b>
-	Penis shaft with processes.....	8
8	Penis shaft with pair of processes at midlength, curved dorsad (see Figs. 168, 169, Sohi & Mann, 1994).....	<i>S. zoza</i> Sohi & Mann
-	Penis shaft with pair of subapical processes.....	9
9	Penis processes serrated on both sides (see Figs. 9, 10, Sohi & Mann, 1994).....	<i>S. belanda</i> Sohi & Mann
-	Penis processes smooth on both sides (Figs. 31, 32).....	<i>S. diaoluensis</i> <b>sp.nov.</b>
10	Penis with pair of basal atrium processes (see Figs. 140, 141, Sohi & Mann, 1994).....	<i>S. sinica</i> Sohi & Mann
-	Penis without basal atrium process.....	11
11	Base of penis with processes.....	12
-	Base of penis without processes.....	15
12	Base of penis with single process (see Figs. 6, 7, Chiang & Knight, 1990).....	<i>S. diacora</i> Chiang & Knight
-	Base of penis with pair of processes.....	13
13	Paramere with second apical extension at apex (see Figs. 87, 91, 92, Sohi & Mann, 1994).....	<i>S. musica</i> Sohi & Mann
-	Paramere without second apical extension at apex.....	14
14	Subgenital plate with inner subapical appendage (Figs. 47, 49, 50).....	<i>S. jiangshiensis</i> <b>sp.nov.</b>
-	Subgenital plate without inner subapical appendage (see Fig. 54, Sohi & Mann, 1994).....	<i>S. hadija</i> Sohi & Mann
15	Apex of penis with processes.....	16
-	Apex of penis without processes.....	25
16	Apex of penis with single process.....	17
-	Apex of penis with pair of processes.....	18
17	Ventral part of penis shaft with wedge-shaped extension medially (see Figs. 305, 310, Dworakowska, 1976).....	<i>S. lobata</i> Dworakowska
-	Ventral part of penis shaft without extension medially (see Figs. 7, 8, Chiang & Knight, 1990).....	<i>S. abbotta</i> Chiang & Knight
18	Apex of penis with pair of symmetrical processes.....	19
-	Apex of penis with asymmetrical processes.....	23
19	Penis shaft with subapical dorsal extension (see Figs. 283, 292, 293, Dworakowska, 1976).....	<i>S. asna</i> Dworakowska
-	Penis shaft without subapical dorsal extension.....	20
20	Both sides of penis shaft serrated near midlength (see Fig. 20, Sohi & Mann, 1994).....	<i>S. canara</i> Sohi & Mann
-	Both sides of penis shaft smooth near midlength.....	21
21	Penis apical processes longer than 1/2 of penis shaft (Figs. 25, 26).....	<i>S. jianfengensis</i> <b>sp.nov.</b>
-	Penis apical processes shorter than 1/2 of penis shaft.....	22
22	Penis shaft curved 90° dorsad medially (see Figs. 295, 298, Dworakowska, 1976).....	<i>S. armata</i> Dworakowska
-	Penis shaft not curved 90° dorsad medially (see Figs. 112, 113, Dworakowska, 1972).....	<i>S. nigricans</i> (Matsumura)
23	Penis processes lying close to shaft (see Figs. 120, 121, Sohi & Mann, 1994).....	<i>S. rubronigra</i> Sohi & Mann
-	Penis processes directed laterad of shaft.....	24
24	Longer penis process undivided (see Figs. 6, 8, Chiang & Knight, 1990).....	<i>S. triangula</i> Chiang & Knight
-	Longer penis process forked (see Figs. 58, 59, Sohi & Mann, 1994).....	<i>S. jaga</i> Sohi & Mann
25	Subapical processes of penis shaft present.....	26
-	Subapical processes of penis shaft absent.....	27
26	Penis shaft with single subapical process (see Fig. 8, Chiang & Knight, 1990).....	<i>S. fujiwara</i> Chiang & Knight
-	Penis shaft with pair of subapical processes (see Figs. 6, 8, Chiang & Knight, 1990).....	<i>S. extela</i> Chiang & Knight
27	Penis shaft with pair of subapical triangular extensions (see Figs. 158, 159, Sohi & Mann, 1994).....	<i>S. xepima</i> Sohi & Mann
-	Penis shaft without subapical extensions.....	28
28	Dorsal pygofer appendage short, with a dorso-medial hump (see Fig. 6, Chiang & Knight, 1990).....	<i>S. addonica</i> Chiang & Knight
-	Dorsal pygofer appendage elongate, without hump (see Figs. 5, 6, Sohi & Mann, 1994).....	<i>S. arenaria</i> Sohi & Mann

***Salka crassiprocessa* sp. nov.**

Figs. 1–11, 71–72.

Dorsum (Fig. 71) with vertex yellow, with large central blackish-brown patch. Pronotum beige, with its anterior part yellow, and with a sordid white vaulted patch medially, latter with or without a narrow yellow

cross fascia. Eyes blackish. Face (Fig. 72) yellow, with two fulvous streaks running from the blackish apical patch and merging on anteclypeus. Basal triangles rufous. Fore wing beige, with r cell darker and brochosoma field brown; veins brown. Claval furrow whitish.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

**Male genitalia:** Pygofer with dorsal appendage nearly straight with narrow base, tapered to slightly upturned apex (Figs. 3, 4). Subgenital plate with 4 macrosetae in oblique row starting some distance from base and row of short stout setae along outer margin (Fig. 7). Paramere in lateral view with some minute furrows at apex; midlength of paramere broad with several sensory pits near pre-apical lobe (Fig. 8). Connective Y-shaped, with central lobe distinct (Fig. 9). Penis shaft with pair of symmetrical relatively robust apical processes, directed slightly laterally, extending to near base of shaft, gonopore subapical on ventral surface (Figs. 10, 11); dorsal apodeme thin, club-shaped in lateral view.

**Measurement:** length male 2.83–3.22mm.

**Material examined:** Holotype ♂, China: Yunnan Prov., Lancang County, Munai, 1100m, 2 December 1999, coll. I. Dworakowska. Paratypes: 4♂, same data as holotype; 1♂, Yunnan Prov., Lancang County, Munai, 1100m, 2 December 1999, coll. Qin Daozheng; 2♂, Yunnan Prov., Mengyuan, 1000m, 18 December 1999, coll. Qin Daozheng; 4♂, Yunnan Prov., Mengyuan, 1000m, 18 December 1999, coll. I. Dworakowska; 1♂, Yunnan Prov., Mengla, Bubeng, 700m, 15 December 1999, coll. I. Dworakowska.

**Remarks:** The new species is similar to *S. kerzhneri* Dworakowska, but can be distinguished from the latter by its dorsal pygofer appendage pointing ventrad and curved terminally caudad, and the penis with pair of non-bifurcated processes.

**Etymology:** The specific name is derived from the Latin prefix “*crass-*” and Latin word “*processa*”, referring to the thick processes of penis.

### ***Salka lamella* sp. nov.**

Figs. 12–20, 73–74.

Color pattern of anterior dorsum and face as in Figs. 73–74. Externally resembles *S. crassiprocessa* sp. nov., but darker.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

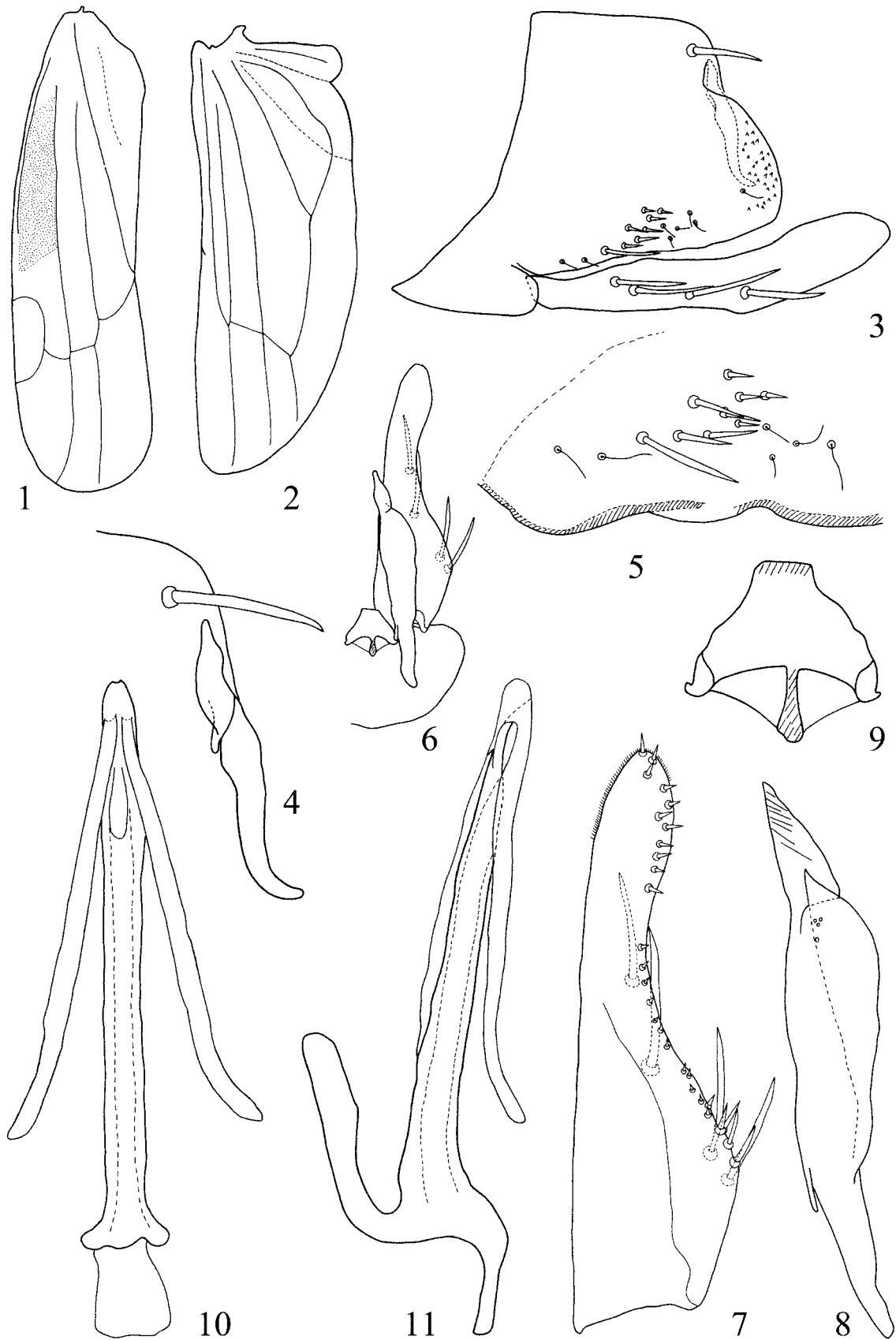
**Male genitalia:** Pygofer with dorsal appendage hook-like with base broad, apical part slightly exceeding margin of pygofer lobe (Figs. 12, 13). Subgenital plate with 3 macrosetae forming triangle some distance from base and row of short stout setae along outer margin (Fig. 15). Paramere with two rows of irregular teeth distally (Figs. 16, 17). Connective Y-shaped, with distinct central lobe (Fig. 18). Penis shaft with pair of symmetrical apical processes, curved laterally distally, extending to near base of shaft, pair of serrated lamellae near midlength of dorsal margin (Figs. 19, 20), gonopore apical on ventral surface; dorsal apodeme almost rounded in lateral view.

**Measurement:** length male 3.20–3.27mm.

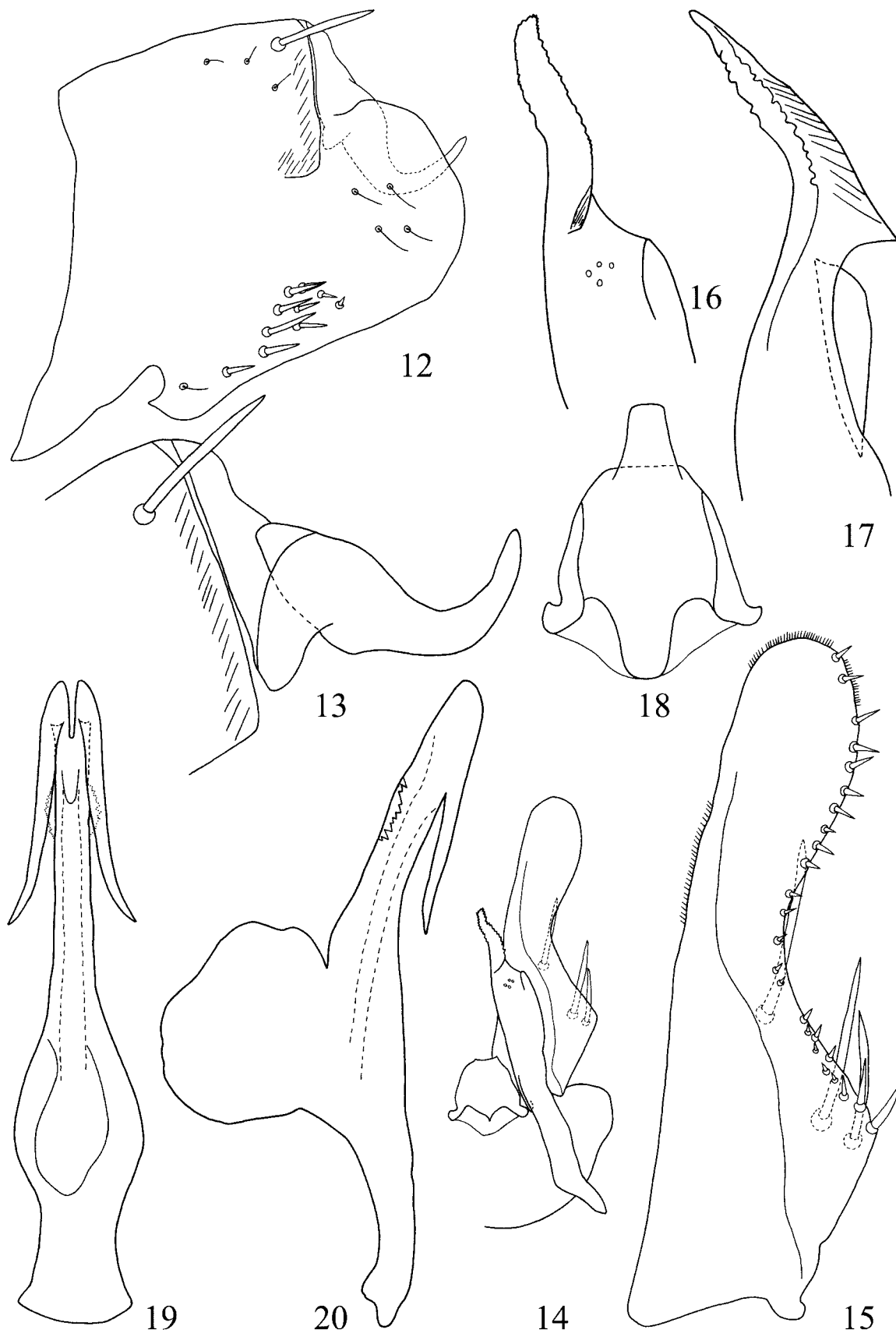
**Material examined:** Holotype ♂, China: Yunnan Prov., Lancang County, Munai, 1100m, 2 December 1999, coll. I. Dworakowska. Paratypes: 7♂, same data as holotype; 1♂, Yunnan Prov., Mengyuan, 1000m, 18 December 1999, coll. I. Dworakowska.

**Remarks:** The new species is similar to *S. diaoluensis* sp. nov., but can be distinguished from the latter by the dorsal pygofer appendage shorter, the penis shaft shorter with pair of serrated lamellae near midlength, and the apical processes shorter.

**Etymology:** The specific name is derived from the Latin word “*lamella*”, referring to the dorsal serrated lamellae of the penis shaft.



**FIGURES 1–11.** *Salka crassiprocessa* sp. nov. 1. Forewing; 2. Hindwing; 3. pygofer, lateral view; 4. dorsal pygofer appendage with its setting; 5. antero-ventral angle of pygofer; 6. proportions of subgenital plate, paramere, connective and sternite 9; 7. subgenital plate; 8. paramere, lateral view; 9. connective; 10. penis, ventral view; 11. penis, lateral view.



**FIGURES 12–20.** *Salka lamella* sp. nov. 12. pygofer lobe, lateral view; 13. dorsal pygofer appendage with its setting; 14. proportions of subgenital plate, paramere, connective and sternite 9; 15. subgenital plate; 16. caudal part of paramere, dorsal view; 17. caudal part of paramere, lateral view; 18. connective; 19. penis, ventral view; 20. penis, lateral view.

***Salka jianfengensis* sp. nov.**

Figs. 21–26, 75–76, 89.

Dorsum (Fig. 75) with vertex brown, with large central blackish-brown patch. Pronotum nut-brown, yellow at anterior margin. Scutellum dark brown. Eyes blackish with rufous margin. Face (Fig. 76) yellowish, with two fulvous streaks running from the blackish apical patch and merging on anteclypeus. Fore wing brown.

Abdominal apodemes slightly exceeding 3<sup>rd</sup> sternite (Fig. 89).

**Male genitalia:** Pygofer with dorsal appendage sharply curved hook-like with base broad, apical part slightly exceeding margin of pygofer lobe; ventral appendage tapering (Fig. 21). Subgenital plate with 3 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Fig. 23). Paramere in lateral view with apical part tapering, with minute furrows near subapical tooth, pre-apical lobe large (Fig. 24). Connective Y-shaped without distinct central lobe (Fig. 22). Penis shaft with pair of symmetrical subapical processes, strongly curved laterally distally, extending to near base of shaft; gonopore apical on ventral surface (Figs. 25, 26); dorsal apodeme very large, fan-like, in lateral view.

**Measurement:** length male 2.92mm.

**Material examined:** Holotype ♂, China: Hainan Prov., Jianfengling, 6 June 2007, coll. Duan Yani.

**Remarks:** The new species is similar to *S. diaoluensis* sp. nov., but can be distinguished from the latter by the shorter dorsal pygofer appendage, ventral pygofer appendage present, and the subapical processes of the penis thicker in ventral view.

**Etymology:** This new species is named after its type locality “Jianfeng”.

***Salka diaoluensis* sp. nov.**

Figs. 27–32, 77–78.

Dorsum (Fig. 77) with vertex beige, with large central blackish-brown patch. Pronotum nut-brown. Scutellum dark-brown. Eyes blackish. Face (Fig. 78) beige, covered with white brochosome; anteclypeus, postclypeus and lorum brown.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

**Male genitalia:** Pygofer with dorsal appendage sharply curved hook-like with base broad, apical part greatly exceeding margin of pygofer lobe (Fig. 27). Subgenital plate with 4 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Fig. 29). Paramere with minute furrows distad of subapical tooth, pre-apical lobe large (Fig. 30). Connective U-shaped with distinct central lobe (Fig. 28). Penis with a pair of symmetrical subapical processes, laterally curved basad and extending slightly beyond midlength of shaft (Figs. 31, 32); gonopore apical on ventral surface; dorsal apodeme very large, fan-like in lateral view.

**Measurement:** length male 3.50mm.

**Material examined:** Holotype ♂, China: Hainan Prov., Mt. Diaolu, 944m, 28 May 2007, coll. Duan Yani.

**Remarks:** The new species is similar to *S. jianfengensis* sp. nov., but can be distinguished from the latter by the more elongate dorsal pygofer appendage, greatly exceeding the upper margin of the pygofer lobe, the ventral pygofer appendage absent, and the thinner processes of the penis in ventral view.

**Etymology:** The new species is named after its type locality “Diaolu”.

***Salka nangongensis* sp. nov.**

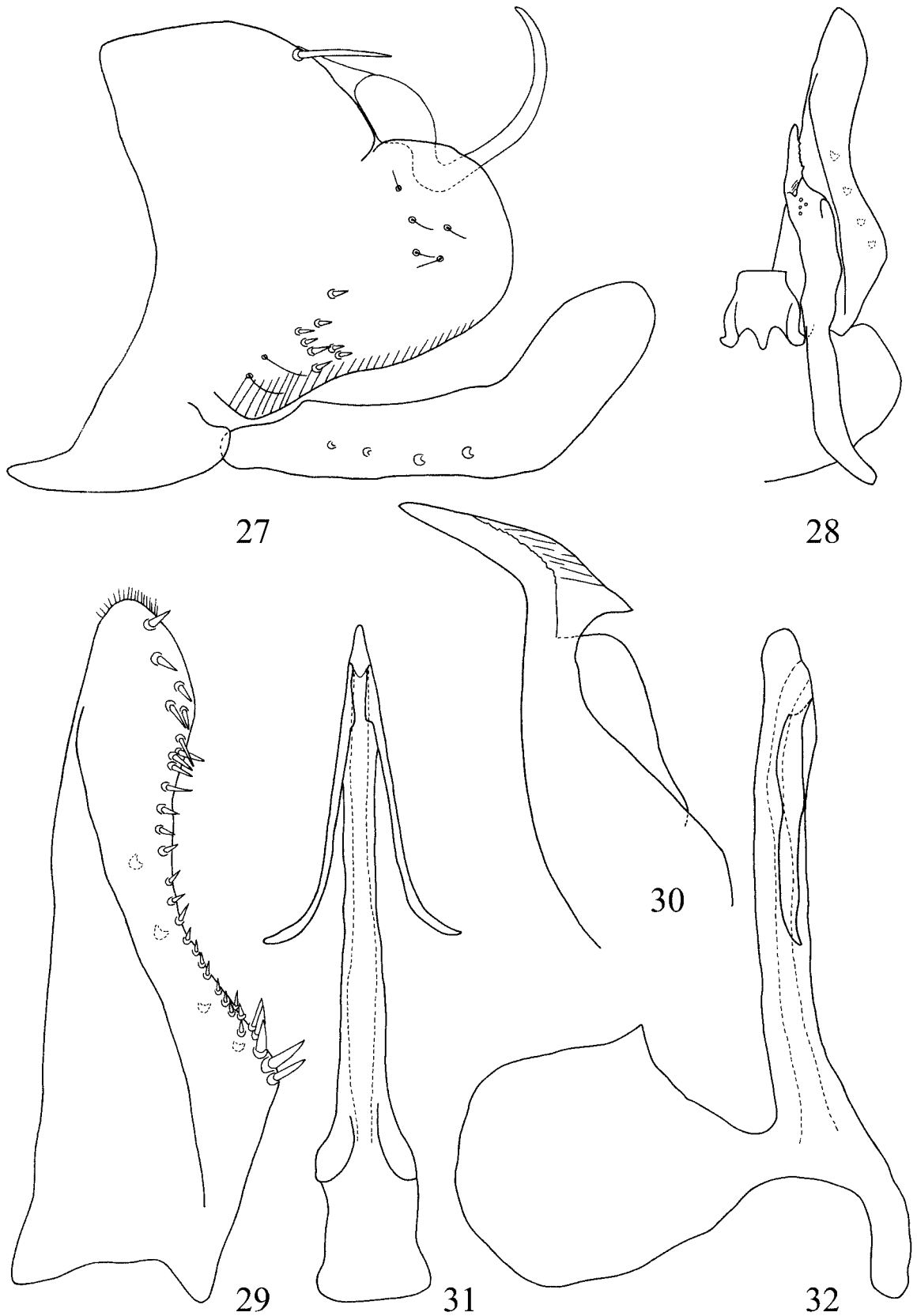
Figs. 33–38, 79–80.

Color pattern of anterior dorsum and face as in Figs. 79–80. Externally resembles *S. longiprocessa* sp. nov., but anterior part of vertex more produced medially, face longer and anteclypeus yellowish.

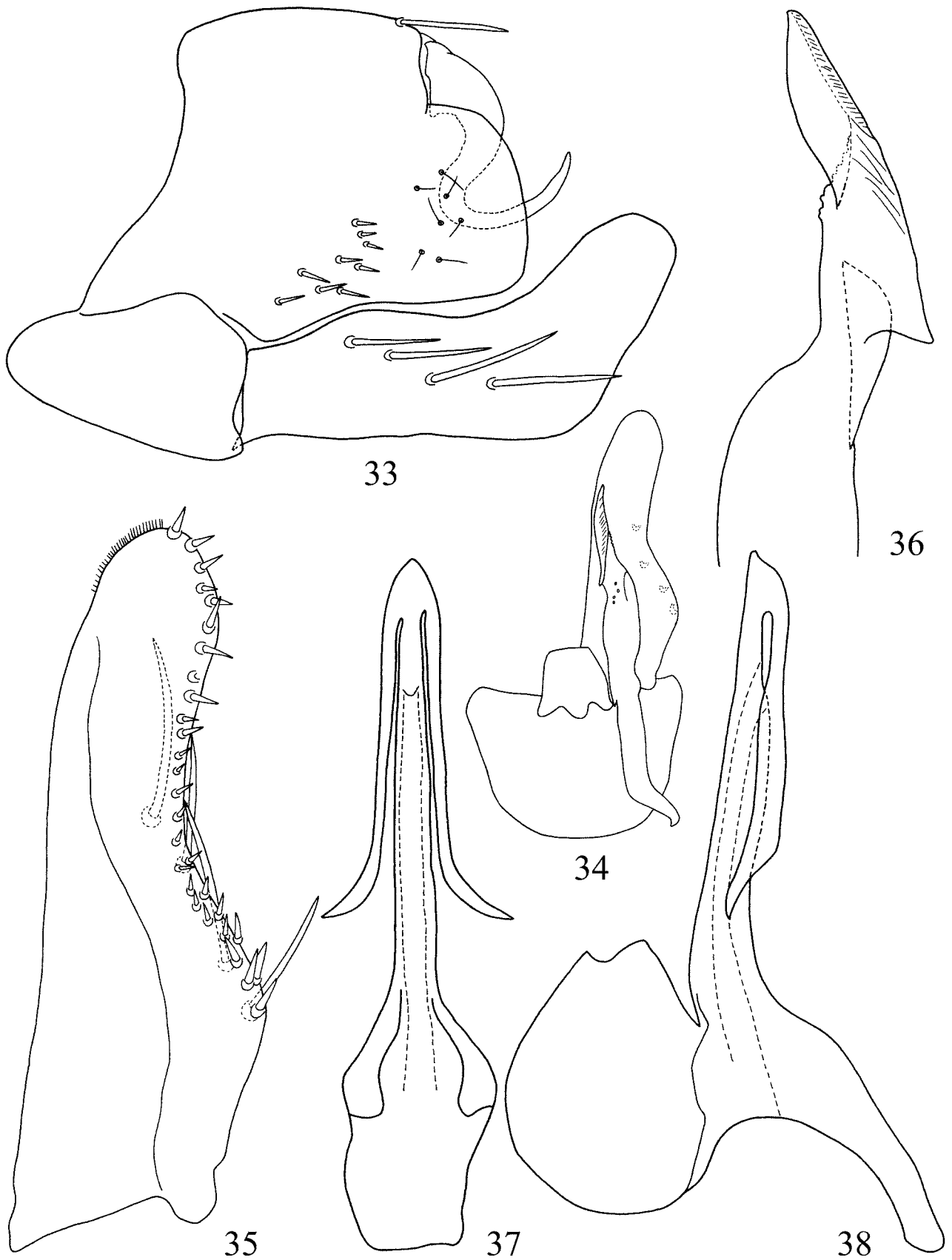


**FIGURES 21–26.** *Salka jianfengensis* sp. nov. 21. pygofer lobe, lateral view; 22. proportions of subgenital plate, paramere, connective and sternite 9; 23. subgenital plate; 24. caudal part of paramere, lateral view; 25. penis, ventral view; 26. penis, lateral view.





**FIGURES 27–32.** *Salka diaoluensis* sp. nov. 27. pygofer, lateral view; 28. proportions of subgenital plate, paramere, connective and sternite 9; 29. subgenital plate; 30. caudal part of paramere, lateral view; 31. penis, ventral view; 32. penis, lateral view.



**FIGURES 33–38.** *Salka nangongensis* sp. nov. 33. pygofer, lateral view; 34. proportions of subgenital plate, paramere, connective and sternite 9; 35. subgenital plate; 36. caudal part of paramere, lateral view; 37. penis, ventral view; 38. penis, lateral view

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

**Male genitalia:** Pygofer with dorsal appendage hook-like with base broad, apical part moderately exceeding margin of pygofer lobe (Fig. 33). Subgenital plate with 4 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Fig. 35). Paramere with minute furrows distal of subapical tooth, pre-apical lobe moderately large (Fig. 36). Connective U-shaped with distinct central lobe (Fig. 34). Penis shaft with pair of relatively straight apical processes, extending to near base of shaft, slightly expanded in middle third in lateral view (Figs. 37, 38), gonopore subapical on ventral surface; dorsal apodeme very large, fan-like in lateral view.

**Measurement:** length male 3.27mm, female 3.33–3.50mm.

**Material examined:** Holotype ♂, China: Yunnan Prov., Mengla County, Mt. Nangong, 1100m, 13 December 1999, coll. I. Dworakowska. Paratypes: 3 ♀, same data as holotype.

**Remarks:** The new species is similar to *S. diaoluensis* sp. nov., but can be distinguished from the latter by the dorsal pygofer appendage being shorter and more sharply curved dorsad, and penis processes longer, slightly expanded in middle third in lateral view and situated above the ventral rim of gonopore, dorsal apodeme smaller and pre-atrium longer.

**Etymology:** The specific name is named after its type locality “Nangong”.

### *Salka longiprocessa* sp. nov.

Figs. 39–46, 81–82.

Dorsum (Fig. 81) with vertex and anterior part of pronotum yellow, with large central blackish-brown patch on vertex. Pronotum brown, with narrow grayish fascia medially. Eyes blackish. Face (Fig. 82) beige; anteclypeus blackish; postclypeus brown. Scutellum beige. Basal triangles blackish-brown.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

**Male genitalia:** Pygofer with apex of dorsal appendage bifurcate (Fig. 39). Subgenital plate with 4 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Figs. 41, 42). Paramere apex and subapical tooth relatively thin and long, pre-apical lobe small (Figs. 41, 43). Connective Y-shaped with distinct central lobe (Figs. 41, 44). Penis shaft with pair of apical processes directed laterocaudally, gonopore apical on ventral surface; pre-atrium large with pair of stout processes (Figs. 45, 46); dorsal apodeme moderately large, fan-shaped in lateral view.

**Measurement:** length male 3.47mm.

**Material examined:** Holotype ♂, China: Yunnan Prov., Mengyuan, 1000m, 18 Dec. 1999, coll. I. Dworakowska. Paratype: 1 ♂, same data as holotype.

**Remarks:** The new species is similar to *S. nepalensis* Sohi & Mann, but can be distinguished from the latter by the bifurcate dorsal pygofer appendage, more elongate paramere apex and subapical tooth, pre-apical lobe smaller and pre-atrium of penis with pair of processes.

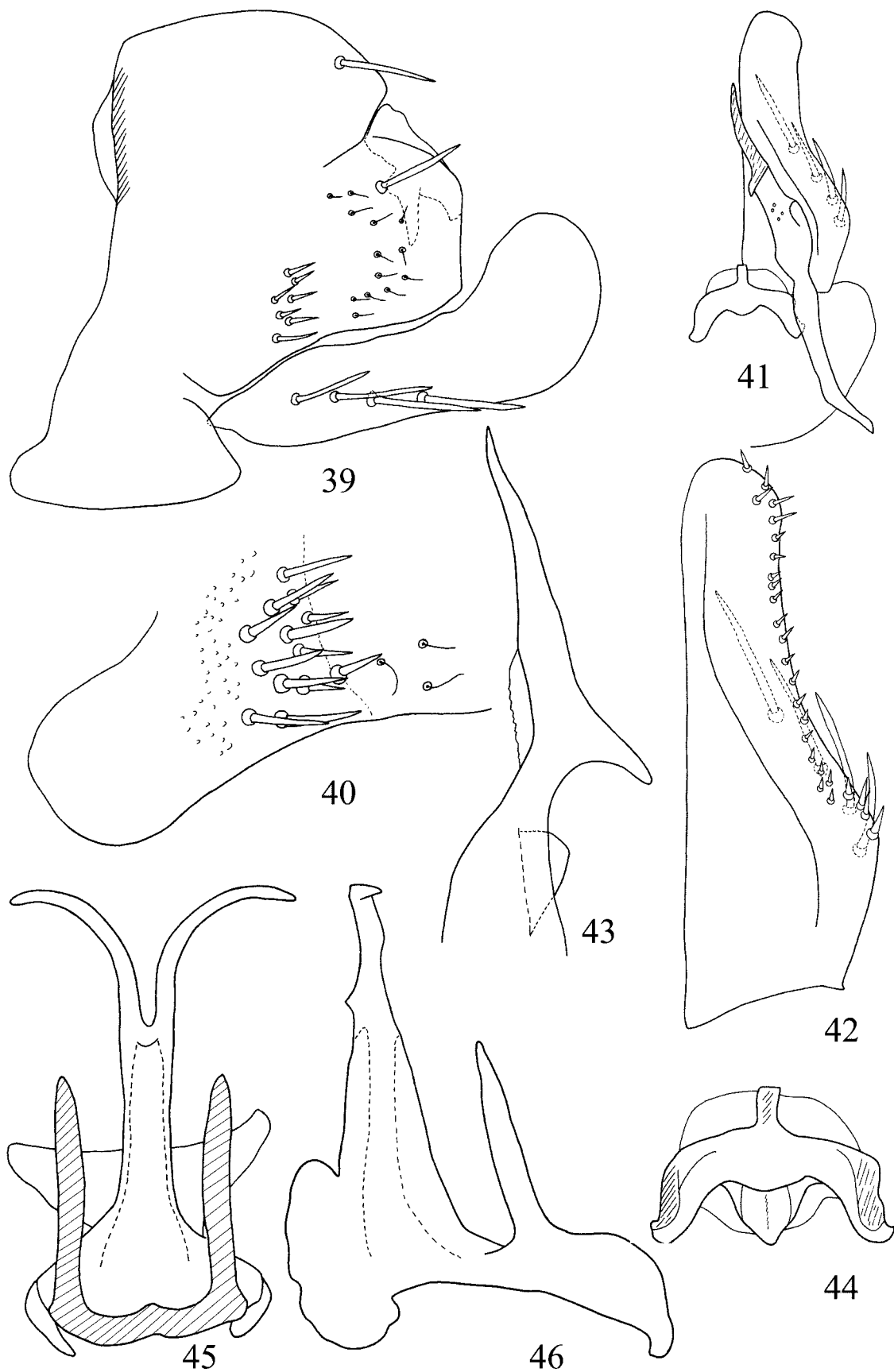
**Etymology:** The specific name is derived from the Latin prefix “longi-” and Latin word “processa”, referring to long apex of paramere.

### *Salka jiangshiensis* sp. nov.

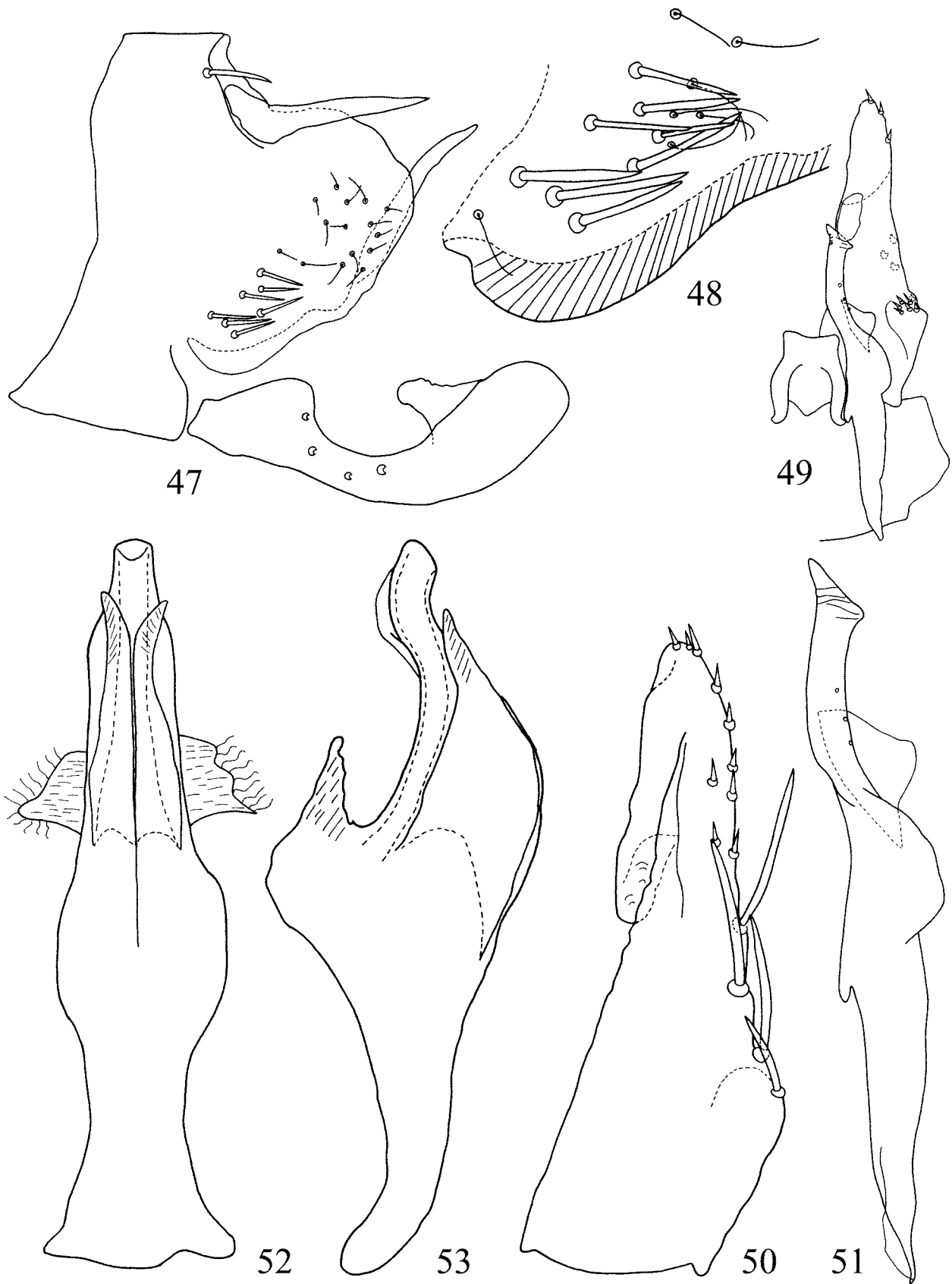
Figs. 47–53, 83–84.

Dorsum (Fig. 83) with vertex and anterior part of pronotum fulvous, with large central blackish-brown patch on vertex. Pronotum brown at hind margin, with two oval-like sordid white patches medially. Eyes blackish. Scutellum brown, apex yellow. Face (Fig. 84) fulvous, anteclypeus, frontoclypeus brown. Fore wing brown, with m cell and 2<sup>nd</sup> apical cell lighter and brochosome field darker. Claval furrow brown.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.



**FIGURES 39–46.** *Salka longiprocessa* sp. nov. 39. pygofer, lateral view; 40. antero-ventral angle of pygofer; 41. proportions of subgenital plate, paramere, connective and sternite 9; 42. subgenital plate; 43. caudal part of paramere, lateral view; 44. connective; 45. penis, ventral view; 46. penis, lateral view.



**FIGURES 47–53.** *Salka jiangshiensis* sp. nov. 47. pygofer, lateral view; 48. antero-ventral angle of pygofer; 49. proportions of subgenital plate, paramere, connective and sternite 9; 50. subgenital plate, ventral view; 51. paramere, lateral view; 52. penis, ventral view; 53. penis, lateral view.

**Male genitalia:** Pygofer with dorsal appendage more or less straight tapering to acute apex; ventral appendage present, elongate and tapering (Fig. 47). Subgenital plate with 4 macrosetae in oblique row some distance from base and several short stout setae over distal 1/3, a lobe-like process from inner margin, directed medially, best seen lateral view (Figs. 47, 49, 50). Paramere with short apical extension and short subapical tooth (Fig. 51). Connective Y-shaped, with distinct central lobe (Fig. 49). Penis shaft laterally compressed, with pair of basal processes, very broad basally in lateral view; tapered to acute apex; gonopore apical; pre-atrium well developed (Figs. 52, 53); dorsal apodeme small.

**Measurement:** length male 2.78mm, female 2.84mm.

**Material examined:** Holotype ♂, China: Fujian Prov., Jiangshi Natural Reserve, 29 July 2006, coll. Yang Meixia. Paratype: 1 ♀, same data as holotype.

**Remarks:** The new species is similar to *S. sinica* Sohi & Mann, but can be distinguished from the latter by the straight dorsal pygofer appendage and atrium process absent.

**Etymology:** The new species is named after its type locality “Jiangshi”.

### ***Salka longihamata* sp. nov.**

Figs. 54–61, 85–86.

Color pattern of anterior dorsum and face as in Figs. 85–86. Externally resembles *S. crassiprocessa* sp. nov., but lighter.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite.

**Male genitalia:** Pygofer with dorsal appendage hook-shaped, very long and thin, reaching well beyond pygofer lobe (Figs. 54, 55). Subgenital plate with 4 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Fig. 57). Paramere with apical part S-shaped (Fig. 58). Connective somewhat Y-shaped, with distinct central lobe (Fig. 59). Penis shaft relatively robust and tapered to sharp apex in lateral view, dorsolateral flange over basal half, ventrolateral margins serrate distally (Figs. 60, 61); gonopore subapical on ventral surface; dorsal apodeme very large, laterally compressed basally expanded laterally wing-like apically.

**Measurement:** length male 3.25mm.

**Material examined:** Holotype ♂, China: Yunnan Prov., Lancang County, Munai, 1100m, 2 December 1999, coll. I. Dworakowska. Paratypes: 5 ♂, same data as holotype; 1 ♂, Yunnan Prov., Lancang County, 1100m, 2 December 1999, coll. Qin Daozheng; 2 ♂, Yunnan Prov., Baoshan City, 1800m, 20 November 1999, coll. I. Dworakowska.

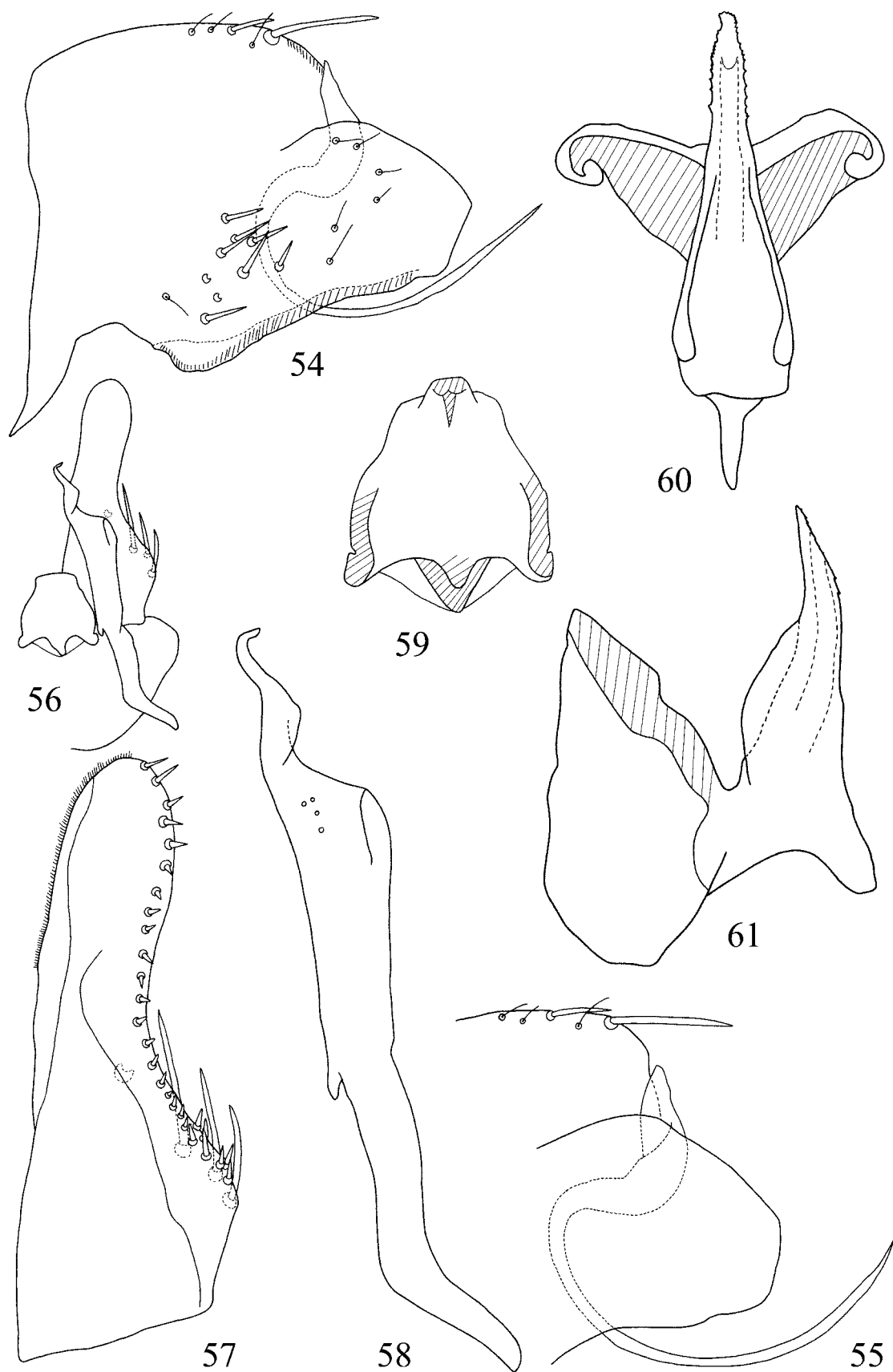
**Remarks:** The new species is similar to *S. elongata* Dworakowska, but can be distinguished from the latter by the more slender dorsal pygofer appendage, paramere with middle part longer and basal part curved medially, and penis with ventrolateral margins serrate distally.

**Etymology:** The specific name is derived from the Latin prefix “longi-” and Latin word “hamata”, referring to the long dorsal pygofer appendage.

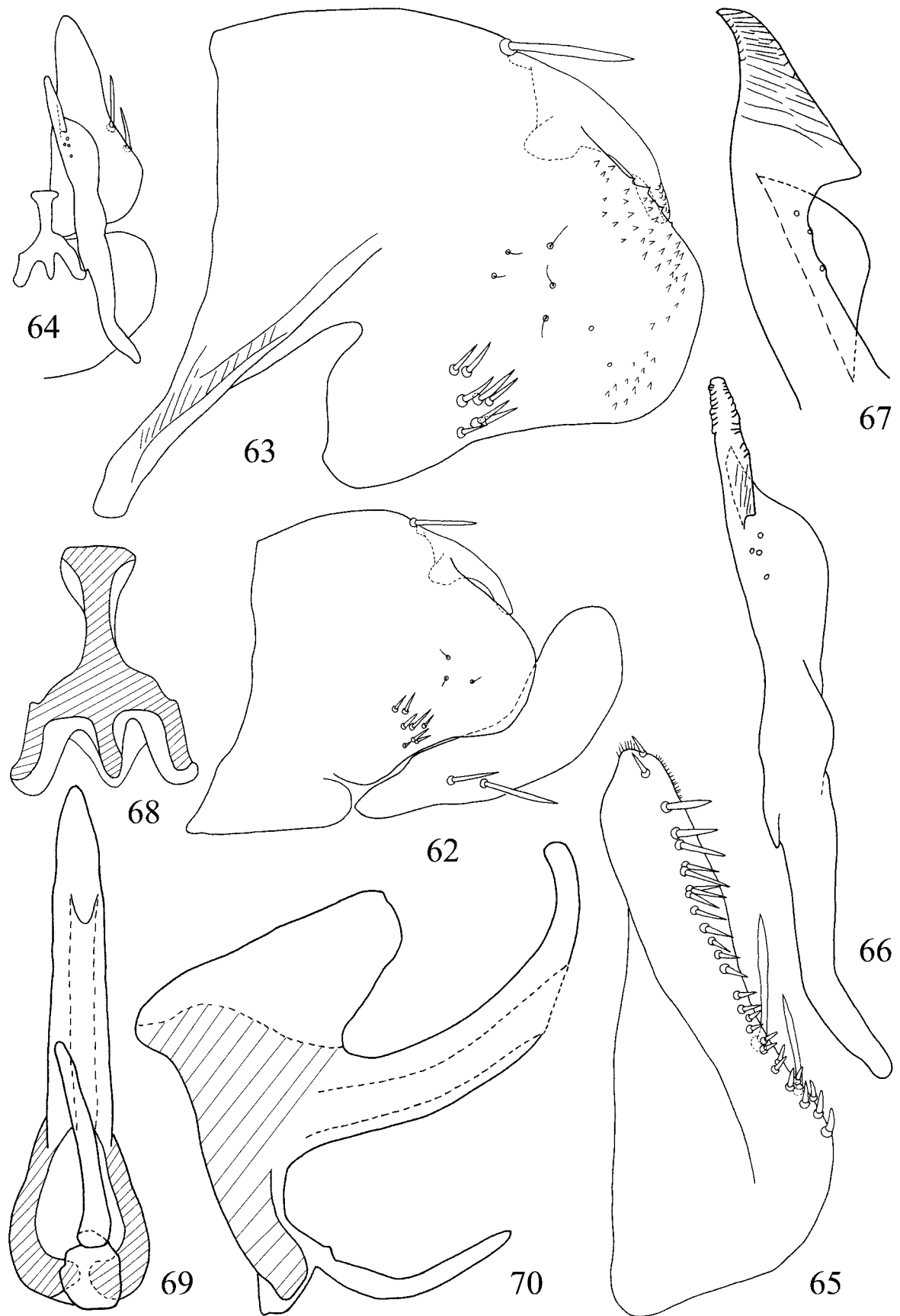
### ***Salka singularis* sp. nov.**

Figs. 62–70, 87–88, 90.

Dorsum (Fig. 87) with vertex yellow, with large lobate central blackish-brown patch. Pronotum brown, with 3 roundish rufous patches at frontal margin, with two semilunar sordid white patches medially and a narrow yellowish fascia at hind margin. Eyes blackish. Scutellum with basal triangles and apex blackish-brown. Face (Fig. 88) yellow, with two fulvous patches at each side of frons. Fore wing brown, with some areas on m, cua, 1<sup>st</sup> and 2<sup>nd</sup> apical cells pale and brochosome field darker.

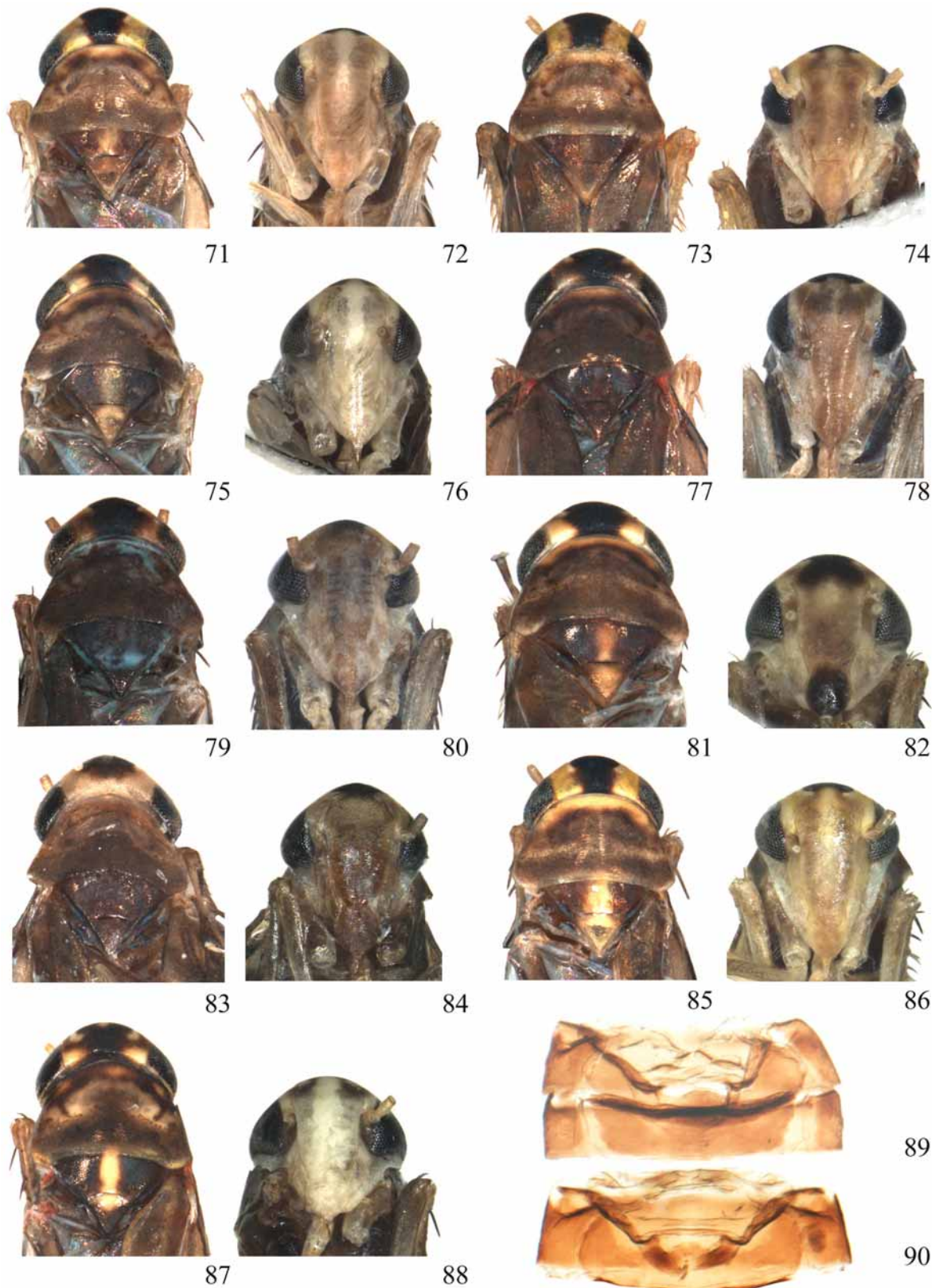


**FIGURES 54–61.** *Salka longihamata* sp. nov. 54. pygofer lobe, lateral view; 55. dorsal pygofer appendage with its setting; 56. proportions of subgenital plate, paramere, connective and sternite 9; 57. subgenital plate; 58. paramere, lateral view; 59. connective; 60. penis, ventral view; 61. penis, lateral view.



**FIGURES 62–70.** *Salka singularis* sp. nov. 62. pygofer, lateral view; 63. pygofer lobe, lateral view; 64. proportions of subgenital plate, paramere, connective and sternite 9; 65. subgenital plate; 66. paramere, dorsal view; 67. caudal part of paramere, lateral view; 68. connective; 69. penis, ventral view; 70. penis, lateral view.





**FIGURES 71–90.** *Salka crassiprocessa* **sp. nov.** 71. head and thorax, dorsal view; 72. face. *S. lamella* **sp. nov.** 73. head and thorax, dorsal view; 74. face; *S. jianfengensis* **sp. nov.** 75. head and thorax, dorsal view; 76. face. 89. abdominal apodemes. *S. diaoluensis* **sp. nov.** 77. head and thorax, dorsal view; 78. face. *S. nangongensis* **sp. nov.** 79. head and thorax, dorsal view; 80. face. *S. longiprocessa* **sp. nov.** 81. head and thorax, dorsal view; 82. face. *S. jiangshiensis* **sp. nov.** 83. head and thorax, dorsal view; 84. face. *S. longihamata* **sp. nov.** 85. head and thorax, dorsal view; 86. face. *S. singularis* **sp. nov.** 87. head and thorax, dorsal view; 88. face. 90. abdominal apodemes.

Abdominal apodemes not exceeding 3<sup>rd</sup> sternite (Fig. 90).

**Male genitalia:** Pygofer with dorsal appendage relatively straight, apex rounded with scale-like sculpture (Figs. 62, 63). Subgenital plate with 2 macrosetae in oblique row some distance from base and row of short stout setae along outer margin (Fig. 65). Paramere in ventral view with marginal minute furrows at apex and on subapical tooth (Fig. 64), in lateral view apical part broad, subapical tooth small (Fig. 67). Connective Y-shaped, with distinct central lobe (Fig. 64). Penis shaft simple, with single basal atrium process (Figs. 69, 70); gonopore subapical on ventral surface; dorsal apodeme large.

**Measurement:** length male 3.64mm.

**Material examined:** Holotype ♂, China: Yunnan Prov., Mengyuan, 1000m, 18 December 1999, coll. Qin Daozheng.

**Remarks:** The new species is similar to *S. arenaria* Sohi & Mann, but can be distinguished from the latter by the apex of dorsal pygofer appendage rounded, the ventral appendage absent and penis with a large single basal atrium process.

**Etymology:** The specific name is derived from the Latin word “*singularis*”, referring to penis only with single process.

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## Reference

- Chiang, C.C. & Knight, W.J. (1990) Studies on taiwanese Typhlocybae (Homoptera: Cicadellidae) (IV) tribe Erythroneurini. *Bulletin of the National Museum of Natural Science*, 2, 229–239.
- Dworakowska, I. (1972) *Aaka* gen.n. and some other Erythroneurini (Auchenorrhyncha, Cicadellidae, Typhlocybae). *Buletin de l' Academie Polonaise des Sciences. Serie des Sciences Biologiques*, 20(11), 769–778.
- Dworakowska, I. (1976) On some oriental and ethiopian Typhlocybae (Homoptera, Auchenorrhyncha, Cicadellidae). *Reichenbachia*, 16(1), 33–35, 42.
- Dworakowska, I. (1994) Typhlocybae (Auchenorrhyncha, Cicadellidae) of Sikkim, a preliminary survey. *Folia Entomologica Hungarica*, 55, 122–123, 186–187.
- Dworakowska, I. (2006) Seven new species of the genus *Salka* Dwor. (Hemiptera: Auchenorrhyncha: Cicadellidae: Typhlocybae). *Russian Entomological Journal*, 15(3), 269–274.
- Matsumura, S. (1932) A revision of the Palaearctic and Oriental Typhlocybid-genera with descriptions of new species and new genera. *Insecta Matsumurana*, 6(3), 114.
- Sohi, A.S. & Mann, J.S. (1994) A review of the genus *Salka* Dworakowska, with descriptions of eighteen new species (Insecta, Auchenorrhyncha: Cicadellidae: Typhlocybae). *Entomologische Abhandlungen und Berichte aus dem Staatlichen Museum fur Tierkunde in Dresden*, 56(1), 31–53.