

Systematic study on the family Stathmopodidae
(Lepidoptera)

March 2015

The United Graduate School of Agricultural Sciences,

Kagoshima University

Takeshi TERADA

Contents

Contents	i
Enumeration of species	ii
Introduction	1
Materials and type depository	3
Morphology in the family Stathmopodidae	5
Phylogeny	10
Molecular phylogenetic analyses	10
Taxonomic view	14
Systematics of the family Stathmopodidae from Japan	17
Key to the Japanese genera of Stathmopodidae	17
Genus <i>Stathmopoda</i> Herrich-Schäffer	19
The <i>Stathmopoda pedella</i> species-group	27
The <i>Stathmopoda flavescens</i> species-group	60
The <i>Stathmopoda opticaspis</i> species-group	78
The <i>Stathmopoda masinissa</i> species-group	93
The <i>Stathmopoda aprica</i> species-group	101
A species group <i>incertae sedis</i>	110
Genus <i>Phlogogramma</i> n. gen.	129
Genus <i>Atrijuglans</i> Yang	134
Genus <i>Hieromantis</i> Meyrick	140
Genus <i>Calicotis</i> Meyrick	148
Genus <i>Pachyrhabda</i> Meyrick	177

Genus <i>Cuprina</i> Sinev	200
Genus <i>Thylacosceles</i> Meyrick	209
Genus <i>Thylacosceloides</i> Sinev	210
Genus <i>Oedematopoda</i> Zeller	219
Genus <i>Atkinsonia</i> Stainton	224
Genus <i>Snellenia</i> Walsingham	234
Genus <i>Minomona</i> Matsumura	234
Acknowledgments	235
Literatures cited	236
Summary	249
Plates	251

Enumeration of species

Genus *Stathmopoda*

S. pedella species-group

1. *Stathmopoda pedella* (Linnaeus)
2. *Stathmopoda pullicuneata* Terada
3. *Stathmopoda atridorsalis* Terada
4. *Stathmopoda dorsioculella* Terada
5. *Stathmopoda sericicola* Terada
6. *Stathmopoda centihasta* Terada
7. *Stathmopoda stimulata* Meyrick
8. *Stathmopoda* sp. 1
9. *Stathmopoda* sp. 2

S. flavescens species-group

10. *Stathmopoda flavescens* Kuznetsov
11. *Stathmopoda gemmiconsuta* Terada
12. *Stathmopoda luxuriivora* Terada
13. *Stathmopoda magnisignata* Terada
14. *Stathmopoda callicarpicola* Terada

S. opticaspis species-group

15. *Stathmopoda opticaspis* Meyrick
16. *Stathmopoda persona* Terada
17. *Stathmopoda* sp. 3
18. *Stathmopoda moriutiella* Kasy
19. *Stathmopoda albiornata* Terada

S. masinissa species-group

20. *Stathmopoda masinissa* Meyrick
21. *Stathmopoda maritimicola* Terada & Sakamaki

S. aprica species-group

22. *Stathmopoda aprica* Meyrick
23. *Stathmopoda fusciumeraris* Terada

A species-group *incertae sedis*

24. *Stathmopoda brachymochla* Meyrick
25. *Stathmopoda auriferella* (Walker)
26. *Stathmopoda haematosema* Meyrick
27. *Stathmopoda transfasciaria* Li & Wang
28. *Stathmopoda* sp. 4

29. *Stathmopoda* sp. 5

Genus *Phlogogramma* n. gen.

30. *Phlogogramma tecticochleatum* n. sp.

Genus *Atrijuglans*

31. *Atrijuglans hetaohei* Yang

Genus *Hieromantis*

32. *Hieromantis kurokoi* Yasuda

33. *Hieromantis makiosana* Yasuda

Genus *Calicotis*

34. *Calicotis chrysoptera* n. sp.

35. *Calicotis biserraticola* n. sp.

36. *Calicotis rotundinidus* n. sp.

37. *Calicotis exclamationis* n. sp.

38. *Calicotis latebrifica* n. sp.

39. *Calicotis xanthopsis* n. sp.

40. *Calicotis sublucida* n. sp.

Genus *Pachyrhabda*

41. *Pachyrhabda aurescens* n. sp.

42. *Pachyrhabda fuscimaculata* n. sp.

43. *Pachyrhabda aedificatrix* n. sp.

44. *Pachyrhabda margaritacea* n. sp.

45. *Pachyrhabda vaginivella* n. sp.

46. *Pachyrhabda argyrococos* n. sp.

Genus *Cuprina*

47. *Cuprina fuscella* Sinev

48. *Cuprina flaviscapella* Sinev

Genus *Thylacosceles*

49. *Thylacosceles* sp.

Genus *Thylacosceloides*

50. *Thylacosceloides miniata* Sinev

51. *Thylacosceloides stegnogrammias* n. sp.

52. *Thylacosceloides leucocephalus* n. sp.

Genus *Oedematopoda*

53. *Oedematopoda leechi* Walsingham

Genus *Atkinsonia*

54. *Atkinsonia ignipicta* (Butler)

55. *Atkinsonia* sp.

Genus *Snellenia*

56. *Snellenia ignispergens* Diakonoff

Genus *Minomona*

57. *Minomona bimaculata* Matsumura

INTRODUCTION

The family Stathmopodidae is conspicuous group in that verticillbristle of hind-legs, lateral holding labial palpus and raising their hind-legs. It is mainly distributed in the tropic to subtropic region and known as the group having various feeding habits. The group contains more than 390 species belonging to 39 genera (Terada and Sakamaki, 2013). Although 33 species belonging to nine genera have been recorded in Japan, only 22 species belonging to five genera were introduced by Terada and Sakamaki (2013) because of the lack of information. In addition, many Japanese species of Stathmopodidae have been left unrecorded because there have been a few studies on the group in Japan, except works on a persimmon pest species, *S. masinissa* Meyrick (e.g. Sasaki, 1905; Nishida *et al*, 2003), and some recent works by Terada *et al.* (2011), Terada and Sakamaki (2013) and Terada (2012, 2013a, b, c, 2014).

Moriuti (1982) arranged eight species belonging to two genera from Japan. Subsequently, Yasuda (1988) described two new species of the genus *Hieromantis*, and Jinbo and Oku (1997) and Oku (2003a) newly recorded four species and one genus from Japan. Then, Jinbo (2004-2008) listed 23 species belonging to seven genera, which contain seven unidentified species. Besides then, ten unidentified species belonging to four genera were recorded from Japan (Abe, 1993; Oku, 2003b; Sugisima, 2003; Sugiura and Yamazaki, 2004; Sawamura *et al.*, 2009). Moreover, Terada *et al.* (2011) and Terada (2012, 2013a, c, 2014) discovered nine new species and one species as new to Japanese fauna, and described four unidentified species of the genus *Stathmopoda* as new to science. Consequently, 43 species belonging to nine genera, containing 13 unidentified species are known from Japan at present.

In the course of my present study, I newly found 18 species and four genera, among

which 12 species and one genus are new to science, and seven species and three genera are new to the Japanese fauna, containing five unidentified species. In addition, I described four new species and reported two species new to Japanese fauna that had been treated as unidentified species in Oku (2003a), Sugisima (2003) and Sawamura *et al.* (2009). Besides, I treated five unidentified species in Oku (2003a, b) and Sawamura *et al.* (2009) as junior synonym.

A total of 57 Japanese species belonging to 13 genera are treated in this thesis. All the known Japanese species were described or redescribed in detail except three species belonging to three genera (*Thylacosceles* sp., *Snellenia ignispergens* and *Minomona bimaculata*). Genitalia, wing venation and adult appearance were illustrated for all the species except for the species of specimen scarcity.

Moreover, the systematic status and divergence process of various feeding habits were discussed for 25 species belonging to seven genera.

MATERIALS AND TYPE DEPOSITORY

The materials used in this study comprising more than 2,800 specimens were collected mostly from various areas in Japan and partly from South Korea, Taiwan and Viet Nam.

Wing venation was observed after preparation. Detached wings were cleaned to remove scales with a raccoon-fur brush in 40% EtOH, and were stained with acid fuchsine solution. Male and female genitalia were dissected after maceration for about 6 h in 10% KOH solution, heated with lactic acid in a drying oven (60°C), and stained with mercurochrome solution.

The holotypes of the new species are deposited in the collection of the Entomological Laboratory, Kagoshima University, Japan (KGU) or the Entomological Laboratory, Osaka Prefecture University, Japan (OPU). Some of the specimens were offered from Dr K. Yasuda at National Institute for Agro-Environmental Sciences, Ibaraki-Pref., Japan (NIAES), Dr U. Jinbo at National Museum of Nature and Science, Ibaraki-Pref., Japan (NMNS), Dr T. Yamauchi at the Museum of Nature and Human Activities, Hyogo, Hyogo-Pref., Japan (MNHAH), Mr T. Mano at Toyota Yahagi River Institute, Aichi-Pref., Japan (TYRI), Mr K. Umetsu at Akita Prefectural Museum, Akita-Pref., Japan (APM), Ms E. Hayashi, Mr Y. Manabe and Mr S. Sameshima, all of which are deposited in the collection of KGU. Specimens were also borrowed from the collection of Dr T. Oku, Dr Y. Abe at the Biosystematics Laboratory, Kyusyu University, Japan (KyU), Dr K. Sugisima, OPU, the Hokkaido University Museum, Japan (HoUM), the Ehime University Museum, Japan (EUM), NMNS and NIAES.

The holotype images of *Stathmopoda aprica* (BMNH(E) #982874) and *Thylacosceles acridomima* (BMNH(E) #1055272), and the lectotype images of *Calicotis crucifera*

(BMNH(E) #1055270) and *Pachyrhabda steropodes* (BMNH(E) #1055271) were received from The Natural History Museum, London, United Kingdom (BMNH).

MORPHOLOGY OF THE FAMILY STATHMOPODIDAE

In this section, I describe general characters of the family Stathmopodidae. The terminology adopted here is mainly based on Kasy (1973), Yasuda (1988) and Koster and Sinev (2003).

Labial palpus usually long, smooth scaled and curved, with acute apex (Fig. 1). Antenna about $\frac{3}{4}$ length of forewing. Vertex and frons smooth; occiput smooth to slightly rough (Fig. 1). Tegula and thorax smooth scaled.

Wing venation (Fig. 3). Forewing lanceolate, widest near base; 9- to 13-veined; discoidal cell long, occupying about basal $\frac{7}{10}$ of wing. Sc connected with costal margin of wing on about basal $\frac{1}{3}$. R_1 running from about distal $\frac{1}{10}$ of cell or absent; R_2 or R_3 from upper angle of cell; R_4 and R_5 stalked, sometimes in common with R_3 . M_3 from lower angle of cell. CuA_1 running from near lower angle of cell, sometimes rudimentary; CuA_2 rudimentary or absent. $1A+2A$ connected about basal $\frac{1}{7}$ of wing or not branched, running to about $\frac{2}{5}$ of dorsum, rudimentary. Hindwing narrowly lanceolate, about $\frac{4}{5}$ as long as forewing; 7- to 10-veined; discoidal cell open. R_s running to near apex of costa. M_2 , M_3 , and CuA_1 usually stalked, in common with CuA_2 ; CuA_2 running to about $\frac{1}{3}$ of dorsum.

Legs smooth; mid-tibia sometimes dorsally with verticillbristle at apex; hind-tibia dorsally with two to three verticillbristle (Fig. 2), or covered with bristle and with apical verticillbristle, sometimes with verricule; some basal segments of hind-tarsus dorsally with verticillbristle at apex, respectively (Fig. 2). Abdomen dorsally with spines of abdominal terga on second to seventh segments in male, second to sixth segments in female, arranged caudal margin (Fig. 4).



Figs 1-2. *Stathmopoda pedella*. 1: Head - 2: hind-tibia to -tarsus.

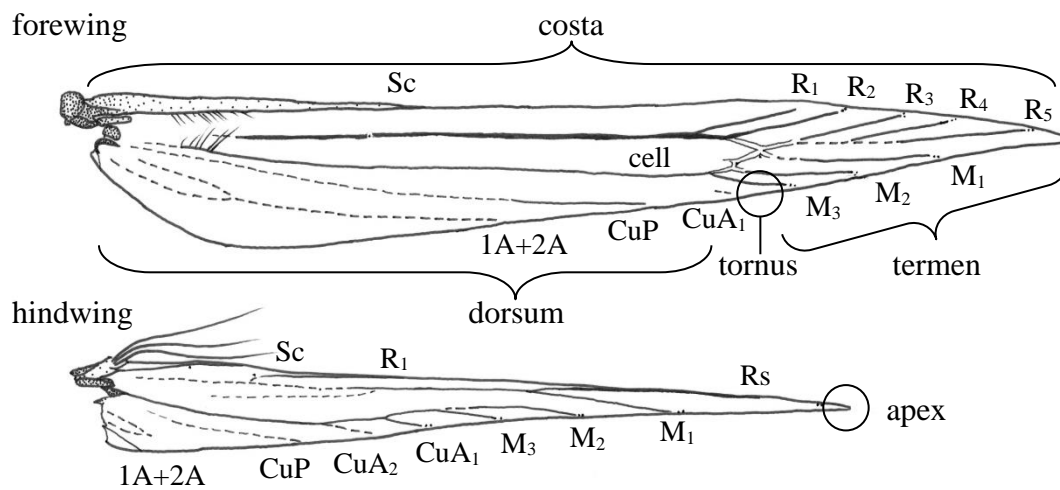


Fig. 3. Wing venation of *Stathmopoda pedella*.

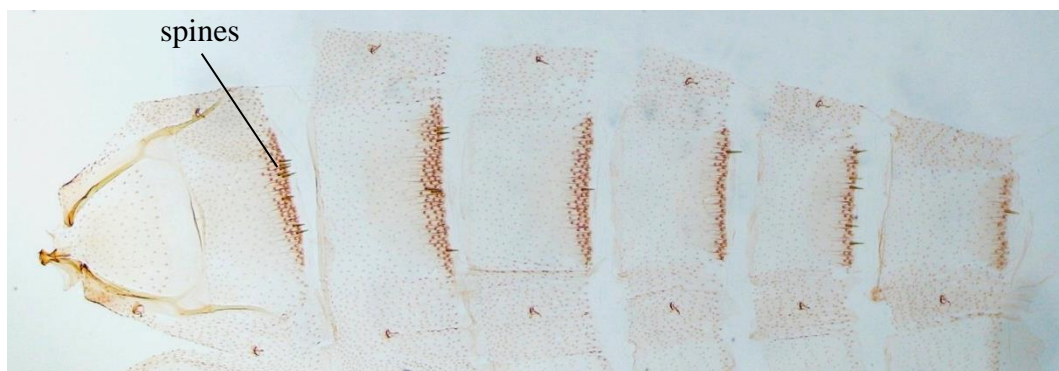


Fig. 4. Abdominal terga of *Stathmopoda pedella*.

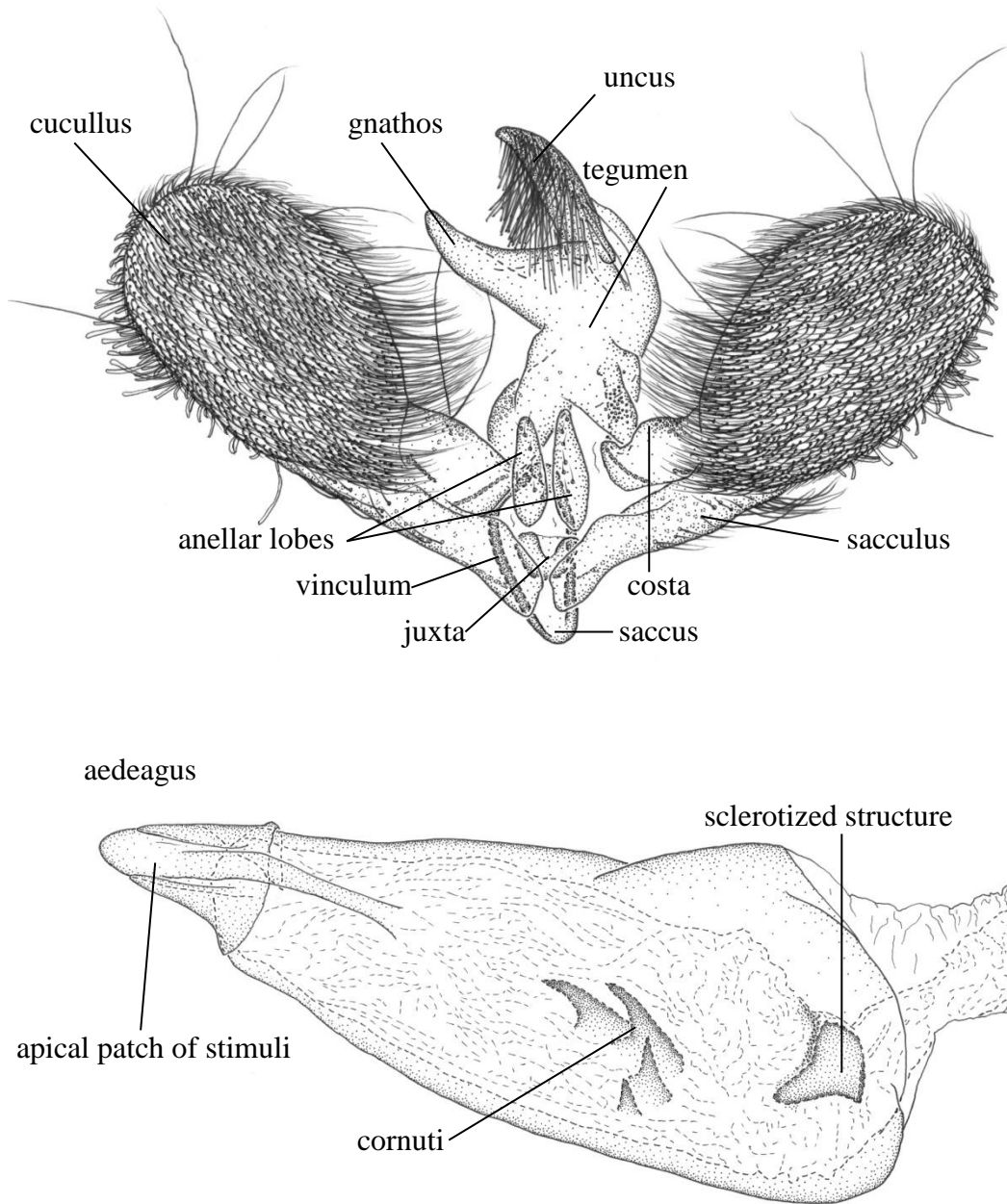


Fig. 5. Male genitalia of *Stathmopoda pedella*

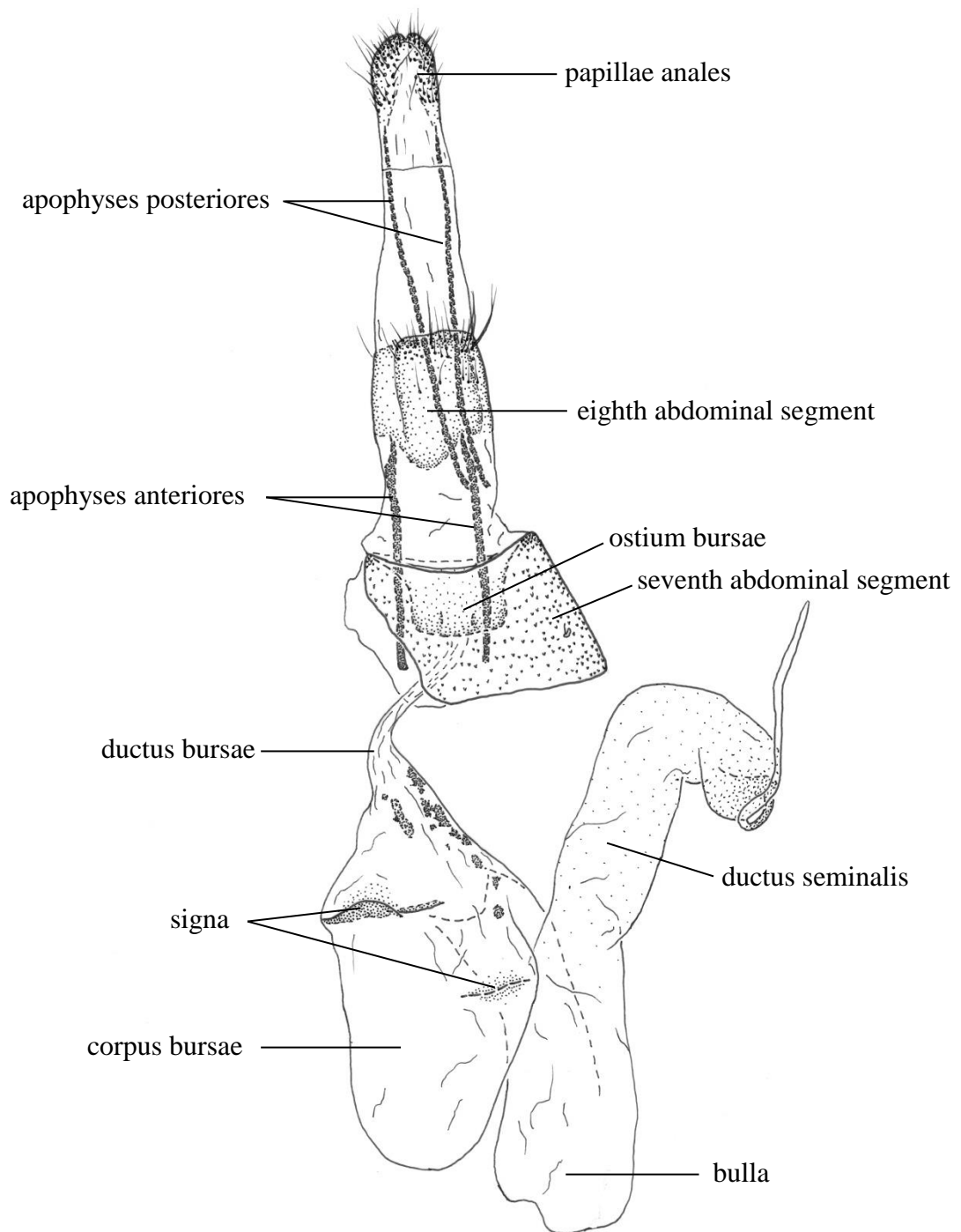


Fig. 6. Female genitalia of *Stathmopoda pedella*

Male genitalia (Fig. 5). Uncus tapering caudally; setae occurring on lateral side. Gnathos as long as uncus or absent. Valva with round apex; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae. Vinculum elongate. Juxta present. Anellar lobes developed, sclerotized, with setae on surface. Aedeagus with or without cornutus; sclerotized structure present near base or absent; apical patch of stimuli present near apex of aedeagus or absent.

Female genitalia (Fig. 6). Seventh sternum with smooth or emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer to slightly shorter than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Corpus bursae with signum or two signa, sometimes absent. Bulla present, sometimes absent. Ductus seminalis apically with microspines.

PHYLOGENY

The phylogenetic relationships of the family Stathmopodidae have been reported only by Sawamura *et al.* (2009). However, the paper treated only six species of fern-spore-feeding stathmopodid species, and the phylogenetic tree was used just for distinguishing the species. In this chapter, I tried to elucidate the phylogenetic relationships among species belonging to some main genera of the family Stathmopodidae by molecular phylogenetic analysis of DNA sequence and to estimate the divergence of feeding habits.

Molecular phylogenetic analyses

In the analysis, 25 stathmopodid species belonging to seven genera as well as two outgroups whose feeding habits had been clarified were used. As outgroup taxa, species belonging to Oecophoridae and Momphidae were employed, because the family Stathmopodidae is often as a subfamily of Oecophoridae (e.g. Holloway *et al.*, 1987; Hodges, 1998; Tokár *et al.*, 2005; Wang, 2006), and the family Momphidae is the most closely related group in the families treated in Kaila (2011) which are determined the sequences of the same genetic regions with my analyses.

Molecular techniques

The legs of adult specimens were used for DNA extraction and the remaining parts of specimens were preserved to serve as vouchers. Genomic DNA was extracted and purified using DNeasy[®] Blood and Tissue Kit of Qiagen following the protocol presented in Cruickshank *et al.* (2001). I sequenced 1098 base pairs of *Cytochrome oxidase subunit I (COI)* gene from the mitochondrial genome, and 506 bp of the

Elongation factor-1 α (*EF-1 α*) and 772 bp of the *Carbamoylphosphate synthase domain protein* (*CAD*) genes from the nuclear genome. The data comprised a total of 2376 base pairs. For three species which are not distributed in Japan, I used sequence data reported in Kaila (2011) and registered in GenBank as the following accession numbers: *Stathmopoda melanochra* Lower, 1897 (JF818707.1, JF818792.1, JF818875.1) and two species of outgroups, *Endrosia sarcitrella* (Linnaeus, 1758) (JF818661.1, JF818743.1, JF818827.1) and *Mompha conturbatella* (Hübner, 1819) (GU828093.1, GU828390.1, GU828591.1, GU829222.1). Their host information was obtained from Robinson *et al.* (2001, 2002).

PCRs of *COI* and the others were performed in a 25 μ L and 20 μ L reaction volumes using 1.5 μ L and 1 μ L of DNA extracts, respectively. TaKaRa TaqTM (rTaq) and TaKaRa LA Taq[®] polymerase were used for *COI* and the others, respectively. The PCR protocols and the primers used in this study are shown in Table 1, 2 respectively. I used the primers of *EF-1 α* which were attached with hybrid tails reported in Wahlberg and Wheat (2008) (forward 5' TAA TAC GAC TCA CTA TAG GG 3', reverse 5' ATT AAC CCT CAC TAA AG 3'). The PCR cycling profile of *COI* was 94°C for 4 min, 35 cycles of 94°C for 1min, 48°C for 1min, 60°C for 3min, and a final extension period of 60°C for 4min. The PCR cycling profile of other genes were carried out following condition described in Wahlberg and Wheat (2008). PCR products were purified using NucleoSpin[®] Gel and PCR Clean-up kit. Sequencing was performed with an ABI3500xl Genetic Analyzer.

Table 1. PCR protocols. TaKaRa TaqTM and TaKaRa LA Taq[®] polymerase are used for *COI* and the others respectively.

Reagents	Volume (μL) in <i>COI</i>	Volume (μL) in the others
dH ₂ O	16.3	12.2
10x buffer	2.5	2.0
MgCl ₂ (25mM)	-	2.0
Forward Primer (100μM)	1.5	0.5
Reverse Primer (100μM)	1.5	0.5
dNTP (2.5mM)	1.5	1.6
Taq (5 units/μL)	0.2	0.2
DNA template	1.5	1.0

Table 2. Successful primers used in PCR amplification.

Gene	Direction	Name	Primer (5' to 3' direction)	Reference
<i>COI</i>	Forward	COIP1	TTG ATT TTT TGG TCA YCC WGA AGT	Bucheli and Wenzel (2005)
<i>COI</i>	Reverse	COIR4	CCW VYT ARD CCT ARR AAR TGT TG	Bucheli and Wenzel (2005)
<i>COI</i>	Forward	StatCOIf3	TAA TTG GAG ATG ACC AAA TTT AT	This study
<i>COI</i>	Reverse	StatCOIr3	TAT TCC TAA ATA ACC AAA AGT TTC	This study
<i>EF-1α</i>	Forward	EF51.9	CAR GAC GTA TAC AAA ATC GG	Cho <i>et al.</i> (1995)
<i>EF-1α</i>	Reverse	EFrcM4	ACA GCV ACK GTY TGY CTC ATR TC	Cho <i>et al.</i> (1995)
<i>CAD</i>	Forward	CAD743f	GGN GTN ACN ACN GCN TGY TTY GAR CC	Wahlberg and Wheat (2008)
<i>CAD</i>	Reverse	CAD1028r	TTR TTN GGN ARY TGN CCN CCC AT	Wahlberg and Wheat (2008)

Table 3. The nucleotide diversity scores and the Tajima's D values based on three genes of 25 stathmopodid species.

Gene	Nucleotide diversity (π) \pm S.D.	Tajima's D
<i>COI</i>	0.1130 \pm 0.0559	0.9844
<i>EF-1α</i>	0.0866 \pm 0.0433	1.2815
<i>CAD</i>	0.1663 \pm 0.0822	1.7216

Phylogenetic Analyses

The sequence alignment was performed using Clustal W (Thompson *et al.*, 1994) in Bioedit version 7.2.5 (Hall, 1999).

Nucleotide diversity and Tajima's D (Tajima, 1989) based on three genes of 25 stathmopodid species were calculated using Arlequin version 3.5.1.3 (Excoffier and Lischer, 2010). The nucleotide diversity scores and the Tajima's D values are showed in Table 3. High nucleotide diversity scores are calculated for all of three genes, and none of the Tajima's D values are significantly different from zero.

The best substitution models for the concatenated data set were selected using Kakusan4 version 4.0 (Tanabe, 2011) based on the corrected Akaike information criterion (Akaike, 1974; Sugiura, 1978). The data were separated by genes and proportional among codon positions, and the mixed models are GTR+G, J1+G and TIM+G for *COI*, TN93+G, TVM+G and TIM+G for *EF-1 α* , and GTR+G, HKY85+GI and GTR+G for *CAD*. The Maximum likelihood (ML) tree was reconstructed using Treefinder version of March 2011 (Jobb *et al.*, 2004) and Phylogears version 2.0 (Tanabe, 2008) with 700 trials of Likelihood ratchet (Vos, 2003) method. Branch support was assessed by bootstrap analysis (Felsenstein, 1985) with 1000 pseudoreplications.

Results

The Maximum likelihood tree is illustrated in Fig. 7. In addition, bootstrap values (1000 pseudoreplications) are indicated above or below each node, and the feeding habits of these species are correlated to the tree.

Taxonomic view

The ML tree indicated the holophyly of genera *Calicotis*, *Cuprina* and *Pachyrhabda*, respectively. However, I could not decide the holophyly of the genus *Pachyrhabda* because of the low bootstrap value for the clade of this genus. Larvae of the three genera feed on fern-spores, and they formed a clade divided at the root node. Thus the fern-spore-feeding habit might developed only once in their common ancestor. Regarding on the fern-spore-feeding stathmopodid moths, Sugisima (2003) reported the spinning behavior of “nests of peculiar structures” by larvae; namely, the larvae spin silky shelter on the host leaf, and bore a small hole through the leaf, and the author also reported that this behavior developed once at least in the family Stathmopodidae. However, the behavior is shown in two genera, *Ca. latebrifica* n. sp., *P. aedificatrix* n. sp. and *P. margaritacea* n. sp. Although, *P. aedificatrix* n. sp. and *P. margaritacea* n. sp. are sister taxa each other, *Ca. latebrifica* n. sp. appeared in a different clade from them in my analysis. Therefore, I consider that this behavior developed independently at least twice in the family Stathmopodidae.

The genus *Stathmopoda* might be the polyphyletic group, because *Stathmopoda masinissa* Meyrick, 1906 and *Atrijuglans hetaohei* Yang, 1977, and *S. auriferella* (Walker, 1864) and *Atkinsonia* sp. became two different sister taxa of *Stathmopoda*, respectively. In addition, it was supposed that the predator, *S. melanochra*, derived from

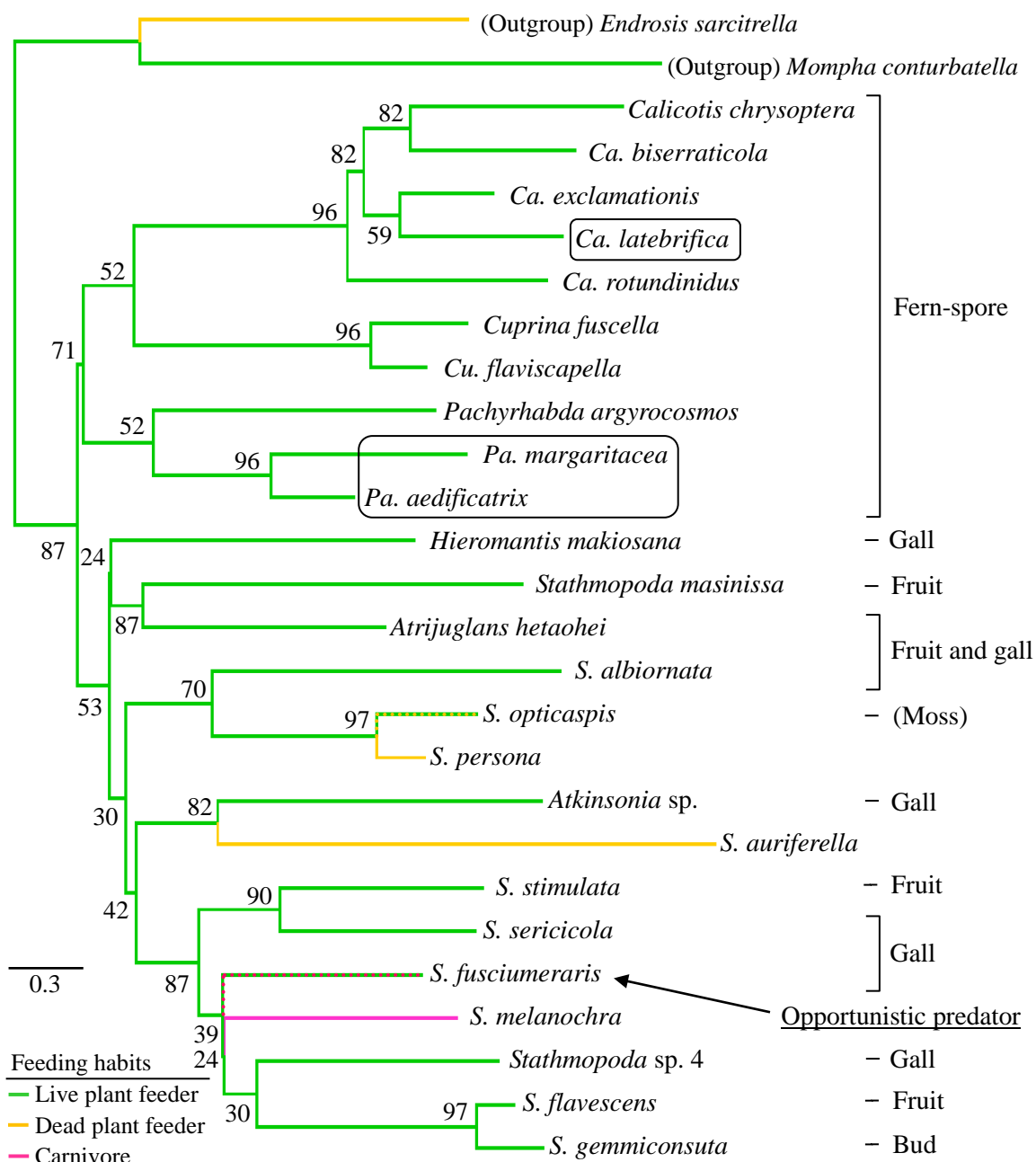


Fig. 7. Maximum likelihood tree of 25 species belonging to seven genera of the family Stathmopodidae on the basis of concatenated data set which consist of *COI*, *EF-1 α* and *CAD* sequences. Branch supports are indicated using bootstrap values (1000 pseudoreplication). Feeding targets of species associated with living plants are show after species names. The boxed species have the spinning behavior of “nests of peculiar structures”.

gall feeders. Moreover, Sugiura and Yamazaki (2004) reported that the larvae of *S. fuscimeraris* Terada, 2013 are considered to be the gall feeder and predator. Such an opportunistic predation in gall feeders might be one of factors in diversifying a carnivore taxon. However, the bootstrap values for branches of the clade including predator and two gall feeders, which are closely related to the predator, are very low. Further study is necessary to decide the preadaptation for the predatory trait in the family Stathmopodidae.

SYSTEMATICS OF THE FAMILY STATHMOPODIDAE FROM JAPAN

Family Stathmopodidae Meyrick, 1913

Stathmopodidae Meyrick, 1913b: 310.

Type genus: *Stathmopoda* Herrich-Schäffer, 1853.

Remarks. This group is conspicuous family in that raising hind-legs, and mainly distributed from the tropic to subtropic regions. Larvae of the family have very diverse feeding habits which contain live and dead plant feeders and predators.

This family is often treated as a subfamily of Oecophoridae as subfamily (e.g. Holloway *et al.*, 1987; Hodges, 1998; Tokár *et al.*, 2005). However, Kaila (2004) reported that this family assigned to Coleophoridae by the cladistic analysis based on characters of larval, pupal and adult morphology and larval ecology. Then, Kaila (2011) and Heikkilä *et al.* (2014) reported that the family Scythrididae is the most closely related group with this family by the molecular phylogenetic analysis. In order to decide the taxonomic status of the family, further studies will be needed to carry out on the phylogenetic relationships among this family and allied taxa within the superfamily Gelechioidea.

Key to the Japanese genera of Stathmopodidae

1. Antenna plumose with long scale-hairs. Forewing oblong. 2
- . Antenna filiform without scale-hairs. Forewing lanceolate. 3
2. In male genitalia, gnathos present. *Oedematopoda* Zeller
- . In male genitalia, gnathos absent. *Atkinsonia* Stainton
3. Antenna ventrally arranged long or very long cilia in male. 4
- . Antenna without long cilia. 7

4. Hind-tarsus covered with bristle on first segment, or second and third segments. 5
- Hind-tarsus not covered with bristle, with verticillbristle at apex of some basal segments. 6
5. Eye-cap developed on scape of antenna. Hind-tibia covered with bristle.
..... *Hieromantis* Meyrick
- Eye-cap not developed on scape of antenna. Hind-tibia dorsally with two verticillbristle at middle and apex. *Atrijuglans* Yang
6. Labial palpus short. In male genitalia, saccus bifurcate, anellar lobes assimilated each other. In female genitalia, appendix bursae present. *Phlogogramma* n. gen.
- Labial palpus long. In male genitalia, saccus not bifurcate, anellar lobes independently. In female genitalia, appendix bursae absent. *Stathmopoda* Herrich-Schäffer
7. Antenna ventrally arranged very short cilia. 8
- Antenna without cilia, or with very short cilia entirely in male. 9
8. Hind-tibia dorsally covered with bristle; bristle with slit at 1/3 of hind-tibia.
..... *Cuprina* Sinev
- Hind-tibia dorsally covered with bristle uniformly. *Thylacosceles* Meyrick
9. Eye-cap developed on scape of antenna. *Calicotis* Meyrick
- Eye-cap not developed on scape of antenna. 10
10. Occiput with vertical ditch in male. In male genitalia, anellar lobes assimilated with sacculus. *Thylacosceloides* Sinev
- Occiput without vertical ditch. In male genitalia, anellar lobes not assimilated with sacculus. *Pachyrhabda* Meyrick

Genus *Stathmopoda* Herrich-Schäffer, 1853

Stathmopoda Herrich-Schäffer, 1853: 14 (key), 54.

Type species: *Phalaena pedella* Linnaeus, 1761 (by subsequent designation by Meyrick, 1914).

Boocara Butler, 1880: 562.

Type species: *Boocara skelloni* Butler, 1880.

Placostola Meyrick, 1887: 280.

Type species: *Placostola diplaspis* Meyrick, 1887 (by monotypy).

Erineda Busck, 1909: 94.

Type species: *Erineda elyella* Busck, 1909.

Agrioscelis Meyrick, 1913a: 96.

Type species: *Agrioscelis tacita* Meyrick, 1913a.

Kakivoria Nagano, 1916: 138.

Type species: *Kakivoria flavofasciata* Nagano, 1916 (by monotypy).

Description. Labial palpus long, smooth-scaled and curved, with acute apex. Antenna about 3/4 length of forewing; eye-cap not developed, developed exceptionally in *S. transfasciaria*. Vertex and frons smooth; occiput smooth to slightly rough. Tegula and thorax smooth scaled.

Wing venation. Forewing narrowly lanceolate to lanceolate, widest near base; 10- to 13-veined; discoidal cell long, occupying about basal 7/10 of wing. Sc connected with costal margin of wing on about basal 1/3. R₁ running from about distal 1/10 of cell or absent; R₂ or R₃ from upper angle of cell; R₄ and R₅ stalked, sometimes in common with R₃. M₃ from lower angle of cell. CuA₁ running from near lower angle of cell, sometimes rudimentary; CuA₂ rudimentary or absent. 1A+2A connected about basal 1/7

of wing or not branched, running to about 2/5 of dorsum, rudimentary. Hindwing narrowly lanceolate, about 4/5 as long as forewing; 7- to 10-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 1/3 of dorsum.

Legs smooth; mid-tibia dorsally with verticillbristle at apex; hind-tibia dorsally with one to three verticillbristle or covered with bristle, with verricule in *S. masinissa* and *S. maritimicola*; some basal segments of hind-tarsus dorsally with verticillbristle at apex, respectively. Abdomen dorsally with spines of abdominal terga on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus tapering caudally; setae occurring on lateral side. Gnathos as long as uncus, absent in *S. brachymochla*. Valva with round apex; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae. Vinculum elongate; saccus present, sometimes absent. Juxta present. Anellar lobes developed, sclerotized, with setae on surface. Aedeagus with or without cornutus; sclerotized structure present near base, absent in *S. auriferella*; apical patch of stimuli present near apex of aedeagus.

Female genitalia. Seventh sternum with nearly flat or emarginate caudal margin. Papillae anales weakly sclerotized; with many short and long setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Corpus bursae with signum or two signa. Ductus seminalis apically with microspines; bulla present, sometimes absent.

Species examined. *Stathmopoda pedella*, *S. pullicuneata*, *S. atridorsalis*, *S.*

dorsioculella, *S. sericicola*, *S. centihasta*, *S. stimulata*, *S. flavescens*, *S. gemmiconsuta*,
S. luxuriivora, *S. magnisignata*, *S. callicarpicola*, *S. opticaspis*, *S. persona*, *S.*
moriutiella, *S. albiornata*, *S. masinissa*, *S. maritimicola* *S. aprica*, *S. fusciumeraris*, *S.*
brachymochla, *S. auriferella*, *S. haematosema*, *S. transfasciaria*.

Remarks. The genus *Stathmopoda* is the type genus of the family Stathmopodidae, and include more than 240 species. The genus is related to almost all genera of the family because it contains members with very diverse morphological features, especially in genital characters. These facts imply the polyphyly of the genus and thus future revisional studies will be needed.

Two specie-group were included in the genus (Terada, 2013a, 2014). In this study, I newly proposed three species-groups, the *S. flavescens* species-group, the *S. opticaspis* species-group and the *S. masinissa* species-group. Japanese *Stathmopoda* species except *S. brachymochla*, *S. auriferella*, *S. haematosema*, *S. transfasciaria*, *Stathmopoda* sp. 4 and *Stathmopoda* sp. 5 belong to above five species-groups, while the six species should be treated as a species-group *incertae sedis*.

Key to the Japanese species of *Stathmopoda*

1. Hind-tibia with verticillbristle at basal 1/3, 2/3 and apex, or at middle and apex.
..... 2
- Hind-tibia without verticillbristle except apex; with verricule or only covered with
bristles. 15
2. Forewing with three white blotches on dorsum, dark brown edged except dorsum.
..... *Stathmopoda* sp. 4
- Forewing without any white blotch on dorsum. 3

3. Forewing with two orange fasciae. Coremata present on membranous eighth abdominal segment in male. In male genitalia, gnathos absent. In female genitalia, ostium bursae with numerous sclerotized lamellae; biforked signum present.
..... *S. brachymochla* Meyrick
- . Forewing without any orange fascia. Coremata absent around male genitalia. In male genitalia, gnathos present. In female genitalia, ostium bursae without sclerotized lamellae; signum not biforked. 4
4. In male genitalia, a pair of small projections present on cephalic margin of tegumen; valva narrowest near base; cucullus very large. (*S. pedella* species-group) 5
- . In male genitalia, a pair of small projections of tegumen absent; valva broadest near base; cucullus rather small. (*S. flavescens* species-group) 12
5. Mesothorax with unique eye-shaped ochreous marking. In male genitalia, sacculus with round apex. In female genitalia, ductus seminalis originating from near cephalic margin of corpus bursae. *S. dorsioculella* Terada
- . Mesothorax without unique eye-shaped marking. In male genitalia, sacculus apically obscure. In female genitalia, ductus seminalis originating from near caudal margin of corpus bursae. 6
6. Forewing with dark brown to brownish black basal fascia. 7
- . Forewing with brownish black basal blotch, not reaching costa and dorsum. 10
7. Ground color of forewing ocher to yellow; hindwing fuscous. 8
- . Ground color of forewing pale ocher; hindwing pale fuscous. 9
8. Mesothorax with three brownish black arched fasciae near cephalic margin, at cephalic 1/4 and at middle of mesothorax; apical brownish black streak present. In male genitalia, cucullus 2.5 times as long as uncus; aedeagus with about six cornuti.

- In female genitalia, corpus bursae with two signa. *S. pullicuneata* Terada
- Mesothorax without fasciae, with brownish black cephalic margin; forewing without apical streak; sometimes small brownish black blotch present near apex of forewing. In male genitalia, cucullus twice as long as uncus; aedeagus with four cornuti. In female genitalia, corpus bursae with a signum. *S. pedella* (Linnaeus)
9. Two dark brown blotches present at 1/3 and 2/3 of forewing, connected with each other by a dark brown streak. In male genitalia, aedeagus with more than ten short spiniform cornuti. In female genitalia, ductus bursae with some spinose lamellae near connection of ductus and corpus bursae; corpus bursae with two signa. *S. atridorsalis* Terada
- Two dark brown blotches present at 1/3 and 2/3 of forewing; dark brown streak between two blotches not connected with first fascia. In male genitalia, aedeagus with cornutus; more than 15 spiniform projections on cornutus. *Stathmopoda* sp. 1
- Two dark brown blotches present at 1/3 and 2/3 of forewing; dark brown streak between two blotches not connected with first fascia. In female genitalia, ductus bursae without spinose lamellae near connection of ductus and corpus bursae; corpus bursae with a signum. *Stathmopoda* sp. 2
10. Forewing with brownish black streak near apex, not connected with brownish black blotch at 2/3. In male genitalia, membranous eighth abdominal segment without tuft of club-shaped setae. In female genitalia, ostium bursae with triangular sclerotized part near cephalic margin. *S. sericicola* Terada
- Forewing with dark brown to brownish black streak near apex, connected with brownish black blotch at 3/5. In male genitalia, membranous eighth abdominal

- segment with tuft of club-shaped setae. In female genitalia, ostium bursae without triangular sclerotized part near cephalic margin. 11
11. Hindwing with costal fold in male. In male genitalia, tuft of club-shaped setae with round apex; cucullus trapezoidal. In female genitalia, ductus bursae with some spinose lamellae near connection of ductus and corpus bursae; ductus seminalis triangular near apex. *S. stimulata* Meyrick
- Hindwing without costal fold in male. In male genitalia, tuft of club-shaped setae with acute apex; cucullus oval, dorsally weakly angled at basal 1/4. In female genitalia, ductus bursae without some spinose lamellae; ductus seminalis short, apical triangular part absent. *S. centihasta* Terada
12. Thorax with three brown spots. 13
- Thorax without three brown spots. 14
13. Forewing with an apical brown streak. In female genitalia, bulla assimilated into corpus bursae, very stout. *S. gemmiconsuta* Terada
- Forewing with an apical brown blotch. In female genitalia, bulla absent. *S. luxuriivora* Terada
- Forewing without any apical streak. In female genitalia, bulla originating from near cephalic margin of corpus bursae, stout and long. *S. flavescens* Kuznetsov
14. In male, forewing with an ocher basal marking; gnathos round. In female, markings of forewing dark brown; signum very large and crescent-shaped.
 *S. magnisignata* Terada
- In male, forewing with three paired ocher markings; gnathos tongue-shaped. In female, markings of forewing brown; signum bar-shaped.
 *S. callicarpicola* Terada

15. Coremata present on membranous eighth abdominal segment in male. In female genitalia, biforked signum present. (*S. aprica* species-group) 16
- Coremata absent around male genitalia. In female genitalia, signum not biforked. 17
16. Prothorax yellow, with blackish brown markings at lateral margin. Forewing yellow; costa brown and paler towards apex. *S. fusciumeraris* Terada
- Prothorax orange, without markings. Forewing orange; costa with broad brown bilobate streak. *S. aprica* Meyrick
17. Hind-tibia with verricule. (*S. masinissa* species-group) 18
- Hind-tibia covered with bristles. 19
18. Thorax with a pair of markings. In male genitalia, sacculus with pointed apical process protruding ventrally. In female genitalia, corpus bursae with numerous microspines. *S. maritimicola* Terada & Sakamaki
- Thorax with a mesial marking. In male genitalia, sacculus without pointed apical process protruding ventrally. In female genitalia, corpus bursae without numerous microspines. *S. masinissa* Meyrick
19. Joint membrane between papillae anales and eighth abdominal segment with numerous microsetae. *Stathmopoda* sp. 5
- Joint membrane between papillae anales and eighth abdominal segment without microsetae. 20
20. Thorax with a dark brown or black blotch, contained lateral spots, or forewing with two white to pale ocher fasciae. (*S. opticaspis* species-group) 21
- Thorax without any dark brown or black blotch; forewing without two white to pale ocher fasciae. 25

21. Forewing with two paired brownish black blotches near base. 22
- Forewing without two paired brownish black blotches near base. 24
22. Two fasciae of forewing obscure. *Stathmopoda* sp. 3
- Two fasciae of forewing clear. 23
23. Occiput, tegula and thorax yellow; second fascia of forewing broad. In male genitalia, basal sclerotized structure of aedeagus small. In female genitalia, bulla with many small spicules. *S. opticaspis* Meyrick
- Occiput, tegula and thorax grayish yellow; second fascia of forewing narrow. In male genitalia, basal sclerotized structure of aedeagus large. In female genitalia, bulla with some small spicule. *S. persona* Terada
24. Thorax dark fuscous; forewing with two white to pale ocher fasciae near base and at middle. In male genitalia, saccus cephalically subrectangular; aedeagus with a basal sclerotized structure. In female genitalia, bulla narrow and short, assimilated with ductus seminalis; small spicules absent on bulla. *S. albiornata* Terada
- Thorax and basal fascia of forewing yellow; fascia at middle of forewing absent. In male genitalia, saccus cephalically round; aedeagus with some basal sclerotized structures. In female genitalia, bulla clearly constrict at connection of bulla and ductus seminalis; small spicules present on bulla. *S. moriutiella* Kasy
25. Occiput brownish black; thorax pale ocher; forewing with dark brown to brownish black markings. In male genitalia, transtilla developed; saccus cephalically subtriangular. In female genitalia, corpus bursae with many small spicules near caudal margin. *S. transfasciaria* Li & Wang
- Occiput yellow to pale brown; thorax yellow; forewing with yellow markings. In male genitalia, transtilla not developed; saccus cephalically round. In female genitalia,

- corpus bursae without many small spicules. 26
26. Mesothorax with orange lateral spots at cephalic margin; forewing without yellow blotch at 2/3. In male genitalia, apex of sacculus not protruding; anellar lobes consisted of two parts; aedeagus with seven spiniform cornuti and basal sclerotized structure. In female genitalia, ductus bursae with wrinkled and weakly sclerotized expanded part near ostium bursae; corpus bursae with signum; bulla absent.
..... *S. haematosema* Meyrick
- . Mesothorax without orange lateral spots at cephalic margin; forewing with yellow blotch at 2/3. In male genitalia, apex of sacculus protruding caudally; anellar lobes consisted of one part; aedeagus with cornutus; basal sclerotized structure absent. In female genitalia, ductus bursae without wrinkled and weakly sclerotized expanded part; corpus bursae with two signa; bulla present. *S. auriferella* (Walker)

The *Stathmopoda pedella* species-group

This species-group contains the following 11 species: *Stathmopoda pedella* (Linnaeus, 1761), *S. hexatyla* Meyrick, 1907, *S. stimulata* Meyrick, 1913, *S. grandisella* Sinev, 1995, *S. neohecatyla* Li and Wang, 2002, *S. baotianmana* Li and Wang, 2002, *S. pullicuneata* Terada, 2014, *S. atridorsalis* Terada, 2014, *S. dorsioculella* Terada, 2014, *S. sericicola* Terada, 2014 and *S. centihasta* Terada, 2014. In this thesis, *Stathmopoda* sp. 1 and *Stathmopoda* sp. 2 are also included in this group, because these species possess diagnostic characters of this group.

Diagnosis. The ground color of the forewing is ocher to yellow. Two brown to blackish brown fasciae or blotches are usually present on the forewing at about 1/3 and 2/3, and these markings are connected with each other by a brown to blackish brown

streak. The forewing is lanceolate, widest near base and 11-veined. The discoidal cell is long and occupying 2/3 of wing. The costal fold of the forewing is present in some species, *S. atridorsalis*, *S. dorsioculella* and *S. sericicola*. In the veins, R₂ arises from near the upper angle of the cell, R₄ and R₅ are stalked, CuA₁ is rudimentary and present only near the dorsum, and CuA₂ is absent. The hindwing is narrow and usually 9-veined. The discoidal cell is open. In the veins, Rs runs to near the apex of the costa, M₂, M₃, and CuA₁ are stalked and in common with CuA₂, and CuA₂ run to about 1/3 of dorsum. In the male genitalia, a pair of small projections is present on the cephalic margin of the tegumen, and the cucullus is very large. In the female genitalia, the ostium bursae is tub-shaped, some lamellae are usually present near the connection of the ductus bursae and corpus bursae, and the ductus seminalis is stout.

***Stathmopoda pedella* (Linnaeus, 1761)** [Plates I, LV-a, LXVI-a]

[Japanese name: Kiuro-obi-maikoga]

Phalaena (Tinea) pedella Linnaeus, 1761: 367.

Tinea alucitella [Denis and Schiffermüller], 1775: 144.

Tinea cylindrella Fabricius, 1777: 295.

Tinea angustipennella Hübner, 1796: 69, pl. 29, fig. 197.

Ypsolophus cylindricus: Fabricius, 1798: 507.

Oecophora fastuosella Costa, 1836: 279, pl. 2, fig. 7.

Cosmopteryx pedella: Zeller, 1839: 210.

Stathmopoda pedella: Herrich-Schäffer, 1853: 283.

Diagnosis. This species is similar to *S. sericicola*, *S. centihasta* and *S. stimulata*, but can be distinguished by the presence of a brownish black basal fascia on the forewing

and the fuscous hindwing. This species is also very similar to *S. pullicuneata*, *S. atridorsalis*, *Stathmopoda* sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the lack of the apical streak on the forewing and the color of the occiput. The occiput and hindwing are yellow and fuscous, respectively. In contrast, in *S. pullicuneata*, the apical streak is present. The occiput and hindwing are ocher and fuscous, respectively. In *S. atridorsalis*, the apical streak is present but obscure. The occiput and hindwing are dark brown and pale fuscous, respectively. In *Stathmopoda* sp. 1, the apical streak is present. The occiput and hindwing are pale ocher and pale fuscous, respectively. In *Stathmopoda* sp. 2, the apical streak is present. The occiput and hindwing are brownish black and pale fuscous respectively.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The cucullus is oval and twice as long as the uncus; two signa are present; and a pouch of the ductus bursae is present at the connection of ductus and corpus bursae.

Description. Wing expanse 11.1-13.8 mm. Forewing length 5.1-6.5 mm. Labial palpus ocher, ventrally white, dorsally with brownish black patch around connection of first and second segments; third segment sometimes dorsally darkened towards apex. Antenna ocher to pale fuscous; scape dorsally ocher to brown. Vertex yellow; frons white; occiput yellow, with brownish black cephalic margin. Tegula brownish black. Thorax yellow; prothorax and cephalic margin of mesothorax brownish black

Wing markings. Forewing yellow; costa brownish black, sometimes paler towards apex; three brownish black fasciae running near base, and at about 1/3 and 2/3 of wing; second and third fasciae reaching costa; two brownish black streaks running from costal end and middle of second fascia, respectively, first streak running from near costa of

second fascia to third fascia, sometimes assimilating with costa; second streak on CuP, unconnected to third fascia; sometimes a small brownish black blotch present at apex of wing; cilia fuscous, sometimes brownish black at apex of wing. Hindwing and cilia fuscous.

Wing venation. Forewing, costal fold of male forewing absent. Sc connected with costal margin of wing at basal 1/3. R₁ running from about distal 1/10 of cell; R₃ from upper angle of cell; R₄ and R₅ in common with R₃. M₁ and M₂ parallel; M₂ from lower angle of cell. CuA₁ sometimes rudimentary near base. 1A+2A running to about 2/5 of dorsum. Hindwing 4/5 as long as forewing. R₁ weakly connected with Rs.

Legs ocher to yellow; fore-femur to -tarsus ventrally brownish black; mid-tibia dorsally brown near base, dorsally with verticillbristle at middle and apex; hind-tibia dark brown in apical 1/4, dorsally with dark brown verticillbristles at about 1/3, 2/3 and apex; ventral side gray; first and second segments of hind-tarsus dark brown near apex, with dark brown and ocher verticillbristle at apex. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present, on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, tapering caudally, with blunt apex; setae occurring on lateral side. Gnathos as long as uncus, narrowly tongue-shaped. Tegumen dorsocephalically with a pair of small projections. Valva narrowest near base, with round apex; costa round dorsally, with some long setae; cucullus very large, oval, twice as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate, round cephalically; saccus 1/5 length of uncus and round cephalically. Juxta trapezoidal. Anellar lobes developed, narrowly oval, sclerotized, with setae on surface. Aedeagus about three times as long as uncus,

stout, tapering towards apex; four spiniform cornuti arranged on vesica; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment twice as long as papillae anales. Eighth abdominal segment sclerotized except lateral side, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae subrectangular, with microsetae on inner surface; a pair of folds present near cephalic margin. Ductus bursae shorter than length of corpus bursae; pouch present at connection of ductus and corpus bursae. Corpus bursae with some scattered spinose lamellae near connection of ductus and corpus bursae. Two signa situated near caudal margin and middle of corpus bursae respectively, narrowly crescent-shaped, with serrate margin; some sparse microspines present around signa; first signum longer than second. Bulla originating from near caudal margin of corpus bursae, stout. Ductus seminalis long, assimilated with bulla, apically with microspines.

Specimens examined. JAPAN. Hokkaido: 1♀, Mt. Daisetsuzan, 18. vii. 1952, A. Mutuura; 1♀, Nukabira, Kamishihoro-Town, 23-25. vii. 1990, Y. S. Bae; 1♂, Jozankei, Sapporo-City, 12. viii. 1996, Y. Sakamaki (Light trap) (1♂ Gen. sl. no. 11161); 1♀, Eniwa-keikoku, Eniwa-City, 31. vii. 2001, K. Sugisima. Honshu: 1♀, Oomaru-hopposhamen 1450m, Nasu Imperial Villa, Tochigi-Pref., 1. viii. 2003, Y. Arita; 11♀, Kisojihara, Nagawa-Vill., Nagano-Pref., 2. viii. 1989, T. Kumata; 1♂ 1♀, Ditto, 21. vii. 2002, B. W. Lee, N. H. Ahn and K. Yamada; 1♀, Karei-kogen 1600m, Hase-Vill.,

Nagano-Pref., 24. vii. 1990, T. Mano (1♀ Gen. sl. no. 10082); 1♀, Minodo, Chono-City, Nagano-Pref., 16. viii. 2002, B. W. Lee, N. H. Ahn and K. Yamada; 1♂ 1♀, Hikagedaira, Takayama-City, Gifu-Pref., 21-22. vii. 1980, T. Tanabe; 1♀, Ditto, 1-3. viii. 1981, T. Tanabe (1♀ Gen. sl. no. 11146); 1♀, Ditto, 25-26. vii. 1983, T. Tanabe; 1♀, Ditto, 18-21. vii. 1981, K. Yasuda (1♀ Gen. sl. no. 11104, 1♀ Wing sl. no. 11120); 1♀, Ditto, 26. viii. 1982, K. Yasuda (1♀ Gen. sl. no. 11109); 1♂, Nakao, Takayama-City, Gifu-Pref., 30-31. vii. 1981, T. Tanabe (1♂ Gen. sl. no. 11122); 1♀, Oshirakawa, Mt. Hakusan, Shirakawa-Vill., Gifu-Pref., 6. viii. 1980, T. Tanabe (1♀ Gen. sl. no. 11123); 1♂ 1♀, Mt. Wasamata, Kamikitayama-Vill., Nara-Pref., 24. vii. 1992, T. Ueda; 1♂, Mt. Makio, Osaka-Pref., 10. v. 1982 (1♂ Gen. sl. no. 11080). 1♀, Shiozuka-kogen 900m, Miyoshi-City, Tokushima-Pref., Shikoku, 24. vii. 2011, Y. Manabe.

Distribution. Japan: Hokkaido, Honshu and Shikoku. Eastern, central and western Europe; the Caucasus, Russian Far East (Koster and Sinev, 2003). North America (Hodges, 1983).

Host plants. *Alnus glutinosa* (L.) Gaerth. and *A. incana* Willd. (Betulaceae) (Koster and Sinev, 2003).

Biology. This species is univoltine. Adults emerge from the end of June to July (Koster and Sinev, 2003), and were collected in August. Larvae live from September in unripe fruit and mainly feed on seed of the host plants; when fully fed they pupate in a silky cocoon spun among grains of sand on the ground (Stainton, 1868, 1870). The adults are easily attracted to light and repose on the upper or underside of leaves of the host plant (Koster and Sinev, 2003).

Remarks. Terada (2014) reported that the deep-colored individuals of this species are similar to those of the males of *S. callicarpicola* Terada, 2012 (Plate LXVIII-f), but the

former can be distinguished from the latter by the coloration of the vertex, which is yellow, but fuscous in *S. callicarpicola*.

***Stathmopoda pullicuneata* Terada, 2014** [Plates II, LV-b, LXVI-b]

[Japanese name: Futo-obi-maikoga]

Stathmopoda sp. 1: Oku, 2003a: 39.

Stathmopoda sp. 1: Terada and Sakamaki, 2013: 227, pl. 29, figs 3-4.

Stathmopoda pullicuneata Terada, 2014: 104-107, figs 1, 9, 20-24.

Diagnosis. This species is similar to *S. sericicola*, *S. centihasta* and *S. stimulata*, but can be distinguished by the presence of a brownish black basal fascia on the forewing and a fuscous hindwing. This species is also very similar to *S. pedella*, *S. atridorsalis*, *Stathmopoda* sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the apical streak of the forewing and the color of the occiput and hindwing. In this species, the apical streak of the forewing is present. The occiput and hindwing are ocher and fuscous, respectively. In contrast, in *S. pedella*, the apical streak is absent. The occiput and hindwing are yellow and fuscous, respectively. In *S. atridorsalis* the apical streak is present but obscure. The occiput and hindwing are dark brown and pale fuscous, respectively. In *Stathmopoda* sp. 1, the apical streak is present. The occiput and hindwing are pale ocher and pale fuscous, respectively. In *Stathmopoda* sp. 2, the apical streak is present. The occiput and hindwing are brownish black and pale fuscous, respectively. This species is especially similar to *S. neohexatyla* Li and Wang, 2002, but can be distinguished by the markings of the thorax. In this species, three brownish black arched fasciae are present on the thorax. In contrast, in *S. neohexatyla*, blackish speckles are present (See Li and Wang, 2002).

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The tuft of short setae is present on the eighth abdominal segment of the male; the saccus is absent, and six spiniform cornuti are present in the aedeagus; a wrinkled pouch is present on the ductus bursae at connection of ductus and corpus bursae; one signum is present; and bulla originates from near caudal margin of corpus bursae.

Description. Wing expanse 7.3-14.2 mm. Forewing length 3.5-6.6 mm. Very similar to *S. pedella*, but differing in the following characters. Antenna ocher. Vertex and occiput ocher. Tegula ocher, apically brownish black, with brownish black fascia near base. Thorax ocher, with three brownish black arched fasciae near cephalic margin, at cephalic 1/4 and at middle of mesothorax; brownish black blotch present at caudal margin of mesothorax.

Wing markings. Forewing ocher; second and third fasciae not reaching costa, outwardly oblique; first streak connected with third fascia, running to near apex.

Wing venation. Forewing, Sc connected with costal margin of wing at basal 3/8. M₂ and M₃ from lower angle of cell. 1A+2A running to 3/7 of dorsum. Hindwing 5/6 as long as forewing.

Legs dorsally ocher, ventrally white; fore-femur and -tibia ventrally brownish black; hind-tibia dorsally with verticillbristle at about 1/3, 5/9 and apex; first to fourth segments of hind-tarsus brownish black near apex, with ocher to brown verticillbristle at apex of first to third segments.

Male genitalia. Membranous eighth abdominal segment dorsally with tuft of short setae. Costa of valva nearly flat dorsally; cucullus 2.5 times as long as uncus. Saccus absent. Juxta subrectangular. Anellar lobes narrowly subtriangular. Aedeagus four times

as long as uncus, with about six short spiniform cornuti on vesica; apical patch of stimuli 3/10 length of aedeagus.

Female genitalia. Joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Apophyses anteriores about 7/9 as long as apophyses posteriores. Ductus bursae with large wrinkled pouch at connection of ductus and corpus bursae. Corpus bursae with two to three spinose lamellae near connection of ductus and corpus bursae. Signum situated at about middle of corpus bursae, with serrate margins. Ductus seminalis stout.

Specimens examined. HOLOTYPE ♂, Gokasho-Town, Shiga-Pref., Japan, 7. vii. 1989, T. Mano (1♂ Gen. sl. no. 10069).

PARATYPES, JAPAN: Honshu: 1♀, Tsunatori, Morioka-City, Iwate-Pref., 27. vii. 1995, N. Doi (1♀ Gen. sl. no. M-10222); 1♂, Furukawa, Miyagi-Pref., 23, vii, 1993, G. Ogawa (1♂ Gen. sl. no. M-10223); 1♀, Oumeitei, Nasu Imperial Villa, Tochigi-Pref., 31. vii, 2003, Y. Arita; 1♀, Ditto, 3. viii. 2007, Y. Arita. 1♀, Ito, Shizuoka-Pref., 15. vii. 1976, S. Issiki. 1♀, Mt. Giigatake 1100m, Omachi-City, 27. vi. 2001, T. Mano (1♀ Wing sl. no. 11006); 2♀, Takayama-City, Gifu-Pref., 25. vii. 1954, A. Mutuura; 1♀, Hikagedaira, Gifu-Pref., 1-3. viii. 1981, T. Tanabe; 1♀, Gokasho-Town, Shiga-Pref., 7. vii. 1989, T. Mano; 1♀, Kaminomura-Vill., Hakusan-Town, Mie-Pref., 9. vii. 1991, T. Mano; 1♀, Shinsui-Park, Nishiki, Kisei-Town, 24. vi. 2000, T. Mano; 1♂, Shimada, Ureshino-Town, Mie-Pref., 8. vi. 2001, T. Mano; 1♀, Enokiyama, Magome-Town, Toyoake-City, Aichi-Pref., 30. vi. 2001, Y. Yoshitsuru; 1♂, Asahi-highland, Asahi-Town, Aichi-Pref., 13. vii. 1996, T. Mano; 1♂, Ditto, 5. vii. 1997, T. Mano (1♂ Gen. sl. no. 11108, 1♂ Wing sl. no. 13056); 1♀, Mt. Sanage, Toyota-City, Aichi-Pref., 17. vii. 1976, B. Tanaka (1♀ Wing sl. no. 11139); 1♀, Sasabara-Town, Toyota-City, Aichi-Pref., 29. vi.

1995, B. Tanaka; 2♀, Nishihirose, Toyota-City, Aichi-Pref., 2. vii, 18. viii. 1996, T. Mano (1♀ Wing sl. no. 11001); 1♀, Matsumine-Town, Toyota-City, Aichi-Pref., 13. vi. 2001, T. Mano; 1♂, Iwakura-Town, Toyota-City, Aichi-Pref., 7. vi. 2002, T. Mano; 1♀, Shimokawaguchi-Town, Toyota-City, Aichi-Pref., 10. vii. 2008, T. Mano; 1♀, Takadoya-shicchi, Odagi-Town, Toyota-City, Aichi-Pref., 28. vii. 2009, T. Mano (1♀ Gen. sl. no. 10060); 1♂, Mt. Rokusho, Toyota-City, Aichi-Pref., 9. vii. 1977, Y. Arita (1♂ Gen. sl. no. 11102); 3♀, Mt. Hiei-zan, Kyoto-Pref., 4. viii. 1954, A. Mutuura; 1♂, detail locality unknown, Kyoto-Pref., 8. vii. 1950, Takeuchi; 1♀, Ditto, 21. vii. 1957, Takeuchi; 1♂ 1♀, Soni-kogen, Soni-Town, Nara-Pref., 19. vii. 2008, T. Mano (1♂ Gen. sl. no. 10059); 2♀, Mt. Iwawaki, Kawachinagano-City, Osaka-Pref., 3. viii. 1951, A. Mutuura; 2♂ 2♀, Tondabayashi, Yamate-Town, Osaka-Pref., 2, 8, 14, 20. vii. 1978, S. Moriuti (1♂ Gen. sl. no. 10094); 1♀, Misaki-Town, Osaka-Pref., 31. viii. 1979, T. Saito; 1♂, Mt. Makio, Osaka-Pref., 14. vii. 1981, K. Yasuda; 1♀, Ditto, 26. vii. 1982, K. Yasuda; 1♀, Mt. Mikusa, Nose-Town, Osaka-Pref., 27. vi. 1991, T. Ueda; 1♂, Ditto, 24. vi. 1993, T. Ueda; 1♀, Mt. Oyorogi, Takano-Town, Hiroshima-Pref., 12. viii. 2000, T. Yamauchi (Light trap); 1♂ 1♀, Choja-hara, Geihoku-Town, Hiroshima-Pref., 10. vii. 2001, I. Ohshima; 3♂ 2♀, Nagano, Jinseki-Town, Hiroshima-Pref., 21. vii. 2001, T. Yamauchi (Light trap); 1♀, Jikamuro, Touwa-Town, Yamaguchi-Pref., 2. viii. 1988, T. Mano; 1♀, Ditto, 1. viii. 1989, T. Mano; 1♀, Ditto, 1. viii. 1990, T. Mano (1♀ Gen. sl. no. 10084). Shikoku: 1♂, Matsuyama-City, Ehime-Pref., 10. vi. 1956, S. Hisamatsu; 1♂, Omogo-kei, Kumakogen-Town, Ehime-Pref., 15. vi. 1956, M. Okada. Kyushu: 1♀, Miuta, Tsushima Is., Nagasaki-Pref., 23. vii. 1996, T. Yamauchi; 2♀, Shitaru, Kamiagata-Town, Tsushima Is., Nagasaki-Pref., 4. vii. 2008, T. Mano; 1♀, Korimoto, Kagoshima-City, Kagoshima-Pref., 4. vi. 2010, T. Terada (1♀ Gen. sl. no. 10107).

Distribution. Japan: Honshu, Shikoku and Kyushu.

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in June to August.

Remarks. This species and *S. neohexatyla* Li and Wang, 2002 are particularly similar to each other; it is difficult to distinguish them from each other by the female genitalia, but this species can be distinguished from *S. neohexatyla* by the presence of cornuti in the aedeagus (Terada, 2014).

***Stathmopoda atridorsalis* Terada, 2014** [Plates III, LV-c, d, LXVI-c, d]

[Japanese name: Se-guro-futo-obi-maikoga]

Stathmopoda atridorsalis Terada, 2014: 109-111, figs 3, 11-12, 29-33.

Diagnosis. This new species is similar to *S. sericicola*, *S. centihasta* and *S. stimulata*, but can be distinguished by the presence of a dark brown basal fascia on the forewing and the dark brown occiput and prothorax. This species is also very similar to *S. pedella*, *S. pullicuneata*, *Stathmopoda* sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the apical streak of the forewing and the color of occiput and hindwing. The apical streak is present but obscure. The occiput and hindwing are dark brown and pale fuscous respectively. In contrast, in *S. pedella*, the apical streak of the forewing is absent. The occiput and hind wing are yellow and fuscous, respectively. In *S. pullicuneata*, the apical streak is present. The occiput and hind wing are ocher and fuscous, respectively. In *Stathmopoda* sp. 1, the apical streak is present. The occiput and hindwing are pale ocher and pale fuscous, respectively. In *Stathmopoda* sp. 2, the apical streak is present. The occiput and hindwing are brownish black and pale fuscous, respectively.

In the genitalia, this species can be distinguished from other members of the

species-group by the following characters: A pair of caudal crescent-shaped projections is present on the dorsal side of the eighth abdominal segment of the male; many microspines are present on the lateral surface of the tegumen near the connection of tegumen and valva; more than ten spiniform cornuti are present; and some spinose lamellae and wrinkles are present on the corpus bursae near the connection of ductus and corpus bursae.

Description. Wing expanse 12.7-15.1 mm. Forewing length 5.9-6.9 mm. Labial palpus pale ocher, ventrally white. Antenna ocher. Vertex and frons white; occiput dark brown. Tegula dark brown, paler towards apex. Prothorax dark brown. Mesothorax brown, with three dark brown arched fascia at cephalic margin, cephalic 2/5 and middle; pale ocher blotch present at caudal margin of mesothorax, with dark brown spot at caudal margin.

Wing markings. Forewing pale ocher; costa dark brown, paler towards apex; dark brown fascia running near base; two dark brown blotches present at 1/3 and 2/3, connected with each other by a dark brown streak; a dark brown to brown streak on CuP, connected with first blotch, sometimes extended towards base; an obscure brown streak from second blotch to near apex; cilia pale fuscous, dark brown at apex of wing. Hindwing and cilia pale fuscous.

Wing venation. Forewing, costal fold present at about 3/7 in male, very small. Sc connected with costal margin of wing at basal 1/3. R₁ running from distal 1/8 of cell; R₃ and R₄ from upper angle of cell. M₂ and M₃ from lower angle of cell. CuA₁ sometimes absent. 1A+2A running to about 4/9 of dorsum. Hindwing 4/5 as long as forewing. Sometimes R₁ weakly connected with Rs.

Legs dorsally ocher, ventrally white; fore-femur and -tibia ventrally brown to dark

brown; a dark brown spot occupying area around connection of mid-femur and -tibia; mid-tibia dorsally with pale ochre verticillbristles at middle and apex; hind-tibia dorsally with pale fuscous verticillbristles at about 1/4, 2/3 and apex; first to fourth segments of hind-tarsus dark brown near apex, with verticillbristles at apex of first to third segments. Abdomen dorsally pale fuscous, dorsally with pale ochre caudal margin to each segment; ventrally white; spines of abdominal terga present on second to seventh segments in male, second to six segments in female.

Male genitalia. A pair of caudal crescent-shaped projections present on dorsal side of membranous eighth abdominal segment, weakly sclerotized; setae occurring at caudal margin. Uncus stout, tapering caudally, with truncate apex; setae occurring on lateral side. Gnathos tapering caudally, as long as uncus, with round apex. Tegumen dorsocephalically with a pair of small projections; many microspines present on lateral surface near connection of tegumen and valva. Valva narrowest near base, with round apex; costa slightly round dorsally, with some long setae; cucullus very large, oval, dorsally weakly angled at basal 3/10 of cucullus, about three times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate; saccus 1/3 length of uncus and round cephalically. Juxta subrectangular. Anellar lobes developed, narrowly oval, weakly sclerotized, with setae on surface. Aedeagus stout, about 3.5 times as long as uncus; triangular spicules present on vesica; more than ten short spiniform cornuti arranged on vesica; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, broad, with round apex.

Female genitalia. Papillae anales slightly longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and

eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 5/9 times as long as apophyses posteriores. Ostium bursae rectangular, with microsetae on inner surface; a pair of folds present near cephalic margin. Ductus bursae as long as length of corpus bursae, with some spinose lamellae and wrinkled near connection of ductus and corpus bursae. Corpus bursae with two signa, situated near caudal margin and 4/7 of corpus bursae, narrowly crescent-shaped, with serrate margin; first signum with sparse microspines around signum; first signum longer than second. Bulla originating from caudal margin of corpus bursae. Ductus seminalis assimilated with bulla, with microspines.

Specimens examined. HOLOTYPE ♂, Sapporo-City, Hokkaido, JAPAN, 30. vii. 1952, A. Mutuura (1♂ Gen. sl. no. 11164).

PARATYPES, JAPAN. Honshu: 1♂, Doaiguchi, Gunma-Pref., 20. viii. 1969, S. Shimeki (1♂ Gen. sl. no. 11172, 1♂ wing sl. no. 14002); Nagano-Pref.: 1♂ 4♀, Shiga-kogen, 29. vii. 1982, H. Hara (1♂ 2♀ Gen. sl. no. 11105, 11131, 11132, 1♂ 2♀ wing sl. no. 11155, 11156, 14004).

1♀, Jinizakura-park, Oga-City, Akita-Pref., Honshu, JAPAN, 22. vii. 2014, K. Umetsu (1♀ Gen. sl. no. 14072).

Distribution. Japan: Hokkaido and Honshu.

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in July to August.

Remarks. Terada (2014) reported that this new species might be in particular closely related to *S. dorsioculella* Terada, 2014 and *S. sericicola* Terada, 2014, because these

species share the costal fold of the male forewing (Plates LV-c, e, LVI-a) and the presence of many microspines on the surface near the connection between tegumen and valva in the male genitalia (Plates III-b, IV-b, V-b).

***Stathmopoda dorsioculella* Terada, 2014** [Plates IV, LV-e, f, LXVI-e, f]

[Japanese name: Ne-guro-maikoga]

Stathmopoda dorsioculella Terada, 2014: 111-113, figs 4, 8, 13-14, 34-37.

Diagnosis. This species is distinguished by a unique eye-shaped ocherous marking on the mesothorax and four brown narrow streaks on the forewing.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The apex of the sacculus is round; many microspines are present on the lateral surface of the tegumen near the connection of tegumen and valva; more than seven spiniform cornuti in the aedeagus are joined with each other at base; one signum is present; and the ductus seminalis originates from near the cephalic margin of the corpus bursae.

Description. Wing expanse 13.5-15.6 mm. Forewing length 7.0-7.5 mm. Labial palpus pale ocher, ventrally white, first segment dorsally brown; second segment dorsally darkened towards base. Antenna pale ocher; scape dorsally ocher to brown. Vertex pale ocher to brownish black; frons white; occiput brownish black. Tegula brownish black. Thorax ocher to brown, with two brownish black arched fasciae near cephalic margin and at 1/3 of mesothorax; a pair of brownish black triangular markings and a mesial pale ocher blotch with brownish black streak present at caudal margin of mesothorax.

Wing markings. Forewing pale ocher; costa brownish black, paler towards apex; a

brownish black fascia at base; six streaks; first and second streaks from base to 1/3 of costa and from near base of dorsum to middle of CuP, brownish black, broad; third, fourth and fifth streaks from first streak to apex of wing, to near tornus and along CuP, brown, narrow, sometimes obscure; third streak connected with end of fourth streak by brown blotch; sixth streak from second streak to middle of dorsum, brown, narrow; cilia ocher to pale fuscous, brownish black at apex of wing. Hindwing pale fuscous; cilia ocher to pale fuscous.

Wing venation. Forewing, costal fold present at about middle in male. Sc connected with costal margin of wing at basal 1/3. R₁ running from about distal 1/8 of cell; R₃ and R₄ from upper angle of cell. M₂ from lower angle of cell. CuA₁ rudimentary, present only near dorsum. 1A+2A running to about 2/5 of dorsum. Hindwing 6/7 as long as forewing.

Legs dorsally ocher, ventrally white; fore-femur ventrally brown; fore-tibia ventrally brownish black; brownish black spot occupying area around connection of mid-femur and -tibia; mid-tibia dorsally with verticillbristles at middle and apex, brown and pale ocher, respectively; hind-tibia with dorsally pale fuscous verticillbristles at about 1/3, 2/3 and apex; first to fourth segments of hind-tarsus brownish black at apex, with verticillbristles at apex of first and second segments. Abdomen dorsally pale fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, tapering caudally, with blunt apex; setae occurring laterally. Gnathos narrow, shorter than uncus, with round apex. Tegumen dorsocephalically with a pair of small projections; many microspines present on lateral surface near connection of tegumen and valva. Valva narrowest near base, with round

apex; costa slightly round dorsally, with some long setae; cucullus very large, about 3.5 times as long as uncus, oval, dorsally weakly angled at basal 3/10 of cucullus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum elongate; saccus 1/3 length of uncus and blunt cephalically. Juxta oval, bilobate. Anellar lobes developed, narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus, stout, tapering towards apex; numerous triangular spicules present on vesica; more than seven short spiniform cornuti arranged on vesica, joined with each other at base; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/5 length of aedeagus, broad, with round apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment twice as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 times as long as apophyses posteriores. Ostium bursae subrectangular, with microsetae on inner surface; triangular sclerotized part present near cephalic margin. Ductus bursae shorter than length of corpus bursae, narrow, wrinkled, with some spinose lamellae near connection of ductus and corpus bursae. Signum situated at caudal 1/3 of corpus bursae, with serrate margin; some sparse microspines present around signum. Ductus seminalis originating from near cephalic margin of corpus bursae, stout, apically with microspines.

Specimens examined. HOLOTYPE ♂, Takatsuka-Town 70m, Toyohashi-City, Aichi-Pref., JAPAN, 7. ix. 2012, T. Mano (1♂ Gen. sl. no. 14010).

PARATYPES, JAPAN. Honshu: 1♀, Izu, Ito-City, Shizuoka-Pref., 30. viii. 1975, S. Issiki (1♀ Gen. sl. no. 11165, 1♀ Wing sl. no. 14003); 1♂, Kosema-Town, Toyota-City, Aichi-Pref., 16. ix. 2004, T. Mano (1♂ Gen. sl. no. 12100); 1♂, Ichinohara, Inabe-Town, Mie-Pref., 8. ix. 1986, T. Mano (1♂ Gen. sl. no. 10073, 1♂ Wing sl. no. 13055). 1♀, Kanigaikake, Usa-Town, Tosa-City, Kochi-Pref., Shikoku, 11. ix. 2009, Y. Manabe. The Ryukyu Islands: 1♀, Mt. Akatsuchi, Amami-oshima Is., Kagoshima-Pref., 8. ix. 2012, S. Sameshima (Light trap) (1♀ Gen. sl. no. 12088, 1♀ Wing sl. no. 13054); 1♀, Mt. Yuwan-dake, Amami-oshima Is., Kagoshima-Pref., 18. xi. 2012, S. Sameshima and K. Tsuda (Light trap).

1♀, Iguma-Town (561m), Toyota-City, Aichi-Pref., Honshu, JAPAN, 29. viii. 2013, T. Mano.

Distribution. Japan: Honshu, Shikoku and the Ryukyu Islands (Amami-oshima Island).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in August to September and November.

Remarks. Though this species superficially differs from other species of the *S. pedella* species-group, it nevertheless has the typical genital characters of this group. Thus this species is included in this group (Terada, 2014).

Stathmopoda sericicola Terada, 2014 [Plates V, LVI-a, b, LXVII-a]

[Japanese name: Suji-boso-maikoga]

Stathmopoda sericicola Terada, 2014: 113-116, figs 5, 15-16, 38-42.

Diagnosis. This species is similar to *S. pedella*, *S. pullicuneata*, *S. atridorsalis*,

Stathmopoda sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the presence of a basal blotch and streaks on the forewing. This species is also very similar to *S. centihasta* and *S. stimulata*, but can be distinguished by the thorax and forewing markings. In this species, the pair of brownish black blotches are absent from the middle of the thorax. The apical brownish black streak is broader, interrupted by the fascia, and forming a blotch-like marking. In contrast, in *S. centihasta* and *S. stimulata*, a pair of brownish black blotches are present in the middle of the thorax. The apical streak is very narrow, long and connected with the fascia.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: A pair of semicircular caudal projections is present on the dorsal side of the eighth abdominal segment of the male; many microspines are present on the lateral surface of the tegumen near the connection of tegumen and valva; the apex of the sacculus is blunt; and two signa are present, one twice as long as the other.

Description. Wing expanse 14.0-17.0 mm. Forewing length 6.5-8.2 mm. Labial palpus pale ocher, ventrally white, dorsally with brownish black patch around connection of first and second segments; third segment sometimes dorsally darkened towards apex. Antenna ocher, sometimes dorsally brownish black; scape dorsally brownish black. Vertex ocher; frons white; occiput pale ocher, with brownish black cephalic margin. Tegula pale ocher, with brownish black blotch near base and apex. Thorax pale ocher, with three brownish black arched fasciae at cephalic margin, cephalic 2/5 and middle of mesothorax; brownish black blotch present at caudal margin of mesothorax.

Wing markings. Forewing pale ocher; costa brownish black; four brownish black

streaks radiating; first streak from middle of base to $3/10$ of costa; second streak along CuP; third streak from near base to $1/4$ of dorsum; fourth streak near apex of forewing, broad; three brownish black blotches present near base, at $2/5$ on subcosta, at $2/3$ on tornus; second blotch connected with third blotch by a brownish black streak; third blotch almost lozenge shaped; cilia ocher to pale fuscous, brownish black at apex of wing. Hindwing and cilia pale fuscous.

Wing venation. Forewing, costal fold present at about $3/7$ in male, small. Sc connected with costal margin of wing at basal $2/7$. R_1 running from about distal $1/7$ of cell; R_3 from upper angle of cell; R_4 and R_5 in common with R_3 . M_2 and M_3 from lower angle of cell. CuA_1 absent. $1A+2A$ running to about $4/9$ of dorsum. Hindwing $5/6$ as long as forewing.

Legs dorsally ocher, ventrally white; fore-femur to first segment of tarsus ventrally brownish black; brownish black spot occupying area around connection of mid-femur and -tibia; mid-tibia dorsally with verticillbristles at middle and apex; first and second segments of mid-tarsus dorsally brownish black in apical half; hind-tibia with ocher to brown verticillbristles at about $1/3$, $2/3$ and apex; hind-tarsus dorsally yellow, brownish black near apex of each segment, with ocher to yellow verticillbristles at apices of first to third segments. Abdomen dorsally pale fuscous, dorsally with pale ocher caudal margin to each segment; ventrally white; spines of abdominal terga present on second to seventh segments, sometimes second to six in female.

Male genitalia. A pair of semicircular caudal projections present on dorsal side of membranous eighth abdominal segment, weakly sclerotized; setae occurring at caudal margin. Uncus stout, tapering caudally, with truncate apex; setae occurring on lateral side. Gnathos slightly longer than uncus, with blunt apex. Tegumen dorsocephally

with a pair of small projections; many microspines present on lateral surface near connection of tegumen and valva. Valva narrowest near base, with round apex; costa round dorsally, with some setae; cucullus very large, oval, dorsally weakly angled near base, about three times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, ventrally with setae. Vinculum elongate; saccus 1/3 length of uncus and round cephalically. Juxta subrectangular. Anellar lobes developed, narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about 3.5 times as long as uncus; four spiniform cornuti present on vesica; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales slightly longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 5/9 times as long as apophyses posteriores. Ostium bursae rectangular, with a pair of folds; microspines present on inner surface; triangular sclerotized part present near cephalic margin. Ductus bursae as long as length of corpus bursae, with some spinose lamellae and wrinkled near connection of ductus and corpus bursae. Corpus bursae with two signa, situated near caudal margin and 4/7 of corpus bursae, narrowly crescent-shaped, with serrate margin; sparse microspines present around signa; first signum twice as long as second. Bulla originating from caudal margin of corpus bursae. Ductus seminalis assimilated with bulla, stout, apically with microspines.

Specimens examined. HOLOTYPE ♂, Mt. Hoyoshi-dake, Kimotsuki-Town, Kagoshima-Pref., Kyushu, JAPAN, 28. iv. 2013, T. Terada (Light trap) (1♂ Gen. sl. no. 14007), deposited in KGU.

PARATYPES, JAPAN. Honshu: 2♂, Kii-oshima Island, Kushimoto-Town, Wakayama-Pref., 30. iv. 1954, A. Mutuura (1♂ Gen. sl. no. 11166); 1♀, Esuzaki, Susami-Town, Wakayama-Pref., 3. v. 1986 (1♀ Gen. sl. no. 11171). 1♀, Uwajima, Ehime-Pref., Shikoku, em. 3. vii. 1972, ex Gall of aphid on *Neolitsea sericea*, F. Komai (1♀ Gen. sl. no. KY-99). Kyushu: 2♂, Mt. Nakayama 540m, Tara-Town, Saga-Pref., 19. v. 2001, T. Yamauchi (Light trap) (2♂ Gen. sl. no. 11163, 11170); 1♀, Mt. Hoyoshi-dake, Kimotsuki-Town, Kagoshima-Pref., 21. v. 2000, Y. Sakamaki (1♀ Gen. sl. no. 11029, 1♀ Wing sl. no. 11173); 3♂, Ditto, 28. iv. 2013, K. Tsuda; 2♂, Ditto, 28. iv. 2013, T. Terada (Light trap) (2♂ Wing sl. no. 13122, 14001).

Distribution. Japan: Honshu, Shikoku and Kyushu.

Host plants. *Neolitsea sericea* (Blume) Koizumi (Lauraceae).

Biology. Scarcely known. Adults emerged in July under rearing condition, and were collected in April to May. Larvae are found in aphid galls.

Remarks. The larva of this species was found in the gall of an aphid; however, it is unclear whether the larva causes injury to the aphid; for a detailed biology of the larva, further investigation is necessary (Terada, 2014).

***Stathmopoda centihasta* Terada, 2014** [Plates VI, LVI-c, LXVII-b]

[Japanese name: Hida-nashi-oo-maikoga]

Stathmopoda centihasta Terada, 2014: 116-118, figs 6, 17, 43-47.

Diagnosis. This species is similar to *S. pedella*, *S. pullicuneata*, *S. atridorsalis*,

Stathmopoda sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the presence of a basal blotch and streaks on the forewing. This species is also very similar to *S. sericicola* and *S. stimulata*, but can be distinguished by the thorax and forewing markings, and the costal fold of the male hindwing. In this species, a pair of brownish black blotches is present at the middle of the thorax. The apical streak of the forewing is very narrow and connected with the fascia. The costal fold of the male hindwing is absent. In contrast, in *S. sericicola*, lacks the pair of brownish black blotches at the middle of the thorax. The apical streak is broader, interrupted by the fascia, forming a blotch-like marking. In *S. stimulata*, a costal fold is present.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The tuft of club-shaped setae is present on the eighth abdominal segment of the male; the head of club-shaped setae is slender with an acute apex; the cucullus is oval and weakly angled at 3/4 of the dorsal margin; two to five spiniform cornuti are present in the aedeagus; and the apical area of the ductus seminalis is triangular and very stout.

Description. Wing expanse 14.5-15.3 mm. Forewing length 6.4-8.1 mm. Labial palpus pale ocher, ventrally white, dorsally with a brownish black patch around connection of first and second segments. Antenna pale ocher to ocher; scape dorsally pale fuscous to fuscous. Vertex pale ocher; frons white; occiput pale ocher, with cephalic brownish black margin. Tegula pale ocher, with brownish black fascia near cephalic margin and brownish black apex. Thorax pale ocher; a pair of brownish black spots present at caudal margin of prothorax; some obscure brownish black spots present near cephalic margin of mesothorax; a pair of brownish black blotches present at middle; brownish black spot present at caudal margin of mesothorax.

Wing markings. Forewing pale ocher; costa brownish black, paler towards apex; three brownish black blotches present near base, $1/3$ and $3/5$ of wing; first and second blotches oval; third blotch subtriangular, paler toward costa; second and third fasciae of forewing sometimes with gray scales; five streaks radiating; first streak from base to $3/10$ of costa, brownish black; second streak along caudal half of CuP, connected with second blotch, dark brown; third streak from near base of dorsum to middle of CuP, connected with second streak, brownish black; fourth streak from third blotch to apex, dark brown to brownish black; fifth streak near apex, along dorsum, short, dark brown to brownish black; cilia ocher to pale fuscous, brownish black at apex of wing. Hindwing and cilia pale fuscous.

Wing venation. Forewing, costal fold of male forewing absent. R_1 running from distal $1/10$ of cell; R_3 from upper angle of cell; R_4 and R_5 in common with R_3 . M_2 and M_3 arising from lower angle of cell. $1A+2A$ running to about $2/5$. Hindwing $5/6$ as long as forewing; 8-veined.

Legs dorsally ocher, ventrally white; fore-femur and tibia ventrally brownish black; first segment of fore-tarsus with brownish black apex; mid-tibia dorsally brownish black in basal half, with verticillbristles at middle and apex; first segment of mid-tarsus with brownish black apex; hind-tibia dorsally with pale fuscous to brownish black verticillbristles at $1/3$, $2/3$ and apex; each segment of hind-tarsus with brownish black apex; first to third segment with pale fuscous verticillbristles at apices. Abdomen dorsally pale fuscous to fuscous, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth segments in female.

Male genitalia. Membranous eighth abdominal segment dorsally with tuft of club-shaped setae; head of club-shaped setae slender, apically acute. Uncus tapering

caudally, with truncate apex; setae occurring laterally. Gnathos shorter than uncus. Tegumen dorsocephalically with a pair of small projections. Valva narrowest near base, with round apex; costa nearly flat dorsally, with some long setae; cucullus very large, oval, dorsally weakly angled at basal 1/4, 3.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate; saccus 1/4 length of uncus and round cephalically. Juxta trapezoidal. Anellar lobes developed, narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus; two to five spiniform cornuti arranged on vesica; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present at apex of aedeagus, 1/4 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales slightly longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment very long, three times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally subtriangular, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 3/5 as long as apophyses posteriores. Ostium bursae subrectangular, with a pair of lateral folds. Ductus bursae as long as corpus bursae, with some spinose lamellae near connection of ductus and corpus bursae. Corpus bursae with two signa, situated at about caudal 1/3 and middle of corpus bursae, with serrate margins; sparse microspines present around signa; first signum more than twice as long as second. Ductus seminalis originating from near caudal margin of corpus bursae, very stout and triangular near apex, apically with microspines.

Specimens examined. HOLOTYPE ♂, Hachigamine, Sakai-City, Osaka-Pref., Honshu, JAPAN, 31. vii. 1998, T. Ohno (1♂ Gen. sl. no. 13060).

PARATYPES, JAPAN. Honshu: 1♂, Asagiri-kogen, Fujinomiya-City, Shizuoka-Pref., 1. viii.1994, T. Mano (1♂ Gen. sl. no. 12094, 1♂ Wing sl. no. 13007); 1♂, Shimonogou, Isobe-Town, Mie-Pref., A. Nakayama, 27. vii. 2009 (1♂ Gen. sl. no. 12096); 1♂, Ditto, A. Nakayama, 14. x. 2010 (1♂ Gen. sl. no. 12093); 1♂, Mt. Ohto, Tanabe-City, Wakayama-Pref., 22. vii. 1998 (1♂ Gen. sl. no. 13015). 1♀, Omuta-City, Fukuoka-Pref., Kyushu, 14. vii. 1977, collector unknown (1♀ Gen. sl. no. 13008, 1♀ Wing sl. no. 13131).

1♀, Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 20. viii. 2014, Y. Kudo (1♀ Gen. sl. no. 14067).

Distribution. Japan: Honshu, Kyushu and the Ryukyu Islands (Yakushima Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in July to August and October.

Remarks. The female genitalia of this species is similar to those of *S. grandisella* Sinev, 1995, but can be distinguished by the apical triangular area of the ductus seminalis; this species might be closely related to *S. hexatyla* Meyrick, 1907 and *S. stimulata*, because the club-shaped setae on the eighth abdominal segment in the male are shared (Terada, 2014).

***Stathmopoda stimulata* Meyrick, 1913** [Plates VII, LVI-d, e, LXVII-c]

[Japanese name: Oo-maikoga]

Stathmopoda stimulata Meyrick, 1913a: 84.

Diagnosis. This species is similar to, *S. pedella*, *S. pullicuneata*, *S. atridorsalis*, *Stathmopoda* sp. 1 and *Stathmopoda* sp. 2, but can be distinguished by the presence of a basal blotch and streaks on the forewing. This species is also very similar to *S.*

sericicola and *S. centihasta*, but can be distinguished by the forewing markings and the costal fold of the male hindwing. In this species, the apical streak on the forewing is very narrow and connected with the fascia. A costal fold is present on the male hindwing. In contrast, in *S. sericicola*, the apical streak is broader, interrupted by the fascia, and forming a blotch-like marking. In *S. centihasta*, the costal fold is absent.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The tuft of club-shaped setae is present on the eighth abdominal segment of the male; the head of the club-shaped setae is stout with a round apex; the cucullus is trapezoidal, and four spiniform cornuti are present; there are no spinose lamellae on the ductus bursae; two signa are present; and the ductus seminalis is short.

Description. Wing expanse 11.5-18.4 m. Forewing length 5.4-8.7 mm. Very similar to *S. centihasta*, but differing in the following characters. Vertex pale ocher to ocher; occiput sometimes brownish black, with pale ocher caudal margin. Sometimes caudal margin of prothorax brown; two pairs of brownish black blotches present at middle and caudal 1/3 of mesothorax.

Wing markings. Fourth streak of forewing running from second blotch to apex, weakly connected with second blotch.

Wing venation. Forewing, 1A+2A running to about 1/3 of dorsum in male. Hindwing, costal fold present near base to 2/3, with pouch around middle of costa in male. M₃, and CuA₁ stalked, in common with CuA₂ in male.

Male genitalia. Head of club-shaped setae stout, apically round. A pair of caudal crescent-shaped projections on dorsal side of membranous eighth abdominal segment, weakly sclerotized; some setae occurring at caudal margin. Gnathos narrow, slightly

longer than uncus. Valva, costa round dorsally; cucullus trapezoidal, twice as long as uncus. Aedeagus with four short spiniform cornuti; apical patch of stimuli 3/10 length of aedeagus.

Female genitalia. Ductus bursae 1/2 length of corpus bursae, wrinkled around connection of ductus and corpus bursae. Corpus bursae with two signa, situated at around middle of corpus bursae; sometimes one signum longer than the other. Ductus seminalis originating from caudal margin of corpus bursae, short.

Specimens examined. JAPAN. 2♀, Shiriuchi, Oshima, Hokkaido, 6. viii. 1976, T. Kumata. Honshu: 1♂, Imure-Town, Toyohashi-City, Aichi-Pref., 23. vii. 1996, T. Mano; 1♀, Ishimaki-Town, Toyohashi-City, Aichi-Pref., 10. viii. 1997, T. Mano; 1♀, Yahagi-riv., Sunada-Town, Toyota-City, Aichi-Pref., 21. viii. 1997, T. Mano (1♀ Gen. sl. no. 10056); 1♀, Yamatodani, Odai-Town, Mie-Pref., 19. viii. 1988, T. Mano; 1♂, Asakayama-Town, Kameyama-City, Mie-Pref., 28. vii. 2007, T. Mano; 1♀, Shimonogou, Isobe-Town, Mie-Pref., 30. viii. 2010, A. Nakayama (1♀ Gen. sl. no. 12092); 1♀, Ditto, 4. ix. 2010, A. Nakayama (1♀ Gen. sl. no. 12095); 1♂, Mikisaki, Mikisato-Town, Owase-City, Mie-Pref., 1. vi. 2002, T. Mano (1♂ Gen. sl. no. 10055); 1♂, Daisenji, Daisen-Town, Tottori-Pref., 11. vii. 2001, I. Ohshima. Shikoku: 3♀, Nishitosa, Shimanto-City, Kochi-Pref., 23. viii. 2002, T. Mano; 1♂ 2♀, Usa-Town, Tosa-City, Kochi-Pref., 25. viii. 2008, Y. Manabe; 1♀, Mt. Yokokura, Ochi-Town, Kochi-Pref., 27. vi. 2009, Y. Manabe. Kyushu: 1♀, Shitaru, Tsushima Is., Nagasaki-Pref., 4. vii. 2008, T. Mano; 1♀, Uchizume, Sata-Town, Kagoshima-Pref., 9. vi. 2001, K. Tsuda (Light trap) (1♀, Gen. sl. no. 11162); 2♂, Shibushi, Shibushi-Town, Kagoshima-Pref., em. 16, 18. iv. 2009, ex Fruit of *Cinnamomum tenuifolium*, E. Hayashi; 1♂ 1♀, Mt. Shibi, Satsuma-Town, Kagoshima-Pref., 29-30. vii. 2011, R.

Tobimatsu (Light trap) (1♂ Gen. sl. no. 11153, 1♂ Wing sl. no. 11127); 2♂ 14♀, Ditto, 28. vii. 2012, T. Terada (Light trap) (1♂ Gen. sl. no. 14012); 1♀, Ditto, 28. vii. 2012, K. Tsuda (Light trap); 1♀, Korimoto, Kagoshima-City, Kagoshima-Pref., 10. ix. 1999, M. Kubo; 1♀, Ditto, 7. vii. 2012, T. Terada; 1♂, Ditto, 4. ix. 2013, T. Terada (1♂ Gen. sl. no. 14011); 3♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., 4, 15. viii. 2012, T. Terada; 1♂, Gorogamoto, Uchinoura-Town, Kagoshima-Pref., 9. viii. 2001, K. Tsuda (Light trap) (1♂ Gen. sl. no. 11028, 1♂ Wing sl. no. 11143); 1♂, Kaigata, Tarumizu-City, Kagoshima-Pref., 3. ix. 2011, Y. Sakamaki (1♂ Gen. sl. no. 11158); 1♂, Mt. Takakuma, Tarumizu-City, Kagoshima-Pref., 7. ix. 2013, T. Terada (Light trap); 1♂, Ditto, 7. ix. 2013, K. Tsuda (Light trap); 1♂ 1♀, Mt. Hoyoshi, Kimotsuki-Town, Kagoshima-Pref., 17. vii. 2001, K. Tsuda (1♂ Gen. sl. no. 11026, 1♀ Wing sl. no. 11151); 1♀, Satahetsuka, Minamiosumi-Town, Kagoshima-Pref., 9-10. vii. 2011, T. Terada (Light trap); 1♂, Ditto, 26. viii. 2011, R. Tobimatsu (Light trap). The Ryukyu Islands: 1♀, Onoaida, Yakushima Is., Kagoshima-Pref., 4. ix. 1979, K. Yasuda; 1♀, Oko-rindo 600m, Yakushima Is., Kagoshima-Pref., 29. vii. 2013, T. Terada (Light trap); 1♀, Mt. Yuwan-dake (Light trap), Amami-oshima Is., Kagoshima-Pref., 11. ix. 2012, S. Sameshima (Light trap); 1♀, Yona, Okinawa-honto Is., 21. iii. 2002, K. Sugisima (Light trap); 1♀, Henoki, Kunigami-vill., Okinawa-honto Is., 7. vii. 2010, T. Terada (Light trap) (1♀ Gen. sl. no. 11027, 1♀ Wing sl. no. 11130); 1♀, Mt. Omoto, Ishigaki Is., 22-23. ii. 2002, T. Mano (1♀ Gen. sl. no. 10051); 1♀, Komi, Iriomote Is., Taketomi-Town, 14. iii. 2011, T. Terada (Light trap); 1♂ 5♀, Mt. Donan, Yonaguni Is., 13, 14. ii. 1993, T. Mano (1♂ Gen. sl. no. 10050); 3♀, Mandabaru-park, Yonaguni Is., 28, 30. v. 2013, T. Terada (Light trap). 3♂ 2♀, Nanshan, Nantou, TAIWAN, 7. viii. 1994, T. Mano. 1♂ 2♀, Ba Be, Bac Kan Prov., VIET NAM, 1-5. v. 2006, T. Mano.

Distribution. Japan: Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.). Taiwan and Viet Nam. India, Sri Lanka and western China (Kasy, 1973). Thailand, western Malaysia, Brunei and Indonesia (Sulawesi) (Robinson *et al.*, 1994). Coastal China and Korea (Sinev, 1999).

Host plants. *Cinnamomum tenuifolium* (Makino) Sugim. (Lauraceae).

Biology. Scarcely known. Adults emerged in April under rearing condition, and were collected in February to September. The larvae feed on the host fruit.

Remarks. Terada (2014) reported that this species has unique characters in the genus as follows: The costa of the hindwing folds and forms a pouch around the middle of the costa in the male (Plate LVI-d).

***Stathmopoda* sp. 1** [Plates VIII, LXVII-d]

Diagnosis. This species is similar to *S. sericicola*, *S. centihasta* and *S. stimulata*, but can be distinguished by the presence of a brownish black basal fascia on the forewing and a fuscous hindwing. This species is also very similar to *S. pedella*, *S. pullicuneata* and *S. atridorsalis*, but can be distinguished by the streak between fasciae or blotch at 1/3 and 2/3 of the forewing. In this species, the blotch at 1/3 of forewing is not connected with the blotch at 2/3 by streak. In contrast, in *S. pedella*, *S. pullicuneata* and *S. atridorsalis*, the blotches at 1/3 and 2/3 of forewing are connected with each other by streak. This species is especially similar to *Stathmopoda* sp. 2. It is difficult to distinguish this species from *Stathmopoda* sp. 2 only by the external characters.

In the genitalia, this species can be distinguished from other members of the species-group by the cornutus with more than 15 spiniform projections.

Description. Forewing length 6.5-7.2 mm. Two worn male specimens, but describing the following characters.

Male. Labial palpus ocher, ventrally white. Antenna pale fuscous. Frons white; occiput pale ocher, with brownish black cephalic margin. Tegula pale ocher, with narrow brownish black fascia at about middle.

Wing markings. Forewing pale ocher; costa brownish black, paler towards apex; dark brown fasciae running near base; two dark brown blotches present at about 1/3 and 2/3 of wing; two brown streaks running along dorsum and costa, respectively; first streak running from near base of dorsum to about middle of wing; second streak running from middle to apex of wing, connected to second blotch; cilia ocher and fuscous. Hindwing pale fuscous; cilia fuscous.

Legs pale ocher, ventrally white; fore-femur and -tibia ventrally brownish black; first segment of fore-tarsus ventrally with brownish black apex; mid-tibia dorsally with verticillbristle at middle and apex; hind-tibia dorsally with verticillbristles at about 1/3, 2/3 and apex. Abdomen dorsally pale fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments.

Genitalia. Uncus tapering caudally, with truncate apex; setae occurring on lateral side. Gnathos as long as uncus. Tegumen dorsocephalically with a pair of small projections. Valva narrowest near base, with round apex; costa round dorsally, with some long setae; cucullus very large, oval, dorsally weakly angled at near base, four times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate; saccus 1/2 length of uncus, cephalically subtriangular. Juxta bilobate. Anellar lobes developed, narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus;

cornutus present on vesica, with more than 15 spiniform projections, short; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present at apex of aedeagus, 3/7 length of aedeagus, with round apex.

Female. Unknown.

Specimens examined. 2♂, Oko-rindo (600m), Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 23-24. vii. 2007, K. Tsuda (Light trap) (2♂ Gen. sl. no. 13051, 13052).

Distribution. Japan: the Ryukyu Islands (Yakushima Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in July.

Remarks. Additional specimens of the species are needed to describe the detailed morphological features.

***Stathmopoda* sp. 2** [Plates IX, LXVII-e]

Diagnosis. This species is similar to *S. sericicola*, *S. centihasta* and *S. stimulata*, but can be distinguished by the presence of a brownish black basal fascia on the forewing and a fuscous hindwing. This species is also very similar to *S. pedella*, *S. pullicuneata* and *S. atridorsalis*, but can be distinguished by the streak between fasciae or blotch at 1/3 and 2/3 of the forewing. In this species, the blotch at 1/3 of forewing is not connected with the blotch at 2/3 by streak. In contrast, in *S. pedella*, *S. pullicuneata* and *S. atridorsalis*, the blotches at 1/3 and 2/3 of forewing are connected with each other by streak. This species is especially similar to *Stathmopoda* sp. 1. It is difficult to distinguish this species from *Stathmopoda* sp. 1 only by the external characters.

In the genitalia, this species can be distinguished from other members of the

species-group by the following characters: There are no spinose lamellae on the ductus bursae; and one signum is present.

Description. Forewing length 7.6 mm. A worn female specimens, but describing the following characters.

Male. Unknown.

Female. Labial palpus ocher, ventrally white. Antenna pale ocher. Occiput brownish black, with pale ocher caudal margin. Tegula pale ocher, with brownish black fascia at middle. Thorax pale ocher; cephalic margin of mesothorax brownish black.

Wing markings. Forewing pale ocher; costa brownish black, paler towards apex; dark brown fascia running near base; two dark brown blotches present at about 1/3 and 2/3 of wing; second blotch subrectangular; two dark brown streaks running on dorsum and along costa, respectively, first streak running from near base of dorsum to middle of wing, broad; second streak running from middle to near apex of wing, connected with second fascia; cilia fuscous. Hindwing pale fuscous; cilia fuscous.

Legs pale ocher ventrally white; fore-femur and -tibia ventrally brownish black; first segment of fore-tarsus ventrally with brownish black apex; hind-tibia dorsally with dark brown verticillbristles at about 1/3, 2/3 and apex; first to third segments of hind-tarsus apically dark brown. Abdomen dorsally pale fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments.

Genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment long, twice as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally subtrapezoidal, with short and long setae arranged along caudal margin. Apophyses

posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae cuboid, with many microspines on inner surface; crescent-shaped sclerotized part present at cephalic margin. Ductus bursae 3/7 length as long as corpus bursae. Corpus bursae with many microspines; crescent-shaped signum present at about caudal 3/8 of corpus bursae, with serrate margins. Ductus seminalis originating from near caudal margin of corpus bursae, apically with microspines.

Specimens examined. 1♀, Oshima, JAPAN, 24. viii. 1946, collector unknown (1♀ Gen. sl. no. 11167).

Distribution. Japan.

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in August.

Remarks. This species might be identical to *Stathmopoda* sp. 1. However, I could not conclude because of the insufficient number of specimens available.

The *Stathmopoda flavescens* species-group

This new species-group contains the following seven species: *S. commoda* Meyrick, 1913, *S. leptoclista* Meyrick, 1929, *S. flavescens* Kuznetsov, 1984, *S. gemmiconsuta* Terada, 2012, *S. luxuriivora* Terada, 2012, *S. magnisignata* Terada, 2012, *S. callicarpicola* Terada, 2012.

Diagnosis. The ground color of the forewing is pale ocher to yellow, dark brown to brownish black in male of *S. magnisignata* and *S. callicarpicola*. Three brown to dark brown fasciae are usually present on the forewing near base, at about 1/3 and 2/3, absent in male of *S. magnisignata* and *S. callicarpicola* (three ocher blotches are present). The forewing is lanceolate, widest near base and usually 11-veined. In the veins, Sc connect

with costal margin of wing on basal 1/3, R₁ is absent, R₂ arises from near the upper angle of the cell, R₄ and R₅ are stalked, CuA₁ is rudimentary and present near dorsum, and, CuA₂ is absent. The hindwing is narrow and 8-veined. The discoidal cell is open. In the veins, Rs runs to near the apex of the costa, M₂, M₃, and CuA₁ are stalked and in common with CuA₂. In the male genitalia, cornutus is absent, and the cucullus of valva is narrowly oval and narrower than the remainder of the valva. In the female genitalia, the ostium bursae is tub-shaped, and one slender signum is present.

***Stathmopoda flavescens* Kuznetsov, 1984** [Plates X, LVII-a, LXVIII-a]

[Japanese name: Han-no-maikoga]

Stathmopoda flavescens Kuznetsov, 1984: 77-78, figs 1-2.

Calicotis sp. 1: Oku, 2003a: 40.

Calicotis sp. 2: Oku, 2003a: 40.

Diagnosis. This species is superficially very similar to *S. gemmiconsuta*, *S. luxuriivora*, females of *S. magnisignata* and of *S. callicarpicola*, but can be distinguished by the apical markings of forewing. In this species, the apical brown blotch or streak is absent. In contrast, in *S. luxuriivora*, a brown blotch is present. In other species, a brown streak is present.

In the female genitalia, this species can be distinguished from other members of the species-group by the presence of many triangular spicules in the corpus bursae.

Descriptions. Wing expanse 9.0-12.3 mm. Forewing length 4.2-5.7 mm. Labial palpus ocher to pale ocher, ventrally white, dorsally with a brown patch around connection of first and second segments. Antenna ocher to pale ocher; scape dorsally ocher to pale ocher, ventrally white. Vertex ocher to pale ocher; frons white; occiput

brown, lateral margin ocher. Tegula ocher to pale ocher. Thorax ocher to pale ocher, with three brown spots, a pair of subdorsal spots located near caudal margin and the other located on the caudal margin.

Wing markings. Forewing ocher to pale ocher; costa brown, paler towards apex; three brown fasciae present at near base, 1/3 and 3/5 near dorsum; second and third fasciae trapezoidal and sublozenge-shaped respectively, reaching costa, connected to each other along dorsum by a brown streak; cilia gray to ocher. Hindwing and cilia gray.

Wing venation. Forewing, discoidal cell long, occupying basal 2/3 of wing. R_3 from upper angle of cell; R_{4+5} in common with R_3 . M_2 and M_3 arising from common base, around caudal angle of cell. CuA_1 sometimes absent. $1A+2A$ connected about basal 1/7 of wing, rudimentary. Hindwing 4/5 as long as forewing. R_s assimilated with costa on apical 2/5 of costa. CuA_2 running to about 3/10 of dorsum.

Legs ocher to pale ocher; fore-femur and -tibia ventrally brown; mid-tibia dorsally brown near base, dorsally with verticillibristle at middle and apex; hind-tibia ventrally ocher to pale ocher, dorsally with ocher to brown verticillibristle at about 1/3, 2/3 and apex; first and second segments of hind-tarsus brown near apex, dorsally with ocher verticillibristle at apex of first and second segments. Abdomen whitish gray dorsally, ventrally white; spines of abdominal terga brown, present on second to seventh segments in male, second to sixth segments in female.

Male genitalia. Uncus tapering caudally; apex truncate to blunt in ventral view, downturned in lateral view; setae occurring on lateral side. Gnathos as long as uncus, narrow tongue-shaped in ventral view, with apex slightly down-turned and acute in lateral view. Valva broadest near base, with round apex; costa stout and dorsally round, caudally with setae; cucullus about 1.8 times as long as uncus, with numerous setae on

inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum broadest near saccus; saccus about 1/4 length of uncus and cephalically round. Juxta small, subrectangular to round. Anellar lobes developed, large, subrectangular, weakly sclerotized, with setae on surface. Aedeagus about 5 times as long as uncus; cornutus absent, sclerotized structure present near base of aedeagus, narrow subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/2 length of aedeagus, narrow, with round apical margin.

Female genitalia. Papillae anales longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except lateral side, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 times as long as apophyses posteriores. Ostium bursae tub-shaped, with numerous microsetae on inner surface; bar-shaped sclerotized structure present. Ductus bursae short, slightly shorter than length of corpus bursae. Corpus bursae with some triangular spicules near caudal connection of corpus bursae and bulla. Signum narrow longitudinal crescent, situated at middle of corpus bursae; microspines present sparsely around signum. Bulla originating from near cephalic margin of corpus bursae, stout and long, with some triangular spicules near caudal connection of corpus bursae and bulla. Ductus seminalis originating from near caudal margin of bulla; microspines present.

Specimens examined. JAPAN. Hokkaido: 2♀, Naebo, Otaru-City, 16. viii. 1991, Y. Sakamaki; 1♀, Chuwa, Asahikawa-City, 6. viii. 1998, Y. Sakamaki. Honshu: 1♂, Mt. Asajima, Morioka-City, Iwate-Pref., 6. viii. 1994, N. Doi (1♂ Gen. sl. no. M-10177); 1♀, Sotoyamagawa, Morioka-City, Iwate-Pref., 3. viii. 1994, N. Doi (1♀ Gen. sl. no.

M-10303); 1♂, Iwashimizu, Morioka-Pref., Iwate-Pref., 5. vi. 1995, N. Doi (1♂ Gen. sl. no. M-10178); 1♀, mouth of Omono Riv., Akita-City, Akita-Pref., 30. viii. 1998, K. Umetsu; 1♂ 2♀, Ditto, 20. viii. 2012, K. Umetsu; 1♂, Mitsukuri-Town, Toyota-City, Aichi-Pref., 25. viii. 2009, T. Mano (1♂ Gen. sl. no. 11022); 1♀, Asagiri-kogen, Hujinomiya-City, Shizuoka-Pref., 1. viii. 1994, T. Mano (1♀ Gen. sl. no. 11014); 1♀, Misore Okuzumi, Meiho-Vill., Gifu-Pref., 7. viii. 1999, T. Mano; 1♂ 1♀, Obara-ishiki, Hokusei-Town, Mie-Pref., 7. ix. 1997, T. Mano (1♂ 1♀ Gen. sl. no. 10106, 11009); 1♂, Mikuni-Valley (430m), Fujiwara-Town, Mie-Pref., 27. viii. 1998, T. Mano (1♂ Gen. sl. no. 10057); 1♂ 1♀, Ise-jingu Koraibiro, Ise-City, Mie-Pref., 4. ix. 2004, T. Mano (1♀ Gen. sl. no. 10067, 1♀ Wing sl. no. 11007); 1♀, Mt. Wasamata (1150m), Nara-Pref., 28-29. vii. 1986, S. Moriuti; 1♀, Mt. Iwawaki, Kawachinagano-City, Osaka-Pref., 28. ix. 1951, A. Mutuura; 2♂ 9♀, Yabitsu, Sekigane-Town, Tottori-Pref., 21-22. viii. 1996, T. Yamauchi (Light trap); 3♂ 1♀, Uchigurotoge, Togocho-Town, Hiroshima-Pref., 11. viii. 1996, T. Yamauchi; 1♀, Mt. Oyorogi, Takano-Town, Hiroshima-Pref., 12. viii. 2000, T. Yamauchi (Light trap); 1♂ 1♀, Akiyoshidai, Shuhou-Town, Yamaguchi-Pref., 2. ix. 2000, T. Yamauchi (Light trap). Shikoku: 1♀, Mt. Takanawa, Iyo, Ehime-Pref., 11. viii. 1959, M. Okada; 1♂, Tachibana, Nishitosa-Vill., Kochi-Pref., 23. viii. 2002, T. Mano (1♂ Gen. sl. no. 11085); 1♀, Mt. Kanpu-san (1100m), Ino-Town, Kochi-Pref., 20. viii. 2009, Y. Manabe (1♀ Gen. sl. no. 12101); 1♀, Shiozuka-highland (900m), Miyoshi-City, Kochi-Pref., 23. viii. 2009, Y. Manabe; 2♀, Mt. Yokokura, Ochi-Town, Kochi-Pref., 14. viii. 2009, Y. Manabe; 1♀, Onokawa, Muroto-City, Kochi-Pref., 13. ix. 2009, Y. Manabe. Kyushu: 1♀, Mt. Hiko-san, Fukuoka-Pref., 30. viii. 1953, H. Kuroko (1♀ Gen. sl. no. 300); 1♀, Ditto, 3. ix. 1954, H. Kuroko; 3♀, Takatouge, Tarymizu-City, Kagoshima-Pref., 7. ix. 2013, T. Terada (Light trap).

Distribution. Japan: Hokkaido, Honshu, Shikoku and Kyushu. North Korea and Primorsky in Russia (Sinev, 1999).

Host plants. *Alnus* sp. (Betulaceae) (Sinev, 1999).

Biology. Scarcely known. Adults were collected in July to September.

Remarks. When I had an opportunity to examine specimens of *Calicotis* sp. 1 and *Calicotis* sp. 2 reported in Oku (2003a), I elucidated that these were misidentification of this species. Thus two unidentified species in Oku (2003a) are included in synonym list of this species.

***Stathmopoda gemmiconsuta* Terada, 2012** [Plates XI, LVII-b, LXVIII-b]

[Japanese name: Hime-murasakishikibu-maikoga]

Stathmopoda gemmiconsuta Terada, 2012: 54-56, figs 5, 10, 21-24.

Diagnosis. This species is superficially very similar to *S. flavescens*, *S. luxuriivora*, females of *S. magnisignata* and of *S. callicarpicola*, but can be distinguished by the apical markings of forewing. In this species, the brown streak runs from the brown fascia at 3/5 of forewing to the apex. In contrast, in *S. flavescens* and *S. luxuriivora*, the brown streak is absent (in *S. luxuriivora*, a brown blotch is present at apex). In the female of *S. magnisignata* and *S. callicarpicola*, the streak is not connected with the fascia.

In the female genitalia, this species can be distinguished from other members of the species-group by the bulla being assimilated into the corpus bursae and the latter being very stout.

Description. Wing expanse 8.8-13.4 mm. Forewing length 4.5-6.2 mm. Very similar to *S. flavescens*, but differing in the following characters.

Labial palpus ocher. Antenna ocher; scape dorsally ocher. Vertex ocher; lateral margin of occiput ocher to pale ocher. Tegula and thorax ocher.

Wing markings. Forewing ocher; second and third fasciae not reaching costa; brown streak running from third fascia at 3/5 to apex.

Wing venation. Forewing, R₃ and R₄₊₅ from upper angle of cell.

Legs dorsally ocher, ventrally white; hind-tibia ventrally gray; first to third segments of hind-tarsus brown near apex, dorsally with ocher to brown verticillbristle at apex of first and second segments.

Male genitalia. Uncus apex truncate in ventral view.

Female genitalia. Joint membrane between papillae anales and eighth abdominal segment as long as papillae anales. Ostium bursae sometimes with a weakly sclerotized structure. Bulla assimilated into corpus bursae, very stout, originating from near cephalic margin of corpus bursae. Ductus seminalis short.

Specimens examined. HOLOTYPE ♂, Shimada, Ureshino-Town, Mie-Prefecture, Honshu, JAPAN, 11. v. 2001, T. Mano (1♂ Gen. sl. no. 10064).

PARATYPES, JAPAN. Honshu: 1♀, Nasu Imperial Villa, Tochigi-Pref., 23. vi. 2006, Y. Sakamaki; 1♀, Takayama, Gifu-Pref., 25. vii. 1954, A. Mutuura; 1♀, Kyoto-Pref., 23. vii. 1950, Takeuchi; 1♀, Hirai, Kozakawa-Town, Wakayama-Pref., 15. vi. 2006, B. W. Lee; 1♀, Haga, Hyogo-Pref., 30-31. vii. 1965, S. Moriuti; 5♂ 7♀, Koyadai, Tsukuba-City, Ibaraki-Pref., em. 7-15. vii. 2003, ex bud of *Callicarpa japonica*, K. Yasuda; 1♂, Sasagi, Tsukuba-City, Ibaraki-Pref., em. 13. vii. 2003, ex bud of *C. japonica*, K. Yasuda; 1♂ 1♀, Shishitsuka, Tsuchiura-City, Ibaraki-Pref., em. 12. vii. 2003, ex bud of *C. japonica*, K. Yasuda; 5♂ 3♀, Yukiiri, Kasumigaura-City, Ibaraki-Pref., 24-30. vii. 2003, K. Yasuda; 1♂ 1♀, Toyokawa-City, Aichi-Pref., 4-28. vi.

1994, T. Mano (1♂ 1♀ Gen. sl. no. 11015, 11016); 1♂, Taguchi, Shitara-Town, Aichi-Pref., 1. vi. 1991, T. Mano (1♂ Gen. sl. no. 10072, 1♂ Wing sl. no. 10109); 1♀, Asahi-highland, Asahi-Town, Aichi-Pref., 13. vii. 1996, T. Mano (1♀ Wing sl. no. 11021); 1♀, Nagasawa (120m), Otowa-Town, Aichi-Pref., 28. v. 2001, T. Mano; 1♀, Tsukude-Vill. Aichi-Pref., 23. vii. 2004, T. Mano (1♀ Gen. sl. no. 10100); 1♂, Sasabara-Town, Osawa-Riv., Toyota-City, Aichi-Pref., 3. vi. 2003, T. Mano (1♂ Gen. sl. no. 11023, 1♂ Wing sl. no. 11005); 1♀, Shimokawaguchi-Town, Toyota-City, Aichi-Pref., 10. vii. 2008 T. Mano; 1♂, Goino, Tado-Town, Mie-Pref., 1. viii. 1986, T. Mano (1♂ Wing sl. no. 11012); 1♀, Obara-ishiki, Hokusei-Town, Mie-Pref., 7. ix. 1997, T. Mano (1♀ Gen. sl. no. 10106); 1♀, Shimada, Ureshino-Town, Mie-Pref., 11. v. 2001, T. Mano (1♀ Gen. sl. no. 10065); 1♂, Osaki, Toba-City, Mie-Pref., 17. v. 2003, T. Mano (1♂ Wing sl. no. 10112); 1♀, Mt. Iwawaki, Osaka-Pref., 3. viii. 1951, S. Issiki; 1♂, Mt. Iwawaki, Osaka-Pref., 24. vii. 1952, T. Kodama; 1♂, Mt. Makio, Osaka-Pref., 23. vii. 1981, K. Yasuda (1♂ Wing sl. no. 11070); 1♂ 4♀, 10. v, 4. viii. 1982, K. Yasuda (1♂ Gen. sl. no. 11067, 1♀ Wing sl. no. 11078).

JAPAN. The Ryukyu Islands: 3♂ 3♀, Oko-rindo (600m), Yakushima Is., Kagoshima-Pref., 27, 29. vii. 2013, T. Terada (Light trap); 1♀, Ditto, 29. vii. 2013, T. Terada; 3♀, Yudomari-rindo (470m), Yakushima Is., Kagoshima-Pref., 28. vii. 2013, T. Terada (Light trap).

Distribution. Japan: Honshu and the Ryukyu Islands (Yakushima Is.).

Host plants. *Callicarpa japonica* Thunb. (Lamiaceae).

Biology. Scarcely known. Adults emerged in July under rearing condition, and were collected in May to September. Larvae appeared in early summer spin the buds of flowers.

Remarks. This species and *S. flavescens* are particularly similar to each other (Plates LXVIII-a, b); it is difficult to distinguish them from each other by the male genitalia (Plates X-a-c, XI-a-c), but they can be discriminated by the shape and some triangular spicules of the corpus bursae (Plates X-d, XI-d) (Terada, 2012).

Stathmopoda luxuriivora Terada, 2012 [Plates XII, LVII-c, LXVIII-c]

[Japanese name: Minami-hime-murasakishikibu-maikoga]

Stathmopoda luxuriivora Terada, 2012: 56-57, figs 6, 11, 25-28.

Diagnosis. This species is superficially very similar to *S. flavescens*, *S. gemmiconsuta*, females of *S. magnisignata* and of *S. callicarpicola*, but can be distinguished by the apical markings of forewing. In this species, a brown blotch is present at apex. In contrast, in *S. flavescens*, the brown blotch is absent; then in other species a brown streak is present.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The uncus has a shallowly bilobate apex; the sacculus protrudes caudally; the bulla is absent; and the sclerotized structure of the ostium bursae is triangular.

Description. Wing expanse 7.8-10.6 mm. Forewing length 3.7-5.0 mm. Very similar to *S. flavescens*, but differing in the following characters.

Labial palpus ocher. Antenna ocher; scape dorsally ocher. Vertex ocher; lateral margin of occiput ocher to pale ocher. Tegula and thorax ocher.

Wing markings. Forewing, brown blotch present at apex.

Wing venation. Forewing, R₃ and R₄₊₅ from upper angle of cell. 1A+2A rudimentary, not branched.

Legs dorsally ocher, ventrally white; mid-tibia dorsally white near base; hind-tibia ventrally gray; first and segments of hind-tarsus dorsally with ocher to brown verticillbristle at apex.

Male genitalia. Uncus with shallowly bilobate apex in ventral view. Sacculus apically subtriangular and protruding caudally. Juxta oval.

Female genitalia. Joint membrane between papillae anales and eighth abdominal segment as long as papillae anales. Ostium bursae with triangular sclerotized structure. Corpus bursae, spicules absent. Signum bar-shaped, situated at about 1/2 of corpus bursae. Bulla absent. Ductus seminalis short, originating from caudal 1/10 of corpus bursae.

Specimens examined. HOLOTYPE ♂, Kochinda, Okinawa-honto Is., Okinawa-Pref., the Ryukyu Islands, JAPAN, 19. vii. 2001, S. Tominaga (1♂ Gen. sl. no. 11079).

PARATYPES, JAPAN. Kyushu: 1♀, Takasu, Kanoya-City, Kagoshima-Pref., 27. vi. 2001, I. Ohshima. The Ryukyu Islands: 2♀, Kurio, Yakushima Is., Kagoshima-Pref., 20. viii. 1980, K. Yasuda (1♀ Gen. sl. no. KY-110); 1♀, Nakama, Yakushima Is., Kagoshima-Pref., 21. ix. 1978, S. Moriuti (1♀ Gen. sl. no. 11017); 6♂ 11♀, Kochinda, Okinawa-honto Is., em. 15-27. vii. 2001, ex Buds of *Callicarpa japonica* var. *luxurians*, S. Tominaga (2♂ 2♀ Gen. sl. no. 11053, 11054, 11058, 11062, 1♂ 1♀ Wing sl. no. 11068, 11077); 1♂ 2♀, Ditto, em. 29. viii-7. ix. 2002, ex Bud of *C. japonica* var. *luxurians*, S. Tominaga (1♂ Gen. sl. no. 11072); 1♂, Ditto, em. 30. viii. 2002, ex bud of *Clerodendrum trichotomum* var. *esculentum*, S. Tominaga (1♂ Gen. sl. no. 11057); 1♂, Mt. Omoto, Ishigaki Is., 4. v. 1978, Y. Arita (1♂ Gen. sl. no. KY-107); 1♀, detail locality unknown, Ishigaki Is., 7. ix. 1985, K. Yasuda (Light trap); 1♂, Hegina, Ishigaki Is., 18. iv. 1990, K. Yasuda (1♂ Gen. sl. no. 11084); 1♀, Mt. Banna, Ishigaki Is., 24. vii.

1993, K. Yasuda (Light trap); 1♂, Funaura, Uehara, Iriomote Is., 2-3. x. 2001, K. Sugisima (Light trap).

2♀, Mt. Urabu-dake, Yonaguni Is., the Ryukyu Islands, JAPAN, 29. vii. 1994, T. Yamauchi.

Distribution. Japan: Kyushu and the Ryukyu Islands (Yakushima Is., Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.).

Host plants. *Callicarpa japonica* var. *luxurians* Rehd. and *Clerodendrum trichotomum* var. *esculentum* Makino (Lamiaceae).

Biology. Scarcely known. Adults emerged in July to September under rearing condition, and were collected in April to October. Larvae feed on host flower buds.

Remarks. Terada (2012) reported that the known distributions of *S. luxuriivora* and those of four Japanese species of this species-group are separated. Subsequently, it is elucidated that distributions of *S. luxuriivora* and *S. gemmiconsuta* have been overlapped, because *S. gemmiconsuta* is collected from Yakushima Is.

***Stathmopoda magnisignata* Terada, 2012** [Plates XIII, LVII-d, LXVIII-d, e]

[Japanese name: Murasakishikibu-maikoga]

Stathmopoda sp. 2: Oku, 2003a: 40.

Stathmopoda magnisignata Terada, 2012: 47-52, figs 1-2, 8, 13-16.

Diagnosis. This species is sexually dimorphic in coloration. The male is very similar to that of *S. callicarpicola*, but can be distinguished by the coloration of thorax and forewing markings as follows. In this species, there are no other markings on the thorax, but the other basal marking of the brownish black forewing is present. In contrast, in *S. callicarpicola*, an other dorsal blotch is present in the middle of the

mesothorax and three other markings on the dark brown forewing are present near base, middle and termen. The female is very similar to *S. flavescens*, *S. gemmiconsuta*, *S. luxuriivora* and *S. callicarpicola*, but can be also distinguished by the colorations of thorax and forewing markings as follows. In this species, the ground color of the thorax is dark brown. The dark brown fascia at 1/3 of forewing is as broad as the fascia at 2/3. In contrast, in *S. flavescens*, *S. gemmiconsuta* and *S. luxuriivora*, three brown spots are present on the other thorax. The brown fascia at 1/3 of forewing is as broad as the fascia at 3/5. In *S. callicarpicola*, the ground color of the thorax is other. There is a brown arched fascia across the middle of the mesothorax. The brown fascia at 1/3 of forewing is broader than the fascia at 2/3.

In the genitalia, this species can be distinguished from other member of the species-group by the following characters: The gnathos is round; and the signum is very long.

Description. Wing expanse 11.1-13.9 mm. Forewing length 5.1-6.3 mm. The species is sexually dimorphic in coloration.

Male. Labial palpus other, ventrally white, dorsally with a brownish black patch around connection of first and second segments; third segment dorsally darkened toward apex. Antenna other; scape dorsally brown to brownish black. Vertex other to brownish black; frons white to gray; occiput brownish black. Tegula brownish black. Thorax uniformly brownish black.

Wing markings. Forewing brownish black; triangular other blotch present at about 1/6 near dorsum, not reaching costa; cilia brownish black. Hindwing fuscous; cilia brownish black.

Wing venation. Forewing, discoidal cell long, occupying basal 7/10 of wing. R₃ from

upper angle of cell. M_3 from lower angle of cell. $1A+2A$ running to about middle of dorsum, rudimentary, not branched. Hindwing $4/5$ as long as forewing. Rs assimilated with costa on apical $2/7$ of costa. CuA_2 running to about $1/3$ of dorsum.

Legs dorsally ocher, ventrally white; fore-femur and -tibia ventrally brown to white; dark brown spot occupying area around connection of mid-femur and -tibia; mid-tibia dorsally with verticillbristle at middle and apex; hind-tibia dark brown, dorsally with verticillbristle at about $3/10$, $3/5$ and apex; first to third segments of hind-tarsus dark brown near apex, dorsally with verticillbristle at apex of first and second segments. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments.

Genitalia. Uncus stout, down-turned apically, tapering caudally, with setae on lateral surface. Gnathos stout, as long as uncus, with round apex. Valva broadest near base, with round apex; costa stout and round dorsally, caudally with some setae; cucullus about 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum broadest near saccus; saccus $1/4$ length of uncus and cephalically round. Juxta small, round. Anellar lobes developed, subtriangular, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus; about caudal $2/5$ of aedeagus membranous; cornutus absent; sclerotized structure present near base, narrow, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, $3/7$ length of aedeagus, broad, subrectangular, with round apex.

Female. Labial palpus ocher, ventrally pale white, dorsally with a brown patch around connection of first and second segments. Antenna ocher. Vertex ocher; frons white; occiput dark brown. Tegula dark brown, with ocher fascia at middle. Thorax dark brown,

with ocher band across middle of mesothorax.

Wing markings. Forewing ocher; costa dark brown, lightened toward apex; three dark brown fasciae present at base, about $1/3$ and $2/3$; second and third fasciae trapezoidal and sublozenge-shaped respectively, sometimes not reaching costa, connected to each other near dorsum by dark brown streak; obscure brown streak present or absent near apex; cilia fuscous. Hindwing and cilia fuscous.

Legs dorsally ocher, ventrally white; fore-femur and -tibia ventrally brownish black; dark brown spot occupying area around connection of mid-femur and -tibia; mid-tibia dorsally with verticillibristle at middle and apex; hind-tibia ventrally gray, dorsally with dark brown verticillibristle present at about $3/10$, $3/5$ and apex; first to third segments of hind-tarsus dorsally dark brown near apex, dorsally with verticillibristle at apex of first and second segments. Abdomen dorsally gray, ventrally white; spine row of abdominal terga present on second to sixth segments.

Genitalia. Seventh sternum with emarginated caudal margin. Papillae anales longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment as long as papillae anales. Eighth abdominal segment dorsally and ventrally sclerotized, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about $5/8$ times as long as apophyses posteriores. Ostium bursae tub-shaped, with bar-shaped sclerotized structure at middle. Ductus bursae short, $4/5$ length of corpus bursae. Corpus bursae with an elongate appendicular pouch near caudal end. Signum very long, narrow crescent-shaped and oblique, spinous, situated at middle of corpus bursae, with serrate margin; microspines present sparsely around signum. Bulla originating from cephalic margin of corpus bursae, long, stout. Ductus seminalis

narrow; microspines present.

Specimens examined. HOLOTYPE ♂, Tsunagi, Iwate-Pref., Honshu, JAPAN, em. 18. vi. 1968, ex Fresh leaf of *Callicarpa japonica*, T. Oku (1♂ Gen. sl. no. 11083).

PARATYPES, JAPAN. Honshu: 3♂ 4♀, Tsunagi, Morioka-City, Iwate-Pref., em. 18-22. vi. 1968, ex Fresh leaf of *C. japonica*, T. Oku (3♂ 3♀ Gen. sl. no. KY-16, KY-17, KY-105, M-10171, M-10172, 1♂ Wing sl. no. 11074); 1♀, Shimashimadani, Azumi-Village, Nagano-Pref., 30. vii. 1991, T. Hirowatari and Y. S. Bae; 2♂, Fudodani, Miyama-Town, Mie-Pref., 2. vii. 1994 T. Mano (2♂ Gen. sl. no. 11090, 11075); 1♂ 1♀, Ditto, 30. vi. 2001, T. Mano (1♂ 1♀ Gen. sl. no. 10049, 11004, 1♂ 1♀ Wing sl. no. 11008, 11013); 1♀, Mt. Wasamata, Kamikitayama-Vill., Nara-Pref., 5. viii. 1992, T. Ueda (1♀ Gen. sl. no. 11020).

Distribution. Japan: Honshu.

Host plants. *Callicarpa japonica* Thunb. (Lamiaceae).

Biology. Adults emerged in June under rearing condition, and were collected in July and August. Larvae spin fresh leaves of the host plant. The larvae are found from lowlands to foothills of mountainous areas, and the adult is not attracted to light (Oku, 2003a).

Remarks. The known distributions of *S. magnisignata*, *S. gemmiconsuta*, *S. luxuriivora* and *S. callicarpicola* have some overlaps. In addition, they use the same host plant, but the detailed habitat is unknown. Distributional surveys at the microhabitat level as well as researches of host utilization patterns are needed.

***Stathmopoda callicarpicola* Terada, 2012** [Plates XIV, LVII-e, LXVIII-f, g]

[Japanese name: Usu-murasakishikibu-maikoga]

Stathmopoda callicarpicola Terada, 2012: 52-54, figs 3-4, 9, 17-20.

Diagnosis. This species is sexually dimorphic in coloration. The male is very similar to that of *S. magnisignata*, but can be distinguished by the coloration of the thorax and forewing markings as follows. The ocher dorsal blotch is present at middle of the mesothorax. Three ocher markings on the dark brown forewing are present near base, middle and termen. In contrast, in *S. magnisignata*, no ocher markings are present on the thorax, and only the ocher basal marking is present on the brownish black forewing. The female is also very similar to *S. flavescens*, *S. gemmiconsuta*, *S. luxuriivora* and *S. magnisignata*, but can be distinguished by the coloration of the thorax and forewing markings as follows. In this species, the ground color of the thorax is ocher. There is a brown arched fascia across the middle of the mesothorax. The brown fascia at 1/3 of forewing is broader than the fascia at 2/3. In contrast, in *S. flavescens*, *S. gemmiconsuta* and *S. luxuriivora*, three brown spots are present on the thorax. The brown fascia at 1/3 of forewing is as broad as the fascia at 3/5. In *S. magnisignata*, the ground color of the thorax is dark brown. The dark brown fascia at 1/3 of forewing is as broad as the fascia at 2/3.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The uncus is slender; the costa of the valva is weakly angled; the signum is bar-shaped; and the bulla is stout.

Description. Wing expanse 9.4-12.1 mm. Forewing length 4.7-6.0 mm. Very similar to *S. magnisignata*, but differing in the following characters.

Male. Labial palpus dorsally with a brown patch around connection of first and

second segments. Scape dorsally brown to dark brown. Vertex and occiput dark brown. Tegula ocher, darkened toward apex. Thorax dark brown, dorsally with ocher blotch at middle of mesothorax, rectangular.

Wing markings. Forewing dark brown; three ocher blotches present at about 1/6, middle and 4/5; first near dorsum, subtriangular, not reaching costa; second subrectangular; third very small, near dorsum, sometimes absent; cilia dark brown. Hindwing with dark brown cilia. Mid-tibia dorsally brown, lightened toward apex.

Wing venation. Forewing, discoidal cell long, occupying basal 2/3 of wing. Hindwing, Rs assimilated with costa on apical 2/5 of costa. CuA₂ running to about 3/10 of dorsum.

Genitalia. Uncus slender, with blunt and down-turned apex. Gnathos slender, with apex slightly down-turned and acute in lateral view, narrowly tongue-shaped in ventral view. Costa of valva stout and dorsally weakly angled. Juxta small, oval. Apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, narrow, with round apex.

Female. Labial palpus dorsally with an ocher to brown patch around connection of first and second segments. Vertex pale fuscous; occiput pale fuscous to brown. Tegula ocher, brown at apical margin. Thorax ocher, brown on cephalic margin, pale fuscous on caudal margin, with brown arched fascia across middle of mesothorax.

Wing markings. Forewing ocher, with brown streaks on costa and 1/3 of dorsum; three brown fasciae present at base, about 1/3 and 2/3; second fascia widest toward costa; third fascia narrow, inwardly oblique, not reaching dorsum; second and third fasciae connected with brown streak near dorsum; brown streak present near apex; cilia ocher to pale fuscous. Hindwing pale fuscous.

Fore-femur and -tibia ventrally white to dark brown; mid-femur and -tibia dorsally brown around their connection; hind-tibia dorsally with ocher to brown verticillbristle at

about 3/10, 3/5 and apex; first to third segments of hind-tarsus dorsally brown near apex.

Genitalia. Joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment cephalodorsally triangular. Ostium bursae tub-shaped. Ductus bursae short, 5/8 length of corpus bursae. Corpus bursae with sparse micro spines. Signum bar-shaped, situated at about cephalic 2/11 of corpus bursae; wrinkles present around signum. Bulla originating from about middle of corpus bursae, stout. Ductus seminalis narrow.

Specimens examined. HOLOTYPE ♂, Mino-City, Osaka-Pref., Honshu, JAPAN, em. 9. viii. 1983, ex *Callicarpa japonica*, T. Saito (1♂ Gen. sl. no. 11055).

PARATYPES, JAPAN. 1♀, Gamushi, Hokkaido, 14. ix. 1958, T. Kumata (1♀ Gen. sl. no. Hld12). Honshu: 1♀, Mt. Wasamata (1150m), Kamikitayama-Vill., Nara-Pref., 18. viii. 1988, S. Moriuti; 1♂ 1♀, Sannoko, Kawakami-Vill., Nara-Pref., 9. ix. 1991, T. Hirowatari and T. Ueda; 11♂ 22♀, Mino-City, Osaka-Pref., em. 23. vi-16. ix 1983, ex *C. japonica*, T. Saito (3♂ 3♀ Gen. sl. no. 11051, 11052, 11056, 11061, 11071, 11076, 1♂ 1♀ Wing sl. no. 11069, 11073).

Distribution. Japan: Hokkaido and Honshu.

Host plants. *Callicarpa japonica* Thunb. (Lamiaceae).

Biology. Scarcely known. Adults emerged in June to September under rearing condition.

Remarks. The male of *S. callicarpicola* is similar to that of deep-colored individuals of *S. pedella* (Linnaeus, 1761), but the former can be distinguished from the latter by the fuscous coloration of the vertex, which is yellow in the latter (Terada, 2012, 2014).

The *Stathmopoda opticaspis* species-group

This new species-group contains the following 13 species: *S. diplaspis* (Meyrick, 1887), *S. placida* Meyrick, 1908, *S. plinthiota* Meyrick, 1910, *S. biclavis* Meyrick, 1911, *S. nitida* Meyrick, 1913, *S. balanarcha* Meyrick, 1921, *S. dactylas* Meyrick, 1921, *S. opticaspis* Meyrick, 1931, *S. dicitra* Meyrick, 1935, *S. moriutiella* Kasy, 1973, *S. flavithoracalis* Li and Wang, 2002, *S. persona* Terada, 2013, *S. albiornata* Terada, 2013.

In this thesis, *Stathmopoda* sp. 3 is also included in this group, because it shares diagnostic characters with other members of this group.

Diagnosis. Two white to yellow fasciae are present on the forewing except in *S. balanarcha*, *S. flavithoracalis* and *S. moriutiella*, which have basal yellow fascia near the base. Hind-tibia is covered with bristles. The forewing is lanceolate, widest near the base and 13-veined. In the veins, R₂ arises from near the upper angle of the cell, R₃ arises from the upper angle of the cell, R₄ and R₅ are stalked, and M₃ arises from the lower angle of the cell. The hindwing is narrow and 9-veined. The discoidal cell is open. In the veins, R_s runs to near the apex of the costa, and M₂, M₃, and CuA₁ are stalked and in common with CuA₂. In the male genitalia, the small spines and spicules are present on vesica of aedeagus, cornutus is absent. In the female genitalia, ostium bursae is cup-shaped and has numerous microspines on inner surface, and two signa of corpus bursae are present.

***Stathmopoda opticaspis* Meyrick, 1931** [Plates XV, LVIII-a, LXIX-a]

[Japanese name: Obi-maikoga]

Stathmopoda opticaspis Meyrick, 1931: 175.

Diagnosis. This species is similar to *S. albiornata*, but can be distinguished by a

unique mask-shaped blackish marking on the mesothorax and the presence of basal markings on the forewing. This species is also very similar to *S. persona* and *Stathmopoda* sp. 3, but can be distinguished by the forewing fasciae. In this species, the thorax is yellow. The first fascia of the forewing is white to pale ocher. The second fascia of the forewing is broad. In contrast, in *S. persona*, the thorax is grayish yellow. The first fascia white to yellow. The second fascia is narrow. In *Stathmopoda* sp. 3, the thorax is grayish yellow. The first fascia yellow and obscure. The second fascia is narrow and obscure.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: Gnathos is tongue-shaped and acute apex; some basal sclerotized structures of aedeagus are small; and the bulla with many small spicules is large.

Description. Wing expanse 8.7-11.4 mm. Forewing length 4.0-5.3 mm. Labial palpus ocher, ventrally white; sometimes dorsally with a brown patch around connection of first and second segments. Antenna ocher. Scape fuscous. Vertex ocher to yellow; frons white; occiput yellow. Tegula yellow. Thorax yellow; prothorax silvery; a dorsal black blotch with paired silvery spots present on middle of mesothorax, edged yellow, large, emarginated caudal margin; a silvery and a brownish black blotch present on mediocephalic and mediocaudal margin of mesothorax, respectively.

Wing markings. Forewing grayish brown; costa grayish brown; base of wing white to pale ocher; two fasciae present at 1/4 and 3/5; first fascia white, narrowed towards costa, edged obscure ocher; second fascia ocher, broad, sometimes not reaching dorsum, narrowed towards dorsum, with inwardly oblique caudal edges; two yellow short streaks present along costa near base and near base of CuP, assimilated with each other

at base; white spot present between two streaks; three blotches present on base of dorsum, between apex of two streaks and near base of dorsum; first and second blotches brownish black, third blotch silvery, adjacent to first and second blotches, sometimes edged ocher near dorsum; cilia pale fuscous. Hindwing and cilia pale fuscous.

Wing venation. Forewing, discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing at basal 1/3. R₁ from about distal 1/8 of cell; R₄₊₅ from upper angle of cell. M₁ and M₂ parallel. CuA₁ and CuA₂ rudimentary near base. 1A+2A connected basal 1/6 of wing, running to 5/11 of dorsum. Hindwing 4/5 as long as forewing. CuA₂ running to about 1/3 of dorsum.

Legs ocher, ventrally white; fore-femur and -tibia ventrally yellow, fuscous at apex; mid-tibia dorsally covered with yellow bristles; verticillbristle present at apex; hind-tibia covered with bristles except basal 2/5 of ventral side, dorsally pale fuscous, outside yellow, white at 2/5 and apex, ventrally white; first and second segments of hind-tarsus with verticillbristle at apex; second segment sometimes absent. Abdomen dorsally pale fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus slender, tapering caudally, with acute apex, slightly down-turned; setae occurring on lateral side. Gnathos slightly shorter than uncus, tongue-shaped, with apex slightly down-turned and acute in lateral view. Valva with round apex; costa round dorsally, with setae; cucullus narrow, subtriangular, 1.3 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, ventrally with setae. Vinculum stout, with acute apex; saccus 1/3 length of uncus and round cephalically. Juxta oval. Anellar lobes developed, subtriangular, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus, with

many small spines and small triangular spicules on vesica; cornutus absent; some sclerotized structures present near base, thin and small; apical patch of stimuli present near apex of aedeagus, 3/10 length of aedeagus, with round apex.

Female genitalia. Papillae anales longer than wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment 2.3 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 5/9 length of apophyses posteriores. Ostium bursae cup-shaped, with numerous microspines on inner surface. Ductus bursae shorter than corpus bursae. Two signa sublozenge, sometimes subtriangular, situated at caudal 1/4 and middle of corpus bursae, respectively, with streak of fold. Bulla large and stout, originating from caudal margin of corpus bursae, with many small spicules. Ductus seminalis long, with microspines.

Specimens examined. JAPAN. Honshu: 1♂, Tazawa, Inase-Town, Shizuoka-Pref., 6. vii. 2000, K. Sugisima (1♂ Gen. sl. no. 11179); 1♂ 3♀, Oda, Asahi-Town, Aichi-Pref., 9. vii. 1999, K. Sugisima (1♂ Gen. sl. no. 11177, 3♀ Gen. sl. no. 11145, 11150, 11154, 1♀ Wing sl. no. 11183); 1♂, Mt. Iwawaki, Kawachinagano-City, Osaka-Pref., 19. vii. 1951, T. Kodama (1♂ Gen. sl. no. 13046); 1♀, Mt. Makio, Osaka-Pref., 13. viii. 1979, K. Yasuda (1♀ Gen. sl. no. 11178); 1♀, Mt. Izumikatsuragi, Kishiwada-City, Osaka-Pref., 18. viii. 2001, T. Hirowatari, N. H. Ahn, B. W. Lee and Y. Miyamoto (1♀ Gen. sl. no. 13027); 1♂, Mt. Kasagata, Hyogo-Pref., 21. vii. 1968, S. Moriuti (1♂ Gen. sl. no. 13047); 1♀, Akitsu-Town, Higashihiroshima-City, Hiroshima-Pref., 15. ix. 1999, Y. Miyamoto (1♀ Gen. sl. no. 13028). Shikoku: 1♂, Shiozuka-kogen, Miyoshi-City, Tokushima-Pref., 24. vii. 2011, Y. Manabe; 1♂, Mt. Takanawa, Matsuyama-City,

Ehime-Pref., 15. vi. 1958, M. Okada; 1♂, Ochide, Kumakogen-Town, Ehime-Pref., 23. vii. 1959, M. Okada; 1♀, Tengu-kogen, Kumakogen-Town, Ehime-Pref., 5. viii. 2008, Y. Manabe (1♀ Gen. sl. no. 13029). Kyushu: 1♂, Mt. Hiko-san, Soeda-Town, Fukuoka-Pref., 6. viii. 1992, E. Ikeda (1♂ Gen. sl. no. 11176); 2♂, Mt. Ohoshi, Tsushima Is., Nagasaki-Pref., 24. vii. 1996, T. Yamauchi (1♂ Gen. sl. no. 11180).

Distribution. Japan: Honshu, Shikoku and Kyushu. Primorsky in Russia, Coastal Korea, and China (Sinev, 1999).

Host plants. *Loeskeobryum cavifolium* (Sande Lac.) M. Fleisch. ex Broth. (Hylocomiaceae) (Moriuti, 1982).

Biology. Adults emerged in May under rearing condition, June and August (Murase, 1998, 2006), and were collected in June to September. Larvae spin in gaps in cherry bark (Moriuti, 1982). They feed on living mosses (Murase, 1998) and also on dead mosses in winter, and overwinters after the maturity (Murase, 2006).

Remarks. This species and *S. dicitra* Meyrick, 1935 are needed to be compared precisely, because Kasy (1973) reported that they might be the same species.

***Stathmopoda persona* Terada, 2013** [Plates XVI, LVIII-b, LXIX-b]

[Japanese name: Ryukyu-obi-maikoga]

Stathmopoda sp.: Murase, 2007a: 127.

Stathmopoda sp. 2: Terada and Sakamaki, 2013: 228, pl. 3-29, figs 13, 14.

Stathmopoda persona Terada, 2013c: 142-146, figs 3, 5, 7, 13-16.

Diagnosis. This species is similar to *S. albiornata*, but can be distinguished by a unique mask-shaped blackish marking on the mesothorax and the presence of basal markings on the forewing. This species is also very similar to *S. opticaspis* and

Stathmopoda sp. 3, but can be distinguished by the ground color of the thorax and the forewing fasciae. In this species, the thorax is grayish yellow. The first fascia of the forewing is white to yellow. The second fascia of forewing is narrow. In contrast, in *S. opticaspis*, the thorax is yellow. The first fascia is white to pale ocher. The second fascia is broad. In *Stathmopoda* sp. 3, the thorax is grayish yellow. The first fascia is yellow and obscure. The second fascia is narrow and obscure.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: Gnathos is tongue-shaped and acute apex; some basal sclerotized structures of aedeagus are large; one of signa longer than the other; and the bulla with some small spicules is large.

Description. Wing expanse 8.1-12.2 mm. Forewing length 3.8-5.6 mm. Very similar to *S. opticaspis*, but differing in the following characters. Labial palpus ventrally white, darkened towards apex. Vertex pale fuscous; occiput grayish yellow. Tegula grayish yellow. Thorax grayish yellow; prothorax pale gray.

Wing markings. Forewing, base of wing sometimes silvery; two fasciae at 1/5 and 2/3; first fascia white to yellow; second fascia ocher to yellow, narrow, sometimes reaching dorsum, with slightly inwardly oblique caudal edge; two yellow streaks darkened towards base.

Wing venation. Forewing, R₁ from about distal 1/12 of cell. Hindwing 5/6 as long as forewing.

Legs pale fuscous; fore-femur ventrally gray, fore-tibia fuscous; mid-tibia dorsally ocher, gray at 2/5 and near apex, with verticillbristle at 2/5 and apex; bristles of hind-tibia dorsally pale fuscous; first segment of hind-tarsus with verticillbristle at apex.

Male genitalia. Some sclerotized structures of aedeagus large.

Female genitalia. Joint membrane between papillae anales and eighth abdominal segment long, twice as long as papillae anales. Two signa bar-shaped, situated at middle of corpus bursae; one of two signa small. Bulla originating from about middle of corpus bursae, with some small spicules.

Specimens examined. HOLOTYPE ♂, Senbaru, Nishihara-Town, Okinawa-honto Is., the Ryukyu Islands, JAPAN, em. 15. iv. 2012, ex Dead part of leaf of *Garcinia subelliptica*, T. Terada (1♂ Gen. sl. no. 12069).

PARATYPES, JAPAN. The Ryukyu Islands: 1♀, Chibana, Okinawa-City, Okinawa-honto Is., em. 28. iv. 1998, ex Dead part of flower of *Litsea japonica*, M. Murase (1♀ Gen. sl. no. 11149); 1♀, Matsumoto, Okinawa-City, Okinawa-honto Is., em. 14. iv. 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (1♀ Gen. sl. no. 12070); 2♂ 3♀, Senbaru, Nishihara-Town, Okinawa-honto Is., em. 2, 6, 15, 19-20. iv. 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (2♂2♀ Gen. sl. no. 12059, 12113, 13035, 13063, 1♀ Wing sl. no. 12058); 1♂, Ditto, em. 8. v. 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (1♂ Gen. sl. no. 13034); 2♂, Miyara, Ishigaki Is., em. 29-30. iii, 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (1♂ Gen. sl. no. 12056); 1♀, Ditto, em. 5. iv. 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (1♀ Gen. sl. no. 12060); 1♀, Tonoshiro, Ishigaki Is., em. 9. iv. 2012, ex Dead part of leaf of *G. subelliptica*, T. Terada (1♀ Gen. sl. no. 13064).

JAPAN. The Ryukyu Islands: 3♂ 1♀, Shuri, Okinawa-honto Is., em. 18, 25, 27, 29. iv. 2014, M. Murase; 4♂ 2♀, Ditto, em. 8, 11-13, 21, 27. v. 2014, M. Murase (1♂ 1♀ Gen. sl. no. 14051, 14052).

Distribution. Japan: the Ryukyu Islands (Okinawa-honto Is., Ishigaki Is.).

Host plants. *Garcinia subelliptica* Merrill (Culsiaceae) (Murase, 2007a) and *Litsea*

japonica (Thunb.) Juss. (Lauraceae).

Biology. Scarcely known. Adults emerged in March to May under rearing condition. Larvae were found on dead parts of host leaves and feed on decayed host fruit from the inside (Murase, 2007a).

Remarks. Murase (2007a) reported that the host plant of this species is *G. subelliptica*. Then, another host plant, *L. japonica*, is found in 2014. These host plants belong to different orders. Thus this species might be polyphagous. For the actual feeding habits of this species, further survey is necessary.

***Stathmopoda* sp. 3** [Plates XVII, LVIII-c, LXIX-c]

Diagnosis. This species is very similar to *S. opticaspis* and *S. persona*, but can be distinguished by the ground color of the thorax and the forewing fasciae. In this species, the thorax is grayish yellow. The first fascia of the forewing is yellow and obscure. The second fascia of forewing is narrow and obscure. In contrast, in *S. opticaspis*, the thorax is yellow. The first fascia is white to pale ocher. The second fascia is broad. In *S. persona*, the thorax is grayish yellow. The first fascia is white to yellow. The second fascia is narrow.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: Gnathos is tongue-shaped and acute apex; some basal sclerotized structures of aedeagus are large; two signa are small and as long as each other; and the bulla with some small spicules is large.

Description. Wing expanse 7.4-8.3 mm. Forewing length 3.5-4.0 mm. Similar to *S. opticaspis*, but differing in the following characters.

Labial palpus fuscous, ventrally pale ocher; dorsally with a brown patch around

connection of first and second segments. Antenna pale fuscous. Vertex pale fuscous; occiput yellow to grayish yellow. Tegula grayish yellow, studded yellow. Thorax grayish yellow to yellow; prothorax silvery.

Wing markings. Forewing, base of wing black; two fasciae of forewing present 1/5 and 2/3; first fascia yellow, narrowed towards costa, obscure; second fascia obscure; yellow streak present along near base of costa, expanded near base; first blotch small; second blotch obscure. Hindwing pale gray.

Wing venation. Forewing, CuA₁ and CuA₂ present only near dorsum, rudimentary. 1A+2A running to 4/9 of dorsum. Hindwing, CuA₂ running to about 1/3 of dorsum.

Legs gray; fore-femur and -tibia ventrally fuscous to brownish black; mid-tibia dorsally gray near apex, with yellow verticillibristle present at 2/5 and apex; bristle of hind-tibia dorsally pale fuscous. Abdomen dorsally pale gray.

Male genitalia. Uncus with down-turned apex. Gnathos with down-turned apex. Saccus apically round. Saccus 1/4 length of uncus. Aedeagus, some sclerotized structures of aedeagus large; apical patch of stimuli 1/4 length of aedeagus.

Female genitalia. Papillae anales longer than wide; joint membrane between papillae anales and eighth abdominal segment long, three times as long as papillae anales. Two signa small, bar-shaped, situated at middle of corpus bursae, oblique. Bulla originating from near cephalic margin of corpus bursae, with some small spicules.

Specimens examined. 2♂ 5♀, Urauchi, Iriomote Island, Okinawa Pref., the Ryukyu-Islands, JAPAN, 22. iii. 1995, T. Mano. (2♂ 4♀ Gen. sl. no. 10061, 10062, 10085, 11136, 11157, 11159, Wing sl. no. 11142, 11148).

Distribution. Japan: the Ryukyu Islands.

Host plant. Unknown.

Biology. Scarcely known. Adults were collected in March.

Remarks. This species superficially differs from *Stathmopoda persona* and *S. moriutiella* in the markings of forewing (Plates LXIX-b-d). However, it is difficult to distinguish them each other by the genitalia. The male genitalia of this species and *S. persona*, and the female genitalia of this species and *S. moriutiella* are very similar to each other (Plates XV-a-c, XVII, XVIII-d).

Stathmopoda moriutiella Kasy, 1973 [Plates XVIII, LVIII-d, LXIX-d]

[Japanese name: Moto-ki-maikoga]

Stathmopoda moriutiella Kasy, 1973: 268.

Description. Wing expanse 8.4-12.0 mm. Forewing length 3.5-5.4 mm. Labial palpus pale fuscous, ventrally white. Antenna pale fuscous; scape gray. Vertex pale fuscous to yellow; frons white; occiput yellow. Tegula dark brown, with inner and apical yellow margin. Thorax yellow; prothorax silvery; three blotches present cephalic margin, middle and caudal margin of mesothorax; first and third blotches pale gray to silvery, round; second blotch dark brown, round, with gray to silvery lateral spots.

Wing markings. Forewing pale gray; costa darkened towards base; brownish black at base; yellow fascia present near base, edged dark brown near costa, with two silvery blotches; yellow streak along costa basal 1/3; cilia pale fuscous. Hindwing and cilia pale fuscous.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 5/7 of wing. Sc connected with costal margin of wing on basal 2/5. R₁ running from about distal 1/9 of cell. M₁ and M₂ parallel. CuA₁ and CuA₂ present only near dorsum, rudimentary. 1A+2A running to before middle of dorsum, not branched. Hindwing 5/6 as long as

forewing. CuA₂ running to about 2/5 of dorsum.

Legs pale fuscous, ventrally white; fore-femur to -tarsus ventrally fuscous; fore-tibia dorsally yellow, apex gray; mid-tibia dorsally covered with yellow bristle, gray at middle and apex; hind-tibia covered with bristle except basal 2/5 of ventral side, dorsally pale fuscous, outside yellow, white at 2/5 and apex, ventrally white; first segment of hind-tarsus with verticillbristle at apex. Abdomen dorsally pale gray, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus slender, tapering caudally, with blunt apex, slightly down-turned; setae present on lateral side. Gnathos stout, shorter than uncus, oval. Valva with round apex; costa round dorsally, with setae; cucullus small, subtriangular, as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, ventrally with setae. Vinculum stout, short, with acute apex; saccus 1/4 times as long as uncus, cephalically round. Anellar lobes developed, subtriangular, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus, with many spines and triangular spicules on vesica; cornutus absent; some sclerotized structures present near base, narrow and thin; apical patch of stimuli present near apex of aedeagus, 1/4 length of aedeagus, with blunt apex.

Female genitalia. Papillae anales as long as wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment long, 2.5 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 5/9 times as long as apophyses posteriores. Ostium bursae cup-shaped, with numerous

microspines on inner surface. Ductus bursae shorter than length of corpus bursae. Corpus bursae with two signa, small, bar-shaped, situated at middle of corpus bursae. Bulla originating from cephalic margin of corpus bursae, with small spicules. Ductus seminalis long, with microspines.

Specimens examined. HOLOTYPE ♂, Narita, Chiba-Pref., JAPAN, 8. vi., 1968, K. Kobayashi and S. Yamazaki (1♂ Gen. sl. no. UOP-SM-507).

PARATYPES, JAPAN. Honshu: 1♀, Nyugawa-Vill., Gifu-Pref., 25. vii. 1954, S. Issiki (1♀ Gen. sl. no. UOP-SM-509); 1♀, Daisen-Town, Sakai-City, Osaka-Pref., 13. vi. 1951, T. Saito (1♀ Gen. sl. no. 3854).

JAPAN. Hokkaido: 1♀, Sapporo-City, em. 27. vi. 1959, ex *Picea abies*, T. Kumata; 2♂, Sapporo-City, 10. vii. 1962, N. Okabe; Bibai-City: 2♂ 2♀, Koshunai, em. 21. vii. 1981, ex Catkin of *Pinus* sp., T. Kumata, 2♀, detail locality unknown, em. 13. vii, 4. viii. 1982, ex *Picea abies*, F. Komai; 2♂ 2♀, Koshunai, em. 21, 24. vi. 2000, ex Leaf of *Abies sachalinensis*, K. Sugisima; 1♂, Eniwa-keikoku, Eniwa-City, 31. vii. 2001, K. Sugisima. 3♂ 4♀, Mt. Makio, Osaka-Pref., Honshu, 29. vii. 1981, 26. vii, 4, 14. viii. 1982 (3♂ 2♀ Gen. sl. no. 11059, 11060, 11065, 11110, 11111, 2♀ Wing sl. no. 11140, 11147). 2♂ 1♀, Ikenoue, Yamamoto-Town, Saga-Pref., Kyushu, 11. viii. 1960, H. Maebara. 1♂, Onoaida, Yakushima Island, Kagoshima-Pref., the Ryukyu Islands, 8. ix. 1979, K. Yasuda (1♂ Gen. sl. no. w-33).

Distribution. Japan: Hokkaido, Honshu, Kyushu and the Ryukyu Islands (Yakushima Is.).

Host plants. *Picea abies* (L.) H. Karst, *Pinus* sp. and *Abies sachalinensis* (F. Schmidt) Mast. (Pinaceae).

Biology. Adults emerged in June to August under rearing condition, and were

collected in September. Larvae feed on flower, pollen and leaf of host plants.

Remarks. This species is very similar to *S. flavithoracalis* Li and Wang, 2002. Further studies are need to taxonomic relationship between them.

***Stathmopoda albiornata* Terada, 2013** [Plates XIX, LVIII-e, LXIX-e]

[Japanese name: Shiro-obi-maikoga]

Stathmopoda albiornata Terada, 2013c: 140-142, figs 1, 6, 9-12.

Diagnosis. This species is similar to *S. opticaspis* and *S. persona*, but can be distinguished by mesothorax and forewing. In this species, the mesothorax is wholly dark fuscous. The basal markings on the forewing is absent. In contrast, in *S. opticaspis* and *S. persona*, the mesothorax has unique mask-shaped blackish marking. The basal markings on the forewing are present. This species especially similar to *S. placida* Meyrick, 1908, but can be distinguished by the ground color of the thorax. In this species the mesothorax is wholly dark fuscous. In contrast, in *S. placida*, the mesothorax dark fuscous studded with pale ocher (See Meyrick, 1908; Terada, 2013c).

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: Aedeagus is rather stout than *S. placida* (See Diakonoff, 1967; Terada, 2013c); gnathos is stout and round apex; saccus is cephalically subrectangular; one basal sclerotized structure of aedeagus is present; two signa are small; bulla is narrow and assimilate with ductus seminalis; and the small spicules of bulla are absent.

Description. Wing expanse 8.9-11.8 mm. Forewing length 4.0-5.6 mm. Labial palpus ocher, ventrally white, dorsally with a brownish black patch around connection of first and second segments; third segment darkened towards apex. Antenna dark fuscous,

paler towards apex. Vertex and occiput dark fuscous; frons white. Tegula dark fuscous, paler towards apex. Thorax dark fuscous, with white to pale ocher caudal margin.

Wing markings. Forewing dark fuscous, with two fasciae at near base and middle of wing, white to pale ocher; first fascia narrowed towards costa; cilia fuscous. Hindwing and cilia fuscous.

Wing venation. Forewing, discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing at basal 1/3. R_1 from distal 1/8 of cell; R_{4+5} and M_1 stalked in some individuals. CuA_1 and CuA_2 present only near dorsum, rudimentary. $1A+2A$ connected on basal 1/7 of wing, running to about 5/11 of dorsum. Hindwing 6/7 as long as forewing. CuA_2 running to about 3/8 of dorsum.

Legs dark fuscous, ventrally white; fore-femur and -tibia ventrally dark fuscous; mid-tibia dorsally with verticillbristle and white rings at middle and apex; hind-tibia covered with bristles except basal 1/3 of ventral side, dorsally fuscous to dark fuscous, outside white at 1/3, ventrally white; first segment of hind-tarsus with verticillbristle at apex. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus tapering caudally with down-turned apex and setae on lateral surface. Gnathos stout, slightly longer than uncus, with round apex. Valva with round apex; costa caudally round, with setae; cucullus oval, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum with blunt apex; saccus 1/4 length of uncus and cephalically subrectangular. Juxta round. Anellar lobes developed, subrectangular, weakly sclerotized, with setae on surface. Aedeagus about 3.5 times as long as uncus, with numerous small spines on vesica; some small spicules present near apex; cornutus

absent; basal sclerotized structure sometimes rudimentary; apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with emarginated caudal margin. Papillae anales as long as wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment 2.3 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 5/9 as long as apophyses posteriores. Ostium bursae large, cup-shaped, with numerous microspines on inner surface. Ductus bursae long, 1.5 times as long as corpus bursae. Corpus bursae with two signa, small, sublozenge, situated at caudal 1/3 and middle of corpus bursae, with streak of fold. Bulla narrow and short, assimilated with ductus seminalis, originating from caudal margin of corpus bursae, weakly wrinkled near base. Ductus seminalis long, apically with many microspines.

Specimens examined. HOLOTYPE ♂, Kiire-Town, Kagoshima-City, Kagoshima-Pref., Kyushu, JAPAN, em. 21. iii. 2012, ex Gall of *Trichagalma serratae* (Hymenoptera: Cynipidae) on *Quercus acutissima*, T. Terada (1♂ Gen. sl. no. 13048).

PARATYPES, JAPAN. 1♂, Iwaya, Minamichita-Town, Aichi-Pref., Honshu, 3. viii. 1987, T. Mano. (1♂ Gen. sl. no. 11175). Kyushu: 2♀, Kiire-Town, Kagoshima-City, Kagoshima-Pref., em. 23, 26. iv. 2011, ex Acorn of *Q. acutissima*, T. Terada (2♀ Gen. sl. no. 11113, 13033, 1♀ Wing sl. no. 11141); 1♀, Ditto, em. 28. iv. 2011, ex Gall of *T. serratae* on *Q. acutissima*, T. Terada (1♀ Gen. sl. no. 13058); 3♂, Ditto, em. 13, 15. iii. 2012, ex Acorn of *Q. acutissima*, T. Terada (2♂ Gen. sl. no. 12057, 13057, 1♂ Wing sl. no. 13115); 1♀, Ditto, em. 21. iii. 2012, ex Gall of *T. serratae* on *Q. acutissima*, T.

Terada; 1♂, Ditto, em. 8. iv. 2012, ex Acorn of *Q. acutissima*, T. Terada; 2♀, Ditto, em. 22, 26. iii. 2013, ex Acorn of *Q. acutissima*, K. Tsuda and T. Terada (1♀ Wing sl. no. 13114); 1♂, Kiiresekushi-Town, Kagoshima-City, Kagoshima-Pref., em. 24. iii. 2013, ex Acorn of *Q. acutissima*, K. Tsuda and T. Terada (1♂ Wing sl. no. 13109). The Ryukyu Islands: 1♂, Mt. Akatsuchi-yama, Amami-oshima Is., Kagoshima-Pref., 30. viii. 2012, S. Sameshima (Light trap) (1♂ Gen. sl. no. 13049); 1♀, Mt. Yuwan-dake, Amami-oshima Is., Kagoshima-Pref., 15. xii. 2012, S. Sameshima (Light trap) (1♀ Gen. sl. no. 13050); 1♀, Yona, Kunigami-Vill., Okinawa-honto Is., 18-21. x. 1973, M. Owada; 1♀, Ditto, 20. iii. 2002, K. Sugisima (Light trap); 1♀, Ditto, 24. iii. 2002, unknown (Light trap); 4♀, Mt. Ina, Okinawa-honto Is., 27. iii. 1980, K. Yasuda (1♀ Gen. sl. no. KY-58).

Distribution. Japan: Honshu, Kyushu and the Ryukyu Islands (Amami-oshima Is., Okinawa-honto Is.).

Host plants. *Quercus acutissima* Carruthers (Fagaceae).

Biology. Adults emerged in March to April under rearing condition, and were collected in August, October and December. Mature larva was found on acorn and gall or on acorn cap of the host plant in late winter.

The *Stathmopoda masinissa* species-group

This new species-group contains *Stathmopoda masinissa* Meyrick, 1906 and *S. maritimicola* Terada and Sakamaki, 2011.

Diagnosis. The ground color of the forewing is brownish black. The ocher or yellow blotch is present at about 3/4 of the forewing. The forewing is lanceolate, widest near base and 13-veined. The discoidal cell is long and occupying 7/10 of wing. In the veins,

Sc connect with costal margin of wing at basal $2/5$, R_1 and R_2 arises from about distal $1/4$ and near upper angle of cell respectively, R_4 and R_5 are stalked and in common with R_3 , CuA_1 and CuA_2 arises from about distal $1/10$ and $1/4$ of cell, and $1A+2A$ connect about basal $1/5$ of wing and runs to about middle of dorsum. The hindwing is $5/6$ as long as forewing and 9-veined. The discoidal cell is open. In veins, R_s runs to near apex of costa, M_2 , M_3 , and CuA_1 are stalked and in common with CuA_2 , CuA_2 runs to about $2/5$ of dorsum. The brownish black verricule occur on the hind-tibia dorsally. In the male genitalia, the length of saccus is as long as uncus or longer than uncus. In the female genitalia, the large cervix bursae develops.

***Stathmopoda masinissa* Meyrick, 1906** [Plates XX, LIX-a, LXX-a]

[Japanese name: Kakinohetamushiga]

Stathmopoda masinissa Meyrick, 1906: 410.

Kakivoria flavofasciata Nagano, 1916: 136.

Stathmopoda albidorsis Meyrick, 1931: 75.

Diagnosis. This species is very similar to *S. maritimicola*, but can be distinguished by the blotch of thorax and the coloration of the vertex, occiput and blotch of forewing. In this species, the vertex, occiput, blotch of forewing are ocher. The ocher blotch is present near caudal margin of thorax. In contrast, in *S. maritimicola*, the vertex and occiput are brownish black, and the blotch of forewing is yellow. The pair of yellow blotches are present near caudal margin of thorax.

In the genitalia, this species can be distinguished from *S. maritimicola* by the following characters: The short and straight process stick out caudally from apex of sacculus; the cornuti form some groups; the cervix bursae clearly constrict cephalically;

and the signum is very large with vertical ridge on strong fold.

Description. Wing expanse 12.2-18.2 mm. Forewing length 5.9-8.1mm. Labial palpus ocher, dorsally with brownish black patch around connection of first and second segments, third segment ventrally brownish black. Scape dorsally brown to ocher, ventrally ocher. Head ocher. Tegula brownish black. Thorax brownish black, with ocher mesial blotch near caudal margin of mesothorax.

Wing markings. Forewing brownish black, with ocher blotch at about 3/4 of costa, not reaching tornus, subtriangular, rectangular in female; cilia dark brown. Hindwing and cilia dark brown.

Wing venation. Forewing, M₁, M₂, and M₃ parallel to each other. CuA₁ and CuA₂ rudimentary near base.

Legs ocher; fore-femur and -tibia ventrally brownish black; mid-tibia dorsally covered with numerous brownish black bristles; hind-tibia brownish black, dorsally with verricule. Abdomen dorsally brownish black, ventrally pale ocher to ocher; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus slender, tapering caudally, with down-turned acute apex; setae occurring on lateral side. Gnathos stout, longer than uncus, with slightly down-turned and acute apex in lateral view, round in ventral view. Valva with round apex; costa dorsally round; cucullus oval, 1.8 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, ventrally with long setae; a short and straight process sticking out caudally from apex of sacculus, 1/5 length of sacculus. Vinculum elongate; saccus as long as uncus, cephalically round. Juxta oval. Anellar lobes developed, small, subrectangular, weakly sclerotized, with setae on surface. Aedeagus five times as long

as uncus, stout, slightly tapering apically, with many spiniform cornuti forming groups; a sclerotized structure present near base, oval; apical patch of stimuli present at apex of aedeagus, narrow, 1/5 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment 1.7 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally triangular, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae barrel-shaped, with sublateral folds; the folds running parallel to each other. Ductus bursae very short, wrinkled; cervix bursae developed, large and round, clearly constrictive cephalically. Corpus bursae with many microspines around middle of corpus bursae. Signum very large, sublozenge, situated at about middle of corpus bursae, with vertical ridge on strong fold. Bulla absent. Ductus seminalis long, originating from middle of corpus bursae.

Specimens examined. JAPAN. Honshu: 1♂, Gojou Ata, Nara-Pref., 30. vi. 2000, Y. Miyamoto; 1♂, Mt. Kasagata, Hyogo-Pref., em. 12. viii. 1968, S. Moriuti; 1♀, Mt. Inunaki, Kumatori-Town, Osaka-Pref., 5. vi. 2006, B. W. Lee; 1♀, Tondabayashi, Osaka-Pref., 30. vii. 1992, S. Moriuti; 1♂, Yamate-Town, Osaka-Pref., 8. vi. 1978, S. Moriuti; 1♀, Yabitsu, Sekigane-Town, Tottori-Pref., 22. viii. 1996, T. Yamauchi (Light trap). Shikoku: 1♀, Ryu, Tosa-City, Kochi-Pref., 20. v. 2009, Y. Manabe; 1♂, Ichiubara, Sukumo-City, Kochi-Pref., 23. v. 2009, Y. Manabe. Kyushu: 1♂, Yamada-ryokuchi, Kitakyushu-City, Fukuoka-Pref., 19. vi. 1996, T. Yamauchi; 1♀, Takaze, Kirishima-City, Kagoshima-Pref., em. 22. viii. 2011, ex Fruit of *D. kaki*, M. Koiso; 1♂, Kiyoura-dam,

Satsumasendai-City, Kagoshima-Pref., 22. vi. 2013, K. Tsuda; 3♂ 3♀, Kiiresekushi, Kagoshima-City, Kagoshima-Pref., em. 27. viii-5. ix. 2010, ex Fruit of *D. kaki*, T. Terada (1♂ Wing sl. no. 10019, 2♂ 1♀ Gen. sl. no. 10021, 10037, 10038); 1♂, Toso, Kagoshima-City, Kagoshima-Pref., 22. vii. 2010, T. Terada (Wing sl. no. 10017); 1♀, Uchizume, Sata-Town, Kagoshima-Pref., 9. vi. 2001, K. Tsuda; 1♀, Mt. Hoyoshi-dake, Kimotsuki-Town, Kagoshima-Pref., em. 23. iv. 2012, ex Fruit of *D. japonica*, R. Tobimatsu. The Ryukyu Islands: 1♂ 2♀, Kurio, Yakushima Is., 20. vii. 1979, K. Yasuda; 1♀, Onoaida, Yakushima Is., 9. ix. 1979, K. Yasuda; 1♀, Seibu-rindo, Yakushima Is., Kagoshima-Pref., 18. vii. 2009, K. Nakamine; 1♂, Kamiya, Amami-oshima Is., Kagoshima-Pref., 20. vi. 2009, U. Jinbo; 2♀, Yakugachi, Amami-oshima Is., 21. vi. 2009, U. Jinbo; 2♀, Hatsuno-rindo, Amami-oshima Is., Kagoshima-Pref., 13. v. 2009, K. Tsuda (1♀ Gen. sl. no. 10022); 1♀, Ishigaki Is., 18. vii. 2001, T. Yamauchi (Light trap).

Distribution. Japan: Honshu, Shikoku, Kyushu and the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Ishigaki Is.). Taiwan, Sri Lanka, central China (Moriuti, 1982), eastern China (Sinev, 1999), Korea (Bae, 1997), and Thailand (Moriuti and Yasuda, 1982).

Host plants. *Diospyros kaki* L., *D. japonica* Siebold and zucc. and *D. lotus* L. (Xu *et al.*, 1996) (Ebenaceae).

Biology. *Stathmopoda masinissa* is bivoltine and overwinters as the mature larva or prepupa in Japan. Adults of the overwintering generation emerge in May to June. Eggs are deposited on the host shoots. Early instar larvae are found mining the shoots. Mid- to mature larvae feed near the joint of the calyx and fruit, and mine the fruit. The first generation pupates in cocoons made inside the host fruit, behind the calyx or gap of cortex. Adults emerge in August to September, and were collected in last of July. Larvae

of the overwintering generation are found in August to October. They make cocoons at the gap of the cortex and pupate in April of the next year.

Remarks. This species is known as a pest of persimmon (*Diospyros kaki*).

This species is distributed in East, Southeast, and South Asia, but the records are fragmented and still insufficient.

***Stathmopoda maritimicola* Terada & Sakamaki, 2011** [Plates XXI, LIX-b, LXX-b]

[Japanese name: Ryukyu-kakinohetamushiga]

Stathmopoda maritimicola Terada and Sakamaki, 2011: 327-331, figs 1-3, 7-10.

Diagnosis. This species is very similar to *S. masinissa*, but can be distinguished by the blotch of thorax and the coloration of the vertex, occiput and blotch of forewing. In this species, the vertex and occiput are brownish black, and the blotch of forewing is yellow. The pair of yellow blotches are present near caudal margin of thorax. In contrast, in *S. masinissa*, the vertex, occiput, blotch of forewing are ocher. The ocher blotch is present near caudal margin of thorax.

In the genitalia, this species can be distinguished from *S. masinissa* by the following characters: The pointed apical process stick out ventrally; the cornuti arrange in a group; the cervix bursae assimilate with corpus bursae; and the signum is rather small with streak of fold.

Description. Wing expanse 11.6-18.4 mm. Forewing length 5.3-8.4 mm. Very similar to *S. masinissa*, but differing in the following characters. Labial palpus ocher, first and second segments dorsally brownish black. Scape dorsally brownish black, ventrally ocher. Head brownish black, frons dark brown to ocher. Thorax brownish black, with a pair of yellow blotches near caudal margin.

Wing markings. Forewing with yellow blotch at about 3/4 of costa, not reaching tornus, subtriangular, sometimes absent in male, rectangular in female.

Wing venation. Forewing, M₁ and M₂ parallel; M₃ approximate to M₂ at base. CuA₂ sometimes rudimentary near base.

Male genitalia. Costa of valva weakly angled caudally; cucullus 1.3 times as long as uncus; sacculus sclerotized, long, apically round, with pointed apical process sticking out ventrally, 1/5 length of sacculus. Vinculum stout; saccus 1.2 times as long as uncus. Juxta subrectangular. Anellar lobes subtriangular. Aedeagus six times as long as uncus; short to long spiniform cornuti arranged on vesica in a group; with apical patch of stimuli; sclerotized structure subrectangular; apical patch of stimuli about 2/7 length of aedeagus.

Female genitalia. Seventh sternum with emarginate caudal margin. Ostium bursae cup-shaped, emarginate in cephalic margin, with a pair of folds laterally and oval hollow in the middle; the folds approaching each other toward the cephalic margin. Cervix bursae very large, 3/4 length of corpus bursae, assimilated with corpus bursae, with wrinkles. Corpus bursae with numerous microspines over inner surface; spines large at either end of corpus bursae and near signum. Signum lozenged, situated at middle of corpus bursae, with streak of fold. Ductus seminalis short, originating from cephalic margin of corpus bursae.

Specimens examined. HOLOTYPE ♂, Hirara-City, Miyako Is., the Ryukyu Islands, JAPAN, em. 25-26. i. 2005, ex Fruit of *Diospyros maritima*, S. Ohno (1♂ Gen. sl. no. 10041).

PARATYPES, JAPAN. The Ryukyu Islands: 3♂ 2♀, Yonaguni Is., em. 18. i-5. ii. 2005, ex Fruit of *D. maritima*, S. Ohno (1♂ 1♀ Gen. sl. no. 10024, Sta-10002); 1♂ 2♀,

Hirara-City, Miyako Is., em. 25. i-15. ii. 2005, ex Fruit of *D. maritima*, S. Ohno (1♂ Wing sl. no. 10020, 1♀ Gen. sl. no. 10042); 2♀, Kume Is., em. 15-26. ii. 2005, ex Fruit of *D. maritima*, S. Ohno (1♀ Gen. sl. no. 10025); 1♂, Kume Is., 14-16. vi. 2005, S. Ohno (Pheromone trap); 2♂, Irabu Is., em. 25-26. i. 2005, ex Fruit of *D. maritima*, S. Ohno (2♂ Gen. sl. no. Sta-10001, 10039); 1♂, Tarama Is., em. 23-30. iv. 2005, ex Fruit of *D. maritima*, S. Ohno (1♂ Wing sl. no. 10018); 1♀, Mt. Omoto, Ishigaki Is., 31. iii. 2002, T. Hirowatari et al.; 1♀, Uehara, Iriomote Is., 26. iii. 2002, N. H. Ahn et al.

JAPAN. The Ryukyu Islands: 1♂, Mt. Banna-dake, Ishigaki Is., 3. ix. 1979, A. Nakayama; 1♀, Takeda-rindo, Ishigaki Is., 21. v. 2009, U. Jinbo; 1♀, Hoshino, Ishigaki Is., 22. v. 2009, U. Jinbo; 1♀, Funaura, Iriomote Is., 26. iii. 1982, E. Nishida; 1♂, Shirahama, Iriomote Is., 13. vii. 2001, T. Yamauchi (Light trap).

Distribution. Japan: the Ryukyu Islands (Noho Is., Okinawa-honto Is., Kume Is., Miyako Is., Irabu Is., Tarama Is., Ishigaki Is., Iriomote Is., Yonaguni Is.).

Host plant. *Diospyros maritima* Blume (Ebenaceae).

Biology. Scarcely known. Adults emerged in January to February and April under rearing condition, and were collected in March, May to July and September. Mature larvae bore into the host fruit.

Remarks. The known distribution of *S. maritimicola* is limited, although the host plant (*D. maritima*) is distributed widely in the south of the Amami Islands, Taiwan, Southeast Asia, Micronesia, and Australia (Hatusima, 1971). Surveys of these areas are needed to determine the actual distribution of this species; it is important for persimmon cultivation to know the actual host range of this species, because the host plant is closely related to the edible Japanese persimmon, *D. kaki* (Terada et al., 2011).

The *Stathmopoda aprica* species-group

This species-group contains the following nine species: *Stathmopoda aprica* Meyrick, 1913, *S. crassella* Walsingham, 1891, *S. astricta* Meyrick, 1913, *S. ignominiosa* Meyrick, 1913, *S. sycophaga* Meyrick, 1913, *S. sycastis* Meyrick, 1917, *S. ficivora* Kasy, 1973, *S. ficipastica* Bradley, 1974, and *S. fusciumeraris* Terada, 2013.

Diagnosis. The ground color of head, thorax and forewing is ocher to orange. Three fuscous to brownish black fasciae are present on the forewing near base, about middle and near apex. The forewing is very narrowly lanceolate and widest near base. In the veins, R_1 are absent, R_2 arises from near the upper angle of the cell, R_4 and R_5 are stalked and in common with R_3 , and CuA_2 are absent. The hindwing is very narrow and 9-veined. The discoidal cell is open. In the veins, R_1 connect with R_s , R_s runs to near the apex of the costa, and M_2 , M_3 , and CuA_1 are stalked and in common with CuA_2 . In the male genitalia, the coremata are usually present on the membranous eighth abdominal segment, and the peniculi of the tegumen are present. In the female genitalia, two signa are present, and the longer one is bifurcate.

***Stathmopoda aprica* Meyrick, 1913** [Plates XXII, LIX-c, LXX-c]

[Japanese name: Hime-inubiwa-maikoga]

Stathmopoda aprica Meyrick, 1913a: 86.

Diagnosis. This species is very similar to *S. fusciumeraris*, but can be distinguished by the markings of thorax and forewing as follows. In this species, the prothoracic dark brown markings are absent. A broad brown streak with a bifurcate apex is present on basal 7/10 of costa. In contrast, in *S. fusciumeraris*, the dark brown markings are present. The costa of the forewing is brown and paler towards apex.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The cornutus is absent; the connection of the valva with the tegumen is narrow; some spinose lamellae are present near the connection of corpus bursae and ductus seminalis; and bulla is consist of three expanded parts.

Description. Wing expanse 8.5-13.0mm. Forewing length 4.0-6.2mm. Labial palpus and scape orange, ventrally white. Vertex pale fuscous; frons white; occiput orange. Tegula orange. Thorax orange, with mesial streak and blotch on dorsum dark brown, situated at cephalic half and caudal margin of mesothorax, respectively.

Wing markings. Forewing orange; costa with broad brown streak at basal 7/10, apically bifurcate; three brown fasciae present near base, 3/8 and about 7/10 of wing, respectively; third fascia not reaching costa, connected with one of the bifurcate streaks; cilia gray to ocher. Hindwing gray; cilia gray to ocher.

Wing venation. Forewing 11-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 3/10. R₃ from upper angle of cell. M₂ from near base of M₁; M₃ from near lower angle of cell. CuA₁ present only near dorsum, rudimentary. 1A+2A connected about basal 1/6 of wing, running to about 2/5 of dorsum, rudimentary. Hindwing 7/9 as long as forewing. CuA₂ running to about 2/7 of dorsum.

Legs dorsally yellow, ventrally pale white; fore-femur to -tarsus ventrally dark brown; mid-tibia dorsally dark brown near base and middle, dorsally with verticillbristle at middle and apex; hind-tibia dorsally covered with yellow to brown bristles; hind-tibia and first segment of hind-tarsus dorsally with yellow to brown verticillbristle at apex. Abdomen dorsally pale ocher, ventrally pale white; spine row of abdominal terga present on second to sixth segments, brown.

Male genitalia. Coremata developing on membranous eighth abdominal segment. Uncus slender with blunt apex; setae occurring on lateral side. Gnathos as long as uncus, with down-curved acute apex in lateral view. Tegumen with subtriangular peniculi. Valva broad with round apex; costa truncate, convex dorsally; cucullus sublozenge, slightly longer than uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum elongate, round cephalically; saccus absent. Anellar lobes developed, narrowly subtriangular, weakly sclerotized, with setae on surface. Aedeagus three and a half times as long as uncus, slightly tapering towards apex; cornutus absent; sclerotized structure present near base, sublozenge and thin; apical patch of stimuli present near apex of aedeagus, about 1/4 length of aedeagus, narrow, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales slightly longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally emarginate, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae cup-shaped, with numerous microsetae inner surface; bar-shaped sclerotized structure present at caudal margin. Ductus bursae short, 7/10 length of corpus bursae. Corpus bursae with two narrow signa, situated at about middle of corpus bursae; longer signum bifurcate. Ductus seminalis long, originating from caudal margin of corpus bursae, with some spinose lamellae near connection of corpus bursae and ductus seminalis; wrinkles present near base; microspines present near apex; bulla present at about 1/3 of ductus seminalis, with three expanded parts.

Specimens examined. HOLOTYPE ♂, Martala, SRI LANKA, x. 1904, J. P. (1♂ Gen. sl. no. BMNH Microlep. 15202).

JAPAN. The Ryukyu Islands: 1♂ 2♀, Nakama, Yakushima Is., 20-21, ix. 1978, S. Moriuti (1♂ 1♀ Gen. sl. no. 10092, 10095); 2♀, Ditto, 20, ix. 1978, Y. Arita; 50♂ 61♀, Onoaida, Yakushima Is., 4-5, 8-9, 19, 22, ix. 1979, K. Yasuda (5♂ 2♀ Gen. sl. no. KY-6, KY-7, KY-71, KY-72, KY-94, 11101, 11117, 1♀ Wing sl. no. W-4); 1♀, Nase, Amami-oshima Is., 5, viii. 1961, N. Okabe; 1♂, Mt. Yui-dake, Amami-oshima Is., Kagoshima-Pref., 29, v. 2014, S. Sameshima (Light trap); 2♀, Yona, Kunigami-Vill., Okinawa-honto Is., 18-21, x. 1973, M. Owada; 1♀, Ditto, 1, vii. 2011, S. Sugimoto (Light trap); 2♂ 2♀, Oike, Kita-daitou Is., 27, 29, vii. 2013, S. Sameshima (Light trap); 1♂, Mt. Omoto, Ishigaki Is., 12, x. 1979; 1♀, Ditto, 21, v. 1983, T. Tanabe; 1♀, Hirae, Ishigaki Is., 14, v. 1985, K. Yasuda (Light trap); 1♂ 3♀, Hegina, Ishigaki Is., 13, 20, viii. 1989, K. Yasuda (Light trap); 1♀, Mt. Banna, Ishigaki Is., 8, vii. 1994, K. Yasuda; 1♀, Takeda, Ishigaki Is., 14, iii. 1996, T. Mano (1♀ Gen. sl. no. 10071); 1♂, Kainan, Ishigaki Is., 15, vii. 2001, T. Yamauchi (Light trap); 1♂, Funaura, Iriomote Is., 26-27, xii. 1979, I. Kanazawa (Light trap); 1♂, Shirahama, Iriomote Is., 27, iii. 1993, T. Mano (1♂ Gen. sl. no. 10093); 2♂ 3♀, 8km north of Takana, Iriomote Is., 2-3, 7, 10, x. 2001, K. Sugisima (Light trap); 1♂ 1♀, Komi, Iriomote Is., 14, iii. 2011, T. Terada (1♂ 1♀ Gen. sl. no. 11034, 11036, Wing sl. no. 11118); 1♂, Mt. Donan, Yonaguni Is., 12, ii. 1993, T. Mano (1♂ Gen. sl. no. 11010); 2♂ 4♀, Mt. Urabudake, Yonaguni Is., 29, 31, vii. 1994, T. Yamauchi.

Distribution. Japan: the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Okinawa-honto Is., Kita-daitou Is., Ishigaki Is., Iriomote Is., Yonaguni Is.). Sri Lanka (Meyrick, 1913a).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in February to March, May, July to October and December.

Remarks. Kasy (1973) reported that this species might be conspecific with *S. stricta*. Then, Terada (2013a) elucidated that the two species can be distinguished by the color of the occiput and characters of the male genitalia.

***Stathmopoda fuscimeraris* Terada, 2013** [Plates XXIII, LIX-d, LXX-d]

[Japanese name: Inubiwa-maikoga]

Stathmopoda sp.: Sugiura and Yamazaki, 2004: 113-118.

Stathmopoda fuscimeraris Terada, 2013a: 20-23, figs 1, 4, 6-10.

Diagnosis. This species is very similar to *S. aprica*, but can be distinguished by the markings of thorax and forewing as follows. In this species, dark brown markings are present at the lateral margin of the prothorax. The costa of forewing is brown and paler towards the apex. In contrast, in *S. aprica*, the dark brown markings are absent. A broad brown streak is present on basal 7/10 of costa and has a bifurcate apex.

In the genitalia, this species can be distinguished from other members of the species-group by the following characters: The anellar lobes are subrectangular; the cornutus is present; the ostium bursae is tub-shaped; and some triangular spicules are present near connection of ductus and corpus bursae.

Description. Wing expanse 12.7-19.2 mm. Forewing length 6.0-9.3mm. Labial palpus and scape yellow, ventrally white. Vertex and occiput yellow; frons white. Tegula yellow. Thorax yellow, with two dark brown markings at lateral margin of prothorax; mesial blotch at caudal margin of mesothorax, cephalic half brown, caudal half pale

brown.

Wing markings. Forewing yellow; costa brown, paler towards apex; three brown fasciae present near base, about $2/5$ and $3/4$ of wing, respectively; second fascia sometimes expanded towards dorsum; third fascia cephalically edged inwardly oblique; cilia gray to ocher. Hindwing and cilia gray.

Wing venation. Forewing 10-veined; discoidal cell long, occupying basal $7/11$ of wing. Sc connected with costal margin of wing on basal $3/10$. M_2 and M_3 arising from common base, around lower angle of cell. CuA_1 absent. $1A+2A$ connected about basal $1/7$ of wing, running to about middle of dorsum, rudimentary. Hindwing $9/11$ as long as forewing. CuA_2 running to about $3/11$ of dorsum.

Legs dorsally yellow, ventrally pale white; fore-femur and -tibia ventrally dark brown; mid-tibia dorsally with verticillibristle at middle and apex; hind-tibia brown apex, dorsally covered with bristles except near apex; hind-tibia and first segment of hind-tarsus dorsally with verticillibristle at apex. Abdomen dorsally pale ocher, ventrally pale white; spine row of abdominal terga present on second to sixth segments.

Male genitalia. Coremata developing on membranous eighth abdominal segment. Uncus stout, down-turned apically, tapering caudally, with acute apex; setae occurring on lateral surface. Gnathos stout, as long as uncus, tongue-shaped, with down-curved acute apex in lateral view. Tegumen with round peniculi. Valva broad, with round apex; costa dorsally triangular; cucullus oval, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, ventrally with setae. Vinculum elongate, cephalically round; saccus absent. Juxta round. Anellar lobes developed, subrectangular, weakly sclerotized, with setae on surface. Aedeagus four times as long as uncus, stout, slightly tapering towards apex, with spiniform cornutus on vesica, stout

and long; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/3 length of aedeagus, narrow, with round apex.

Female genitalia. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally triangular, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 3/4 as long as apophyses posteriores. Ostium bursae tub-shaped, with numerous microsetae on inner surface. Ductus bursae long, longer than length of corpus bursae. Corpus bursae with some triangular spicules near connection of ductus and corpus bursae. Two signa narrow, situated at about cephalic 1/3 length of corpus bursae; longer signum bifurcate. Ductus seminalis long originating from near caudal margin of corpus bursae, apically with microspines; bulla present at about 2/5 of ductus seminalis, with two expanded parts.

Specimens examined. HOLOTYPE ♂, Urauchi, Iriomote Island, Okinawa-Pref., the Ryukyu Islands, JAPAN, 29. iii. 1980, K. Yasuda (1♂ Gen. sl. no. 11116).

PARATYPES, JAPAN. The Ryukyu Islands: 1♂, Kubiri-rindo (100m), Tokunoshima Island, Kagoshima-Pref., 8. vi. 2007, H. Ootsubo; 1♀, Okuni-rindo, Kunigami-Vill., Okinawa-honto Is., 14. v. 1998, T. Ueda; 1♂, Ditto, 26-27. v. 2000, T. Mano (1♂ Gen. sl. no. 10045); 1♂ 3♀, Ditto, 29-31. vii. 2005, U. Jinbo (1♂ Gen. sl. no. 12003); 1♀, Yona, Kunigami-Vill., Okinawa-honto Is., 11. iv. 1996, T. Ueda; 1♂ 1♀, Ditto, 13. iv. 1997, T. Ueda; 2♂, Ditto, 21. iii. 2002, K. Sugisima (Light trap); 1♀, Nagura, Ishigaki Is., 2. xi. 1979, H. Yamashita; 1♀, Ditto, 15. ix. 1982, T. Tanabe; 3♂ 10♀, Mt. Banna, Ishigaki Is.,

3-4. xi. 1979, A. Nakayama (1♂ 1♀ Gen. sl. no. KY-22, KY-23, 1♀ Wing sl. no. W-7); 1♀, Takeda, 28. iii. 1993, T. Mano; 2♀, Ditto, 14. iii. 1998, T. Mano; 1♀, Kabira, Ishigaki Is., 14. iii. 1998, T. Mano; 5♂ 8♀, Mt. Omoto, Ishigaki Is., em. 9, 12-13, 15-16. xi. 1979, ex Fig of *Ficus septica*, Y. Arita (1♂ 1♀ Gen. sl. no. KY-24, KY-25); 1♂, Ditto, 21. v. 1983, T. Tanabe; 1♀, Ditto, 8. v. 1998, T. Ueda; 1♀, Ditto, 4. x. 1999, Y. Miyamoto; 1♀, Ditto, 9. x. 2001, N. H. Ahn; 3♀, Ditto, 22-23. ii. 2002, T. Mano; 1♀, Ditto, 18. iii. 2002, K. Sugisima (Light trap); 1♀, Ditto, 30. iii. 2002, N. H. Ahn, B. W. Lee and T. Hirowatari (Light trap); 1♀, Ditto, 19. iii. 2012, T. Terada (Light trap); 1♂, Itona, Ishigaki Is., 21. v. 2009, U. Jinbo; 1♀, Hoshino, Ishigaki Is., 22. v. 2009, U. Jinbo; 3♀, Shinsui-Park, Ishigaki Is., 3, 5. vii. 2010, T. Terada (Light trap) (3♀ Gen. sl. no. 10046, 10054, 10091, 2♀ Wing sl. no. 10052, 10104); 1♂ 3♀, Kanpira Folls, Iriomote Is., 29-30. xii. 1979, I. Kanazawa (1♂ Wing sl. no. W-16); 1♀, Sonai, Iriomote Is., 2-3. i. 1980, I. Kanazawa (Light trap); 1♂ 1♀, Otomi, Iriomote Is., 8. x. 1979, S. Hashimoto (1♂ Gen. sl. no. KY-73); 1♀, Mt. Hoshi, Iriomote Is., 11. iv. 1981, S. Hashimoto; 1♀, Uhshiku, Iriomote Is., 13. x. 1998, T. Ohno; 1♂ 1♀, Urauchi, Iriomote Is., 26. iii. 1993, T. Mano; 1♂ 3♀, Ditto, 22. iii. 1995, T. Mano; 1♂ 4♀, Ditto, 15-16. iii. 2012, T. Terada (Light trap); 1♀, Airagawa-rindo, Iriomote Is., 15. iii. 2002, K. Sugisima (Light trap); 1♂ 1♀, Funaura, Iriomote Is., 27-28. xii. 1979, I. Kanazawa (Light trap); 3♂ 3♀, Ditto, 25-26, 28. iii. 1982, E. Nishida; 1♀, Ditto, 11. xi. 1982, T. Tanabe; 1♀, Ditto, 24-30. x. 1989, T. Kumata; 1♀, Ditto, 14. x. 1992, T. Ueda; 3♀, Ditto, 25. iii. 1993, T. Mano (Light trap) (1♀ Gen. sl. no. 10058); 4♂ 4♀, Ditto, 21. iii. 1995, T. Mano (1♂ Gen. sl. no. 10053); 1♂ 4♀, Ditto, 24-25. vii. 1995, T. Mano; 1♂ 1♀, Ditto, 8. x. 2001, K. Sugisima (Light trap); 1♂ 2♀, Ditto, 15-16. iii. 2002, K. Sugisima (Light trap); 2♀, Shirahama, Iriomote Is., 4. iv. 1962, Y. Arita; 2♀, Ditto, 27.

iii. 1993, T. Mano; 1♂ 1♀, Ditto, 22. vii. 1995, T. Mano (1♂ Gen. sl. no.10110); 1♂ 1♀, Ditto, 13. vii. 2001, T. Yamauchi (Light trap); 1♀, Ditto, 9. x. 2001, K. Sugisima (Light trap); 1♂ 2♀, Uehara, Iriomote Is., 5. v. 1981, M. Yamashita; 2♂ 1♀, Ditto, 26. iii. 2002, T. Hirowatari, N. H. Ahn, B. W. Lee, Y. Miyamoto and K. Yamada (Light trap); 8♀, Ditto, 11-12. iii. 2011, T. Terada (Light trap) (3♀ Wing sl. no. 11115, 11119, 11126); 1♀, Ditto, 13. iii. 2011, R. Tobimatsu; 5♀, Komi, Iriomote Is., 16, 18. xii. 1977, T. Saito; 2♂ 2♀, Ditto, 13-14. iii. 2011, T. Terada (Light trap) (1♂ Gen. sl. no. 12002); 2♂, Mt. Donan, Yonaguni Is., 13. ii. 1993, T. Mano (2♂ Gen. sl. no. 10063, 10068); 1♂, Mt. Urabu, Yonaguni Is., 31. vii. 1994, T. Yamauchi. TAIWAN. 1♀, Wulai, Taipei-City, 11. vii. 1961, M. Ogata; 1♂, Lienhuachih 750m, Nantou, 30. vi-2. vii. 1979, T. Kumata and M. Kumata; 1♀, Chih pen, Tai tung, 10. iii. 1982, S. Hashimoto; 1♂ 1♀, Ditto, 27-30. v. 1982, T. Tanabe.

JAPAN. The Ryukyu Islands: 1♀, Yatsuno-rindo, Amami-oshima Is., Kagoshima-Pref., 28. vi. 2013, S. Sameshima (Light trap); 1♂, Mt. Yui-dake, Amami-oshima Is., Kagoshima-Pref., 29. v. 2014, S. Sameshima (Light trap); 1♂, Mt. Yuwan-dake, Amami-oshima Is., Kagoshima-Pref., 19. vi. 2014, S. Sameshima (Light trap).

Distribution. Japan: the Ryukyu Islands (Amami-oshima Is., Tokunoshima Is., Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.). Taiwan.

Host plants. *Ficus septica* Brum. f., *F. bengutensis* L. and *F. variegata* Blume (Moraceae) (Sugiura and Yamazaki, 2004).

Biology. Adults emerged in September under rearing condition, and were collected all year round except August. Mature larvae bore into the host syconia and feed on the inside of the syconia and parts of the seed (Sugiura and Yamazaki, 2004).

Remarks. Terada (2013a) reported that it is important for fig cultivation to investigate the actual host range of this species because of the host range of this species and other members of this species-group as follows. The larvae of this species feed on three species of the genus *Ficus*, and bore into the syconia (Sugiura and Yamazaki, 2004). The host plants are closely related to the edible fig tree, *F. carica*. In addition, species closely related to this species (*S. sycastis* and *S. ficivora*) feed on *F. carica*, (Kasy, 1973; Robinson *et al.*, 2001).

A species-group *incertae sedis*

***Stathmopoda brachymochla* Meyrick, 1937** [Plates XXIV, LX-a, LXXI-a]

[Japanese name: Huta-obi-kuro-maikoga]

Stathmopoda brachymochla Meyrick, 1937: 89.

Description. Wing expanse 10.0-12.4 mm. Forewing length 4.4-5.8 mm. Labial palpus dark gray, paler towards base, ventrally white. Antenna dark gray. Vertex and occiput violetish gray; frons white to gray. Tegula violetish gray. Thorax violetish gray, with sublateral orange streaks near caudal margin, sometimes obscure.

Wing markings. Forewing violetish gray; two orange fasciae present at about 1/4 and 5/9, not reaching costa, edged black on lateral margin of first fascia except near dorsum of apical margin and basal margin of second fascia; cilia fuscous. Hindwing and cilia grayish brown.

Wing venation. Forewing 11-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 2/5. R₁ running from about distal 1/9 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel, M₃ approximate to M₂ at base, from lower angle of cell. CuA₁ and CuA₂ absent. 1A+2A

connected about basal 1/4 of wing, running to about 5/9 of dorsum. Hindwing 4/5 as long as forewing; 9-veined; discoidal cell open. R_1 weakly connected with R_s ; R_s running to near apex of costa. M_2 , M_3 , and CuA_1 stalked, in common with CuA_2 ; CuA_2 running to about 2/5 of dorsum.

Fore- and mid-legs white; fore-leg ventrally dark gray; mid-femur with dark gray apex; mid-tibia dark gray at base, middle and near apex, dorsally with verticillbristle at middle and apex, dark gray and ocher, respectively; mid-tarsus dorsally dark gray; hind-femur white; hind-tibia ventrally white, dorsally dark gray and covered with rough scales on basal 1/3; with dark gray ring and grayish brown verticillbristle at about middle and apex; hind-tarsus white; with verticillbristle at apex of first and second segments; first segment dorsally dark gray; second and base of third segments dark gray. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to sixth segments.

Male genitalia. Coremata developing on membranous eighth abdominal segment. Uncus narrow, down-turned apically, tapering caudally, with acute apex; setae occurring on lateral side. Gnathos absent. Valva broadest near base, with weakly angled apex; costa stout and round dorsally; cucullus subrectangular, slightly longer than uncus, with numerous setae on inner surface; many small papilliform process present on inner surface, most of them situated near cephaloventral margin, the others arranged near caudoventral margin; sacculus sclerotized, with round apex; some long setae present ventrally. Vinculum elongate; saccus 1/4 length of uncus and round cephalically. Juxta subrectangular. Anellar lobes developed, subtriangular, weakly sclerotized, with short setae on surface. Aedeagus about twice as long as uncus; many spiniform cornuti arranged on vesica; long spiniform cornutus present on vesica, slightly turned;

sclerotized structure present near base, narrowly subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 5/8 length of aedeagus, narrow, turned at apical 2/5, with acute apex.

Female genitalia. Papillae anales as long as wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales about five times as long as papillae anales. Eighth abdominal segment slightly longer than papillae anales, sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 3/7 as long as apophyses posteriores. Ostium bursae barrel-shaped, with numerous sclerotized lamellae. Ductus bursae short, 4/7 length of corpus bursae, with appendicular pouch near corpus bursae, wrinkled. Corpus bursae with appendicular pouch near caudal margin, wrinkled. Two signa narrow, oblique, situated at middle of corpus bursae; longer one bifurcate. Ductus seminalis originating from caudal margin of corpus bursae, very long, narrow, apically with microspines; bulla absent.

Specimens examined. JAPAN. The Ryukyu Islands: 1♂, Kurio, Yakushima Is., Kagoshima-Pref., 20. vii. 1979, K. Yasuda; 1♀, Onoaida, Yakushima Is., Kagoshima-Pref., 9. ix. 1979, K. Yasuda (1♀ Gen. sl. no. KY-176); 1♂ 1♀, Nakama, Yakushima Is., Kagoshima-Pref., 20-21. ix. 1978, Y. Arita (1♂ Gen. sl. no. KY-32); 1♀, Kamiya, Sumiyo-Town, Amami-oshima Is., Kagoshima-Pref., 20. vi. 2009, U. Jinbo; 1♂ 3♀, Mt. Akatsuchi, Amami-oshima Is., Kagoshima-Pref., 30. viii. 2012, S. Sameshima (Light trap); 1♂ 1♀, Tancha, Onna-Vill., Okinawa-honto Is., 1-2. ix. 2005, U. Jinbo; 10♂ 7♀, Iji, Kunigami-Vill., Okinawa-honto Is., 11, 15. vi. 2011, S. Sugimoto (Light trap) (3♂ 2♀ Gen. sl. no. 11095, 11096, 11097, 11098, 11112, 1♂ 1♀ Wing sl. no. 11121, 11133); 1♂, Takae, Higashi-Vill., Okinawa-honto Is., 1. viii. 2013, S.

Sameshima (Light trap); 1♂, Mt. Busama-dake, Ishigaki Is., 7. v. 1981, M. Yamashita; 1♂, Takeda-rindo, Ishigaki Is., 21. v. 2009, U. Jinbo; 1♂, Uehara, Iriomote Is., 24-30. x. 1989, T. Kumata; 1♀, Otomi-rindo, Iriomote Is., 12. vii. 2001, T. Yamauchi (Light trap); 2♂, Funaura, Uehara, Iriomote Is., 2-3. x. 2001, S. Sugisima (Light trap); 1♂ 1♀, Sanninudai, Yonaguni Is., 27. vii. 1994, T. Yamauchi; 2♂ 1♀, Mt. Urabu-dake, Yonaguni Is., 29, 31. vii. 1994, T. Yamauchi; 2♂ 4♀, Mandabaru-park, Yonaguni Is., 28, 30. v. 2013, T. Terada (Light trap).

Distribution. Japan: the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.). Taiwan (Meyrick, 1937). China (Sinev, 1999).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in May to June and September to October.

Remarks. *S. brachymochla* is similar to *S. anconias* Meyrick, 1910, *S. xanthomochla* Meyrick, 1913, *S. synchrysa* Meyrick, 1923, *S. moschlosema* Bladrey, 1961 and *S. culcitella* Sinev, 1995. Above all, *S. moschlosema* and *S. culcitella* closely related to *S. brachymochla* because their genitalia are similar to each other in both sexes. Then, these species are distinguished from other members in the genus *Stathmopoda* by the absence of gnathos, the papilliform process of cucullus (Plate XXIV-a) and numerous sclerotized lamellae of ostium bursae (Plate XXIV-e). These species might be assigned a generic status in the future because these characters are unique in the genus.

***Stathmopoda auriferella* (Walker, 1864)** [Plates XXV, LX-b, LXXI-b]

[Japanese name: Kihiro-maikoga]

Gelechia? auriferella Walker, 1864: 1022.

Stathmopoda divisa Walsingham, 1891: 121.

Stathmopoda ischnotis Meyrick, 1897: 324.

Stathmopoda crocophanes Meyrick, 1897: 324.

Aeoloscelis theoris Meyrick, 1906: 410.

Stathmopoda auriferella: Meyrick, 1911: 286.

Stathmopoda tharsalea Meyrick, 1914: 199.

Stathmopoda adulatrix Meyrick, 1917: 61.

Stathmopoda cirrhaspis Meyrick, 1922: 585.

Chrysoclista basiflavella Matsumura, 1931: 1087.

Description. Wing expanse 9.6-13.4 mm. Forewing length 4.7-6.3mm. Labial palpus ocher, ventrally pale ocher, dorsally with a brown patch around connection of first and second segments; third segment darkened towards apex. Antenna pale brown. Vertex pale brown; frons pale ocher; occiput yellow to pale brown. Tegula and thorax yellow; silvery sublateral spots present at middle of mesothorax; silvery blotch present at caudal margin.

Wing markings. Forewing basal 2/5 yellow, edged inwardly oblique; the other brown; three silvery blotches present at base and near base of costa and dorsum; narrow silvery streak on CuP, connected with first blotch; yellow blotch present at 2/3, large in male, small in female; cilia ocher. Hindwing pale fuscous; cilia ocher.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 3/8. R₁ running from distal 1/10

of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary basal half; CuA₂ rudimentary. 1A+2A connected about basal 1/5 of wing, running to about 4/9 of dorsum. Hindwing 4/5 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 3/7 of dorsum.

Legs dorsally ochreous gray, ventrally pale ocher; fore-leg ventrally fuscous; mid-tibia dorsally with white verticillibristle at middle and apex; hind-tibia dorsally covered with ocher bristles; first segment of hind-tarsus with verticillibristle at apex. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth segments in female.

Male genitalia. Uncus slightly tapering caudally, with acute apex; setae occurring on lateral side. Gnathos narrow, as long as uncus, with down-turned apex. Valva with round apex; costa round dorsally, with some setae; cucullus oval, about 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, protruding caudally, ventrally with short and long setae. Vinculum elongate; saccus 1/4 length of uncus and cephalically round. Juxta oval. Anellar lobes developed, subtriangular, weakly sclerotized, with setae on surface. Aedeagus about four times as long as uncus, with cornutus on vesica; basal sclerotized structure absent; apical patch of stimuli present near apex of aedeagus, 2/7 length of aedeagus, narrow, with round apex.

Female genitalia. Papillae anales slightly longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment long, 2.5 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally trapezoidal, with short and long

setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 1/2 as long as apophyses posteriores. Ostium bursae funnel-shaped; cephalic 2/7 of ostium bursae slender, with a pair of lateral folds. Ductus bursae short, 1/2 length of corpus bursae. Corpus bursae with two signa, bar-shaped and sublozenge, short, situated at about caudal 1/3 and 2/3 of corpus bursae; sublozenge signum with streak of fold. Ductus seminalis narrow and long, extended toward base, originating from near caudal margin of corpus bursae, with micro spines on apical 3/4; bulla situated at about 1/4 of ductus seminalis.

Specimens examined. JAPAN. Honshu: 1♂, Kyogamisaki, Kyotango-City, Kyoto-Pref., 11. vi. 1997, M. Sakai; 1♀, Naokawa, Wakayama-City, Wakayama-Pref., em. 14. x. 2004, ex Bag of Psychidae Gen. sp., M. Murase; 2♀, Tenjinzaki, Tanabe-City, Wakayama-Pref., em. 12, 21. vii. 2011, ex Dead frond of *Cyrtomium falcatum*, T. Terada; 1♂, Miyazaki-Town, Arita-City, Wakayama-Pref., em. 12. viii. 2012, Dead inflorescence of *Angelica japonica*, M. Murase; 1♂, Nakamachi, Nara-City, Nara-Pref., 2. ix. 2010, T. Terada (1♂ Gen. sl. no. 11032); 1♀, Ditto, 29. viii. 2012, T. Terada (Light trap); 1♀, Oi, Wakasa-Town, Tottori-Pref., 14. vi. 2002, T. Yamauchi (Light trap). Shikoku: 1♂ 1♀, Tannoue, Toyo-City, Ehime-Pref., 14. viii. 1994, T. Yamauchi; 1♀, Kanigaike, Tosa-City, Kochi-Pref., 15. v. 2008, Y. Manabe; 1♀, Akebono-Town, Kochi-City, Kochi-Pref., 7. x. 2008, Y. Manabe; 1♀, Nishikiyama-park, Hidaka-Vill., Kochi-Pref., 4. ix. 2011, Y. Manabe; 1♀, Ryu, Tosa-City, Kochi-Pref., 25. v. 2012, Y. Manabe. Kyushu: 1♀, Miuta, Tsushima Is., Nagasaki-Pref., 23. vii. 1996, T. Yamauchi; 1♀, Izumi (20m), Kamitsusima, Tsushima Is., Nagasaki-Pref., 12. vi. 2005, M. Owada; 1♀, Hitoyoshi-City, Kumamoto-Pref., 5. xi. 1998, T. Yamauchi; 1♀, Kumisaki, Sendai-City, Kagoshima-Pref., 17. vii. 1999, Y. Sakamaki (Light trap); 1♂ 1♀, Miyage,

Koyama-Town, Kagoshima-Pref., 23. v. 2004, Y. Sakamaki (Light trap) (1♂ Gen. sl. no. 10001); 5♀, Toso, Kagoshima-City, Kagoshima-Pref., 8-16. vi. 2010, T. Terada and Y. Sakamaki (4♀ Gen. sl. no. 10008, 10013, 10014, 10044); 2♂ 3♀, Korimoto, Kagoshima-City, Kagoshima-Pref., 24. v-6. vi. 2010, T. Terada (1♂ 2♀ Gen. sl. no. 10003, 10004, 11033, 14065, 2♀ Wing sl. no. 10015, 11129); 3♂ 1♀, Ditto, em. 7, 25. ix. 1999, ex *Sinomenium acutum*, Y. Sakamaki (1♀ Gen. sl. no. 10002); 2♂ 1♀, Ditto, 1-4. x. 1999, Y. Sakamaki; 1♀, Takakuma-dam, Kanoya-City, Kagoshima-Pref., 20. vii. 1999, K. Tsuda; 2♂ 2♀, Sataizashiki, Minamiosumi-Town, Kagoshima-Pref., 1. x. 2010, T. Terada (Light trap) (2♂ 1♀ Gen. sl. no. 10043, 11024, 11025); 1♂ 1♀, Ie-jima Island, Minamiosumi-Town, Kagoshima-Pref., 13-14. viii. 2005, Y. Sakamaki (Light trap). The Ryukyu Islands: 4♀, Nishinoomote, Tanegashima Is., Kagoshima-Pref., 8-9. v. 2013, T. Terada; 9♀, Nakama, Yakushima Is., Kagoshima-Pref., 20. ix. 1978, Y. Arita; 1♀, Nakanoshima Is., Tokara Islands, Kagoshima-Pref., 15. vii. 2012, T. Terada (Light trap); 4♀, Nase, Amami-oshima Is., Kagoshima-Pref., 5. viii. 1961, N. Okabe; 1♂, Okuni-rindo, Kunigami-Vill., Okinawa-honto Is., 29-31. viii. 2005, U. Jinbo; 1♀, Hoshino, Ishigaki Is., 22. v. 2009, U. Jinbo; 1♂, Uehara, Iriomote Is., 12. iii. 2011, T. Terada; 2♂ 7♀, Mandabaru-park, Yonaguni Is., 28-30. v. 2013, T. Terada (Light trap); 1♀, Yonaguni Is., em. 28. vi. 2013, ex Dead leaf of *Garcinia subelliptica*, T. Terada.

Distribution. Japan: Honshu, Shikoku, Kyushu and the Ryukyu Islands (Tanegashima Is., Yakushima Is., Nakanoshima Is., Amami-oshima Is., Kume-jima Is., Miyako Is., Ishigaki Is., Iriomote Is., Yonaguni Is.). Wide spread in the Oriental and Afrotropical region. In the Palearctic region only in the parts with a subtropical climate: Middle East, Far East of Russia (Koster and Sinev, 2003).

Host plants. Various vegetables. *Kerria communis* (Insecta, Hemiptera, Kerriidae)

(Robinson *et al.*, 2001).

Biology. *S. auriferella* is bivoltine or trivoltine (Koster and Sinev, 2003). Adults emerged in June to October under rearing condition, and were collected in March and May to November. Larvae feed on decaying and injured part of various vegetables.

Remarks. *S. auriferella* is known as a pest of various crops, fruits of peach (*Amygdalus persica* L.) (Matsumoto, 1950), grape (*Vitis* spp.) (Moriuti, 1982) and kiwi fruit (*Actinidia chinensis* L.) (Takahashi, 1992), etc.

***Stathmopoda haematosema* Meyrick, 1933** [Plates XXVI, LX-c, LXXI-c]

[Japanese name: Kata-aka-maikoga]

Stathmopoda haematosema Meyrick, 1933: 431

Description. Wing expanse 7.6-12.4 mm. Forewing length 3.5-6.1 mm. Labial palpus ocher, ventrally white, dorsally with a brown patch around connection of first and second segments. Antenna ocherous gray; scape dorsally yellow. Vertex gray; frons white; occiput yellow. Tegula and thorax yellow; vermilion lateral spots present at cephalic margin of mesothorax; two blotches present, silvery and near caudal margin, and brownish black and at caudal margin, respectively.

Wing markings. Forewing ocherous gray, paler towards base, brownish black at base; two yellow streaks present; first streak along costa, from near base to 3/10; second streak on basal half of CuP, extended towards apex; yellow blotch present at 1/9 of dorsum, connected with second streak; cilia gray. Hindwing and cilia pale gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ running from distal 1/7 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from

lower angle of cell. CuA₁ rudimentary, present only near dorsum; CuA₂ absent. 1A+2A running to about 3/7 of dorsum, not branched. Hindwing very narrow, 3/4 as long as forewing; 7-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 2/7 of dorsum.

Legs dorsally ochreous gray, ventrally white; fore-leg brownish black; mid-tibia dorsally brownish black near base, with verticillibristle at 1/3 and apex; hind-tibia dorsally covered with yellow bristles; first segment of hind-tarsus with verticillibristle at apex. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth segments in female, arranged laterally and caudal margin.

Male genitalia. Uncus tapering caudally, with truncate apex; setae occurring on lateral side. Gnathos as long as uncus, round. Valva with round apex; costa stout and round dorsally; cucullus small, semicircular, slightly shorter than uncus, with numerous setae on inner surface; sacculus stout, sclerotized, apically rectangular, ventrally with some setae. Vinculum elongate; saccus 1/5 length of uncus and cephalically round. Juxta oval, bilobate. Anellar lobes developed, weakly sclerotized, with setae at apex; consisted of subtriangular and subrectangular parts. Aedeagus about three times as long as uncus; seven spiniform cornuti arranged on vesica, long; sclerotized structure present near base, narrowly subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 3/8 length of aedeagus, narrow, with round apex.

Female genitalia. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment long, about twice as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally smooth, with short and

long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 1/2 as long as apophyses posteriores. Ostium bursae tub-shaped, caudally with lateral projections. Ductus bursae stout, 1.3 times as long as length of corpus bursae, with expanded part near ostium bursae, wrinkled and weakly sclerotized. Corpus bursae with signum, bar-shaped, situated at about cephalic 1/3 of corpus bursae; sparse microspines present around signum. Ductus seminalis originating from caudal margin of corpus bursae, narrow, very long, apically with microspines; bulla absent.

Specimens examined. JAPAN: Hokkaido: 1♂ 1♀, Okushiri, 14. vii. 1958, T. Kumata (1♂ 1♀ Gen. sl. no. Hld 10, Hld 11); 2♀, Nagahashi-naebo, Otaru-City, 1. viii. 1992, Y. Sakamaki; 1♀, Hangetsu-ko, Kuttyan-Town, 23. vii. 2002, K. Sugisima (Light trap). Honshu: 1♀, Otaki-Vill., Nagano-Pref., 9. vii. 1982, K. Yasuda; 1♀, Kisojihara, Nagawa-Vill., Nagano-Pref., 2. viii. 1989, T. Kumata; 1♀, Hikagedaira, Gifu-Pref., 18-21. vii. 1981, K. Yasuda; 1♀, Sanan, Chita-City, Aichi-Pref., 26. vi. 1979, Y. Arita; 1♂, Nakamachi, Nara-City, Nara-Pref., 1. ix. 2010, T. Terada (1♂ Gen. sl. no. 10098, 1♂ Wing sl. no. 11137); 1♂, Ditto, 2. vii. 2011, T. Terada (1♂ Gen. sl. no. 11099); 1♀, Mino, Osaka-Pref., 4. viii. 1980, T. Saito; 2♀, Mt. Makio, Osaka-Pref., 23, 29. vii. 1981, K. Yasuda; 1♀, Ditto, 10. v. 1982, K. Yasuda; 1♀, Ditto, 22. vi. 1982, K. Yasuda; 1♀, Ditto, 12. vii. 1982, K. Yasuda; 7♀, Ditto, 26. vii. 1982, K. Yasuda; 1♀, Naokawa, Wakayama-City, Wakayama-Pref., 25. vi. 2007, M. Murase; 1♀, Tochihara, Ikuno-Town, Hyogo-Pref., 28. vi. 1956, S. Moriuti (1♀ Gen. sl. no. 3851); 1♀, Chojya-hara, Geihoku-Town, Hiroshima-Pref., 10. vii. 2001, I. Ohshima. Kyushu: 1♂, Hiko-san, Fukuoka-Pref., 3. viii. 1954, H. Kuroko (1♂ Gen. sl. no. 305); 1♀, detail locality unknown, Fukuoka-Pref., 7. vi. 1957, T. Kumata; 1♀, Sata-misaki, Kagoshima-Pref., 21. v. 1979, Y. Arita (1♀ Gen.sl. no. W-32); 1♀, Toso, Kagoshima-City, Kagoshima-Pref.,

10. vi. 2010, T. Terada (1♀ Gen. sl. no. 10111, 1♀ Wing sl. no. 11134); 1♀, Ditto, 29. v. 2012, T. Terada (Light trap); 1♀, Takachiho Maruo, Kirishima-City, Kagoshima-Pref., 24. vi. 2010, T. Terada (1♀ Gen. sl. no. 10099); 1♂, Takatoge, Tarumizu-City, Kagoshima-Pref., 5. vii. 2014, T. Terada (Light trap). 1♀, Nakano-shima Is., Kagoshima-Pref., the Ryukyu Islands, 15. vii. 2012, T. Terada.

Distribution. Japan: Hokkaido, Honshu, Kyushu and the Ryukyu Islands (Nakano-shima Is.). South Korea (Sinev, 1999).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in May to September.

Remarks. This species is distinguished from other species in the genus by the anellar lobes consisted of two parts (Plate XXVI-a) and wrinkled and weakly sclerotized part of ductus bursae (Plate XXVI-d).

***Stathmopoda transfasciaria* Li & Wang, 2002** [Plates XXVII, LX-d, LXXI-d]

[Japanese name: Hasu-mon-maikoga]

Stathmopoda transfasciaria Li and Wang, 2002: 330-331, figs 1-2.

Description. Wing expanse 7.9-12.6 mm. Forewing length 3.5-6.7mm. Labial palpus pale ocher, first and second segments dorsally dark brown, third segment dorsally darkened towards apex. Antenna pale ocher; darkened towards apex; apex of each segments dorsally brown; scape dorsally brown to ocher; eye-cap developed in male. Vertex pale ocher; frons white; occiput brownish black. Tegula pale ocher, with brownish black blotch at about middle. Thorax pale ocher, dorsally with two brownish black streaks near cephalic margin and about cephalic 1/3 of mesothorax; dark brown mesial blotch present on dorsum near caudal margin of mesothorax, subtriangular.

Wing markings. Forewing pale ocher; costa dark brown basal 2/3 of wing; three dark brown blotches present near base of dorsum, about 1/7 of costa and middle of dorsum; second blotch subtriangular; third blotch narrow and vertical subrectangular; two brownish black fasciae present at about 3/10 and 4/5 of wing; first fascia extended towards dorsum, sometimes assimilated with third marking; cilia gray. Hindwing pale gray; cilia gray.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ running from near upper angle of cell; R₄, and R₅ stalked, in common with R₃. M₁ and M₂ parallel; M₂ and M₃ arising from lower angle of cell. CuA₁ and CuA₂ absent. 1A+2A connected about basal 1/6 of wing, running to about middle of dorsum. Hindwing 4/5 as long as forewing; 9-veined; discoidal cell open. R₁ clearly separated from Sc. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 3/10 of dorsum. 1A+2A absent.

Legs pale ocher; fore-femur and -tibia ventrally brownish black; fore and mid-tarsus dorsally dark brown near apex of first and second segments; the other segments of fore-tarsus dorsally pale ocher to dark brown; mid-tibia dorsally brownish black basal half and near apex, dorsally with pale ocher verticillbristle at middle and apex; hind-tibia covered with pale ocher and dark brown bristles; hind-tarsus dark brown near apex of third segment; dark brown verticillbristle present at apex of first and second segments. Abdomen dorsally pale gray, ventrally pale white; spine row of abdominal terga present on second to seventh segments (but seventh segment scarcely) in male, second to sixth segments in female.

Male genitalia. Uncus tapering caudally, with truncate apex; setae occurring on lateral

side. Gnathos as long as uncus, with down-curved acute apex in lateral view, round in dorsal view. Valva broad with round apex; transtilla developed; costa round dorsally; cucullus large, narrow oval, 2.4 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically broad and round, ventrally with short and long setae. Vinculum elongate; saccus $2/7$ length of uncus, cephalically subtriangular. Aedeagus three times as long as uncus, with many microspines on vesica; cornutus absent; sclerotized structure present near base of aedeagus, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, $2/5$ length of aedeagus, very narrow, with acute apex.

Female genitalia. Papillae anales slightly longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about $7/10$ as long as apophyses posteriores. Ostium bursae bowl-shaped. Ductus bursae short, $1/3$ length of corpus bursae. Corpus bursae with many small spicules near caudal margin. Signum bar-shaped, oblique, situated at about middle of corpus bursae. Ductus seminalis originating from near caudal margin of corpus bursae, apically with microspines; bulla assimilated with ductus seminalis.

Specimens examined. JAPAN. Shikoku: 4♀, Uchiumi-Vill., Ehime-Pref., 25. viii. 1979, A. Yonetsu and K. Numaguchi; 1♀, Ryu, Tosa-City, Kochi-Pref., 9. v. 2008, Y. Manabe; 2♀, Kanigaika, Tosa-City, Kochi-Pref., 18. v. 2012, Y. Manabe. Kyushu: 2♂ 2♀, Mt. Hiko-san, Fukuoka-Pref., 21. vi. 1965, T. Kumata; 1♂ 2♀, Ditto, 19. viii. 1995, T. Yamauchi; 1♂ 1♀, Shushi, Tsushima Island, Nagasaki-Pref., 6. viii. 1983, T. Saito;

2♀, Uchizume, Sata-Town, Kagoshima-Pref., 9. vi. 2001, K. Tsuda (1♀ Gen. sl. no. 10048, 1♀ Wing sl. no. 10108); 1♀, Satahetsuka, Minamiosumi-Town, Kagoshima-Pref., 18. vii. 2010, R. Tobimatsu (1♀ Gen. sl. no. 10083); 1♂ 1♀, Ie-jima, Minamisastsuma-City, Kagoshima-Pref., 10. v, 13-14. vii. 2005, Y. Sakamaki. The Ryukyu Islands: 1♀, Nishinoomote, Tanegashima Is., 9. v. 2013, T. Terada; 1♀, Onoaida, Yakushima Is., 19. ix. 1978, S. Moriuti; 6♀, Nakama, Yakushima Is., 20-21. ix. 1978, S. Moriuti; 1♂, Mt. Akatsuchi, Amami-oshima Is., 11. vi. 2013, S. Sameshima (Light trap); 2♀, Mt. Yui-dake, Amami-oshima, 29. v. 2014, S. Sameshima (Light trap); 1♀, Mt. Yuwan-dake, Uken-Vill., Amami-oshima, 22. vi. 2009, U. Jinbo; 1♀, Yona, Kunigami-Vill, Okinawa-honto Is., 18-21. x. 1973, M. Owada; 1♂ 2♀, Benoki-Riv., Kunigami-Vill, Okinawa-honto Is., 13. v. 1998, T. Ueda (1♂ Gen. sl. no. 10076); 2♀, Hiji-ohashi, Kunigami-Vill, Okinawa-honto Is., 19. v. 1998, T. Ueda; 1♂ 1♀, Okuni-rindo, Kunigami-Vill, Okinawa-honto Is., 26-27. v. 2000, T. Mano (1♂ 1♀ Gen. sl. no. 10047, 11035); 1♀, Ditto, 29-31. vii. 2005, U. Jinbo; 2♀, Uka, Kunigami-Vill, Okinawa-honto Is., 5. vi. 2011, S. Sugimoto (Light trap) (2♀ Wing sl. no. 11144, 11152); 1♀, Iji, Kunigami-Vill, Okinawa-honto Is., 11. vi. 2011, S. Sugimoto (Light trap). 1♀, Lu shan Spa., Nantou, TAIWAN, 10-13. vi. 1982, T. Tanabe.

Distribution. Japan: Shikoku, Kyushu and the Ryukyu Islands (Tanegashima Is., Yakushima Is., Amami-oshima Is., Okinawa-honto Is.). Taiwan. China (Li and Wang, 2002).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in May to October.

Remarks. The distribution of *S. transfasciaria* had been known only from China. In this study, I found this species from Japan and Taiwan. Thus, adjacent regions of these

areas should be explored to determine the actual distribution.

This species is very similar to *S. vietnamella* Sinev, 1995. However, these two species can be distinguished by the characters of the female genitalia as follows. In this species, the joint membrane between papillae anales and eighth abdominal segment longer than papillae anales, and apical microspines of ductus seminalis are present (Plate XXVII-d). In contrast, in *S. vietnamella*, the joint membrane between papillae anales and eighth abdominal segment as long as papillae anales, and apical microspines of ductus seminalis are absent (see Sinev, 1995).

***Stathmopoda* sp. 4** [Plates XXVIII, LXXI-e]

Diagnosis. This species is distinguished from other members of the genus by three white blotches of forewing.

Description. Wing expanse 8.7-13.3 mm. Forewing length 4.1-6.2 mm. Two worn female specimens, but describing the following characters.

Male. Unknown.

Female. Labial palpus ocher, ventrally white to pale ocher. Antenna ocher; scape dorsally brown. Vertex white, caudally dark brown; frons white; occiput dark brown. Tegula white, darkened towards apex. Thorax white; caudal half of mesothorax dark brown, with medial pale grayish brown blotch, obscure.

Wing markings. Forewing ocherous orange; costa with dark brown streak, stout; three white blotches present at 1/5, middle and 5/7 of dorsum, with dark brown edged except dorsum; first blotch large, subtriangular; second blotch oval, third blotch obscure narrow; cilia fuscous. Hindwing gray; cilia gray to fuscous.

Legs dorsally yellow, ventrally white; fore-femur and -tibia ventrally dark brown;

mid-tibia dorsally with verticillbristle at apex; hind-tibia with verticillbristle at about 1/3, 2/3 and apex; first verticillbristle yellow, second and third verticillbristle yellow and brownish black; first segment of hind-tarsus outside fuscous; first and second segments of hind-tarsus brownish black at apex, with verticillbristle at apex; fifth segment of hind-tarsus apically brownish black. Spine row of abdominal terga present on second to sixth segments.

Genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly longer than papillae anales. Eighth abdominal segment sclerotized except lateral side, cephalodorsally subtrapezoidal, with short and long setae near caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae small bowl-shaped, with some wrinkles. Ductus bursae 3/5 length of corpus bursae. Corpus bursae with some scattered triangular spicules about 2/7 of corpus bursae. Signum situated at cephalic 2/5 of corpus bursae, bar-shaped. Bulla originating from near caudal margin of corpus bursae, stout. Ductus seminalis originating from near connection of corpus bursae and bulla.

Specimens examined. JAPAN. 1♀, Mt. Zozu, Kagawa-Pref., Shikoku, 20. v. 1988, H. Toshima (1♀ Gen. sl. no. KY-29). 1♀, Shimona, Ichikikushikino-City, Kagoshima-Pref., Kyushu, em. 21. vi. 2012, ex Gall of *Syntomoza magna* (Hemiptera, Liviidae) on *Xylosma congestum*, T. Tsukada (1♀ Gen. sl. no. 12076).

Distribution. Japan: Shikoku and Kyushu.

Host plants. *Xylosma congestum* (Lour.) Merr. (Flacourtiaceae).

Biology. Scarcely known. Adults emerged in June under rearing condition, and were

collected in May. Larvae are feed on the host gall by *Syntomoza magna*.

Remarks. This species superficially similar to *S. triselena* Meyrick, 1897, *S. orbiculata* Meyrick, 1913, *S. dracaenopa* Meyrick, 1933, *S. iocycla* Meyrick, 1933 and *S. strophia* Bradley, 1957. However, I could not decide their taxonomic relationships because of a scarcity of available specimens.

***Stathmopoda* sp. 5** [Plates XXIX, LXXI-f]

Diagnosis. This species is distinguished from other members of the genus by broad yellow streak from near base to 2/5 of dorsum of forewing.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The apophyses posteriores are arising from near apex of papillae anales; and the joint membrane between papillae anales and eighth abdominal segment with numerous microsetae on cephalic 1/3.

Description. Two worn female specimen, but describing the following characters.

Male. Unknown.

Female. Wing expanse 11.8 mm. Forewing length 5.4-6.4 mm. Labial palpus yellow; third segment darkened towards apex. Antenna fuscous, with dark brown ringed. Head yellow. Tegula fuscous. Thorax dark brown, with lateral ocher blotches.

Wing markings. Forewing dark brown; markings obscure; 1/3 to 4/5 of costa yellow; yellow streak present, from near base to 2/5 of dorsum, broad; subtriangular yellow blotch present 5/7 of costa; cilia fuscous. Hindwing and cilia fuscous.

Legs ocher, ventrally pale ocher; fore-tibia dorsally with short dark brown verticillbristle at middle and apex; mid-tibia dorsally with ocher and dark brown verticillbristle at 2/5 and apex; hind-tibia dorsally covered with dark brown bristles

except near apex, long. Abdomen dorsally fuscous, ventrally pale ocher; spine row of abdominal terga present on second to sixth segments.

Genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales short, shorter than wide, weakly sclerotized, with short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment about three times as long as papillae anales, with numerous microsetae on cephalic 1/3. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores arising from near apex of papillae anales, long; apophyses anteriores about 4/7 times as long as apophyses posteriores. Ostium bursae shallow bowl-shaped, with microsetae arranged near caudal margin. Ductus bursae short, 2/5 length of corpus bursae. Corpus bursae with two signa, crescent-shaped, situated at caudal 1/3 and middle of corpus bursae; serrate margin present; sparse micro spines present around signum; second signum narrow. Ductus seminalis, narrow, originating from caudal margin of corpus bursae, apically with microspines; bulla absent.

Specimens examined. JAPAN. 1♀, Mino-City, Osaka-Pref., Honshu, 9. vii. 1981, T. Saito (1♀ Gen. sl. no. 11184). 1♀, Oko-rindo (600m), Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, 29. vii. 2013, T. Terada (Light trap).

Distribution. Japan: Honshu and the Ryukyu Islands (Yakushima Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in July.

Remarks. The female genitalia of this species is very similar to *S. tacita* (Meyrick, 1913). However, I could not decide their taxonomic relationships because of a scarcity of available specimens.

Genus *Phlogogramma* n. gen.

Diagnosis. This genus is distinguished from other genera of the family by the short labial palpus, the very longly ciliated antenna in male and the absence of eye-cap.

In the genitalia, this genus can be distinguished from other genera of the family by the following characters: The coremata develop on membranous eighth abdominal segment; the saccus is bifurcate; the anellar lobes assimilate each other; the elongate cornutus of aedeagus coil up basally; and the appendix bursae is present.

Description. Labial palpus short, smooth scaled and slightly curved, with acute apex. Antenna slightly shorter than length of forewing; very short cilia present cephalically; long cilia arranged ventrally in male; eye-cap not developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; 10-veined; discoidal cell long, occupying about basal 8/11 of wing. Sc connected with costal margin of wing on about basal 1/3. R₁ absent; R₂ from about distal 1/9 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from lower angle of cell. CuA₁ and CuA₂ absent. 1A+2A not branched, running to about 6/11 of dorsum. Hindwing lanceolate, about 7/9 as long as forewing; 10-veined; discoidal cell open. Sc connected with R₁ at about middle of wing. R₁ running to 2/3 of costa; R_s running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 2/5 of dorsum. 1A+2A rudimentary.

Legs smooth; mid-tibia dorsally with verticillbristle at middle and apex; hind-tibia dorsally covered with bristle on basal half; verticillbristle present at middle and apex; first and second segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen dorsally with spine row on second to sixth segments, arranged caudal margin.

Male genitalia. Coremata developing on membranous eighth abdominal segment. Uncus tapering caudally; scale-hairs occurring on lateral side. Gnathos shorter than uncus. Valva narrowest near base, with round apex; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with many long setae. Vinculum elongate; saccus bifurcate. Juxta present. Anellar lobes developed, assimilated, weakly sclerotized, with setae on surface. Aedeagus with elongate cornutus, coiled up basally; sclerotized structure present near base; very long apical patch of stimuli present.

Female genitalia. Seventh sternum with nearly flat caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment very long. Eighth abdominal segment sclerotized except laterally, with short setae arranged along caudal margin. Apophyses posteriores slightly longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae as long as corpus bursae. Corpus bursae with signum. Appendix bursae present. Ductus seminalis originating from near cephalic end of ductus bursae, with bulla; microspines apically present.

Type species. *Phlogogramma tecticochleatum* n. sp.

Etymology. Phlox (Greek) = flame. Gramma (Greek) = picture. The genus name, *Phlogogramma*, derives from orange fascia and streaks of forewing.

Remarks. This new genus is included only one species, and conspicuous group in that orange fascia and streaks of forewing. Kasy (1973) reported that to distinguish genera of the family Stathmopodidae by genital characters is difficult. However, this new genus has very unique genital characters in the family as follows. The saccus is bifurcate, and anellar lobes assimilate each other in male genitalia. The cervix bursae is present in female genitalia.

***Phlogogramma tecticochleatum* n. sp.** [Plates XXX, LXI-a, LXXII-a]

[Japanese name: Kazari-maikoga]

Diagnosis. The orange fascia is present at 1/5 of forewing. Two orange stout streaks arise from costal and near dorsal end of fascia. The orange streak runs from medial 1/3 to 2/3 of forewing. The brownish black blotch is present at middle of dorsum.

In the genitalia, the coremata develop on membranous eighth abdominal segment, and the elongate cornutus coil up about basal 4/5. Some small spines are present near caudal end of ductus bursae, and the bar-shaped signum of corpus bursae is present.

Description. Wing expanse 8.1-9.4 mm. Forewing length 3.4-4.3 mm. Labial palpus white; third segment ventrally dark gray. Antenna fuscous, dorsally white on apical 1/7. Vertex dark silvery; occiput brownish black, with medial dark silvery blotch; frons silvery to dark silvery. Tegula dark silvery. Thorax dark silvery, with brownish black fascia at middle, broad; a pair of sublateral orange streak present at about middle of thorax.

Wing markings. Forewing dark silvery, brownish black at base and apex; orange fascia present at 1/5, not reaching dorsum, cephalodorsally with brownish black edged; two blotches present at middle of dorsum and 3/4 of costa; first blotch brownish black, small and oval; third blotch white to silvery, sublozenge; four orange streaks radiating; first streak from costal end of fascia to middle of costa, stout; second streak from near dorsal end of fascia, short and stout, sometimes dorsally with brownish black edged; third streak from medial 1/3 to 2/3 of wing, with brownish black edged; third streak connected with dorsal side of first streak and weakly connected with apex of second streak; sometimes second and third fasciae unconnected; fourth streak from first blotch to near apex of wing; cilia fuscous. Hindwing brown; cilia fuscous.

Wing venation. Forewing 10-veined; discoidal cell long, occupying basal 8/11 of wing. Sc connected with costal margin of wing at basal 1/3. R₁ absent; R₂ from about distal 1/9 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from lower angle of cell. CuA₁ and CuA₂ absent. 1A+2A not branched, running to 6/11 of dorsum. Hindwing narrow, 7/9 as long as forewing; 10-veined; discoidal cell open. Sc connected with R₁ at 6/13 of wing; R₁ running to 2/3 of costa; Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 2/5 of dorsum. 1A+2A rudimentary.

Legs gray, ventrally white; mid-femur dorsally orange; mid-tibia dorsally white at 2/3, dorsally with ocher verticillbristle at middle and apex; hind-tibia dorsally covered with orange rough scales on basal half; ocher verticillbristle dorsally present at middle and apex; first and second segments of hind-tarsus with brown verticillbristle at apex; fourth and fifth segments of hind-tarsus white. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to sixth segments.

Male genitalia. Coremata developing on membranous eighth abdominal segment. Uncus tapering caudally, with bifurcate apex, down-turned; scale-hairs occurring on lateral side. Gnathos shorter than uncus, narrow, with truncate apex. Valva narrowest near base, with round apex; costa subtrapezoidal dorsally; cucullus broad, oval, three times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with many long setae. Vinculum elongate, with acute apex; saccus 2/3 length of uncus, bifurcate. Juxta subtriangular. Anellar lobes developed, assimilated, weakly sclerotized; with setae on surface, arranged sublaterally. Aedeagus about seven times as long as uncus, basal 3/8 round; narrowly cylindrical part originating from dorsal margin of round part; cornutus elongate, very long, with

spear-shaped apex; apex of cornutus sticking out from apex of aedeagus; about basal 4/5 of cornutus coiled up in round part of aedeagus; apical patch of stimuli present, very long, slightly shorter than aedeagus, with round apex; cephalic 2/3 of apical patch of stimuli bifurcate, down-turned near cephalic end; sclerotized structures present near base, club-shaped and thin, assimilated with one of cephalic end of apical patch of stimuli at about center of round part of aedeagus.

Female genitalia. Seventh sternum with nearly flat caudal margin. Papillae anales slightly shorter than wide, weakly sclerotized, with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment very long, about 12 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, with short setae arranged along caudal margin. Apophyses anteriores about 8/9 length of apophyses posteriores. Ostium bursae cup-shaped, very small. Ductus bursae as long as corpus bursae, with some small spines near caudal end. Corpus bursae with signum, bar-shaped, situated at about middle. Appendix bursae present originating from cephalic margin of corpus bursae, 3/4 length of corpus bursae. Ductus seminalis originating from near cephalic end of ductus bursae, with bulla at about middle; microspines apically present.

Type Material. HOLOTYPE ♂, 8km north of Takana, Iriomote Is., the Ryukyu Islands, JAPAN, 8. x. 2001, K. Sugisima (1♂ Gen. sl. no. 11114), deposited in OPU. PARATYPES, JAPAN. The Ryukyu Islands: 1♀, Mt. Maese, Ishigaki is., 21. viii. 1994, K. Yasuda; 5♂, 8km north of Takana, Iriomote Is., 6. x. 2001, N. Hirai; 27♂ 10♀, Ditto, 8, 10. x. 2001, K. Sugisima (6♂ 5♀ Gen. sl. no. 0921, 0922, 11124, 11125, 12114, 12116, 12117, 12118, 12119, 12120; 1♂ Wing sl. no. 11160).

Distribution. Japan: the Ryukyu Islands (Ishigaki Is., Iriomote Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in August and October.

Etymology. Tectus (Latin) = concealed. Cochlea (Latin) = spiral. The specific epithet, *tecticochleatum*, derives from coiled up elongate cornutus of aedeagus.

Remarks. This new species were collected from extremely limited location, Ishigaki and Iriomote Is. Moreover, the host plants of this species is unknown. Thus the distribution and the host range of this species are needed further investigation.

Genus *Atrijuglans* Yang, 1977

Atrijuglans Yang, 1977: 146.

Type species: *Atrijuglans hetaohei* Yang, 1977 (by monotypy).

Ursina Sinev, 1988: 116.

Type species: *Stathmopoda nigrella* Kuznetsov, 1984.

Description. Labial palpus long, smooth-scaled and curved, with acute apex. Antenna about 5/6 length of forewing, long cilia present ventrally, very short in female; scape not developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing broadly lanceolate, widest near base; 13-veined; discoidal cell long, occupying about basal 4/7 of wing. Sc connected with costal margin of wing on about basal 7/12. R₁ running from distal 3/4 of cell; R₂ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from lower angle of cell. CuA₁ running from near lower angle of cell; CuA₂ from distal 7/9 of cell. 1A+2A connected about basal 1/4 of wing, running to about 3/5 of dorsum. Hindwing lanceolate, about 5/6 as long as forewing; 9-veined; discoidal cell open. Sc+R₁ running to 4/7 of wing. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common

with CuA₂; CuA₂ running to about 3/7 of dorsum.

Legs smooth; fore-tibia dorsally with verticillbristle at apex; mid-tibia dorsally with verticillbristle at middle and apex; first segment of mid-tarsus dorsally with verticillbristle at apex; hind-tibia dorsally with two verticillbristle at middle and apex; first segment of hind-tarsus dorsally with verticillbristle at apex; second and third segments dorsally covered with bristle. Abdomen dorsally with spine row on second to sixth segments, arranged caudal margin.

Male genitalia. Uncus tapering caudally; setae occurring on lateral side. Gnathos longer than uncus, dorsally with many papilliform projection. Valva narrowest near base; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with some long setae. Vinculum turned dorsally at middle; saccus shorter than length of uncus. Juxta present. Anellar lobes developed, weakly sclerotized, with setae on surface. Aedeagus stout; cornutus absent; sclerotized structure present near base; apical patch of stimuli present near apex of aedeagus, narrow.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment long. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae slightly longer than length of corpus bursae. Corpus bursae with signum. Ductus seminalis short, originating from near caudal margin of corpus bursae, without microspines; bulla absent.

Species examined. *Atrijuglans hetaohei*.

Remarks. This genus is included only one species, and conspicuous group in that red

compound eye.

Atrijuglans hetaohei Yang, 1977 [Plates XXXI, LXI-b, LXXII-b]

[Japanese name: Shiro-ten-kuro-maikoga]

Atrijuglans hetaohei Yang, 1977: 192.

Aeoloscelis sp.: Liu, 1981; 14, pl. 4, fig. 45.

Stathmopoda nigrella Kuznetzov, 1984: 78, 81, figs 3-5.

Ursina nigrella: Sinev, 1988: 119, figs 10-13, 20.

Description. Wing expanse 8.8-13.0 mm. Forewing length 3.8-6.1 mm. Labial palpus dark gray; first segment white; second segment dorsally pale ocher. Antenna dark brown to fuscous. Vertex dark silvery; occiput brownish black; frons silvery. Tegula brownish black. Thorax brownish black, with white to pale ocher blotch at caudal margin of mesothorax.

Wing markings. Forewing brownish black, with two white blotches at 1/7 and 2/5 of wing, near dorsum, sometimes obscure or absent; white fascia present at 3/4 of costa, not reaching dorsum, sometimes not reaching costa; cilia fuscous. Hindwing dark brown; cilia fuscous.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 4/7 of wing. Sc connected with costal margin of wing on basal 7/12. R₁ from distal 3/4 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from lower angle of cell. CuA₂ from distal 7/9 of cell. 1A+2A connected basal 1/4 of wing, running to about 3/5 of dorsum. Hindwing 5/6 as long as forewing; 9-veined; discoidal cell open. Sc+R₁ running to 4/7 of wing. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 3/7 of dorsum, sometimes rudimentary.

Legs white; fore-femur ventrally ocher to pale gray; fore-tibia dorsally gray, dorsally with verticillibristle and brownish black ring at apex; first segment of fore-tarsus brownish black on apical half; second to fifth segment gray; mid-femur ventrally with two gray blotch at middle and apex; mid-tibia brownish black on basal half and apex, dorsally with verticillibristle at middle and apex; first segment of mid-tarsus dorsally brownish black at apex, dorsally with verticillibristle at apex; fifth segment of mid-tarsus dark gray; hind-femur ventrally pale gray, darkened toward base; hind-tibia with dark brown to ocher verticillibristle and brownish black rings at middle and apex; first segment of hind-tarsus with brownish black ring and verticillibristle at apex; second and third segment of hind-tarsus covered with brownish black bristle dorsally. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to sixth segments.

Male genitalia. Uncus tapering caudally, with acute apex; setae occurring on lateral side. Gnathos longer than uncus, tongue-shaped, dorsally with many papilliform projection. Tegumen with subtriangular peniculi; setae absent. Valva narrowest near apex; costa dorsally round to subtrapezoidal; cucullus narrowly semicircular, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with some long setae. Vinculum turned dorsally at middle, with acute apex; saccus 1/2 length of uncus and cephalically round. Juxta subtriangular. Anellar lobes developed, narrowly subtriangular, weakly sclerotized, with setae on surface. Aedeagus about four times as long as uncus, stout, with some small spines near base of aedeagus; cornutus absent; sclerotized structure present near base, oval and thin; apical patch of stimuli present near apex of aedeagus, 2/5 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales

slightly longer than wide, weakly sclerotized, dorsally with many setae; joint membrane between papillae anales and eighth abdominal segment four times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 1/2 as long as apophyses posteriores. Ostium bursae cup-shaped, with some wrinkles inner surface; oval sclerotized structure present at caudal margin of ostium bursae. Ductus bursae long, slightly longer than length of corpus bursae; many spinose lamellae present near connection of ductus and corpus bursae. Corpus bursae with small signum, lozenged, situated at about middle of corpus bursae, with streak of fold. Ductus seminalis short and narrow, originating from near caudal margin of corpus bursae; bulla absent; some spinose lamellae present at connection of corpus bursae and ductus seminalis.

Specimens examined. JAPAN. Hokkaido: 1♀, Fukushima, 6. vii. 1976, T. Kumata *et al.* (1♀ Gen. sl. no. 0431; 1♀ Wing sl. no. 0432); 1♂, Misumai, Sapporo-City, 22. vii. 1891, K. Sayama; 1♀, Nagahashi-naebo, Otaru-City, 1. viii. 1992, Y. Sakamaki; 1♂, Mt. Tappu, Iwamizawa-City, 27. vii. 2002, K. Sugisima (Light trap). Honshu: 1♀, Shiroyama-park, Yahiko-Vill., Niigata-Pref., 8. viii. 2000, K. Sugisima; 1♀, Kitaonsen (1150m), Nasu Imperial Vila, Tochigi-Pref., 27. vii. 2006, Y. Arita; 4♀, Nishigahara, Tokyo-Pref., em. 20, 24, 27. vi. 1938, ex *Actinidia polygama*, A. Kawada (2♀ Gen. sl. no. KY-156, 12006); 2♂, Ditto, em. 7. vii. 1938, ex *A. polygama*, A. Kawada (2♂ Gen. sl. no. KY-159, 12009); 7♂, Fukiage-gyoen, The Imperial House, Tokyo-Pref., 10. vii. 2012, U. Jinbo (2♂ Gen. sl. no. 12079, 12080); 2♂ 2♀, Ueda, Nagano-Pref., 1963, ex Fruit of *Juglans* sp., H. Machida (1♂ 1♀ Gen. sl. no. 13019, 14038; 1♂, Wing sl. no. 13157); 2♂ 1♀, Ditto, em. 5, 10. vii. 1964, ex Fruit of *Juglans* sp., H. Kuroko (2♂ 1♀

Gen. sl. no. 12004, 12089, 14047); 3♂ 4♀, Ditto, em. 10, 12. viii. 1980, ex Fruit of *Juglans* sp., K. Yasuda (1♂ 1♀ Gen. sl. no. 12005, 12008, 12090, 13018, 13025; 1♀ Wing sl. no. 13153); 1♂, Kou, Oka-Vill., Nagano-Pref., 17. vii. 2001, K. Sugisima. Shikoku: 3♂, Mt. Zozu, Kagawa-Pref., 5. viii. 1972, H. Toshima; 1♀, Mt. Yokokura, Ochi-Town, Kochi-Pref., 7. vii. 2008, Y. Manabe (1♀ Gen. sl. no. 13016); 1♀, Ditto, 21. viii. 2008, Y. Manabe (1♀ Gen. sl. no. 13017); 1♂, Befukyuu, Kami-City, Kochi-Pref., 2. viii. 2011, Y. Manabe. Kyushu: 1♂, Kojoyaku, Kitakyushu-City, Fukuoka-Pref., 9. vii. 1966, T. Kawamura; 1♂, Mt. Hiko-san, Senda-Town, Fukuoka-Pref., 31. vii. 1963, H. Kuroko; 1♀, Ditto, 19. viii. 1995, T. Yamauchi (1♀ Gen. sl. no. 12064). The Ryukyu Islands: 1♂ 1♀, Mt. Yuwan-dake, Amami-oshima Is., Kagoshima-Pref., 11. ix. 2012, S. Sameshima (Light trap); 1♀, Tete-rindo, Tokunoshima Is., Kagoshima-Pref., 1. vi. 2014, K. Tsuda; 1♀, Iriomote Is., 17. iv. 1962, G. Kuno (1♀ Gen. sl. no. 12063).

Distribution. Japan: Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyu Islands (Amami-oshima Is., Tokunoshima Is., Iriomote Is.). Primorsky in Russia, China and South Korea (Sinev. 1999).

Host plants. *Juglans mandshurica* Maxim. (Sinev, 1988); *Juglans regia* L. (Wang, 2006); *Juglans* sp. (Juglandaceae) and *Actinidia polygama* (Sieb. and Zucc.) Planch. ex Maxim (Actinidiaceae).

Biology. Adults emerged in June to August under rearing condition, and were collected in April and June to September. Mature larvae found in gall of *Pseudasphondylia matatabi* (Yuasa and Kumazawa) (Diptera: Cecidomyiidae) on fruit of *A. polygama* in September, and overwinters after maturity (Murase, 2007b). Larvae feed on nut of *J. mandshurica*, and they overwinter as the mature larvae (Sinev, 1988).

Remarks. This species is known as a pest of a walnut (Yang, 1977; Kaneko *et al.*,

2008).

Genus *Hieromantis* Meyrick, 1897

Hieromantis Meyrick, 1897: 315.

Type species: *Hieromantis ephodophora* Meyrick, 1897.

Description. Labial palpus long, smooth scaled and slightly curved, with acute apex. Antenna about 2/3 length of forewing; very short cilia present cephalically; long cilia arranged ventrally in male; scape developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; 13-veined; discoidal cell long, occupying about basal 7/10 of wing. Sc connected with costal margin of wing on about basal 1/3. R₁ from near upper angle of cell; R₂ or R₃ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ and CuA₂ present only near dorsum, rudimentary. 1A+2A connected about basal 1/5 of wing or not branched, running to about middle of dorsum. Hindwing narrowly lanceolate; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂.

Legs smooth; mid-tibia dorsally with verticillibristle at middle and apex; hind-tibia covered with bristle; first segment of hind-tarsus dorsally covered with bristle; second and third segments dorsally with bristle at apex. Abdomen dorsally with spine row on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus tapering caudally; setae occurring on lateral side. Gnathos thin, as long as uncus. Valva narrowest near base; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with some long setae. Vinculum short; saccus shorter than half length of corpus bursae. Juxta present. Anellar lobes developed,

weakly sclerotized, very large, with setae on surface. Aedeagus with or without cornutus; basal sclerotized structure present or absent; apical patch of stimuli present near apex of aedeagus, with acute apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae shorter than length of corpus bursae. Corpus bursae with arranged micro-lamellae; signum present or absent. Ductus seminalis originating from caudal margin of corpus bursae, apically with microspines; bulla absent.

Species examined. *Hieromantis kurokoi*, *H. makiosana*.

Remarks. This genus is included 16 species, and distributed in Oceania and South, East and Southeast Asia. In addition, this genus is related to the genus *Stathmopoda* (Yasuda, 1988), and conspicuous group in that the black blotch with many silvery scale of forewing.

Key to the Japanese species of *Hieromantis*

1. White apical streak of forewing running on termen. In male genitalia, cucullus circular; aedeagus with narrowly tongue-shaped cornutus and some elongate cornuti on vesica. In female genitalia, large pouch present at connection of ductus and corpus bursae; corpus bursae with narrowly crescent-shaped signum.

..... *H. kurokoi* Yasuda

-. White apical streak of forewing absent. In male genitalia, cucullus subtriangular;

aedeagus without cornutus. In female genitalia, pouch at connection of ductus and corpus bursae absent; corpus bursae without signum. *H. makiosana* Yasuda

***Hieromantis kurokoi* Yasuda, 1988** [Plates XXXII, LXI-c, LXXII-c]

[Japanese name: Kuroko-maikoga]

Hieromantis kurokoi Yasuda, 1988: 494-496, figs 2, 4, 8-10, 12.

Hieromantis nordella Sinev, 1988: 109-111, figs 1-3.

Diagnosis. This species is very similar to *H. makiosana*, but can be distinguished by coloration of apical streak of forewing. In this species, the apical streak is white. In contrast, in *H. makiosana*, the apical streak is dark brown.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The cucullus is circular; the narrowly tongue-shaped cornutus and some elongate cornuti of aedeagus are present; the large pouch is present at connection of ductus and corpus bursae; and the narrowly crescent-shaped signum of corpus bursae is present.

Description. Wing expanse 7.8-10.6 mm. Forewing length 3.4-5.0 mm. Labial palpus ocher, ventrally pale ocher. Antenna ocherous gray to pale gray; eye-cap dorsally ocher. Vertex and occiput ocher; frons pale ocher to white. Tegula yellow, apically white. Thorax white, with sublateral yellow streaks.

Wing markings. Forewing yellow; costa gray on 2/3; four fasciae present at base, 1/5, middle and 2/3 of wing; first fascia silvery, narrow; second and third fasciae white, with obscure brown edged; second fascia narrowed toward dorsum; fourth fascia dark brown, narrow, inwardly oblique, not reaching dorsum; three streaks running; first streak from costal end of fourth fascia to near apex of wing, white; second streak from dorsal end of

fourth fascia to apex of wing, along dorsum, dark brown; third streak on termen, white; oval black blotch present at 1/3 of dorsum, very large, with many silvery scale on caudal 2/3 of blotch; white spot present at 1/4 of blotch; cilia ocher to gray. Hindwing and cilia gray.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 5/7 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked, in common with R₃. M₃ from lower angle of cell. CuA₁ and CuA₂ present only near dorsum, rudimentary. 1A+2A connected basal 2/9 of wing, running to about middle of dorsum. Hindwing 5/6 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 1/3 of dorsum.

Legs ocher, ventrally white; fore-leg ventrally gray; mid-tibia dorsally with verticillbristle at middle and apex; mid-tarsus sometimes dorsally gray; hind-tibia covered with bristle, dorsally white at middle, gray near apex; first segment of hind-tarsus dorsally covered with gray bristle; second and third segments dorsally gray, dorsally with gray bristle at apex. Abdomen dorsally gray, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus tapering caudally, apically down-turned; setae occurring on lateral side. Gnathos thin, slightly as long as uncus, with round apex. Valva narrowest near base, with round apex; costa slightly round caudally, with some long setae; cucullus circular, 1.5 times as long as uncus, with numerous setae on inner surface; saccus sclerotized, apically obscure, ventrally with some long setae. Vinculum short, with acute apex; saccus 1/3 length of uncus, cephalically round. Juxta oval. Anellar

lobes developed, very large and narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about 4.5 times as long as uncus; narrowly tongue-shaped cornutus and some elongate cornuti present on vesica; sclerotized structure present near base, sub rectangular and thin; apical patch of stimuli present near apex of aedeagus, 1/5 length of aedeagus, with acute apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment 2.5 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally subtriangular, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 4/7 as long as apophyses posteriores. Ostium bursae large, cup-shaped, with many microspines inner surface. Ductus bursae stout, shorter than length of corpus bursae; large pouch present at connection of ductus and corpus bursae. Corpus bursae with some triangular spicules near caudal margin; many micro-lamellae arranged longitudinally; signum narrowly crescent-shaped, situated at caudal 1/4 of corpus bursae. Bulla absent. Ductus seminalis long, originating from caudal margin of corpus bursae, with microspines.

Specimens examined. JAPAN. Honshu: 1♀, Kamasawa, Oshika-Vill., Nagano-Pref., 24. vi. 2001, K. Sugisima; 1♀, Okuchi-zawa, Toyoshina-Town, Nagano-Pref., 6. viii. 2000, K. Sugisima (1♀ Gen. sl. no. 14028); 1♂, Tazawa, Inasa-Town, Shizuoka-Pref., 1. viii. 2000, K. Sugisima (1♂ Gen. sl. no. 14027); 1♀, Oguni-jinjya, Mori-Town, Shizuoka-Pref., 1. viii. 2000, K. Sugisima. Shikoku: 1♀, Nishikiyama-park, Hidaka-Vill., Kochi-Pref., 4. ix. 2011, Y. Manabe; 1♀, Tatsu, Usa-Town, Tosa-City, Kochi-Pref., 8. vi. 2008, Y. Manabe; 1♀, Matsubagawa, Shimanto-Town, Kochi-Pref.,

7. vii. 1961, M. Miyatake and M. Okada (1♀ Gen. sl. no. 14031; 1♀ Wing sl. no. 14026). 1♂, Mt. Hiko, Senda-Town, Fukuoka Pref., Kyushu, 19. viii. 1995, T. Yamauchi (1♂ Gen. sl. no. 14030). 1♀, Sangrim-ri, Dochook-Mycon, Gwangju-City, SOUTH KOREA, 23-24. vi. 2006, T. Mano.

Distribution. Japan: Honshu, Shikoku and Kyushu; South Korea. Primorsky in Russia (Sinev, 1999). China (Wang, 2006).

Host plants. *Cuscuta japonica* Choisy (Cuscutaceae) (Murase, 2002).

Biology. Adults were collected in June to September. Adults of overwintering generation emerged in April and May; larvae bore into the stem of host plant (Murase, 2002). Larvae of overwintering generation continue to feed on dead stem and fruit in captivity (Murase, 2006).

***Hieromantis makiosana* Yasuda, 1988** [Plates XXXIII, LXI-d, LXXII-d]

[Japanese name: Makio-maikoga]

Hieromantis makiosana Yasuda, 1988: 491-494, figs 1, 3, 5-7, 11.

Diagnosis. This species is very similar to *H. kurokoi*, but can be distinguished by coloration of apical streak of forewing. In this species, the apical streak is dark brown. In contrast, in *H. kurokoi*, the apical streak is white.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The cornutus and basal sclerotized structure of aedeagus are absent; and the signum of corpus bursae is absent.

Description. Wing expanse 6.5-7.3 mm. Forewing length 2.9-3.9 mm. Labial palpus pale ocher, ventrally white; third segment dorsally darkened toward apex. Antenna ocher; each segments darkened toward apex; eye-cap dorsally ocher. Vertex and occiput

ocher; frons white. Tegula ocher. Thorax ocher, with medial white streak.

Wing markings. Forewing ocher; costa pale gray on basal half; three white fasciae present at near base, 1/5 and middle of wing; first fascia narrow, obscure; third fascia not reaching dorsum, subtriangular, obscure, with obscure brown edged; three streaks running; first streak from near costal end of third fascia to 2/3 of costa, white, obscure; second streak from dorsal end of third fascia to apex of costa, white, cephalically with silvery edged; third streak at near apex, along termen, dark brown, obscure; black blotch present at 1/3 of dorsum, large, with many silvery scale except near cephalic margin; white spot present at near cephalic margin of blotch, small; cilia pale gray to gray. Hindwing and cilia pale gray.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked, approximate to R₃ at base. M₁ approximate to R₄₊₅ at base; M₃ from lower angle of cell. CuA₁ and CuA₂ present only near dorsum, rudimentary. 1A+2A connected basal 1/5 of wing, running to about 4/9 of dorsum. Hindwing very narrow, 4/5 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂ absent; M₃ and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 1/4 of dorsum.

Legs ocher, ventrally white; fore-tibia and second segments of fore-tarsus apically gray; first segment of fore-tarsus gray at middle; third and fifth segments of fore-tarsus gray; mid-tibia dorsally with verticillbristle at middle and apex; second segment of mid-tarsus with dark gray ring at apex; hind-tibia inside dark gray on apical 1/3, covered with bristle, dorsally white at middle, gray at 1/3 and near apex; first segment of hind-tarsus dorsally covered with gray bristle; second and third segments dorsally

gray, dorsally with gray bristle at apex. Abdomen dorsally gray, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus tapering caudally; setae occurring on lateral side. Gnathos thin and oval, as long as uncus. Valva narrowest near base; costa caudally angled; cucullus subtriangular, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, sometimes apically weakly angled, ventrally with some long setae. Vinculum short, with acute apex; saccus 1/5 length of uncus and cephalically round. Juxta tongue-shaped. Anellar lobes developed, very large and narrowly oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus; cornutus absent; basal sclerotized structure absent; apical patch of stimuli present near apex of aedeagus, narrow, 1/3 length of aedeagus, with acute apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales as long as wide, weakly sclerotized, with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment twice as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 3/5 as long as apophyses posteriores. Ostium bursae large, tub-shaped, with many microspines inner surface. Ductus bursae, shorter than length of corpus bursae, extended toward corpus bursae. Some micro-lamellae arranged near caudal margin of corpus bursae. Signum absent. Bulla absent. Ductus seminalis long, originating from caudal margin of corpus bursae, with some small spicules at base; microspines present at apical half.

Specimens examined. JAPAN. Honshu: 1♀, Oguni-jinjya, Mori-Town,

Sizuoka-Pref., 1. viii. 2000, K. Sugisima (1♀ Gen. sl. no. 14032). The Ryukyu Islands: 1♀, Funaura, Iriomote Is., 24-30. x. 1989, T. Kumata; 1♀, Ditto, 10. x. 2001, S. Sugisima (Light trap); 1♂, Uehara, Iriomote Is., 11. iii. 2011, T. Terada (Light trap) (1♂ Gen. sl. no. 12001; 1♂ Wing sl. no. 13123); 1♂, Komi, Iriomote Is., 14. iii. 2011, T. Terada (Light trap); 1♀, Mandabaru-park, Yonaguni Is., 28. v. 2013, T. Terada (Light trap) (1♀ Gen. sl. no. 14017); 1♂, Ditto, 29. v. 2013, T. Terada (Light trap) (1♂ Gen. sl. no. 13112).

Distribution. Japan: Honshu and the Ryukyu Islands (Iriomote Is., Yonaguni Is.).

Host plants. *Castanea crenata* Sieb. and Zucc. (Fagaceae) (Yasuda, 1988).

Biology. Adults were collected in March, May, August and October. Adult emerged from the host gall by *Dryocosmus kuriphilus* Yasumatsu (Hymenoptera: Austrocynipidae) in May (Yasuda, 1988).

Genus *Calicotis* Meyrick, 1889

Calicotis Meyrick, 1889: 170.

Type species: *Calicotis crucifera* Meyrick, 1889 (by monotypy).

Diagnosis. This genus is similar to *Pachyrhabda*, *Cuprina*, *Thylacosceles* and *Thylacosceloides*, but can be distinguished by the antenna. The antenna is not ciliated or very shortly ciliated entirely in male, and the eye-cap is developed.

Description. Labial palpus smooth scaled and slightly curved, with acute apex; second segment slightly rough scaled cephalically. Antenna about 5/6 length of forewing, not ciliated or very shortly ciliated entirely in male, weakly serrated to serrated apically; eye-cap developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; termen slightly emarginate in

Ca. xanthopsis n. sp.; 11- to 12-veined; discoidal cell long, occupying about basal 2/3 of wing. Sc connected with costal margin of wing on about basal 3/8. R₁ or R₂ from near upper angle of cell; R₁ absent in *Ca. xanthopsis* n. sp.; R₄ and R₅ stalked. M₂ or M₃ from lower angle of cell. CuA₁ present only near dorsum, usually rudimentary; CuA₂ absent. 1A+2A usually not branched. Hindwing lanceolate, very narrow; 7- to 9-veined; discoidal cell open. M₂ and M₃ absent, present in *Ca. xanthopsis* n. sp.

Legs smooth; mid-tibia dorsally covered with bristle; some basal segments of mid-tarsus with verticillbristle at apex; hind-tibia dorsally covered with bristle; verticillbristle present at apex; first to fourth segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen dorsally with spine row on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus, setae occurring on lateral side. Gnathos slightly shorter to longer than uncus, with round apex. Valva usually with round apex; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae. Vinculum elongate; saccus shorter than length of uncus. Juxta present. Anellar lobes developed, weakly sclerotized, with setae on surface. Aedeagus usually with weakly sclerotized wrinkles on vesica; cornutus absent; basal sclerotized structure absent; apical patch of stimuli present at apex of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales weakly sclerotized; with many short setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin. Apophyses posteriores longer than apophyses anteriores, slightly shorter in *Ca. xanthopsis* n. sp. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae

shorter than corpus bursae. Corpus bursae with signum. Ductus seminalis originating from around connection of ductus and corpus bursae, from cephalic 1/3 of corpus bursae in *Ca. xanthopsis* n. sp., apically with microspines; bulla present or absent.

Species examined. *Calicotis crucifera* (Lectotype images: BMNH(E) #1055270), *Ca. chrysoptera* n. sp., *Ca. biserraticola* n. sp., *Ca. rotundinidus* n. sp., *Ca. exclamationis* n. sp., *Ca. latebrifica* n. sp., *Ca. xanthopsis* n. sp., *Ca. sublucida* n. sp.

Remarks. This genus is included 15 species, and conspicuous group in that the developing eye-cap and the whitish or brownish colored forewing. In addition, this genus is distributed in East Africa, North and East Asia, and Oceania. All the known host of this genus are spore of fern. This genus is related to the genera *Pachyrhabda*, *Cuprina*, *Thylacosceles* and *Thylacosceloides*.

Key to the Japanese species of *Calicotis*

1. Ground color of forewing pale fuscous. In male genitalia, uncus ventrally touching with gnathos on basal 3/5. In female genitalia, ductus bursae with pouch near connection of ductus and corpus bursae. *Ca. sublucida* n. sp.
- . Ground color of forewing white to pale ocher. In male genitalia, uncus ventrally touching with gnathos only at base. In female genitalia, ductus bursae without pouch. 2
2. Forewing with brown to brownish black fascia at 2/5. 3
- . Forewing without fascia at 2/5. 6
3. Forewing with brown to brownish black spot near base of dorsum. 4
- . Forewing without basal spot of dorsum. 5
4. Forewing with dark brown to brownish black streak radiating from about 2/3 to near

- apex. In male genitalia, uncus with shallowly bilobate apex; cucullus oval. In female genitalia, ostium bursae with sublateral folds. *Ca. rotundinidus* n. sp.
- Forewing with dark brown round blotch at 3/4. In male genitalia, uncus with round apex; cucullus narrowly oval. In female genitalia, ostium bursae large, with a pair of streaks at cephalic 1/3, nearly horizontal. *Ca. latebrifica* n. sp.
5. Forewing with ochreous yellow to brown streak on near base to middle of CuP. In male genitalia, gnathos narrow; cucullus narrowly oval and dorsal margin of cucullus slightly emarginate to nearly flat. In female genitalia, ostium bursae with some folds. *Ca. chrysoptera* n. sp.
- Forewing without streak on near base to middle of CuP. In male genitalia, gnathos rather stout; cucullus narrowly oval and caudally weakly angled. In female genitalia, ostium bursae with lateral folds near cephalic margin, oblique.
..... *Ca. exclamationis* n. sp.
6. Forewing with three obscure fasciae near base, at 1/4 and 3/4; first and third fascia yellowish brown; second fascia ochreous yellow. In male genitalia, cucullus narrowly oval; sacculus apically subtriangular and protruding caudally. In female genitalia, signum narrowly crescent-shaped; ductus seminalis originating from cephalic 1/3 of corpus bursae. *Ca. xanthopsis* n. sp.
- Forewing without any fascia; two ochreous to brown streaks radiating; first streak on near base to middle of CuP; second streak at about middle of wing; ochreous to brown blotch present 3/4 of wing. In male genitalia, cucullus narrowly oval and narrowed towards apex; sacculus apically round and not protruding caudally. In female genitalia, signum subtriangular; ductus seminalis originating from cephalic end of ductus bursae. *Ca. biserraticola* n. sp.

***Calicotis chrysoptera* n. sp.** [Plates XXXIV, LXII-a, LXXIII-a, b]

[Japanese name: Shida-maikoga]

Stathmopoda sp. 3: Oku, 2003a: 40.

Stathmopoda sp. 3: Terada and Sakamaki, 2013: 228-229, pl. 29. fig. 25.

Diagnosis. This species is similar to *Ca. rotundinidus* n. sp., *Ca. exclamationis* n. sp. and *Ca. latebrifica* n. sp., but can be distinguished by the presence of the ochreous yellow to brown streak on near base to middle of CuP. This species is also very similar to *Ca. biserraticola* n. sp., but can be distinguished by the fascia of forewing. In this species, the yellowish brown to dark brown fascia is present at 2/5 of wing. In contrast, in *Ca. biserraticola* n. sp., the fascia at 2/5 of wing is absent (ochreous yellow to brown streak runs at about middle of wing).

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The cucullus is narrowly oval; dorsal margin of the cucullus is slightly emarginate to nearly flat; the ostium bursae with some folds; and many microspines and short wrinkles are present at lateral side of the subtriangular signum.

Description. Wing expanse 5.6-9.5 mm. Forewing length 2.4-4.5 mm. Labial palpus ochreous, ventrally white, dorsally with a brownish black patch around connection of first and second segments. Antenna ochreous. Vertex and occiput pale ochreous to ochreous; frons white. Tegula ochreous. Thorax ochreous, with yellowish brown to dark brown cephalic margin, sometimes obscure.

Wing markings. Forewing pale ochreous; costa dark brown on basal 2/5; ochreous yellow to brown streak on near base to middle of CuP, sometimes obscure; yellowish brown to dark brown fascia present at 2/5 of wing, inwardly oblique; ochreous yellow to dark brown blotch present 3/4 of wing, oval, sometimes obscure, connected with near

costa of fascia by obscure ochreous yellow streak; cilia white to pale gray, sometimes middle of termen brown. Hindwing pale gray; cilia pale gray to gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 3/8. R₁ from near upper angle of cell; R₂ and R₃ from upper angle of cell; R₄ and R₅ stalked, in common with R₃. M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 6/13 of dorsum. Hindwing 7/9 as long as forewing; 8-veined; discoidal cell open. Rs running to 3/4 of costa, rudimentary. M₂ absent; M₃ and CuA₁ stalked, in common with CuA₂; M₃ and CuA₂ rudimentary; CuA₂ running to about 3/10 of dorsum.

Legs ocher, ventrally white; fore-femur to -tarsus ventrally fuscous; mid-tibia dorsally covered with bristle; mid-tarsus sometimes dorsally with brownish black apex, respectively; first and second segments of mid-tarsus with verticillbristle at apex; hind-tibia dorsally covered with bristle; verticillbristle present at apex; first to fourth segments of hind-tarsus apically brownish black, with verticillbristle at apex. Abdomen dorsally pale ocher to ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically slightly down-turned, with truncate apex; setae occurring on lateral side. Gnathos narrow, slightly longer than uncus, with round apex in ventral view. Valva with round apex; costa dorsally round; cucullus narrowly oval, twice as long as uncus, with numerous setae on inner surface; dorsal margin of cucullus slightly emarginate to nearly flat; sacculus sclerotized, apically round, ventrally with setae. Vinculum elongate, with blunt apex; saccus 1/3 length of uncus, cephalically round. Juxta sublozenged. Anellar lobes developed, small, oval, weakly sclerotized,

with setae on surface. Aedeagus about three times as long as uncus, with weakly sclerotized wrinkles on vesica; cornutus absent; apical patch of stimuli present at apex of aedeagus, narrow, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales shorter than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment 1.6 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin and ventral side. Apophyses posteriores long; apophyses anteriores about 7/10 length of apophyses posteriores. Ostium bursae large, cup-shaped, with some folds. Ductus bursae short, about half length of corpus bursae. Corpus bursae with sparse microspines; subtriangular signum present at caudal 1/4 of corpus bursae; fold present cephalic end of signum, with serrate margin; many microspines and short wrinkles present at lateral side of signum. Ductus seminalis long, originating from cephalic end of ductus bursae, apically with microspines; bulla present at about 1/3 of ductus seminalis.

Type material. HOLOTYPE ♂, Takaze, Kirishima-City, Kagoshima-Pref., Kyushu, JAPAN, em. 4. viii. 2011, ex Spore of *Thelypteris acuminata*, T. Terada (1♂ Gen. sl. no. 13147), deposited in KGU. PARATYPES: JAPAN. Honshu: 1♂, Kuriyagawa, Morioka-City, Iwate-Pref., 24. vii. 1995, N. Doi (1♂ Gen. sl. no. M-10245). Kyushu: 12♂ 22♀, Takaze, Kirishima-City, Kagoshima-Pref., em. 3-15. viii. 2011, ex Spore of *Thelypteris acuminata*, T. Terada (3♂ 3♀ Gen. sl. no. 12014, 12015, 13096, 13140, 13141, 14060, 1♀ Wing sl. no. 12017); 9♂ 11♀, Kiiresekushi-Town, Kagoshima-City, Kagoshima-Pref., em. 14-26. viii. 2010, ex Spore of *T. acuminata*, T. Terada; 1♂, Toso,

Kagoshima-City, Kagoshima-Pref., 16. vi. 2010, T. Terada (Light trap) (1♂ Gen. sl. no. 13039); 1♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., 15. viii. 2012, T. Terada (1♀ Gen. sl. no. 13106); 11♂ 27♀, Korimoto, Kagoshima-City, Kagoshima-Pref., em. 11. viii-8. ix. 2010, ex Spore of *T. acuminata*, T. Terada (2♂ 2♀ Gen. sl. no. 10027, 10034, 10096, 10097); 21♂ 21♀, Ditto, em. 13-23. xi. 2010, ex Spore of *Pteridium aquilinum*, T. Terada (3♂ 3♀ Gen. sl. no. 10088, 10089, 10102, 10103, 13097, 13143, 1♂ Wing sl. no. 13127); 3♂ 6♀, Ditto, em. 16-20. vii. 2011, ex Spore of *T. acuminata*, T. Terada (2♂ Gen. sl. no. 14062, 14064); 1♂, Ditto, 24. vii. 2012, T. Terada; 1♂ 1♀, Ditto, 19. ix. 2012, T. Terada; 1♂, Ditto, 18. vii. 2013, T. Terada; 10♂ 15♀, Kawakami-Town, Kagoshima-City, Kagoshima-Pref., em. 20. ix-2. x. 2012, ex Spore of *T. acuminata*, Y. Sakamaki; 41♂ 45♀, Nishikata, Ibusuki-City, Kagoshima-Pref., em. 8-24. viii. 2010, ex Spore of *T. acuminata*, T. Terada (1♀ Gen. sl. no. 14025); 47♂ 53♀, Shinnishikata, Ibusuki-City, Kagoshima-Pref., em. 13-24. viii. 2010, ex Spore of *T. acuminata*, T. Terada (1♂ 1♀ Gen. sl. no. 10032, 14024, 1♀ Wing sl. no. 10033). The Ryukyu Islands: 1♀, Kurio, Yakushima Is., Kagoshima-Pref., 20. vii. 1979, K. Yasuda; 2♂ 3♀, Ditto, 6. ix. 1979, K. Yasuda (2♂ 1♀ Gen. sl. no. KY-34, KY-60, 13091, 1♂ Wing sl. no. w-23); 1♂ 4♀, Ditto, 20-21. viii. 1980, K. Yasuda (1♂ Gen. sl. no. 13090); 2♀, Onoaida, Yakushima Is., Kagoshima-Pref., 4, 8. ix. 1979, K. Yasuda (1♀ Wing sl. no. w-25); 2♂ 1♀, Ditto, 19, 22. viii. 1980, K. Yasuda; 3♂ 2♀, Yudomari-rindo 470m, Yakushima Is., Kagoshima-Pref., 28. vii. 2013, T. Terada (Light trap) (2♂ Gen. sl. no. 13075, 13120); 1♂, Hatsuno-rindo, Amami-oshima Is., Kagoshima-Pref., 13. v. 2009, K. Tsuda (1♂ Gen. sl. no. 13037); 3♂ 3♀, Hirae, Ishigaki Is., 8, 11, 14. v. 1984, K. Yasuda (Light trap) (1♀ Gen. sl. no. 13111); 3♂ 5♀, Mt. Banna, Ishigaki Is., 16. v. 1987, K. Yasuda (2♂ Gen. sl. no. 13092, 14066); 1♂, Hegina,

Ishigaki Is., 30. vi. 1992, K. Yasuda (1♂ Gen. sl. no. 14063); 1♂, Nagura, Ishigaki Is., 25. v. 1983, T. Tanabe; 1♂ 2♀, Ditto, 26. v. 2013 (Light trap) (1♂ 1♀ Gen. sl. no. 13074, 13108); 1♀, Funaura, Uehara, Iriomote Is., 23-24. v. 1983, T. Tanabe; 4♀, Ditto, 2-3, 8. x. 2001, K. Sugisima (Light trap); 1♀, Komi, Iriomote Is., 14. viii. 1993, K. Yasuda (Light trap) (1♀ Gen. sl. no. 13098).

Distribution. Japan: Honshu, Kyushu and the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Ishigaki Is., Iriomote Is.).

Host plants. *Thelypteris acuminata* (Houtt.) C. V. Morton (Thelypteridaceae) and *Pteridium aquilinum* (L.) Kuhn (Dennstaedtiaceae).

Biology. Adults emerged in July to October under rearing condition, and are collected in May to October. Larvae feed on host spore, and are found in forking silky gallery on underside of the host frond in July to October.

Etymology. Chrysos (Greek) = gold. Pteron (Greek) = wing. The specific epithet, *chrysoptera*, derives from pale ocher forewing.

Remarks. This new species was treated in Oku (2003a) and Terada and Sakamaki (2013) as *Stathmopoda* sp. 3, and the later reported that this species should be belonged to the genus other than *Stathmopoda* because of the absence of long cilia on antenna in male.

***Calicotis biserraticola* n. sp.** [Plates XXXV, LXII-b, LXXIII-c, d]

[Japanese name: Hime-shida-maikoga]

Diagnosis. This species is similar to *Ca. rotundinidus* n. sp., *Ca. exclamationis* n. sp. and *Ca. latebrifica* n. sp., but can be distinguished by the presence of the ocherous yellow to brown streak on near base to middle of CuP. This species is also very similar

to *Ca. chrysoptera* n. sp., but can be distinguished by the streak of forewing. In this species, the ochreous yellow to brown streak runs at about middle of wing. In contrast, in *Ca. chrysoptera* n. sp., the streak at about middle of wing is absent (yellowish brown to dark brown fascia is present at 2/5 of wing).

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The cucullus is narrowly oval and narrowed towards apex; ventral margin of the cucullus is slightly emarginate; the ostium bursae with some folds; and microspines and short wrinkles are absent at lateral side of the subtriangular signum.

Description. Wing expanse 5.2-8.5 mm. Forewing length 2.3-4.0 mm. Very similar to *Ca. chrysoptera* n. sp., but differing in the following characters. Vertex and occiput pale ochre. Tegula pale ochre to ochre. Thorax uniformly pale ochre to ochre.

Wing markings. Forewing white to pale ochre; markings sometimes obscure; two ochreous yellow to brown streaks radiating from near base to middle of CuP and about middle of wing; fascia absent; blotch ochreous yellow to brown; second streak sometimes weakly connected with blotch; cilia white to pale gray, sometimes middle of termen gray. Hindwing, cilia white to pale gray.

Wing venation. Forewing, discoidal cell occupying basal 7/10 of wing. 1A+2A connected basal 1/7 of wing. Hindwing 4/5 as long as forewing; 6-veined. Rs running to 6/7 of costa. M₂ and M₃ absent; CuA₁ in common with CuA₂; CuA₂ running to about 2/5 of dorsum.

Legs pale ochre; first segment of mid-tarsus with verticillibristle at apex; first to fourth segments of hind-tarsus apically gray.

Male genitalia. Uncus with shallowly bilobate apex. Gnathos slightly shorter than

uncus, with round apex in ventral view. Valva with blunt apex; costa dorocaudally round; cucullus narrowed towards apex; ventral margin of cucullus slightly emarginate. Juxta sublozenged. Anellar lobes subrectangular. Aedeagus about 3.5 times as long as uncus.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide; joint membrane between papillae anales and eighth abdominal segment as long as papillae anales. Apophyses posteriores long; apophyses anteriores about 4/5 length of apophyses posteriores. Ductus bursae about 2/3 length of corpus bursae. Subtriangular signum present near caudal margin of corpus bursae; microspines and short wrinkles at lateral side of signum absent. Bulla present at about middle of ductus seminalis, very large.

Type material. HOLOTYPE ♂, Mt. Urabu-dake, Yonaguni Is., the Ryukyu-Islands, JAPAN, em. 10. vi. 2013, ex Spore of *Nephrolepis biserrata*, T. Terada (1♂ Gen. sl. no. 13146), deposited in KGU. PARATYPES: JAPAN. The Ryukyu Islands: 1♂, Onoaida, Yakushima Is., Kagoshima-Pref., 4. ix. 1979, K. Yasuda; 9♂ 8♀, Takae, Higashi-Vill., Okinawa-honto Is., 1. viii. 2013, S. Sameshima (Light trap) (1♂ 1♀ Gen. sl. no. 13116, 13117); 6♂ 3♀, Hirae, Ishigaki Is., 12. xi. 1984, K. Yasuda (Light trap) (1♀ Gen. sl. no. 13100); 3♂ 2♀, Ditto, 8, 11, 14. v. 1985, K. Yasuda (Light trap) (1♂ Gen. sl. no. KY-190); 1♀, Hegina, Ishigaki Is., 30. iv. 1985, K. Yasuda (Light trap); 3♀, Ditto, 4. vi. 1986, K. Yasuda (Light trap) (1♀ Gen. sl. no. 13110); 1♂, Shinsui-park, Ishigaki Is., 4. vii. 2010, T. Terada (Light trap) (1♂ Gen. sl. no. 13038); 1♂, Banna-park, Ishigaki Is., 4. vii. 2010, T. Terada (1♂ Gen. sl. no. 12050); 3♂, Mt. Takeda, Ishigaki Is., 17. x. 1994, K. Yasuda (Light trap); 11♂ 18♀, Takeda-rindo, Ishigaki Is., em. 14. vii- 1. viii. 2010, ex Spore of *N. biserrata*, T. Terada (4♂ 4♀ Gen. sl. no. 10009, 10010, 10011, 10012,

10030, 10031, 10101, 12030, 4♀ Wing sl. no. 10016, 10029, 12020, 12044); 1♂ 1♀, Ditto, em. 8-29. iv. 2011, ex Spore of *N. biserrata*, T. Terada (1♂ Gen. sl. no. 11047); 30♂ 29♀, Ditto, em. 5-30. iv. 2012, ex Spore of *N. biserrata*, T. Terada; 1♂ 1♀, Nagura, Ishigaki Is., 26. v. 2013, T. Terada (Light trap); 2♀, near Maesato-dam, Ishigaki Is., 25. v. 2013, T. Terada (Light trap) (2♀ Gen. sl. no. 13076, 13107); 1♀, Komi, Iriomote Is., 14. viii. 1993, K. Yasuda (Light trap) (1♀ Gen. sl. no. 13099); 8♂ 11♀, Funaura, Uehara, Iriomote Is., 2-3, 7-9. x. 2001, K. Sugisima (Light trap); 1♀, Uehara, Iriomote Is., 17. iii. 2012, T. Terada (Light trap) (1♀ Gen. sl. no. 13042); 1♂, detail locality unknown, Yonaguni Is., 6. xi. 1984, K. Yasuda; 7♂ 3♀, Mandabaru-park, Yonaguni Is., 28-30. v. 2013, T. Terada (Light trap) (1♂ Gen. sl. no. 13105); 19♂ 16♀, north foot of Mt. Urabu-dake, Yonaguni Is., em. 10-16. vi. 2013, ex Spore of *Thelypteris acuminata*, T. Terada (1♂ 1♀ Gen. sl. no. 13067, 13068); 53♂ 70♀, Mt. Urabu-dake, Yonaguni Is., em. 9-15, 22. vi. 2013, ex Spore of *N. biserrata*, T. Terada (1♂ 2♀ Gen. sl. no. 13065, 13066, 13142, 1♂ Wing sl. no. 13125).

Distribution. Japan: the Ryukyu Islands (Yakushima Is., Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.).

Host plants. *Nephrolepis biserrata* (Sw.) Schott (Nephrolepidaceae) and *Thelypteris acuminata* (Houtt.) C. V. Morton (Thelypteridaceae).

Biology. Adults emerged in April and June to August under rearing condition, and are collected in March to November. Larvae feed on the host spore, and are found in silky tube on underside of frond in March, May and July.

Etymology. The specific name, *biserraticola*, derives from the name of host plant, *biserrata*.

Remarks. Both larvae of this new species and *Pa. argyrocosmos* n. sp. were found on

underside of the frond of *Nephrolepis biserrata* in the same location and season, but the detail habitat is unknown. Surveys on overlapping distribution and host plant usage are needed to determine the actual habitat of these species.

***Calicotis rotundinidus* n. sp.** [Plates XXXVI, LXII-c, LXXIII-e]

[Japanese name: Taniwatari-shida-maikoga]

Diagnosis. This species is similar to *Ca. chrysoptera* n. sp., *Ca. biserraticola* n. sp., and *Ca. exclamationis* n. sp., but can be distinguished by the presence of the brown to brownish black spot near base of dorsum. This species is also very similar to *Ca. latebrifica* n. sp., but can be distinguished by the apical marking of forewing. In this species, the dark brown to brownish black streak radiate from about 2/3 to near apex of forewing. In contrast, in *Ca. latebrifica* n. sp., the dark brown round blotch is present at 3/4 of forewing.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The apex of uncus is shallowly bilobate; the sublateral folds are present on ostium bursae; and the signum is bar-shaped.

Description. Wing expanse 5.2-8.4 mm. Forewing length 2.5-4.1 mm. Labial palpus pale ocher, ventrally white, dorsally with a brownish black patch around connection of first and second segments. Antenna pale gray, scape white. Vertex pale gray; occiput and frons white. Tegula white, with brown to brownish black spot near cephalic margin, obscure. Thorax white, with two pair of fasciae near cephalic margin and near caudal margin of mesothorax, narrow, brown to brownish black.

Wing markings. Forewing white; costa dark brown on basal 1/3; brown to brownish black spot present near base of dorsum, sometimes obscure; dark brown to brownish

black fascia present at $2/5$ of wing, extended towards costa, not reaching costa; dark brown to brownish black streak radiating from about $2/3$ to near apex of wing; cilia white to pale gray. Hindwing pale gray; cilia white to pale gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal $2/3$ of wing. Sc connected with costal margin of wing on basal $1/3$. R_1 from distal $1/10$ of cell; R_2 from near upper angle of cell; R_3 from upper angle of cell; R_4 and R_5 stalked, in common with R_3 . M_2 from lower angle of cell. CuA_1 present only near dorsum, rudimentary; CuA_2 absent. $1A+2A$ not branched, running to about $3/7$ of dorsum. Hindwing $3/4$ as long as forewing; 7-veined; discoidal cell open. R_s running to $7/8$ of costa, rudimentary. M_2 and M_3 absent; CuA_1 in common with CuA_2 ; CuA_2 running to about $3/10$ of dorsum.

Legs white; fore-tibia ventrally fuscous; mid-tibia dorsally covered with bristle, dark gray near apex; first and second segments of mid-tarsus with verticillbristle at apex; hind-tibia dorsally covered with bristle, apically mixed white and brownish black bristle; verticillbristle present at apex; hind-tarsus apically brownish black at first to third segments, with verticillbristle at apex of first to fourth segments. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, apically slightly down-turned, with shallowly bilobate apex; setae occurring on lateral side. Gnathos tongue-shaped, as long as uncus, with round apex in ventral view. Valva with round apex; costa dorsally nearly flat; cucullus oval, twice as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate, with blunt apex; saccus about half length of uncus, cephalically subtriangular. Juxta oval. Anellar lobes developed,

oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus, with weakly sclerotized wrinkles on vesica; cornutus absent; apical patch of stimuli present at apex of aedeagus, half length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly shorter than papillae anales. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin. Apophyses posteriores long; apophyses anteriores about 7/10 length of apophyses posteriores. Ostium bursae cup-shaped, with sublateral folds. Ductus bursae short, about half length of corpus bursae. Corpus bursae with subtriangular signum at about middle of corpus bursae; fold present cephalic end of signum; sparse microspines present around signum; some short wrinkles present at lateral side of signum. Ductus seminalis long, originating from cephalic end of ductus bursae, apically with microspines; bulla absent.

Type material. HOLOTYPE ♂, Komi, Iriomote Is., the Ryukyu-Islands, JAPAN, em. 23. iv. 2011, ex Spore of *Asplenium* sp., T. Terada (1♂ Gen. sl. no. 12025), deposited in KGU. PARATYPES: JAPAN. The Ryukyu Islands: 2♂ 1♀, Matsumoto, Okinawa-honto Is., em. 8-11. iv. 2012, ex Spore of *Asplenium* sp., T. Terada (1♂ Gen. sl. no. 12067); 1♀, Chibana, Okinawa-honto Is., em. 12. iv. 2012, T. Terada (1♀ Gen. sl. no. 12068); 1♀, Hirae, Ishigaki Is., em. 23. iv-4. v. 2012, ex Spore of *Asplenium* sp., T. Terada; 1♀, detail locality unknown, Iriomote Is., 17. iv. 1962, G. Kuno; 4♂ 1♀, Komi, Iriomote Is., em. 16. iv-2. v. 2011, ex Spore of *Asplenium* sp., T. Terada (2♂ 1♀ Gen. sl. no. 11039, 11040, 11045, 1♂ Wing sl. no. 11044); 3♂ 6♀, Haeminaka, Iriomote Is., em. 13. iv-2. v.

2011, ex Spore of *Asplenium* sp., T. Terada (2♀ Gen. sl. no. 11046, 12026); 8♂ 9♀, Funaura, Uehara, Iriomote Is., em. 10. xi-20. xii. 2001, ex Spore of *A. antiquum*, K. Sugisima (4♂ 4♀ Gen. sl. no. 0871, 0872, 0917, 0918, 0925, 0926, 1290, 1291, 2♂ 1♀ Wing sl. no. 1243, 1267, 1268); 1♂ 3♀, Uehara, Iriomote Is., em. 13-15. iv. 2012, ex Spore of *Asplenium* sp., T. Terada; 24♂ 25♀, source of Tabaru-riv., Yonaguni Is., em. 18. vi-8. vii. 2013, ex Spore of *Asplenium* sp., T. Terada (5♂ Gen. sl. no. 13069, 13136, 13139, 13148, 14022).

Distribution. Japan: the Ryukyu Islands (Okinawa-honto Is., Ishigaki Is., Iriomote Is., Yonaguni Is.).

Host plants. *Asplenium antiquum* Makino and *Asplenium* sp. (Aspleniaceae).

Biology. Adults emerged in April to July, November and December under rearing condition, and were collected in April. Larvae feed on the host spore, and are found in circular silky shelter on underside of the host frond in March and May. They shift the shelter by repetition of hauling some margin and pushing opposite margin.

Etymology. Rotundus (Latin) = circular. Nidus (Latin) = nest. The specific name, *rotundinidus*, derives from the larval circular shelter of this species.

Remarks. The larvae of this new species spin circular silky shelter, and they shift the shelter by inefficient way. This behavior is unique in the family Stathmopodidae.

***Calicotis exclamationis* n. sp.** [Plates XXXVII, LXII-d, LXXIV-a, b]

[Japanese name: Oo-shida-maikoga]

Calicotis sp.: Sawamura *et al.*, 2009: 594-604.

Diagnosis. This species is similar to *Ca. chrysoptera* n. sp., *Ca. biserraticola* n. sp., *Ca. rotundinidus* n. sp., and *Ca. latebrifica* n. sp., but can be distinguished by the

absence of the brown to brownish black basal spot and the ochreous yellow to brown basal streak on CuP of forewing.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The cucullus is narrowly oval and weakly angle caudally; and the oblique lateral folds are present near cephalic margin of ostium bursae.

Description. Wing expanse 9.0-11.7 mm. Forewing length 3.5-5.4 mm. Labial palpus pale ochre, ventrally white, dorsally with a brownish black patch around connection of first and second segments; third segment dorsally darkened towards apex. Antenna pale gray, scape white. Vertex, occiput and frons white. Tegula white. Thorax white, with a pair of spots near caudal margin of mesothorax, dark brown.

Wing markings. Forewing white; costa dark brown on basal 1/3; dark brown fascia present at 2/5 of wing; dark brown streak running from near costa of fascia to 2/3 of wing, extended towards fascia; sometimes dark brown streak radiating on apical half of CuP, obscure; dark brown blotch present at 3/4 of wing, round, large; cilia pale gray, gray around apex of wing. Hindwing gray to pale fuscous; cilia pale gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 3/8. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked; R₃ and R₄₊₅ arising from common base. M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 5/11 of dorsum. Hindwing 4/5 as long as forewing; 7-veined; discoidal cell open. Rs running to near apex of costa, apically rudimentary. M₂ and M₃ absent; CuA₁ in common with CuA₂; CuA₂ running to about 1/3 of dorsum.

Legs white; fore-tibia ventrally fuscous; mid-tibia dorsally covered with bristle, first

and second segments of mid-tarsus with verticillbristle at apex; hind-tibia dorsally covered with bristle, apically mixed white and brownish black bristle; verticillbristle present at apex, apical half of some bristle dark brown; hind-tarsus apically brownish black at first to third segments, with verticillbristle at apex of first to fourth segments. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically down-turned, with round apex; setae occurring on lateral side. Gnathos tongue-shaped, slightly longer than uncus, with round apex in ventral view. Valva with round apex; costa dorsally slightly round; cucullus narrowly oval, 1.7 times as long as uncus, caudally weakly angled, with numerous setae on inner surface; sacculus sclerotized, apically subtriangular, ventrally with setae. Vinculum elongate, with blunt apex; saccus $\frac{2}{5}$ length of uncus, cephalically subtriangular. Juxta subhexagonal. Anellar lobes developed, small, oval, weakly sclerotized, with setae on surface. Aedeagus about 3.5 times as long as uncus, with weakly sclerotized wrinkles on vesica; cornutus absent; apical patch of stimuli present at apex of aedeagus, $\frac{2}{5}$ length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly shorter than papillae anales. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin; many microspines present ventral side. Apophyses posteriores long; apophyses anteriores about $\frac{3}{4}$ length of apophyses posteriores. Ostium bursae large, cup-shaped, with lateral folds near cephalic margin, oblique. Ductus bursae short, about half length

of corpus bursae. Corpus bursae cephalically with many microspines; subtriangular signum present at caudal 1/4 of corpus bursae; fold present cephalic end of signum, with serrate margin; many microspines and short wrinkles present at lateral side of signum. Ductus seminalis long, originating from cephalic end of ductus bursae, apically with microspines; bulla present at about 2/5 of ductus seminalis, small.

Type material. HOLOTYPE ♂, Totsukawa, Nara-Pref., Honshu, JAPAN, 14. vi. 1980, K. Yasuda (1♂ Gen. sl. no. 13088), deposited in KGU. PARATYPES: JAPAN. Honshu: 1♂, Fukiage-gyoen, Imperial Palace, Tokyo-Pref., 20. v. 2010, Y. Arita and M. Owada; 1♂, Zaikaji, Toyota-City, Aichi-Pref., 4. vi. 1994, T. Mano; 4♂, Totsukawa, Nara-Pref., 14. vi. 1980, K. Yasuda (3♂ Gen. sl. no. KY-62, KY-76, 13144, 1♂ Wing sl. no. 24); 1♀, Mino, Osaka-Pref., em. 27. vii. 1980, ex Spore of fern, T. Saito (1♀ Gen. sl. no. KY-77); 1♀, Nachi, Wakayama-Pref., 19. x. 1966, T. Kumata (1♀ Gen. sl. no. 14015). 1♀, Iya-dani, Tokushima-Pref., Shikoku, 10. x. 1980, S. Hashimoto (1♀ Gen. sl. no. 13089). Kyushu: 2♂ 3♀, Bozugataki, Fukuoka-City, Fukuoka-Pref., 6. i. 1998, M. Sakai (2♂ 3♀ Gen. sl. no. 0638, 0639, 0657, 0658, 14023, 1♂ 1♀ Wing sl. no. 0823, 0865); 1♀, Mt. Ariake, Tsushima Is., Nagasaki-Pref., 20. x. 1979, K. Yasuda (1♀ Gen. sl. no. KY-35); 1♂, Satahetsuka, Minamiosumi-Town, Kagoshima-Pref., 9-10. vii. 2011, T. Terada (Light trap) (1♂ Gen. sl. no. 12049, 1♂ Wing sl. no. 13128). The Ryukyu Islands: 1♂, Onoaida, Yakushima Is., Kagoshima-Pref., 5. ix. 1979, K. Yasuda; 1♂ 1♀, Koshima, Yakushima Is., Kagoshima-Pref., 23-24. iv. 1981, I. Kanazawa (Light trap) (1♀ Gen. sl. no. 13145); 1♂, Okonotaki, Yakushima Is., Kagoshima-Pref., 26. iv. 1981, I. Kanazawa (Light trap); 1♂, Santaro-toge, Amami-oshima Is., Kagoshima-Pref., 3. v. 1999, T. Saito (1♂ Gen. sl. no. 1066); 1♀, Hatsuno-rindo, Amami-oshima Is., Kagoshima-Pref., 13. v. 2009, K. Tsuda (Light trap) (1♀ Gen. sl. no. 11168); 1♀, Mt.

Akatsuchi, Amami-oshima Is., Kagoshima-Pref., 30. viii. 2012, S. Sameshima (Light trap) (1♀ Gen. sl. no. 13080); 1♂, Nankawa-path, Amami-oshima Is., Kagoshima-Pref., 2. vi. 2013, S. Sameshima (1♂ Gen. sl. no. 13079); 1♂, Komi, Iriomote Is., 14. iii. 2011, T. Terada (Light trap) (1♂ Gen. sl. no. 12047).

Distribution. Japan: Honshu, Shikoku, Kyushu and the Ryukyu Islands (Yakushima Is., Amami-oshima Is., Iriomote Is.).

Host plants. *Asplenium scolopendrium* L. (Aspleniaceae), *Plagiogyria euphlebica* (Kunze) Mett. (Plagiogyriaceae), *Cyrtomium fortunei* J. Sm., *Polystichum polyblepharon* (Roem. Ex Kunze) C. Presl (Dryopteridaceae), *Cornopteris decurrenti-alata* (Hook.) Nakai (Athyriaceae), *Coniogramme intermedia* Hieron. and *Pteris excelsa* Gaudich. (Pteridaceae) (Sawamura *et al.*, 2009).

Biology. Scarcely known. Adults emerged in July under rearing condition, and were collected in January, March to October. Larvae feed on the host spore.

Etymology. Exclamatio (Latin) = exclamation. The specific name, *exclamationis*, derives from the exclamation-mark-shaped marking which consist of subtriangular fascia and blotch of forewing.

Remarks. This new species and the unidentified species reported in Sawamura *et al.* (2009) as *Calicotis* sp. are must be identical species, because a part of mitochondrial *COI* sequences (577 bp) of this species and of *Calicotis* sp. in Sawamura *et al.* (2009) (GenBank: FJ376644.1) matched over 99 percent.

***Calicotis latebrifica* n. sp.** [Plates XXXVIII, LXII-e, LXXIV-c, d]

[Japanese name: Yabusotetsu-shida-maikoga]

Diagnosis. This species is similar to *Ca. chrysoptera* n. sp., *Ca. biserraticola* n. sp.,

and *Ca. exclamatoris* n. sp., but can be distinguished by the presence of the brown spot near base of dorsum. This species is also very similar to *Ca. rotundinidus* n. sp., but can be distinguished by the apical marking of forewing. In this species, the dark brown round blotch is present at 3/4 of forewing. In contrast, in *Ca. rotundinidus* n. sp., the dark brown to brownish black streak radiate from about 2/3 to near apex of forewing.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The apex of uncus is round; the ostium bursae is large; and a pair of streaks run at cephalic 1/3 of ostium bursae and are nearly horizontal.

Description. Wing expanse 5.4-9.7 mm. Forewing length 2.7-4.5 mm. Labial palpus ocher, ventrally white, first and second segments dorsally brownish black. Antenna ocher, scape white. Vertex pale gray; occiput and frons white. Tegula white, with yellowish brown spot near cephalic margin, obscure. Thorax white, with a pair of fasciae running near cephalic margin, yellowish brown; a pair of spots near caudal margin of mesothorax, yellowish brown to dark brown.

Wing markings. Forewing white; costa dark brown on basal 2/5; brown spot present at near base of dorsum, sometimes obscure; brown to dark brown fascia present at 2/5 of wing, inwardly oblique; brown to dark brown streak running on apical 1/3 of CuP, sometimes obscure; dark brown blotch present at 3/4 of wing, round, sometimes connected with streak; cilia white to pale gray, sometimes gray at about middle of termen. Hindwing gray to pale fuscous; cilia white to pale gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 3/8. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked; R₃ and R₄₊₅ arising from common base. M₂ from lower angle of cell. CuA₁ present only near dorsum,

rudimentary; CuA₂ absent. 1A+2A not branched, running to about 3/7 of dorsum. Hindwing 4/5 as long as forewing; 8-veined; discoidal cell open. R₁ present, rudimentary; Rs running to 7/8 of costa, apically rudimentary. M₂ and M₃ absent; CuA₁ in common with CuA₂; CuA₂ running to about 1/3 of dorsum.

Legs pale ocher to pale gray; fore-femur and -tibia ventrally fuscous; first and second segments fore-tarsus apically gray; mid-tibia dorsally covered with bristle, first and second segments of mid-tarsus with verticillbristle at apex; hind-tibia white, apically brownish black, dorsally covered with bristle, apically mixed white and brownish black bristle; verticillbristle present at apex, apical half of some bristle dark brown; first to fourth segments of hind-tarsus apically brownish black, with verticillbristle at apex. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, with round apex; setae occurring on lateral side. Gnathos tongue-shaped, as long as uncus, with round apex in ventral view. Valva with round apex; costa dorsally slightly round; cucullus narrowly oval, twice as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum elongate, with blunt apex; saccus 2/5 length of uncus, cephalically subtriangular. Juxta round. Anellar lobes developed, oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus, with weakly sclerotized wrinkles on vesica; cornutus absent; apical patch of stimuli present at apex of aedeagus, narrow, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales as long as wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly longer than

papillae anales. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin; many microspines present ventral side. Apophyses posteriores long; apophyses anteriores about 7/9 length of apophyses posteriores. Ostium bursae large, cup-shaped, with many microspines; a pair of streaks present at cephalic 1/3 of ostium bursae, nearly horizontal. Ductus bursae stout, about 7/9 length of corpus bursae. Corpus bursae with sparse microspines; subtriangular signum present at caudal 1/4 of corpus bursae; fold present cephalic end of signum, with serrate margin; many microspines and short wrinkles present at lateral side of signum. Ductus seminalis long, originating from cephalic end of ductus bursae, apically with microspines; extended area present near apex of ductus seminalis, round; bulla absent.

Type material. HOLOTYPE ♂, Kikai Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, em. 15. xii. 2010, ex Spore of *Cyrtomium falcatum*, Y. Sakamaki (1♂ Gen. sl. no. 13154), deposited in KGU. PARATYPES: JAPAN. Honshu: 2♀, Mino-park, Mino-City, Osaka-Pref., 27. viii. 2012, T. Terada (1♀ Gen. sl. no. 13084); 30♂ 13♀, Esu-saki, Susami-Town, Wakayama-Pref., em. 28. x-14. xi. 2002, ex Spore of *C. fortunei*, K. Sugisima (4♂ 3♀ Gen. sl. no. 1225, 1226, 1231, 1284, 1285, 1289, 1436, 1♂ 1♀ Wing sl. no. 1262, 1263); 10♂ 2♀, Tenjin-zaki, Tanabe-City, Wakayama-City, em. 19-29. vi. 2011, ex Spore of *C. falcatum*, T. Terada (4♂ 2♀ Gen. sl. no. 11093, 11094, 13132, 13133, 13134, 13135); 1♀, Takinai-Town, Tanabe-City, Wakayama-Pref., 15. v. 2014, T. Terada; 1♂, Nougawa-Vill., Wakayama-City, Wakayama-Pref., 9. v. 2013, M. Murase; 1♂, Wakayamajyo-park, Wakayama-City, Wakayama-Pref., em. 7. vii. 2014, ex Spore of *Cyrtomium falcatum*, M. Murase. 7♂ 1♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., Kyushu, 9. v. 2014, T. Terada and K. Uchima (1♂ 1♀ Gen. sl. no.

14057, 14058). 9♂ 15♀, Kikai Is., Kagoshima-Pref., the Ryukyu Islands, em. 11-16, 21-25, 28, 31. xii. 2010, ex Spore of *C. falcatum*, Y. Sakamaki (2♂ 4♀ Gen. sl. no. 11002, 11003, 12021, 12022, 13155, 14014, 1♂ 2♀ Wing sl. no. 12019, 12024, 13126).

Distribution. Japan: Honshu, Kyushu and the Ryukyu Islands (Kikai Is.).

Host plants. *Cyrtomium falcatum* (L. f.) C. Presl and *C. fortunei* J. Sm. (Dryopteridaceae).

Biology. Adults emerged in June, July and October to December under rearing condition, and were collected in May and August. Larvae are found on the host plants in May and November. Larvae feed on the host spore. They spin forking silky gallery on underside of the host frond and silky barrel-shaped shelter covering by excrement on upper surface of the frond.

Etymology. Latebra (Latin) = refuge. Facio (Latin) = make. The specific epithet, *latebrifica*, derives from spinning barrel-shaped shelter of larval.

Remarks. The larvae of this new species spin barrel-shaped shelter. This behavior is known not just in the genus *Calicotis* but also in the genus *Pachyrhabda*.

***Calicotis xanthopsis* n. sp.** [Plates XXXIX, LXII-f, LXXIV-e]

[Japanese name: Shirogane-shida-maikoga]

Diagnosis. This species is distinguished from other members of the genus by the three obscure fasciae near base, at 1/4 and 3/4 of forewing. First and third fascia are yellowish brown, and second fascia is ochreous yellow.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The sacculus is apically subtriangular and protruding caudally; the narrowly sclerotized wrinkles is absent; the signum narrowly crescent-shaped; and

the ductus seminalis originate from cephalic 1/3 of corpus bursae.

Description. Wing expanse 8.2-9.0 mm. Forewing length 3.8-4.3 mm. Labial palpus pale ocher, third segment dorsally ocher. Antenna white, each segments apically pale fuscous; scape white, dorsally with ocherous yellow spot near caudal margin, obscure; apical spiniform projection present at caudal angle in male. Vertex, occiput and frons white; occiput with a pair of spots near cephalic margin, ocherous yellow. Tegula white. Thorax white, with ocherous yellow cephalic margin; ocherous yellow blotch present near caudal margin of mesothorax, small.

Wing markings. Forewing white; costa dark brown on basal 1/3; three obscure fasciae present near base, at 1/4 and 3/4 of wing; first fascia yellowish brown; second fascia ocherous yellow, broad; third fascia yellowish brown; two streaks running from near costa of second fascia to 2/3 of wing and on apical 1/4 of CuP, first streak broad and obscure; cilia white to pale gray, around apex of wing gray. Hindwing pale gray; cilia white to pale gray.

Wing venation. Forewing, termen slightly emarginate; 11-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 3/8. R₁ absent; R₂ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ present only near dorsum; CuA₂ absent. 1A+2A not branched, running to about 3/7 of dorsum. Hindwing 7/9 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂ rudimentary near base; M₂, M₃ and CuA₁ in common with CuA₂; CuA₂ running to about 4/11 of dorsum.

Legs white; fore-tibia and first segment of fore-tarsus dorsally covered with bristles; fore-femur to -tarsus ventrally brown; mid-tibia dorsally covered with bristle; hind-tibia apically ocher, dorsally covered with bristle, white and dark brown bristle mixed near

apex; verticillbristle present at apex; first to fourth segments of hind-tarsus apically ocher, with verticillbristle at apex. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus with truncate apex; setae occurring on lateral side. Gnathos narrow, as long as uncus, with blunt apex in ventral view. Valva with round apex; costa dorsally round; cucullus narrowly oval, 1.6 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically subtriangular and protruding caudally, ventrally with setae. Vinculum elongate, apically extended, with blunt apex; saccus $1/3$ length of uncus, cephalically round. Juxta oval. Anellar lobes developed, oval, weakly sclerotized, with setae on surface. Aedeagus about three times as long as uncus; cornutus absent; apical patch of stimuli present at apex of aedeagus, $1/3$ length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment $3/5$ length of papillae anales, with numerous microspines cephalic $2/3$. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin and ventral side. Apophyses posteriores short; apophyses anteriores about slightly longer than apophyses posteriores. Ostium bursae cup-shaped. Ductus bursae stout, about $3/7$ length of corpus bursae. Corpus bursae with many microspines near caudal margin; narrowly crescent-shaped signum present at cephalic $1/3$ of corpus bursae, long, with serrate margin. Ductus seminalis long, originating from cephalic $1/3$ of corpus bursae, apically with

microspines; bulla absent.

Type material. HOLOTYPE ♂, Kosugidani, Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 7-10. vi. 1965, T. Kumata (1♂ Gen. sl. no. 1294), deposited in OPU. PARATYPES: 2♂ 2♀, Kosugidani, Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 7-10. vi. 1965, T. Kumata (1♂ 1♀ Gen. sl. no. 1452, 1453, 1♂ Wing sl. no. 13162, 1♂ 1♀ Whole body sl. no. 1234, 1235).

Distribution. Japan: the Ryukyu Islands (Yakushima Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in June.

Etymology. Xanthos (Greek) = yellow. Opsis (Greek) = appearance. The specific name, *xanthopsis*, derives from ochreous yellow markings of head, thorax and forewing.

Remarks. In female genitalia of this new species, the ductus seminalis originate from cephalic 1/3 of corpus bursae which is unique in the genus (Plate XXXIX-d).

***Calicotis sublucida* n. sp.** [Plates XL, LXII-g, LXXIV-f]

[Japanese name: Kurogane-shida-maikoga]

Thylacosceles sp. 1: Sawamura *et al.*, 2009: 594-604.

Diagnosis. This species is distinguished from other members of the genus by the pale fuscous forewing with pale ochre blotch at 3/4 of costa.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The uncus is touching with gnathos ventrally on basal 3/5; the cornutus is absent; the pouch near connection of ductus and corpus bursae is present; and the signum is oval with streak of fold.

Description. Wing expanse 6.0-9.1 mm. Forewing length 2.9-4.2 mm. Labial palpus

pale ocher, ventrally white. Antenna pale ocher, slightly darkened towards apex; scape white. Vertex pale gray; occiput pale fuscous, with white caudal margin; frons white. Tegula and thorax pale fuscous.

Wing markings. Forewing pale fuscous to dark brown; pale ocher blotch present at 3/4 of costa; cilia pale fuscous to fuscous. Hindwing pale fuscous to brown; cilia pale fuscous to fuscous.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 4/11. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked; in common with R₃. M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 6/13 of dorsum. Hindwing 3/4 as long as forewing; 7-veined; discoidal cell open. Rs running to near apex of costa, apically rudimentary. M₂ and M₃ absent; CuA₁ in common with CuA₂; CuA₂ running to about 3/8 of dorsum.

Legs pale gray; fore-leg ventrally dark brown; mid-tibia pale ocher, dorsally covered with bristle; hind-tibia dorsally gray, apically dark gray, ventrally brownish black on basal 1/3 and pale ocher apical 2/3, dorsally covered with bristle; pale ocher verticillbristle present at apex; hind-tarsus apically dark gray at apex of first segment, with verticillbristle at apex of first to fourth segment. Abdomen dorsally pale fuscous, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus with truncate apex, ventrally touching with gnathos on basal 3/5; setae occurring on lateral side. Gnathos subtriangular, longer than uncus, with round apex in ventral view. Valva with round apex; costa dorsally nearly flat; cucullus oval, 1.7 times as long as uncus, with numerous setae on inner surface; sacculus

sclerotized, apically obscure, ventrally with setae. Vinculum elongate, with blunt apex; saccus 2/5 length of uncus, cephalically round. Juxta oval. Anellar lobes developed, oval, weakly sclerotized, with setae on surface. Aedeagus about 3.5 times as long as uncus; cornutus absent; apical patch of stimuli present at apex of aedeagus, narrow, 3/8 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly shorter than papillae anales. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin; numerous microspines present on caudal margin. Apophyses posteriores long; apophyses anteriores about 8/11 length of apophyses posteriores. Ostium bursae cup-shaped. Ductus bursae stout, about 2/3 length of corpus bursae, with pouch near connection of ductus and corpus bursae. Signum present at cephalic 1/3 of corpus bursae, with streak of fold. Ductus seminalis long, originating from caudal margin of corpus bursae, apically with microspines; bulla absent.

Type material. HOLOTYPE ♂, Oko-rindo (600m), Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 29. vii. 2013, T. Terada (Light trap) (1♂ Gen. sl. no. 13138), deposited in KGU. PARATYPES: JAPAN. 1♂, Kannon-zawa, Sapporo-City, Hokkaido, 12. viii. 1998, K. Sugisima (1♂ Gen. sl. no. 1215). 1♀, Amami, Kawachinagano-City, Osaka-Pref., Honshu, 23. viii. 1981, T. Sato (1♀ Gen. sl. no. 13086). The Ryukyu Islands: 2♂ 5♀, Oko-rindo (600m), Yakushima Is., Kagoshima-Pref., 29. vii. 2013, T. Terada (Light trap) (1♂ 3♀ Gen. sl. no. 13072, 13073, 13077, 13078, 1♂ 1♀ Wing sl. no. 13118, 13124).

Distribution. Japan: Hokkaido, Honshu and the Ryukyu Islands (Yakushima Is., Amami-oshima Is.).

Host plants. *Pteris cretica* L. and *P. excelsa* Gaudich. (Pteridaceae) (Sawamura *et al.*, 2009).

Biology. Scarcely known. Adults were collected in July and August.

Etymology. Sub- (Latin) = a little. Lucidus (Latin) = light. The specific epithet, *sublucida*, derives from obscure pale grey blotch of forewing.

Remarks. This new species and the unidentified species reported in Sawamura *et al.* (2009) as *Thylacosceles* sp. 1 are must be identical species, because a part of mitochondrial *COI* sequences (577 bp) of this species and of *Thylacosceles* sp. 1 in Sawamura *et al.* (2009) (GenBank: FJ376645.1) matched over 99 percent.

Genus *Pachyrhabda* Meyrick, 1897

Pachyrhabda Meyrick, 1897: 312.

Pachyrhabda steropodes Meyrick, 1897 (by monotypy).

Diagnosis. This genus is similar to *Calicotis*, *Cuprina*, *Thylacosceles* and *Thylacosceloides*, but can be distinguished by the antenna. The antenna is not ciliated or very shortly ciliated entirely in male, and the eye-cap is not developed.

Description. Labial palpus smooth scaled and slightly curved, with acute apex; second segment slightly rough scaled cephalically. Antenna slightly shorter than length of forewing, not ciliated or very shortly ciliated entirely, sometimes weakly serrated apically; eye-cap not developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; 12-veined; discoidal cell long, occupying about basal 7/10 of wing. Sc connected with costal margin of wing on about

basal 1/3. R₄ and R₅ stalked. M₂, M₃ or M₂ and M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched. Hindwing lanceolate, very narrow; 7- to 9-veined; discoidal cell open. Rs running to 4/5 or near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂.

Legs smooth; hind-tibia dorsally covered with bristle; scale-hairs present or absent; verticillbristle present at apex; first and second or to third segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen dorsally with spine row on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus, setae occurring on lateral side. Gnathos usually as long as uncus. Valva with round apex; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae. Vinculum with or without saccus. Juxta present. Anellar lobes developed, weakly sclerotized, obscure in *Pa. argyrocosmos* n. sp., with setae on surface. Aedeagus with or without cornutus; sclerotized structure present; apical patch of stimuli present near apex of aedeagus, sometimes absent.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally; joint membrane between papillae anales and eighth abdominal segment with numerous microsetae on cephalically except *Pa. argyrocosmos* n. sp. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae shorter than length of corpus bursae. Corpus bursae with signum. Ductus seminalis originating from caudal margin or near caudal margin of corpus bursae, apically with microspines; bulla present or absent.

Species examined. *Pachyrhabda steropodes* (Lectotype images: BMNH(E))

#1055271), *Pa. aurescens* n. sp., *Pa. fuscimaculata* n. sp., *Pa. aedificatrix* n. sp., *Pa. margaritacea* n. sp., *Pa. argyrocosmos* n. sp.

Remarks. The genus *Pachyrhabda* is new to Japanese fauna. This genus is included 32 species, and conspicuous group in that the absence of eye-cap and the white forewing. In addition, this genus is distributed in South and East Africa, South, East and Southeast Asia and Oceania. All the known hosts of this genus are spore of fern. This genus is related to the genera *Calicotis*, *Cuprina*, *Thylacosceles* and *Thylacosceloides*.

Key to the Japanese species of *Pachyrhabda*

1. Hind-tibia dorsally with scale-hairs. 2
- Hind-tibia dorsally without scale-hairs. 4
2. Forewing with broad yellowish brown fascia at middle of wing; hind-tibia dorsally with many scale-hairs. In male genitalia, uncus with truncate apex; apical patch of stimuli of aedeagus warped. In female genitalia, many small spines present around connection of corpus bursae and ductus seminalis. 3
- Forewing without fascia at middle of wing; hind-tibia dorsally with some scale-hairs. In male genitalia, uncus apically hummer-shaped; apical patch of stimuli of aedeagus not warped. In female genitalia, small spines around connection of corpus bursae and ductus seminalis absent. *Pa. argyrocosmos* n. sp.
3. Apical blotch of forewing brownish black. In male genitalia, cucullus of valva subtriangular; aedeagus with some very small spines. In female genitalia, ductus bursae with pouch. *Pa. fuscimaculata* n. sp.
- Apical blotch of forewing yellowish brown. In male genitalia, cucullus of valva oval; spines of aedeagus rather large. In female genitalia, ductus bursae without pouch.

- *Pa. aurescens* n. sp.
4. Ocherous yellow to yellowish brown blotch present at basal 1/5 of dorsum of forewing. In male genitalia, aedeagus narrow, with an elongate cornutus. In female genitalia, ostium bursae cylindrical, dorsally with pouch on caudal half.
..... 5
- . Ocherous yellow to yellowish brown blotch absent at basal 1/5 of dorsum of forewing. In male genitalia, aedeagus rather stout, with weakly turned spiniform cornutus and five to seven spiniform cornuti. In female genitalia, ostium bursae cup-shaped, without pouch. *Pa. vaginivella* n. sp.
5. Two blotched at middle and near apex of forewing large. In male genitalia, cucullus caudoventrally weakly angled; sacculus apically obscure; aedeagus narrow. In female genitalia, signum bar-shaped. *Pa. aedificatrix* n. sp.
- . Two blotched at middle and near apex of forewing rather small. In male genitalia, cucullus caudoventrally not angled; sacculus apically nearly flat; aedeagus very narrow. In female genitalia, signum subtriangular, with streak of fold.
..... *Pa. margaritacea* n. sp.

***Pachyrhabda aurescens* n. sp.** [Plates XLI, LXIII-a, LXXV-a]

[Japanese name: Ashi-busa-shida-maikoga]

Diagnosis. This species is similar to *Pa. aedificatrix* n. sp. and *Pa. margaritacea* n. sp., but can be distinguished by the presence of many scale-hairs on hind-tibia. This species is also very similar to *Pa. fuscimaculata* n. sp., but can be distinguished by the blotch of forewing. In this species, the apical blotch of forewing is yellowish brown. In contrast, in *Pa. aurescens* n. sp., the apical blotch of forewing is brownish black.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The gnathos is funnel-shaped, the cucullus is oval; some spines are present on vesica of aedeagus; the ostium bursae is tub-shaped with sublateral folds; the pouch on cephalic half of ductus bursae is absent; and the signum is oval with streak of fold.

Description. Wing expanse 6.1-8.5 mm. Forewing length 2.8-3.9 mm. Labial palpus pale ocher; third segment ventrally pale gray, sometimes darkened towards base. Antenna pale ocher to ocher, with narrow brownish black ring near apex; scape white. Vertex pale gray, with nearly flat caudal margin; occiput and frons white. Tegula white, faintly ocher at 1/3 of tegula. Thorax white, with yellowish brown cephalic margin.

Wing markings. Forewing white; costa brownish black on 2/3, paler and slightly extended towards 2/3 of costa; two yellowish brown blotches present near base and apex, subtriangular and triangular to oval; broad yellowish brown fascia running at middle of wing, with small white spot near cephalic edge on dorsum; some brownish black scales scattered at middle of dorsum; cilia white, ocher at middle and apex of wing. Hindwing gray to fuscous; cilia white to gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 5/7 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ and R₂ from upper angle of cell; R₄ and R₅ stalked; R₃ and R₄₊₅ arising from common base. M₂ and M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 3/7 of dorsum. Hindwing 7/9 as long as forewing; 7-veined; discoidal cell open. Rs running to 4/5 of costa. M₂ absent; M₃ and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 2/5 of dorsum.

Legs white; fore-femur, -tibia and first to third segments of fore-tarsus ventrally

brownish black; mid-tibia dorsally with brownish black streaks at 1/3 and 2/3, oblique; mid-tarsus dorsally ocher, brownish black at base of first to fourth segments; hind-tibia gray on apical 1/3, covered with white bristle and scale-hairs except apical 1/3; scale-hair apically brownish black; verticillibristle and verticillate scale-hairs present at apex, latter short and brownish black; first to third segments of hind-tarsus dorsally gray, darkened towards apex, with verticillibristle at apex. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically down-turned; setae occurring on lateral side. Gnathos stout, as long as uncus, funnel-shaped in ventral view, with truncate apex. Valva with round apex; costa dorsally round; cucullus oval, as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically blunt, ventrally with setae. Vinculum cephalically round, with acute apex; saccus absent. Juxta round, bilobate. Anellar lobes developed, oval, weakly sclerotized, with setae on surface. Aedeagus about twice as long as uncus, with some spines on vesica; cornutus absent; sclerotized structure present on vesica, oval and thin; apical patch of stimuli present near apex of aedeagus, half length of aedeagus, warped and narrow, with blunt apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales long than wide, weakly sclerotized, with many short and long setae except ventral side; joint membrane between papillae anales and eighth abdominal segment slightly shorter than papillae anales, with numerous microsetae on cephalic 2/3. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores short; apophyses anteriores slightly longer than apophyses posteriores. Ostium bursae tub-shaped, with sublateral folds. Ductus bursae

short, half length of corpus bursae. Signum present at caudal 3/8 of corpus bursae, oval, with streak of fold. Many small spines present around connection of corpus bursae and ductus seminalis. Ductus seminalis originating from caudal margin of corpus bursae, apically with microspines. Bulla situated at about middle of corpus bursae.

Type material. HOLOTYPE ♂, Oguni-jinjya, Mori-Town, Shizuoka-Pref., Honshu, JAPAN, em. 15. viii. 2003, ex Spore of *Microlepidia marginata*, K. Sugisima (1♂ Gen. sl. no. 13149), deposited in OPU. PARATYPES: JAPAN. Honshu: 1♀, Negoro, Iwade-City, Wakayama-Pref., em. 6. xi. 2001, ex Spore of *M. marginata*, S. Yamamoto (1♀ Gen. sl. no. 1064); 1♀, Oguni-jinjya, Mori-Town, Shizuoka-Pref., 16. vi. 1999, K. Sugisima (1♀ Gen. sl. no. 0636, 1♀ Wing sl. no. 1242); 29♂ 17♀, Ditto, em. 25. x-10. xi. 2002, ex Spore of *M. marginata*, K. Sugisima (5♂ 4♀ Gen. sl. no. 1208, 1221, 1222, 1286, 1287, 1288, 14018, 14020, 14021, 3♂ 1♀ Wing sl. no. 1245, 1264, 1265, 13156); 11♂ 8♀, Ditto, em. 16-17, 20-21, 23-24, 28. viii. 2003, ex Spore of *M. marginata*, K. Sugisima (1♂ Gen. sl. no. 1431); 1♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., 15. viii. 2012, T. Terada (1♀ Gen. sl. no. 13083). 1♀, Kurio, Yakushima Is., the Ryukyu Islands, 20. viii. 1980, K. Yasuda (1♀ Gen. sl. no. 13161).

Distribution. Japan: Honshu and the Ryukyu Islands (Yakushima Is.).

Host plants. *Microlepidia marginata* (Panz.) C. Chr. (Dennstaedtiaceae).

Biology. Adults emerged in August and October to November under rearing conditions, and were collected in June and August. Larvae feed on the host spore, and are found in silky tube on underside of the host frond in July and September.

Etymology. Aureus (Latin) = golden. The specific epithet, *aurescens*, derives from yellowish brown blotches of forewing.

Remarks. The known distributions of this new species are limited and fragmented,

although the host plant (*Microlepis marginata*) is distributed in Japan (Honshu, Shikoku, Kyushu and the Ryukyu Island), Korea, China, Taiwan, Indochine and Himalaya (Kurata and Nakaike, 1979). For the actual distribution of this species, further survey is necessary.

***Pachyrhabda fuscimaculata* n. sp.** [Plates XLII, LXIII-b, LXXV-b]

[Japanese name: Kuro-ten-ashi-busa-shida-maikoga]

Diagnosis. This species is similar to *Pa. aedificatrix* n. sp. and *Pa. margaritacea* n. sp., but can be distinguished by the presence of many scale-hairs on hind-tibia. This species is also very similar to *Pa. aurescens* n. sp., but can be distinguished by the blotch of forewing. In this species, the apical blotch of forewing is brownish black. In contrast, in *Pa. aurescens* n. sp., the apical blotch of forewing is yellowish brown.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The gnathos is subtriangular, the cucullus is subtriangular; some very small spines are present on vesica of aedeagus; the ostium bursae is tub-shaped with sublateral folds; the pouch on cephalic half of ductus bursae is present; and the signum is oval with streak of fold.

Description. Wing expanse 7.1-9.7 mm. Forewing length 3.3-4.5 mm. Very similar to *Pa. aurescens*, but differing in the following characters. Labial palpus ventrally white; third segment sometimes ventrally darkened towards apex. Tegula uniformly white.

Wing markings. Forewing, apical blotch brownish black, yellowish brown in some individuals; brownish black scales formed small blotch.

Wing venation. Forewing, R₁ from near upper angle of cell; R₂ from upper angle of cell. M₂ from lower angle of cell. Hindwing CuA₂ running to about 1/3 of dorsum.

Legs, mid-tarsus brownish black at base of second to fourth segments; apical verticillate scale-hairs of hind-tibia gray to brownish black; second and third segments of hind-tarsus dorsally gray, darkened towards apex.

Male genitalia. Gnathos subtriangular in ventral view. Cucullus subtriangular, longer than uncus; sacculus apically subrectangular. Juxta fan-shaped, weakly sclerotized. Anellar lobes small. Aedeagus with some very small spines on vesica; sclerotized structure subtriangular; apical patch of stimuli 3/5 length of aedeagus, with round apex.

Female genitalia. Papillae anales slightly longer than wide. Apophyses anteriores slightly shorter than apophyses posteriores. Ductus bursae with pouch on cephalic half. Signum situated at caudal 3/11 of corpus bursae. Many spines around connection of corpus bursae and ductus seminalis very small.

Type material. HOLOTYPE ♂, Mino, Osaka-Pref., Honshu, JAPAN, 4. vi. 1980, T. Saito (1♂ Gen. sl. no. 13160), deposited in KGU. PARATYPES: JAPAN. Honshu: 1♀, Mino, Osaka-Pref., 7. vi. 1975, T. Saito (1♀ Gen. sl. no. 14019); 1♀, Ditto, 29. v. 1981, K. Yasuda; 2♂ 3♀, Takinai-Town, Tanabe-City, Wakayama-Pref., 14. v. 2012, T. Terada (2♂ 3♀ Gen. sl. no. 12081, 12082, 12083, 12084, 12086, 1♂ 1♀ Wing sl. no. 12087, 13130); 1♂, Takehara, Kitayama-Vill., Wakayama-Pref., em. 29. viii. 2012, ex Spore of *Pteris excelsa*, S. Yamamoto (1♂ Gen. sl. no. 1063).

Distribution. Japan: Honshu.

Host plants. *Pteris excelsa* Gaudich. (Pteridaceae).

Biology. Adults emerged in August under rearing conditions, and were collected in May and June. Larvae feed on the host spore, and were found in July.

Etymology. Fuscus (Latin) = dark. Maculatus (Latin) = spotted. The specific epithet, *fuscimaculata*, derives from brownish black blotches of forewing.

Remarks. This species might be particularly closely related to *P. aurescens* n. sp. because of the warped apical patch of stimuli of aedeagus in male genitalia (Plates XLI-c, XLII-c), which are unique in the genus.

***Pachyrhabda aedificatrix* n. sp.** [Plates XLIII, LXIII-c, LXXV-c]

[Japanese name: Shiro-shida-maikoga]

Calicotis sp.: Sugisima, 2003: 11, figs 2-B, 4, 8-B.

Thylacosceles sp. 2: Sawamura *et al.*, 2009: 594-604.

Diagnosis. This species is similar to *Pa. aurescens* n. sp. and *Pa. fuscimaculata* n. sp., but can be distinguished by the absence of scale-hairs on hind-tibia. This species is also very similar to *Pa. margaritacea* n. sp., but can be distinguished by the wing expanse and blotches of forewing. In this species, two blotches at middle and near apex of forewing are large. In contrast, in *Pa. margaritacea* n. sp., two blotches at middle and near apex of forewing are rather small.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The gnathos is narrowly tongue-shaped; cucullus is angled caudoventrally; the apex of the sacculus is obscure; the aedeagus is slender; the ostium bursae is cylindrical with pouch on caudal half of dorsal side; and the signum is bar-shaped.

Description. Wing expanse 7.6-10.6 mm. Forewing length 3.6-5.0 mm. Labial palpus dorsally ocher, darkened towards base, ventrally white. Antenna ocher, with scattered very short cilia in male; scape dorsally pale ocher, with brownish black caudal margin. Vertex silvery, with nearly flat caudal margin; occiput white, with faintly ocherous yellow cephalic margin; frons white. Tegula white, faintly ocher at about middle.

Thorax white, covered with faintly ocher scales except around margin.

Wing markings. Forewing white; costa brown, paler towards apex; four obscure blotches present at base of costa, 1/5 of dorsum, middle of costa and near apex; first to third blotches ocherous yellow to yellowish brown; second blotch small; third blotch rectangular, large, reaching CuP, darkened towards CuP; fourth blotch pale gray, large; cilia pale ocher to pale gray. Hindwing gray to fuscous; cilia pale gray.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 1/3. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked; R₃ and R₄₊₅ arising from common base. M₂ and M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 3/7 of dorsum. Hindwing 7/9 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex; M₂, M₃ and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 2/5 of dorsum.

Legs white; sometimes fore-femur ventrally brownish black; fore-tibia ventrally brownish black; mid-tibia dorsally with bristles and brownish black spot at middle and near apex; hind-tibia covered with white to gray bristle; verticillbristle and brownish black verticillate scale-hairs present at apex; hind-tarsus dorsally gray except first segment; verticillbristle present at apex of first to third segments of hind-tarsus. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus narrow, apically down-turned; setae occurring on lateral side. Gnathos narrowly tongue-shaped, as long as uncus, with round apex. Valva long, with round apex; costa dorsally round; cucullus subtrapezoidal, 1.5 times as long as uncus, caudoventrally weakly angled, with numerous setae on inner surface; sacculus

sclerotized, apically obscure, ventrally with setae. Vinculum elongate, with blunt apex; cephalically round; saccus absent. Juxta subrectangular. Anellar lobes developed, oval, weakly sclerotized, with setae on surface. Aedeagus cylindrical, narrow, about three times as long as uncus; cornutus present on vesica, elongate, situated at apical half of aedeagus; sclerotized structure present on vesica, narrow; apical patch of stimuli absent.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment slightly shorter than papillae anales, with numerous microsetae on cephalic half. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores short; apophyses anteriores slightly longer than apophyses posteriores. Ostium bursae cylindrical, dorsally with pouch on caudal half; many microsetae present. Ductus bursae very short, 1/7 length of corpus bursae. Corpus bursae with some small triangular spicules near caudal margin; signum bar-shaped, situated at caudal 1/3 of corpus bursae, with many microspines around signum. Bulla absent. Ductus seminalis originating from near caudal margin of corpus bursae, apically with microspines.

Type material. HOLOTYPE ♂, Sanaru-ko, Hamamatsu-City, Shizuoka-Pref., Honshu, JAPAN, em. 29. ii. 2000, ex Spore of *Dryopteris erythrosora*, K. Sugisima (1♂ Gen. sl. no. 13159), deposited in OPU. PARATYPES: JAPAN. Honshu: 1♂, Nagabuchi, Ome-City, Tokyo-Pref., 20. v. 1995, U. Jinbo; 1♀, National park for Nature Study, Tokyo-Pref., 28. v. 1999, Y. Arita and U. Jinbo; 2♀, Akasaka Imperial Gardens, Tokyo-Pref., 12. v. 2003, Y. Kishida and U. Jinbo; 4♂ 1♀, Shimodokanbori, Imperial Palace, Tokyo-Pref., 25. v. 2005, Y. Arita, M. Owada and U. Jinbo; 2♂ 1♀, Ditto, 8. v.

2012, U. Jinbo; 6♂ 2♀, Fukiage-gyoen, Imperial Palace, Tokyo-Pref., 6. v. 1999, Y. Arita and M. Owada; 1♂, Ditto, 20. v. 2010, Y. Arita and M. Owada; 3♂ 2♀, Ditto, 1. v. 2012, U. Jinbo; 1♂, Sanaru-ko, Hamamatsu-City, Shizuoka-Pref., 15. vi. 1999, K. Sugisima; 1♀, Ditto, em. 4. ix. 1999, ex Spore of *D. erythrosora*, K. Sugisima; 21♂ 21♀, Ditto, em. 27. ii-7. iii. 2000, ex Spore of *D. erythrosora*, K. Sugisima (3♂ 2♀ Gen. sl. no. 0632, 0633, 0634, 0635, 0647, 1♀ Wing sl. no. 0644); 3♂ 9♀, Ditto, 24. v. 2000, K. Sugisima (1♀ Wing sl. no. 1258); 1♀, Ditto, em. 10. vi. 2001, ex Spore of *D. erythrosora*, K. Sugisima; 2♂ 1♀, Oguni-jinjya, Mot-Town, Shizuoka-Pref., 22. v. 2000, ex Spore of *D. erythrosora*, K. Sugisima (1♂ Gen. sl. no. 0861, 1♂ Wing sl. no. 1257); 1♂, Ditto, em. 27. iv. 2002, ex Spore of *D. erythrosora*, K. Sugisima (1♂ Gen. sl. no. 1458); 2♂ 4♀, Ditto, em. 21, 25-27. iii. 2004, ex Spore of *D. erythrosora*, K. Sugisima; 1♀, Shiomi-Town, Toyota-City, Aichi-Pref., 31. v. 1992, T. Mano; 3♀, Osawa-riv., Toyota-City, Aichi-Pref., 3. vi. 2003, T. Mano (1♀ Gen. sl. no. 13093); 2♂ 1♀, Mt. Ikoma, Ikoma-City, Nara-Pref., 19. v. 2014, T. Terada; 4♂ 1♀, Mino, Osaka-Pref., 14. v. 1975, T. Saito; 4♂ 4♀, Ditto, 10, 29. v. 1979, K. Yasuda (2♂ Gen. sl. no. KY-36, KY-127); 16♂ 40♀, Ditto, em. 21-30. iv. 1981, ex Spore of fern, T. Saito (1♂ ♀ Gen. sl. no. 12012, 12013, 12028, 1♀ Wing sl. no. 12023); 2♂ 6♀, Ditto, 29. v. 1981, K. Yasuda; 2♂ 3♀, Mihara, Sakai-City, Osaka-Pref., 22. v. 1979, K. Yasuda (2♀ Gen. sl. no. KY-5, KY-126); 2♂ 1♀, Mt. Ikoma, Higashiosaka-City, Osaka-Pref., 27. v. 1980, K. Yasuda; 1♀, Sonenji, Higashiosaka-City, Osaka-Pref., 19. v. 1993, T. Ueda; 4♂ 1♀, the eastern part, Higashiosaka-City, Osaka-Pref., 9. vi. 1979, K. Yasuda; 3♂ 1♀, Hiraoka-park, Higashiosaka-City, Osaka-Pref., 18. v. 2013, T. Terada; 1♂ 1♀, Mt. Takayasu, Yao-City, Osaka-Pref., 31. v. 1979, K. Yasuda; 2♂ 2♀, Amami, Kawachinagano-City, Osaka-Pref., 16. v. 1957, M. Okada; 1♂, Koutsukiji,

Kawachinagano-City, Osaka-Pref., 28. v. 1980, T. Tanabe; 1♀, Takihata, Kawachinagano-City, Osaka-Pref., 30. v. 1980, T. Tanabe; 1♀, Mt. Makio, Izumi-City, Osaka-Pref., 22. vi. 1982, K. Yasuda; 2♂ 2♀, Mt. Inunaki, Izumisano-City, Osaka-Pref., 13. vi. 1980, K. Yasuda (1♂ 1♀ Gen. sl. no. 12041, 12042); 1♂, Tenjin-zaki, Tanabe-City, Wakayama-Pref., 26. v. 2011, T. Terada (1♂ Gen. sl. no. 12048); 5♀, Ditto, 13. v. 2012, T. Terada (1♀ Gen. sl. no. 12085); 1♂ 2♀, Ditto, 16. v. 2013, T. Terada; 2♂ 2♀, Ditto, 16. v. 2014, T. Terada; 2♂ 1♀, Wakayamajyou-park, Wakayama-Pref., em. 20-28. iv. 2012, ex Spore of *D. pacifica*, M. Murase; 1♀, Kii-oshima Is., Wakayama-Pref., 21-24. v. 1964, T. Kumata; 2♀, Takinai-Town, Tanabe-City, Wakayama-Pref., 16-17. v. 2013, T. Terada; 1♂, Ditto, 16. v. 2014, T. Terada; 3♀, Sasabe, Hyogo-Pref., 4. vi. 1981, S. Hashimoto. Shikoku: 2♂ 1♀, Matsuyama-City, Ehime-Pref., 16. v. 1957, M. Okada; 1♂, Ditto, 9. v. 1958, M. Okada. 1♂ 3♀, Kosugidani, Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, 7-10. vi. 1965, T. Kumata (1♂ 1♀ Gen. sl. no. 1236, 1237).

Distribution. Japan: Honshu, Shikoku and the Ryukyu Islands (Yakushima Is.).

Host plants. *Dryopteris erythrosora* (D. C. Eaton) Kuntze and *D. pacifica* (Nakai) Tagawa (Dryopteridaceae). *D. hondoensis* Koidzumi, *D. fuscipes* C. Chr., *D. nipponensis* Koidzumi, *Cyrtomium fortunei* J. Sm., *Arachniodes amabilis* (Blume) Tindale (Dryopteridaceae) and *Cornopteris decurrenti-alata* (Hook.) Nakai (Athyriaceae) (Sawamura *et al*, 2009).

Biology. Adults emerged in February to April, June and September under rearing condition, and were collected in May and June. Larvae are found on the host plants in July. Larvae feed on the host spore, and they spin forking silky gallery on underside of the host frond and silky barrel-shaped shelter covering by excrement on upper surface

of the frond (Sugisima, 2003).

Etymology. Aedificator (Latin) = architect. The specific name, *aedificatrix*, derives from larval barrel-shaped shelter spinning behavior.

Remarks. This species and reported the unidentified species reported in Sawamura *et al.* (2009) as *Thylacosceles* sp. 2 are must be identical species, because a part of mitochondrial *COI* sequences (577 bp) of this species and of *Thylacosceles* sp. 2 in Sawamura *et al.* (2009) (GenBank: FJ376646.1) matched over 99 percent.

***Pachyrhabda margaritacea* n. sp.** [Plates XLIV, LXIII-d, LXXV-d, e]

[Japanese name: Hime-shiro-shida-maikoga]

Diagnosis. This species is similar to *Pa. aurescens* n. sp. and *Pa. fuscimaculata* n. sp., but can be distinguished by the absence of scale-hairs on hind-tibia. This species is also very similar to *Pa. aedificatrix* n. sp., but can be distinguished by the wing expanse and blotches of forewing. In this species, two blotches at middle and near apex of forewing are rather small. In contrast, in *Pa. aedificatrix* n. sp., two blotches at middle and near apex of forewing are large.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The gnathos is bar-shaped, the cucullus is not angled caudoventrally; the sacculus has round apex; the aedeagus is very slender; the ostium bursae is cylindrical with pouch on caudal half of dorsal side; and the signum is subtriangular with streak of fold.

Description. Wing expanse 5.2-8.3 mm. Forewing length 2.4-3.9 mm. Very similar to *Pa. aedificatrix* n. sp., but differing in the following characters. Labial palpus ventrally pale ocher, dorsally with a brownish black patch around connection of first and second

segments. Antenna ocher to pale ocher; scape dorsally uniformly white. Occiput uniformly white to ocher. Tegula apically ocherous yellow. Thorax with lateral ocherous yellow spots, obscure.

Wing markings. Forewing, costa white; first and second blotches connected; third blotch uniformly ocherous yellow, small, not reaching CuP; fourth blotch ocherous yellow; ocherous yellow streak running on apical 1/4 of CuP; cilia pale ocher to white. Hindwing pale gray; cilia white to pale gray.

Wing venation. Forewing, Sc connected with costal margin of wing on basal 3/8. M₃ from lower angle of cell. 1A+2A running to about middle of dorsum. Hindwing, CuA₂ running to about 3/7 of dorsum.

Legs fore-femur to -tarsus ventrally brownish black; mid-tarsus dorsally pale gray; hind-tibia sometimes apically gray; hind-tarsus darkened towards apex.

Male genitalia. Uncus warped, apically slightly down-turned. Gnathos bar-shaped, as long as uncus. Costa of valva dorsally emarginate; cucullus subtrapezoidal, slightly longer than uncus; sacculus apically nearly flat. Juxta subrectangular. Aedeagus very slender; sclerotized structure very small, obscure.

Female genitalia. Seventh sternum with medial emarginate caudal margin. Apophyses anteriores slightly shorter than apophyses posteriores. Ostium bursae subcylindrical, extended towards caudal margin. Signum subtriangular, with streak of fold. Ductus seminalis stout near apex.

Type material. HOLOTYPE ♂, Nishikata, Ibusuki-City, Kagoshima-Pref., Kyushu, JAPAN, em. 18. viii. 2010, ex Spore of *T. acuminata*, T. Terada (1♂ Gen. sl. no. 13165), deposited in KGU. PARATYPES: JAPAN. Kyushu: 1♀, Kiiresekushi-Town, Kagoshima-City, Kagoshima-Pref., em. 17. viii. 2010, ex Spore of *T. acuminata*, T.

Terada; 1♂, Toso, Kagoshima-City, Kagoshima-Pref., 29. v. 2012, T. Terada (Light trap); 1♂, Korimoto, Kagoshima-City, Kagoshima-Pref., 19. ix. 2012, T. Terada; 1♀, Korimoto, Kagoshima-City, Kagoshima-Pref., 6. viii. 2010, T. Terada; 1♀, Ditto, 16. x. 2010, T. Terada (1♀ Gen. sl. no. 13041); 36♂ 38♀, Ditto, em. 18. viii-15. ix. 2010, ex Spore of *T. acuminata*, T. Terada (2♂ 1♀ Gen. sl. no. 10026, 10035, 10036, 1♂ 1♀ Wing sl. no. 10023, 13163); 6♂ 14♀, Ditto, em. 22. vii-1. viii. 2011, ex Spore of *T. acuminata*, T. Terada; 1♂, Ditto, 1. viii. 2011, T. Terada; 1♂ 1♀, Ditto, 7, 12. ix. 2011, T. Terada (1♂ 1♀ Gen. sl. no. 13044, 13045). 1♂, Makizono-Town, Kirishima-City, Kagoshima-Pref., 24. vi. 2010, T. Terada (1♂ Gen. sl. no. 13036); 9♂ 19♀, Takaze, Kirishima-City, Kagoshima-Pref., em. 4-11. viii. 2011, ex Spore of *T. acuminata*, T. Terada (1♂ 1♀ Gen. sl. no. 12011, 13158, 1♂ 1♀ Wing sl. no. 12016, 13152); 1♀, Nishikata, Ibusuki-City, Kagoshima-Pref., 4. viii. 2010, T. Terada; 2♂ 2♀, Ditto, em. 17-18, 25. viii. 2010, ex Spore of *T. acuminata*, T. Terada; 5♂ 4♀, Shinnishikata, Ibusuki-City, Kagoshima-Prf., em. 18-27. viii. 2010, ex Spore of *T. acuminata*, T. Terada (1♂ Gen. sl. no. 13164). The Ryukyu Islands: 1♂, Kurio, Yakushima Is., Kagoshima-Pref., 20. vii. 1979, K. Yasuda (1♂ Gen. sl. no. 13095); 1♂ 1♀, Ditto, 4, 6. ix. 1979, K. Yasuda (1♂ Gen. sl. no. KY-61); 1♂, Ditto, 21. viii. 1980, K. Yasuda; 1♂ 1♀, Onoaida, Yakushima Is., Kagoshima-Pref., 4, 8. ix. 1979, K. Yasuda (1♀ Gen. sl. no. 13094); 1♂, Maesato, Ishigaki Is., 9. iv. 1985, K. Yasuda (1♂ Gen. sl. no. 14068).

Distribution. Japan: Kyushu and the Ryukyu Islands (Yakushima Is., Ishigaki Is.).

Host plants. *Thelypteris acuminata* (Houtt.) C. V. Morton (Thelypteridaceae).

Biology. Adults emerged in July to September under rearing condition, and were collected in April to October. Larvae are found on the host plants in July and August. Larvae feed on the host spore, and spin forking silky gallery on underside of the host

frond and silky barrel-shaped shelter covering by excrement on upper surface of the frond.

Etymology. Margarita (Latin) = pearl. The specific epithet, *margaritacea*, derives from white and ochreous yellow coloration which is similar to pearl.

Remarks. Both larvae of this new species and *Ca. chrysoptera* n. sp. were found on underside of the frond of *Thelypteris acuminata* in the same location and season, but the detail habitat is unknown. Surveys on overlapping distribution and host plant usage are needed to determine the actual habitat of these species.

***Pachyrhabda vaginivella* n. sp.** [Plates XLV, LXIII-e, LXXV-f]

[Japanese name: Chibi-shida-maikoga]

Diagnosis. This species is distinguished from other members of the genus by the yellowish brown fascia at about middle of forewing and the absence of scale-hairs at middle of hind-tibia.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The turned spiniform cornutus and five to seven spiniform cornuti are present on vesica of aedeagus; and the signum of corpus bursae is oval with longitudinal streak of fold.

Description. Wing expanse 5.4-5.9 mm. Forewing length 2.5-2.7 mm. Labial palpus dorsally dark brown, ventrally white; third segment dorsally pale ochre. Antenna pale ochre, with scattered very short cilia in male; scape dorsally white. Vertex silvery, with nearly flat caudal margin; occiput white; frons white. Tegula white, sometimes faintly ochre at about middle. Thorax white, covered with ochre scales except around margin.

Wing markings. Forewing white; costa silvery, blackish brown on basal 1/4;

yellowish brown blotch present near base; yellowish brown fascia present at about middle, broad, narrowed towards dorsum; apical 1/4 of forewing ochreous gray to silvery; cilia pale ochre to white. Hindwing white, darkened towards apex; cilia white.

Wing venation. Forewing 11-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 4/11. R₁ absent; R₂ from distal 1/10 of cell; R₃ from near upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ rudimentary near base; CuA₂ absent. 1A+2A not branched, running to about 5/11 of dorsum. Hindwing 7/9 as long as forewing; 7-veined; discoidal cell open. Rs running to near apex; M₂ and M₃ absent; CuA₁ in common with CuA₂; CuA₂ running to about 4/11 of dorsum.

Legs white; fore-femur to -tarsus ventrally black; mid-tibia dorsally with bristles and brownish black spot near base and apex; hind-tibia covered with white bristle except apically, gray to dark gray at near apex of hind-tibia; verticillbristle and brownish black verticillate scale-hairs present at apex; hind-tarsus dorsally gray except first segment; verticillbristle present at apex of first to fourth segments of hind-tarsus; Abdomen dorsally pale ochre, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically round and down-turned; setae occurring on lateral side. Gnathos broadly tongue-shaped, slightly shorter than uncus, with round apex. Valva narrowest near base, with round apex; costa dorsally nearly flat; cucullus oval, dorsally slightly emarginate, longer than uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate, with acute apex; cephalically round; saccus 1/3 length of uncus. Juxta subtrapezoidal, slightly sclerotized. Anellar lobes developed, slightly sclerotized, with setae on surface. Aedeagus

cylindrical, about 3.5 times as long as uncus, with long spiniform cornutus present on vesica, weakly turned at about middle; five to seven spiniform cornuti present on vesica in a group; sclerotized structure present on vesica, oval; apical patch of stimuli present at apex of aedeagus, 1/4 length of aedeagus, with acute apex; narrowly oval projection present at apex of apical patch of stimuli.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment as long as papillae anales, with numerous microsetae on cephalic half. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores 6/7 length of apophyses posteriores. Ostium bursae cup-shaped, with many microsetae present. Ductus bursae short, 2/7 length of corpus bursae. Corpus bursae with small pouch at caudal margin; signum oval, situated at about middle of corpus bursae, with longitudinal streak of fold; some microspines at cephalic half of signum. Bulla situated at about middle of ductus seminalis. Ductus seminalis originating from about middle of corpus bursae, apically with microspines.

Type material. HOLOTYPE ♂, Mikyo, Tokunoshima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, em. 7. xii. 2014, ex Spore of *Therypteris parasitica*, Y. Sakamaki (1♂ Gen. sl. no. 14078), deposited in KGU. PARATYPES: JAPAN. The Ryukyu Islands: 1♀, Onoada, Yakushima Is., Kagoshima-Pref., 4. ix. 1979, K. Yasuda (1♀ Gen. sl. no. 13087); 1♀, Nishinoomote, Tanegashima Is., Kagoshima-Pref., 9. v. 2013, T. Terada (1♀ Gen. sl. no. 13104); 4♂, Mikyo, Tokunoshima Is., Kagoshima-Pref., 6-11. xii. 2014, ex Spore of *T. parasitica*, Y. Sakamaki (4♂ Gen. sl.

no. 14076, 14077, 14079, 15001, 1♂ Wing sl. no. 14080); 1♀, Shirahama, Iriomote Is., 9. x. 2001, K. Sugisima (Light trap) (1♀ Gen. sl. no. 14069).

Distribution. Japan: the Ryukyu Islands (Yakushima Is., Tanegashima Is., Tokunoshima Is., Iriomote Is.).

Host plants. *Thelypteris parasitica* (Thelypteridaceae).

Biology. Adults emerged in December under rearing condition, are collected in May, September and October. Larvae are found on the host plants in November. Larvae feed on spore of the host plants, and they spin thin silky gallery on underside of frond.

Etymology. Vagus (Latin) = roam. Nix (Latin) = snow. The specific name, *vaginivella*, derives from white ground color of adults.

Remarks. In female genitalia of this new species, the longitudinal streak of oval signum is present, which is unique in the genus (Plates XLV-d).

***Pachyrhabda argyrococos* n. sp.** [Plates XLVI, LXIII-f, LXXV-g, h]

[Japanese name: Gin-suji-shida-maikoga]

Diagnosis. This species is distinguished from other members of the genus by the obscure silvery blotch and streaks of forewing. The blotch present at about 1/6, and the streaks runs on apical 1/3 of CuP and from middle to 2/3 of wing respectively.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The uncus has hammer-shaped apex, and some long clearly wrinkles are present near apex of aedeagus; the corpus bursae connect with ductus bursae at caudal 1/4; and the signum is oval with bar-shaped projection on inner side.

Description. Wing expanse 6.0-7.6 mm. Forewing length 2.8-3.6 mm. Labial palpus dorsally pale ocher, ventrally white. Antenna pale ocher; scape dorsally silvery. Vertex

silvery, with angled caudal margin; occiput and frons white. Tegula and thorax white.

Wing markings. Forewing white; costa dark gray near base; two obscure blotches present at 1/6 and 2/3 of wing, silvery and fuscous; second blotch triangular; two obscure streaks running; first streak on apical 1/3 of CuP; second streak from middle to 2/3 of wing; cilia white. Hindwing white to pale gray; cilia white.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 7/10 of wing. Sc connected with costal margin of wing on basal 3/10, stout. R₁ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked, in common with R₃. M₁ approximate to M₂ at base; M₂ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about 3/7 of dorsum. Hindwing 7/9 as long as forewing; 8-veined; discoidal cell open. Rs running to near apex; M₂ absent; M₃ rudimentary. CuA₁ and CuA₂ stalked; CuA₂ running to about 4/11 of dorsum.

Legs white; fore-tibia and -tarsus ventrally brownish black; hind-tibia apically brownish black, covered with white bristle; some white scale-hairs present at middle of hind-tibia, apically brownish black; verticillbristle present at apex; first and second segments of hind-tarsus apically dark gray, dorsally with verticillbristle at apex. Abdomen dorsally pale ocher, ventrally white; spines of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically with hammer-shaped; setae occurring on lateral surface. Gnathos tongue-shaped, slightly longer than uncus, with round apex. Valva with round apex; costa dorsally slightly round, caudally with setae; cucullus semicircular, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with setae. Vinculum elongate; saccus 1/5 length

of uncus, cephalically subtriangular. Juxta subrectangular. Anellar lobes obscure, with setae on surface. Aedeagus stout, about 2.5 times as long as uncus, with many small spicules on vesica; some long clearly wrinkles present near apex; cornutus absent; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 5/11 length of aedeagus, with blunt apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment longer than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 2/3 as long as apophyses posteriores. Ostium bursae large, tub-shaped, with many microspines inner surface. Ductus bursae narrow, half length of corpus bursae. Corpus bursae connected with ductus bursae at caudal 1/4; signum, oval, situated at about middle of corpus bursae, with bar-shaped projection on inner side. Ductus seminalis long, originating from near caudal margin of corpus bursae, apically with microspines. Bulla situated at about middle of ductus seminalis.

Type material. HOLOTYPE ♂, Takeda-rindo, Ishigaki Is., the Ryukyu Islands, JAPAN, 29. iv. 2011, ex Spore of *Nephrolepis biserrata*, T. Terada (1♂ Gen. sl. no. 12038), deposited in KGU. PARATYPES: JAPAN. The Ryukyu Islands: 7♂ 8♀, Takeda-rindo, Ishigaki Is., em. 16. iv-1 v. 2011, ex Spore of *N. biserrata*, T. Terada (1♂ 2♀ Gen. sl. no. 11038, 11048, 12027, 1♂ 1♀ Wing sl. no. 11043, 12018); 10♂ 16♀, Ditto, em. 11. iv-4. v. 2012, ex Spore of *N. biserrata*, T. Terada (1♂ Gen. sl. no. 13137, 2♂ Wing sl. no. 13119, 13129).

Distribution. Japan: the Ryukyu Islands (Ishigaki Is.).

Host plants. *Nephrolepis biserrata* (Sw.) Schott (Nephrolepidaceae).

Biology. Scarcely known. Adults emerged in April and May under rearing condition. Larvae feed on the host spore, and were found in silky tube on underside of the host frond in March.

Etymology. Argyros (Greek) = silvery. Kosmos (Greek) = decoration. The specific name, *argyroskosmos*, derives from silver markings of forewing.

Remarks. The known distribution of this new species is extremely limited in Ishigaki Island, although the host plant (*Nephrolepis biserrata*) is distributed in Japan (Ryukyu Islands), China, Taiwan, Southeast Asia, Oceania, Africa and South America (Kurata and Nakaike, 1985). For the actual distribution of this species, further survey is necessary.

Genus *Cuprina* Sinev, 1988

Cuprina Sinev, 1988: 122-124.

Type species: *Cuprina fuscilla* Sinev, 1988.

Diagnosis. This genus is similar to *Calicotis*, *Pachyrhabda*, *Thylacosceles* and *Thylacosceloides*, but can be distinguished by the vertex, the antenna and the bristle of hind-tibia as follow. The vertex is narrow. The antenna is very shortly ciliated ventrally and serrated apically. The eye-cap is not developed. The hind-tibia is covered with bristle, and the bristle has slit at 1/3 of hind-tibia.

Description. Labial palpus smooth scaled and slightly curved, with acute apex; second segment slightly rough scaled cephalically. Antenna about 5/6 length of forewing, serrated apically; very short cilia present ventrally; eye-cap not developed. Head smooth scaled; vertex narrow. Tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; 12-veined; discoidal cell long, occupying about basal 7/10 of wing. Sc connected with costal margin of wing on about basal 1/3. R₄ and R₅ stalked; R₃ and R₄₊₅ from upper angle of cell. M₂ and M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about middle of dorsum. Hindwing narrowly lanceolate; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂.

Legs smooth; first to third segments of mid-tarsus dorsally with verticillibristle; hind-tibia dorsally covered with bristle except near apex; bristle with slit at basal 1/3 of hind-tibia; verticillibristle and short verticillate scale-hairs present at apex; first to fourth segments of hind-tarsus dorsally with verticillibristle at apex. Abdomen dorsally with spine row on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus apically down-turned; setae occurring on lateral side. Gnathos longer than uncus. Valva with round apex; costa nearly flat dorsally; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae; subtriangular process present cephalodorsally, connected with near base of vinculum. Vinculum short; saccus shorter than half length of uncus. Juxta present. Anellar lobes developed, weakly sclerotized, with setae on surface. Aedeagus without cornutus; sclerotized structure present near base; apical patch of stimuli present near apex of aedeagus, apical half narrowly triangular.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin;

many microspines present at caudal margin and ventrally. Apophyses posteriores shorter than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae shorter than corpus bursae. Corpus bursae with signum. Ductus seminalis originating from caudal margin of corpus bursae, apically with microspines; bulla present on basal 1/4 of ductus seminalis.

Species examined. *Cuprina fuscella*, *Cu. flaviscapella*.

Remarks. The genus *Cuprina* is new to Japanese fauna. This genus is included only two species, and conspicuous group in that the shining grayish brown forewing and fuscous antenna with pale ocher to white apex. All the larvae of this genus feed on spore of fern. The known distribution of this genus is limited, Primorsky in Russia and Japan. This genus is related to the genera *Calicotis*, *Pachyrhabda*, *Thylacosceles* and *Thylacosceloides*.

Key to the Japanese species of *Cuprina*

1. Antenna pale ocher to white on about apical 1/5; scape dorsally fuscous to dark gray.

In male genitalia, cephalodorsal subtriangular process of sacculus small; basal sclerotized structure small. In female genitalia, joint membrane between papillae anales and eighth abdominal segment shorter than papillae anales; signum large.

..... *Cu. fuscella* Sinev

-. Antenna pale ocher to white on about apical 1/3; scape dorsally yellowish ocher. In

male genitalia, cephalodorsal subtriangular process of sacculus large and sticking out; basal sclerotized structure of aedeagus rather large. In female genitalia, joint membrane between papillae anales and eighth abdominal segment as long as papillae anales; signum small. *Cu. flaviscapella* Sinev

Cuprina fuscella Sinev, 1988 [Plates XLVII, LXIV-a, LXXVI-a]

[Japanese name: Kuro-shida-maikoga]

Cuprina fuscella Sinev, 1988: 124-126, figs 14, 21, 23, 25, 27.

Calicotis sp. 3: Oku, 2003a: 40.

Thylacosceles sp. 3: Sawamura *et al.*, 2009: 594-604.

Diagnosis. This species is very similar to *Cu. flaviscapella*, but can be distinguished by the colorations of antenna. In this species, the antenna is pale ocher to white on about apical 1/5. The scape is fuscous to dark gray dorsally. In contrast, in *Cu. flaviscapella*, the antenna is pale ocher to white on about apical 1/3. The scape is ochereous yellow dorsally.

In the genitalia, this species can be distinguished from by *Cu. flaviscapella* the following characters: The cephalodorsal subtriangular process of sacculus is small; the basal sclerotized structure of aedeagus is small; the joint membrane between papillae anales and eighth abdominal segment is shorter than papillae anales; and the signum is large.

Description. Wing expanse 6.2-9.1 mm. Forewing length 3.2-4.2 mm. Labial palpus ocher, ventrally white; third segment dorsally dark brown. Antenna fuscous, pale ocher to white on about apical 1/5; scape dorsally fuscous to dark gray. Vertex dark silvery; occiput fuscous, with lateral black spots at caudal margin, obscure; frons silvery. Tegula and thorax fuscous.

Wing markings. Forewing grayish brown, black at base, fuscous on apical 1/3, with dark brown blotch at middle of costa, large, subrectangular, obscure; cilia fuscous. Hindwing pale fuscous; cilia fuscous.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 7/10 of

wing. Sc connected with costal margin of wing on basal 1/3. R₁ from distal 1/12 of cell; R₄ and R₅ stalked; R₃ and R₄₊₅ from upper angle of cell. M₂ and M₃ from lower angle of cell. CuA₁ present only near dorsum, rudimentary; CuA₂ absent. 1A+2A not branched, running to about middle of dorsum. Hindwing 7/9 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 1/3 of dorsum.

Legs pale ocher; fore-tarsus ventrally pale gray; mid-tibia dorsally grayish black on basal 1/3 and at 3/4; first to third segments of mid-tarsus dorsally with verticillbristle; hind-tibia dorsally brownish black on basal 1/4 and middle to 3/4, other parts white, dorsally covered with bristle except near apex; bristle with slit at basal 1/3 of hind-tibia; other parts of bristle brownish black; brownish black and pale ocher verticillbristle and brownish black verticillate scale-hairs present at apex, latter short; first to fourth segments dorsally gray to dark gray, dorsally with verticillbristle at apex. Abdomen dorsally pale fuscous to fuscous, ventrally white to silvery; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, apically down-turned, with round apex in ventral view; setae occurring on lateral surface. Gnathos tongue-shaped, longer than uncus, with angled apex in ventral view. Valva with round apex; costa nearly flat dorsally; cucullus oval, 1.5 times as long as uncus, with numerous setae on inner surface; angled cephalically; sacculus sclerotized, apically round, ventrally with setae; subtriangular process present cephalodorsally, small. Vinculum short, with blunt apex; saccus 1/5 length of uncus, cephalically round. Juxta subtriangular, caudal margin bilobate. Anellar lobes developed, subtriangular, weakly sclerotized, with short setae on surface. Aedeagus stout, about 3.5 times as long as uncus; cornutus absent; sclerotized structure

present near base, small, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 2/5 length of aedeagus, apical half narrowly triangular, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales 1.8 times as long as wide, weakly sclerotized, with many short and long setae except ventrally; joint membrane between papillae anales and eighth abdominal segment shorter than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin; many microspines present at caudal margin and ventrally. Apophyses posteriores short; apophyses anteriores about 1.2 times as long as apophyses posteriores. Ostium bursae large, tub-shaped, with numerous microspines inner surface. Ductus bursae, 2/5 length of corpus bursae. Corpus bursae with signum, large, bar-shaped, situated at middle of corpus bursae; many sparse microspines present around signum; many small spines present near connection of corpus bursae and bulla. Ductus seminalis originating from caudal margin of corpus bursae, long, apically with microspines; bulla, present on basal 1/4 of ductus seminalis, stout.

Specimens examined. JAPAN. Hokkaido: 1♀, Miwa, Koshimizu-Town, 30. vii. 1991, S. Kawahara (1♀ Gen. sl. no. 0723); 1♀, Hitsujigaoka, Sapporo-City, 23. vii. 2000, K. Sugisima. Honshu: 1♂ 1♀, Tazawako, Senboku-City, Akita-Pref., 29. v. 2011, K. Umetsu (1♂ 1♀ Gen. sl. no. 13020, 13021); 2♀, Mt. Takahora, Morioka-City, Iwate-Pref., 30. v. 1980, K. Yasuda; 1♂, Koiwai, Rikuzentakata-City, Iwate-Pref., 15. viii. 2001, N. Doi (1♂ Gen. sl. no. M-10299); 1♀, Unetori-jinjya, Fudai-Vill., Iwate-Pref., 1. viii. 2002, I. Date (1♀ Gen. sl. no. M-10308); 2♂ 1♀, Nakayama, Yasato-Town, Ibaraki-Pref., 9. viii. 1995, K. Yasuda (Light trap); 2♂, Jyogasaki,

Ito-City, Shizuoka-Pref., 9. v. 1995, K. Sugisima (1♂ Gen. sl. no. 1233); 1♂, Fukiage-gyoen, Imperial Palace, Tokyo-Pref., 1. v. 2012, Y. Arita and M. Owada; 1♂ 2♀, Shimodokan-bori, Imperial Palace, Tokyo-Pref., 8. v. 2012, U. Jinbo; 1♀, Shimashimadani, Azumi-Vill., Nagano-Pref., 28. v. 2000, K. Sugisima (1♀ Gen. sl. no. 1232); 1♂ 2♀, Taki, Totsukawa-Vill., Nara-Pref., 14. v. 1981, K. Yasuda (1♀ Gen. sl. no. 13167); 2♂, Nakamachi, Nara-City, Nara-Pref., 28. v. 2011, T. Terada (1♂ Gen. sl. no. 12077); 1♂ 1♀, Nose-Town, Osaka-Pref., 12. v. 1970, F. Komai; 1♂ 1♀, Hiraoka, Higashiosaka-City, Osaka-Pref., 9. vi. 1979, K. Yasuda; 1♂ 4♀, Mt. Koya, Koya-Town, Wakayama-Pref., 5. vi. 1979, K. Yasuda; 3♂ 2♀, Ditto, 26. vi. 1979, K. Yasuda; 1♂ 1♀, Ditto, 5. vi. 1980, K. Yasuda; 1♂, Wakayamajyou-park, Wakayama-City, Wakayama-Pref., em. 8. xii. 2014, ex Spore of *Cyrtomium falcatum*, M. Murase; 1♀, Takinai-Town, Tanabe-City, Wakayama-Pref., 16. v. 2014, T. Terada (1♀ Gen. sl. no. 14059); 1♀, Mt. Daisen, Tottori-Pref., 25. v. 1993, Y. Sakamaki. Kyushu: 4♂ 6♀, Korimoto, Kagoshima-City, Kagoshima-Pref., 20. iv. 2011, T. Terada (2♂ 2♀ Gen. sl. no. 11041, 11042, 11050, 12029); 5♂ 1♀, Ditto, 21. iv. 2011, T. Terada (1♂ Gen. sl. no. 11049, 1♂ 1♀ Wing sl. no. 11063, 12051); 3♂ 3♀, Ditto, 16. iv. 2012, T. Terada (2♂ 3♀ Gen. sl. no. 12078, 13031, 14041, 14055, 14056); 2♀, Ditto, 22. iv. 2013, T. Terada (1♀ Gen. sl. no. 14040); 2♀, Ditto, 16. iv. 2014, T. Terada; 6♂ 7♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., 16. iv. 2014, K. Uchima (1♂ Gen. sl. no. 14044); 1♂ 6♀, Ditto, 16. iv. 2014, T. Terada (1♂ Gen. sl. no. 14043).

Distribution. Japan: Hokkaido, Honshu and Kyushu. Primorsky in Russia (Sinev, 1988).

Host plants. *Onoclea sensibilis* L. (Onocleaceae) (Sinev, 1988) and *Cyrtomium falcatum* (L.f.) C. Presl (Dryopteridaceae). *Cyrtomium fortunei* J. Sm., *Dryopteris*

uniformis (Makino) Makino (Dryopteridaceae) and *Cornopteris decurrenti-alata* (Hook.) Nakai (Athyriaceae) (Sawamura *et al.*, 2009).

Biology. Scarcely known. Adults emerged in November and December under rearing condition, and were collected in April to August. Larvae are found on host plants in August and September; they pupate in elongate silky cocoon spun among litter (Sinev, 1988).

Remarks. This species is new to Japanese fauna.

This species and the unidentified species reported in Sawamura *et al.* (2009) as *Thylacosceles* sp. 3 are must be identical species, because a part of mitochondrial *COI* sequences (577 bp) of this species and of *Thylacosceles* sp. 3 in Sawamura *et al.* (2009) (GenBank: FJ376649.1) matched over 99 percent.

***Cuprina flaviscopella* Sinev, 1988** [Plates XLVIII, LXIV-b, LXXVI-b]

[Japanese name: Hime-kuro-shida-maikoga]

Cuprina flaviscopella Sinev, 1988: 126-127, figs 24, 26, 28.

Stathmopodidae Gen. sp.: Sawamura *et al.*, 2009: 594-604.

Diagnosis. This species is very similar to *Cu. fuscella*, but can be distinguished by the colorations of antenna. In this species, the antenna is pale ocher to white on about apical 1/3. The scape is ocherous yellow dorsally. In contrast, in *Cu. fuscella*, the antenna is pale ocher to white on about apical 1/5. The scape is fuscous to dark gray dorsally.

In the genitalia, this species can be distinguished from by *Cu. fuscella* the following characters: The cephalodorsal subtriangular process of sacculus is large and stick out; the basal sclerotized structure of aedeagus is rather large; the joint membrane between

papillae anales and eighth abdominal segment is as long as papillae anales; and the signum is small.

Description. Wing expanse 6.6-7.5 mm. Forewing length 3.1-3.6 mm. Very similar to *Cu. fuscella*, but differing in the following characters. Antenna pale ocher to white on about apical 1/3; scape dorsally ocherous yellow.

Wing markings. Hindwing grayish brown.

Wing venation. Forewing, R_1 from distal 1/8 of cell. Hindwing 8/10 as long as forewing. CuA_2 running to about 2/5 of dorsum.

Legs, fore-tibia and -tarsus ventrally pale gray; first to fourth segments dorsally gray to dark gray.

Male genitalia. Uncus apically slightly down-turned, with truncate apex in ventral view. Gnathos subtriangular, slightly longer than uncus, with blunt apex in ventral view. Cephalodorsal subtriangular process of sacculus large and sticking out. Saccus 1/4 length of uncus. Juxta oval, weakly sclerotized. Aedeagus stout, about three times as long as uncus; basal sclerotized structure rather large.

Female genitalia. Papillae anales slightly longer than wide; joint membrane between papillae anales and eighth abdominal segment as long as papillae anales. Apophyses anteriores slightly shorter than apophyses posteriores. Ostium bursae with sublateral fold. Ductus bursae, half length of corpus bursae. Signum rather small. Bulla assimilated with ductus seminalis.

Specimens examined. JAPAN. Hokkaido: 1♀, Mt. Soranumadake, Sapporo-City, 9. viii. 1962, T. Kumata (1♀ Gen. sl. no. 14053); 1♀, Kannon-zawa, Sapporo-City, 12. viii. 1998, K. Sugisima (1♀ Gen. sl. no. 14054); 1♂ Boyodai, Otaru-City, em. 16. v. 2002, ex Spore of *Dryopteris crassirhizoma*, K. Sugisima (1♂ Gen. sl. no. 1076). Honshu: 1♂,

Shiroyama-park, Yahiko-Vill., Nigata-Pref., 8. viii. 2000, K. Sugisima (1♂ Gen. sl. no. 0834); 1♀, Totsukawa, Nara-Pref., 15. vi. 1980, K. Yasuda (1♀ Gen. sl. no. 13151); 6♂ 1♀, Kii-oshima Is., Kushimoto-Town, Wakayama-Pref., 21-24. v. 1964, T. Kumata (4♂ 1♀ Gen. sl. no. 13150, 13166, 14042, 14049, 14050). 1♀, Kinkowan-park, Kagoshima-City, Kagoshima-Pref., 26. vii. 2012, T. Terada (1♀ Gen. sl. no. 13032, 1♀ Wing sl. no. 13168).

Distribution. Japan: Hokkaido, Honshu and Kyushu. Primorsky in Russia (Sinev, 1988).

Host plants. *Dryopteris crassirhizoma* Nakai; *Dryopteris* sp. (Sawamura *et al.*, 2009) (Dryopteridaceae).

Biology. Adults emerged in May under rearing condition, and were collected in May to August. Larvae feed on the host spore, and were found in forking silky gallery on the underside of the host frond in September.

Remarks. This species is new to Japanese fauna.

This species and the unidentified species reported in Sawamura *et al.* (2009) as Stathmopodidae Gen. sp. are must be identical species, because a part of mitochondrial *COI* sequences (571 bp) of this species and of Stathmopodidae Gen. sp. in Sawamura *et al.* (2009) (GenBank: FJ376651.1) matched over 99 percent.

Genus *Thylacosceles* Meyrick, 1889

Thylacosceles Meyrick, 1889: 171.

Type species: *Thylacosceles acridomima* Meyrick, 1889.

Diagnosis. This genus is similar to *Calicotis*, *Pachyrhabda*, *Cuprina* and *Thylacosceloides*, but can be distinguished by the antenna. The antenna is very shortly

ciliated ventrally and serrated apically. The eye-cap is not developed.

Species examined. *Thylacosceles acridomima* (Holotype images: BMNH(E) #1055272).

***Thylacosceles* sp.**

Thylacosceles sp. 4: Sawamura *et al.*, 2009: 594-604.

Remarks. Sawamura *et al.* (2009) treated this species as unidentified species of the genus *Thylacosceles*, and had not described detail of external and genital characters of this unidentified species. Thus this unidentified species is needed to examine. However, I could not determine taxonomic status of this species, because I have not got the specimen of this species.

Genus *Thylacosceloides* Sinev, 1988

Thylacosceloides Sinev, 1988: 127-129.

Type species: *Thylacosceloides miniata* Sinev, 1988.

Diagnosis. This genus is similar to *Calicotis*, *Pachyrhabda*, *Cuprina* and *Thylacosceles*, but can be distinguished by the narrow vertex, the vertical ditch of male occiput and the absence of cilia on antenna and eye-cap.

Description. Labial palpus smooth scaled and slightly curved, with acute apex. Antenna about 5/6 length of forewing; serrated apically; cilia absent; eye-cap not developed. Head smooth scaled; vertex narrow, sticking out cephalically; occiput with vertical ditch in male. Tegula and thorax smooth scaled.

Wing venation. Forewing lanceolate, widest near base; 12-veined; discoidal cell long, occupying about basal 7/10 of wing. Sc connected with costal margin of wing on about

basal 2/5. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ rudimentary; CuA₂ absent. 1A+2A not branched, running to about middle of dorsum. Hindwing narrowly lanceolate; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂.

Legs smooth; hind-tibia dorsally covered with bristle except near apex; verticillbristle and short verticillate scale-hairs present at apex; first to third or to fourth segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen dorsally with spine row on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus apically down-turned; setae occurring on lateral side. Gnathos with round apex. Valva with round apex; costa nearly flat dorsally; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with setae. Vinculum short; saccus present. Juxta present. Anellar lobes assimilated with inner surface of sacculus, with setae on surface. Aedeagus with or without cornutus; sclerotized structure present near base; apical patch of stimuli present near apex of aedeagus.

Female genitalia. Seventh sternum slightly emarginate to emarginate caudal margin. Papillae anales weakly sclerotized; with many setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores shorter or longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae shorter than half length of corpus bursae. Corpus bursae cylindrical, with signum; inner projection present on signum. Ductus seminalis originating from near caudal margin of corpus bursae, apically with microspines; bulla absent.

Species examined. *Thylacosceloides miniata*, *T. stegnogrammias* n. sp., *T. leucocephalus* n. sp.

Remarks. The genus *Thylacosceloides* is new to Japanese fauna, and conspicuous group in that the grayish brown forewing with pale ocher triangular blotch at 3/5 of costa. This genus is included only three species.

The known hosts of this genus are spore of fern. The known distribution of this genus is limited, Primorsky in Russia and Japan. This genus is related to the genera *Calicotis*, *Pachyrhabda*, *Cuprina* and *Thylacosceles*.

Key to the Japanese species of *Thylacosceloides*

1. Occiput long, grayish ocher. In male genitalia, aedeagus with nib-shaped cornutus on vesica. In female genitalia, ductus seminalis stout on apical half.
..... *T. leucocephalus* n. sp.
- . Occiput rather short, pale fuscous. In male genitalia, aedeagus without cornutus. In female genitalia, ductus seminalis narrow on apical half. 2
2. In male genitalia, saccus 1/3 length of uncus, stout. In female genitalia, corpus bursae with many triangular spicules on caudal 1/3. *T. miniata* Sinev
- . In male genitalia, saccus 1/2 length of uncus, narrow. In female genitalia, corpus bursae without triangular spicules. *T. stegnogrammias* n. sp.

***Thylacosceloides miniata* Sinev, 1988** [Plates XLIX, LXIV-c, LXXVI-c]

[Japanese name: Mon-shida-maikoga]

Thylacosceloides miniata Sinev, 1988: 129-131, figs 15, 22, 29-31.

Diagnosis. This species is similar to *T. leucocephalus* n. sp., but can be distinguished

by the occiput. In this species, the occiput is rather short and pale fuscous. In contrast, in *T. leucocephalus*, the occiput is long and grayish ocher. This species is also very similar to *T. stegnogrammias* n. sp. It is difficult to distinguish this species from *T. stegnogrammias* n. sp. only by the external characters.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The saccus is 1/3 length of uncus and stout; the cornutus of aedeagus is absent; and many triangular spicules are present on caudal 1/3 of corpus bursae.

Description. Wing expanse 7.9-8.0 mm. Forewing length 3.7-4.0 mm. Labial palpus ocher, ventrally pale ocher; third segment dorsally fuscous. Antenna fuscous, paler towards apex. Vertex silvery; occiput pale fuscous; frons white. Tegula pale fuscous. Thorax pale fuscous, darkened toward caudally.

Wing markings. Forewing grayish brown, with pale ocher blotch at 3/5 of costa, triangular, obscure; cilia fuscous. Hindwing brown; cilia fuscous.

Wing venation. Forewing 12-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 2/5. R₁ from near upper angle of cell; R₂ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ rudimentary; CuA₂ absent. 1A+2A not branched, running to about middle of dorsum. Hindwing 7/9 as long as forewing; 9-veined; discoidal cell open. Rs running to apical near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; M₂ sometimes absent near base; CuA₂ running to about 2/5 of dorsum.

Legs pale ocher; fore-tibia ventrally gray; first segment of fore-tarsus ventrally darkened toward base; mid-tibia dorsally dark gray on 1/3, ventrally dark gray at apex; hind-tibia dorsally covered with bristle except near apex, dark gray on basal 1/4 and

apical half, white at 1/3; broad gray ring present at middle; white verticillbristle and dark gray verticillate scale-hairs present at apex; first to fourth segments of hind-tarsus dorsally gray, with verticillbristle at apex. Abdomen dorsally fuscous, ventrally white; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus tapering caudally, apically down-turned, with blunt apex; setae occurring on lateral side. Gnathos tongue-shaped, as long as uncus, with round apex. Valva with round apex; costa dorsally round; cucullus subrectangular, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically round, ventrally with setae. Vinculum tapering apically, with acute apex; saccus 1/3 length of uncus, stout, cephalically round. Juxta oval, weakly sclerotized. Anellar lobes assimilated with inner surface of sacculus, with setae on surface. Aedeagus about three times as long as uncus; cornutus absent; sclerotized structure present near base, subrectangular, small and thin; apical patch of stimuli present near apex of aedeagus, 2/7 length of aedeagus, with round apex.

Female genitalia. Papillae anales as long as wide, weakly sclerotized, dorsally with many short and long setae; joint membrane between papillae anales and eighth abdominal segment shorter than papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores short; apophyses anteriores slightly longer than apophyses posteriores. Ostium bursae barrel-shaped, with some wrinkles. Ductus bursae short, 1/5 length of corpus bursae. Corpus bursae with many triangular spicules on caudal 1/3 of corpus bursae. Signum small, sublozenge, with spiniform projection inner side; situated near cephalic margin of corpus bursae. Ductus seminalis originating

from near caudal margin of corpus bursae, apically with microspines.

Specimens examined. JAPAN. Hokkaido: 1♂, Touya, 7. vii. 1967, M. Miyazaki (1♂ Gen. sl. no. 14033); 1♀, Kannon-zawa, Sapporo-City, 23. vii. 2002, K. Sugisima (1♀ Gen. sl. no. 1283, 1♀ Wing sl. no. 14045). Honshu: 1♂, Hikagedaira, Gifu-Pref., 18-21. vii. 1981, K. Yasuda (1♂ Gen. sl. no. 13009, 1♂ Wing. sl. no. 14036); 1♀, Mt. Obako-dake, Nara-Pref., 4. vii. 1979, K. Yasuda (1♀ Gen. sl. no. 13014).

Distribution. Japan: Hokkaido and Honshu. Primorsky in Russia (Sinev, 1988).

Host plants. *Athyrium filix-femina* (L.) Roth. (Athyriaceae) (Sinev, 1988).

Biology. Adults were collected in July. Larvae were found on host plants in August and September; they pupate in elongate silky cocoon spun among litter (Sinev, 1988).

Remarks. This species is new to Japanese fauna. The distribution of *T. miniata* had been known only from Primorsky in Russia. Thus, adjacent regions of these areas should be explored to determine the actual distribution.

***Thylacosceloides stegnogrammias* n. sp.** [Plates L, LXIV-d, LXXVI-d]

[Japanese name: Minami-mon-shida-maikoga]

Diagnosis. This species is similar to *T. leucocephalus* n. sp., but can be distinguished by the occiput. In this species, the occiput is rather short and pale fuscous. In contrast, in *T. leucocephalus*, the occiput is long and grayish ocher. This species is also very similar to *T. miniata*. It is difficult to distinguish this species from *T. miniata* only by the external characters.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The saccus is 1/2 length of uncus and narrow; the cornutus of aedeagus is absent; and the triangular spicules of corpus bursae are absent.

Description. Wing expanse 6.7-7.6 mm. Forewing length 3.0-3.6 mm. Very similar to *T. miniata*, but differing in the following characters. Labial palpus, third segment dorsally pale ocher. Antenna grayish ocher to pale fuscous.

Wing markings. Hindwing grayish brown.

Wing venation. Hindwing 5/7 as long as forewing. CuA₂ running to about 3/7 of dorsum.

Legs, mid-tibia dorsally uniformly pale ocher; hind-tibia dorsally dark gray on apical 2/3; bristle basal half pale gray to dark gray and apical half dark gray; hind-tarsus uniformly pale ocher, with verticillbristle at apex of first to third segments.

Male genitalia. Uncus with truncate apex. Gnathos narrowly tongue-shaped, slightly longer than uncus, with round apex. Costa of valva dorsally slightly round; cucullus oval, 1.4 times as long as uncus. Saccus 1/2 length of uncus, narrow. Aedeagus about 2.5 times as long as uncus; basal sclerotized structure very small; apical patch of stimuli 1/4 length of aedeagus, with round apex.

Female genitalia. Papillae anales longer than wide. Ostium bursae cylindrical. Triangular spicules of corpus bursae absent. Signum with crescent projection inner side; situated cephalic 1/3 of corpus bursae.

Type material. HOLOTYPE ♂, Genka, Okinawa-honto Is., the Ryukyu Islands, JAPAN, 27. iii. 1980, K. Yasuda (1♂ Gen. sl. no. 12039), deposited in KGU. PARATYPES, JAPAN. 1♀, Oguni-shrine, Mori-Town, Shizuoka-Pref., Honshu, em. 23. viii. 2003, ex Spore of *Stegnogramma pozoi*, K Sugisima (1♀ Gen. sl. no. 14070). 4♂ 2♀, Genka, Okinawa-honto Is., Ryukyu Islands, 27. iii. 1980, K. Yasuda (4♂ 2♀ Gen. sl. no. 12031, 14037, 14039, 14046, 2♂ 1♀ Wing sl. no. 12054, 14029, 14048).

Distribution. Japan: Honshu and the Ryukyu Islands (Okinawa-honto Is.).

Host plants. *Stegnogramma pozoi* (Lag.) K. Iwats. (Thelypteridaceae).

Biology. Adults emerged in August under rearing condition, and were collected in March. Larvae feed on the host spore, and were found in silky tube on the underside of the host frond in July.

Etymology. The specific name, *stegnogrammias*, derives from the genus of host plant, *Stegnogramma*.

Remarks. The known distributions of this new species are limited and fragmented, although the host plant (*Stegnogramma pozoi*) is distributed in Japan (Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyu Island), Korea, China, Taiwan, India and Sri Lanka (Kurata and Nakaike, 1983). For the actual distribution of this species, further survey is necessary.

***Thylacosceloides leucocephalus* n. sp.** [Plates LI, LXIV-e, LXXVI-e, f]

[Japanese name: Shiro-zu-mon-shida-maikoga]

Diagnosis. This species is similar to *T. miniata* and *T. stegnogrammias* n. sp., but can be distinguished by the occiput. In this species, the occiput is long and grayish ochre. In contrast, in *T. miniata* and *T. stegnogrammias* n. sp., rather short and pale fuscous.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The nib-shaped cornutus of aedeagus is present; and the few triangular spicules are present around connection of corpus bursae and ductus seminalis and very small.

Description. Wing expanse 7.0-7.4 mm. Forewing length 3.2-3.4 mm. Very similar to *T. miniata*, but differing in the following characters. Third segment of labial palpus

dorsally darkened toward apex. Antenna pale ocher. Occiput long, grayish ocher. Tegula grayish ocher, darkened toward base. Thorax grayish ocher; metathorax dark brown.

Wing markings. Forewing, blotch distinctly. Hindwing grayish brown.

Wing venation. Forewing discoidal cell occupying basal 5/7 of wing. Hindwing 9/11 as long as forewing. CuA₂ running to about 3/7 of dorsum.

Legs, fore-tarsus ventrally gray; mid-tibia dorsally dark gray at base; hind-tibia outside dark gray on 1/3 and gray on apical 2/3; bristle pale ocher on basal half and dark gray on apical half; hind-tarsus uniformly pale ocher, of with verticillibristle at apex of first to third segments.

Male genitalia. Uncus slightly tapering caudally. Cucullus oval, twice as long as uncus. Vinculum elongate; saccus 3/5 length of uncus, narrow, cephalically subrectangular. Aedeagus with nib-shaped cornutus present on vesica; basal sclerotized structure weakly sclerotized, subtriangular; apical patch of stimuli subtriangular, 1/6 length of aedeagus, with acute apex.

Female genitalia. Seventh sternum slightly emarginate caudal margin. Eighth abdominal segment cephalodorsally nearly flat. Apophyses anteriores longer than apophyses posteriores. Ostium bursae cylindrical. Ductus bursae 1/3 length of corpus bursae. Triangular spicules of corpus bursae very small, few; situated around connection of corpus bursae and ductus seminalis. Signum subrectangular, situated at cephalic 1/3 of corpus bursae. Ductus seminalis stout on apical half.

Type material. HOLOTYPE ♂, Kurio, Yakushima Is., Kagoshima-Pref., the Ryukyu Islands, JAPAN, 21. viii. 1980, K. Yasuda (1♂ Gen. sl. no. 12033), deposited in KGU. PARATYPES, JAPAN. The Ryukyu Islands: 2♂, Kurio, Yakushima Is., Kagoshima-Pref., 6-7. ix. 1979, K. Yasuda (1♂ Gen. sl. no. KY-130); 4♂, Ditto, 20-21.

viii. 1980, K. Yasuda (1♂ Gen. sl. no. 13010, 2♂ Wing sl. no. W-50, 12043); 1♀, Miyanoura, Yakushima Is., Kagoshima-Pref., 23. viii. 1980, K. Yasuda (1♀ Gen. sl. no. 12034); 1♂ 2♀, Kamiya, Amami-oshima Is., Kagoshima-Pref., 3. vii. 2006, U. Jinbo (1♂ 1♀ Gen. sl. no. 13011, 13012); 1♂, Hatsuno-rindo, Amami-oshima Is., Kagoshima-Pref., 13. v. 2009, K. Tsuda (Light trap) (1♂ Gen. sl. no. 13040). 1♀, Buren, Amami-oshima Is., Kagoshima-Pref., 14. ix. 2014, S. Sameshima (Light trap).

Distribution. Japan: the Ryukyu Islands (Yakushima Is., Amami-oshima Is.).

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in July to September.

Etymology. Leukos (Greek) = white. Kephalē (Greek) = head. The specific epithet, *leucocephalus*, derives from the grayish ocher head of this species.

Remarks. The known distribution of this new species is limited in northern Ryukyu Islands, where the distribution of the other members of the genus do not overlap.

Genus *Oedematopoda* Zeller, 1852

Oedematopoda Zeller, 1852: 96.

Type species: *Eretmocera princeps* Zeller, 1852 (by monotypy).

Diagnosis. This genus is especially similar to the genus *Atkinsonia*, but can be distinguished by the presence of gnathos.

Description. Labial palpus long, smooth scaled and curved, with acute apex. Antenna about 3/4 length of forewing, with long scale-hairs, ciliated in male; eye-cap not developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing oblong; 13-veined; discoidal cell long, occupying basal 4/7 of wing. Sc connected with costal margin of wing on about basal 1/2. R₁ running from

about distal 2/7 of cell; R₂ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₁ and M₂ parallel; M₃ from lower angle of cell. CuA₁ rudimentary near base; CuA₂ present only near dorsum. 1A+2A connected basal 1/5 of wing, running to about middle of dorsum. Hindwing lanceolate, widest near base, about 4/5 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about middle of dorsum.

Legs smooth; fore- and mid-tibia dorsally with verticillbristle at middle and apex; first to third segments of mid-tarsus dorsally with verticillbristle at apex; hind-tibia dorsally with verticillbristle at base, middle and apex; first to third segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen with spine row of abdominal terga on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus tapering caudally; setae occurring on lateral side. Gnathos as long as uncus. Valva with round apex; costa dorsally round; cucullus with numerous setae on inner surface; sacculus sclerotized, ventrally with some long setae. Vinculum elongate. Juxta present. Anellar lobes developed, sclerotized, with setae on surface. Aedeagus with cornutus; sclerotized structure present near base; apical patch of stimuli present near apex of aedeagus, with round apex.

Female genitalia. Papillae anales weakly sclerotized, with many setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer than apophyses anteriores. Ostium bursae ventrally opened on caudal margin of seventh abdominal segment. Ductus bursae shorter than length of corpus bursae. Corpus bursae with two signa. Ductus seminalis originating from ductus bursae, apically with microspines.

Species examined. *Oedematopoda leechi*.

Remarks. This genus is included 11 species, and distributed in West and South Africa, and South and East Asia. In addition, this genus is related to the genus *Atkinsonia*, and conspicuous group in that the scale-hairs and the reddish colored forewing like the genus *Atkinsonia*.

Two species from China, *Oedematopoda furcata* Wang, 2008 and *O. jiyuanica* Wang, 2008, should be included to the genus *Atkinsonia* because of the absence of gnathos in male genitalia. Besides, there are seven *Oedematopoda* species whose male genitalia is undescribed. Thus this genus might be included some species which should be included to the genus *Atkinsonia*.

***Oedematopoda leechi* Walsingham, 1889** [Plates LII, LXV-a, LXXVII-a]

[Japanese name: Aka-hige-beni-toge-ashiga]

Oedematopoda leechi Walsingham, 1889: 23-24, pl. vi, fig. 9; Terada, 2013: 438-439, figs 1-3.

Atkinsonia leechi: Sinev, 1999: 39; Jinbo, 2004-2008; Otsubo, 2007: 179.

Diagnosis. This species is distinguished from other members of the genus by vermilion to red scale-hairs of antenna.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The coremata develop on eighth abdominal segment; two tufts of coremata is vertically arranged in a pouch; the spiniform cornutus is present; and two signa are crescent-shaped and subpentagonal with subtriangular projection inner side.

Description. Wing expanse 14.6-14.9 mm. Forewing length 6.2-6.8 mm. Labial palpus dark brown, outside lightened toward base; with sparse ochreous red scales;

sometimes suffused with ochreous red scales; Antenna dark brown to brownish black, with many long scale-hairs, vermilion to red, sometimes sprinkled brownish black scale-hairs. Vertex brownish black; occiput vermilion to red, sometimes studded with brownish black; frons dark gray. Tegula vermilion to red. Thorax dorsally vermilion to red, ventrally brownish black, caudal margin white; lateral side of prothorax white.

Wing markings. Forewing vermilion to red, costa and dorsum brownish black, with brownish black streak at about middle of wing; cilia brownish black. Hindwing brown to reddish brown; cilia brown to brownish black.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 4/7 of wing. Sc connected with costal margin of wing on basal 1/2. R₁ from distal 2/7 of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₂ and M₃ from lower angle of cell. CuA₁ rudimentary near base; CuA₂ present only near dorsum. 1A+2A connected basal 1/5 of wing, running to about middle of dorsum. Hindwing 4/5 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about middle of dorsum.

Legs brownish black; mid-leg ventrally white near base; fore- and mid-tibia dorsally with verticillbristle at middle and apex; first to third segments of mid-tarsus dorsally with verticillbristle at apex; hind-tibia dorsally with verticillbristle at base, middle and apex; first to third segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen black; second segment with white streak at caudal end except mediodorsally; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Coremata developing on membranous eighth abdominal segment, with two tufts vertically arranged in a pouch; sclerotized plate present near apex of

coremata, round. Uncus tapering caudally, with blunt apex; setae occurring on lateral side. Gnathos as long as uncus, tongue-shaped. Valva with round apex; costa dorsally round; cucullus oval, 1.2 times as long as uncus, with numerous setae on inner surface; saccus sclerotized, apically obscure, ventrally with some long setae. Vinculum elongate; saccus 1/4 length of uncus, cephalically truncate. Juxta oval, slightly emarginate caudal margin. Anellar lobes developed, narrow oval, sclerotized, with setae on surface. Aedeagus three times as long as uncus, stout, with spiniform cornutus, long; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present near apex of aedeagus, 2/5 length of aedeagus, subrectangular, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales as long as wide, weakly sclerotized, with many setae, except ventrally; joint membrane between papillae anales and eighth abdominal segment 1.5 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses anteriores about 11/13 as long as apophyses posteriores. Ostium bursae cup-shaped. Ductus bursae short, half length of corpus bursae, with weakly sclerotized pouch near ostium bursae. Corpus bursae with two signa, crescent-shaped and subpentagonal, situated near caudal margin of corpus bursae, with serrate margin; many microspines present around signa; subpentagonal signum with subtriangular projection inner side. Ductus seminalis long, originating from near ostium bursae of ductus bursae, basally and apically with microspines; bulla situated at about middle of ductus seminalis.

Specimens examined. JAPAN. Honshu: 1♀, Takinai-Town, Tanabe-City, Wakayama-Pref., 27. v. 2011, T. Terada (1♀ Gen. sl. no. 12098; 1♀ Wing sl. no. 12107); 1♀, Ditto, 14. v. 2012, T. Terada. The Ryukyu Islands: 1♂, Onoaida,

Yakushima Is., Kagoshima-Pref., 19. viii. 1980, K. Yasuda (1♂ Gen. sl. no. KY-113); 1♂, Shinmura, Amami-oshima Is., Kagoshima-Pref., 23. vii. 1954, T. Edashige (1♂ Gen. sl. no. 12097); 1♀, Nase, Amami-oshima Is., Kagoshima-Pref., 23. vii. 1959, Z. Y. 1♀, Shizitou, Nantou, TAIWAN, 21. viii. 1999, L. Chinchu (1♀ Gen. sl. no. 12102).

Distribution. Japan: Honshu and the Ryukyu Islands (Tanegashima Is. (Otsubo, 2007), Yakushima Is., Amami-oshima Is.). Taiwan.

Host plants. Unknown.

Biology. Scarcely known. Adults were collected in May and July to August.

Remarks. This species has treated as a member of the genus *Atkinsonia*. Then, Terada (2013b) suggested that this species were transferred to the current genus.

The known distributions of this species are limited and fragmented. Surveys are needed for the determined actual distribution.

Genus *Atkinsonia* Stainton, 1859

Atkinsonia Stainton, 1859: 125.

Type species: *Atkinsonia clerodendronella* Stainton, 1859 (by monotypy).

Atkinsonia: Walsingham, 1889: 19-20 (junior synonym of *Oedematopoda*); Kasy, 1976: 426-429 (revised).

Diagnosis. This genus is especially similar to the genus *Oedematopoda*, but can be distinguished by the absence of gnathos.

Description. Labial palpus long, smooth scaled and curved, with acute apex. Antenna about 4/5 length of forewing, with long scale-hairs, ciliated in male; eye-cap not developed. Head, tegula and thorax smooth scaled.

Wing venation. Forewing oblong; 13-veined; discoidal cell long, occupying basal

7/11 of wing. R₂ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ from near lower angle of cell, rudimentary near base; CuA₂ present only near dorsum. 1A+2A connected around basal 1/5 of wing, running to around middle of dorsum. Hindwing lanceolate, widest near base, about 4/5 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about middle of dorsum.

Legs smooth; fore- and mid-tibia dorsally with verticillbristle at middle and apex; first segment of mid-tarsus dorsally with verticillbristle at apex; hind-tibia dorsally with verticillbristle at base, middle and apex; first and second segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen with spine row of abdominal terga on second to seventh segments in male, second to sixth segments in female, arranged caudal margin.

Male genitalia. Uncus with bifurcate apex; setae occurring on lateral side. Gnathos absent. Valva with round apex; costa, sometimes spiniform projection sticking out dorsally; cucullus with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with some long setae. Vinculum short; saccus present. Juxta present. Anellar lobes developed, sclerotized, with setae on surface. Aedeagus, cornutus absent; sclerotized structure present near base; apical patch of stimuli present at apex of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate to emarginate caudal margin. Papillae anales weakly sclerotized, with many short setae except ventrally. Eighth abdominal segment sclerotized except laterally, with short and long setae arranged along caudal margin. Apophyses posteriores longer than apophyses anteriores.

Ostium bursae ventrally opened on caudal margin of seventh abdominal segment.
Ductus bursae shorter than length of corpus bursae. Corpus bursae with two signa.
Ductus seminalis originating from ductus bursae, apically with microspines.

Species examined. *Atkinsonia ignipicta*.

Remarks. This genus is included three species, and distributed in North, South and East Asia. In addition, this genus is related to the genus *Oedematopoda*, and conspicuous group in that the scale-hairs and the reddish colored forewing like the genus *Oedematopoda*.

Key to the Japanese species of *Atkinsonia*

1. Dorsal 2/5 of forewing brownish black. In male genitalia, the spiniform projection on costa of valva is absent. In female genitalia, two signa large; bulla assimilate with ductus seminalis. *Atk. ignipicta* (Butler)
- . Forewing uniformly vermilion to red. In male genitalia, the spiniform projection on costa of valva is present. In female genitalia, two signa narrow; bulla clearly constrict at connection of bulla and ductus seminalis. *Atkinsonia* sp.

***Atkinsonia ignipicta* (Butler, 1881)** [Plates LIII, LXV-b, LXXVII-b]

[Japanese name: Se-guro-beni-toge-ashiga]

Eretmocera ignipicta Butler, 1881: 593-594.

Oedematopoda ignipicta: Walsingham, 1889: 22-23, pl. vi, fig. 8.

Oedematopoda nohirai Matsumura, 1931: 101.

Oedematopoda semirubra Meyrick, 1936: 619.

Atkinsonia ignipicta: Kasy, 1976: 429, fig. 20.

Diagnosis. This species is similar to *Atkinsonia* sp., but can be distinguished by the coloration of forewing. The dorsal 2/5 of forewing is brownish black.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The spiniform projection on costa of valva is absent; the cucullus is subtrapezoidal; and two signa are large and situate at 1/3 and middle of corpus bursae.

Description. Wing expanse 11.0-17.1 mm. Forewing length 4.8-7.8 mm. Labial palpus dark gray, lightened towards base. Antenna dark fuscous, with many scale-hairs. Vertex, occiput and frons fuscous. Tegula fuscous. Thorax fuscous, caudal margin white; prothorax ventrally pale ocher.

Wing markings. Forewing crimson, dorsal 2/5 brownish black, sometimes only dorsocephalically brownish black; costa and base of wing brownish black; crimson streak radiating from middle to apex of wing, along dorsum, stout; cilia fuscous. Hindwing brown; cilia fuscous.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 7/11 of wing. Sc connected with costal margin of wing on basal 3/7. R₁ from distal 2/3 of cell; R₂ from near upper angle of cell; R₃ from upper angle of cell; R₄ and R₅ stalked. M₃ from lower angle of cell. CuA₁ from near lower angle of cell, rudimentary near base; CuA₂ present only near dorsum. 1A+2A connected basal 1/6 of wing, running to about middle of dorsum. Hindwing 7/9 as long as forewing; 9-veined; discoidal cell open. Rs running to near apex of costa. M₂, M₃, and CuA₁ stalked, in common with CuA₂; CuA₂ running to about 5/11 of dorsum.

Legs brownish black; fore- and mid-tibia dorsally with verticillbristle at middle and apex; first segment of mid-tarsus dorsally with verticillbristle at apex; hind-femur

ventrally lightened toward apex; hind-tibia dorsally with verticillibristle at base, middle and apex; first and second segments of hind-tarsus dorsally with verticillibristle at apex. Abdomen brownish black; second segment with white streak at caudal end except mediodorsally; third segment dorsally with white streak; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus apically slightly bifurcate; setae occurring on lateral surface. Gnathos absent. Valva with round apex; costa dorsally angled; cucullus subtrapezoidal, 1.5 times as long as uncus, with numerous setae on inner surface; sacculus sclerotized, apically obscure, ventrally with some long setae. Vinculum with acute apex; saccus 4/11 length of uncus, cephalically blunt. Juxta subpentagonal. Anellar lobes developed, oval, sclerotized, with setae on surface. Aedeagus about 2.5 times as long as uncus; cornutus absent; sclerotized structure present near base, thin; apical patch of stimuli present at apex of aedeagus, subtriangular, 3/10 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with slightly emarginate caudal margin. Papillae anales as long as wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment 1.5 times as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 8/11 times as long as apophyses posteriores. Ostium bursae small, cup-shaped. Ductus bursae 3/5 length of corpus bursae, extended cephalically. Corpus bursae with two signa, large, crescent-shaped, situated at caudal 1/3 and middle of corpus bursae. Ductus seminalis originating from cephalic end of ductus bursae, apically with microspines; bulla assimilate with ductus seminalis, situated at middle of ductus seminalis.

Specimens examined. JAPAN. Hokkaido: 12♂ 10♀, Okushiri, 14. viii. 1958, T. Kumata (4♂ Gen. sl. no. Hld1, Hld2, Hld3, Hld4); 3♂ 2♀, Eniwa, 20. vi. 1962, T. Kumata (1♀ Gen. sl. no. 12115); 3♂, Bibi, Chitose-City, 12. vi. 1982, E. Nishida; 1♂ 1♀, Usubetsu, Sapporo-City, 27. vi. 2004, K. Sugisima; 6♂ 14♀, Misumai, Sapporo-City, 27, 29. vi. 2004, K. Sugisima; 1♂ 1♀, Ditto, em. 27-28. xi. 2004, ex *Ceratovacuna japonica* (Hemiptera, Aphididae) on *Sasa* sp., K. Sugisima (1♀ Gen. sl. no. 1864). Honshu: 7♀, Nakabusa-onsen, Nagano-Pref., 30. vii. 1973, T. S.; 1♂, Kaida, Nagano-Pref., 7. vii. 1975, T. Kumata; 1♂, Otaki-Vill., Nagano-Pref., 6. vii. 1982, K. Yasuda; 1♂, Kisojihara, Nagawa, Nargano-Pref., 29-30. vii. 1991, T. Hirowatari and Y. S. Bae; 1♀, Takigoshi, Otaki-Vill., Nagano-Pref., 17. viii. 1992, T. Ueda; 1♂, Azumino, Nagano-Pref., 23. vii. 1996, M. Sakai; 1♂ 1♀, Horikane, Nagano-Pref., 25-26. vii. 1996, M. Sakai; 4♂, Nagamine-pass, Kaida-Vill., Nagano-Pref., 24. vii. 2002, T. Mano (1♂ Wing sl. no. 12053); 1♀, Hida-Takayama, Gifu-Pref., 24. vi. 1966, Y. Arita; 1♂ 1♀, Hodaka-onsen, Kamitaka-Vill., Gifu-Pref., 3. viii. 1967, Y. Arita; 2♂, Nigorigo, Kosaka-Town, Gifu-Pref., 10. viii. 1991, T. Mano (1♂ Gen. sl. no. 10078, 1♂ Wing sl. no. 12052); 8♂, Sengendaru, Takane-Vill., Gifu-Pref., 24. vii. 2002, T. Mano (2♂ Gen. sl. no. 10066, 10079); 1♀, Kinokawa, Wakayama-Pref., 19. vii. 2001, T. Murakami (1♀ Gen. sl. no. 10080). 1♂ 1♀, Mt. Omogo, Ehime-Pref., Shikoku, 11. vi. 1961, T. Saito (1♂ Gen. sl. no. 12108).

Distribution. Japan: Hokkaido, Honshu and Shikoku; Kyushu (Moriuti, 1982). China and South Korea (Sinev, 1999).

Host. *Aphis gossypii* Glover (Moriuti, 1982) and *Ceratovacuna japonica* (Takahashi) (Hemiptera, Aphididae).

Biology. Adults were collected in June to August. Mature larvae prey on host species

on *Pleioblastus chino* var. *viridis* and *Sasa veitchii*; adults emerge in Jun to July (Moriuti, 1982)

***Atkinsonia* sp.** [Plates LIV, LXV-c, LXXVII-c]

[Japanese name: Kuri-beni-toge-ashiga]

Oedematopoda sp.: Abe, 1997: 135-141.

Oedematopoda sp.: Oku, 2003b: 522.

Oedematopoda sp.: Ohno *et al.*, 2000: 99-107.

Diagnosis. This species is similar to *Atk. ignipicta*, but can be distinguished by the uniformly vermillion to red forewing.

In the genitalia, this species can be distinguished from other members of the genus by the following characters: The costa of valva is slightly emarginate; the long spiniform projection stick out on the costa of the valva and turned caudally; two signa are narrowly crescent-shaped; and ductus seminalis is narrow.

Description. Wing expanse 9.9-14.2 mm. Forewing length 4.1-6.5 mm. Labial palpus pale fuscous to fuscous, lightened towards base. Antenna dark fuscous, with many scale-hairs. Vertex and occiput dark gray; frons pale gray. Tegula vermillion. Thorax fuscous to dark gray, caudal margin white, with broad vermillion fascia at middle of mesothorax; prothorax dorsally fuscous to dark gray, ventrally white.

Wing markings. Forewing vermillion to red, base fuscous to dark gray, sometimes with fuscous streak at about middle of wing, along dorsum, narrow and short; cilia fuscous. Hindwing brown; cilia fuscous.

Wing venation. Forewing 13-veined; discoidal cell long, occupying basal 2/3 of wing. Sc connected with costal margin of wing on basal 4/9. R₁ from distal 1/4 of cell; R₂

from near upper angle of cell; R_3 from upper angle of cell; R_4 and R_5 stalked. M_2 from lower angle of cell. CuA_1 sometimes rudimentary near base; CuA_2 absent near base. $1A+2A$ connected basal $1/4$ of wing, running to about $3/5$ of dorsum. Hindwing $5/6$ as long as forewing; 9-veined; discoidal cell open. R_s running to apical near apex of costa. M_2 , M_3 , and CuA_1 stalked, in common with CuA_2 ; CuA_2 running to about middle of dorsum.

Legs fuscous, fore-coxa ventrally white at apex; fore- and mid-tibia dorsally with verticillbristle at middle and apex; first segment of mid-tarsus dorsally with verticillbristle at apex; hind-tibia dorsally with verticillbristle at base, middle and apex; first and second segments of hind-tarsus dorsally with verticillbristle at apex. Abdomen fuscous; second segment with white streak at caudal end, sometimes absent mediodorsally; fifth segment dorsally with white streak; spine row of abdominal terga present on second to seventh segments in male, second to sixth in female.

Male genitalia. Uncus stout, apically down-turned, with bifurcate and acute apex; setae occurring on lateral side. Gnathos absent. Valva with round apex; costa, spiniform projection sticking out dorsally, rather short in overwintering generation, turned caudally; cucullus oval, widest near base in overwintering generation and widest near apex in first generation, about 1.5 times as long as uncus, with numerous setae on inner surface; dorsal margin of cucullus nearly flat; sacculus sclerotized, apically obscure, ventrally with some long setae. Vinculum stout and short, with blunt apex; saccus about $3/10$ length of uncus and cephalically round. Juxta oval. Anellar lobes developed, narrowly oval and large, rather small in overwintering generation, sclerotized, with setae on surface. Aedeagus 2.5 times as long as uncus; cornutus absent; sclerotized structure present near base, subrectangular and thin; apical patch of stimuli present at

apex of aedeagus, 1/3 length of aedeagus, with round apex.

Female genitalia. Seventh sternum with emarginate caudal margin. Papillae anales longer than wide, weakly sclerotized, with many short setae except ventrally; joint membrane between papillae anales and eighth abdominal segment twice as long as papillae anales. Eighth abdominal segment sclerotized except laterally, cephalodorsally round, with short and long setae arranged along caudal margin. Apophyses posteriores long; apophyses anteriores about 3/4 as long as apophyses posteriores. Ostium bursae cup-shaped, with slightly emarginate cephalic margin; medial sclerotized part present. Ductus bursae shorter than length of corpus bursae. Corpus bursae with two signa, narrowly crescent-shaped, situated at about caudal 1/3 of corpus bursae, with serrate margin. Ductus seminalis narrow and long, originating from cephalic 1/5 of ductus bursae, with microspines; bulla small, situated at about basal 1/3 of ductus seminalis.

Specimens examined. JAPAN. Honshu: 1♀, Nagasawa (120m), Otowa-Town, Aichi-Pref., 28. v. 2001, T. Mano; 1♀, detail locality unknown, Kyoto-Pref., 10. v. 1954, Takeuchi; 1♀, Tsugemura, Nara-Pref., 7. v. 1979, T. Saito; 1♀, Yoshinogawa, Gojyou, Nara-Pref., 15. v. 2000, Y. Miyamoto; 3♂ 7♀, Nose-Town, Osaka-Pref., em. 20. ii-8. iii. 1991, ex *Quercus serrata*, Y. Abe (1♂ Gen. sl. no. 14034); 1♂, Soneji, Hirakata-City, Osaka-Pref., 20. v. 1993, T. Ueda (1♂ Gen. sl. no. 12104); 2♀, Hiraoka, Osaka-Pref., 18. viii. 1981, T. Saito; 1♀, Mouko, Kainan-City, Wakayama-Pref., em. 3. xi. 1991, ex Bur of *Castanea crenata*, M. Masumi (1♀ Gen. sl. no. 12111); 1♀, Mt. Kasagata-yama, Hyogo-Pref., 21. vii. 1968, S. Moriuti; 1♀, Mt. Mikusa-yama, Hyogo-Pref., em. 26. vii. 1980, ex unknown, N. Yashiro; 2♂, Sasabe, Hyogo-Pref., em. 1. vii. 1982, ex *Quercus acutissima*, N. Yashiro (2♂ Gen. sl. no. 12103, 13004; 1♂ Wing sl. no. 13006); 4♂ 2♀, Fukue, Yamaguchi-Pref., 7, 9-11. iv. 1979, T. Kodama (3♂ 2♀ Gen. sl. no. 10070,

10081, 12062, 12110, 13005). Kyushu: 2♂ 4♀, detail locality unknown, Fukuoka-Pref., em. 14-18. vii. 1954, ex Gall of *Dryocosmus kuriphilus* (Hymenoptera, Cynipidae) on *C. crenata*, collector unknown (2♂ 2♀ Gen. sl. no. 10074, 10075, 10077, 12106); 1♀, Kiire-Town, Kagoshima-City, Kagoshima-Pref., em. 11. iii. 2012, ex Gall of *Trichagalma serratae* (Hymenoptera, Cynipidae) on *Q. acutissima*, T. Terada; 6♂ 7♀, Takaze, Kirishima-City, Kagoshima-Pref., em. 20-26, iii. 2013, ex Gall of *T. serratae* on *Q. acutissima*, K. Tsuda and T. Terada (3♂ Gen. sl. no. 13053, 14016, 14035); 1♂ 6♀, Yokogawa-Town, Kirishima-City, Kagoshima-Pref., em. 22-25. iii. 2013, ex Gall of *T. serratae* on *Q. acutissima*, K. Tsuda and T. Terada.

Distribution. Japan: Honshu and Kyushu.

Host plants. *Castanea crenata* Sieb. and Zucc., *Quercus acutissima* Carruthers and *Q. serrata* Murr. (Fagaceae).

Biology. Adults emerged in February, March, July and November under rearing condition, and were collected in April to May and July to August. This species might be bivoltine. Mature larvae found in acorn and gall or on acorn cap of host plant in February.

Remarks. This species was reported in Oku (2003b) as the chestnut pest.

The male genitalia of this species have seasonal form. The overwintering generation and the first generation of this species can be distinguished by following characters. The spiniform projection of costa of valva and the anellar lobes are rather short and small in overwintering generation respectively, and the cucullus is widest near base in overwintering generation and widest near apex in first generation.

This species might be conspecific with *O. beijingana* Yang, 1977, because the external characters are almost same. Moreover, *O. ignipicta* (= *Atk. ignipicta*) reported in Wang (2006) is misidentified, and might be conspecific with this species, because the

genital characters of these two species are conformed.

Genus *Snellenia* Walsingham, 1889

Snellenia Walsingham, 1889: 13.

Type species: *Snellenia coccinea* Walsingham, 1889.

***Snellenia ignispergens* Diakonoff, 1948**

Snellenia ignispergens Diakonoff, 1948: 271.

Remarks. This species have not recorded since description as new to science.

According to original description, this species is very similar to *Atk. leechi*, but wing expanse of this species is clearly longer than *Atk. leechi*. However, I could not examine this species, because the deposition of type specimen is unknown.

Genus *Minomona* Matsumura, 1931

Minomona Matsumura, 1931: 1010.

Type species: *Minomona bimaculata* Matsumura, 1931.

***Minomona bimaculata* Matsumura, 1931**

Minomona bimaculata Matsumura, 1931: 1010.

Remarks. This species have not recorded since description as new to science.

According to external characters of original description, this species and *Lamprystica igneola* Stringer, 1930 are might be the identical species.

ACKNOWLEDGMENTS

Numerous individuals and institutions have helped me in this study. I wish to express my sincere gratitude to Dr Y. Sakamaki (KGU), Dr K. Tsuda (KGU) and Dr H. Tatsuta (the Entomological Laboratory, University of the Ryukyus, Okinawa-Pref., Japan (UR)) for his giving advice and critically reading the manuscript. I warmly thank Mr K. R. Tuck (BMNH) for taking the type images, which were indispensable for this study. I heartily thank Dr T. Oku, Dr T. Hirowatari (OPU), Dr M. Ohara (HoUM), Dr H. Yoshitomi (EUM), Dr U. Jinbo (NMNS), Dr T. Yamauchi (MNHAH), Dr K. Yasuda (NIAES), Dr Y. Abe (KyU), Dr K. Sugisima, Mr T. Mano (TYRI), Mr K. Umetsu (APM), Ms E. Hayashi, Mr Y. Manabe and Mr S. Sameshima for allowing the use of their valuable collections, on which this study is based, and Mr Y. Kudo (the Yakushima Environmental Culture Learning Center, Japan (YECLC)), Mr S. Konishi (YECLC), Mr S. Sugimoto (UR), Mr R. Tobimatsu (KGU), Mr T. Tanaka (KGU), Ms M. Koiso (KGU), Mr H. Iio (KGU) and Ms K. Uchima (KGU) for cooperating with me in the field works. Special thanks are also due to the students of the Entomological Laboratory, KGU, for their kind guidance and constant encouragement during the course of my study.

LITERATURES CITED

- Abe, Y., 1997. Well-Developed gall Tissues Protecting the Gall Wasp, *Andricus mukaigawae* (Mukaigawa) (Hymenoptera: Cynipidae) against the Gall-Inhabiting Moth, *Oedematopoda* sp. (Lepidoptera: Stathmopodidae). *Applied Entomology and Zoology* **32** (1): 135-141.
- Akaike, H., 1974. New look at statistical-model identification. *IEEE Transactions on Automatic Control* **19**: 716-723.
- Bae, S. D., 1997. Comparison in damaged aspect of wild persimmon fruit by second-generation larva of persimmon fruit moth, *Stathmopoda masinissa* Meyrick. *RDA Journal of Crop Protection* **39** (2): 57-60. (In Korean with English summary)
- Bradley, J. D., 1957. *Stathmopoda strophra*. In The natural history of Rennell Island, British Solomon Islands. pp. 102-103, figs. 15, 88-89, Danish Science Press, Copenhagen.
- , 1961. *Stathmopoda moschlosema*. In Microlepidoptera from the Solomon Islands. *Bulletin of the British Museum (Natural History) Entomology* 10: 153, pl. 7, 17.
- , 1974. A new species of *Stathmopoda* Herrich-Schäffer (Lepidoptera, Stathmopodidae) on *Ficus* from northern Nigeria. *Entomologist's Monthly Magazine* **109**: 219-222.
- Bucheli, S. R. and J. Wenzel, 2005. Gelechioidea (Insecta: Lepidoptera) systematics: A reexamination using combined morphology and mitochondrial DNA data. *Molecular Phylogenetics and Evolution* **35**: 380-394.
- Butler, A. G., 1880. *Boocara*. In On a collection of Lepidoptera Heterocera from Marlborough Province, New Zealand. *Cistula Entomologica* **2**: 562.

- , 1881. *Eretmocera ignipicta*. In Descriptions new Genera and Species of Heterocerous Lepidoptera from Japan. *Transactions of the Entomological Society of London* **1881**: 593-594.
- Busck, A., 1909. *Erineda*. In Notes on Microlepidoptera, with descriptions of new North American species. *Proceedings of the Entomological Society of Washington* **11** (2): 94-95.
- Cho, S. W., A. Mitchell, J. C. Regier, C. Mitter, R. W. Poole, T. P. Friedlander, and S. W. Zhao, 1995. A highly conserved nuclear gene for low-level phylogenetics—Elongation factor-1-alpha recovers morphology-based tree for heliothine moths. *Molecular Biology and Evolution* **12**:650-656.
- Costa, O. G., 1836. *Oecophora fastuosella*. In Fauna del regno di Napoli, A. Lepidotteri. p. 279, pl. 2, fig. 7, Azzolino E. Compagno, Napoli.
- Cruickshank, R. H., K. P. Johnson, V. S. Smith, R. J. Adams, D. H. Clayton and R. D. M. Page, 2001. Phylogenetic analysis of partial sequences of Elongation Factor 1 α identifies major groups of lice (Insecta: Phthiraptera). *Molecular Phylogenetics and Evolution* **19**: 202-205.
- [Denis, I. and I. Schiffermyller], 1775. *Tinea alucitella*. In Ankündigung eines systematischen Werkes von den Schmetterlingen der Wienergegend. p. 144, A. Bernardi Wien.
- Diakonoff, A., 1948. *Snellenia ignispergens*. In Microlepidoptera from Indo-China and Japan. *Bulletin du Muséum National d'Histoire Naturelle (Paris)* (2nd Ser.) **20**: 271.
- , 1967. *Stathmopoda placida*. In Microlepidoptera of the Philippine Islands. *Bulletin of United States National Museum* **257**: 217, figs 319-320, 724.

- Excoffier, L. and Lischer, H.E.L., 2010. Arlequin suite version 3.5: A new series of programs to perform population genetics analyses under Linux and Windows. *Molecular Ecology Resources* **10**: 564-567.
- Fabricius, J.C., 1777. *Tinea cylindrella*. In *Genera Insectorum*. pp. 295-296, Litteris Mich. Friedr. Bartschii, Chilonii. (In Latin)
- , 1798. *Ypsolophus cylindricus*. In *Supplementum Entomologiae Systematicae* 4. p. 507, C. G. Proft and Storch, Hafniae. (In Latin)
- Felsenstein, J., 1985. Confidence Limits on Phylogenies: An Approach Using the Bootstrap. *Evolution* **39** (4): 783-791.
- Hall, T. A., 1999. BioEdit: a user-friendly biological sequence alignment editor and analysis program for Windows 95/98/NT. *Nucleic Acids Symposium Series* **41**: 95-98.
- Hatsusima, S., 1971. Ebenaceae. In *Flora of the Ryukyus*. pp. 473-475, Okinawa Seibutsu-kyoiku Kenkyukai, Naha. (In Japanese)
- Heikkilä, M., M. Mutanen, M. Kekkonen and L. Kaila, 2014. Morphology reinforces proposed molecular phylogenetic affinities: a revised classification for Gelechioidea (Lepidoptera). *Cladistics* **30**: 563-589.
- Herrich-Schäffer, G. A. W., 1853. *Stathmopoda*. In *Systematische Bearbeitung der Schmetterlinge von Europa*. 5. pp. 14, 54, 283. Die Schaben und Federmotten, Regensburg.
- Hodges, R. W., 1983. *Stathmopoda*. In *Checklist of the Lepidoptera of America North of Mexico*. pp. 13-14, E. W. Classey Limited and The Wedge Entomological Research Foundation, London.
- , 1998. The Gelechioidea. In N. P. Kristensen (ed) *Lepidoptera: Moths and*

- Butterflies. pp. 131-158. Walter de Gruyter GmbH, Berlin and New York.
- Holloway, J. D., J. D. Bradley and D. J. Carter, 1987. 1. Lepidoptera. In C. R. Betts (ed) *Cie Guides to Insects of Importance to Man*. pp. 1-262. C A B International, Oxon.
- Hübner, J., 1796. *Tinea angustipennella*. In *Sammlung europäischer Schmetterlinge* 8. Tineae-Schaben. p. 69, pl. 29, fig. 197, Privately published, Augsburg.
- Jinbo, U., 2004-2008. Stathmopodidae. In List-MJ: A checklist of Japanese moths [homepage on the Internet]. Available from: <http://listmj.mothprog.com> [accessed November 2014].
- Jobb, G., A. von Haeseler and K. Strimmer, 2004. Treefinder: a powerful graphical analysis environment for molecular phylogenetics. *BMC Evolutionary Biology* **4**: 18.
- Kaila, L., 2004. Phylogeny of the superfamily Gelechioidea (Lepidoptera: Ditrysia) an exemplar approach. *Cladistics* **20**: 303-340.
- Kaila, L., M. Mutanen and T. Nyman, 2011. Phylogeny of the mega-diverse Gelechioidea (Lepidoptera): Adaptations and determinants of success. *Molecular Phylogenetics and Evolution* **61**: 801-809.
- Kaneko, M., E. Yoshizawa, H. Koike and K. Iwasaki, 2008. Injury and control of *Atrijuglans hetaohei* feeding on young walnut. *Annual report of the Kanto-Tosan Plant Protection Society* **55**: 198-199. (In Japanese)
- Kasy, F., 1973. Beitrag zur kenntnis der familie Stathmopodidae Meyrick 1913 (Lepidoptera, Gelechioidea). *Tijdschrift voor Entomologie* **116** (13): 227-299.
- , 1976. *Oedematopoda* and *Atkinsonia*. In Über die Familienzugehörigkeit einiger "Heliodinidae"-Gattungen (Lepidoptera). *Annalen des Naturhistorischen Museums in Wien* **80**: 425-429, figs 14-20.

- Koster, S. (J.C.) and S. Yu. Sinev, 2003. Family Stathmopodidae. In P. Huemer *et al.* (eds) *Microlepidoptera of Europe* 5. pp. 59-67, 216-217, 254-256, 320-323, Apollo Books, Stenstrup.
- Kurata, S and T. Nakaike, 1979. *Microlepiea marginata*. In *Illustrations of pteridophytes of Japan* Volume 1. pp. 140-157. University of Tokyo Press, Tokyo. (In Japanese)
- , 1983. *Leptogramma pozoi* subsp. *mollissima*. In *Illustrations of pteridophytes of Japan* Volume 3. pp. 252-281. University of Tokyo Press, Tokyo. (In Japanese)
- , 1985. *Nephrolepis biserrata*. In *Illustrations of pteridophytes of Japan* Volume 4. pp. 242-245. University of Tokyo Press, Tokyo. (In Japanese)
- Kuznetsov, V. I., 1984. Stathmopodidae. In *New species of the moths of the infraordo Papilionomorpha* (Lepidoptera: Stathmopodidae, Blastobasidae, Aeolanthidae) from the Asiatic part of the USSR. *Trudy Zoologicheskogo Instituta* **122**: 77-81, figs 1-5.
- Li, H. H. and S. X. Wang, 2002. Five new species and one new record of the genus *Stathmopoda* Herrich-Schäffer from China (Lepidoptera: Oecophoridae: Stathmopodinae). *Acta Zootaxonomica Sinica* **27** (2): 330-337.
- Liu, Y. Q., 1981. *Aeoloscelis* sp. In *Iconographia Heterocerorum Sinicorum* Vol. 1. pp. 14, pl. 4, fig. 45, Institute of Zoology, Academia Sinica, Beijing. (In Chinese)
- Linnaeus, C., 1761. *Phalaena Tinea pedella*. In *Fauna Svecica* 2. p. 367, Sumtu and Literis Direct. Laurentii Salvii, Stockholmiae. (In Latin)
- Matsumoto, S., 1950. *Stathmopoda auriferella* as the pest species of peach fruit. *Fruit Science* **3** (9): 9-11. (In Japanese)
- Matsumura, S., 1931. *Oedematopoda nohirai*, *Minomona* and *Chrysoclista basiflavella*. In *6000 Illustrated Insects of Japan-Empire*. pp. 101, 1010, 1087, Toko-shoin,

Tokyo. (In Japanese)

- Meyrick, E., 1887. *Placostola*. In Descriptions of some exotic Micro-Lepidoptera. *Transactions of the Entomological Society of London* **1887**: 280.
- , 1889. *Calicotis* and *Thylacosceles*. In Descriptions of New Zealand Micro-Lepidoptera. *Transactions and Proceedings of the New Zealand Institute* **21**: 170-171.
- , 1897. *Pachyrhabda*, *Hieromantis* and *Stathmopoda*. In Descriptions of Australian Micro-Lepidoptera. *Proceedings of the Linnean Society of New South Wales* **22**: 312, 315-326.
- , 1906. Elachistidae. In Descriptions of Indian Micro-Lepidoptera, II. *The Journal of the Bombay Natural History Society* **17**: 410-411.
- , 1907. *Stathmopoda hexatyta*. In Descriptions of Indian Micro-Lepidoptera, III. *The Journal of the Bombay Natural History Society* **17**: 744.
- , 1908. *Stathmopoda placida*. In New Micro-Lepidoptera from India and Burma. *Records of the Indian Museum* **2**: 396-397.
- , 1910a. *Stathmopoda anconias*. In Notes and Descriptions of Indian Micro-Lepidoptera. *Records of the Indian Museum* **5**: 223.
- , 1910b. *Stathmopoda plinthiota*. In Descriptions of Malayan Micro-Lepidoptera. *Transactions of the Entomological Society of London* **1910**: 454.
- , 1911. *Stathmopoda*. In Tortricina and Tineina. *Transactions of the Linnean Society of London* (2nd Ser.) **14**: 286.
- , 1912-1916 (included 1913a). Heliodinidae. In Exotic Microlepidoptera I. pp. 77-97, 154, 335-338, Taylor and Francis, London.

- , 1913b. Stathmopodidae. In Descriptions of South African Micro-Lepidoptera IV. *Annals of the Transvaal Museum* **3** (4): 310.
- , 1914. *Stathmopoda tharsalea*. In Descriptions of South African Micro-Lepidoptera V. *Annals of the Transvaal Museum* **4**: 199-200.
- , 1916-1923. Heliodinidae. In Exotic Microlepidoptera II. pp. 61-66, 323-325, 460-463, 584-588, Taylor and Francis, London.
- , 1921. *Stathmopoda dactylis*. In New Micro-Lepidoptera. *Zoologische Mededelingen* **6**: 175.
- , 1923-1930. Heliodinidae. In Exotic Microlepidoptera III. pp. 66, 96-97, 377-379, 541-543, 585, Taylor and Francis, London.
- , 1930-1936. Heliodinidae. In Exotic Microlepidoptera IV. pp. 174-176, 272-273, 430-432, 521, 617-619, Taylor and Francis, London.
- , 1931. *Stathmopoda albidorsis*. In Caradja, A. Second contribution to our knowledge about the Pyralidae and Microlepidoptera of Kwanhsien. *Bulletin de la Section Scientifique Académie Roumaine* **14**: 75.
- , 1935. *Stathmopoda dicitra*. In A. Caradja and E. Meyrick (eds) Materialien zu einer Microlepidopteren Fauna der chinesischen Provinzen Kiangsu, Chekiang and Hunan. p. 85, Friedländer in Komm., Berlin.
- , 1937. *Stathmopoda brachymochla*. In Exotic Microlepidoptera V. p. 89, Taylor and Francis, London.
- Moriuti, S., 1982. Stathmopodidae. In H. Inoue *et al.* (eds) Moths of Japan. 1: pp. 256-258, 2: pp. 207-208, pls. 10, 12, 227, 241, 245-256. Kodansha, Tokyo. (In Japanese)
- Moriuti, S. and K. Yasuda, 1982. *Stathmopoda masinissa* Meyrick and *Eretmocera*

- impactella* (Walker) (Lepidoptera: Stathmopodidae). New to fauna of Thailand. *Applied Entomology and Zoology* **18** (3): 431-432
- Murase, M., 1998. Collecting and rearing of moths containing new record species in Wakayama Pref. XI. *Kinokuni* **54**: 8-13. (In Japanese)
- , 2002. *Heromantis kurokoi* Yasuda (Stathmopodidae) and two geometrines, reared on *Cuscuta japonica*. *The Japan Heterocerists' Journal* **220**: 383. (In Japanese)
- , 2006. Larvae of *Hieromantis kurokoi* Yasuda and *Stathmopoda opticaspis* Meyrick (Stathmopodidae) with corrigenda of previous illustration of the former. *The Japan Heterocerists' Journal* **238**: 232. (In Japanese)
- , 2007a. Rearing records of moths 2. Five species of Gelechioidea. *Yugato* **190**: 126-128. (In Japanese)
- , 2007b. Two moth species emerged from aphid and cecidomyiid galls. *The Japan Heterocerists' Journal* **245**: 359-360. (In Japanese)
- Nagano, K., 1916. *Kakivoria*. In On a new Micropterous Moth from Japan. *Konchu Sekai* **20**: 136-140, pl. 4. (In Japanese with English summary)
- Nishida, T., L. V. Vang, H. Yamazawa, R. Yoshida, H. Naka, K. Tsuchida and T. Ando, 2003. Synthesis and Characterization of Hexadecadienyl Compounds with a Conjugated Diene System, Sex Pheromone of the Persimmon Fruit Moth and Related Compounds. *Bioscience, Biotechnology and Biochemistry* **67** (4): 822-829.
- Ohno, T., T. Hirowatari and T. Ueda, 2000. Lepidoptera that infests *Quercus* acorns in Mt. Mikusayama. *Transactions of the Lepidopterological Society of Japan* **51** (2): 99-107. (In Japanese)
- Oku, T., 2003a. Stathmopodidae. In The Transactions of the Iwate Entomological

- Society Supplement, No.2 Microlepidoptera of the Iwate Pref. pp. 39-40, Iwate Entomological Society, Iwate. (In Japanese)
- , 2003b. *Oedematopoda* sp. In K. Umeya and T. Okada (eds) Agricultural Insect Pests in Japan. p. 522, Zenkoku Nouseon Kyoiku Kyokai, Tokyo. (In Japanese)
- Otsubo, S., 2007. The second record of *Atkinsonia leechi* (Walsingham, 1889) in Kagoshima-Prefecture is collected from Tanegashima Island. *Satsuma* **137**: 179. (In Japanese)
- Robinson, G. S., K. R. Tuck and M. Shaffer, 1994. Oecophoridae (Stathmopodinae). In A Field Guide to the Smaller Moths of South-East Asia. pp. 54-58, pl. 8, The Natural History Museum, London.
- Robinson, G. S., P. R. Ackery, I. J. Kitching, G. W. Beccaloni and L. M. Hernández, 2001. Hostplants of the moth and butterfly caterpillars of the Oriental Region. pp. 744, The Natural History Museum, London.
- , 2002. Hostplants of the moth and butterfly caterpillars of America north of Mexico. pp. 824, The American Entomological Institute, Gainesville.
- Sawamura, M., A. Kawakita and M. Kato, 2009. Fern-spore-feeding interaction in temperate forests in Japan: Sporing phenology and spore-feeding insect. *American Journal of Botany* **96** (3): 594-604.
- Sasaki, T., 1905. Fruit tree pest. pp. 200-203, Seibido, Tokyo. (In Japanese)
- Sinev, S. Yu., 1988. A review of bright-legged moths (Lepidoptera, Stathmopodidae) in the fauna of the USSR. *Trudy Zoological Institute, Leningrad* **178**: 104-133. (In Russian)
- , 1995. New species of the bright-legged moths (Lepidoptera: Stathmopodidae) from South Vietnam. *Trudy Zoological Institute, St. Petersburg* **258**: 138-151. (In

- Russian)
- , 1999. Family Stathmopodidae. In P. A. Ler (ed) Key to the insects of Russian Far East. 5 (2). pp. 28-42, Dal'nauka, Vladivostok. (In Russian)
- Stainton, H. T., 1859. *Atkinsonia*. In Descriptions of Twenty-Five Species of Indian Micro-Lepidoptera. *Transactions of the Royal Entomological Society of London* **10**: 125-126.
- , 1868. *Stathmopoda pedella*. In Observations on Tineina. *The Entomologist's Annual* **1868**: 151.
- , 1870. *Stathmopoda pedella*. In The natural history of the Tineina 12. pp. 46-57, John Van Voorst, Paternoster Row, London.
- Sugisima, K., 2003. Microlepidopteran larvae living in nests of peculiar structures. *The Nature and Insects* **38** (13): 10-14. (In Japanese)
- Sugiura, N., 1978. Further analysis of the data by Akaike's information criterion and the finite corrections. *Communications in Statistics: Theory and Methods* **A7**: 13-26.
- Sugiura, S. and K. Yamazaki, 2004. Moths boring into *Ficus syconia* on Iriomote Island, south-western Japan. *Entomological Science* **7**: 113-118.
- Tajima, F., 1989. Statistical method for testing the neutral mutation hypothesis by DNA polymorphism. *Genetics* **123** (3): 585-595.
- Takahashi, A., 1992. Biology and Control of the *Stathmopoda auriferella* Walker in Kiwi-fruits. *Plant Protection* **46** (8): 291-294. (In Japanese)
- Tanabe, A. S., 2008. Phylogears version 2.0 [software distributed by the author]. Available from: <http://www.fifthdimension.jp/> [accessed October 2014].
- , 2011. Kakusan4 and Aminosan: two programs for comparing nonpartitioned, proportional and separate models for combined molecular phylogenetic analyses of

- multilocus sequence data. *Molecular Ecology Resources* **11** (5): 914-921.
- Terada, T., 2012. Four new species of the genus *Stathmopoda* (Lepidoptera: Stathmopodidae) closely related to *S. flavescens* from Japan. *Lepidoptera Science* **63** (1): 47-59.
- , 2013a. A review of the *Stathmopoda aprica* species-group (Lepidoptera: Stathmopodidae) from Japan. *Lepidoptera Science* **64** (1): 18-26.
- , 2013b. A taxonomic note on *Atkinsonia leechi* (Walsingham, 1889) (Lepidoptera: Stathmopodidae). *The Japan Heterocerists' Journal* **267**: 438-439, figs 1-4. (In Japanese)
- , 2013c. Two new species of the genus *Stathmopoda* (Lepidoptera: Stathmopodidae) closely related to *S. opticaspis* from Japan. *Lepidoptera Science* **64** (4): 140-149.
- , 2014. A review of the *Stathmopoda pedella* species-group (Lepidoptera: Stathmopodidae) from Japan. *Lepidoptera Science* **65** (3): 101-122.
- Terada, T. and Y. Sakamaki, 2013. Stathmopodidae. In T. Hirowatari *et al.* (eds) *The Standard of Moths in Japan III*. pp. 227-230, pls 3-29, Gakken Education Publishing, Tokyo. (In Japanese)
- Terada, T., Y. Sakamaki and S. Ohno, 2011. A new species of the genus *Stathmopoda* (Lepidoptera: Stathmopodidae) closely related to the persimmon pest, *S. masinissa*, from Ryukyu Islands, Japan. *Applied Entomology and Zoology* **46** (3): 327-333.
- Thompson, J. D., D. G. Higgins and T. J. Gibson, 1994. Clustal W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice. *Nucleic Acids Research* **22** (22): 4673-4680.

- Tokár, Z., A. Lvovsky and P. Huemer, 2005. Die Oecophoridae s. l. Mitteleuropas (Lepidoptera) Bestimmung, Verbreitung, Habitat, Bionomie. pp. 1-120. František Slamka, Bratislava.
- Vos, R. A., 2003. Accelerated likelihood surface exploration: the likelihood ratchet. *Systematic Biology* **52**: 368-373.
- Wahlberg, N. and C. W. Wheat, 2008. Genomic outposts serve the phylogenomic pioneers: Designing novel nuclear markers for genomic DNA extractions of Lepidoptera. *Systematic Biology* **57** (2): 231-242.
- Walker, F., 1864. *Gelechia? auriferella* and Genus *Vanicela*. In List of the specimens of lepidopterous insects in the collection of the British Museum. Pt. 30. Tineites. pp. 1022, 1039, Order of the Trustees, London.
- Walsingham, L., 1889. Monograph of the genera connecting *Tinaegeria*, Wlk., with *Eretmocera*, Z. *Transactions of the Entomological Society of London* **1889**: 1-40, pls i-vi.
- , 1891. *Stathmopoda*. In African Micro-Lepidoptera. *Transactions of the Entomological Society of London* **39** (1): 120-122, pl. 6, figs 59-61.
- Wang, S. X., 2006. Stathmopodinae. In Oecophoridae of China (Insecta: Lepidoptera). pp. 223-243, figs 201-215, 380-415, Science Press, Beijing.
- Xu, S., X. D. Yang, S. Liu, H. Wang and C. G. Feng. 1996. Study on the Technology of controlling persimmon fruit worm (*Kakivoria flavfasciata* Nagano). *Journal of Agricultural University of Hebei* **19** (1): 68-72. (In Chinese)
- Yang, C. K., 1977. Heliodinidae. In Moth of North China 1. pp. 143-151, Northeast Agricultural University, Harbin. (In Chinese)
- Yasuda, K., 1988. Two New Species of the Genus *Hieromantis* (Lepidoptera,

Stathmopodidae) from Japan. *Kontyû* **56** (3): 491-497.

Zeller, P. C., 1839. *Cosmopteryx pedella*. In Versuch einer naturgemässen Eintheilung der Schaben. *Isis von Oken* **32**: 210.

———, 1852. *Eretmocera princeps*. In Lepidoptera microptera, quae J. A. Wahlberg in Caffrorum terra collegit. p. 96, P. A. Norstedt & Söner, Stockholm.

SUMMARY

The family Stathmopodidae contains more than 390 species belonging to 39 genera (Terada and Sakamaki, 2013), and 43 species belonging to nine genera have been recorded in Japan, containing 13 unidentified species. I have hitherto reported 13 new species and one species as new to Japanese fauna (Terada *et al.*, 2011; Terada, 2012, 2013a, c, 2014). However, many Japanese species of the group have been left unrecorded because there have been a few studies on the group in Japan. In this thesis, I newly found 18 species and four genera, among which 12 species and one genus are new to science, and seven species and three genera are new to the Japanese fauna, containing five unidentified species. In addition, I described four new species and reported two species new to Japanese fauna that had been treated as unidentified species in Oku (2003a), Sugisima (2003) and Sawamura *et al.* (2009). Besides, I treated five unidentified species in Oku (2003a, b) and Sawamura *et al.* (2009) as junior synonym. Therefore, I elucidated that the family Stathmopodidae from Japan contain 57 species belonging to 13 genera. All the known Japanese species were described or redescribed in detail except three species belonging to three genera.

The holotypes of the new species are deposited in the collection of the Entomological Laboratory, Kagoshima University, Japan or the Entomological Laboratory, Osaka Prefecture University, Japan.

I tried to elucidate the phylogenetic relationships among species belonging to the family Stathmopodidae by molecular phylogenetic analysis of DNA sequence. I used the concatenated data consisting of *COI* (1098 bp) sequence from the mitochondrial genome, and *EF-1 α* (506 bp) and *CAD* (772 bp) sequences from the nuclear genome. The materials consisted of 25 stathmopodid species belonging to seven genera as well

as two outgroups whose feeding habits had been clarified. The Maximum likelihood (ML) tree was reconstructed with 700 trials of Likelihood ratchet (Vos, 2003) method.

The ML tree indicated the holophyly of genera *Calicotis*, *Cuprina* and *Pachyrhabda*, respectively, but the genus *Stathmopoda* might be polyphyletic group. However, the clades of later two genera will be unvaluable. Besides, the fern-spore-feeding habit might developed only once in their common ancestor, and the spinning behavior of “nests of peculiar structures” by larvae of fern-spore-feeding stathmopodid moths (Sugisima, 2003) developed independently at least twice in the family Stathmopodidae. In addition, it was supposed that the predator, *S. melanochra*, derived from gall feeders, and an opportunistic predation in gall feeders (Sugiura and Yamazaki, 2004) might be one of factors in diversing a carnivore taxon. However, the clade consisting predator and the gall feeders, which closely related to predator, are unvaluable. Further study is necessary to decide the preadaptation for the predatory trait in the family Stathmopodidae.

PLATES

Explanation of plates

Plate I. *Stathmopoda pedella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate II. *Stathmopoda pullicuneata*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: dorsal view of eighth abdominal segment - e: ventral view of female.

Plate III. *Stathmopoda atridorsalis*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: dorsal view of eighth abdominal segment of male, some setae of a pair of caudal projections omitted - e: ventral view of female.

Plate IV. *Stathmopoda dorsioculella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate V. *Stathmopoda sericicola*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: dorsal view of eighth abdominal segment of male, some setae of a pair of caudal projections omitted - e: ventral view of female.

Plate VI. *Stathmopoda centihasta*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: lateral view of eighth abdominal segment of male - e: ventral view of female.

Plate VII. *Stathmopoda stimulata*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d:

lateral view of eighth abdominal segment of male, some setae of a pair of caudal projections omitted - e: ventral view of female.

Plate VIII. *Stathmopoda* sp. 1, genitalia. a: Caudal view of male, aedeagus omitted - b: aedeagus.

Plate IX. *Stathmopoda* sp. 2, genitalia. a: Ventral view of female.

Plate X. *Stathmopoda flavescens*, genitalia. a: Caudal view of male, aedeagus, anellar lobes and juxta omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes and juxta - d: dorsal view of female.

Plate XI. *Stathmopoda gemmiconsuta*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: dorsal view of female.

Plate XII. *Stathmopoda luxuriivora*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: dorsal view of female.

Plate XIII. *Stathmopoda magnisignata*, genitalia. a: Caudal view of male, aedeagus, anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: dorsal view of female.

Plate XIV. *Stathmopoda callicarpicola*, genitalia. a: Caudal view of male, aedeagus and anellar lobes and juxta omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes and juxta - d: dorsal view of female.

Plate XV. *Stathmopoda opticaspis*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XVI. *Stathmopoda persona*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XVII. *Stathmopoda* sp. 3, genitalia. a: Lateral view of male, aedeagus, anellar lobes and juxta omitted - b: aedeagus with anellar lobes - c: ventral view of female.

Plate XVIII. *Stathmopoda moriutiella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XIX. *Stathmopoda albiornata*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XX. *Stathmopoda masinissa*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: dorsal view of female.

Plate XXI. *Stathmopoda maritimicola*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXII. *Stathmopoda aprica*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: coremata - e: ventral view of female.

Plate XXIII. *Stathmopoda fusciumeraris*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: coremata - e: ventral view of female.

Plate XXIV. *Stathmopoda brachymochla*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: coremata - e: ventral view of female.

Plate XXV. *Stathmopoda auriferella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXVI. *Stathmopoda haematosema*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXVII. *Stathmopoda transfasciaria*, genitalia. a: Caudal view of male, aedeagus omitted (tr: transtilla) - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: dorsal view of female.

Plate XXVIII. *Stathmopoda* sp. 4, genitalia. a: Ventral view of female.

Plate XXIX. *Stathmopoda* sp. 5, genitalia. a: Ventral view of female.

Plate XXX. *Phlogogramma tecticochleatum* n. sp., genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: coremata - e: ventral view of female (ab: appendix bursae).

Plate XXXI. *Atrijuglans hetaohei*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus with anellar lobes - d: ventral view of female.

Plate XXXII. *Hieromantis kurokoi*, genitalia. a: Caudal view of male, aedeagus and anellar lobes omitted - b: lateral view of male, aedeagus, anellar lobes and juxta

omitted - c: aedeagus with anellar lobes - d: coremata - e: ventral view of female.

Plate XXXIII. *Hieromantis makiosana*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXIV. *Calicotis chrysoptera* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXV. *Calicotis biserraticola* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXVI. *Calicotis rotundinidus* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXVII. *Calicotis exclamationis* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXVIII. *Calicotis latebrifica* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XXXIX. *Calicotis xanthopsis* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XL. *Calicotis sublucida* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c:

aedeagus - d: ventral view of female.

Plate XLI. *Pachyrhabda aurescens* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLII. *Pachyrhabda fuscimaculata* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLIII. *Pachyrhabda aedificatrix* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLIV. *Pachyrhabda margaritacea* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLV. *Pachyrhabda vaginivella* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLVI. *Pachyrhabda argyrocosmos* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLVII. *Cuprina fuscella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate XLVIII. *Cuprina flaviscapella*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c:

aedeagus - d: ventral view of female.

Plate XLIX. *Thylacosceloides miniata*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus and juxta omitted - c: aedeagus - d: ventral view of female.

Plate L. *Thylacosceloides stegnogrammias* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus and juxta omitted - c: aedeagus - d: ventral view of female.

Plate LI. *Thylacosceloides leucocephalus* n. sp., genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus and juxta omitted - c: aedeagus - d: ventral view of female.

Plate LII. *Oedematopoda leechi*, genitalia. a: Caudal view of male, aedeagus omitted - b: aedeagus - c: coremata - d: ventral view of female.

Plate LIII. *Atkinsonia ignipicta*, genitalia. a: Caudal view of male, aedeagus omitted - b: lateral view of male, aedeagus, anellar lobes and juxta omitted - c: aedeagus - d: ventral view of female.

Plate LIV. *Atkinsonia* sp., genitalia. a: Overwintering generation, caudal view of male, aedeagus omitted - b: first generation, ditto, tegumen and aedeagus omitted - c: overwintering generation, lateral view of male, aedeagus, anellar lobes and juxta omitted - d: aedeagus - e: ventral view of female.

Plate LV. Wings: shape and venation. a: *Stathmopoda pedella* - b: *Stathmopoda pullicuneata* - c: *Stathmopoda atridorsalis*, male (cf: costal fold) - d: ditto, female - e: *Stathmopoda dorsioculella*, male - f: ditto, female.

Plate LVI. Wings: shape and venation. a: *Stathmopoda sericicola*, male - b: ditto, female - c: *Stathmopoda centihasta* - d: *Stathmopoda stimulata*, male, costal fold

of hindwing unfolded - e: ditto, female.

Plate LVII. Wings: shape and venation. a: *Stathmopoda flavescens* - b: *Stathmopoda gemmiconsuta* - c: *Stathmopoda luxuriivora* - d: *Stathmopoda magnisignata* - e: *Stathmopoda callicarpicola*.

Plate LVIII. Wings: shape and venation. a: *Stathmopoda opticaspis* - b: *Stathmopoda persona* - c: *Stathmopoda* sp. 3 - d: *Stathmopoda moriutiella* - e: *Stathmopoda albiornata*.

Plate LIX. Wings: shape and venation. a: *Stathmopoda masinissa* - b: *Stathmopoda maritimicola* - c: *Stathmopoda aprica* - d: *Stathmopoda fusciumeraris*.

Plate LX. Wings: shape and venation. a: *Stathmopoda brachymochla* - b: *Stathmopoda auriferella* - c: *Stathmopoda haematosema* - d: *Stathmopoda transfasciaria*.

Plate LXI. Wings: shape and venation. a: *Phlogogramma tecticochleatum* n. sp. - b: *Atrijuglans hetaohei* - c: *Hieromantis kurokoi* - d: *Hieromantis makiosana*.

Plate LXII. Wings: shape and venation. a: *Calicotis chrysoptera* n. sp. - b: *Calicotis biserraticola* n. sp. - c: *Calicotis rotundinidus* n. sp. - d: *Calicotis exclamationis* n. sp. - e: *Calicotis latebrifica* n. sp. - f: *Calicotis xanthopsis* n. sp. - g: *Calicotis sublucida* n. sp.

Plate LXIII. Wings: shape and venation. a: *Pachyrhabda aurescens* n. sp. - b: *Pachyrhabda fuscimaculata* n. sp. - c: *Pachyrhabda aedificatrix* n. sp. - d: *Pachyrhabda margaritacea* n. sp. - e: *Pachyrhabda vaginivella* n. sp. - f: *Pachyrhabda argyrocosmos* n. sp.

Plate LXIV. Wings: shape and venation. a: *Cuprina fuscella* - b: *Cuprina flaviscapella* - c: *Thylacosceloides miniata* - d: *Thylacosceloides stegnogrammias* n. sp. - e: *Thylacosceloides leucocephalus* n. sp.

Plate LXV. Wings: shape and venation. a: *Oedematopoda leechi* - b: *Atkinsonia ignipicta* - c: *Atkinsonia* sp.

Plate LXVI. Adult specimens. a: *Stathmopoda pedella* - b: holotype, *Stathmopoda pullicuneata* - c: holotype, *Stathmopoda atridorsalis* - d: paratype, ditto - e: holotype, *Stathmopoda dorsioculella* - f: dorsal markings on thorax of *S. dorsioculella*.

Plate LXVII. Adult specimens. a: holotype, *Stathmopoda sericicola* - b: holotype, *Stathmopoda centihasta* - c: *Stathmopoda stimulata* - d: *Stathmopoda* sp. 1 - e: *Stathmopoda* sp. 2.

Plate LXVIII. Adult specimens. a: *Stathmopoda flavescens* - b: holotype, *Stathmopoda gemmiconsuta* - c: holotype, *Stathmopoda luxuriivora* - d: holotype, *Stathmopoda magnisignata*, male - e: paratype, ditto, female - f: holotype, *Stathmopoda callicarpicola*, male - g: paratype, ditto, female.

Plate LXIX. Adult specimens. a: *Stathmopoda opticaspis* - b: holotype, *Stathmopoda persona* - c: *Stathmopoda* sp. 3 - d: *Stathmopoda moriutiella* - e: holotype, *Stathmopoda albiornata*.

Plate LXX. Adult specimens. a: *Stathmopoda masinissa* - b: holotype, *Stathmopoda maritimicola* - c: *Stathmopoda aprica* - d: holotype, *Stathmopoda fusciumeraris*.

Plate LXXI. Adult specimens. a: *Stathmopoda brachymochla* - b: *Stathmopoda auriferella* - c: *Stathmopoda haematosema* - d: *Stathmopoda transfasciaria* - e: *Stathmopoda* sp. 4 - f: *Stathmopoda* sp. 5.

Plate LXXII. Adult specimens. a: Holotype, *Phlogogramma tecticochleatum* n. sp. - b: *Atrijuglans hetaohei* - c: *Hieromantis kurokoi* - d: *Hieromantis makiosana*.

Plate LXXIII. Adult specimens. a: Holotype, *Calicotis chrysoptera* n. sp. - b: paratype,

ditto - c: holotype, *Calicotis biserraticola* n. sp. - d: paratype, ditto - e: holotype,
Calicotis rotundinidus n. sp.

Plate LXXIV. Adult specimens. a: Holotype, *Calicotis exclamationis* n. sp. - b:
paratype, ditto - c: holotype, *Calicotis latebrifica* n. sp. - d: paratype, ditto - e:
holotype, *Calicotis xanthopsis* n. sp. - f: holotype, *Calicotis sublucida* n. sp.

Plate LXXV. Adult specimens. a: Holotype, *Pachyrhabda aurescens* n. sp. - b: holotype,
Pachyrhabda fuscimaculata n. sp. - c: holotype, *Pachyrhabda aedificatrix* n. sp. -
d: holotype, *Pachyrhabda margaritacea* n. sp. - e: paratype, ditto - f: holotype,
Pachyrhabda vaginivella n. sp. - g: holotype, *Pachyrhabda argyrocosmos* n. sp. -
h: paratype, ditto.

Plate LXXVI. Adult specimens. a: *Cuprina fuscella* - b: *Cuprina flaviscapella* - c:
Thylacosceloides miniata - d: holotype, *Thylacosceloides stegnogrammias* n. sp. -
e: holotype, *Thylacosceloides leucocephalus* n. sp. - f: paratype, ditto.

Plate LXXVII. Adult specimens. a: *Oedematopoda leechi* - b: *Atkinsonia ignipicta* - c:
Atkinsonia sp.

Plate I

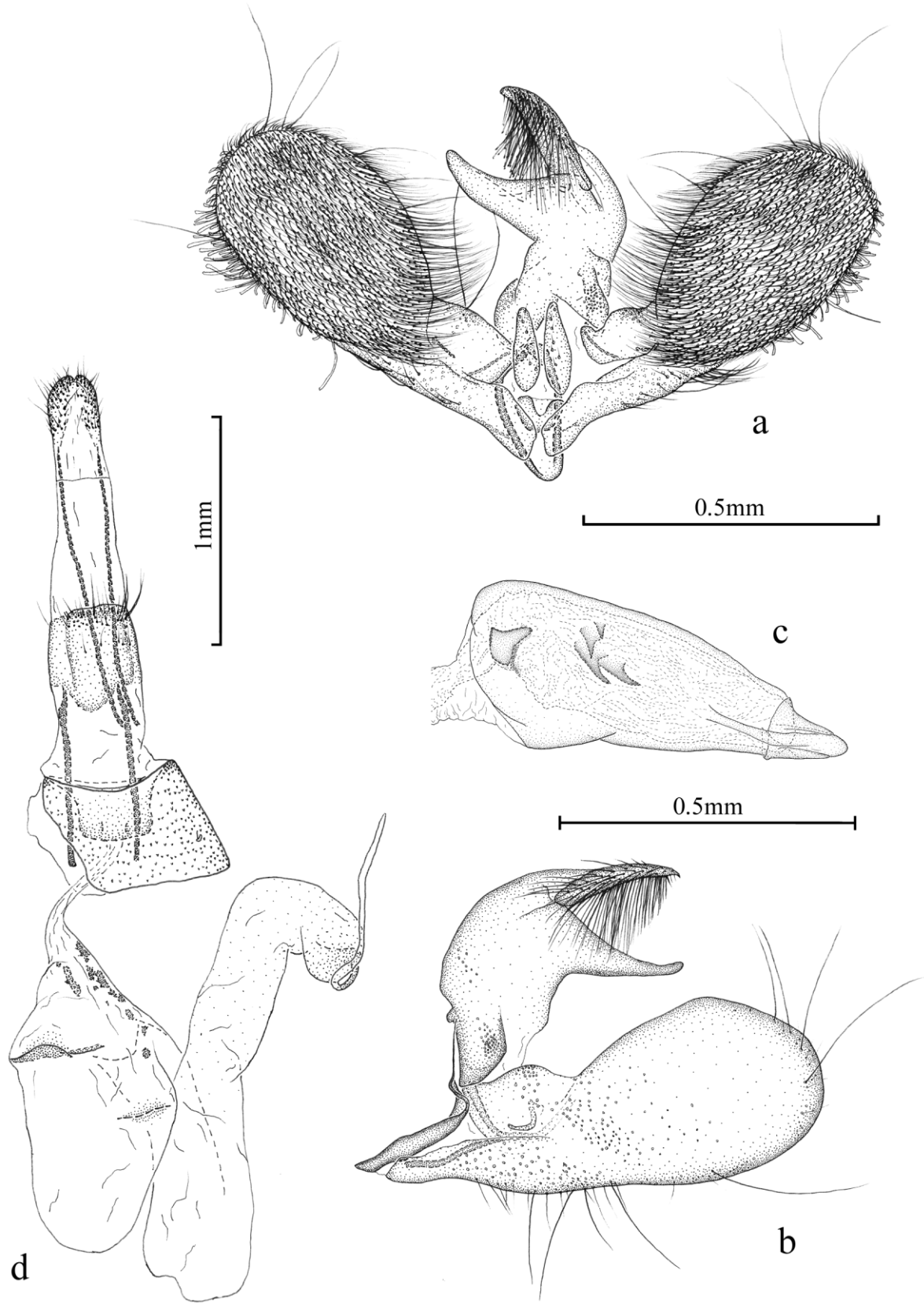


Plate II

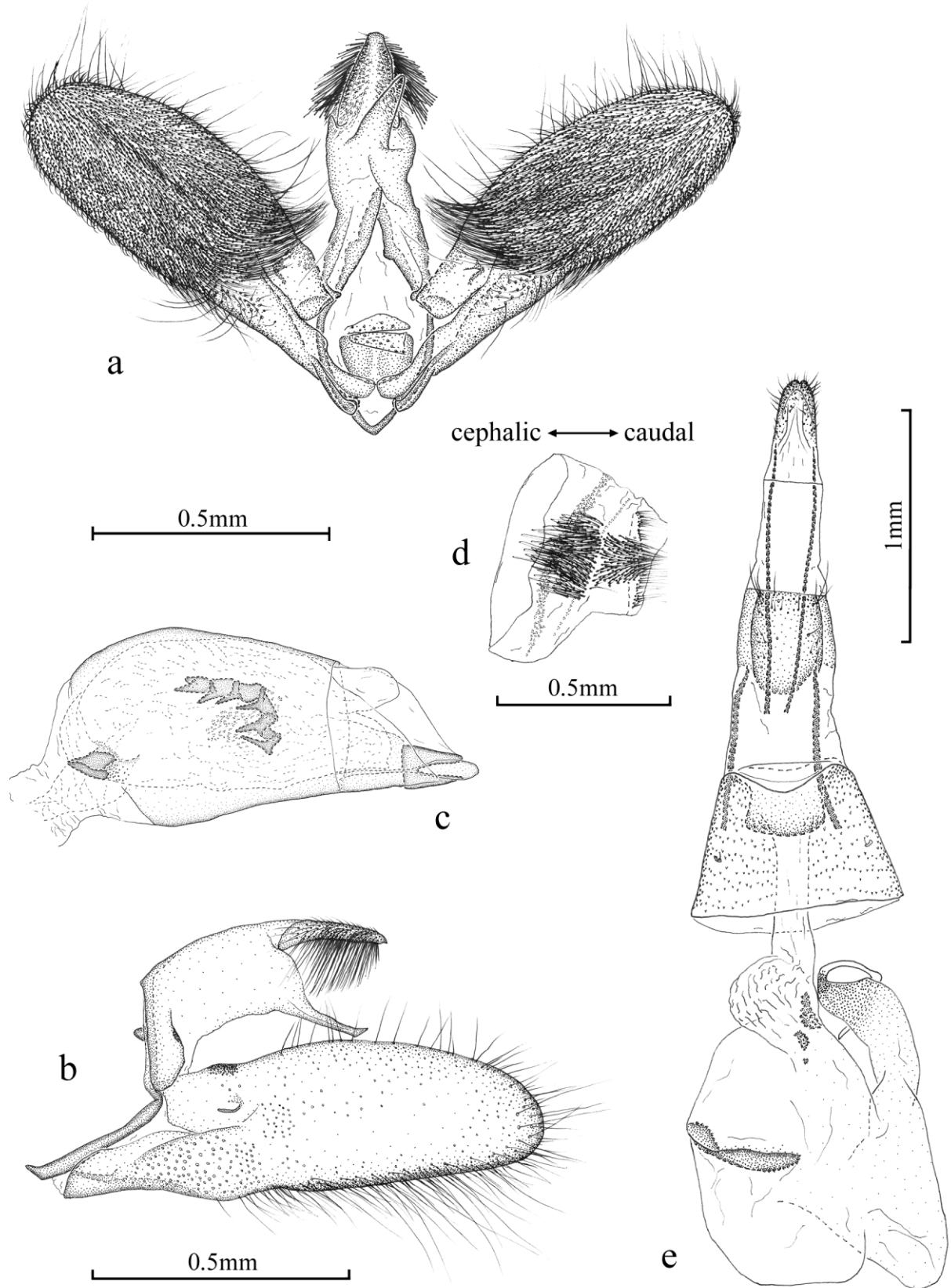


Plate III

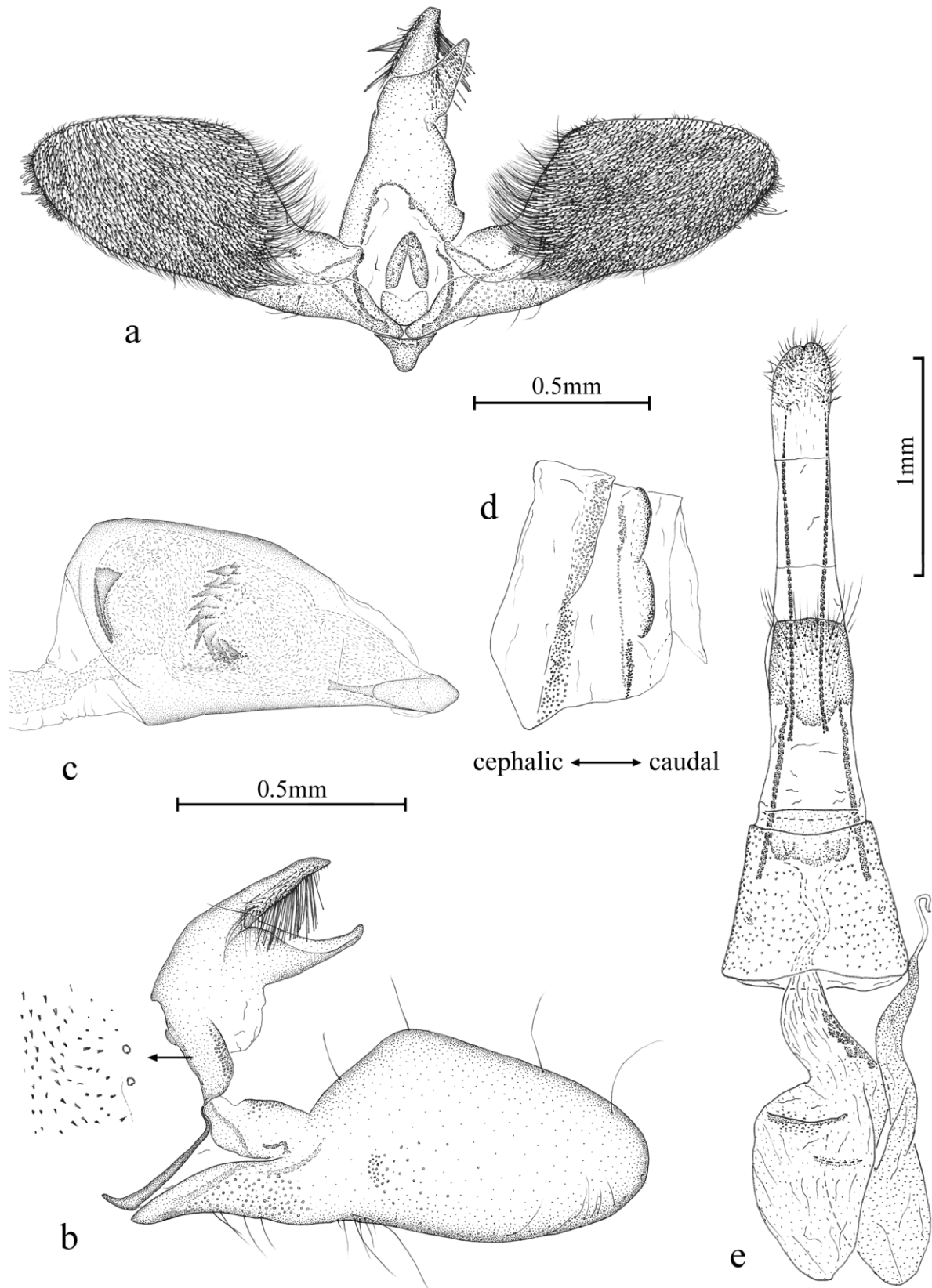


Plate IV

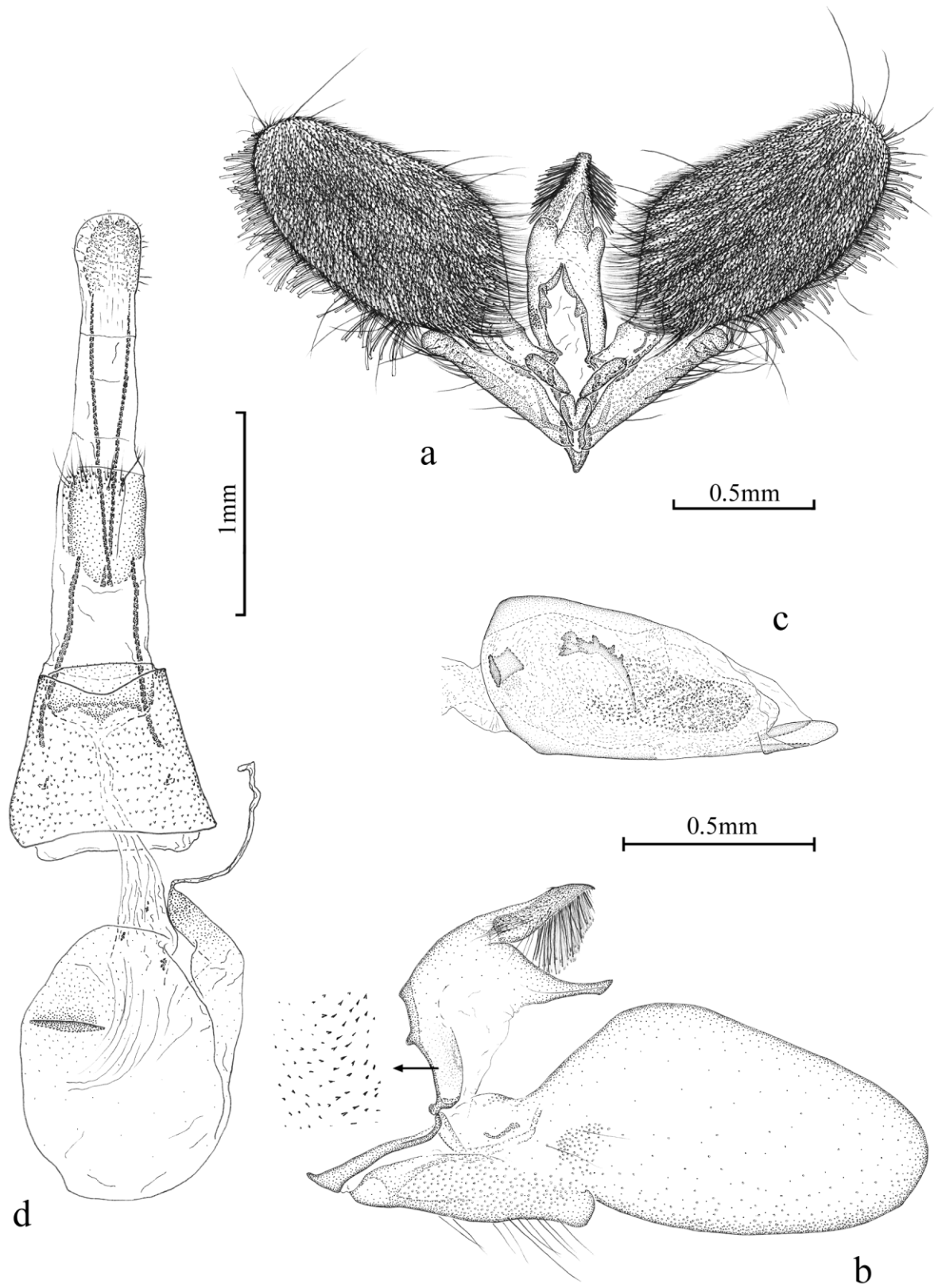


Plate V

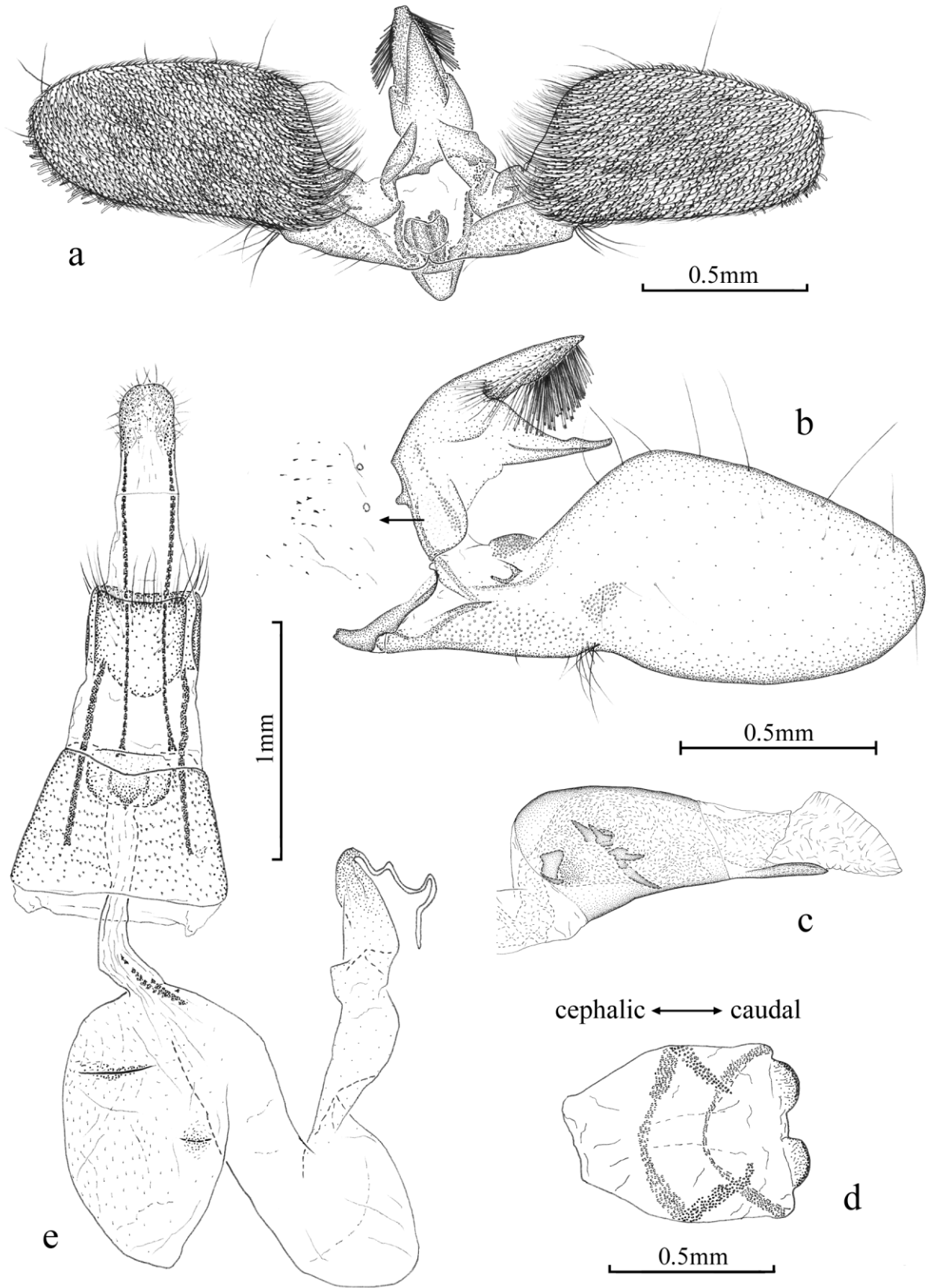


Plate VI

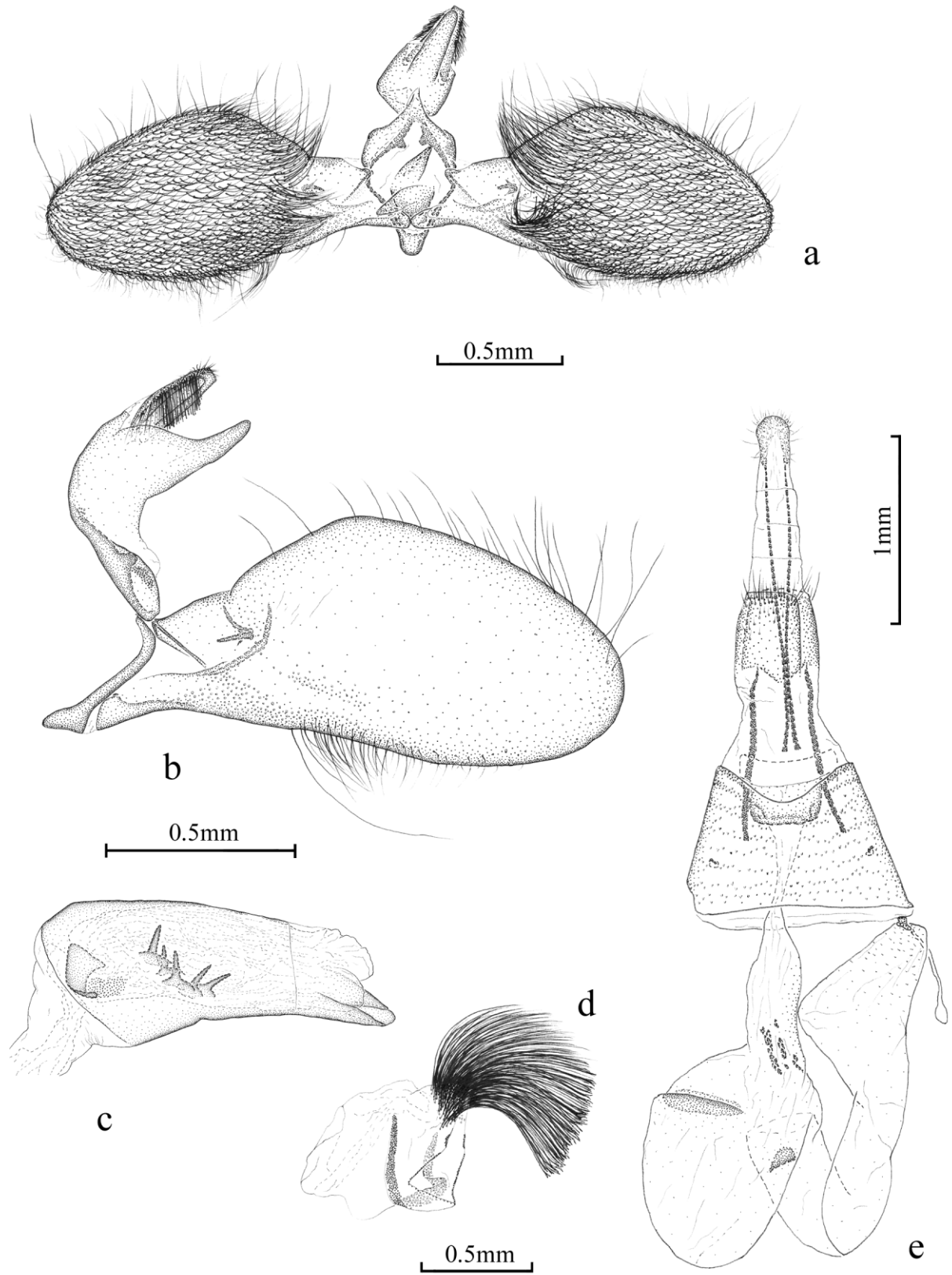


Plate VII

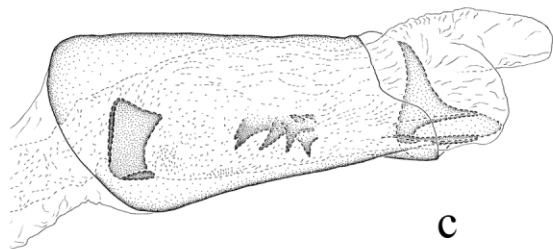
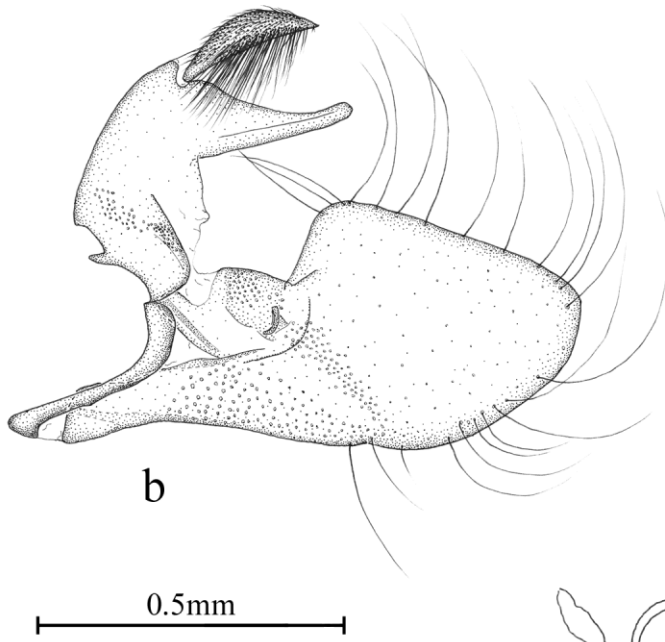
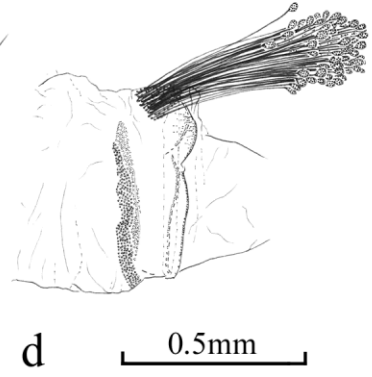
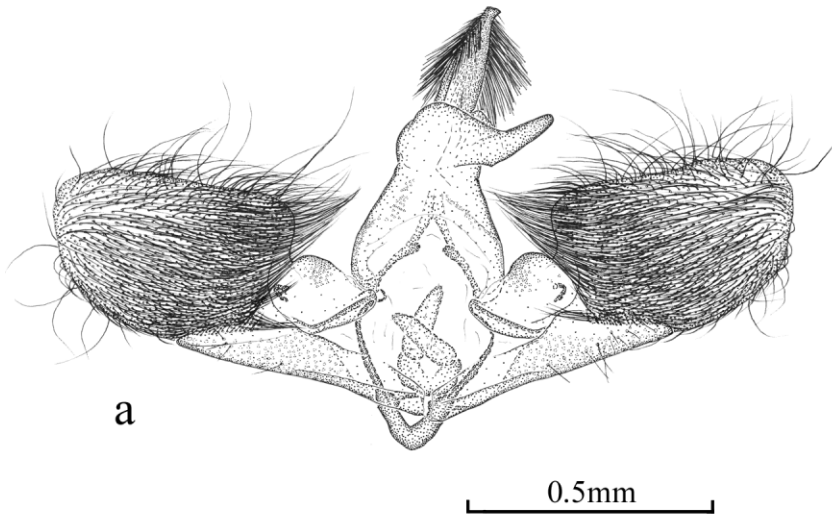


Plate VIII

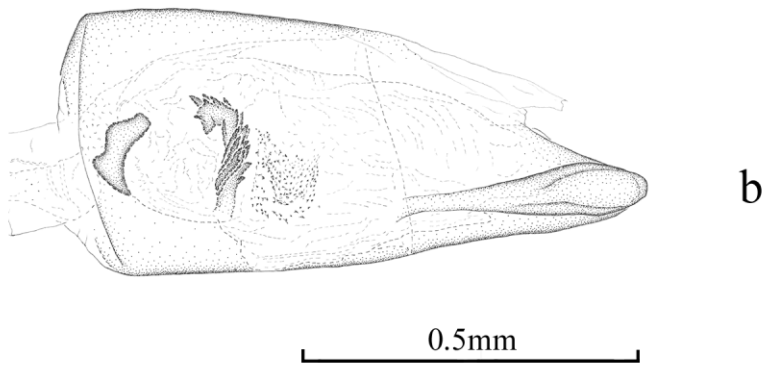
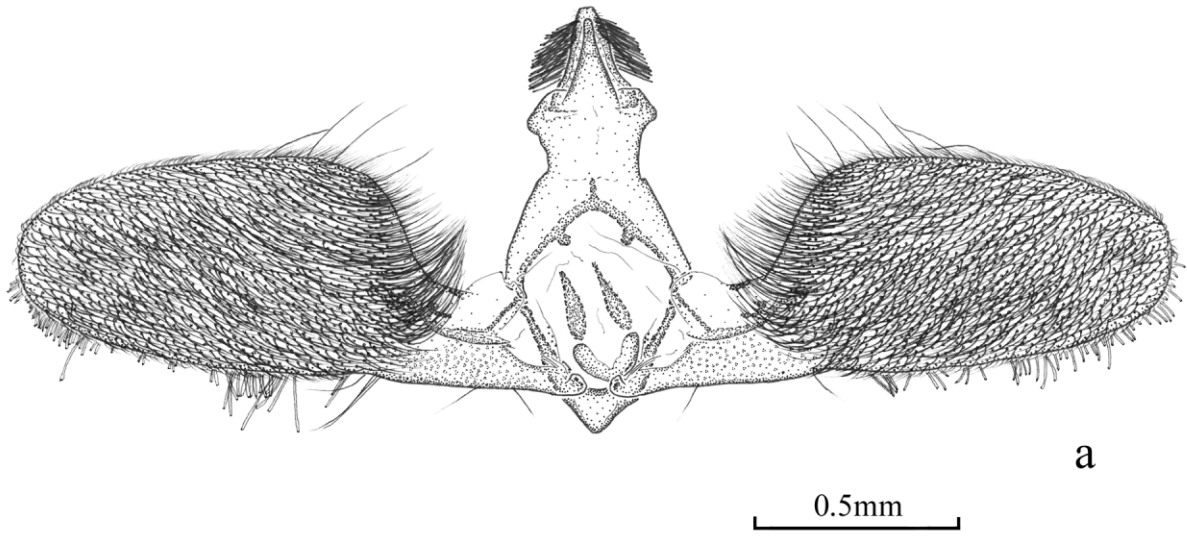


Plate IX

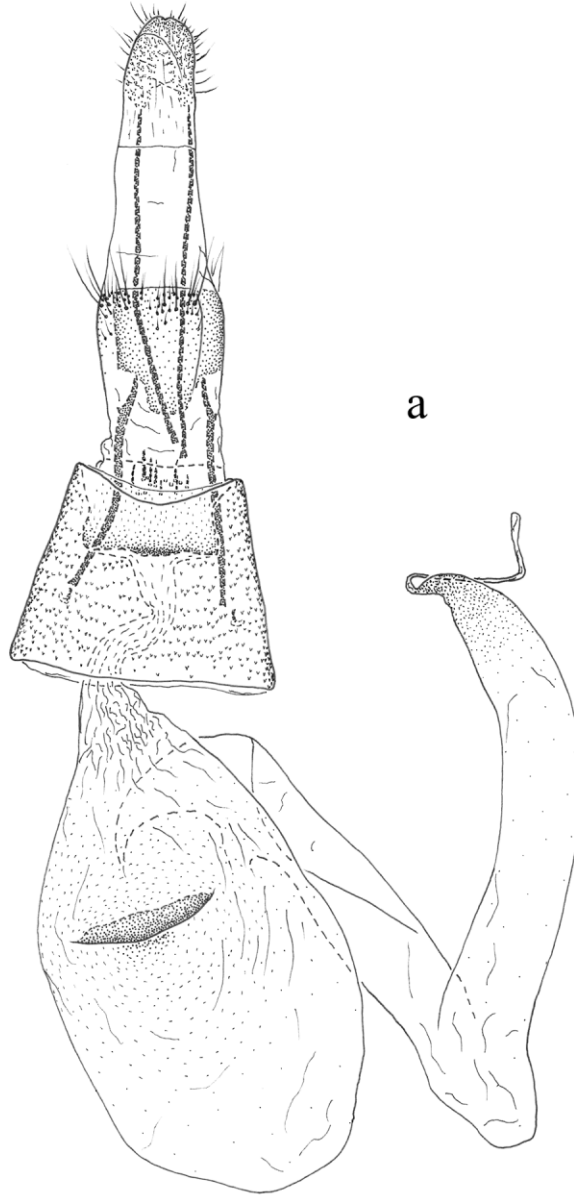


Plate X

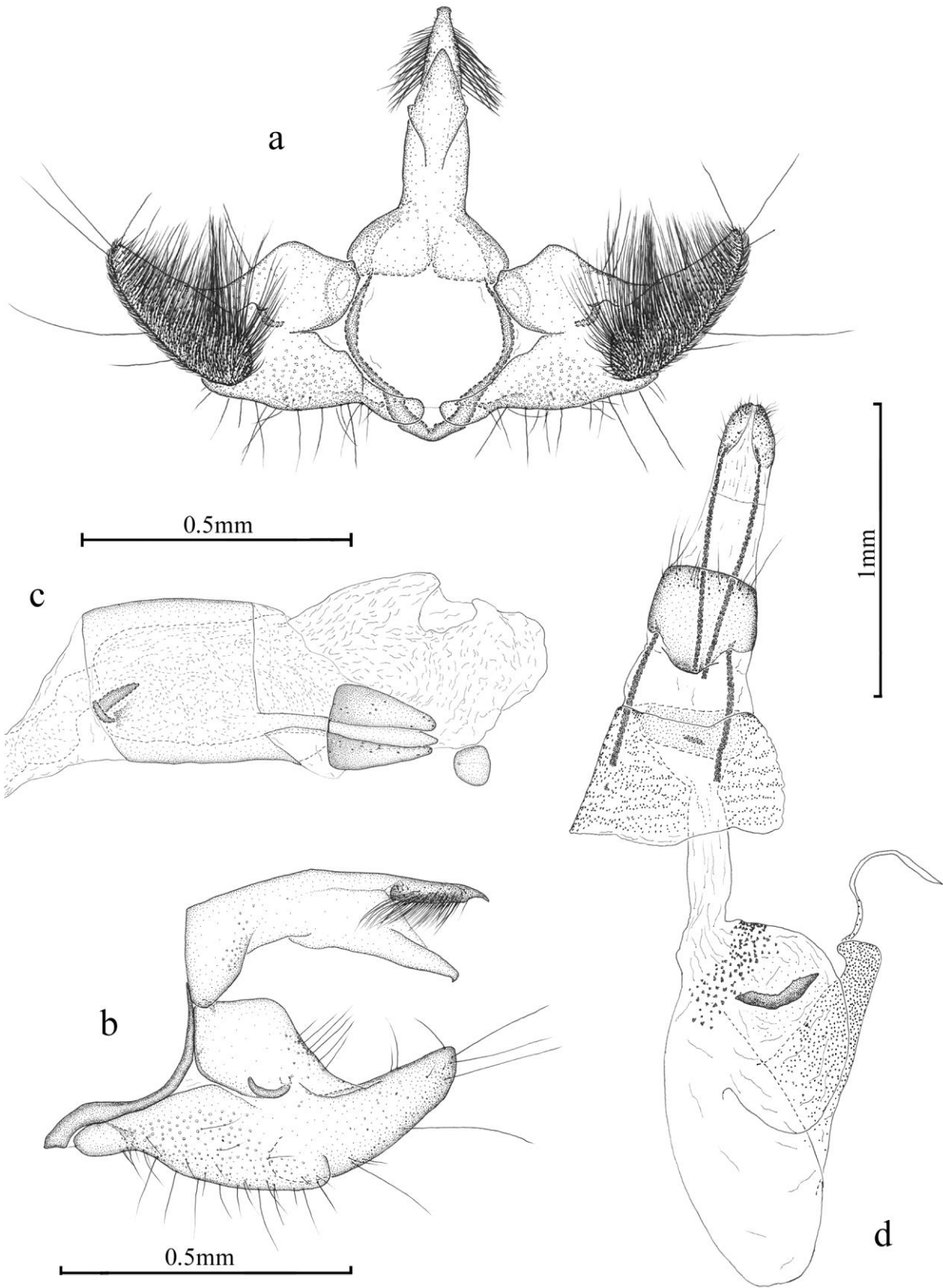


Plate XI

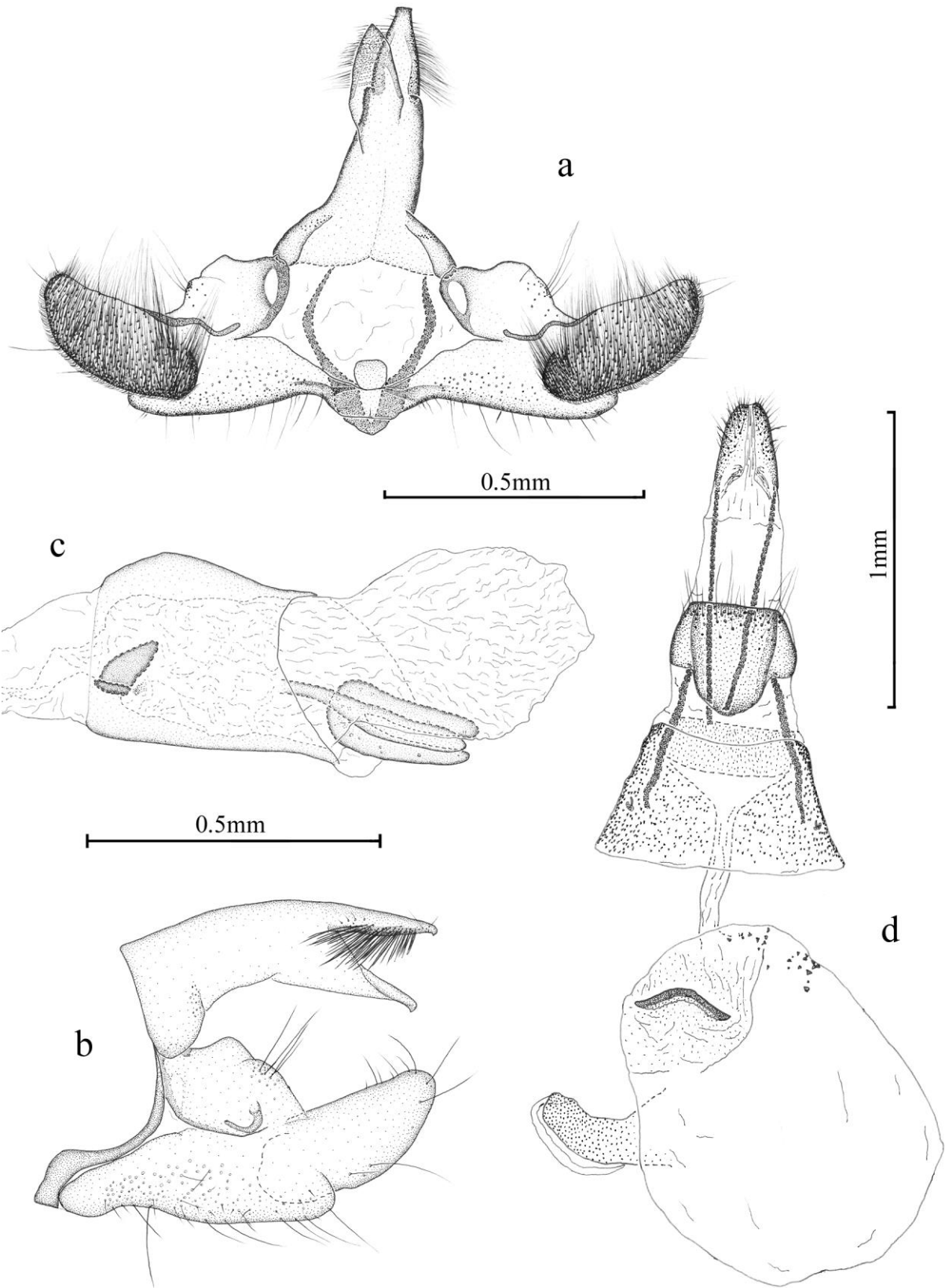


Plate XII

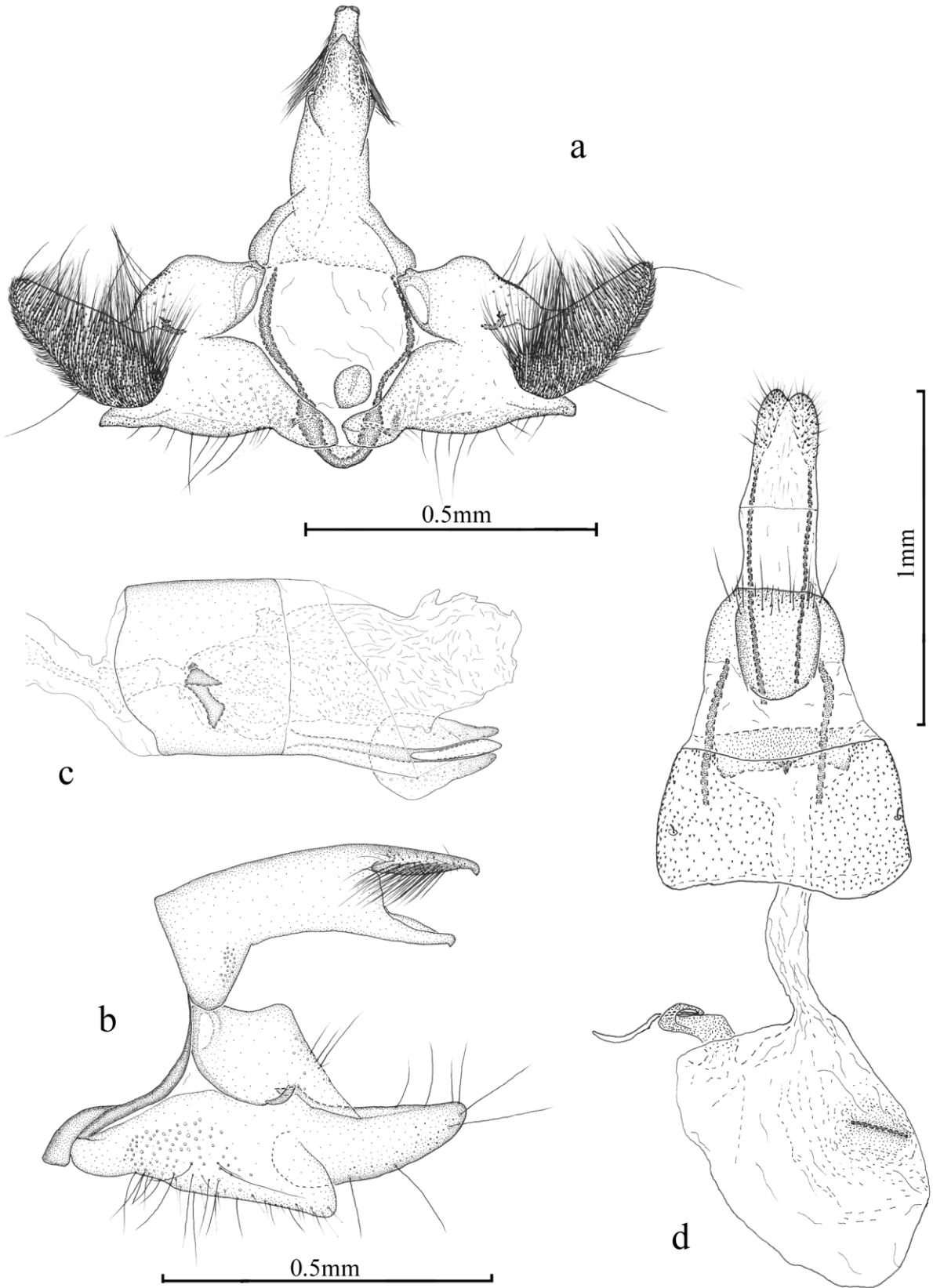


Plate XIII

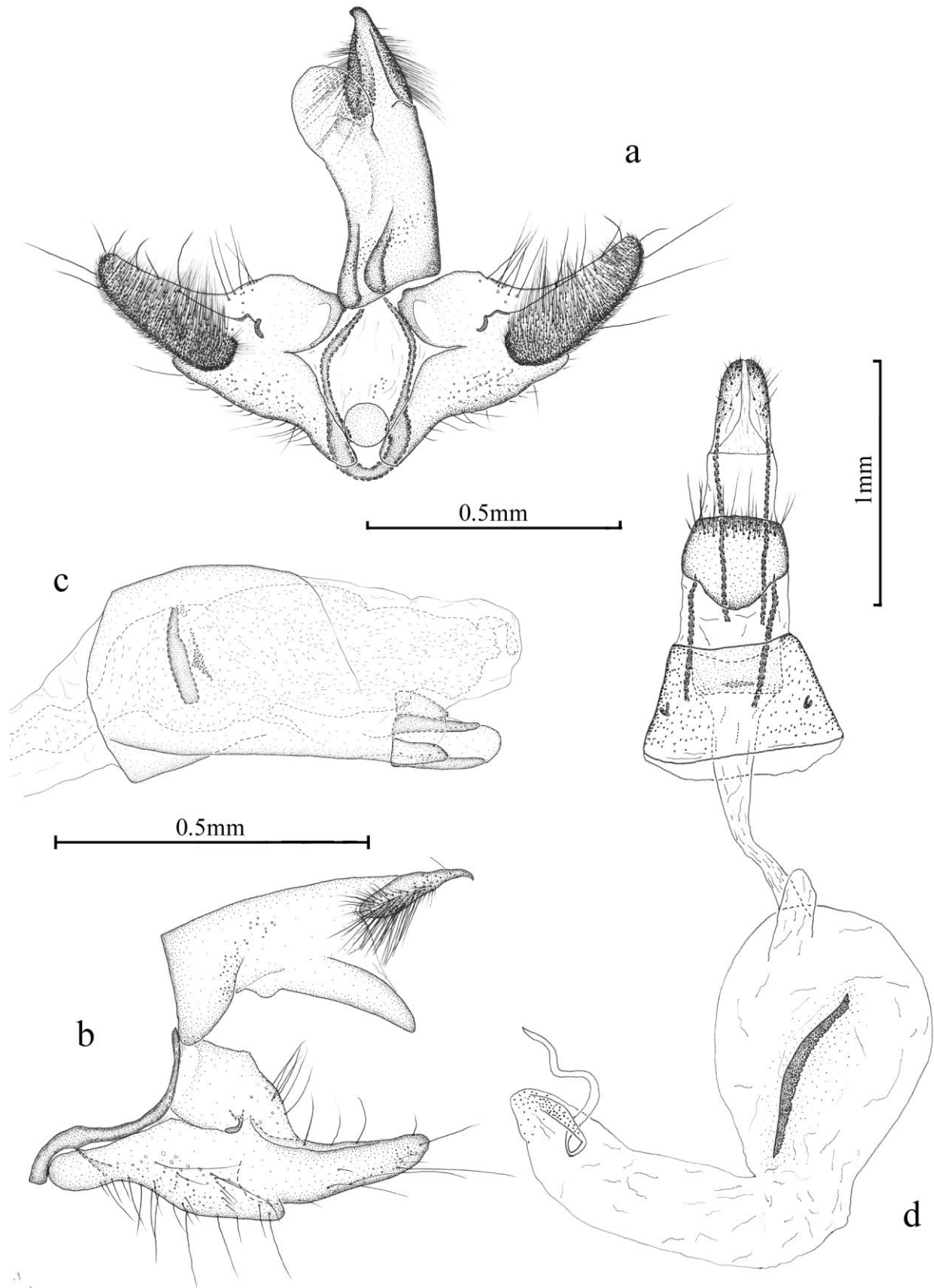


Plate XIV

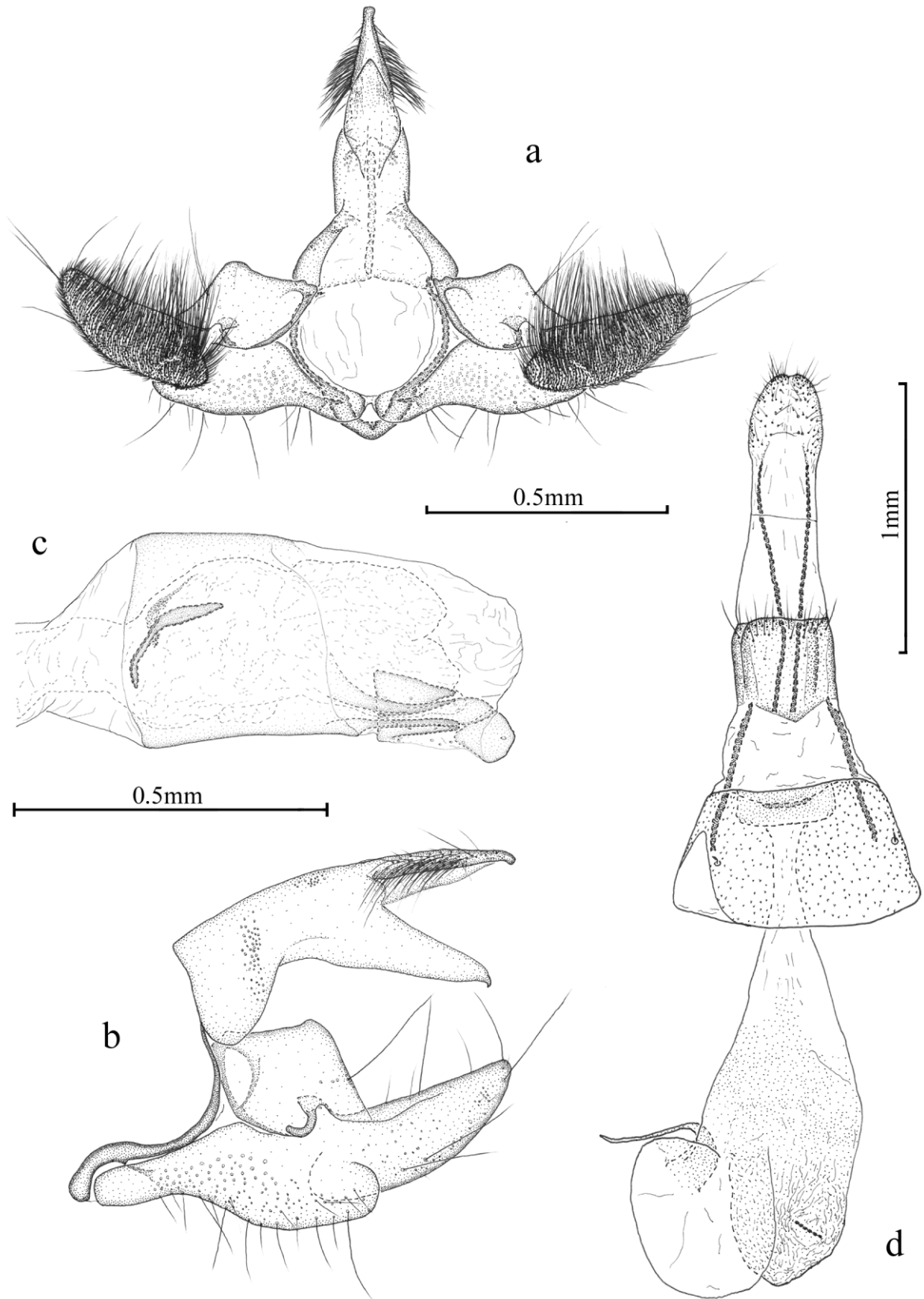


Plate XV

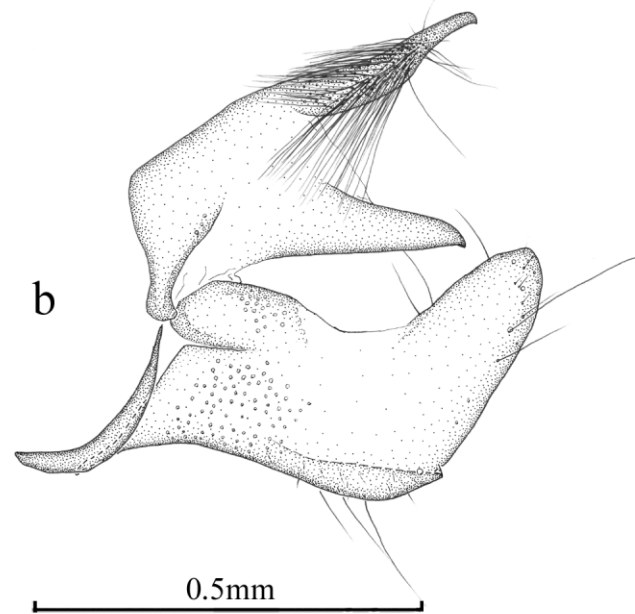
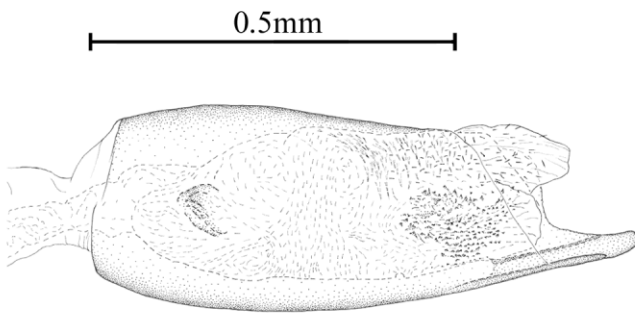
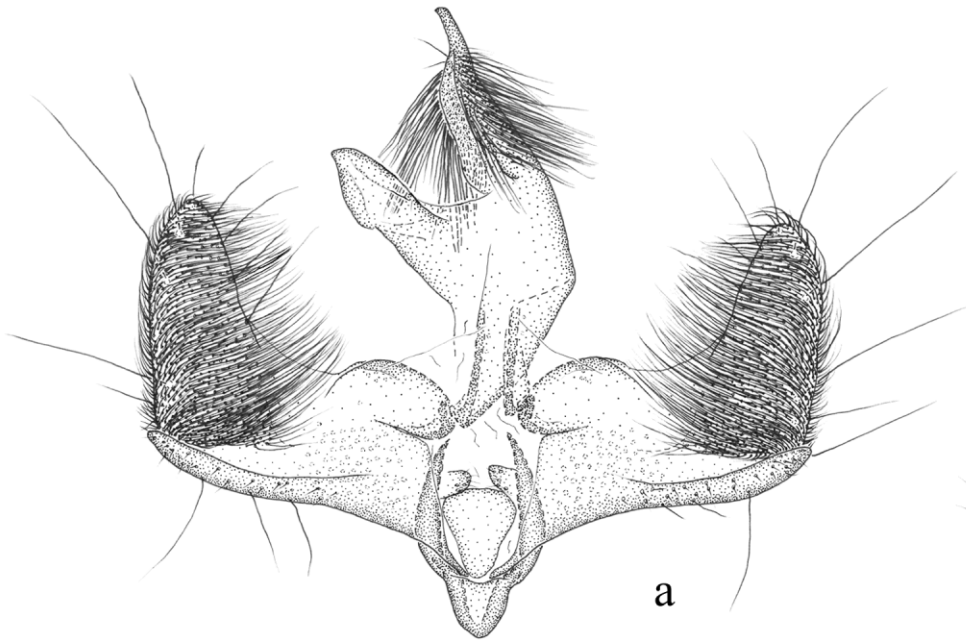


Plate XVI

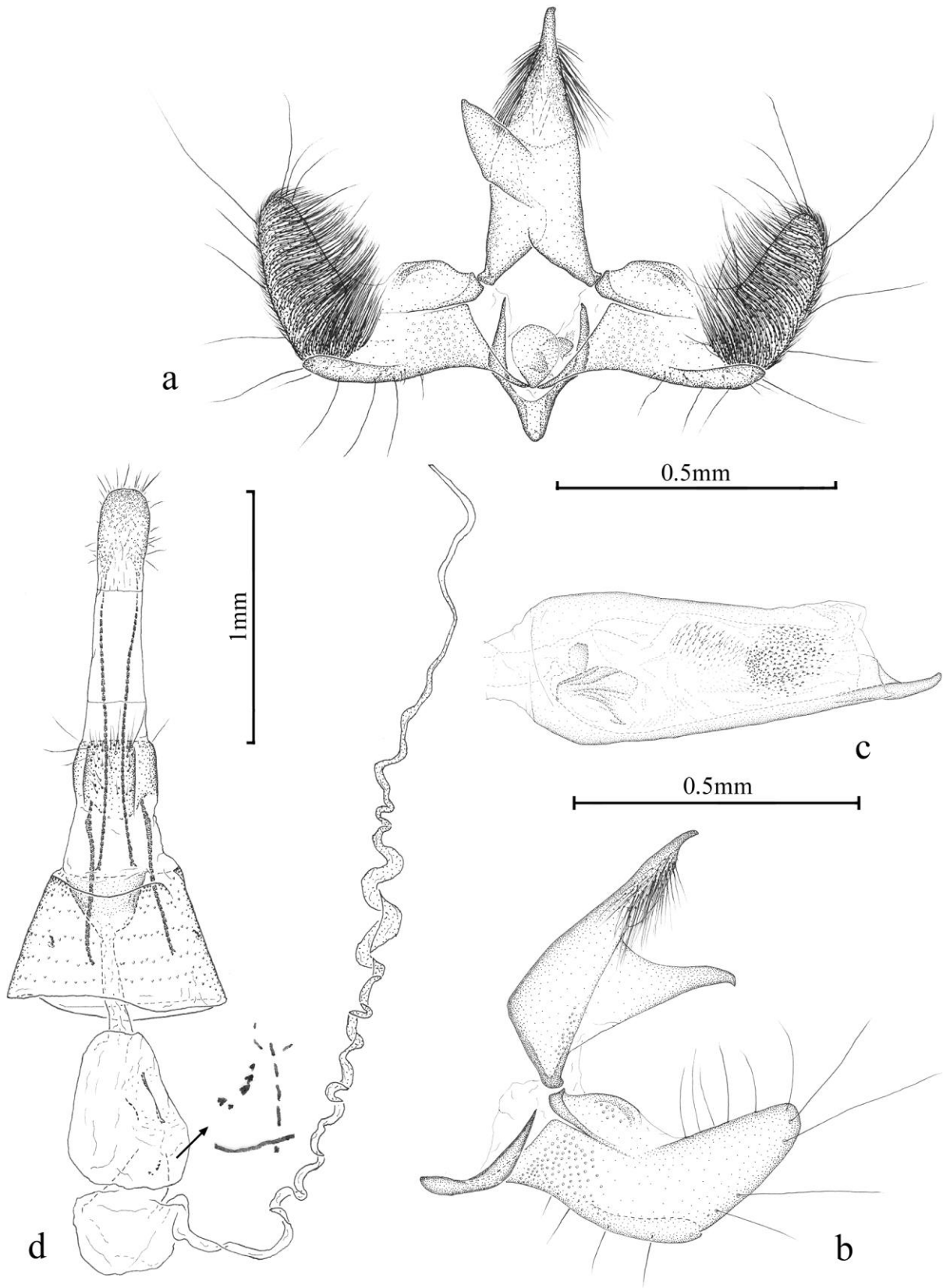
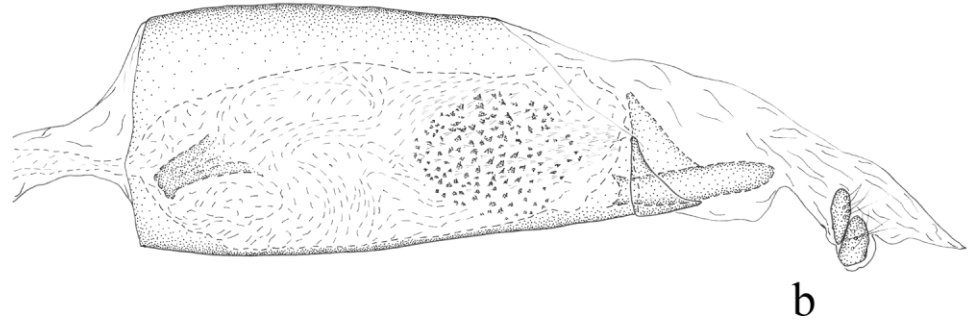


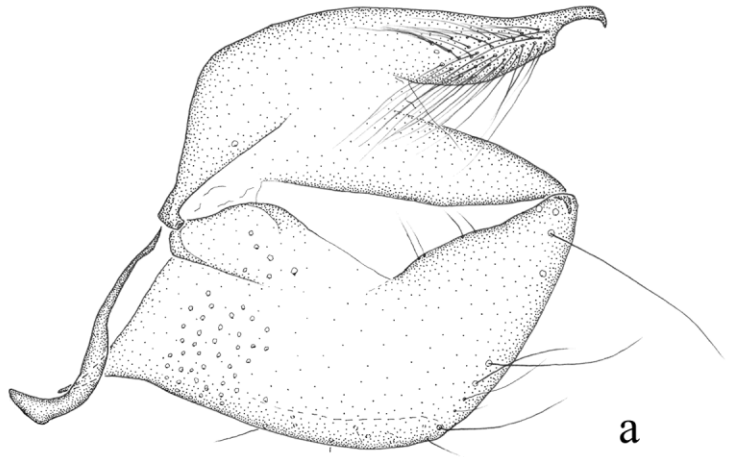
Plate XVII



0.5mm



c



a

1mm

Plate XVIII

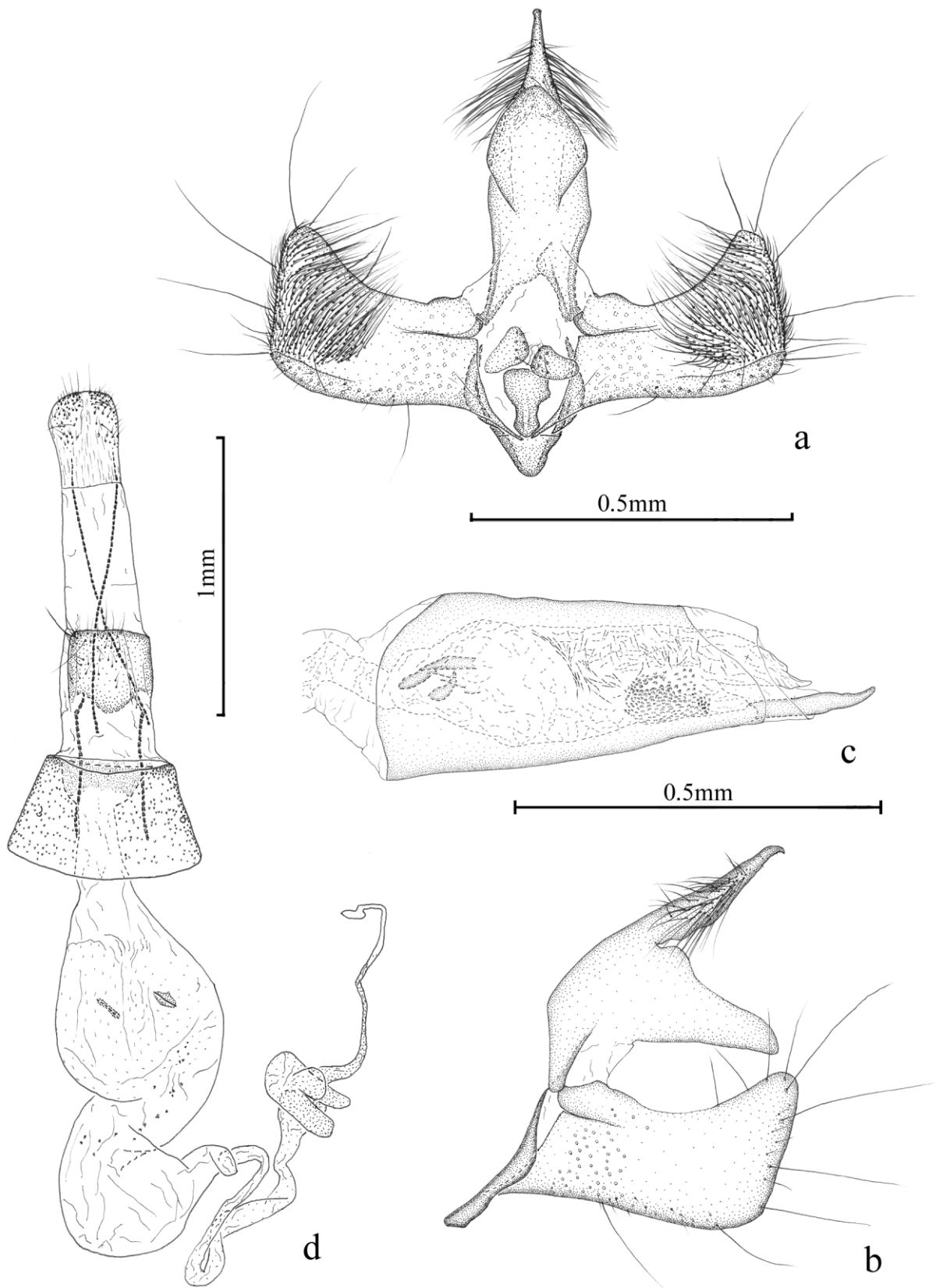


Plate XIX

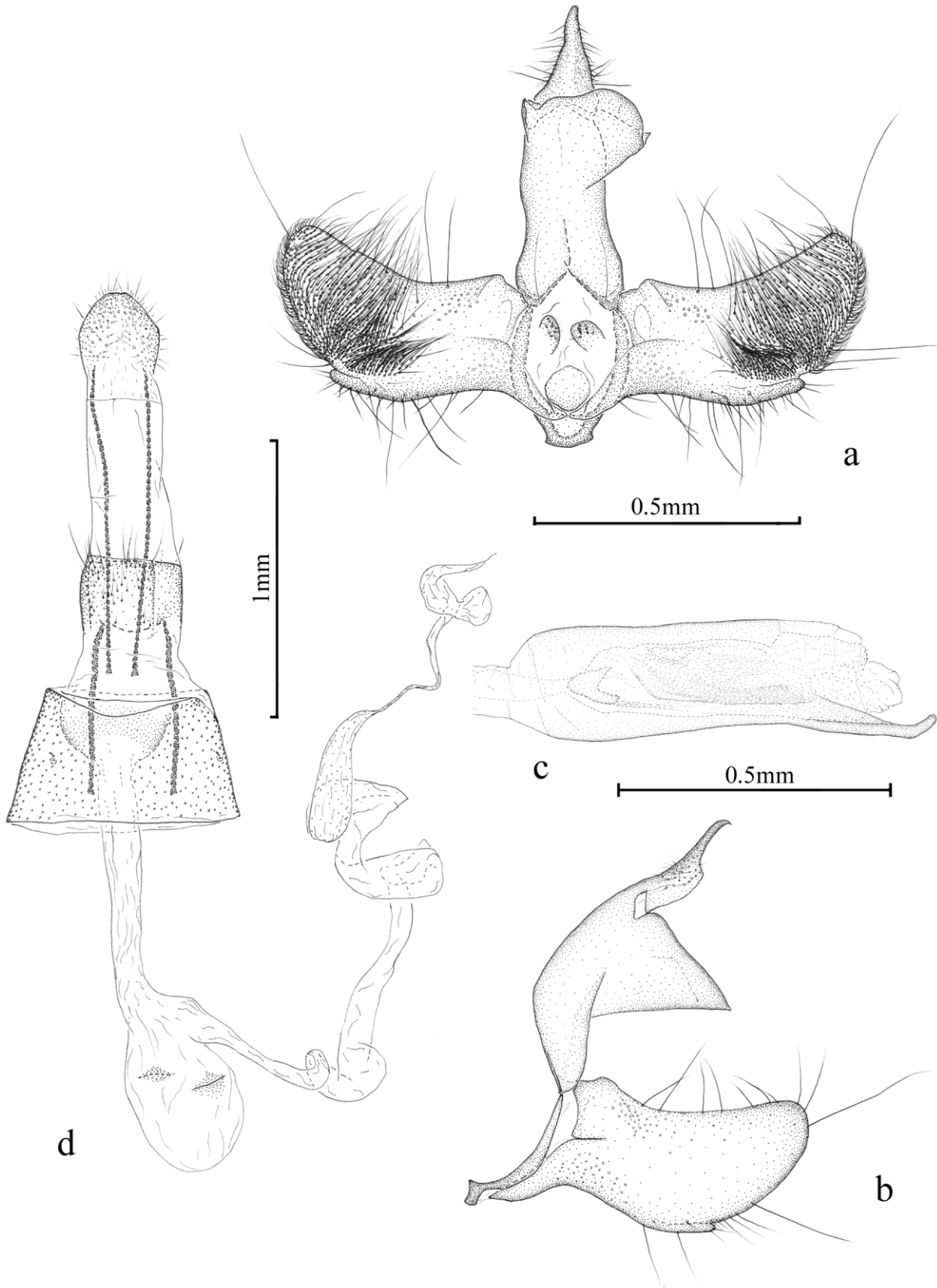


Plate XX

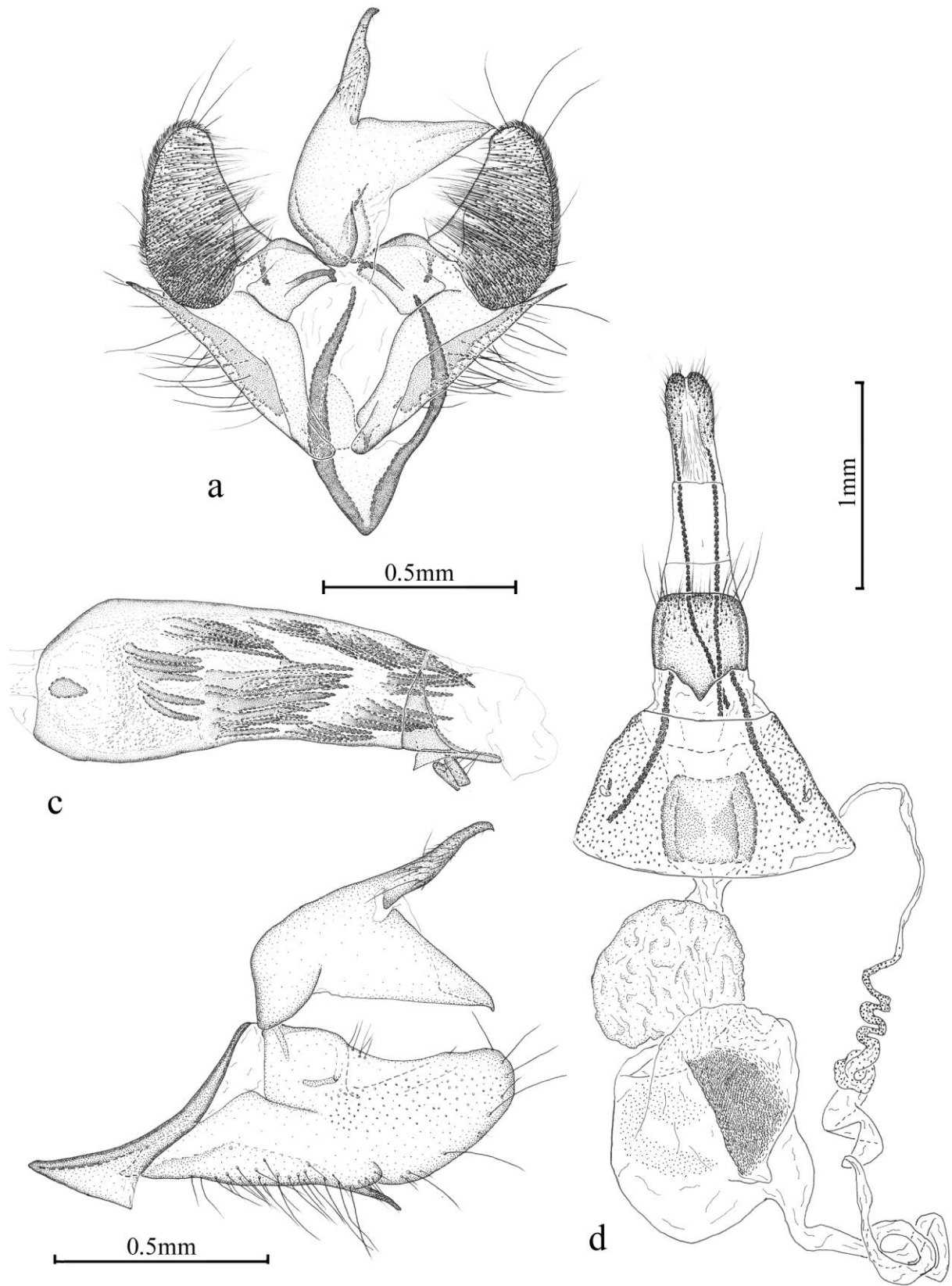


Plate XXI

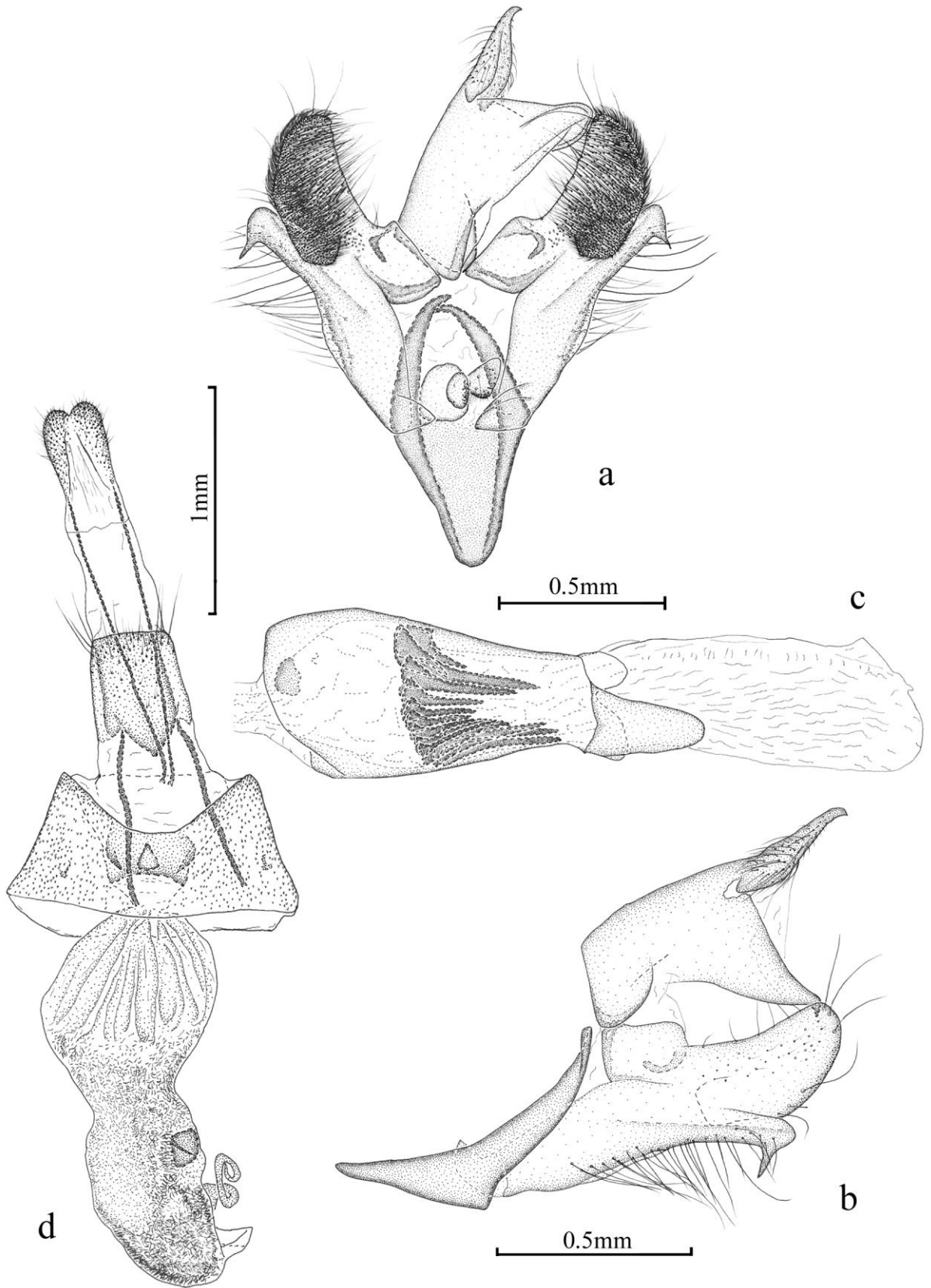


Plate XXII

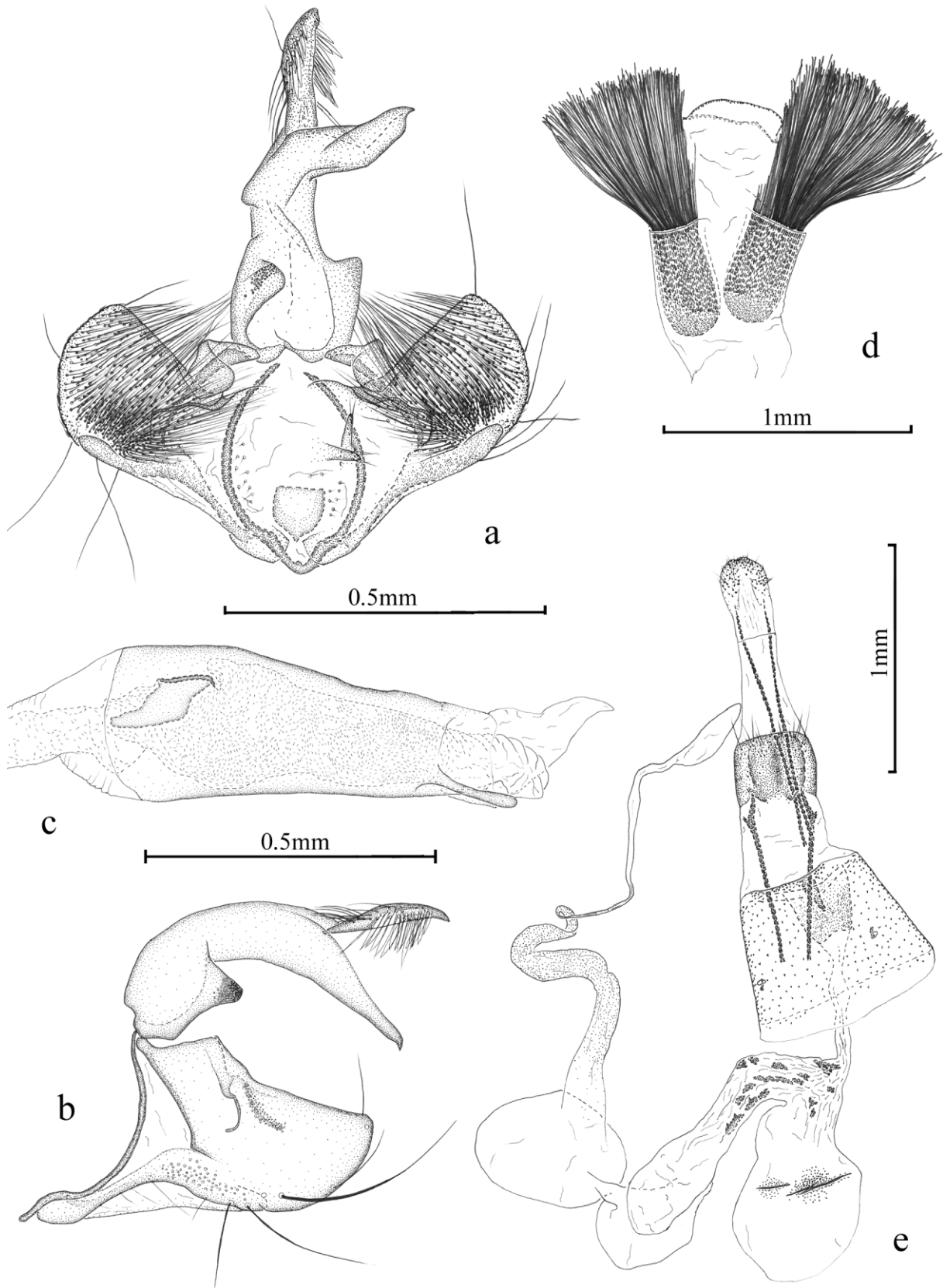


Plate XXIII

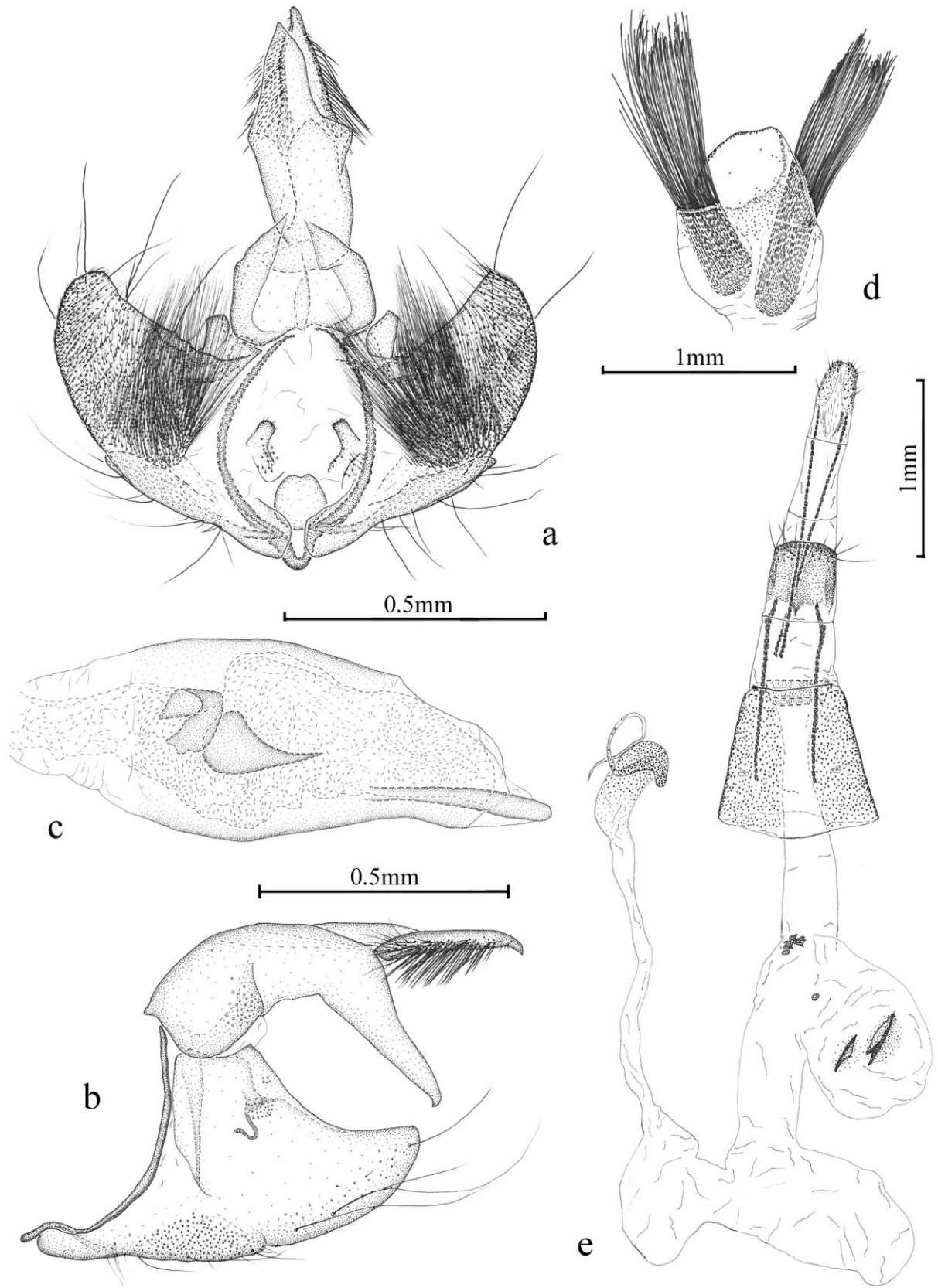


Plate XXIV

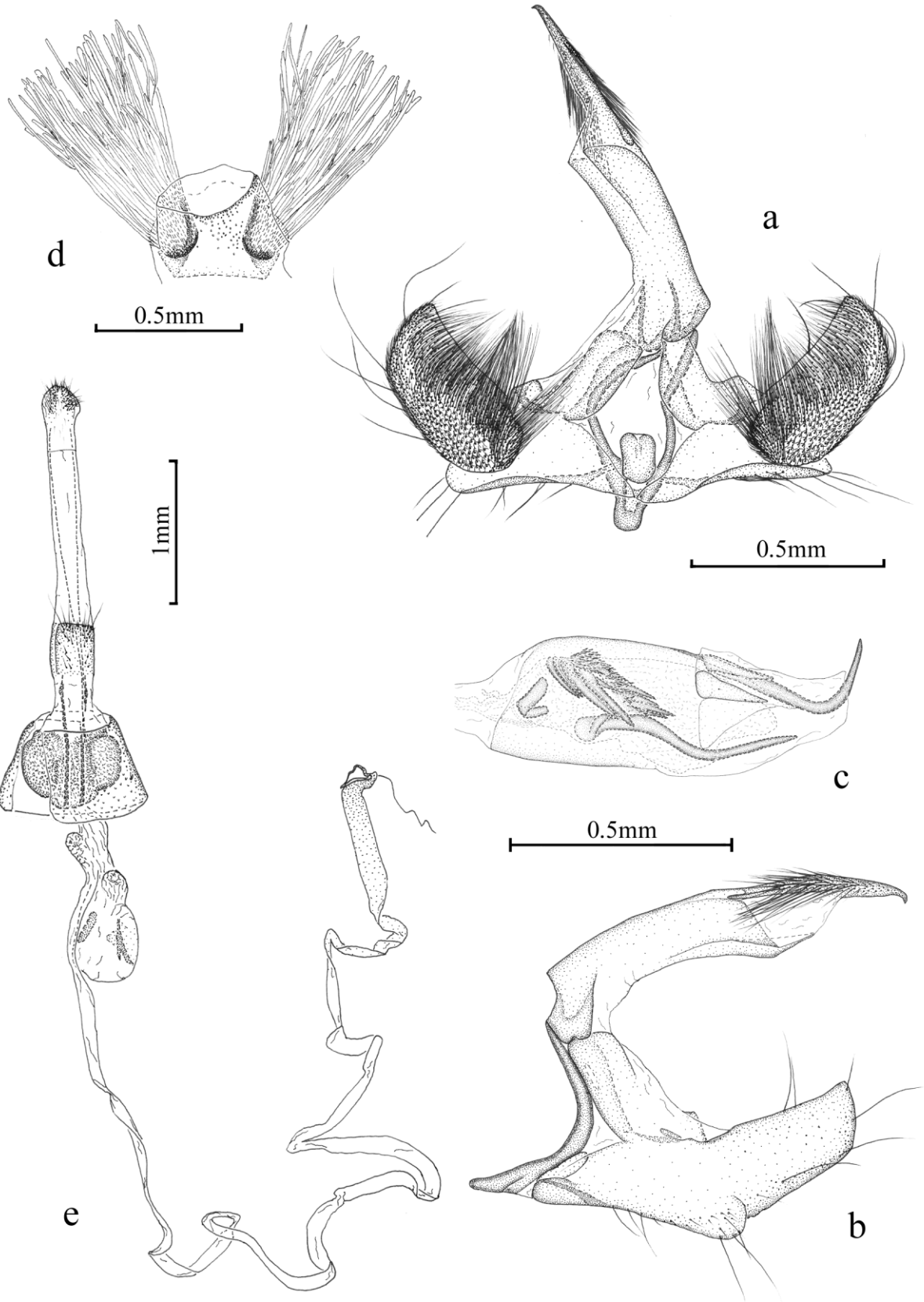


Plate XXV

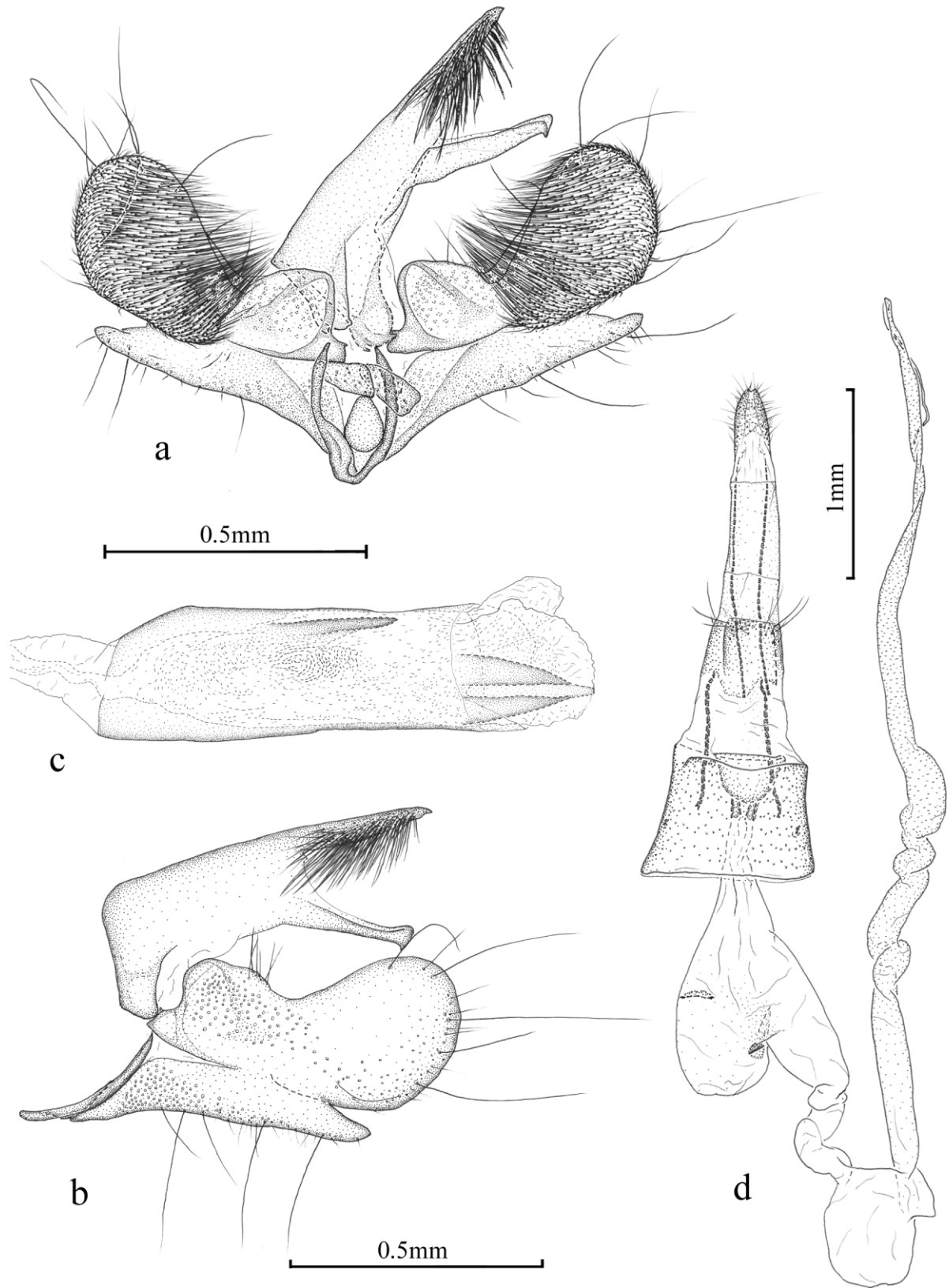


Plate XXVI

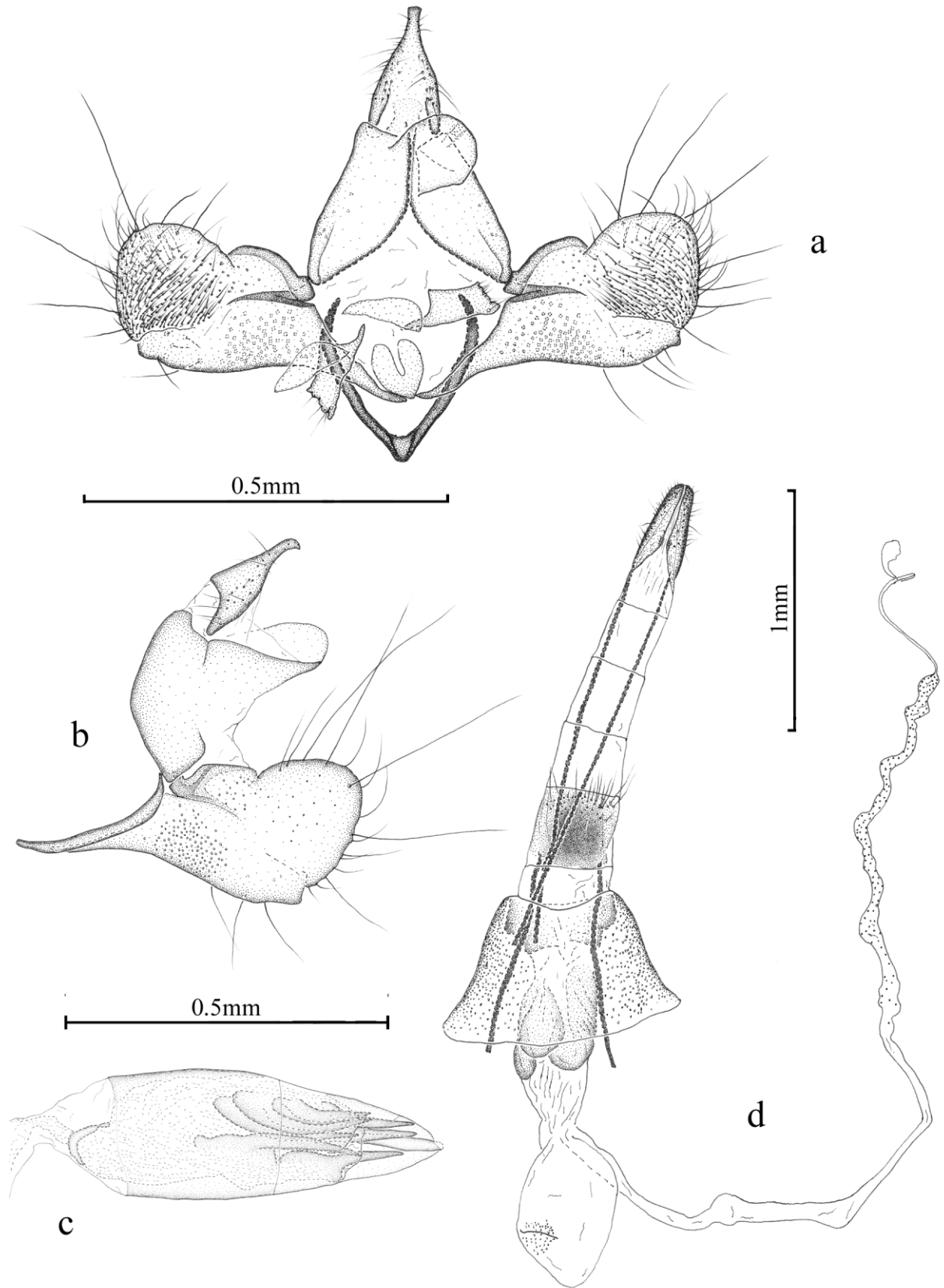


Plate XXVII

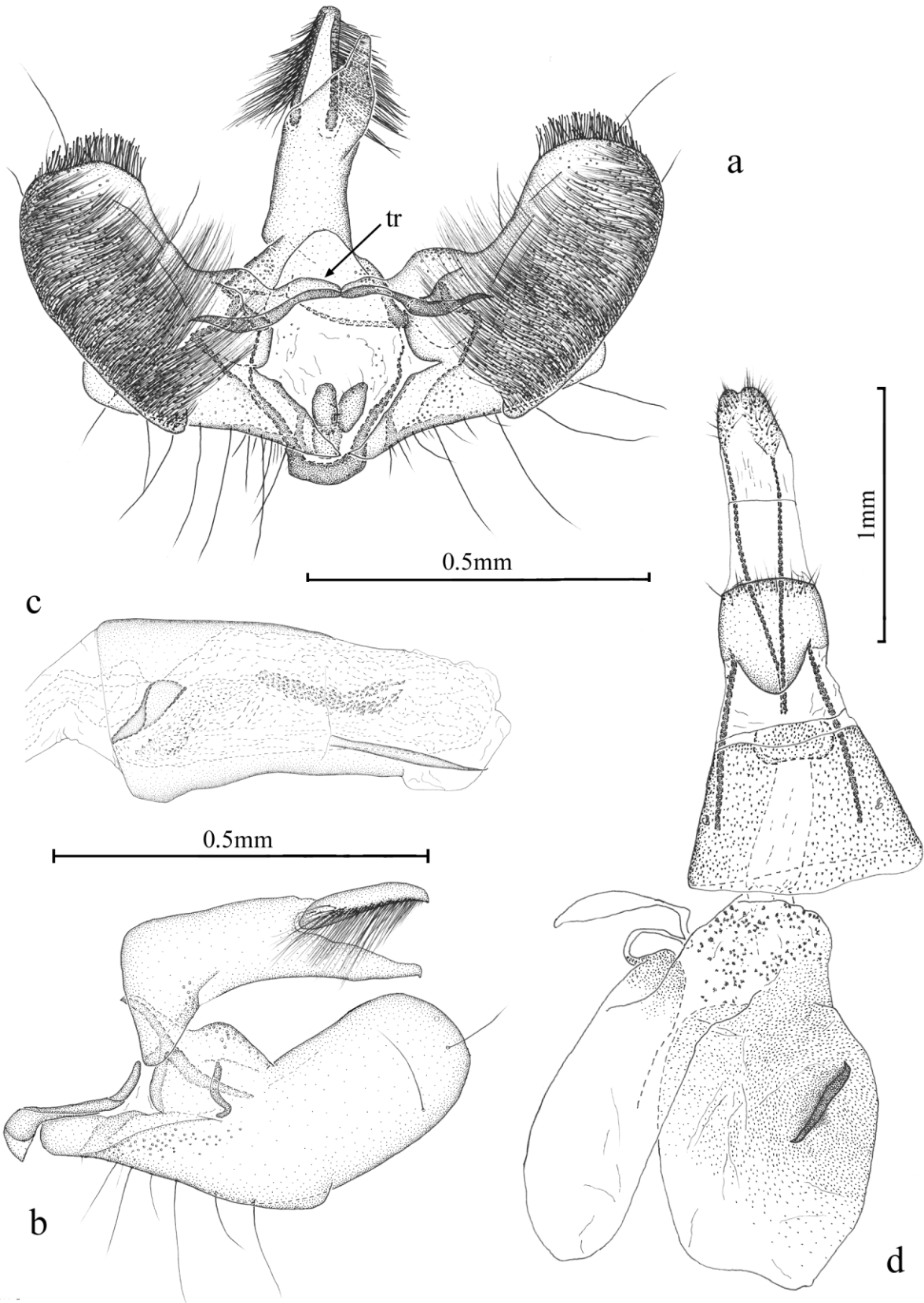


Plate XXVIII

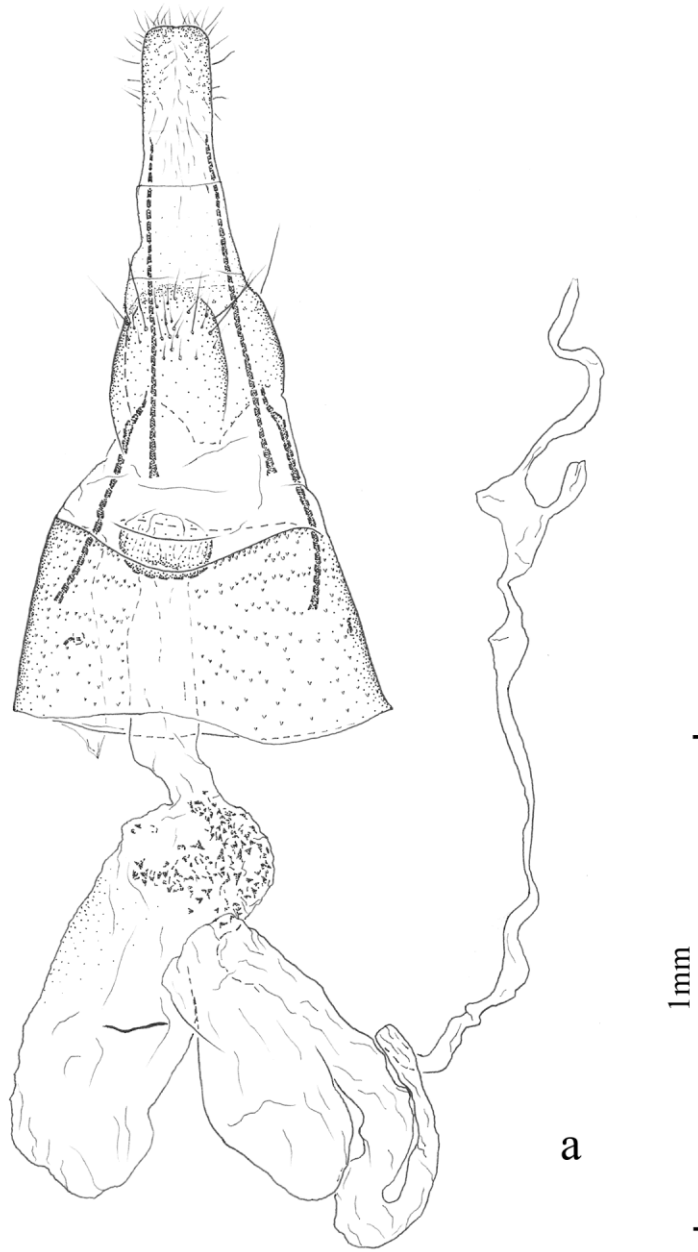


Plate XXIX

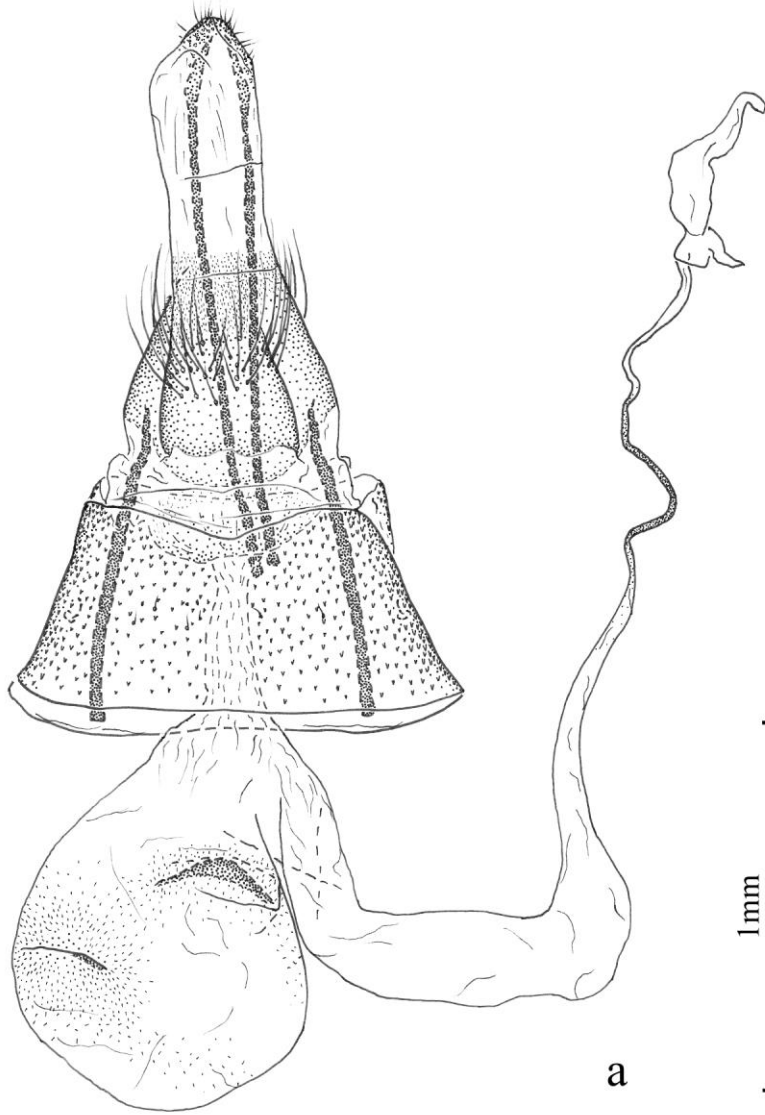


Plate XXX

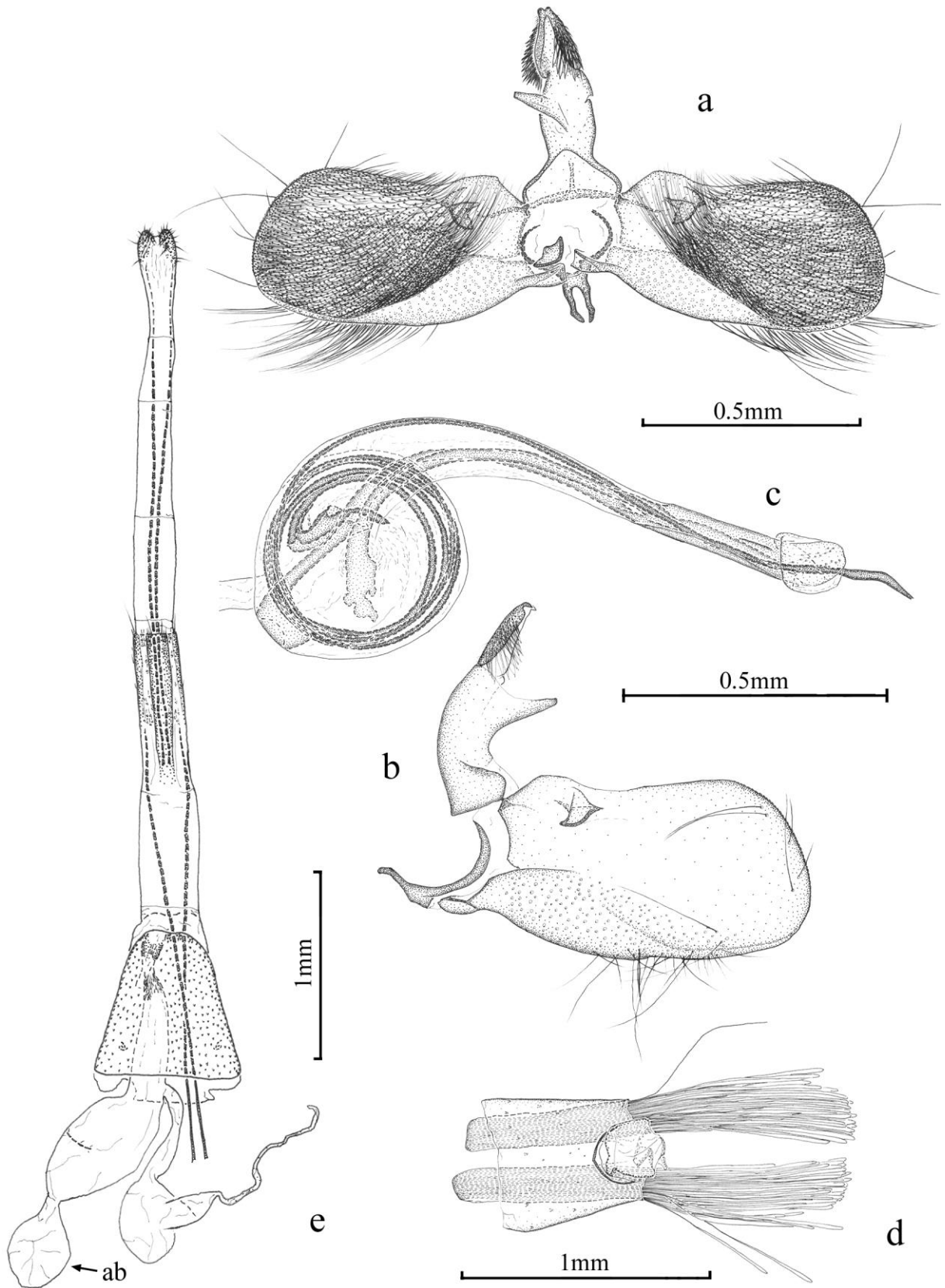


Plate XXXI

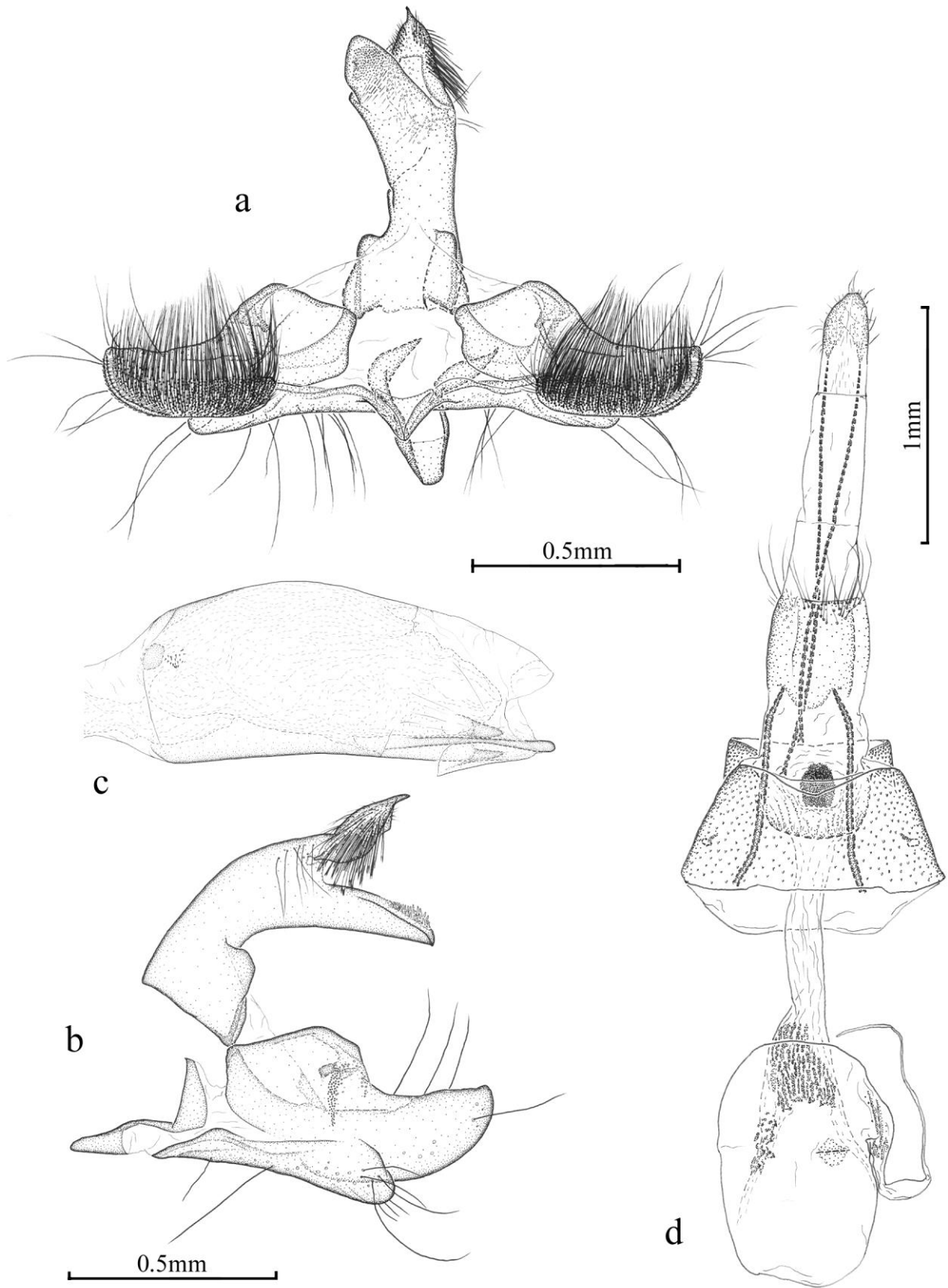


Plate XXXII

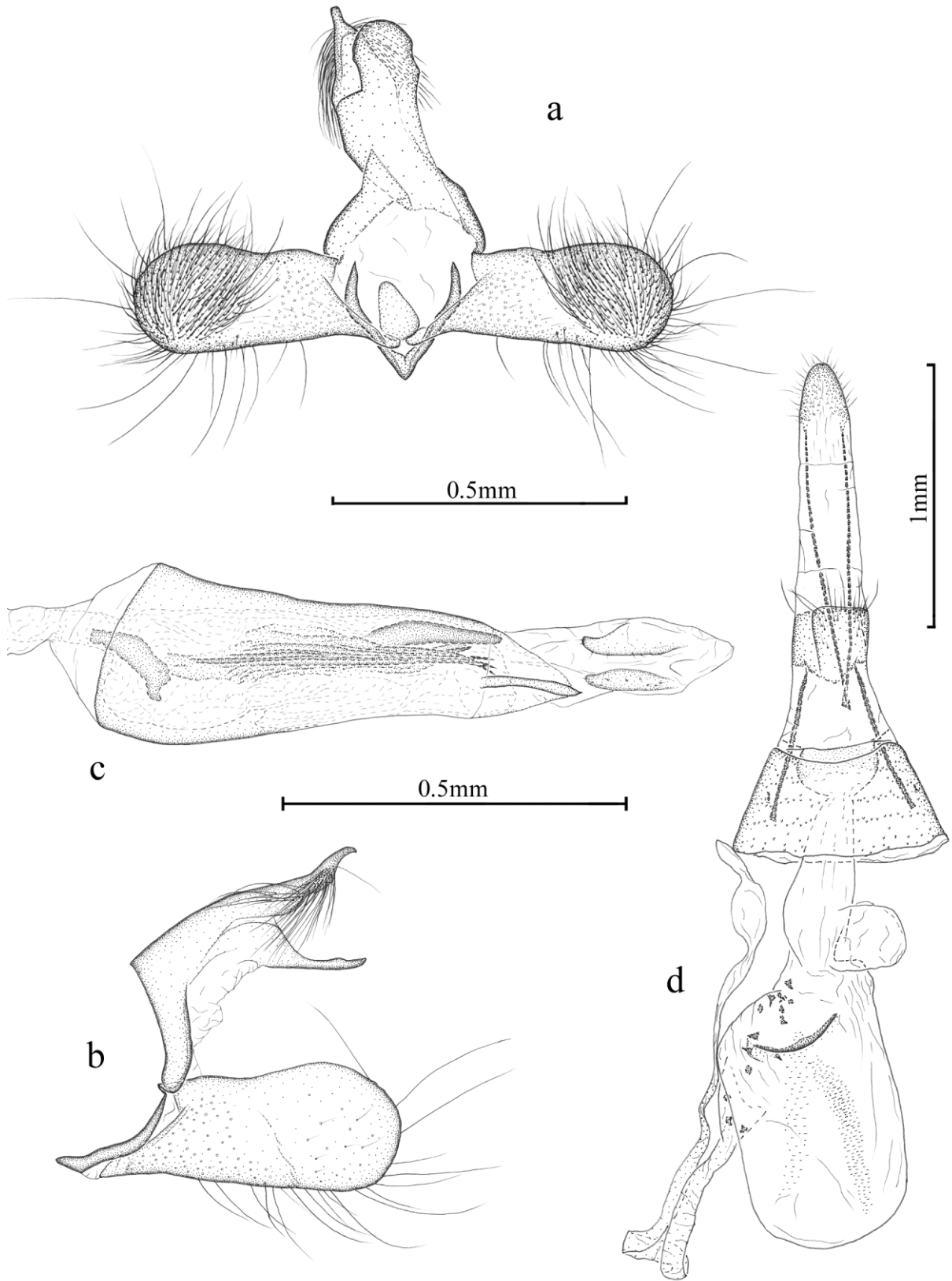


Plate XXXIII

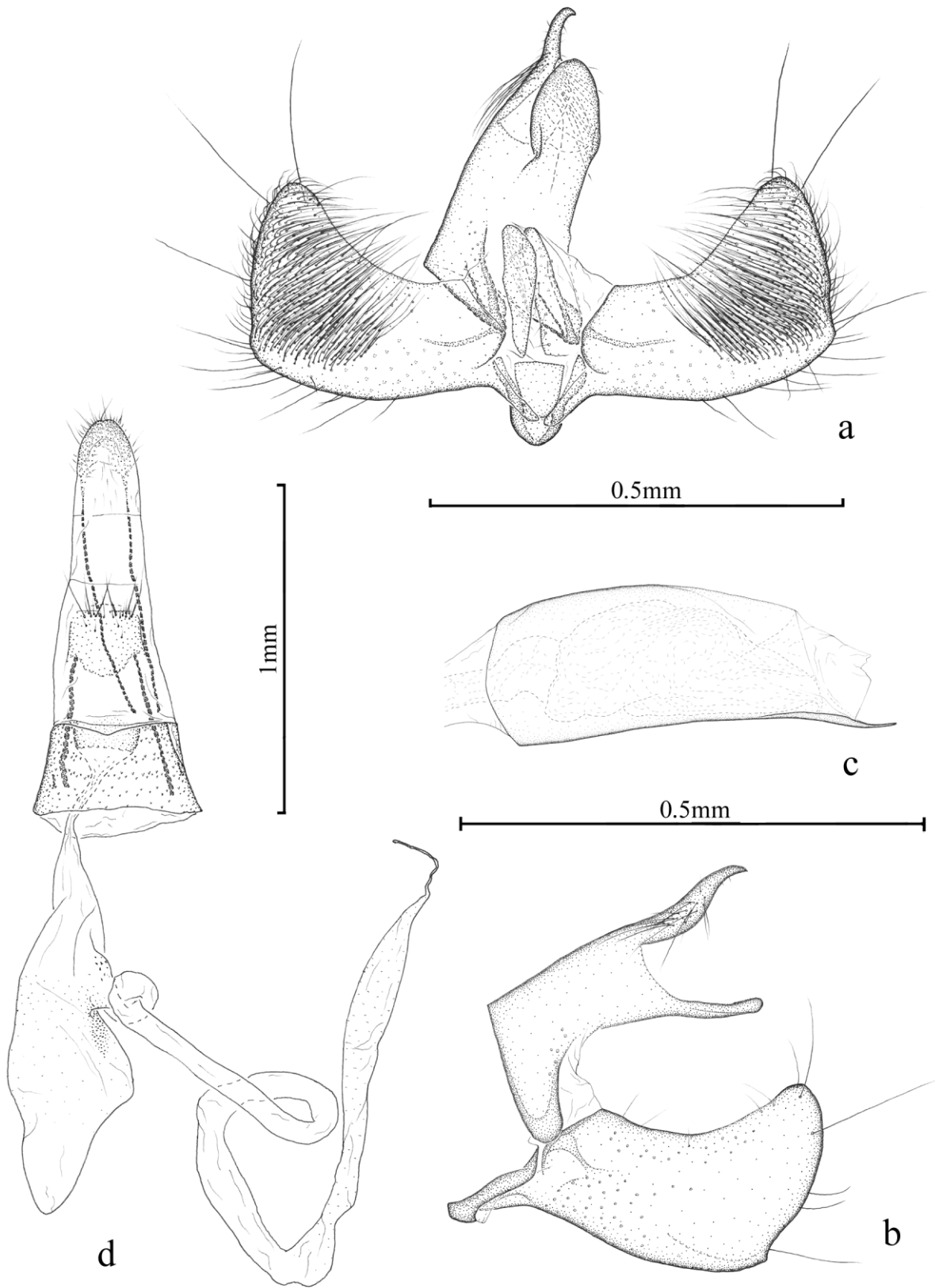


Plate XXXIV

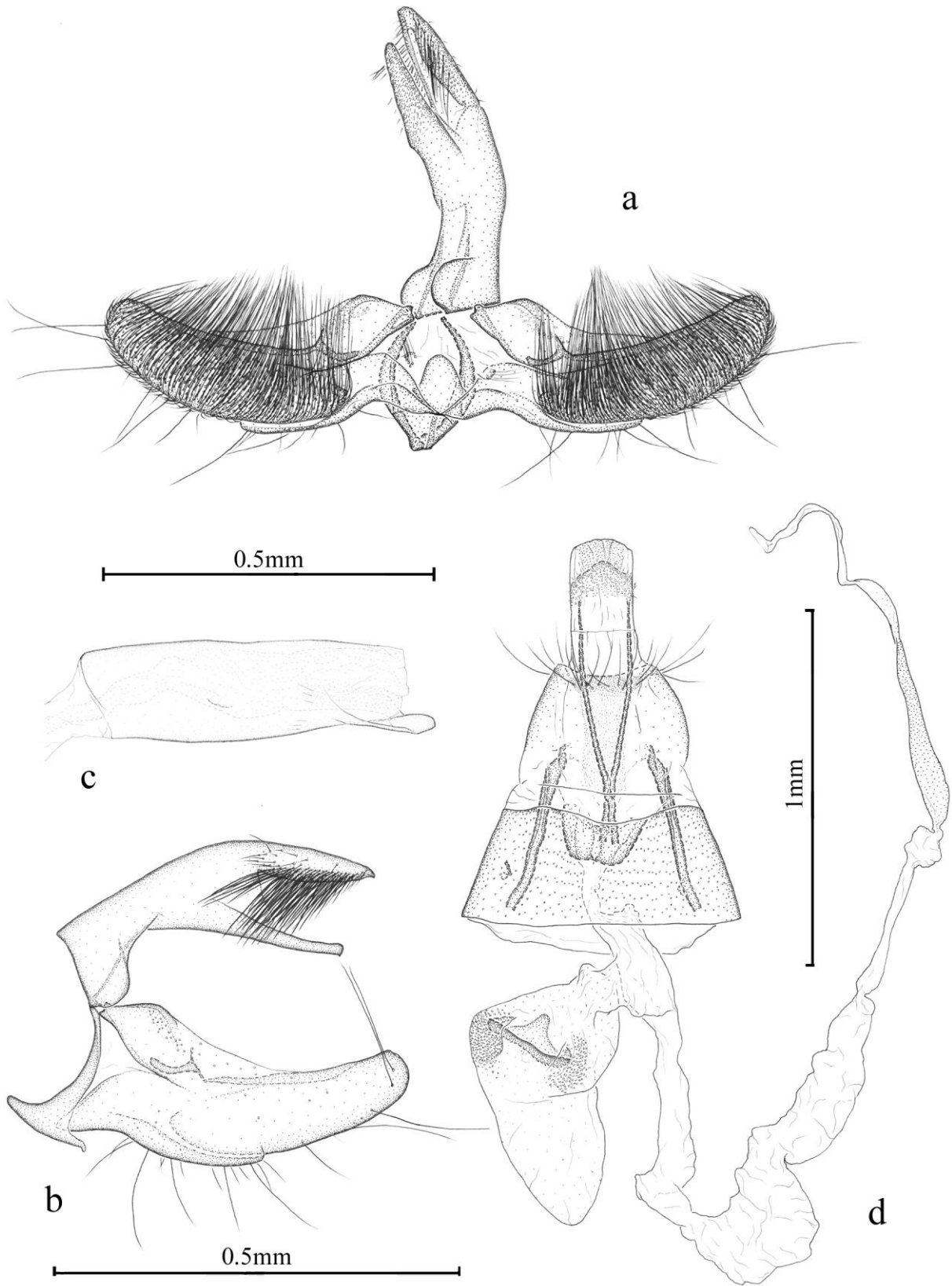


Plate XXXV

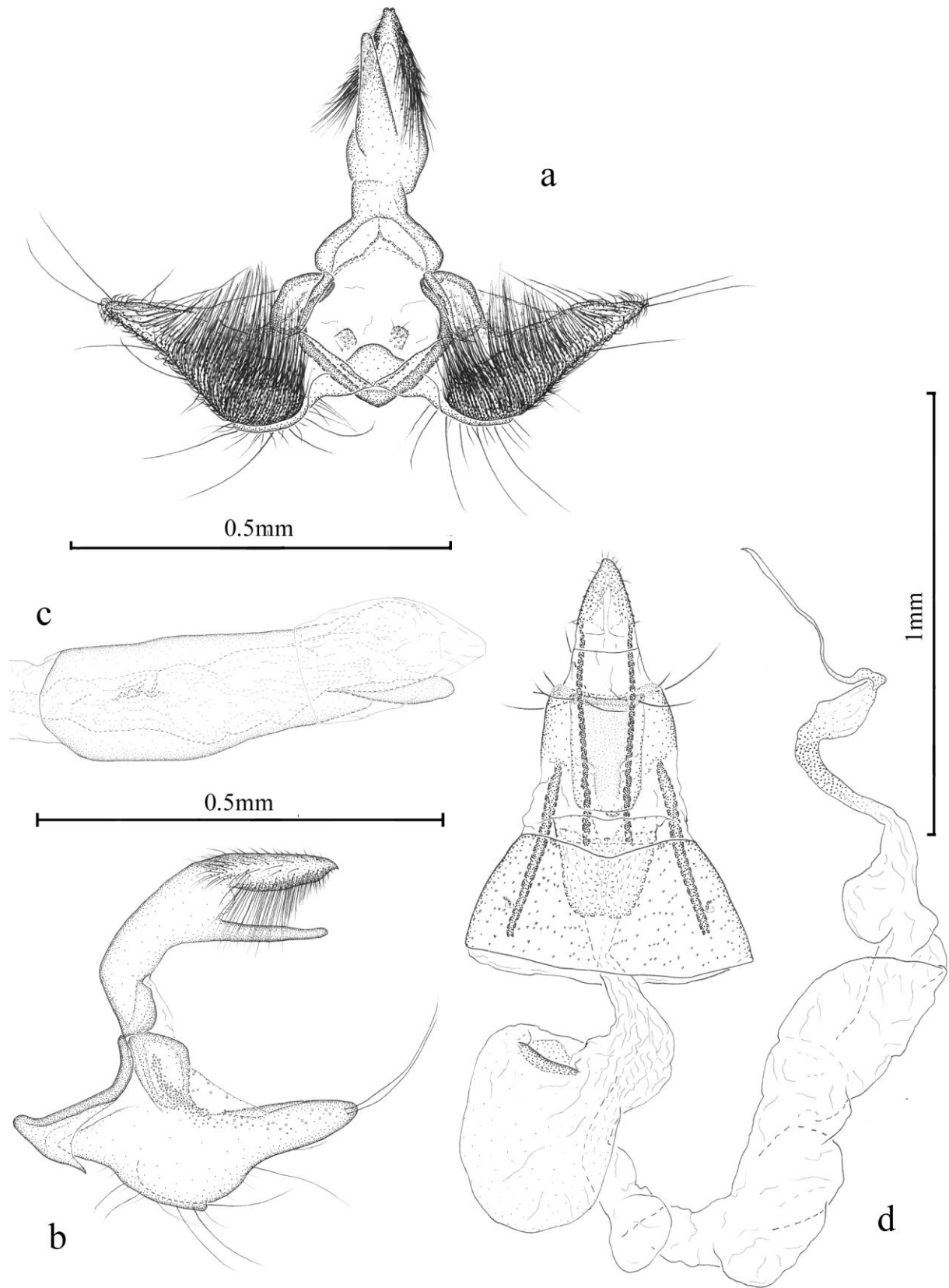


Plate XXXVI

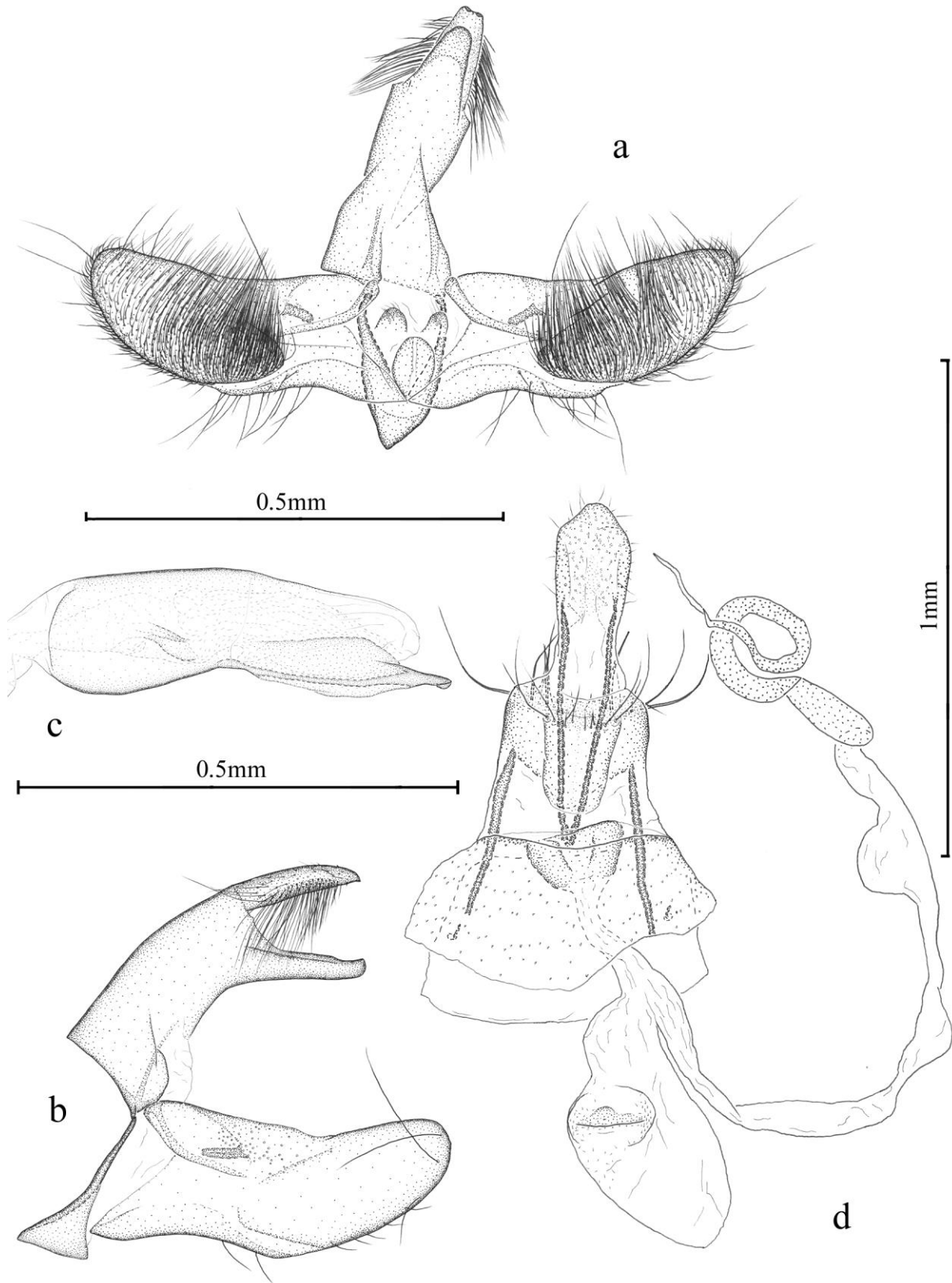


Plate XXXVII

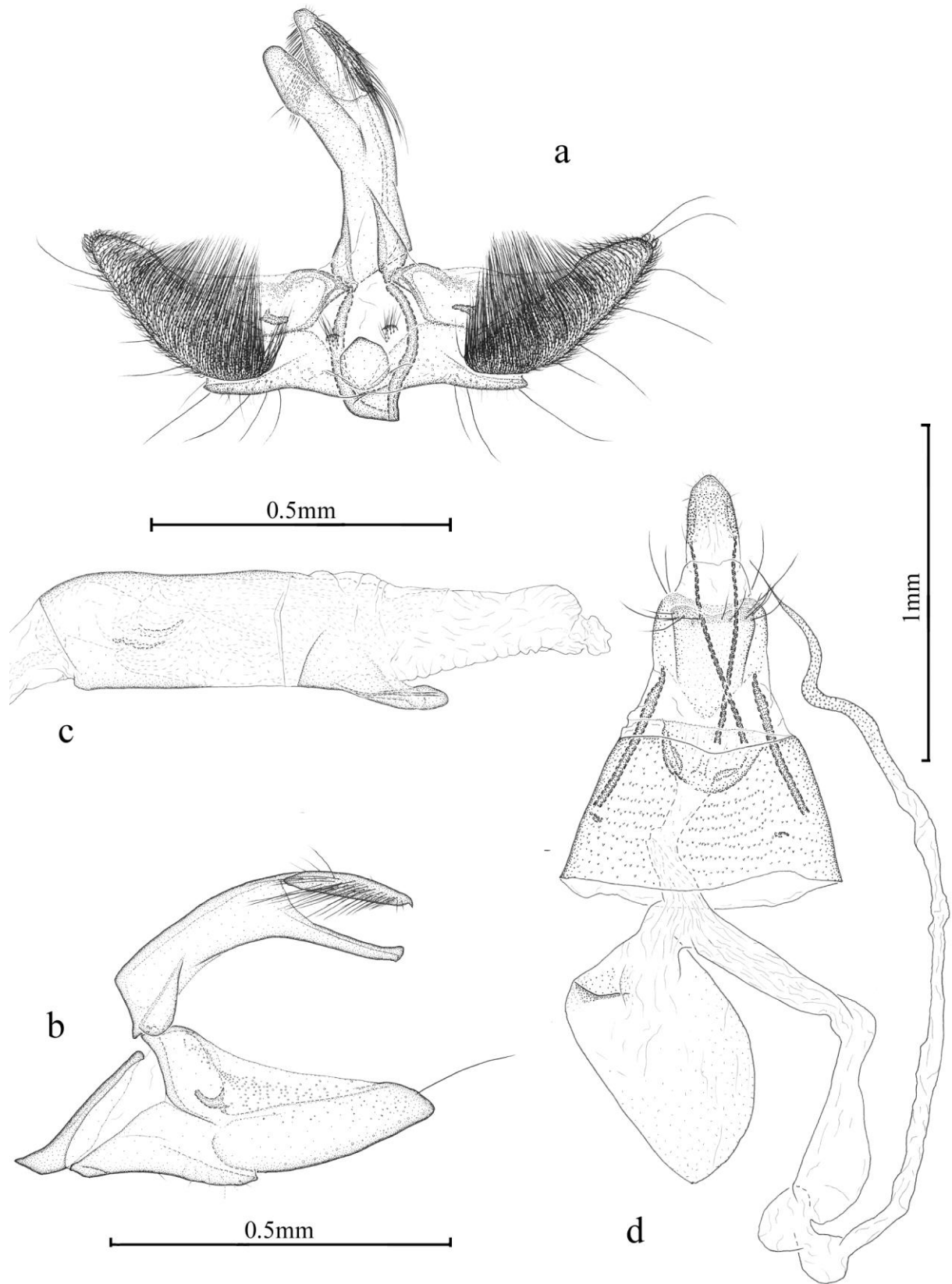


Plate XXXVIII

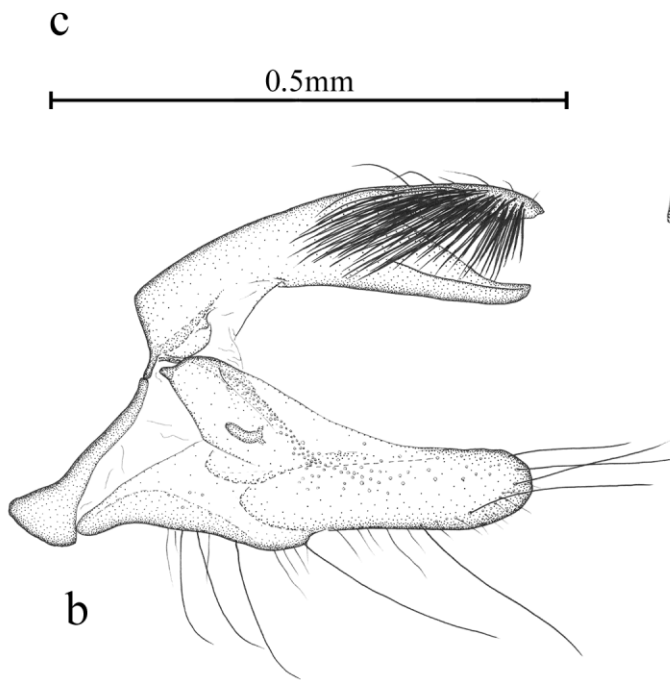
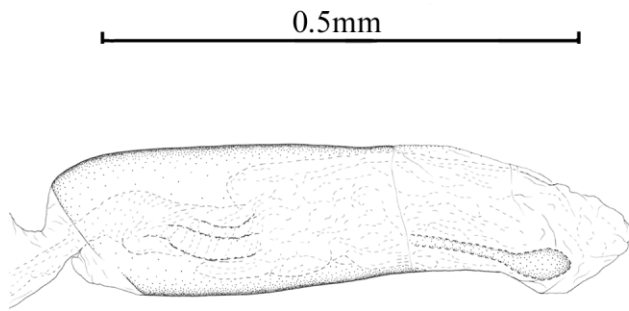
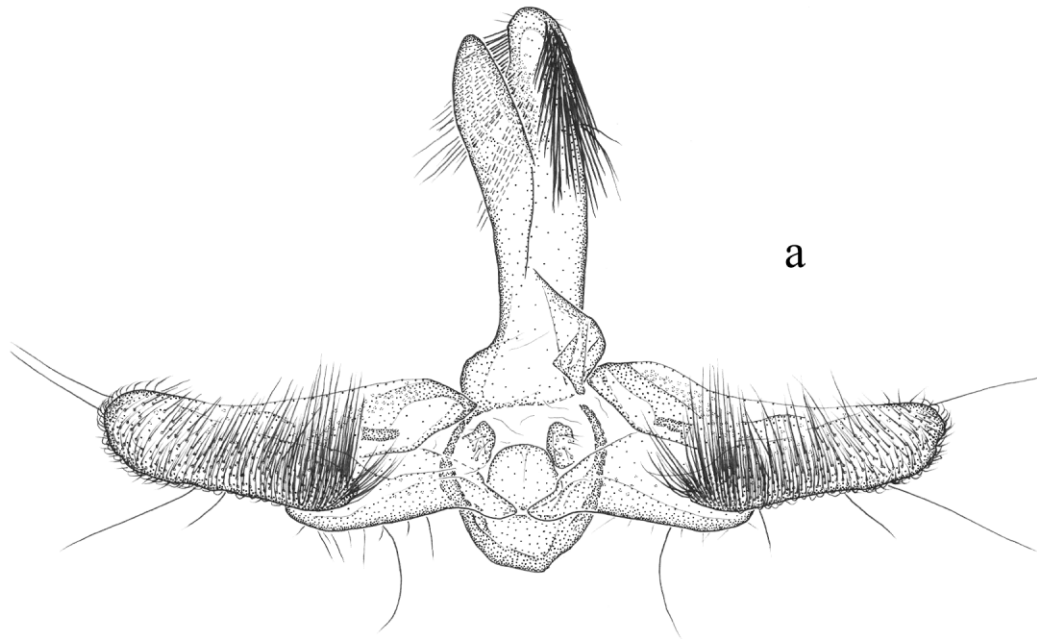


Plate XXXIX

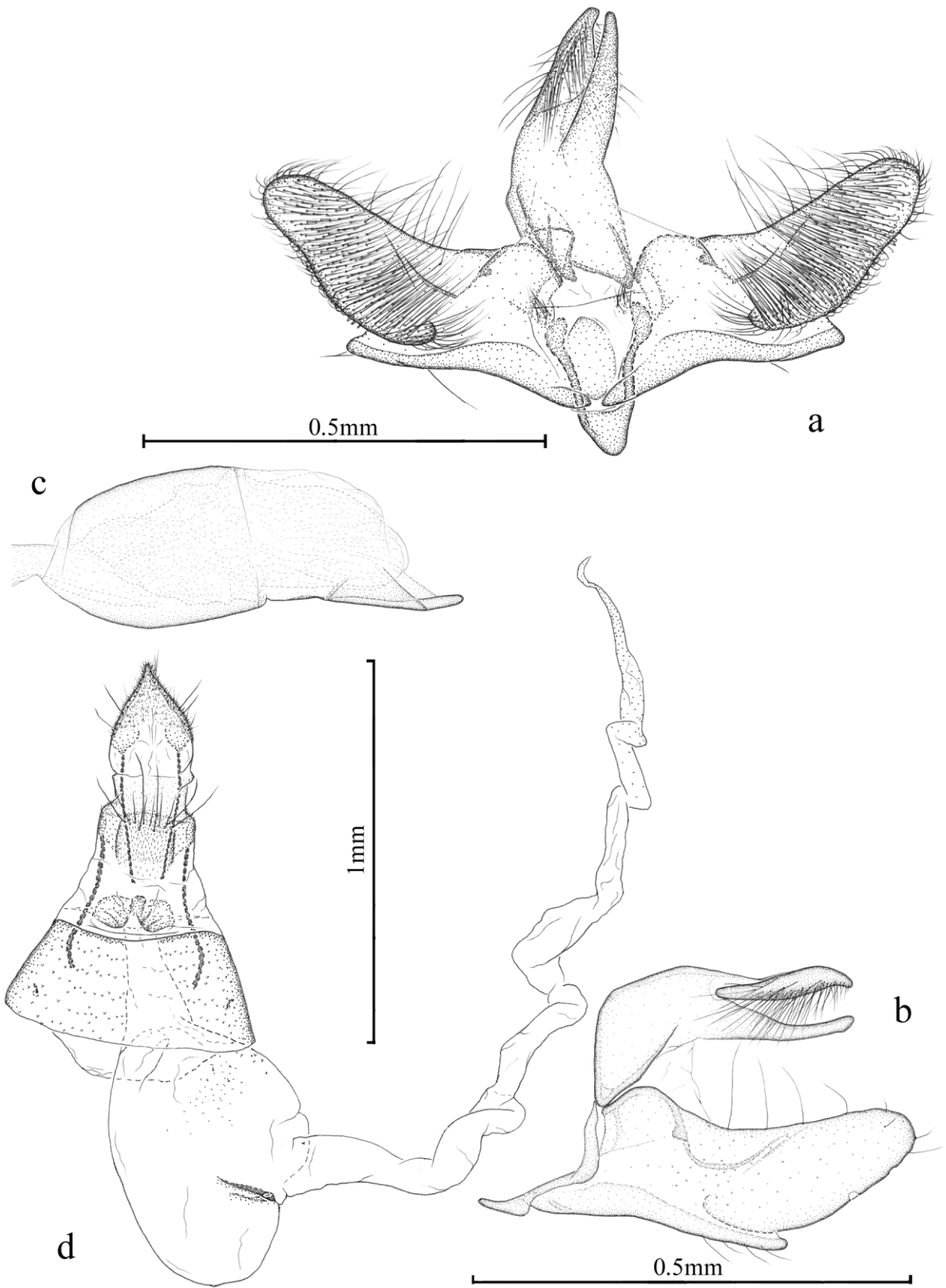


Plate XL

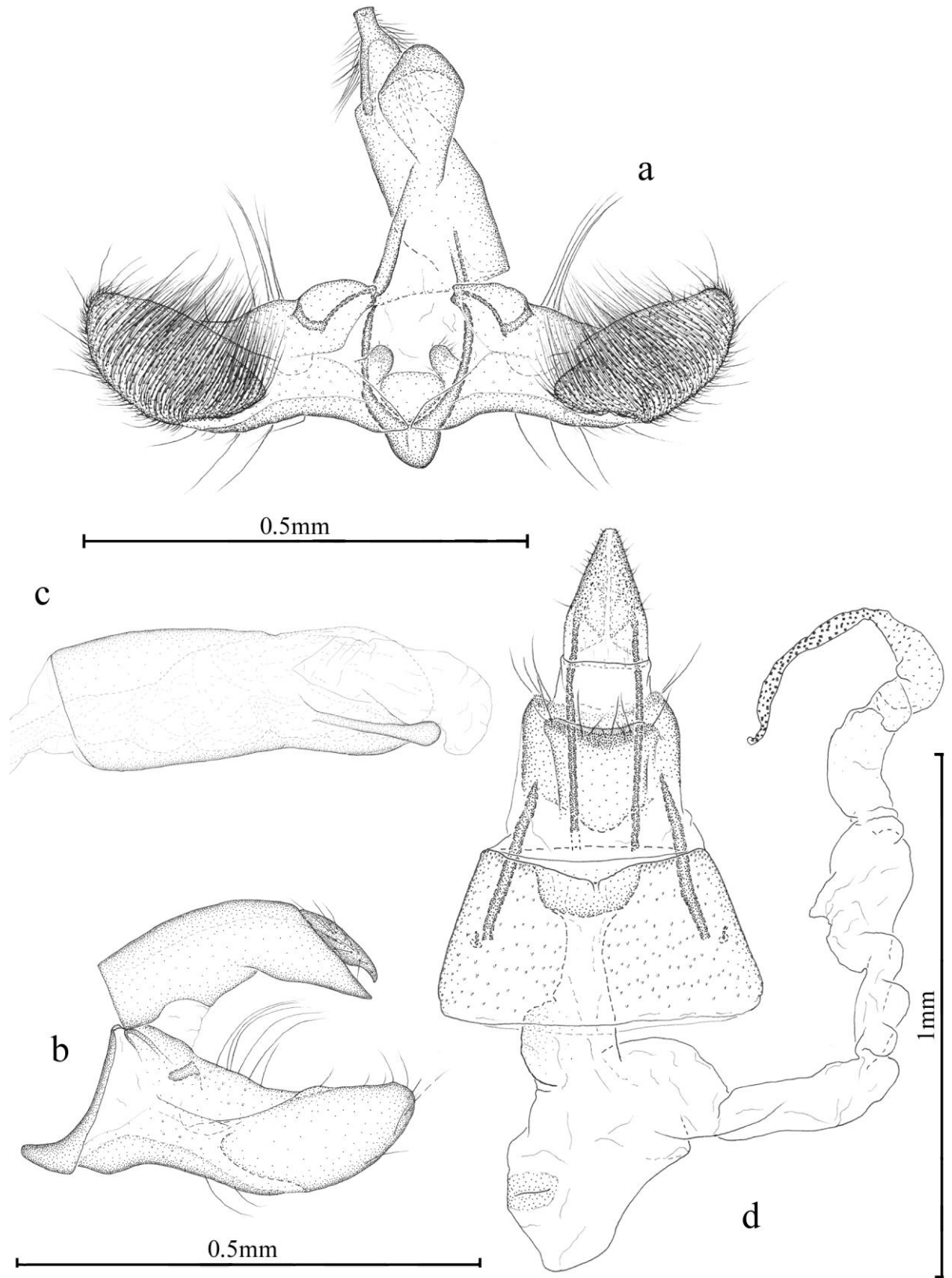


Plate XLI

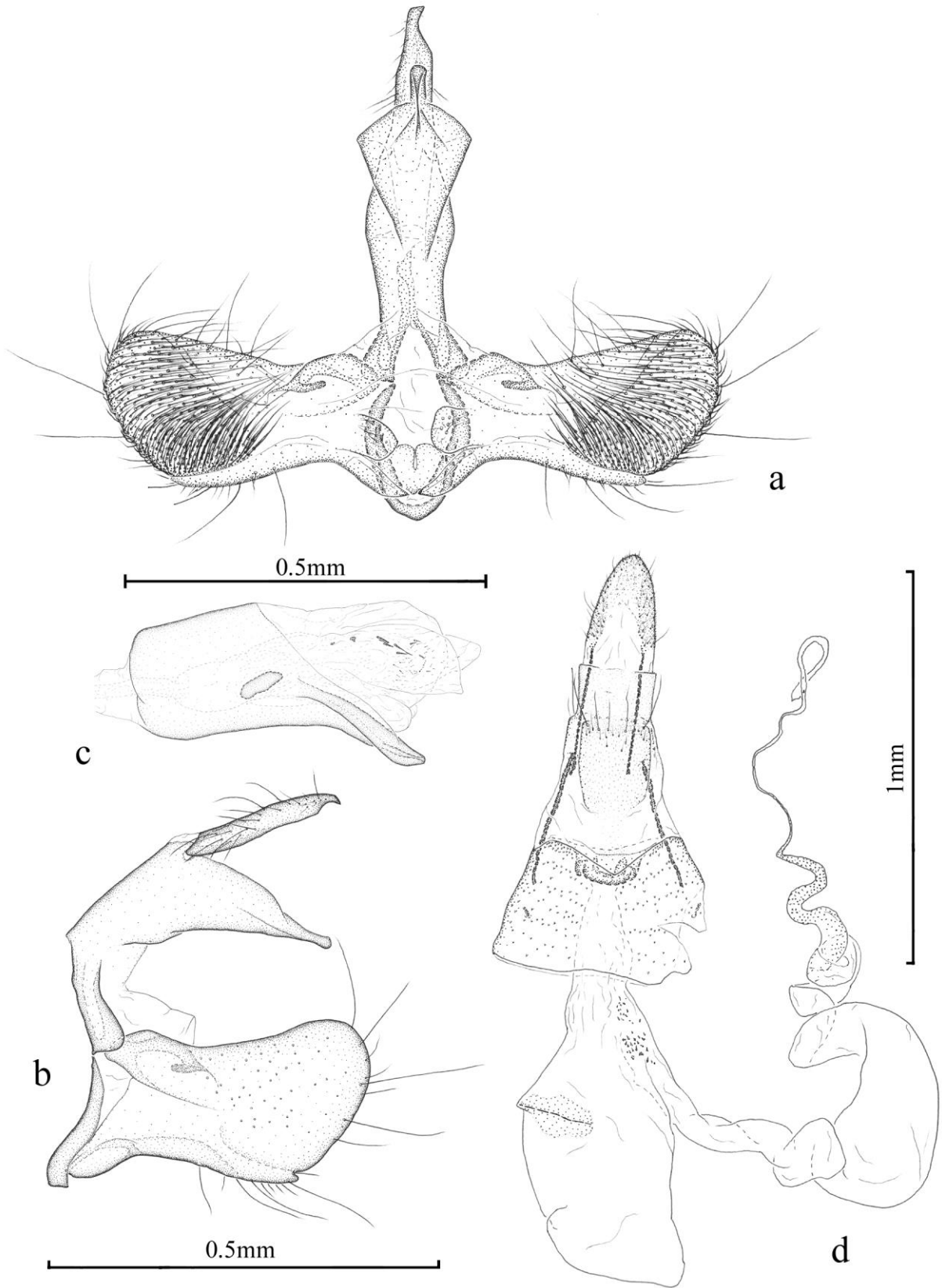


Plate XLII

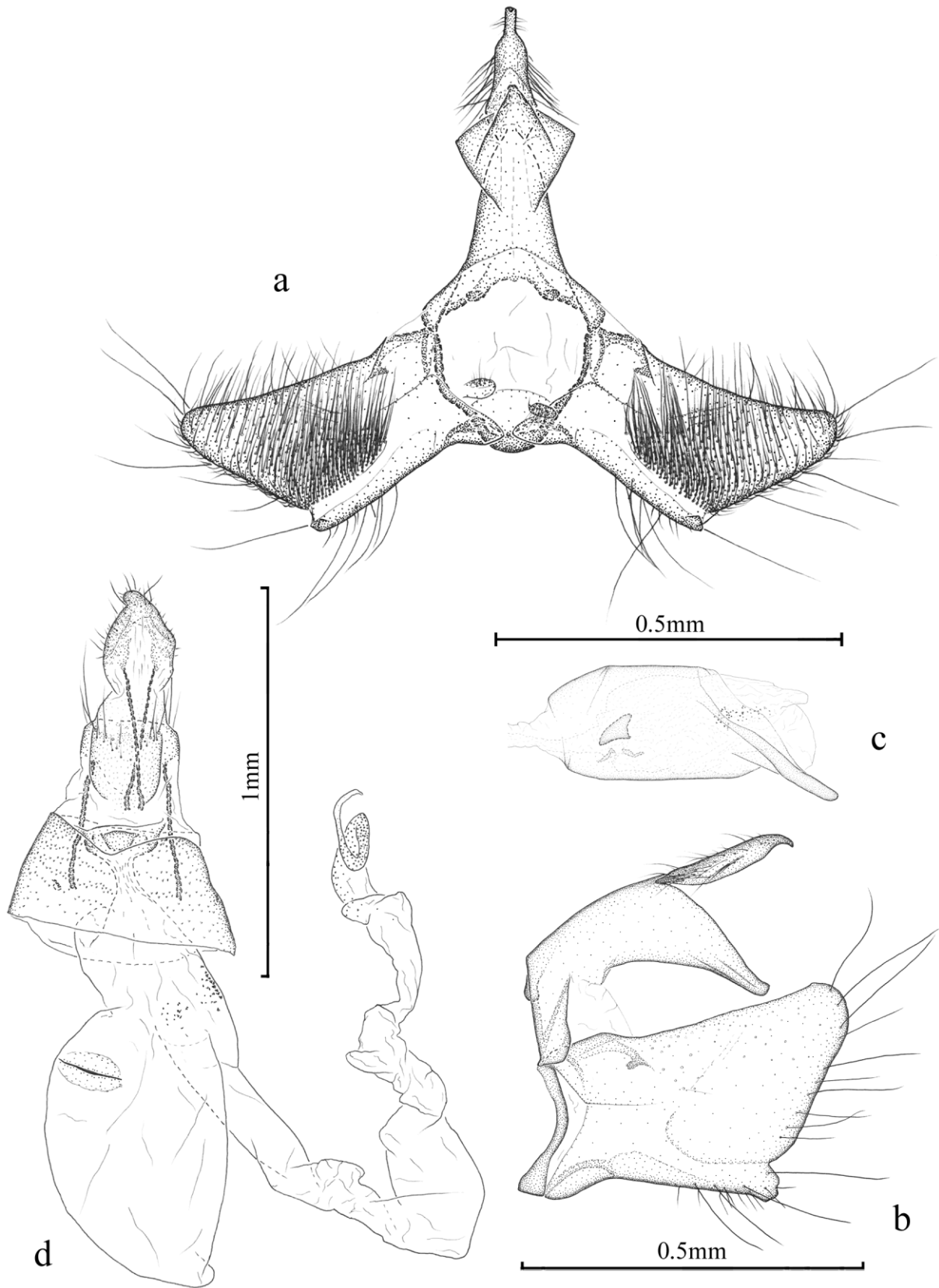


Plate XLIII

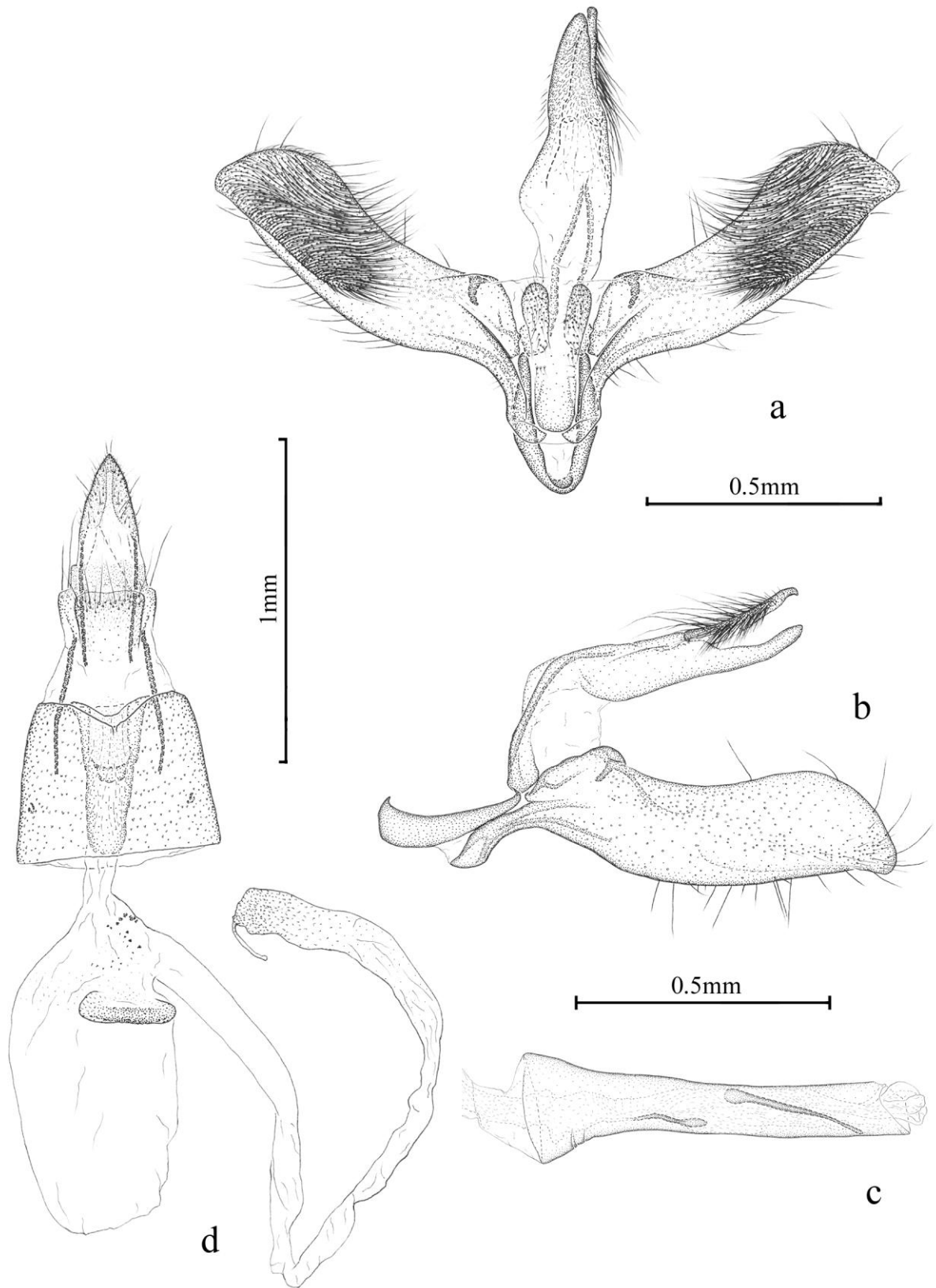


Plate XLIV

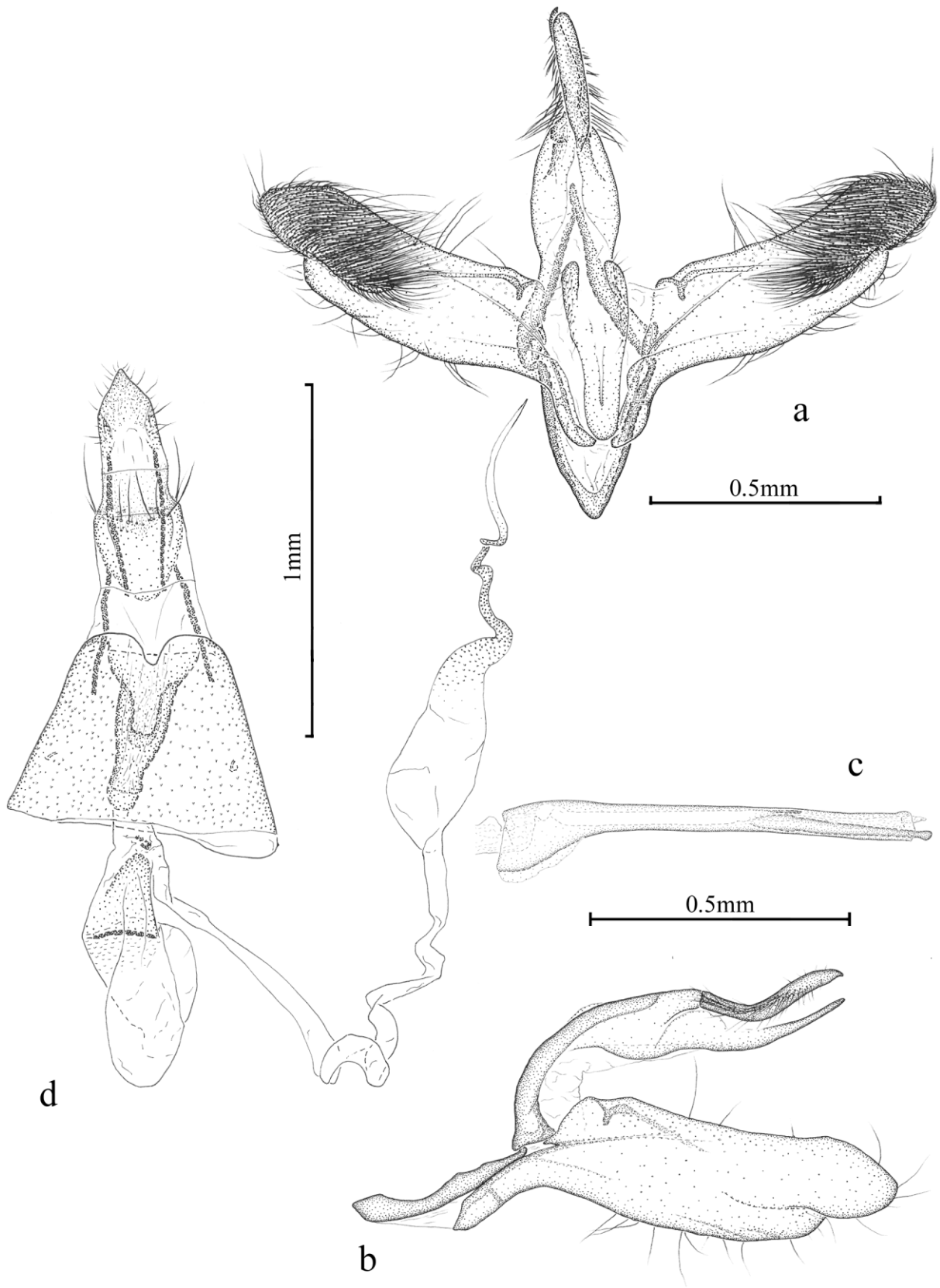
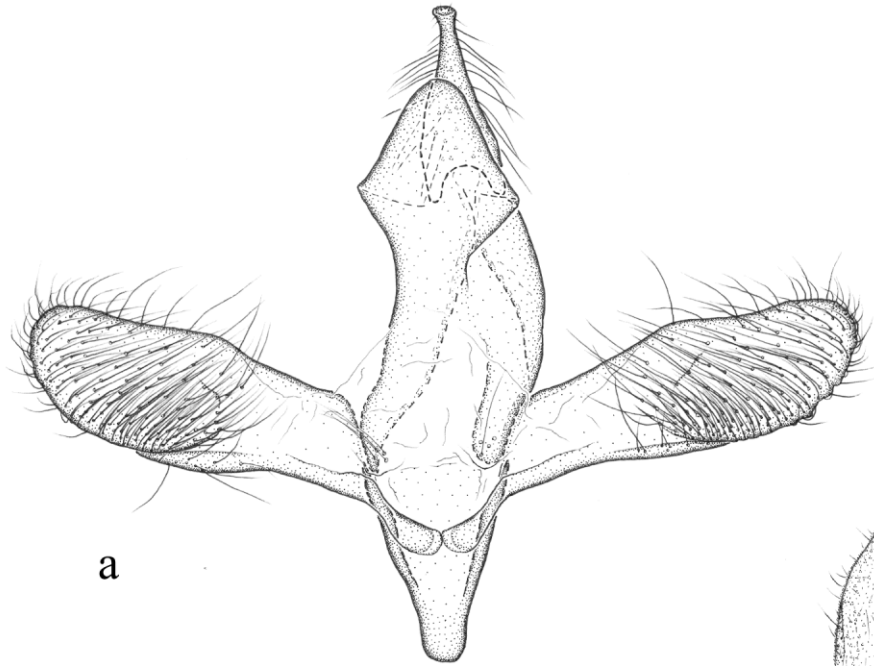
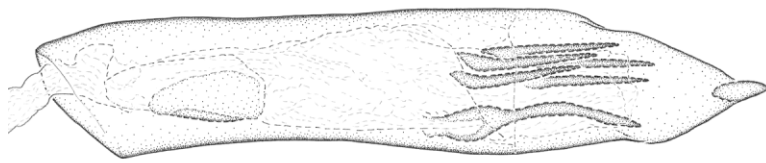


Plate XLV



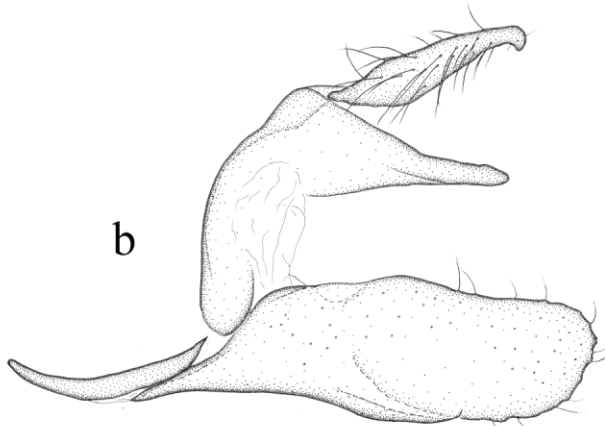
a

0.5mm



c

0.5mm



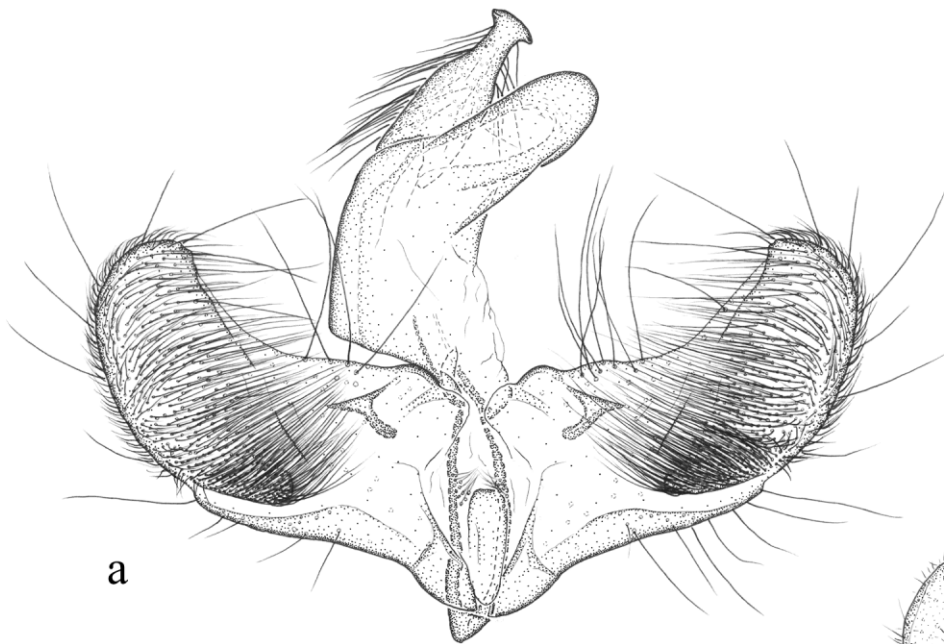
b



1mm

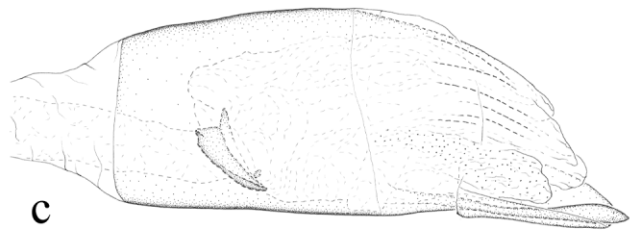
d

Plate XLVI



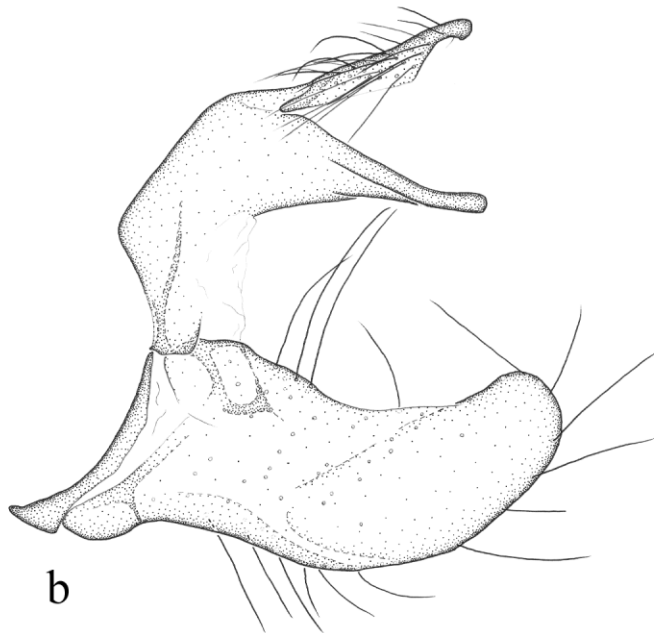
a

0.5mm

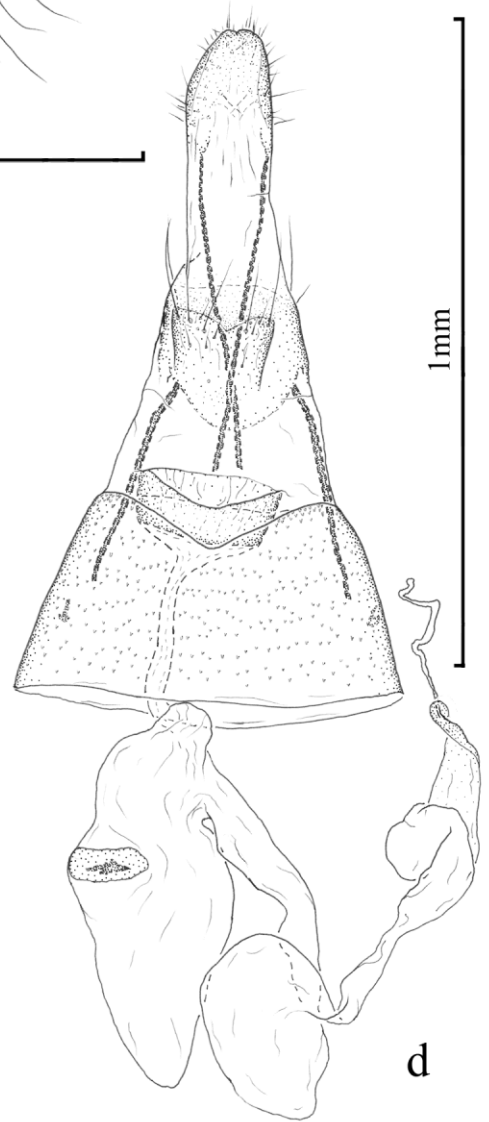


c

0.5mm



b



d

1mm

Plate XLVII

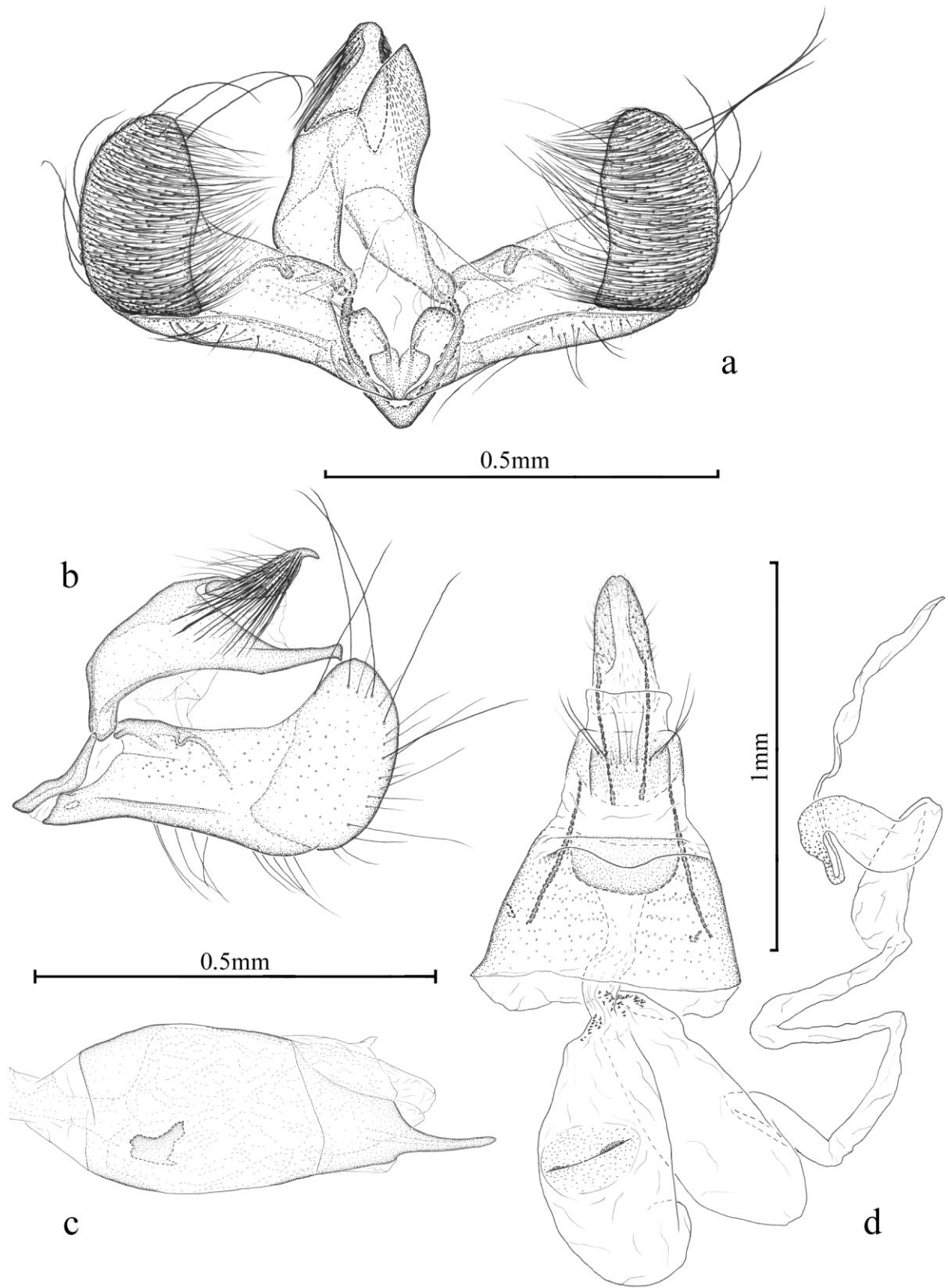


Plate XLVIII

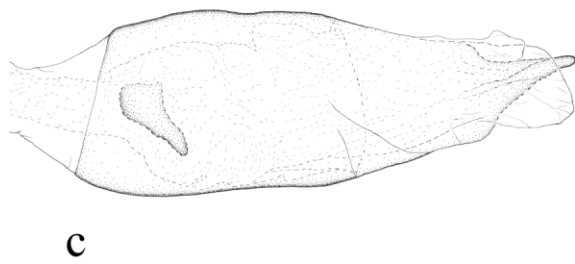
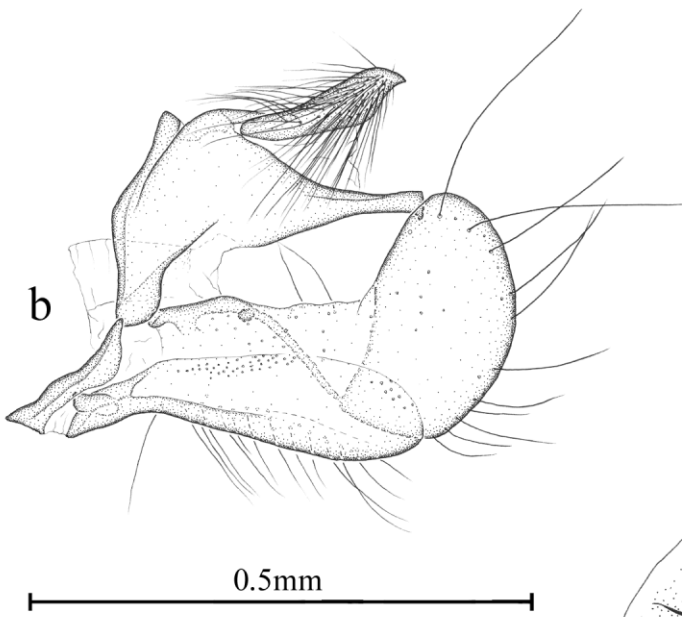
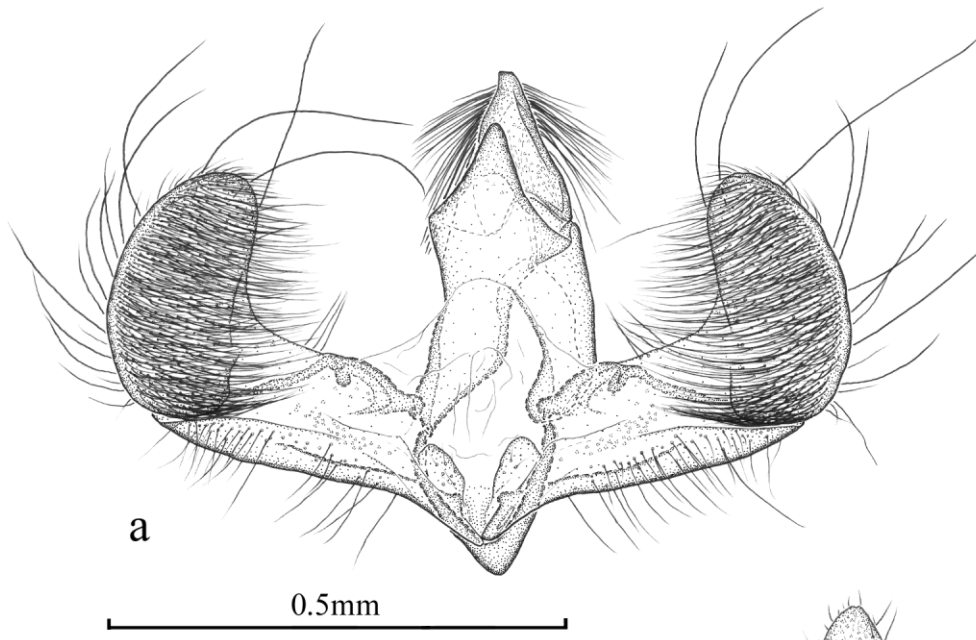


Plate XLIX

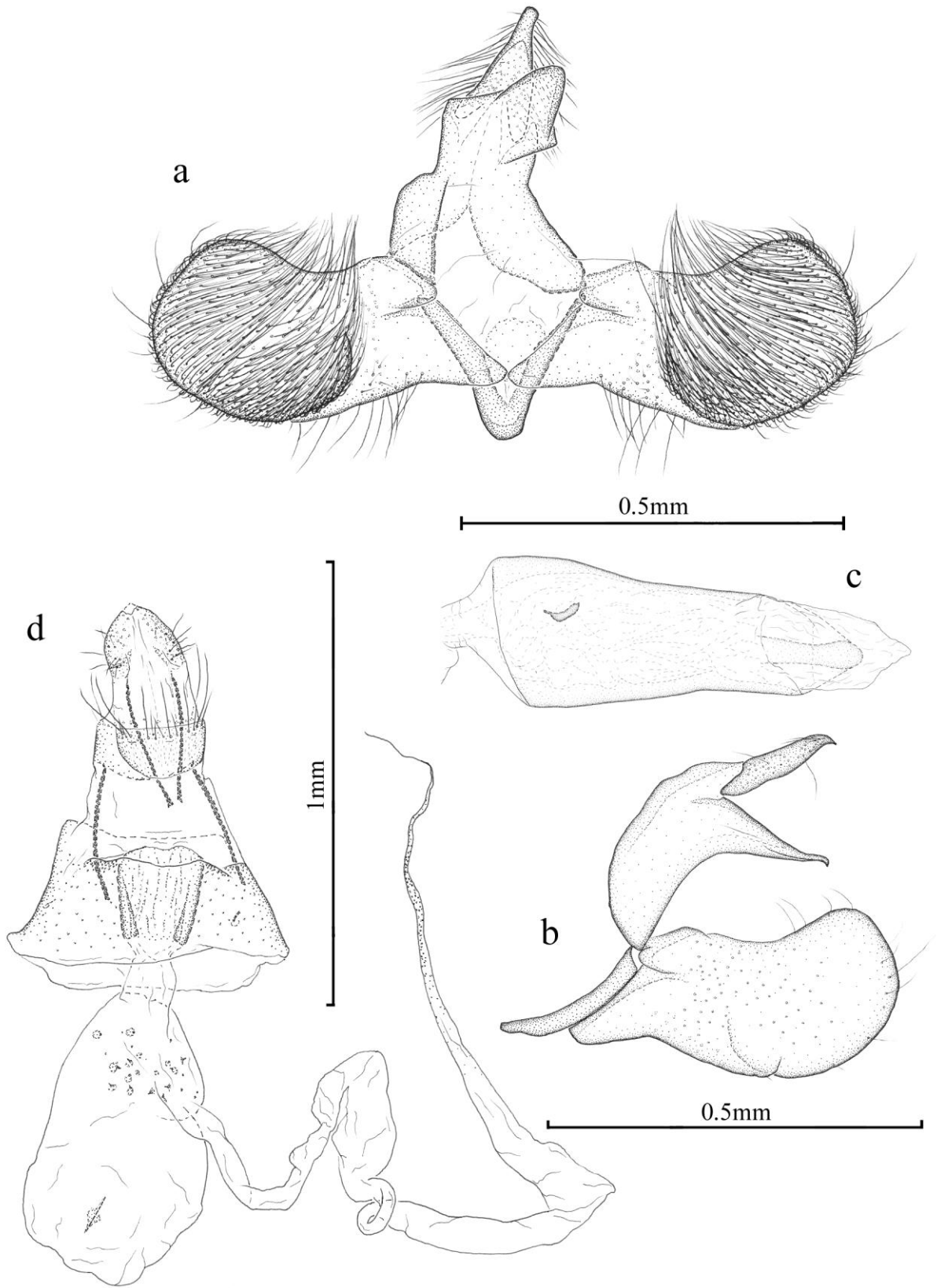


Plate L

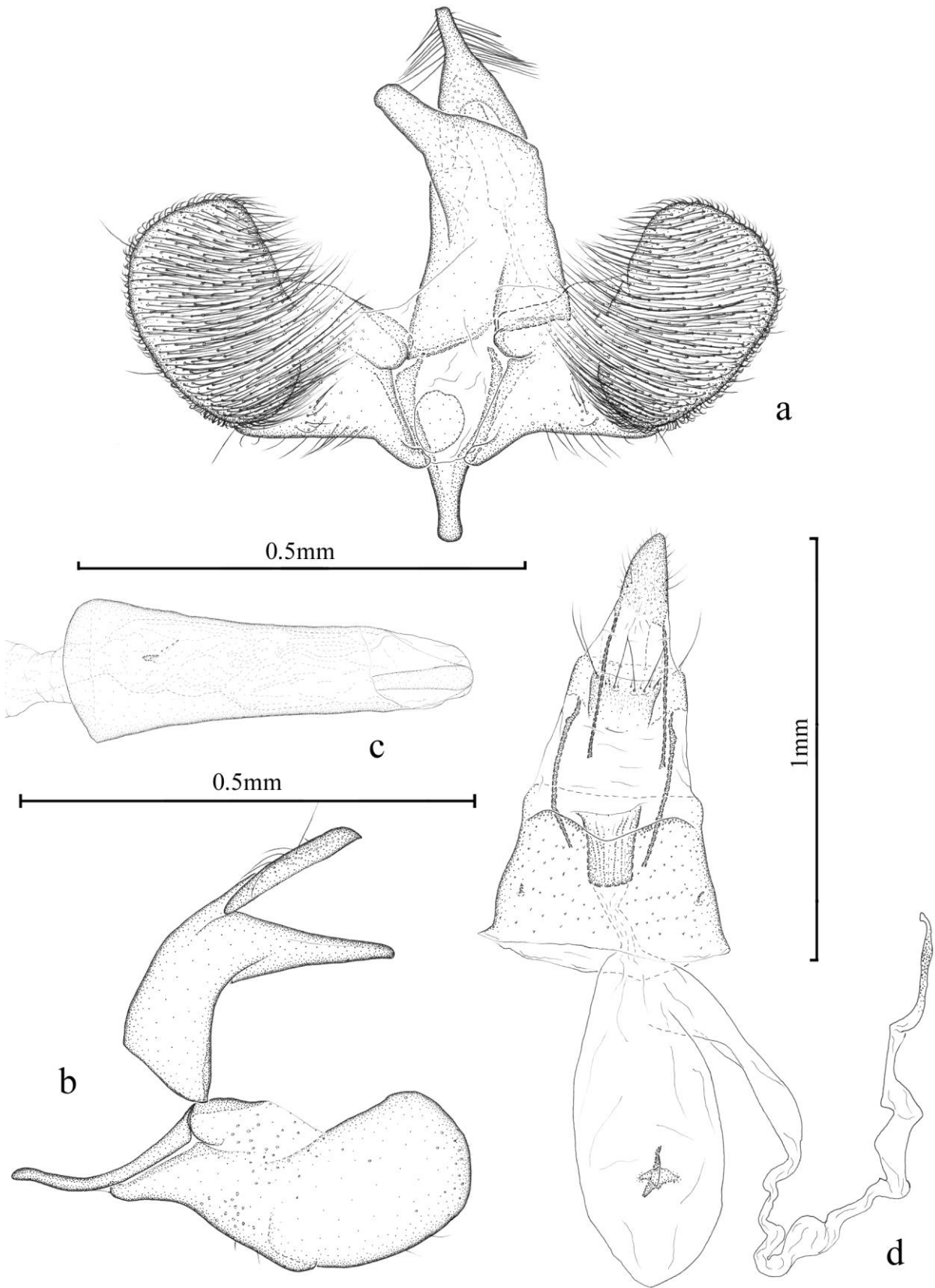
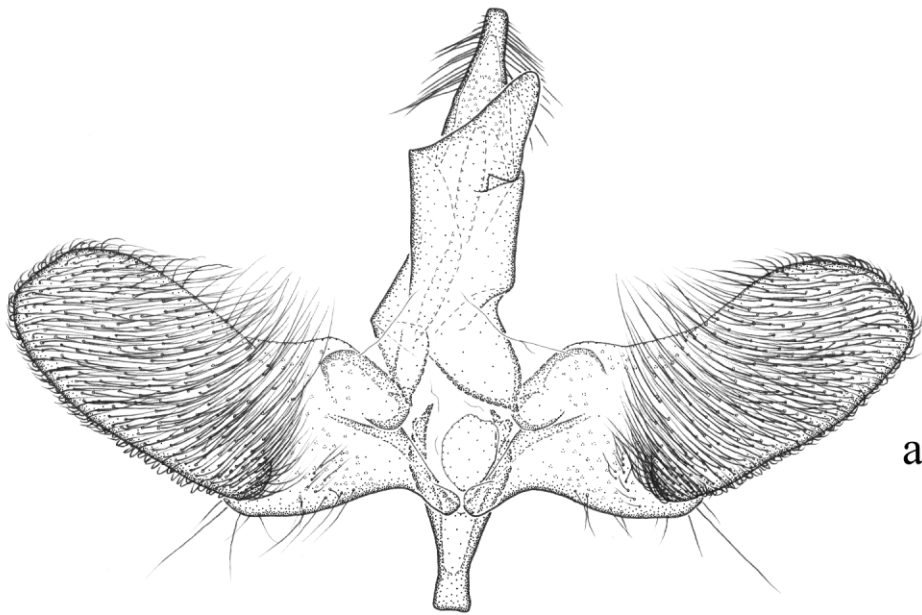
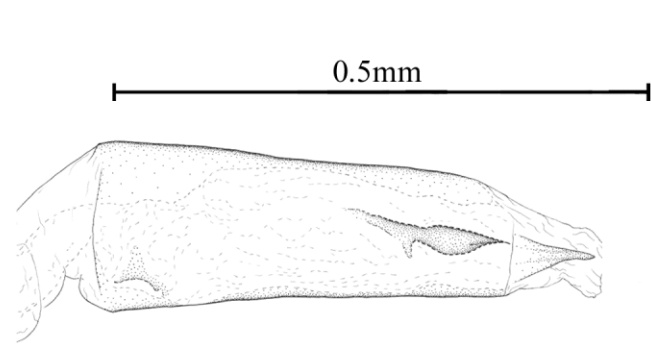


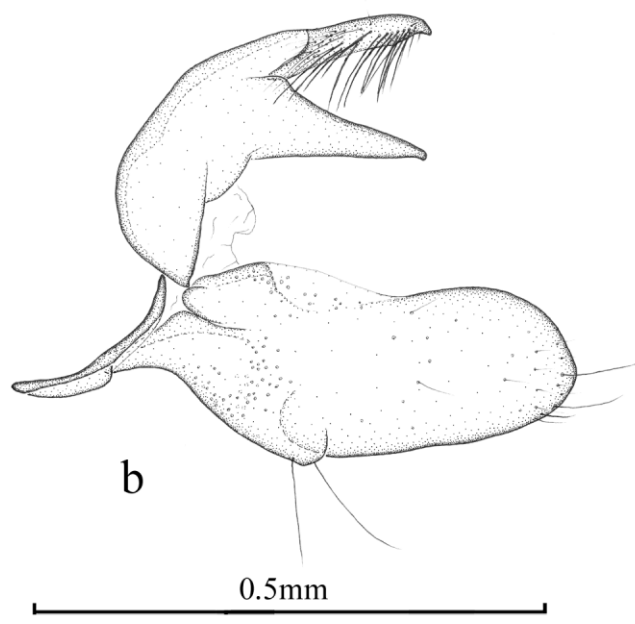
Plate LI



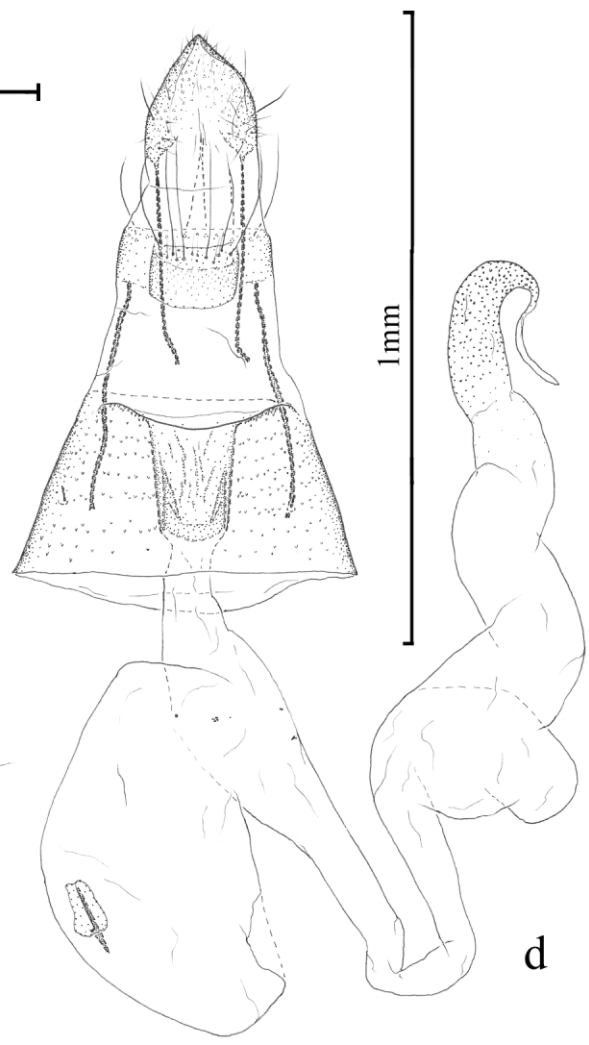
a



c



b



d

Plate LII

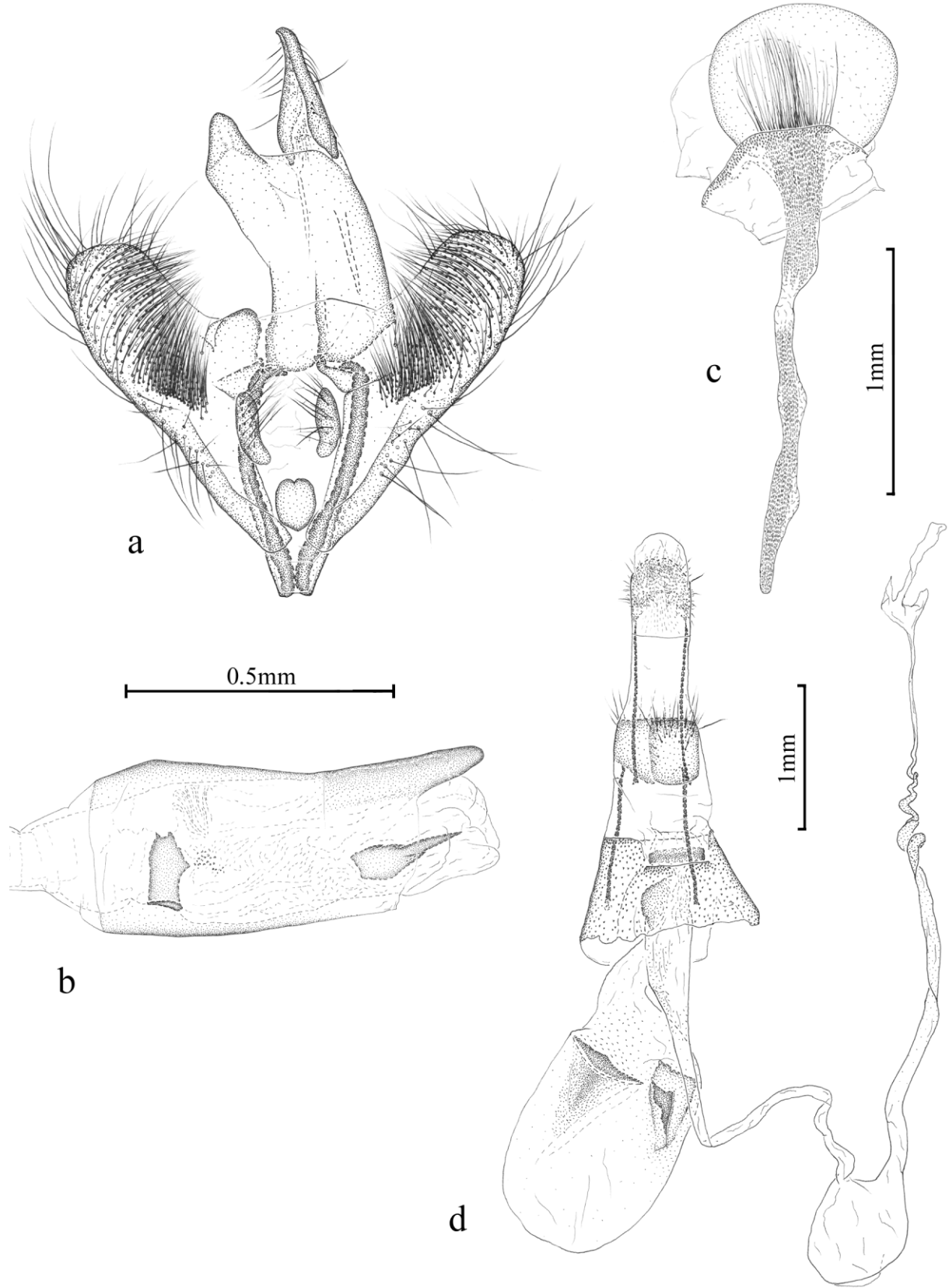


Plate LIII

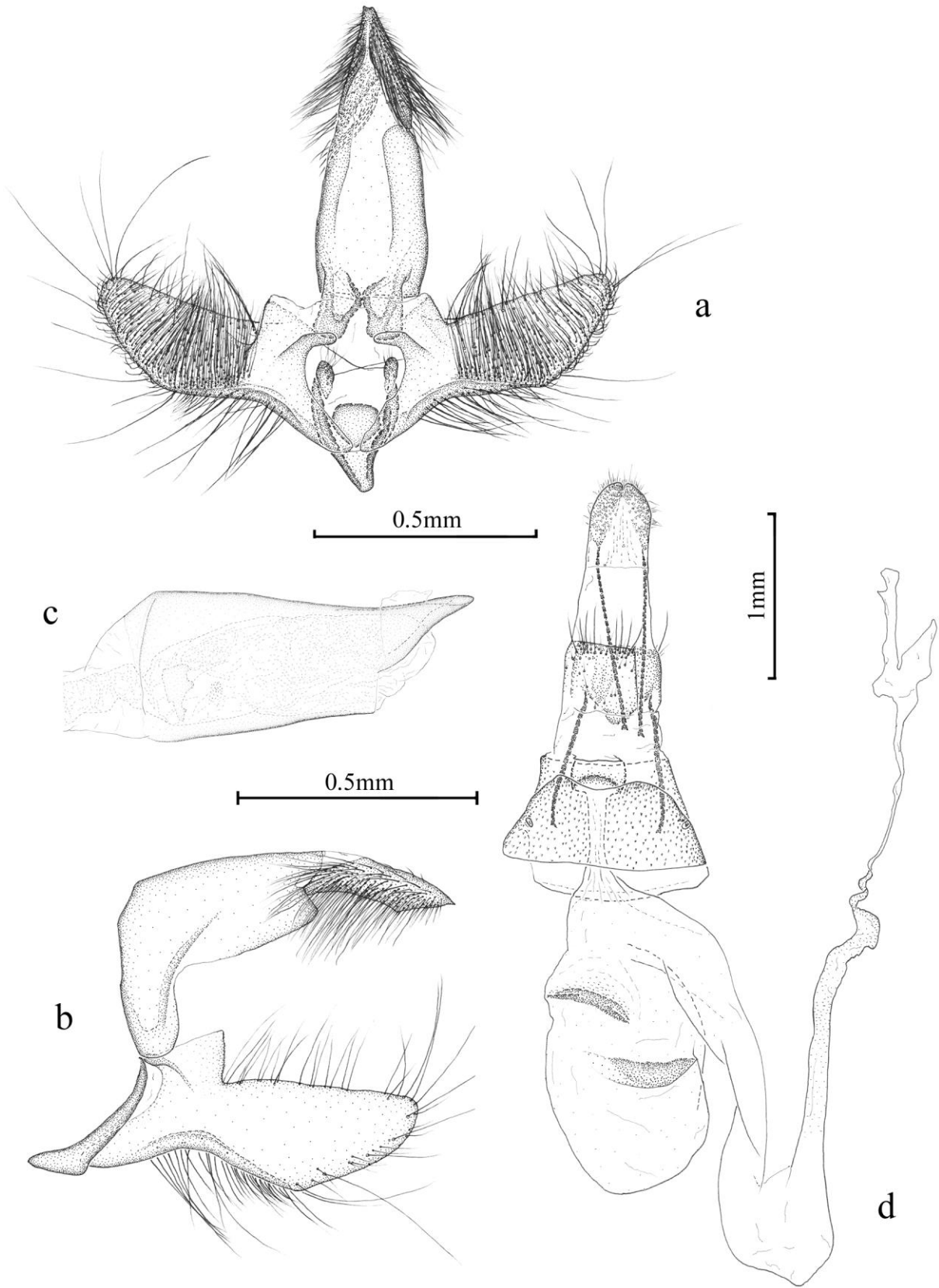


Plate LIV

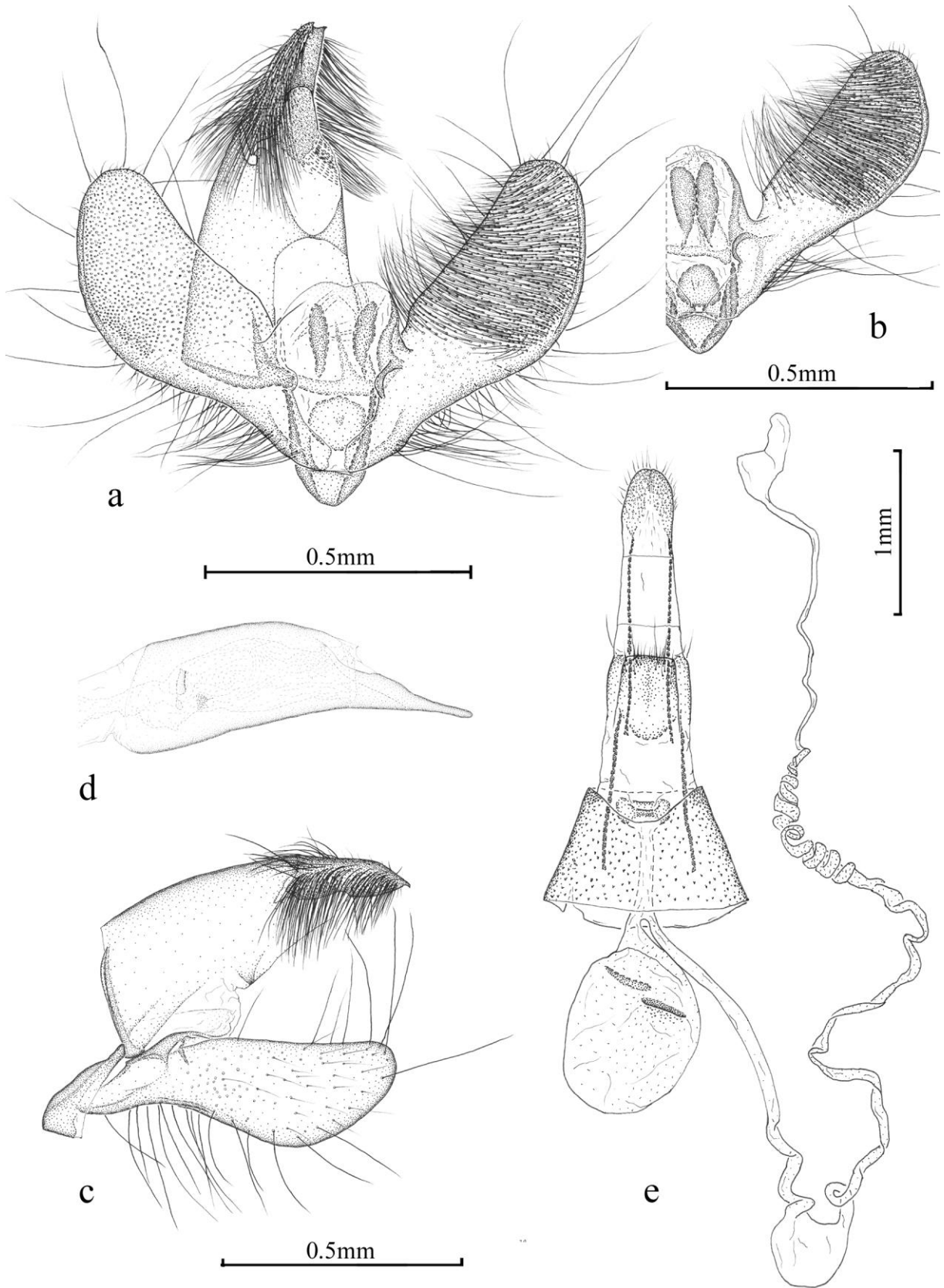


Plate LV

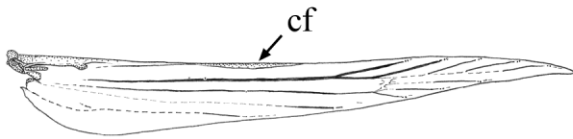


1mm

a



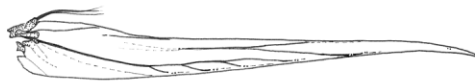
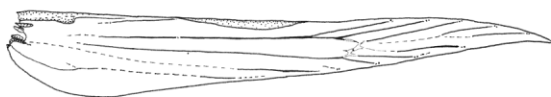
b



c



d

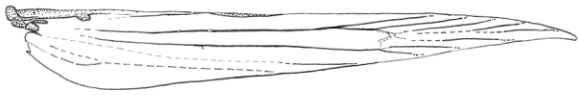


e



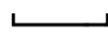
f

Plate LVI

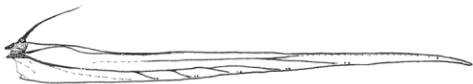
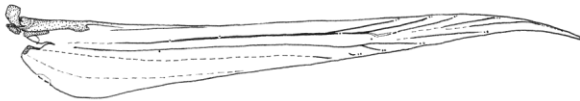


1mm

a



b



c



d



e

Plate LVII

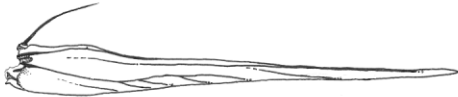


1mm

a



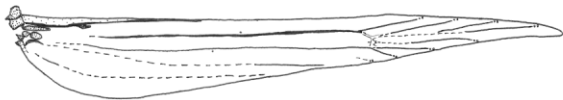
b



c

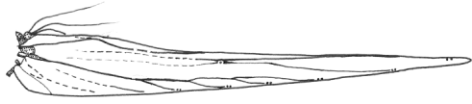


d



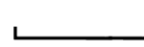
e

Plate LVIII

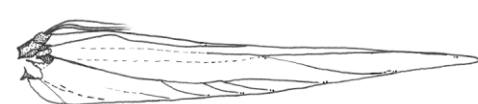


1mm

a



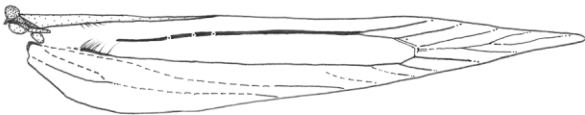
b



c

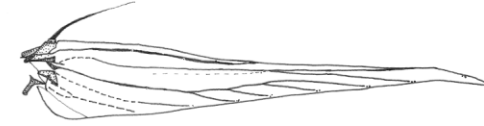
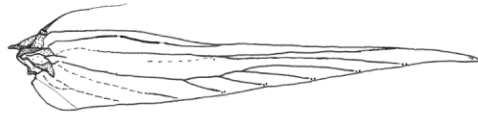


d

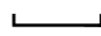


e

Plate LIX



a



b



c



d

Plate LX

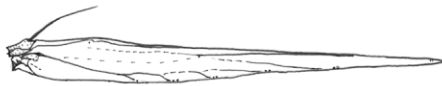


1mm

a



b

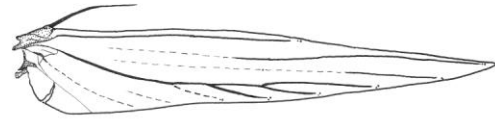
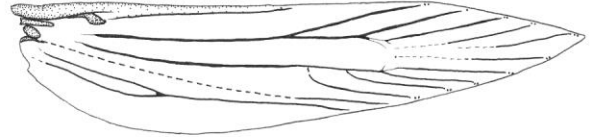
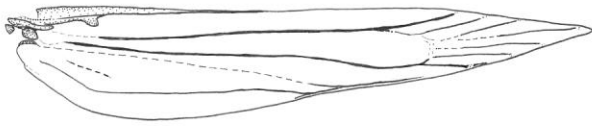


c



d

Plate LXI

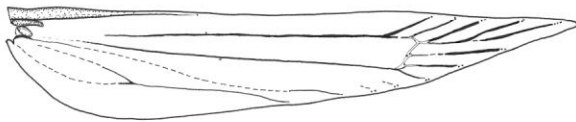


1mm

a



b

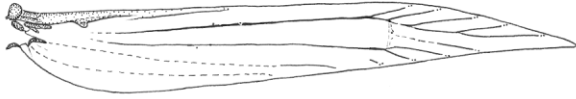


c

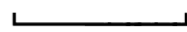
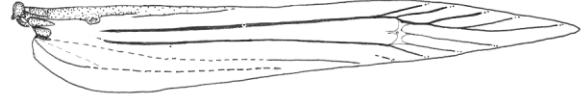


d

Plate LXII



a



b



c



d



e



f



g

Plate LXIII

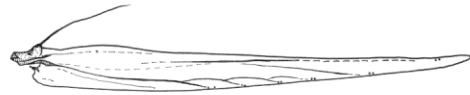


1mm

a



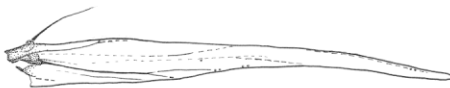
b



c



d

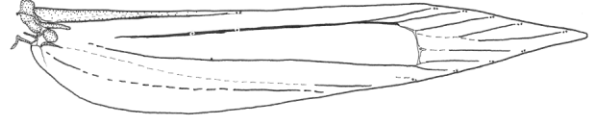
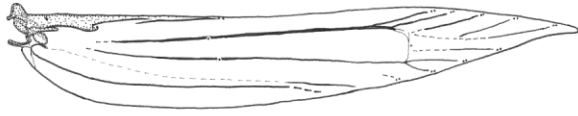


e



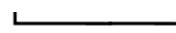
f

Plate LXIV

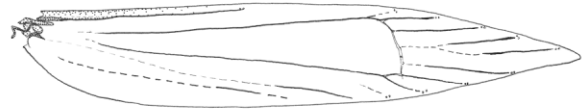
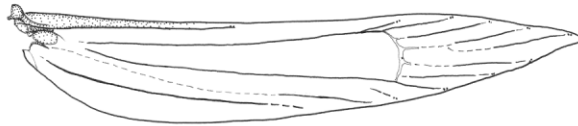


1mm

a



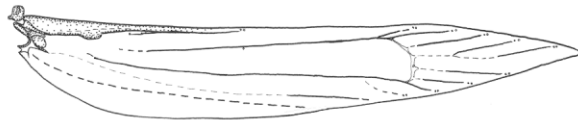
b



c

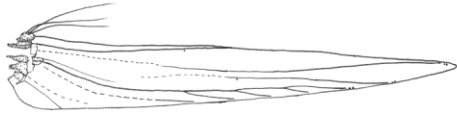
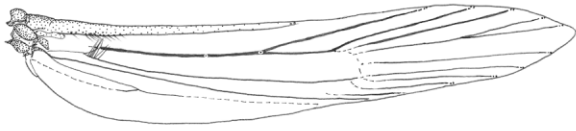


d



e

Plate LXV

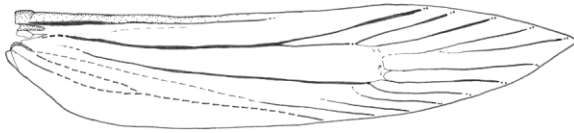


1mm

a



b



c



Plate LXVI

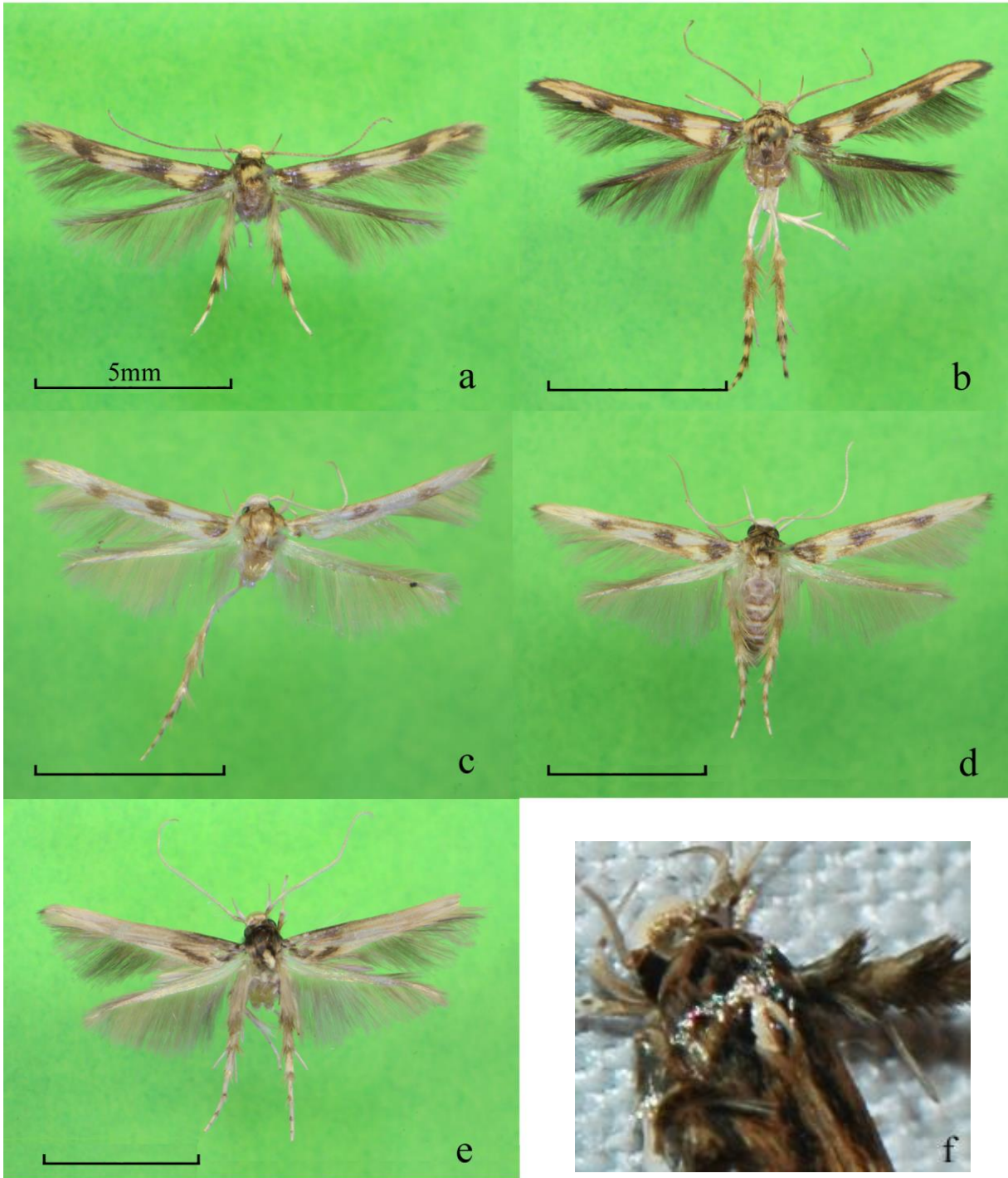


Plate LXVII

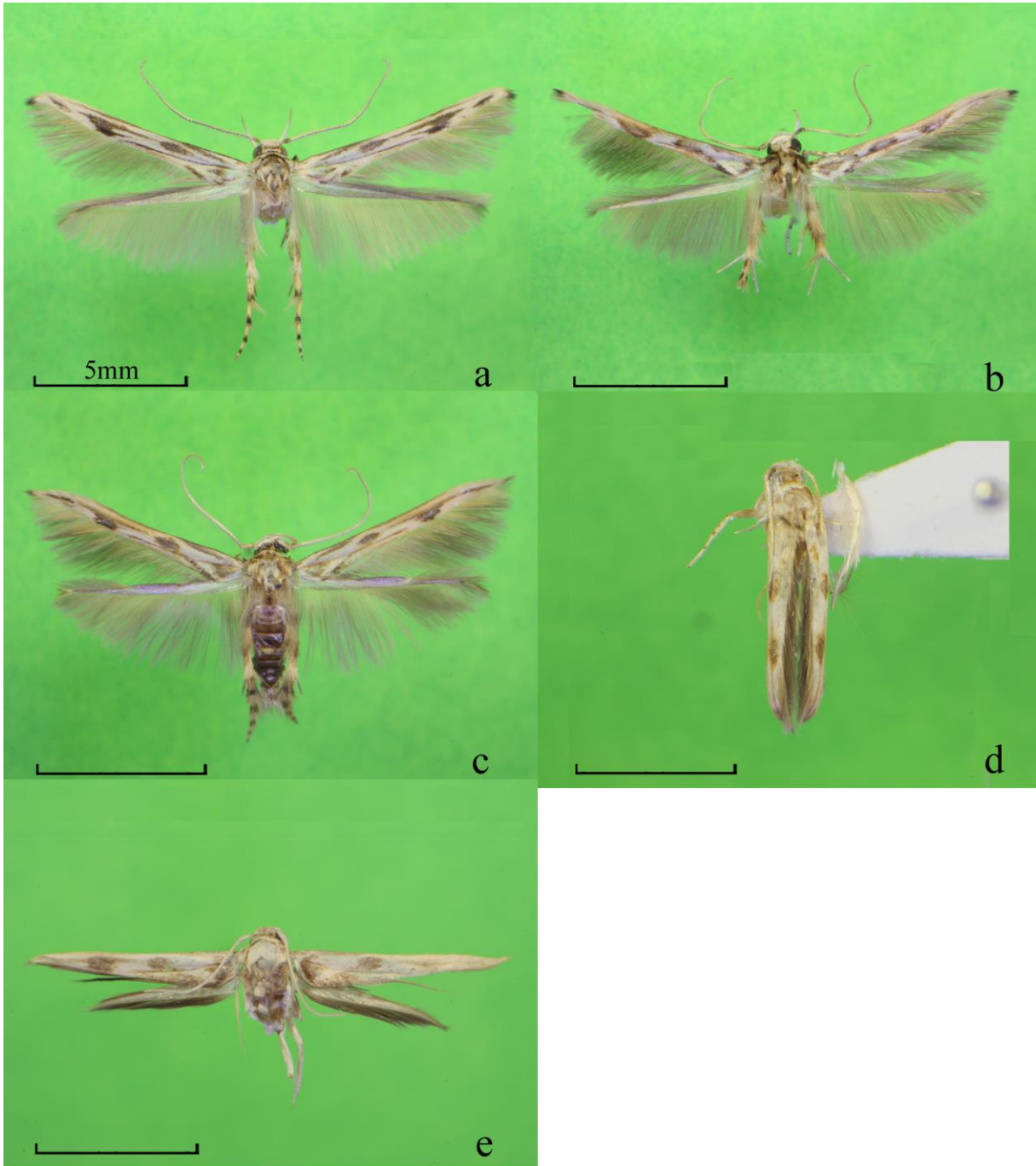


Plate LXVIII

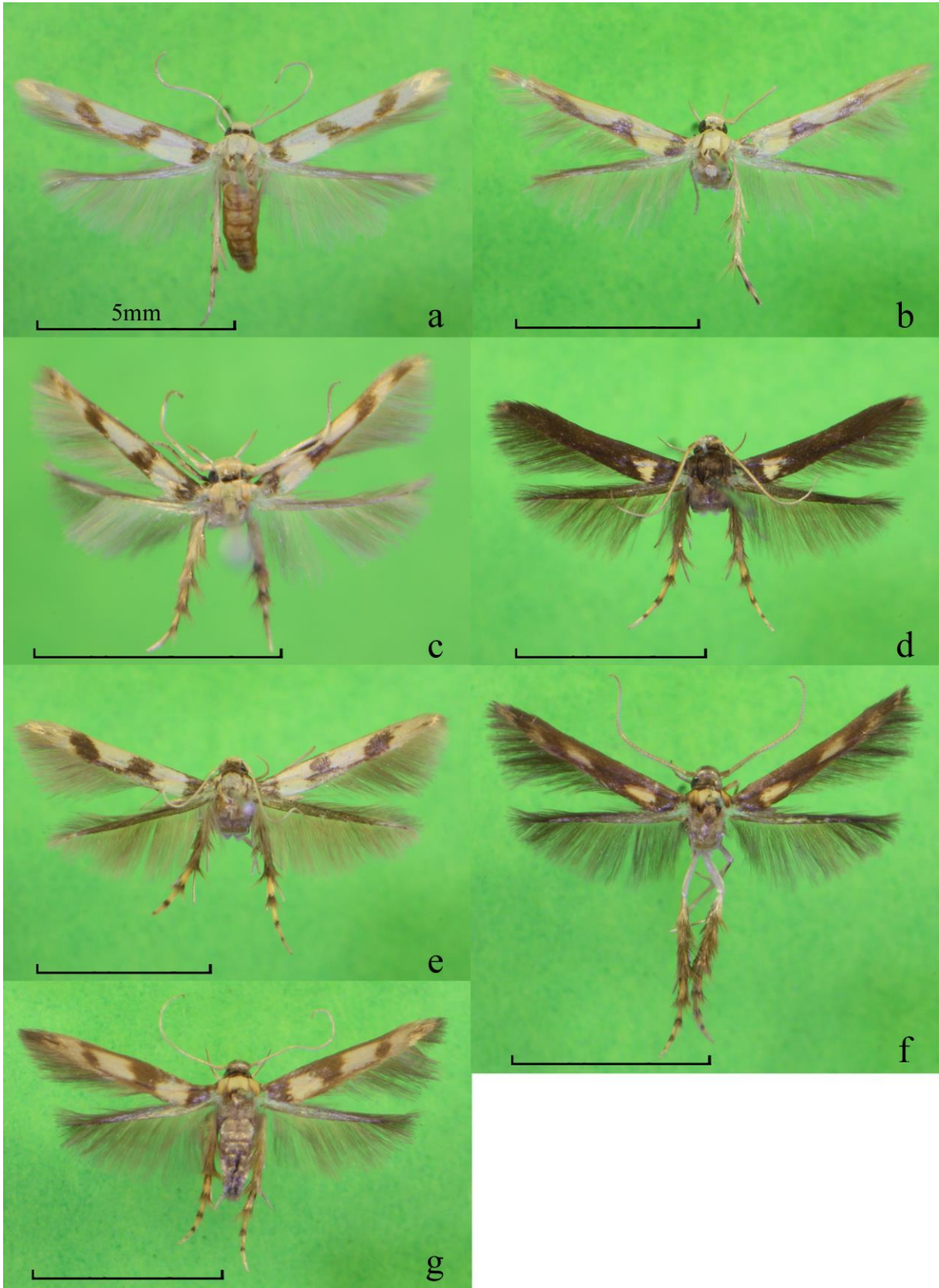


Plate LXIX

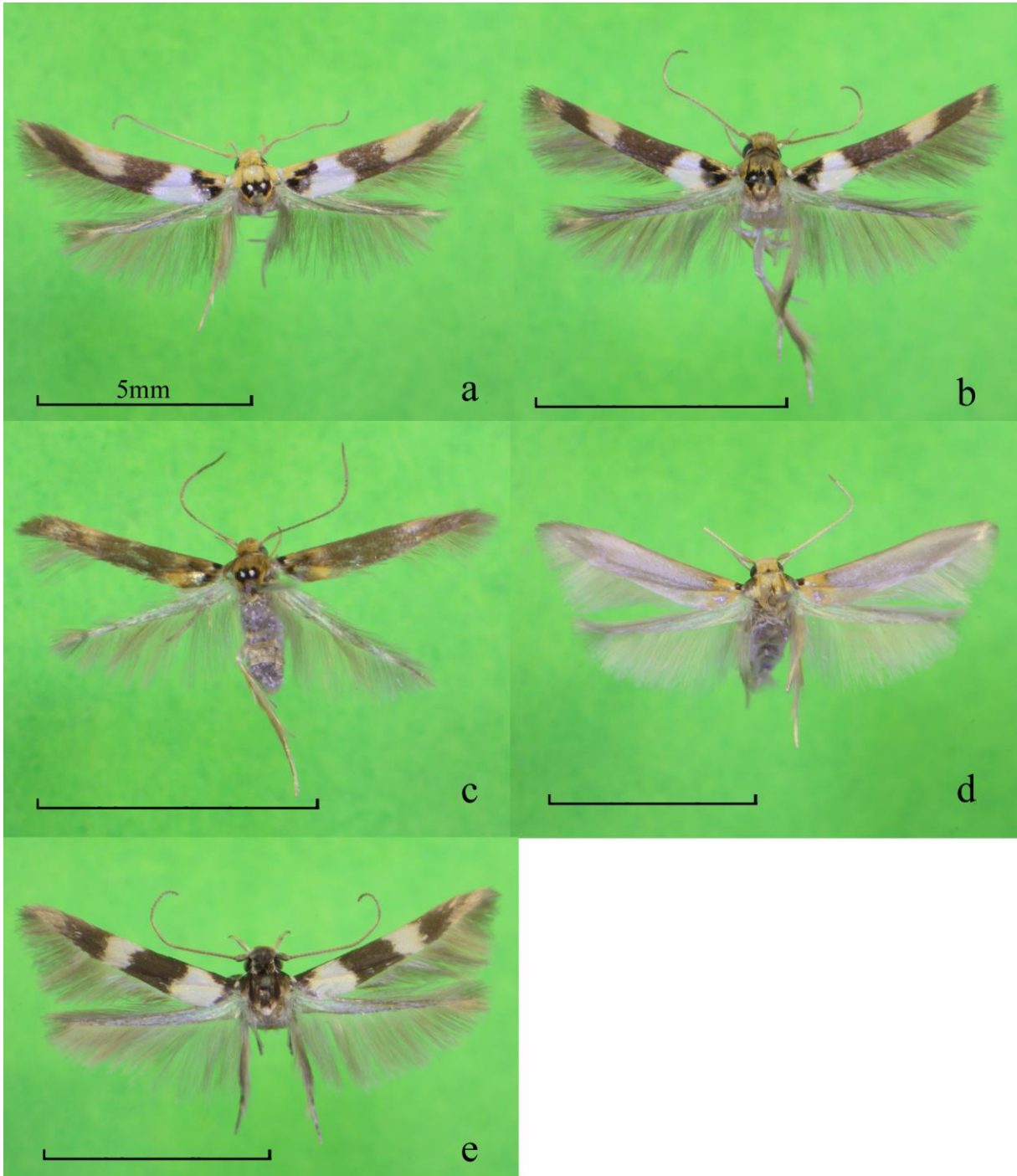


Plate LXX

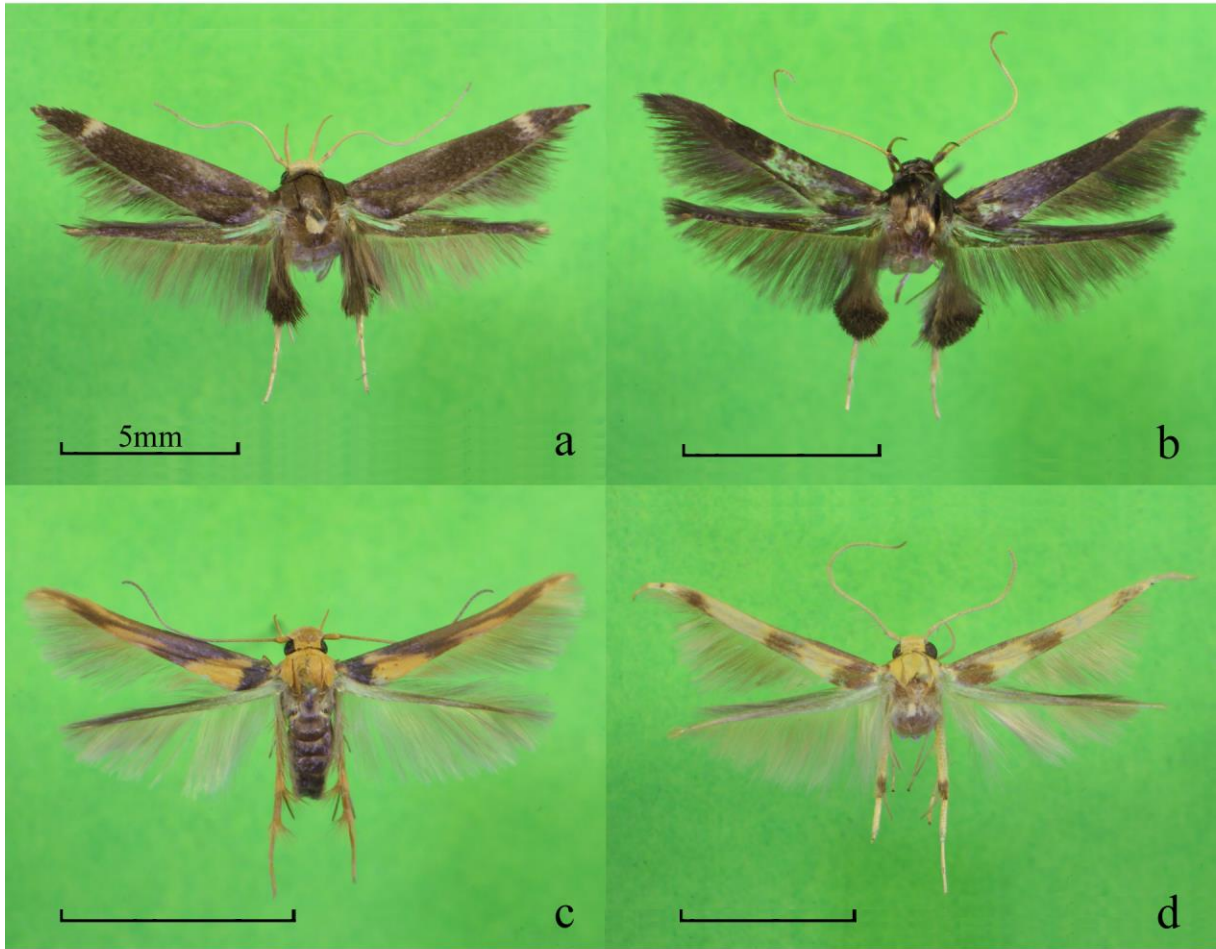


Plate LXXI

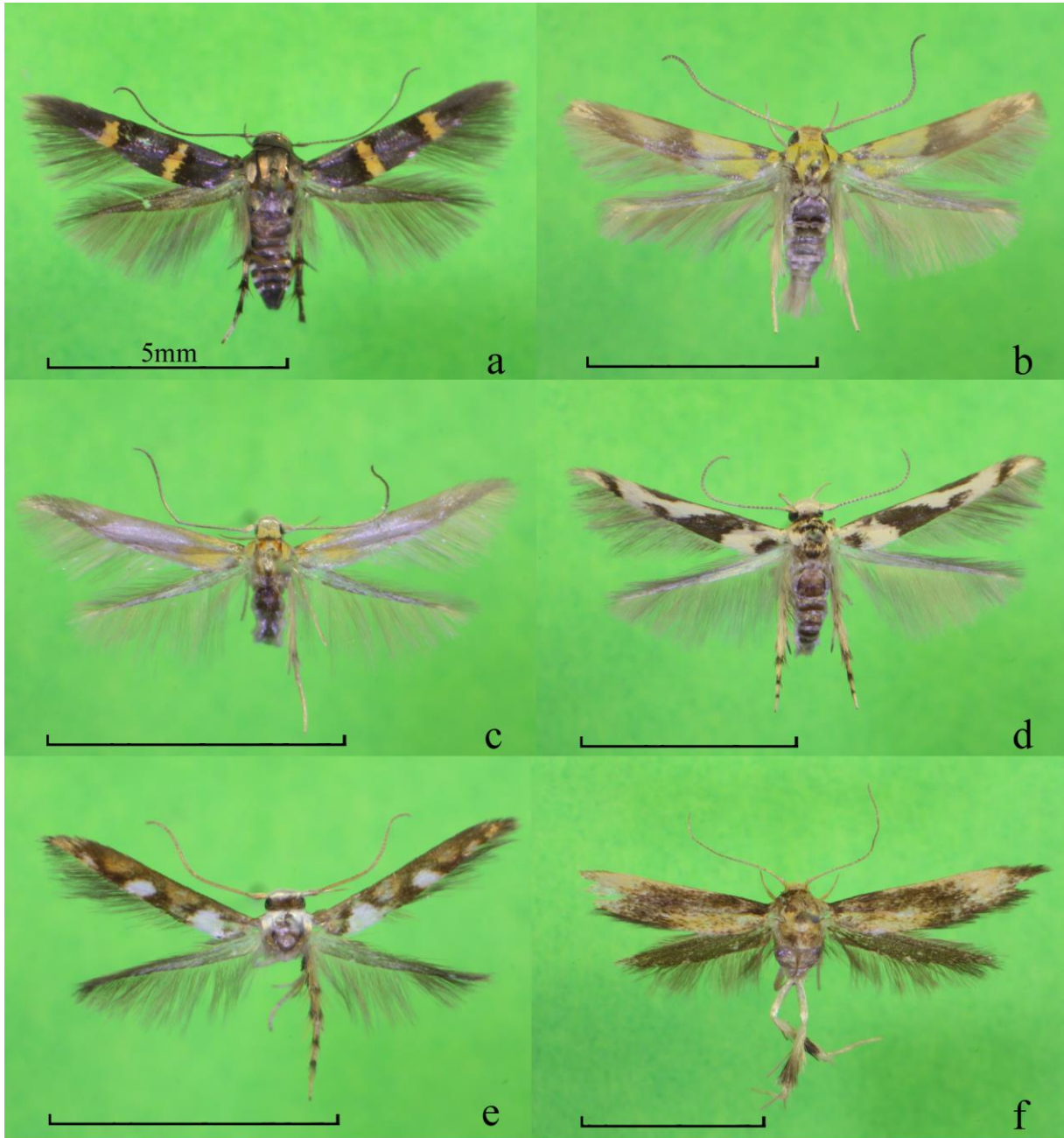


Plate LXXII

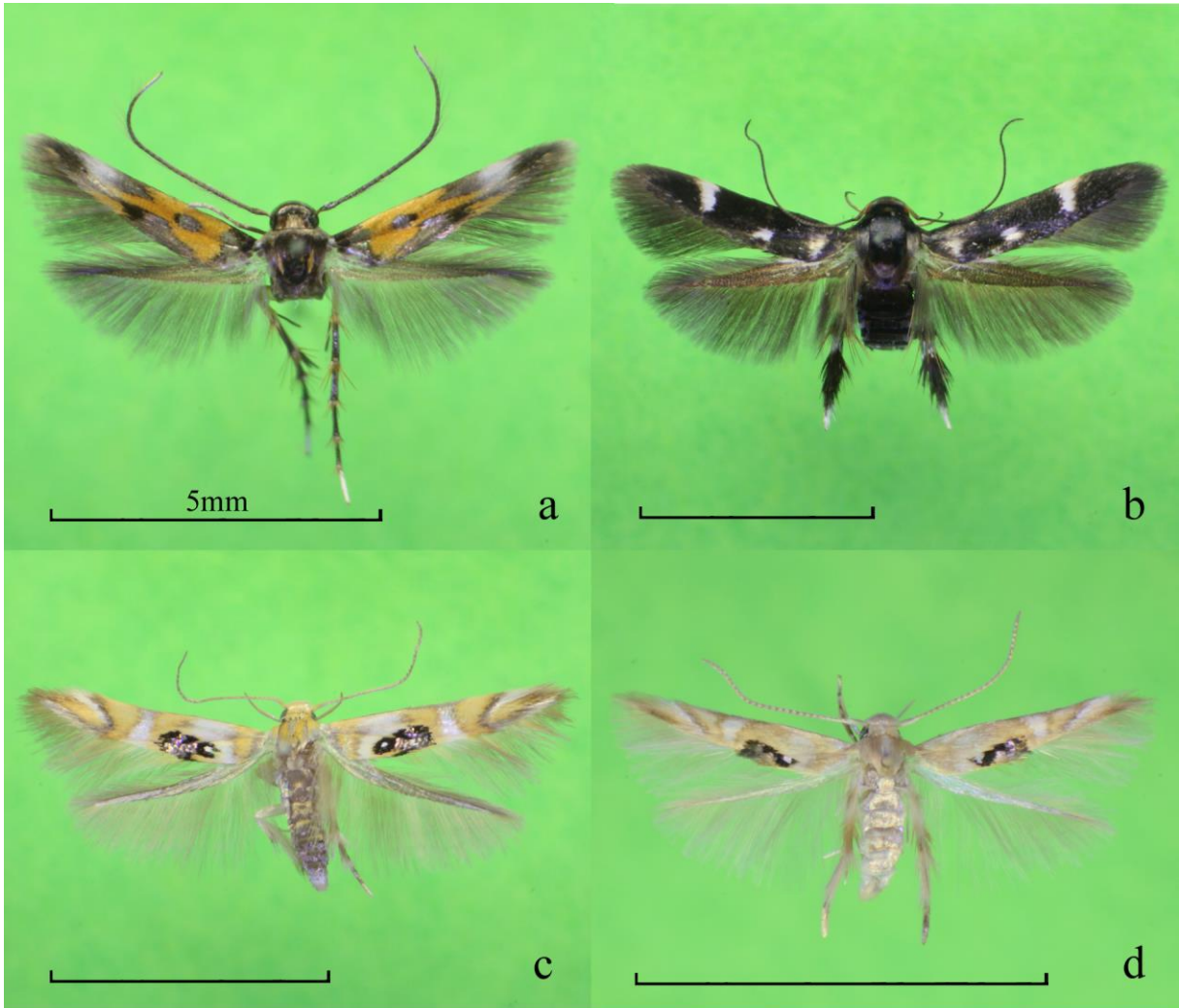


Plate LXXIII

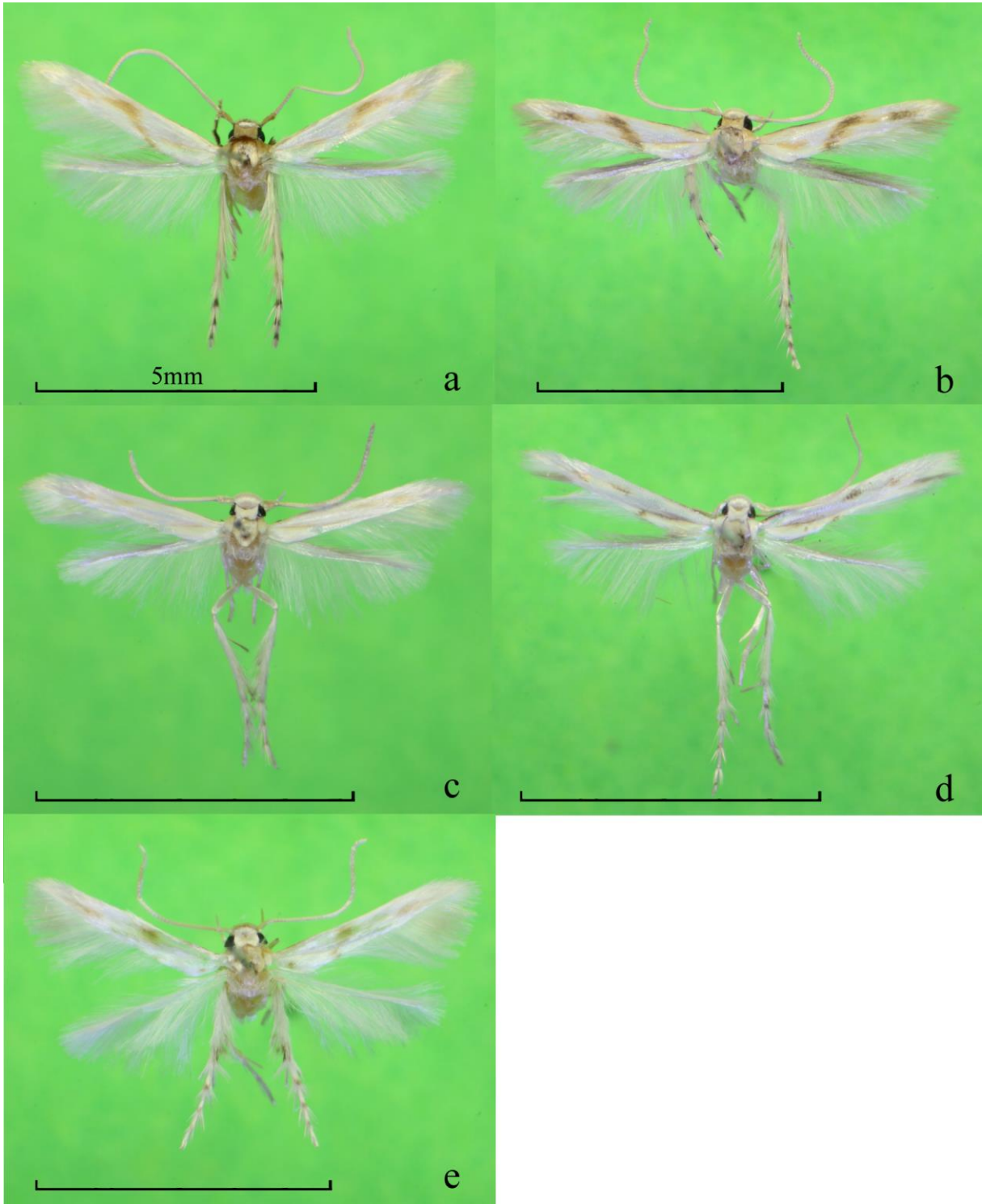


Plate LXXIV

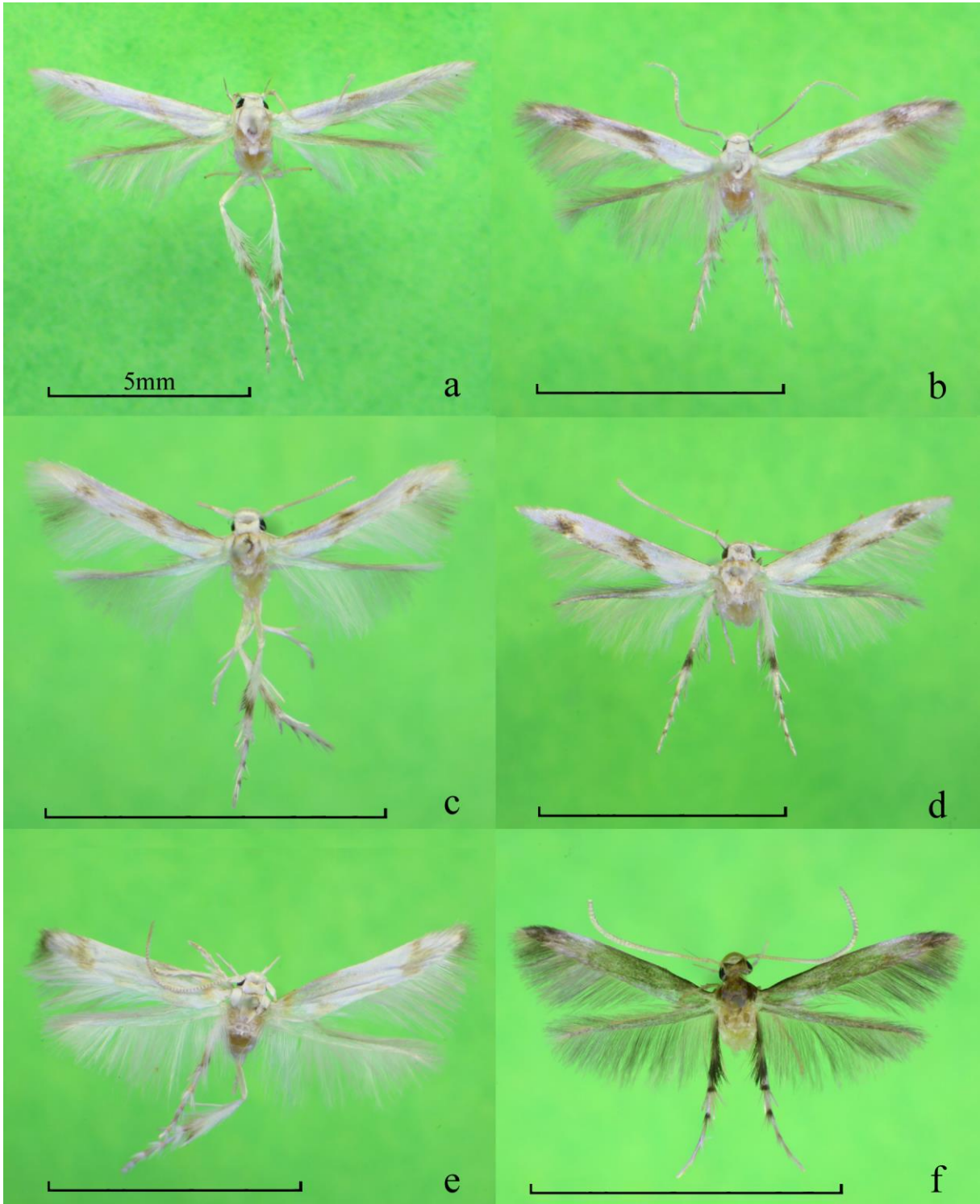


Plate LXXV

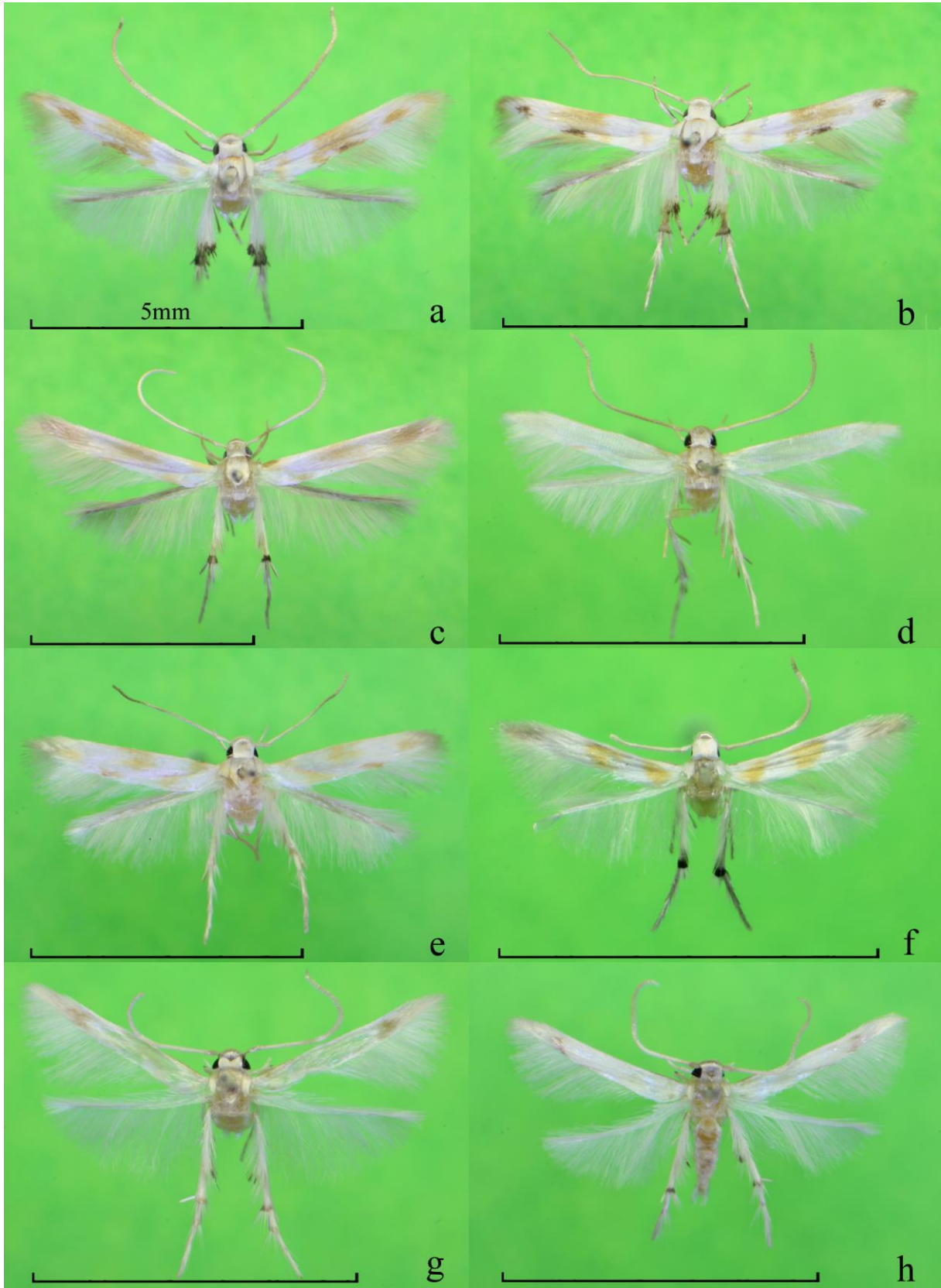


Plate LXXVI

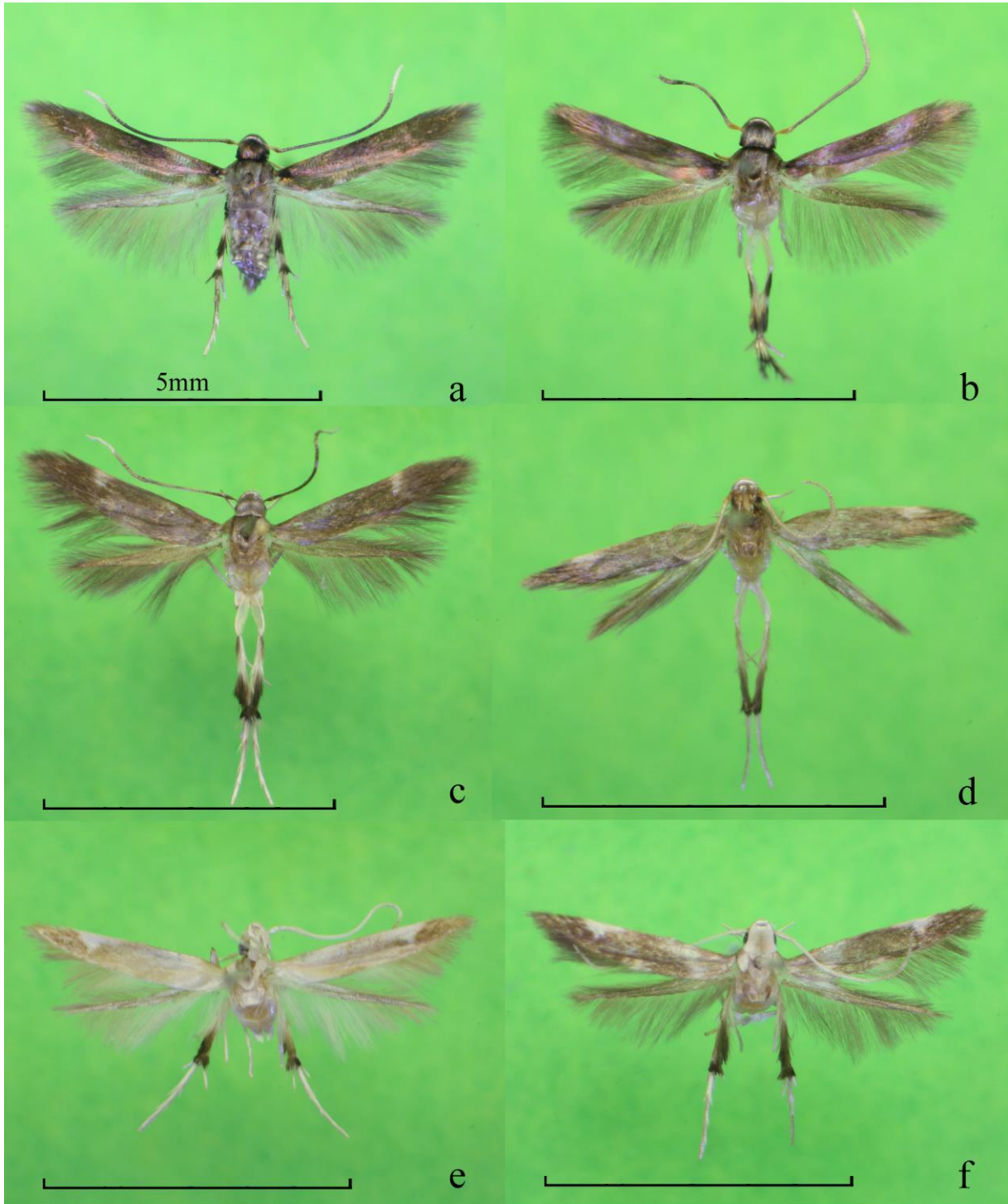


Plate LXXVII

