



## Isometopinae (Hemiptera: Miridae) from Taiwan 【Research report】

### 台灣的樹蝽亞科 (半翅目：盲蝽科) 【研究報告】

Cheng-Shing Lin\* Chung-Tu Yang  
林政行\* 楊仲圖

\*通訊作者E-mail: [cslin@mail.nmns.edu.tw](mailto:cslin@mail.nmns.edu.tw)

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#### Abstract

Eight species of the subfamily Isometopinae are recognized. Four new species, *Myiomma choui* Lin & Yang, n. sp., *Myiomma zhengi* Lin & Yang, n. sp., *Sophianus formosanus* Lin & Yang, n. sp., and *Totta rufercorna* Lin & Yang, n. sp., four new records, *Isometopidea lieweni* Poppius, 1913; *Isometopus nigrosignatus* Ren, 1987; *Isometopus hasegawai* Miyamoto, 1965; and *Myiomma samuelsoni* Miyamoto, 1965 from Taiwan are reported. A key to the Taiwanese species of the subfamily Isometopinae and figures of the male genitalia are included.

#### 摘要

本文描述臺灣產樹蝽亞科四新種：周氏樹蝽 (*Myiomma choui* Lin & Yang, n. sp.)、鄭氏樹蝽 (*Myiomma zhengi* Lin & Yang, n. sp.)、臺灣奇樹蝽 (*Sophianus formosanus* Lin & Yang, n. sp.) 及紅角樹蝽 (*Totta rufercorna* Lin & Yang, n. sp.)。發現四記錄種：錫蘭樹蝽 (*Isometopidea lieweni* Poppius, 1913)、黑痣樹蝽 (*Isometopus nigrosignatus* Ren, 1987)、長谷川樹蝽 (*Isometopus hasegawai* Miyamoto, 1965) 及山姆森樹蝽 (*Myiomma samuelsoni* Miyamoto, 1965)。並附臺灣產樹蝽亞科種檢索表及外生殖器圖。

**Key words:** Hemiptera, Miridae, Isometopinae, new species, new records.

**關鍵詞:** 半翅目、盲蝽科、樹蝽亞科、新種、新記錄種

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## Isometopinae (Hemiptera: Miridae) from Taiwan

**Cheng-Shing Lin\*** Department of Zoology, National Museum of Natural Science, 1 Kuan Chien Road, Taichung 404, Taiwan

**Chung-Tu Yang** Department of Entomology, National Chung-Hsing University, 250 Kuo-Kung Road, Taichung 402, Taiwan

### ABSTRACT

Eight species of the subfamily Isometopinae are recognized. Four new species, *Myiomma choui* Lin & Yang, n. sp., *Myiomma zhengi* Lin & Yang, n. sp., *Sophianus formosanus* Lin & Yang, n. sp., and *Totta rufercorna* Lin & Yang, n. sp., four new records, *Isometopidea lieweni* Poppius, 1913; *Isometopus nigrosignatus* Ren, 1987; *Isometopus hasegawai* Miyamoto, 1965; and *Myiomma samuelsoni* Miyamoto, 1965 from Taiwan are reported. A key to the Taiwanese species of the subfamily Isometopinae and figures of the male genitalia are included.

**Key words:** Hemiptera, Miridae, Isometopinae, new species, new records

### Introduction

This group treated as a distinct family by some authors (Carvalho, 1958; Schuh, 1975). It shared characters which are used to diagnose the Miridae and included as a subfamily. This group was reported as comprising of 30 genera and 140 species (Schuh, 1995). They are chiefly tropical and bark-inhabiting and have been recognized as a predacious insect preying on mealybugs, scale insects, and spider mites (Schuh, 1995). Poppius (1915) reported one species from Taiwan, there is no report related to this group since then. In this paper, eight species are reported.

Type series and examined specimens are deposited at the National Museum of Natural Science (NMNS) and Taiwan Agricultural Research Institute

(TARI). Methods of dissection and terminology followed Miyamoto (1965).

### Key to species of Isometopinae in Taiwan

1. Clavus narrowed posteriorly, extending to or slightly beyond apex of scutellum, scarcely forming a distinct commissure (Tribe Isometopini) ----- *Isometopus nigrosignatus* Ren
- Clavus parrallel-sided or slightly widened posterior, always produced beyond apex of scutellum, usually forming a distinct commissure (Tribe Myiommarini)----- 2
2. Pronotum half as long as or longer than width at base----- 5
- Pronotum less than half as long as width at base ----- 3
3. Eyes red (dried specimen)-----

\*Correspondence address  
e-mail: cslin@mail.nmns.edu.tw

- *Myiomma zhengi* Lin & Yang, n. sp.  
 - Eyes fuscous (dried specimen)----- 4  
 4. Scutellum with white spot-----  
 ---*Myiomma choui* Lin & Yang, n. sp.  
 - Scutellum without white spot-----  
 -----*Myiomma samuelsoni* Miyamoto  
 5. Second antennal segment laminately  
 incrassate -----*Sophianus formosanus*  
 -----Lin & Yang, n. sp.  
 - Second antennal segment normal----- 6  
 6. Pronotum with a collar-like anterior  
 margin separated by a distinct im-  
 pressed transverse line and a quite  
 deep longitudinal median incision  
 near anterior margin, the disc on  
 each side of the incision calloused  
 and tumid, commissure shorter than  
 length of scutellum-----  
 -----*Isometopidea lieweni* Poppius  
 -. Pronotum without a collar-like ante-  
 rior margin and median incision;  
 commissure longer than length of  
 scutellum ----- *Totta ruficornis* Lin &  
 -----Yang, n. sp.

***Isometopidea lieweni* Poppius, 1913 (Fig. 1A)**

***Isometopidea lieweni* Poppius, 1913. Entomol. Tidskr. 34: 253**

**Female.** Body elongate oval, pale brown, furnished with pale hairs. Head semi-globular, with large eyes reddish brown, occupying most part of head; vertex white with distinct red ocelli, distance in between larger than diameter of an ocellus; face somewhat rectangular in outline; frons with basal half white and having H-shaped, fuscous marking, apical half fuscous; clypeus fuscous, longer than wide; antennae long, yellowish white, nearly 1/3 the length of body, first segment short and cylindrical, second segment long, a little curved and slightly widened toward apex, third and fourth segment short; rostrum long, tip reaching to hind coxa.

Pronotum somewhat semi-circular, wider than twice the median length, with

a distinct impressed transverse line, and a quite deep median longitudinal incision near anterior margin, the disk on each side of the incision calloused and tumid and covered with setigerous punctures, broadly milky white with numerous brown setigerous pores; mesonotum fuscous; scutellum porrect and with basal moderate concave, with setigerous punctures and pubescence with long hairs, milky white with setigerous pores brown and basal fuscous, somewhat semi-circular, wider than twice the median length, with a distinct impressed transverse line, and a quite deep median longitudinal incision near anterior margin, the disk on each side of the incision calloused and tumid and covered with setigerous punctures. Hemelytra flat, milky white covered with numerous brown setigerous pores, pubescence with golden yellow or brown long hairs; cuneus triangular, white with tip brown, pubescence with long, golden yellow or brown hairs; membrane white, with two closed cells. Legs pale yellow, with distinctly incrassate hind femora and 2-segmented tarsi, hind femur with brown band. Body beneath on thoracic segments fuscous with ostiolar evaporative area white, abdominal segments brown and with lateral and terminal white.

**Measurements (in mm):** Body: length 3.3, width 1.5. Head: length 0.2, width 0.55, height 0.5; vertex width 0.15; ocelli width 0.1; rostrum length 1.5; antennal segments: 0.1 : 0.5 : 0.2 : 0.2; pronotum: length 0.6, basal width 1.2; scutellum: length 0.5, width 0.5; cuneus length 0.5; commissure length 0.37.

**Material examined:** NANTOU: Lien-hachi (650 m), IX-1984, 1 ♀, K. S. Lin & K. C. Chou (Malaise trap).

***Isometopus nigrosignatus* Ren, 1967 (Fig. 1B)**

***Isometopus nigrosignatus* Ren, 1967. Acta Zootanmica Sinica 12 (4): 400.**



Fig. 1. A. *Isometopidea lieweni* Poppius, 1913; B. *Isometopus nigrosignatus* Ren, 1987; C. *Isometopus hasegawai* Miyamoto, 1965; D. *Myiomma samuelsoni* Miyamoto, 1965; E. *Myiomma zhengi* Lin & Yang, n. sp.; F. *Myiomma choui* Lin & Yang, n. sp.; G. *Sophianus formosanus* Lin & Yang, n. sp.; H. *Sophianus formosanus* Lin & Yang, n. sp. female showing the first antennal segment with two horns; I. *Totta ruficornis* Lin & Yang, n. sp. (Scale = 1 mm).

**Female.** Body oval, general coloration fuscous with hemelytra milky white, except for middle of corium, punctuated, pubescence with long, silver recumbent hairs. Head milky white, vertical, or distinctly short fronto-caudally, finely punctuate, vertex with an apple-shaped, fuscous spot, base of vertex invaginate, pubescence with long hairs, frons broad, porrect with a large black spot, pubescence with long, silver recumbent hairs; eyes large and almost occupying sides of head, distance between ocelli larger than diameter of ocellus; antennae originating from under side of eye, first antennal segment short, cylindrical, incrassate, pale yellow, second segment long and thick, pale brown, pubescence with short hairs, third segment thin, fusiform, pale brown, fourth segment short, spindle shaped, pale brown; rostrum long, brown, tip reaching to fourth abdominal segment.

Pronotum broad, about four times as wide as median, lateral sides narrowly reflected, hind margin broadly concave laterally and convex in middle, with very narrow apical collar; distinctly punctuate, pubescence with long, brown hairs, milky whitish, with anterior part fuscous, punctuated, posterior angle with fuscous spot, pubescence with long silver hairs; mesoscutum exposed and distinctly punctuate, fuscous; scutellum slightly porrect and punctuate, pubescence with long hairs, milky whitish with anterior portion fuscous. Hemelytra declivous behind cuneal fracture, distinctly punctuate on clavus and corium, milky white, pubescence with long silver hairs, middle of corium with fuscous band; membrane with one closed-cell, pale yellow. Leg pale yellow, 1/5 of femur brown banded, sparsely pubescent, femora thick, posterior ones strongly thick and 2-segmented. Body beneath brown on abdomen, pale on apex, pubescence with fine hairs, thoracic part fuscous, ostiolar evaporative area white.

**Measurements (in mm):** Body: length 2.8, width 1.8; head: length 0.17, width 0.7, height 0.24, vertex width 0.25, ocelli width 0.1; rostrum length 0.8; antennal segments: 0.1:0.6:0.4:0.1; pronotum length 0.4, basal width 1.4; scutellum: length 0.8, width 0.7; cuneus length 0.7; commissure length 0.2.

**Materials examined:** NANTOU: Tungpu (1200m), XI-1985, 1 ♀, K. S. Lin, (malaise trap).

*Isometopus hasegawai* Miyamoto, 1965 (Figs. 1C & 2)

*Isometopus hasegawai* Miyamoto, 1965. *Kontyu* 33(1): 147.

**Male.** Body oval, fuscous, covered with pale fine hairs. Head vertical or distinctly short fronto-caudally, finely punctate, with base of vertex transversely carinate, fuscous, lower half of face pale brown and face broad, with the lower margin markedly carinate and gently sinuate, infraocular portion of gena very narrow, eyes large and occupying sides of head, slightly tinged with violet; antennae dark brown, originating from under side of marginal carina of face, first antennal segment obconical and the shortest, second segment cylindrical, apical segment spindle shaped; rostrum pale brown, long, tip reaching to the apex of hind coxa.

Pronotum broad, four times as wide as median length, lateral sides narrowly reflected, hind margin pointedly convex in middle and narrowly concavely sinuate in lateral, with narrow apical collar. Mesonotum exposed and distinctly punctured, and scutellum punctured, transversely rugose and impressed at bases of sides. Hemelytra fuscous, declivous behind cuneal fracture, punctured distinctly on clavus and corium; clavus posterior narrowed; membrane cloudy gray, with one closed cell. Legs dark brown, base and apex of femora narrowly pale. Legs sparsely pubescent, femora thick, pos-

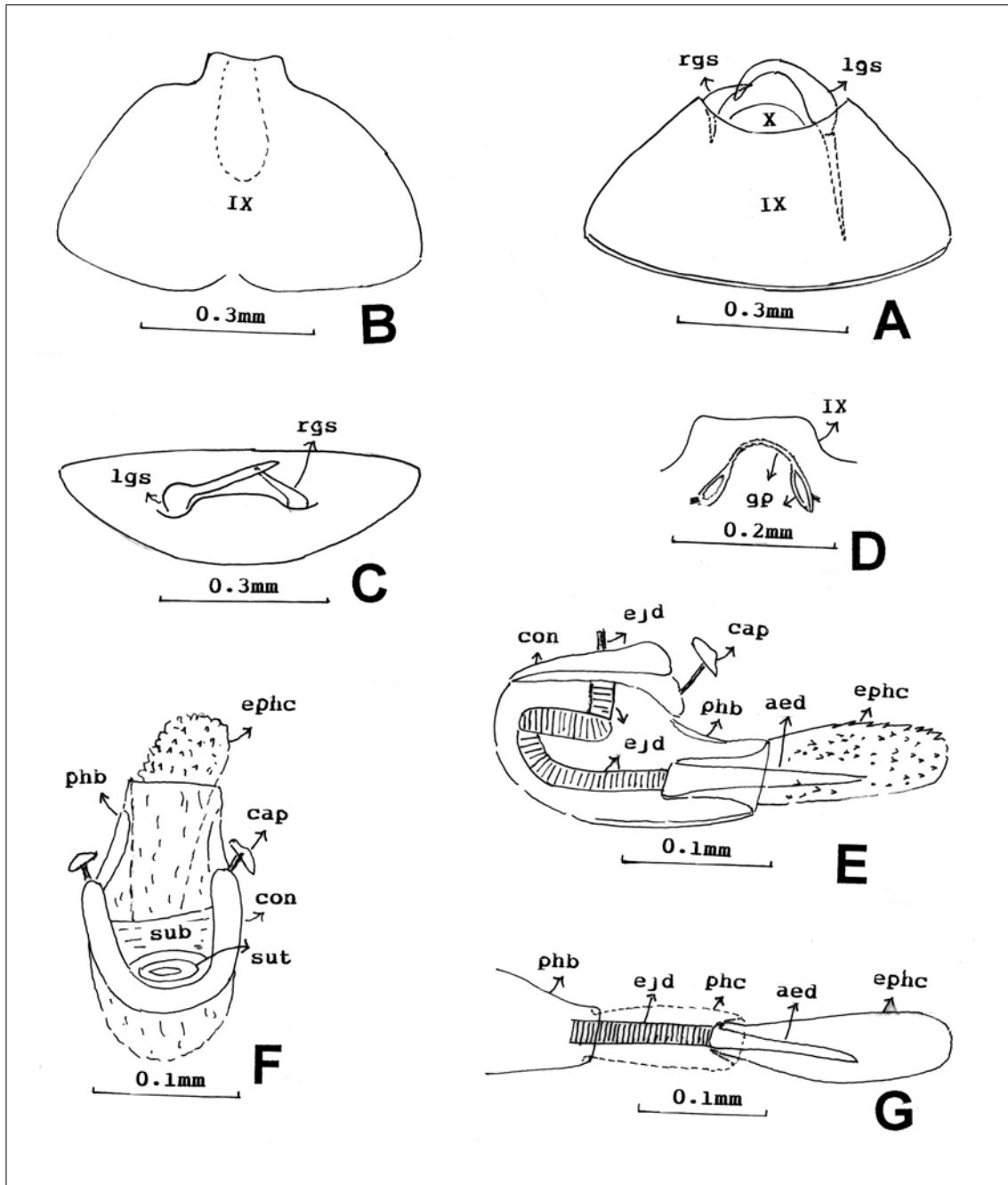


Fig. 2. *Isometopus nigrosignatus* Ren. A. Abdominal segments IX-X and genital style, dorsal view; B. Abdominal segment IX, ventral view; C. Abdominal segment IX and genital styles, caudal view; D. Apex of abdominal sternite IX and genital plates, dorsal view; E. Phallus with aedeagus somewhat everted, lateral view; F. Phallus, dorsal view; G. Phallobase, phallobasal conjuncture, aedeagus and exposed phallobasal conjuncture, dorsal view. Abbreviation: IX, X = abdominal segments IX, X; aed = aedeagus; cap = capitate processes; con = connective; gp = genital plates; lgs = left genital style; phb = phallobase; phc = phallobasal conjuncture; rgs = right genital style; sub = support bridge; sut = support tube.

terior ones strongly thick and tarsi 2-segmented. Body beneath fuscous on thoracic segments and on abdomen, ventral side of thorax punctate but abdomen impunctate.

Abdominal segment IX dorsoventrally depressed; lateral margins distinctly converged to apex in dorsal view; in ventral view apex symmetrical, transversely quadrate produced caudad. Genital styles asymmetrical in size and shape; left genital style large, its apex directed right, not reached base of right genital style. Inner portion of left genital style extremely long, about two-thirds length of lateral margin of abdominal segment IX. Genital plates arched, both arms expanded.

Phallus directed caudad within segment IX. Connective U-shaped. Support bridge with upper portion as cross bar of connective, the remainder difficult to discriminate. Capitulate processes relatively small. Support tube unrecognized in lateral view; in dorsal view ovate. Ejaculatory duct between support tube and base of base of aedeagus distinctly expanded, nearly same diameter throughout its length, pigmented and spiral, distinctly wider than ejaculatory duct before support tube. Phallobase membranous except lateral margins somewhat sclerotized and pigmented, apex truncated. Phallobasal conjunctiva normally connected apex of phallobase and base of aedeagus, not armed with cuticular spines. At the base of aedeagus with bulb-like growth of phallobasal conjunctiva which armed cuticular spines, apical half exposed behind apex of phallobase. This structure was judged to be exposed phallobasal conjunctiva for its surface armed with cuticular spines.

**Measurements (in mm):** Body: length 3.4, width 2.3; head: length 0.25, width 1.0, height 0.35; vertex width 0.3, ocelli width 0.1; rostrum length 1.1; antennal segments: 0.1: 0.8: 0.15: 0.15; pronotum: length 0.7, basal width 1.1;

scutellum: length 1.4, width 1.4; cuneus length 1.1.

**Female.** Very similar to male, except face brown, antenna pubescent with short hairs.

**Materials examined:** NANTOU: Sunkang (2100 m), IX-1985, 1 ♂, 1 ♀, X-1985, 4 ♂, 1 ♀, K. S. Lin & K. C. Chou (malaise trap).

*Myiomma samuelsoni* Miyamoto, 1965 (Figs. 1D & 3)

*Myiomma samuelsoni* Miyamoto, 1965. *Kontyu* 33 (1): 149.

**Male.** Body elongate oval, pale brown, furnished with pale distinct hairs. Head semi-globular, fuscous, with the rear margin of head pale yellow, lower margin of eyes narrowly red; eyes large, fuscous, occupying most part of head and confluent with each other along median line in front of vertex; ocelli distinct; face somewhat triangular in outline, brown; clypeus red, longer than wide; first antennal segments short, pale brown, second segment long, cylindrical, pale brown with apical narrowly fuscous, apical segments fuscous, third segment thin and short, fourth segment thin, spindle-shaped; rostrum long, pale brown with apical 2 segments fuscous, tip reaching to hind coxa.

Pronotum broadly brown, fuscous on apical one-thirds, mesonotum fuscous with lateral portions red, scutellum dark basally, pale apical except for extreme apex dark. Hemelytra pale brown, cuneus broadly black posterior, and membrane somewhat infusate. Legs pale yellow, except tibiae brown, posterior femora with red band. Body underside of thoracic segments brown, with some red markings and abdominal segment fuscous.

**Measurements (in mm):** Body: length 3.2, width 1.4; head: length 0.15, width 0.35, height 0.38; vertex width 0.1, ocelli width 0.1; rostrum length 1.2; antennal segment 0.1:1:0.15:0.1; pronotum: length

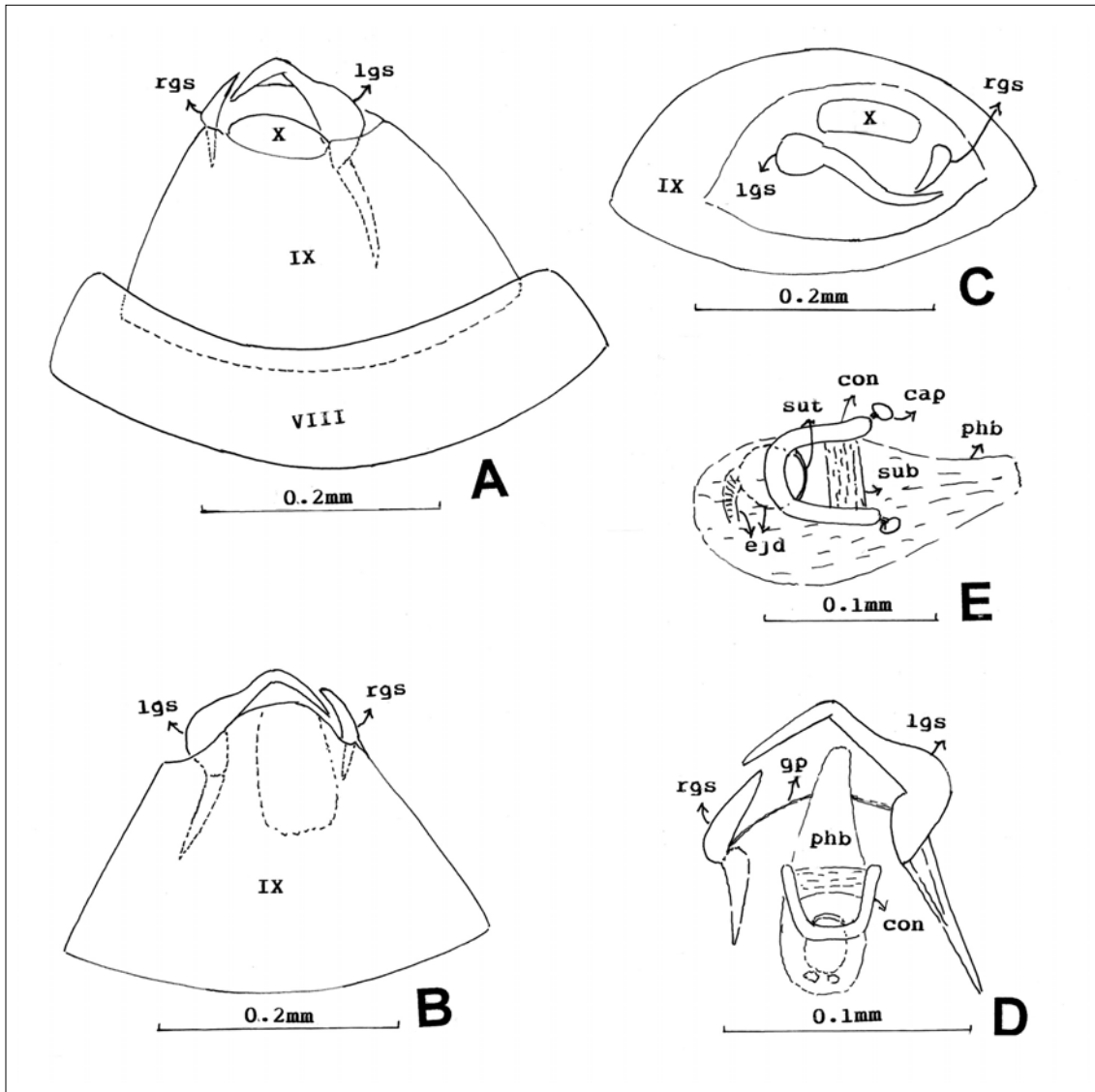


Fig. 3. *Myiomma samuelsoni* Miyamoto. A. Abdominal segments VIII-X and genital styles, dorsal view; B. Abdominal segments IX-X and genital styles, ventral view; C. Abdominal segments IX-X and genital styles, caudal view; D. genital styles, genital plates and phallus, dorsal view; E. Phallus, left laterodorsal view. Abbreviations as in Fig. 2.

0.5, basal width 1.1; scutellum: length 0.45, width 0.5; cuneus length 0.3; commissure length 0.15.

**Female.** Head including eyes fuscous, with the rear margin pale yellow. Pronotum pale violet with the frontal margin fuscous, mesonotum yellow-brownish, scutellum and hemelytra pale violet,

cuneus pale violet with white band, membrane translucent whitish.

**Materials examined:** TAICHUNG: Wanfeng, IV-1984, 7 ♂ 2 ♀, V-1984, 1 ♂, X-1984, 1 ♂, XI-1984, 1 ♂, XII-1984, 1 ♂, K. S. Lin & K. C. Chou (malaise trap).

*Myiomma zhengi* Lin & Yang, n. sp.



(Figs. 1E & 4)

**Male.** Body elongate oval, fuscous, clothes with semi-erected, fine, pale pubescence. Head semi-globular, red, with lower margin of eyes narrowly pale yellow; eyes large, red, occupying most part of head and confluent with each other along median line in front of vertex; ocelli distinct; face long triangular, slightly swollen, reddish brown and with clypeus longer than wide, reddish black; first antennal segment short, cylindrical, reddish brown, second segment long, cylindrical, brown with apical 1/2 fuscous, apical segments thin and short, reddish brown; rostrum long, tip reaching to the fourth abdominal segment, pale yellow, with apical 2 segments brown.

Pronotum broadly brown to fuscous, 3 times wider than the median length, hind margin shallowly concave, and moderate convex in middle, pronotum disc covered with distinct punctures; mesonotum and scutellum finely transversely rastrate, fuscous. Hemelytra with distinct punctures, brown with clavus fuscous, and marginal vein black; membrane semi-hyaline. Legs pale yellowish with tibiae brown, posterior femora basal 1/2 brown with red marking. Body underside dark brown, with some red markings on thoracic segments.

Abdominal segment IX dorsoventrally depressed; lateral margin distinctly converged to apex in dorsal view; in ventral view apex right two-thirds broad roundly convex, left one-third distinct concave. Genital styles asymmetrical in size and shape; left genital styles large, its apex directed right, reached not to base of right genital style. Inner portion of left genital style relative short, its length about one-third of left lateral margin of abdominal segment IX. Genital plate arched.

Phallus directed caudad within segment IX. Connective U-shaped. Support bridge with upper portion as cross bar of

connective; the remainder difficult to discriminate. Capitulate processes relatively small. Support tube difficult to discriminate from expanded ejaculatory duct below connective. Ejaculatory duct large, roundly expanded below connective, then narrowed into tube-shaped structure, diameter of tube as wide as base of aedeagus, far more wider than ejaculatory duct before support tube. Both rounded and tube-shaped portions pigmented, only tube-shaped portion distinct spiral. Phallobase membranous, somewhat converged to apex in dorsal view. Phallobasal conjunctiva not armed with small cuticular spines, connected apex of phallobase and base of aedeagus. Aedeagus weakly sclerotized and lightly pigmented.

**Measurement** (in mm). Body: length 2.7, width 1.1; head: length 0.25, width 0.4, height 0.45; vertex width 0.1, ocelli width 0.1; rostrum length 1.2; antennal segment 0.15:1:0.15:0.1; pronotum: length 0.25, basal width 0.8; scutellum: length 0.45, width 0.45; cuneus length 0.45; claval commissure length 0.45.

**Female.** Very similar to male, except venter with abdomen fuscous and lateral orange.

**Holotype:** ♂, TAITUNG: Yenping, 30-VII-1992, E. C. Shiau & W. T. Yang (NMNS Ent. 1437 - 728)(UV lite). Type is deposited at the National Museum of Natural Science (NMNS).

**Paratype:** NANTOU: Tsufeng (2300 m), 8-XI-1981, S. C. Lin & W. T. Tang (malaise trap), 1-3-VIII-1981, 3 ♂, T. Lin & W. S. Tang (malaise trap); XI-1984, 2 ♀, K.S. Lin & K. C. Chou (malaise trap); Meifeng (2150 m), 4-7-X-1982, 1 ♀, K. C. Chou (malaise trap), IX-1984, 3 ♂, K. S. Lin & K. C. Chou (malaise trap), XI-1985, 1 ♂, K. S. Lin (malaise trap); Wushe (1150 m), 26-29-VIII-1982, 1 ♂ 2 ♀, L. Y. Chou & S. C. Lin (malaise trap); Lushan (1000 m), 27-31-V-1980, 1 ♀, K. S. Lin & L. Y. Chou (malaise trap); Tongpu (1200 m), 5-8-X-1981, T. Lin & W. S. Tang, 1 ♀;

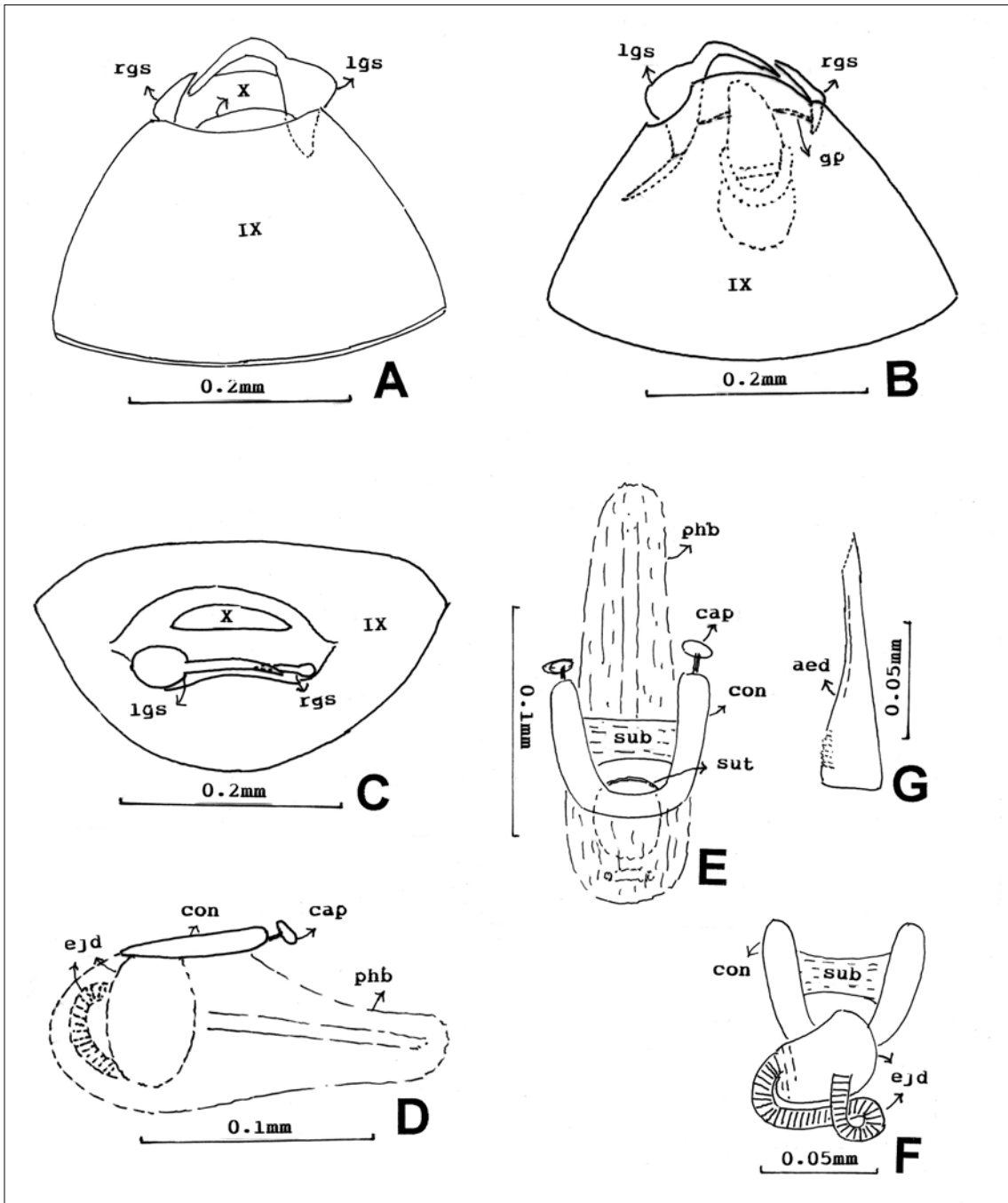


Fig. 4. *Myiomma zhengi* Lin & Yang, n. sp. A. Abdominal segments IX-X and genital styles, dorsal view; B. Abdominal segments IX-X and genital styles, ventral view; C. Abdominal segments IX-X and genital styles, caudal view; D. Phallus, lateral view; E. Phallus, dorsal view; F. Connective and ejaculatory duct, caudal view; G. Aedeagus, lateral view. Abbreviation as in Fig. 2.

XI-1985, X-1985, 2 ♂ 1 ♀, K. S. Lin (malaise trap); Lienhuachi (650 m), IV-1984, 1 ♂, K. S. Lin & K. C. Chou (malaise trap); TAOYUAN: Palin, 8-9-VII-1986, 1 ♂, K. C. Chou & C. H. Yang (malaise trap); Up-Palin-Lalashan (110-2130 m), 9-VII, 1 ♂, K. S. Chou & C. H. Yang (malaise trap); HUALIEN: Antung 14-17-II-1984, 1 ♀, K. C. Chou & C. C. Pan (malaise trap).

This new species is similar to *Miommya rubrooculatum* (Henry, 1979), but can be identified by posterior margin of eyes not overlapping anterior margin of Pronotum.

**Etyology.** Named in honor of Professor Le-yi Zheng, Department of Biology, University of Nankai, Tianjin, China and is of the master workers on Miridae.

***Miommya choui* Lin & Yang, n. sp. (Figs. 1F & 5)**

**Male.** Body elongate oval, fuscous or dark brown, furnished with pale distinct hairs. Head semi-globular, fuscous; eyes large, fuscous, occupying most part of head and confluent with each other along median line in front of vertex, with the rear margin of head pink, lower margin of eyes narrowly whitish; ocelli distinct; face somewhat triangular, fuscous and clypeus brown; clypeus longer than wide; first antennal segment short, cylindrical, pale yellow, basal narrowly fuscous, second segment long, cylindrical, pale yellow or pale brown, with apical segment thin, short, fuscous. Rostrum violet.

Pronotum broadly fuscous, wider than three times the median length, lateral sides slightly convexly sinuate and distinctly carinate, hind margin shallowly waved, pronotal disc transversely rugulose; mesonotum fuscous with lateral portions orange; scutellum transversely rugulose, fuscous, apical white except for extreme apex black. Hemelytra brown, finely punctured, cuneus dark brown, basal with pale band. Legs brown, paler

on both apices of femora and whole tibiae. Body underside fuscous, with some red markings on thoracic segments and sides of abdominal base.

**Measurements (in mm):** Body: length 3.2, width 1.4; head: length 0.2, width 0.5, height 0.55; vertex width 0.1, ocelli width 0.1; rostrum length 1.0; antennal segment 0.1:1:0.15:0.1; pronotum: length 0.5, basal width 1.1; scutellum: length 0.4, width 0.4; cuneus length 0.6; claval commissure length 0.3.

**Female.** Hemelytra with clavus light brown; cuneus with white band scutellum with v-shape white band. Second antenna white, apical 1/6 violet.

**Holotype:** ♂. NANTOU: Jenai Yuanfeng, III-9-IV-9-1988, C. S. Lin & W. T. Yang (NMNS ENT 3243-387) (malaise trap). Type is deposited at the National Museum of Natural Science (NMNS).

**Paratype:** same as Holotype (NMNS ENT 3243-702), NANTOU: Tsuifeng (2300 m), IX-1984, 5 ♂ 4 ♀, K. S. Lin; X-1984, 1 ♂, K. S. Lin & K. C. Chou; XI-1985, 3 ♂ 3 ♀, K. S. Lin, X-1985, 1 ♀, K. S. Lin (malaise trap); Meifeng (2150 m), IX-1984, 6 ♂ 2 ♀, K. S. Lin & K. C. Chou (malaise trap); Tayuling (2560 m), 1 ♀, L. Y. Chou & K. C. Chou (malaise trap); Sunkang (2100 m), X-1984, 6 ♂, K. S. Lin & K. C. Chou (malaise trap); IX-1985, 6 ♂, K. S. Lin (malaise trap); Lienhuachi (650 m), VIII-1984, 2 ♂ 1 ♀, K. S. Lin & K. C. Chou (malaise trap).

The new species is similar to *Miommya zheng* n. sp., but can be identified by antennae and pronotum fuscous, not pale yellow. Genitalia closely resembled in *M. zhengi*, but aedeagus weakly sclerotized and not pigmented.

**Etyology.** Named in honor of Dr. L. Y. Chou, the collector and late Entomologist, Taiwan Agricultural Research Institute (TARI).

***Sophianus formosanus* Lin & Yang, n. sp. (Figs. 1 G, H & 6)**

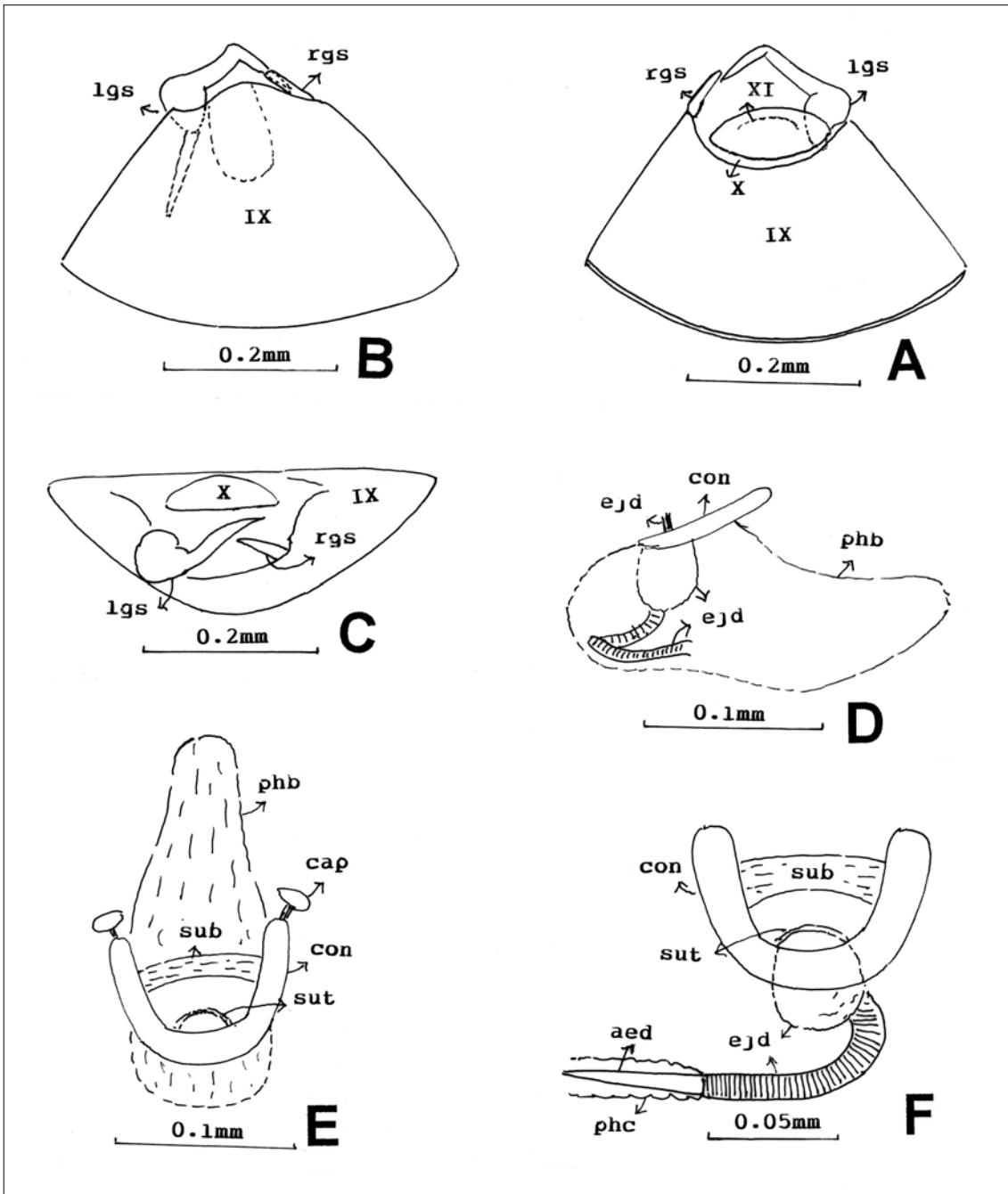


Fig. 5. *Myiomma choui* Lin & Yang, n. sp. A. Abdominal segments IX, X and genital style, dorsal view; B. Abdominal segments IX, X and genital style, ventral view; C. Abdominal segment IX and genital styles, caudal view; D. Phallus, lateral view; E. Phallus, dorsal view; F. Connective, ejaculatory duct and aedeagus, anterior view. Abbreviation as in Fig. 2.

**Male.** Body elongate oval, fuscous, furnish with dark distinct hairs. Head semi-globular, fuscous with the rear margin of head brown, lower margin of eyes narrowly pale brown; eyes large, fuscous, occupying most part of head and confluent with each other along median line in front of vertex; ocelli distinct; face somewhat triangular in outline, pale brown and with clypeus longer than wide, brown; antennae fuscous, first antennal segment incrassate but without spines, second segment broad and laminately incrassate; rostrum long, fuscous, tip reaching to the hind coxa.

Pronotum broadly fuscous, wider than twice the median length, hind margin straight, pronotum disc moderate punctate, pubescent with long hairs; mesonotum fuscous; scutellum granulated, basal fuscous, apical white, except for extreme apex dark. Hemelytra fuscous, distinctly punctuated, pubescence with long setae about 0.3 mm; cuneus triangular shaped, pubescence with long hairs, broadly fuscous, basal with oblique white band; membrane with elongate closed-cell. Legs with distinctly incrassate hind femora and 2-segmented tarsi, fuscous with posterior coxae white, and femora apical pale brown. Body underside fuscous.

Abdominal segment IX dorsoventrally depressed; lateral margin distinctly converged to apex in dorsal view; in ventral view apex asymmetrical, right two-thirds straight, left one-third distinct concave. Genital styles asymmetrical in size and shape; left genital style large, its apex directed right, reached to base of right genital style. Inner portion of left genital style long, reached over middle of left lateral margin of abdominal segment IX.

Phallus directed caudad within segment IX. Connective U-shaped. Support bridge with upper portion as cross bar of connective, the remainder difficult to discriminate. Capitulate processes relatively small. Support tube not visible in

lateral view, in dorsal view semicircular, it difficult discriminated from expanded ejaculatory duct. Ejaculatory duct large, roundly expanded below connective, then narrowed into tube-shaped structure, diameter of tube nearly as wide as base of aedeagus, far more wider than ejaculatory duct before support tube. Both rounded and tube-shaped portions of ejaculatory duct lightly pigmented and spiral. Phallobase membranous, converged to apex in dorsal view. Phallobase conjunctiva not armed with small cuticular spines, normally connected apex of phallobase and base of aedeagus. Aedeagus converged to apex, weakly sclerotized, not pigmented.

**Measurements (in mm):** Body: length 3, width 1; head: length 0.25, width 0.6, height 0.8; vertex width 0.1, ocellus width 0.1, rostrum length 1.6; antennal segment 0.4:1.1:the others broken; pronotum: length 0.5, basal width 1.0; scutellum length 0.4, width 0.4; cuneus length 0.6; claval commissure length 0.35.

**Female.** Very similar to male, but with short wing and larger body, first antennal segment with two horns.

**Holotype:** ♂, PINTUNG: Kentine, 25-26-II-1989, C. S. Lin (UV Light trap). Type is deposited at the National Museum of Natural Science (NMNS).

**Paratype:** NANTOU: Lienhuachi (650 m), VIII-1984, K. S. Lin & K. S. Chou (malaise trap). Lienhuachi (650 m), V-1984, VII-1984, XII-1984, K. S. Lin & K. S. Chou, 4 ♂ (malaise Trap), PINBTUNG: Shihtze, 17-IX-14-V-2001, 5 ♂, 15-V-26-VI-2001, 7 ♂, 1 ♀, C. Y. Lin, H. T. Shih & N. T. Chang (malaise trap).

This species is very similar to *Sophianus lamellatus* Ren et Yang, but can be identified by the shape of genital styles (parameres) and femur without brown spots on each side and hind coxa of this species white.

**Etyology.** Name from the locality.

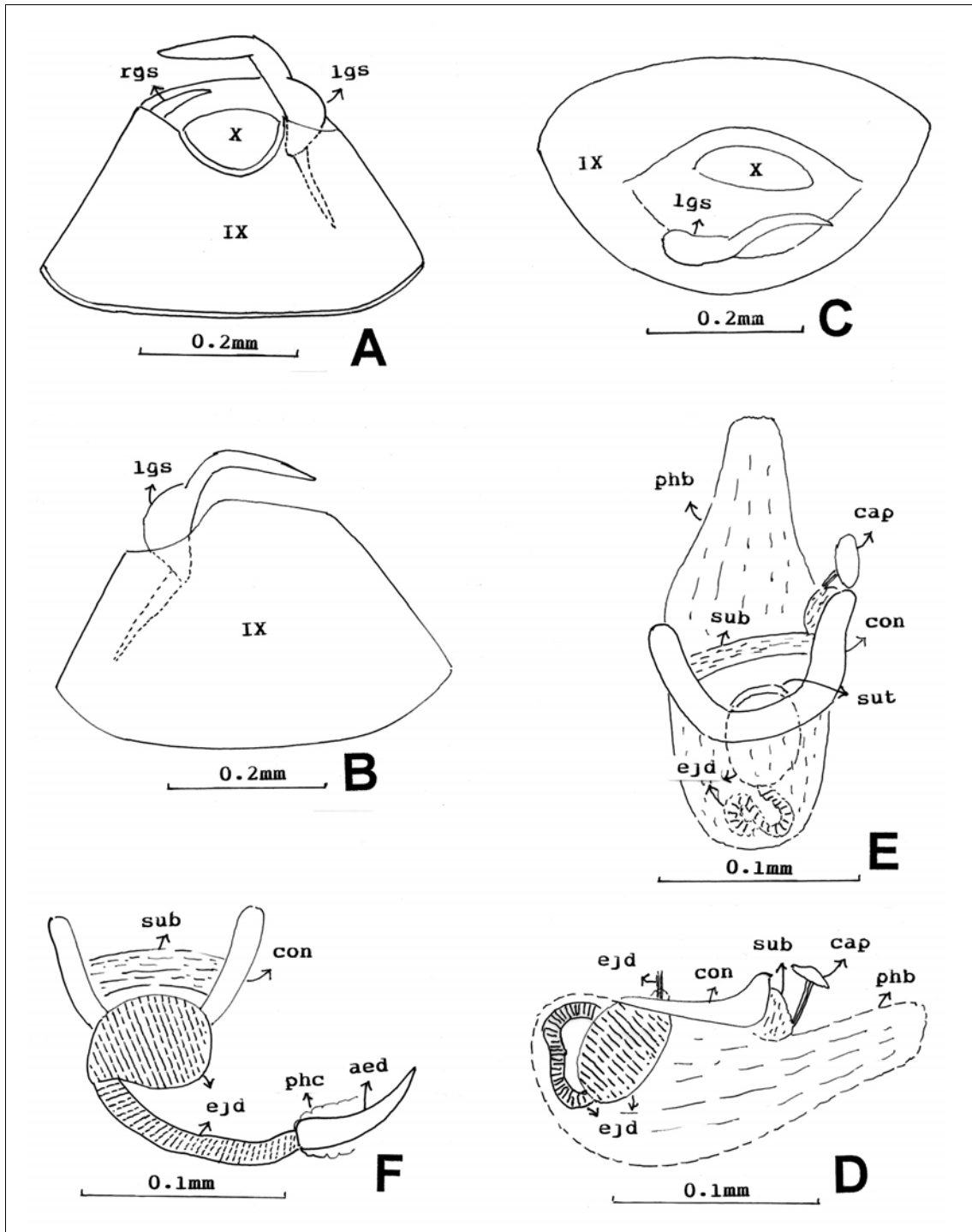


Fig. 6. *Sophianus formosanus* Lin & Yang, n. sp. A. Abdominal segments IX-X and genital styles, dorsal view; B. Abdominal segments IX-X and genital styles, ventral view; C. Abdominal segments IX-X and genital styles, caudal view; D. Phallus, lateral view; E. Phallus, dorsal view; F. Connective, ejaculatory duct and aedeagus, lateral view. Abbreviation as in Fig. 2.

*Totta ruficornia* Lin & Yang, n. sp. (Fig. II)

**Female.** Body elongate oval, semi-hyaline with red marking, furnished with distinct hairs. Head semi-globular, fuscous, with rear margin of head black, lower margin of eyes red; eyes large, fuscous, occupying most part of head and not confluent with each other along median line in front of vertex; ocelli red, distinct, distance between them larger than diameter of an ocellus, well developed but not meeting, lateral view, more than half height of head; frons somewhat triangular in outline, slightly porrect, fuscous; clypeus longer than wide, fuscous; antennae arising from near lower half on inner margin of eyes, first segment pale yellow, short, cylindrical, second segment red, thick and long, pubescence with long hairs. Rostrum long, tip reaching to the hind coxa.

Pronotum distinctly wider than twice of the median length, moderate transversely rastrate, pubescence with pale hairs, broadly black, with pale pubescence; mesonotum fuscous; scutellum porrect, moderate punctures with brown hairs, basal dark red, apical pale yellow. Hemelytra translucent, silver white with pink area in the middle, shallow impressed along subcostal line and claval suture, moderately punctuate, and pubescence with long, pale hairs; cuneus longer than wide; membrane with an elongate closed cell. Legs with distinctly incrassate hind femora and 2-segmented tarsi, pale yellow, tibiae with red marking. Body underside of thoracic segment black, abdominal segment fuscous, antelateral part with red marking, basal and apical parts with pale yellow band.

**Measurements (in mm):** Body: length 2.7, width 1.15; head: length 0.25, width 0.5, height 0.5; vertex width 0.15, ocelli width 0.1; rostrum length 1.6; antennal segment 0.1:0.6:broken; pronotum: length 0.4, basal width 0.9; scutellum: length 0.2,

width 0.3; cuneus length 0.6; claval commissure length 0.37.

**Holotype:** ♀. NANTOU: Tongpu (1200 m), XII-1985, K. S. Lin (malaise trap). Type is deposited at Taiwan Agricultural Research Institute (TARI).

This species is similar to *Totta zaherii*, Ghauri and Ghauri, 1983 but the new species can be identified by the red coloration of the body and antennae.

**Etyology:** The name from Latin, "ruber" means red, "corni", means horn, refer to the red antennae.

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# 臺灣的樹蝽亞科（半翅目：盲蝽科）

林政行\* 國立自然科學博物館動物組 臺中市館前路一號

楊仲圖 國立中興大學昆蟲系 臺中市國光路 250 號

## 摘 要

本文描述臺灣產樹蝽亞科四新種：周氏樹蝽 (*Myiomma choui* Lin & Yang, n. sp.)、鄭氏樹蝽 (*Myiomma zhengi* Lin & Yang, n. sp.)、臺灣奇樹蝽 (*Sophianus formosanus* Lin & Yang, n. sp.) 及紅角樹蝽 (*Totta ruficornis* Lin & Yang, n. sp.)，發現四記錄種：錫蘭樹蝽 (*Isometopidea lieweni* Poppius, 1913)、黑痣樹蝽 (*Isometopus nigrosignatus* Ren, 1987)、長谷川樹蝽 (*Isometopus hasegawai* Miyamoto, 1965) 及山姆森樹蝽 (*Myiomma samuelsoni* Miyamoto, 1965)。並附臺灣產樹蝽亞科種檢索表及外生殖器圖。

**關鍵詞：**半翅目、盲蝽科、樹蝽亞科、新種、新記錄種