

Seven New Species of Isometopinae (Hemiptera: Miridae) from Taiwan 【Research report】

台灣產樹蝽亞科 (半翅目:盲蝽科) 七新種【研究報告】

Cheng-Shing Lin* 林政行*

*通訊作者E-mail: ☑ cslin@mail.nmns.edu.tw

Received: 2004/09/03 Accepted: 2004/12/16 Available online: 2004/12/01

Abstract

Seven new species, i.e., Alcerocoris formosanus Lin, n. sp., A. fraxinusae Lin, n. sp., Isometopidea formosana Lin, n. sp., Isometopus bipunctatus Lin, n. sp., I. lini Lin, n, sp., I. renae Lin, n. sp., and I. yehi Lin, n. sp., of the Isometopinae from Taiwan are reported. Key to species of Isometopinae from Taiwan and figures of the male genitalia are included.

摘要

本文描述臺灣產樹亞科七新種:臺灣鹿角樹(Alcerocoris formosanus Lin, n. sp.)·木犀鹿角樹(Alcerocoris fraxinusae Lin, n. sp.)·臺灣樹(Isometopidea formosana Lin, n. sp.)·雙點樹(Isometopus bipunctatus Lin, n. sp.)·林氏樹(Isometopus lini Lin, n. sp.)·任氏樹(Isometopus renae Lin, n. sp.)·及葉氏樹(Isometopus yehi Lin, n. sp.)。並附臺灣產樹亞科種檢索表及外生殖器圖。

Key words: Hemiptera, Miridae, Isometopinae, new species

關鍵詞: 半翅目、盲科、樹亞科、新種

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Seven New Species of Isometopinae (Hemiptera: Miridae) from Taiwan

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

ABSTRACT

Seven new species, i.e., *Alcerocoris formosanus* Lin, n. sp., *A. fraxinusae* Lin, n. sp., *Isometopidea formosana* Lin, n. sp., *Isometopus bipunctatus* Lin, n. sp., *I. lini* Lin, n, sp., *I. renae* Lin, n. sp., and *I. yehi* Lin, n. sp., of the Isometopinae from Taiwan are reported. Key to species of Isometopinae from Taiwan and figures of the male genitalia are included.

Key words: Hemiptera, Miridae, Isometopinae, new species

Introduction

Lin and Yang (2004) reported eight species of Isometopinae. In this paper, seven more species new to Taiwan are reported. Type series and examined specimens are deposited at the National Museum of Natural Science (NMNS), Taichung, Taiwan and Taiwan Agricultural Research Institute (TARI), Taichung, Taiwan. Methods of dissection and terminology followed Lin and Yang (2004).

Key to species of the Isometopinae from Taiwan

beyond apex of scutellum, usually forming distinct commissure ----- 7 2. Lower face carinate and gently sinuate ----------Isometopus hasegawai Miyamoto Lower face not carinate and sinuate-3 3. Face with large black spot ----- 4 Face without large black spot----- 5 4. Hemelytra semitransparent ----------Isometopus renae Lin, n. sp. Hemelytra not semitransparent ----------Isometopus nigrosignatus Ren 5. Face with black band from ocelli to clypeus -----Isometopus lini Lin, n. sp. Face without black band from ocelli to clypeus ----- 6 6. Face underneath eye enlarged, lateral with white band---------- Isometopus bipunctatus Lin, n. sp Face underneath eye not enlarged, lateral without white band----------Isometopus yehi Lin, n. sp. 7. Pronotum 1/2 as long as or longer

than width at base -----8 Pronotum less than 1/2 as long as width at base-----13 8. Second antennal segment thickened or expanded, wider than hind-femur ----9 Second antennal segment not thickened or expanded, not wider than hind-femur ------11 9. Second antennal segment laminately incrassate, widening gradually from base --------- Sophianus formosanus Lin & Yang Second antennal segment \mathbf{not} laminately incrassate, widening abruptly from base ----- 10 10. Hemelytra reaching tip of abdomen -----Alcecoris fraxinusae Lin, n. sp. Hemelytra not reaching tip of abdomen---------- Alcecoris formosanus Lin, n. sp 11. Pronotum with complete lateral carina -----12 Pronotum without lateral carina---------- Totta rufercorna Lin & Yang 12. Hemelytra heavily punctate, not semitransparent ----------Isometopidea lieweni Poppius Hemelytra moderately punctate, semitransparent--------- Isometopidea formosana Lin, n. sp. 13. Eyes red (dried specimen) ---------- Myiomma zhengi Lin & Yang Eyes fuscous (dried specimen)-----14 14. Scutellum with white spot ----------Myiomma choui Lin & Yang Scutellum without white spot-----

Alcerocoris fraxinusae Lin, n. sp. (Fig. 1A, B)

----- Myiomma samuelsoni Miyamoto

Female: Body elongate oval, black or fuscous. Head semi-globular, silver-gray with brown rear margin of head, lateral with a black, pointed horn; eyes large, silver- gray, occupying most of head and confluent with each other along median line in front of vertex; ocelli distinct; face somewhat triangular in outline, black or fuscous; antennae fuscous, 1st antennal segment incrassate, axe-shaped, with 1 lateral portion concave and the other convex, pubescent with long silky hairs, segment II broad, long bowl-shaped incrassate and basal with triangular horn, pubescent with long silky hairs, segment III small, short, brown, basal with red band, segment IV silky-white. Rostrum fuscous, long, tip reaching apex of hind coxa.

Pronotum charcoal black, long, rectangular, concave transversely at 1/3, anterior portion ruggose and posterior portion punctate, lateral margin with narrow reflect, becoming broader at posterior end, mesonotum not visible, scutellum fuscous with white posterior portion, concave in middle and tumid at both ends, hemelytra fuscous, distinctly punctate at clavus and corium, pubescent with silky hairs, lateral margin with semitransparent extension, membrane gray, with elongate closed cell. Legs fuscous with white coxa and apical 1/2. Body underneath on thorax and abdomen fus-COLLS

Male. Unknown.

Measurements (in mm): Body length 3.2, width 1.0; head length 0.4, width 0.8; rostrum length 1.5; antennal segments: 0.4, 1.5, 0.3, 0.3; pronotum length 0.7, basal width 1.0; scutellum length 0.4, width 0.4.

Holotype. $1 \stackrel{?}{\rightarrow}$, TAITUNG: Banchiu Branch Station, Taitung Agricultural Experiment Station. 17-VII-2002, M. L. Chan (from *Fraxinus formosanus* Roxb. (Oleaceae)). Type is deposited at the National Museum of Natural Science (NMNS).

Remarks: Similar to *Alcerocoris globosus* Carvalho, 1951 and can be separated by the basal antennal segment with the axe-like shape, the 2nd antennal segment with long, broad husk-like shape, and a deep transverse impression at the pronotum (see Carvalho, 1951).

Etymology. Named for the plant,

Fraxinus formosanus, where the new species was found.

Alcerocoris formosanus Lin, n. sp. (Fig. 1C. D)

Female. Body elongate oval, fuscous. covered with distinct dark hairs. Head semi-globular, fuscous with brown rear margin of head, lower margin of eyes narrowly pale brown; eyes large, red, occupying most of head and confluent with each other along median line in front of vertex; ocelli distinct; face somewhat triangular in outline, pale brown, clypeus longer than wide, brown, in middle with deep longitudinal impresssion; antennae brown, basal segment of antenna equal or longer than segment III and IV together, with stout spur above and another below; segment II abruptly widened from base, in the form of a thin plate with lateral edges turned in, causing it to assume a husk-like shape, segment III small, short, reddish-brown, segment IV small, short, reddish-brown with white apical 2/3; head seen from above with small protuberance on each side behind antennal insertion: rostrum brown, long, tip reaching 2nd abdominal segment.

Pronotum brown tumid, moderately punctate, hind margin at lateral sides with flat extension, collar narrow, punctate; scutellum concave, granulated, basal brown, apical with small white spot. Hemelytra short, tip reaching 3rd abdominal segment, brown with white line at lateral hind margin, punctate, pubescent with long black hairs. Legs brown, metacoxae white. Body undernearth brown.

Measurements (in mm): Body length 2.5, width 1.0; head length 0.3, width 0.6; rostrum length 1.5; antennal segments: 0.5, 1.2, 0.2, 0.2; pronotum length 0.4, basal width 0.6; scutellum length 0.4, width 0.4.

Holotype. $1 \stackrel{\circ}{+}$, PINGTUNG: Shihtze, Lilungshan, 17-IV~14-V-2001, C. Y. Lin, H. T. Shih and N. T. Chang (malaise trap). Type is deposited at the Taiwan Agricultural Research Institute (TARI).

Remarks: The new species is similar to A. fraxinusae, but can be identified by the short wing.

Etymology. Named for the type locality.

Isometopidea formosana Lin, n. sp. (Fig.

Male. Body elongate oval, fuscous, covered with dark hairs. Head vertical pale vellowish-brown, eves large, fuscous, occupying most of head and confluent with each other along median line in front of vertex: ocelli distinct: face long. triangular, yellowish-brown, antennae originating from lower lateral, antennal segment small, short, yellowishbrown, segment II short, larger than I, barrel-shaped, yellowish-brown, segment III long, slender, brown, covered with long, vertical hairs; rostrum yellowishbrown with brown tip, long with tip reaching 2nd abdominal segment.

Pronotum fuscous, rectangular, punctate, pubescent with long dark hairs, lateral margin with narrow, semitransparent extension; collar narrow, brown, covered with long hairs; mesonotum not visible; scutellum heart-shaped, tumid, concave longitudinally in middle, anterior portion milky-white, posterior end with white dot, margin fuscous: flattened, with moderately elevated and punctate clavus, corium smooth, shiny, lightly punctate and covered with some long hairs, membrane shiny gray, with elongate closed cell, cuneus triangular, with gray posterior portion covered with long dark hairs, anterior portion clear, glabrous. Legs yellowish-brown with fuscous band. Body underneath on thorax dark yellowish-brown, punctate, dark vellowish-brown on abdomen, and fuscous on genital segment. Male genitalia with curved anterior portion of left paramere



Fig. 1. A. Dorsal view of Alcerocoris formosanus Lin, n. sp., holotype \(\frac{1}{2} \); B. anterior view of Alcerocoris formosanus Lin, n. sp., holotype \(\frac{2}{2} \); C. dorsal view of Alcerocoris fraxinusae Lin, n. sp., holotype \(\frac{2}{2} \); D. anterior view of Alcerocoris fraxinusae Lin, n. sp., holotype \(\frac{2}{2} \); F. male genitalia of Isometopidea formosana Lin, n. sp., holotype \(\frac{2}{2} \); G.. dorsal view of Isometopus bipunctatus Lin, n. sp., holotype \(\frac{2}{2} \); G. dorsal view of Isometopus bipunctatus Lin, n. sp., holotype \(\frac{2}{2} \); (Scale = 1 mm)

and with a pointed end, base enlarged, broad, narrowing to end; right paramere more slender, anterior portion duck-headshaped, neck narrow, slender, basal moderately enlarged and then become narrowing as in Fig. 1F.

Measurements (in mm): Body length 4.1, width 1.6; head length 0.3, width 0.65, face length 1.1, width 0.6; vertex width 0.2, ocelli width 0.1; rostrum length 2.0; antennal segments: 0.1, 1.2; pronotum length 0.9, basal width 1.4; scutellum length 0.6, width 0.7; cuneus length 0.6; commissure length 0.4.

Holotype. 1 3, NANTOU: Chunyang, $11\text{-VI} \sim 9\text{-VII}\text{-}2002$, C. S. Lin and W. T. Yang (malaise trap). Type is deposited at the National Museum of Natural Science (NMNS).

Remarks: Very similar to Isometopidea lieweni Poppius, but this species can be separated by the large body size, and shiny gray hemelytra with lightly punctate instead of milky-white and covered with setigerous punctures.

Etymology. Named for the locality.

Isometopus bipunctatus Lin, n. sp. (Fig. 1G, H)

Female. Body oval, brown ochraceous, finely punctate, covered with pale hairs. Head vertical or distinctly short fronto-caudally, face yellowishbrown, eyes and ocelli violet, infraocular portion of gena enlarged, with large fuscous spot; antennae fuscous, originating from underside of eye, 1st antennal segment short, obconical, segment II long, cylindrical, segment III slender, narrower than segment II, segment IV long, fusiform; rostrum fuscous, long, tip reaching apex of hind coxa.

Pronotum broad, median posterior portion yellowish-brown, lateral margin narrowly reflected, hind margin broadly convex in middle, and broadly concave laterally, finely punctate and covered with fine hairs; mesonotum exposed and

distinctly punctate, fuscous; scutellum slightly porrect and punctuate, fuscous or black with yellowish-brown anterior 1/2. Hemelytra declivous behind cuneal fracture, distinctly punctate on clavus and corium, anterior portion of clavus and corium with large yellowish-brown spots, cuneus yellowish-brown; membrane with 1 closed cell, gray. Leg black or fuscous, femur and tibiae with yellowishbrown band. Body underneath black or fuscous on thorax, ostiolar evaporative area fuscous, and brown or yellowishbrown on abdomen.

Measurements (in mm): Body length 2.8, width 2.0; head length 0.4, width 0.9, vertex width 0.2, ocelli width 0.1; rostrum length 1.0; antennal segments: 0.1, 0.6, 0.5, 0.2; pronotoum length 0.5, basal width 1.5; scutellum length 1.0, width 0.8; cuneus length 0.5; commissure length 0.2.

Holotype, $1 \stackrel{\circ}{+}$, NANTOU: Chunyang, $6\text{-IV} \sim 11\text{-V}\text{-}2004$, C. S. Lin and W. T. Yang (malaise trap). Paratype, $2 \stackrel{\circ}{+}$, same as holotype, 9-III~6-IV-2004, C. S. Lin & W. T. Yang (malaise trap). Type is deposited at the National Museum of Natural Science (NMNS).

Remarks: The new species is similar to Isometopus lini, but can be differenttiated by the 2 large, circular, yellowishbrown spots.

Etymology. Named for the 2 large circular, yellowish-brown spots on head.

Isometopus lini Lin, n. sp. (Fig. 2A, B,

Male. Body oval, general coloration fuscous with milky-white hemeletra, covered with long, silky hairs. Head vertical or distinctly short fronto-caudally, with fuscous base of vertex and whitishyellow lateral, face broad, fuscous lateral yellowish-white, infraocular portion of gena very narrow, eyes large, occupying sides of head, distance between ocelli less than diameter of ocellus: antennae originating from underside of eyes, 1st

antennal segment short, yellowish-white, 2nd segment long, almost 8 times length of 1st segment, yellowish-white, anterior 1/5 gray, pubescent with long hairs; clypeus white, rostrum yellowish-white with brown apex, tip reaching 2nd abdominal segment.

Pronotum broad, fuscous, distinctly punctate, pubescent with long, silky hairs, lateral concave, narrowly reflected, hind margin broadly concave laterally and convex in middle; mesonotum fuscous, crab-shaped with pointed lateral, distinctly punctate; scutellum fuscous with white posterior 1/4, slightly porrect punctate, pubescent with long silky hairs. Hemelytra milky-white, semitransparent, slightly punctate; cuneus triangular; membrane silver-white. Legs yellowishwhite, meso- and meta-coxae with 1 large brown spot. Body beneath fuscous, ostiolar evaporative area white. Male genitalia with narrow and slender left paramere, anterior portion bent with a pointed end, basal moderately enlarged, long and slender to end; right paramere small, short, with pointed end, basal narrow to end as in Fig. 2B.

Female. Unknown.

Measurements (in mm): Body length 2.5, width 1.3; head length 0.15, width 0.6, vertex width 0.25, ocelli width 0.1; rostrum length 1.2; antennal segments: 0.1, 0.5; pronotum length 0.3, basal width 1.1; scutellum length 0.8, width 0.7; cuneus length 0.5; commissure length 0.3.

Holotype: 1 β , TAICHUNG: Wanfeng Hill, IV-1984, K. S. Lin and K. C. Chou (malaise trap). Paratype: 1 β , same as holotype, IX-1985, K. S. Lin and K. C. Chou (malaise trap). Type is deposited at the Taiwan Agricultural Research Institute (TARI).

Remarks: The new species is similar to *Isometopus hasegawai* Miyamoto, but can be separated by the semitransparent wings and smaller size. The new species also can be separated from *Isometopus tianjinus* Hsiao by the lateral margin of

the pronotum with white line and fron not being punctate.

Etymology. Named in honor of Mr. K. S. Lin, collector and the late entomologist of the Department of Applied Zoology, Taiwan Agricultural Research Institute (TARI), Taichung, Taiwan.

Isometopus renae Lin, n. sp. (Fig. 2C, D, H)

Male. Body oval, general coloration brown with pale-brown hemelytra, covered with fine gray hairs. Head yellowish-brown with 2 brownish spot and fuscous front, vertical, or distinctly short fronto-caudally; eyes large, violet, ocelli large, contiguous to the eye, distance between ocelli larger than diameter of ocellus; antennae originating from underside of eye, 1st antennal segment short, barrel-shape, brown, segment II long, slender and curved to both ends, brown, pubescent with long, semi-vertical, gray hairs, length twice width of segment II, segments III and IV short, slender, fuscous; rostrum long, brown, tip reaching 4th abdominal segment.

Pronotum broad, fuscous with brown band on anterior margin, posterior center and both lateral ends with white spots, distinctly punctate and pubescent with long hairs; mesonotum dark brown, distinctly punctate, pubescent with long hairs, concave in middle; scutellum dark brown with apical white 1/5, distinctly punctate, pubescent with long hairs, concave in the middle; hemelytra brownish white, semi-transparent, distinctly punctuate on clavus and corium, pubescent with long, gray hairs, anterior corium with a fuscous spot; membrane with 1 gray closed cell. Legs yellowishwhite, femur with fuscous band, tibiae pale brown. Body beneath yellowish brown with brown spot on abdomen, thoracic part fuscous, ostiolar evaporative area pale brown. Male genitalia with knife-shaped anterior portion of left

paramere, neck narrow and slender, basal portion enlarged and broad, then narrowing to end; right paramere long sickleshaped as in Fig. 2D.

Female. Unknown.

Measurements (in mm): Body length 3.5, width 1.9; head length 0.1, width 0.7, vertex width 0.3, ocelli width 0.1; rostrum length 1.2; antennal segments: 0.1, 0.8, 0.4, 0.2; prontoum length 0.4, basal width 1.5; scutellum length 1.0, width 1.0; cuneus length 0.6; commissure length 0.2.

Holotype: 1 3, NANTOU: Sunkang (2100 m), IX-1985, K. S. Lin (malaise trap).

Type is deposited at the Taiwan Agricultural Research Institute (TARI).

Remarks: The new species is similar to I. lini, but can be separated by the larger body size.

Etymology. Named in honor of Prof. S. Z. Ren, Department of Biology, University of Nankai, Tianjin, China as she is an expert on the Isometopinae.

Isometopus yehi Lin, n. sp. (Figs 2E, F,

Male. Body oval, fuscous, covered with fine pale hairs. Head vertical or distinctly short fronto-caudally, vertex fuscous, upper 1/2 of face fuscous, punctate and pubescent with long hairs, with flat, brown lower margin, apical margin of face convex, eyes large occupying sides of head, distance between ocelli larger than diameter of ocellus; antennae dark brown, originating from underside of marginal carina of face, 1st antennal segment obconical and shortest, segment II long and slender, yellowish-brown with fuscous apical 1/3, covered with long, pale, vertical hair, segment III long slender, fuscous, almost same length as segment II, covered with long pale hairs, segment IV short, fusiform, with pointed apical portion; rostrum brown, long, tip reaching apex of hind coax.

Pronotum broad, lateral sides narrowly reflected, hind margin pointedly convex in middle and narrowly concavely sinuate laterally. Mesonotum exposed and distinctly punctate, scutellum punctate. Hemelytra fuscous, declivous behind cuneal fracture, distinctly punctate on clavus and corium; clavus narrowed posteriorly; membrane cloudy gray, with 1 closed cell. Legs fuscous, base and apex of femora and tibia yellowish-brown. Legs sparsely pubescent, femora thick. Body beneath fuscous on thoracic segments and abdomen, ventral side of thorax punctuate, ostiolar evaporative area gray. Male genitalia with left paramere, its apex beak-shaped and decurved, neck narrow and slender, basal enlarged and becoming smaller and narrow, right paramere with its narrow and pointed apex, gradually enlarging and becoming smaller and slender as in Fig. 2F.

Female. Unknown

Measurements (in mm): Body length 3.3, width 1.9; head length 0.1, width 0.8, vertex width 0.2, ocelli width 0.1; rostrum length 1.3; antennal segments: 0.1, 0.7, 0.5, 0.2; pronotum length 0.4, basal width 1.5; scutellum length 1.2, width 0.9; cuneus length 0.5; commissure length 0.2.

Holotype. 1 \(\delta\), NANTOU: Chunyang, 12-III ~ 8 -IV-2002, C. S. Lin and W. T. Yang (malaise trap); paratype, 6 3, same as holotype, $9-III \sim 6-IV-2004$, C. S. Lin and W. T. Yang (malaise trap); 1 3, Lienhuachih: 18-XII-2001~18-II-2002, C. S. Lin and W. T. Yang (malaise trap). Type is deposited at the National Museum of Natural Science (NMNS).

Remarks. This new species is similar to Isometopus hasegawai, but can be identified by the upper 1/2 of the face being fuscous, punctate and pubescent with long hairs, with lower margin being flat and brown, and the apical margin of the face being convex, instead of being markedly carinate and gently sinuate and having a flat apical margin as in

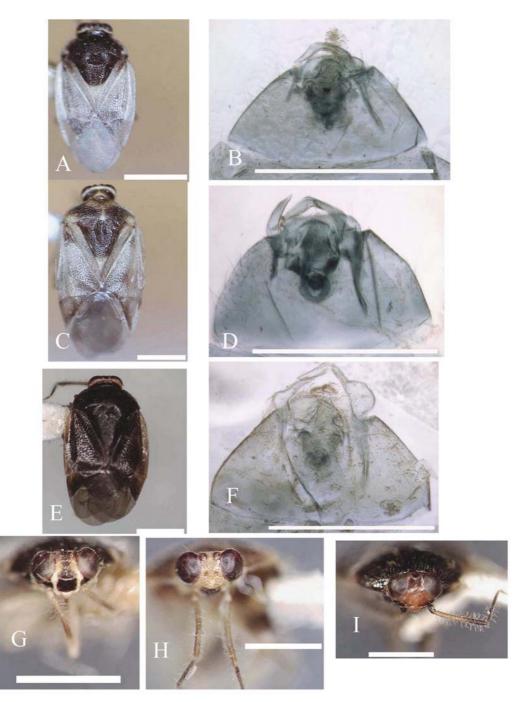


Fig. 2. A. Dorsal view of *Isometopus lini* Lin, n, sp., holotype &; B. male genitalia of *Isometopus lini* Lin, n, sp., holotype &; D. male genitalia of *Isometopus renae* Lin, n. sp., holotype &; D. male genitalia of *Isometopus renae* Lin, n. sp., holotype &; F. male genitalia of *Isometopus yehi* Lin, n. sp., holotype &; F. male genitalia of *Isometopus yehi* Lin, n. sp., holotype &; G. anterior view of *Isometopus lini* Lin, n, sp., holotype &; H. anterior view of *Isometopus yehi* Lin, n. sp., holotype &. (Scale = 1 mm)

Isometopus hasegawai.

Etymology. Named in honor of Dr. C. C. Yeh, the late Professor and Chairman, Department of Entomology, National Chung-Hsing University, Taichung, Tai-

Acknowledgements

I would like to express my sincere thanks to Dr. L. Y. Chou, the late Entomologist of Taiwan Agricultural Research Institute (TARI) for the loan of specimens. Thanks are given to Ms. F. C. Wang, Department of Zoology, National Museum of Natural Science, for helping me illustrate the genitalia. Thanks are also given to the two anonymous reviewers who provided valuable comments on this manuscript. This research was supported by a grant (NSC 92-2621-B-178-004) from the National Science Council, Taiwan.

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Received: Sep. 3, 2004 Accepted: Dec. 16, 2004

臺灣產樹蝽亞科(半翅目:盲蝽科)七新種

林政行* 國立自然科學博物館 臺中市館前路一號

摘 要

本文描述臺灣產樹莓亞科七新種:臺灣鹿角樹莓 (Alcerocoris formosanus Lin, n. sp.), 木犀鹿角樹莓 (Alcerocoris fraxinusae Lin, n. sp.), 臺灣樹莓 (Isometopidea formosana Lin, n. sp.), 雙點樹莓 (Isometopus bipunctatus Lin, n. sp.), 林氏樹莓 (Isometopus lini Lin, n, sp.), 任氏樹蟮 (Isometopus renae Lin, n. sp.), 及葉氏樹蟮 (Isometopus yehi Lin, n. sp.)。並附臺灣產樹蝳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