

A new genus of idiocerine leafhoppers (Hemiptera, Auchenorrhyncha, Cicadellidae) from China on waxberry, with descriptions of two new species

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Abstract

A new genus of idiocerine leafhoppers (Hemiptera, Auchenorrhyncha, Cicadellidae) from China, *Chinaica* Zhang, **gen. nov.**, is described, with two new species: *Chinaica myrica* Zhang, **sp. nov.**, (the type species) and *Chinaica viraktamathi* Zhang, **sp. nov.** Specimens were collected from waxberry, *Myrica rubra* (Lour.) Siebold & Zucc. (Myricaceae). The new genus is distinguished by its external morphology and male genital structures and is compared to similar genera.

Key Words

Amritodus, Auchenorrhyncha, Leafhoppers, morphology, new taxa, *Paramritodus*, taxonomy

Introduction

Waxberry, *Myrica rubra* (Lour.) Siebold & Zucc. (Myricaceae), is an economically important fruit crop widely cultivated in southern China. Owing to its extensive cultivation and perennial growth habit, *M. rubra* supports a diverse assemblage of phytophagous insects. Previous surveys have documented at least 53 insect species associated with this plant, including both fruit-feeding taxa and species inhabiting foliage or branches (Zhang and Li 2012; Zhang et al. 2014). Among them, several leafhopper species (Hemiptera, Auchenorrhyncha, Cicadellidae) are recognized, but only a single idiocerine species, *Idioscopus bimaculatus* (Pruthi, 1936), has so far been documented (Zhang and Li 2012). Members of this subfamily are predominantly associated with woody plants and often exhibit a high degree of host specificity; one genus, *Idioscopus* Baker, 1915 is economically important on mango in Asia.

During recent surveys of leafhopper diversity in southeastern China, idiocerine specimens feeding on *Myrica rubra* were collected from Fujian, Jiangxi and Zhejiang Provinces and the Guangxi Zhuang Autonomous Region. Detailed examination of external morphology and male genital structures revealed that these specimens represent a previously unrecognized genus of Idiocerinae. In this paper, we describe a new genus and recognize two new species. The new genus is tentatively assigned to the tribe Idiocerini based on its overall morphology and male genital characters.

Material and methods

Terminology used follows mainly that of Webb (1983) and Dietrich (2005), and for the female genitalia Davis (1975) and leg chaetotaxy Rakitov (1997). Tech-

niques for the preparation of genital structures follow Oman (1949).

Holotypes and paratypes are deposited in the College of Life Sciences and Technology, Inner Mongolia Normal University (IMNU).

Results

Chinaica Zhang, gen. nov.

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Type species. *Chinaica myrica* Zhang, sp. nov.

Description. Coloration. Ground color yellowish brown, variably with few fuscous markings dorsally.

Morphology. Medium-sized leafhoppers (5.1–5.9 mm long). Crown of uniform length, smooth. Face wider across eyes than long; ocelli located above ends of frontal sutures, closer to adjacent eyes than to each other; antennal flagellum without distal dilation in male; anteclypeus apically expanded laterally and distinctly projecting beyond genae, flat basally and gradually raised toward apex to form a median longitudinal ridge; lateral margins of genae almost straight; lora small, slightly elevated above level of genae. Pronotum shagreen. Mesonotum slightly broader than long, and distinctly longer than pronotum. Forewings with four apical and three subapical cells; outer subapical cell smallest and closed, central subapical cell closed, inner subapical cell longest and open basally; appendix moderately broad. Hind femur with macrosetae formula 2+1, hind tibial macrosetae PD 17–22, AD 6–7, AV 6–8. Hind basitarsus bearing three platellae on distal transverse row.

Abdominal apodemes. Apodemes of tergite III robust, medially separated by a U-shaped notch, apically broadly rounded, and extending to posterior margin of tergite IV.

Male genitalia. Pygofer with a dorso-lateral fracture and ventral process present; antero-dorsal apo-

deme well developed. Anal collar (modified Xth segment) well developed and fused to short pygofer dorsal bridge. Subgenital plates elongate, slightly longer than pygofer. Style elongate; apophysis slightly curved dorsally, subapically with a row of long stout setae. Connective very short, T-shaped. Aedeagus with shaft dorsoventrally flattened, S-shaped; gonopore subapical on ventral surface; preatrium absent; dorsal apodeme well developed, expanded laterally at apex.

Female genitalia. Ovipositor slightly projecting beyond pygofer. Second valvula blade-like, of uniform width except gradually tapered apically to acute apex with dorsal margin at subapex with 6–8 teeth.

Distribution. Oriental region (China).

Etymology. The generic name is derived from the combination of “China” and the Latin suffix “-ica”, referring to the country where the type species was collected. Gender feminine.

Comments. *Chinaica* shares the S-shaped aedeagal shaft with the genus *Amritodus* Anufriev, 1970 and *Paramritodus* Xue & Zhang, 2020 but the three genera can be distinguished by the characters provided in Table 1. Although the preatrium, i.e., the area of the aedeagus below the ventral rim of the atrium has been stated as present and long in descriptions of *Paramritodus* and *Amritodus*, it appears to have been frequently misidentified. In *Paramritodus*, it is, in fact, at most very short and from published figures of *Amritodus* its extent, if present at all, is not clear. Similarly, the so-called male “anal collar” has also been misinterpreted in the literature and is, in fact, the modified basal (Xth) segment of the anal tube. In Idiocerinae, it is variably fused to the dorsal bridge of the pygofer (see Figs 3e, 4g) and comes with two other modifications, i.e., when the modified tenth segment is present the pygofer dorsal bridge is very short (arrowed in Fig. 3e) and a dorso-lateral fracture is present (arrowed in Fig. 3d). Finally, the setae of the style apophysis appear slightly longer, finer and more numerous in *Chinaica* than in *Paramritodus* (compare Fig. 3i with Fig. 5i).

Table 1. Characters distinguishing *Amritodus* Anufriev, 1970, *Chinaica* gen. nov. and *Paramritodus* Xue & Zhang, 2020.

Character	<i>Amritodus</i> Anufriev	<i>Chinaica</i> gen. nov.	<i>Paramritodus</i> Xue & Zhang
Cuticle microsculpture on crown	finely rugose	Smooth	finely rugose
Cuticle microsculpture on pronotum	shagreen	smooth to shagreen	Shagreen
Outer antepical cell of forewing	absent (Fig. 2d)	present (Fig. 2a, b)	absent (Figs 2c, 5c)
Number of platellae on hind basitarsus	four platellae (Fig. 2e)	three platellae (Figs 2g, 4a)	two platellae (Figs 2f, 5d)
Anteclypeus	flat	apically with a median longitudinal ridge (Fig. 1c, f, i, l)	flat (Fig. 5b)
Subgenital plate length	shorter to longer than pygofer	longer than pygofer (Figs 3f, 4f)	shorter than to same length as pygofer (Fig. 5f)
Pygofer caudal lobe length	lobe not exceeding anal tube	lobe not exceeding anal tube (Figs 3f, g, h, 4f, h)	lobe surpassing anal tube (Fig. 5f)
Style apophysis setae	stout and fine short setae	stout and moderately long setae (Figs 3i, 4i)	stout and moderately long setae (Fig. 5h, i)
Connective stem length	stem longer than combined width of arms	stem longer than combined width of arms (Figs 3k, 4k)	stem shorter than combined width of arms (Fig. 5m)
Aedeagal preatrium (see generic remarks)	length unclear in published figures	absent (Figs 3j, k, 4j, k)	absent to moderately long (Fig. 5j, k)

***Chinaica myrica* Zhang, sp. nov.**

<https://zoobank.org/0A5A3349-2E90-4027-B208-3C91AF7B6668>

Figs 1a–f, 2a, 2g, 3

Description. Male. Yellowish brown. Vertex (Fig. 1a) with a pair of circular black spots. Face (Fig. 1c) with antennal sockets and anteclypeus laterally and apically, black. Pronotum (Fig. 1a) with a pair of subtriangular

black markings close to posterior margin of eyes, markings almost horizontally connected. Scutellum (Figs 1a, 2b) with basal angles and longitudinal median marking, black. Forewing (Fig. 2a) with a large chocolate brown spot on the costal margin.

Male abdominal apodemes. Apodemes of sternite I with elongate triangular and rod-like processes (Fig. 3a), distal ends close together. Apodemes of sternite II large,

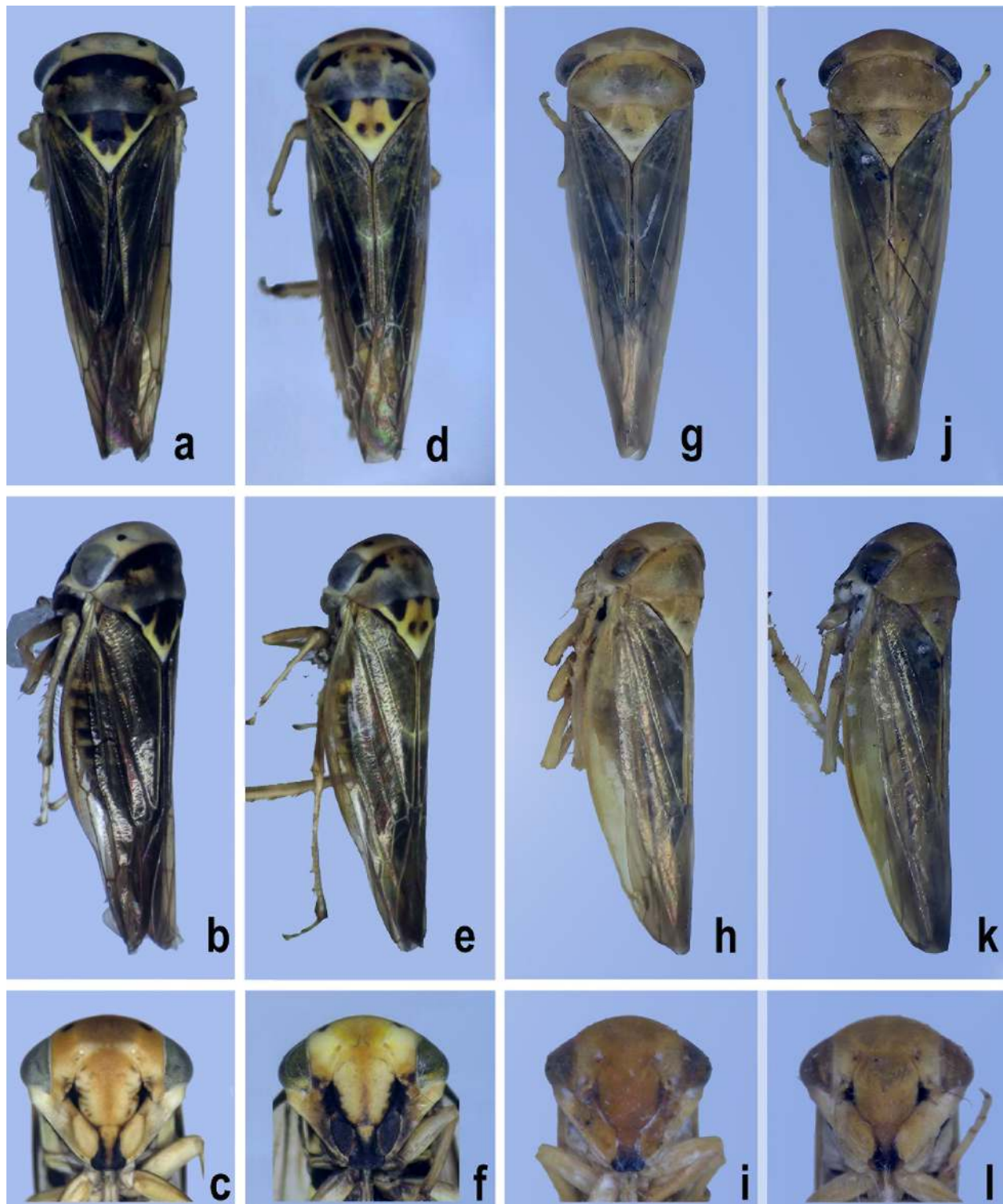


Figure 1. Species of *Chinaica* Zhang, gen. nov., dorsal habitus and face. **a–f.** *Chinaica myrica* Zhang, sp. nov.; **g–l.** *Chinaica virak-tamathi* Zhang, sp. nov.; **a–c, g–i.** Male; **d–f, j–l.** Female.

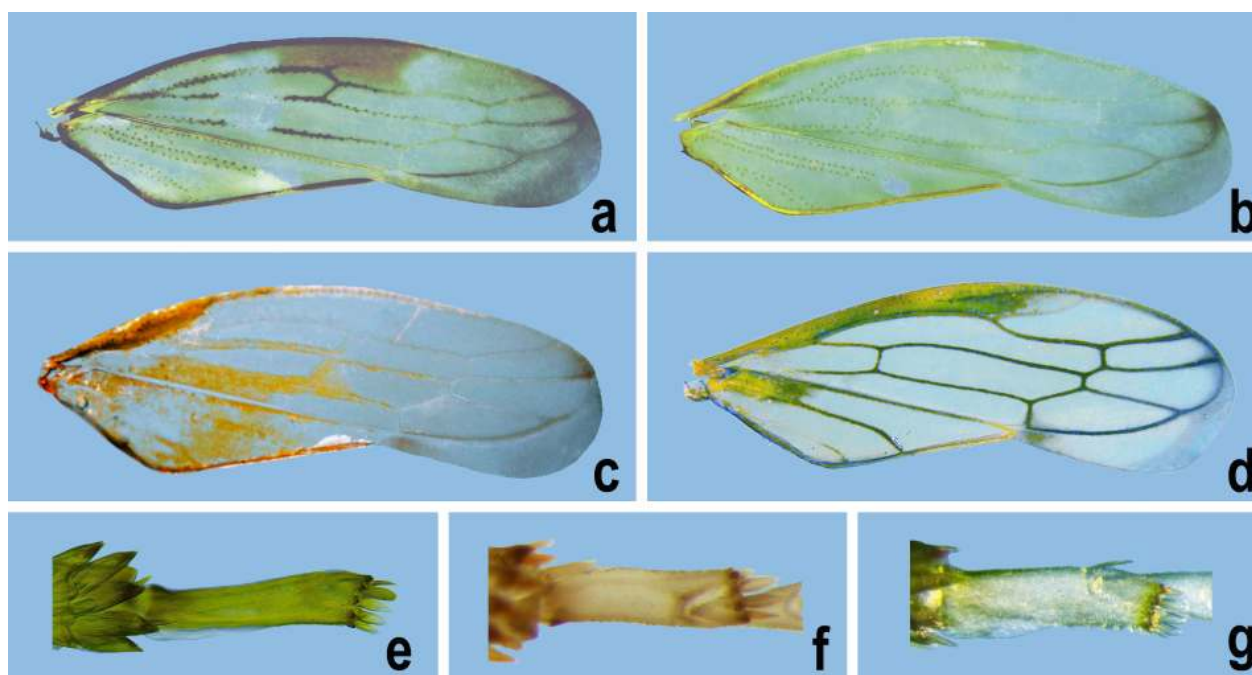


Figure 2. Forewings and meta basitarsus of species of *Amritodus*, *Chinaica* and *Paramritodus*. **a, g.** *Chinaica myrica* Zhang, gen. nov. et sp. nov.; **b.** *Chinaica viraktamathi* Zhang, gen. nov. et sp. nov.; **c, f.** *Paramritodus spatiosus* Xue & Zhang, 2020; **d, e.** *Amritodus atkinsoni* (Lethierry, 1889).

with inner margins of the basal half almost parallel and slightly tapering apically (Fig. 3b), distal ends widely separated and extending beyond sternite I. Apodemes of tergite III robust, medially separated by a U-shaped notch, apically broadly rounded, and extending to posterior margin of tergite IV (Fig. 3c).

Male genitalia. Pygofer (Fig. 3d) broad and triangular in lateral view, narrow at base, gradually widening toward apex; dorsoposterior corner tapered to narrowly rounded apex; ventral process (Fig. 3f–h) short and straight, approximately one-third as long as ventral margin of pygofer, acute apically, slightly extending beyond caudal margin; dorsal bridge very narrow. Modified Xth segment of anal tube (Fig. 3d) gradually expanded toward apex and bearing two ventral, tooth-like projections, one situated subbasally and the other apically; strongly attached to pygofer dorsal bridge. Subgenital plate (Fig. 3d) nearly uniform in width, slightly curved dorsally at the middle. Style apophysis (Fig. 3g) with outer margin bearing approximately 19–20 stout long setae near subapex. Connective with stem (Fig. 3h) dorsally expanded apically, forming a sharp spine-like process. Aedeagus (Fig. 3h, i) with a blunt triangular swelling on ventral margin near base; preatrium absent; shaft tubular, broad basally, narrowing to a sharp apex; dorsal apodeme well developed, apically expanded and fan-like.

Female. Similar in overall coloration to male but paler with the following differences. Pronotum (Fig. 1d) subtriangular markings smaller, separated, and with more clearly defined boundaries. Scutellum (Fig. 1d, e) lacking median longitudinal marking, but with pair of small basal triangular spots and pair of median circular spots, black; gena and lora (Fig. 1f) dark

brown; anteclypeus (Fig. 1f) mostly black, except for the basal triangular area light brown.

Female genitalia. Sternite VII (Fig. 3) with hind margin slightly truncate.

Measurements. Male: body length 5.3–5.5 mm. Female: body length 5.5–5.9 mm.

Material examined. Holotype: • ♂, CHINA: Guangxi Zhuang Autonomous Region, Nanning, Mt. Damingshan, 1190 m, 17. vii. 2021, collected by B. Zhang, sweeping *Myrica rubra* Myricaceae; **paratypes:** • 9♂♂, 16♀♀, same data as holotype; 2♂♂, 6♀♀, CHINA: Guangxi Zhuang Autonomous Region, Nanning, Mt. Damingshan, 1180 m, 17. vii. 2021, at light, collected by B. Zhang (IMNU).

Host plant. Waxberry (*Myrica rubra*).

Etymology. The specific epithet is the generic name of the host plant, *Myrica rubra*, on which the species was collected. Noun in apposition, ending not to be changed.

Remarks. This species can be distinguished from *C. viraktamathi* sp. nov. by the aedeagal shaft being less strongly sinuate with apex non-bifurcate, and by the slightly truncated hind margin of the female sternite VII.

Chinaica viraktamathi Zhang, sp. nov.

<https://zoobank.org/A74D1DB1-B3D2-48BA-9922-D3162A0B881A>
Figs 1g–l, 2b, 4, 6

Description. Coloration. Uniformly pale brown. Face (Figs 1i, 6b) with frontoclypeus and basal portion of anteclypeus chocolate brown, apical portion of anteclypeus dark brown.

Male abdominal apodemes. Apodemes of sternite I (Fig. 4b) with elongate and blade-like processes, inner

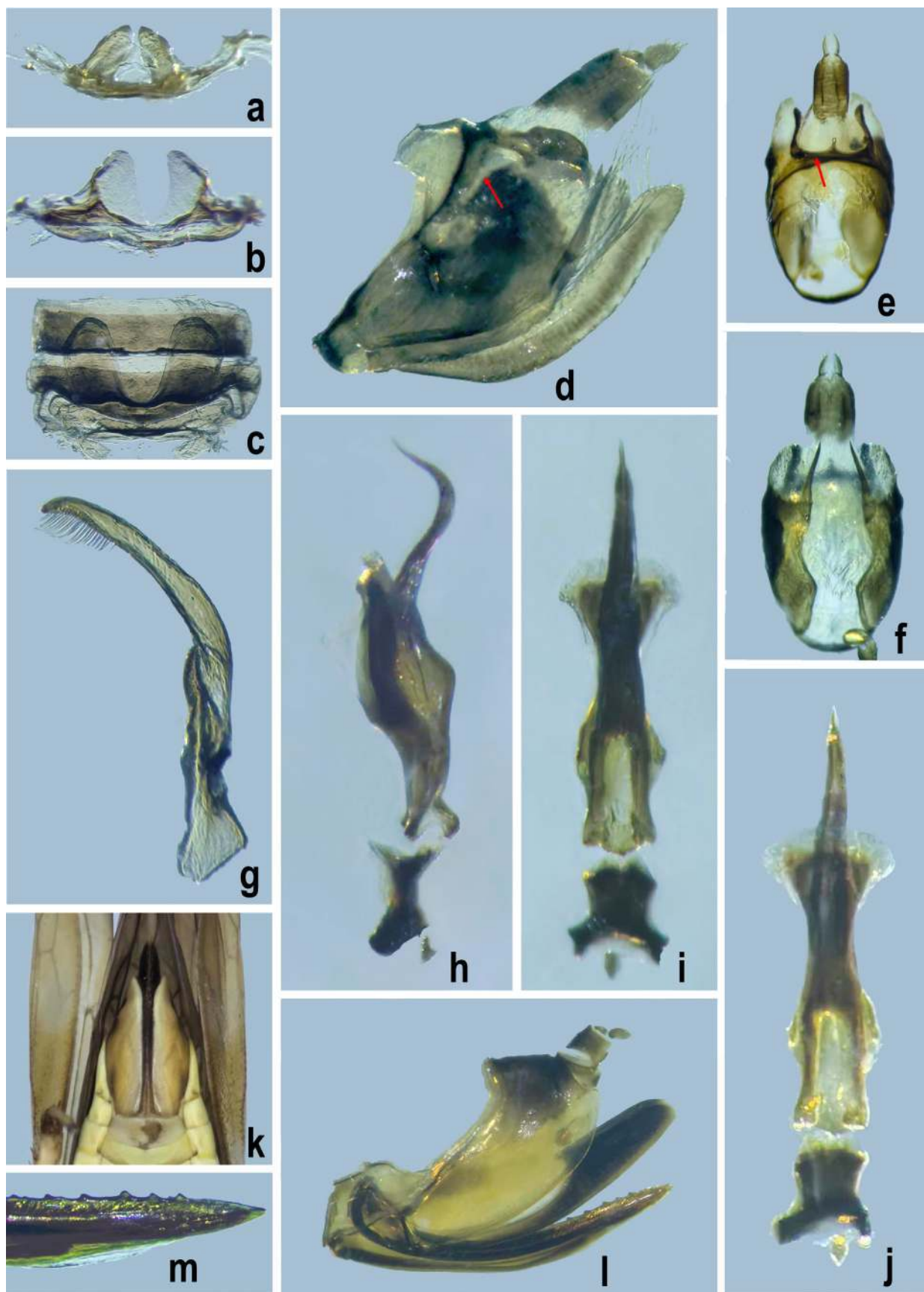


Figure 3. *Chinaica myrica* Zhang, sp. nov. **a–c.** Male sternal apodemes ventral view; **a.** Apodemes I; **b.** Apodemes II; **c.** Apodemes III; **d–f.** Male genital capsule; **d.** Lateral view (arrow showing hyaline fracture); **e.** Dorsal view (arrow showing fused Xth segment to narrow dorsal bridge); **f.** Ventral view; **g.** Style, lateral view; **h–j.** Aedeagus and connective; **h.** Lateral view; **i.** Ventral view; **j.** Dorsal view; **k–m.** Female genitalia; **k.** Apex of abdomen; **l.** Genital capsule, lateral view; **m.** Apex of second valvula.

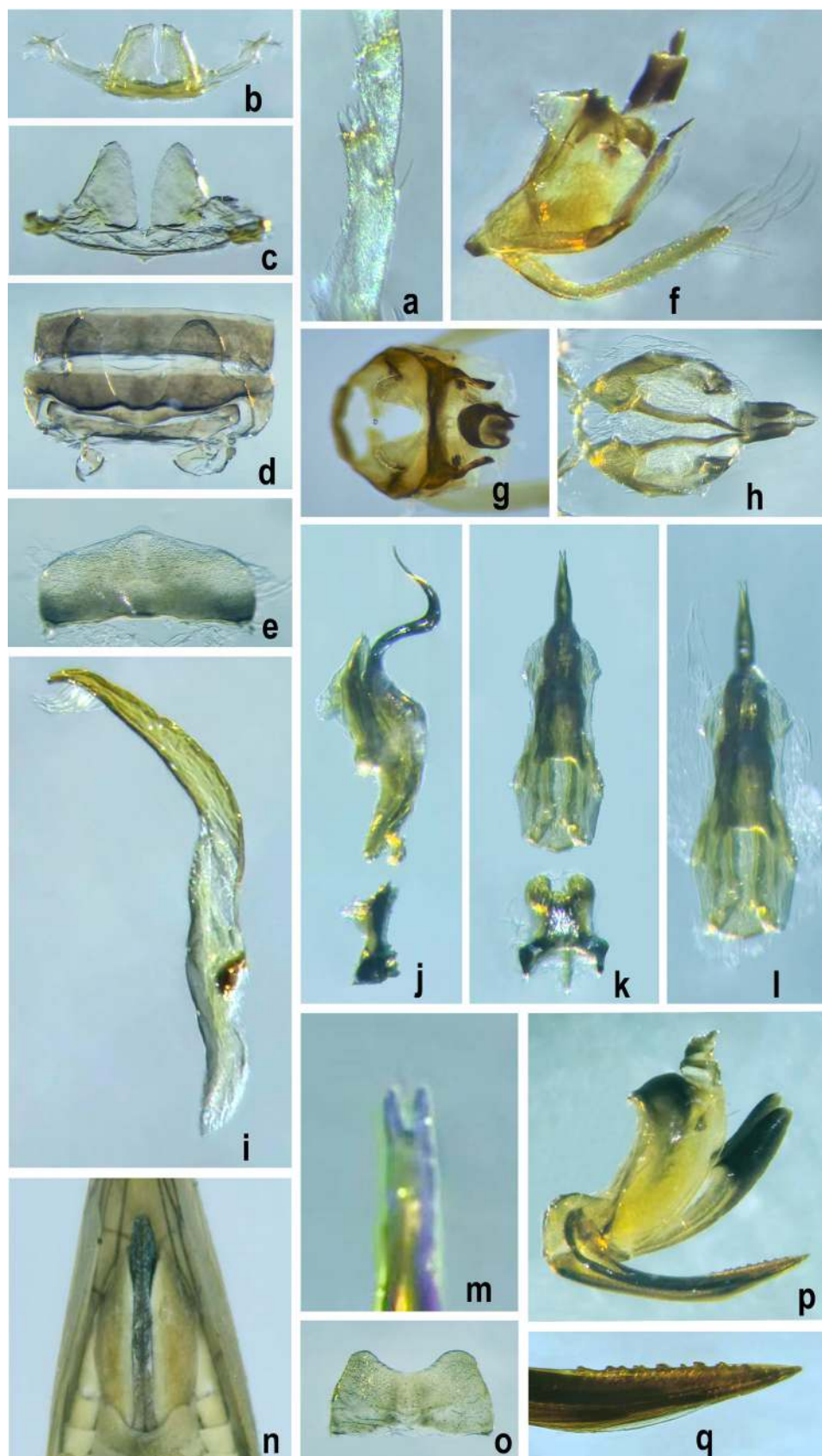


Figure 4. *Chinaica viraktamathi* Zhang, sp. nov. **a.** Apex of hind first tarsomere, ventral view; **b–d.** Male sternal apodemes ventral view; **b.** Male apodemes of sternites I, dorsal view; **c.** Male apodemes of sternites II, dorsal view; **d.** Male apodemes of sternites III, dorsal view; **e.** Valve; **f–h.** Male genital capsule; **f.** Lateral view; **g.** Dorsal view; **h.** Ventral view; **i.** Style, lateral view; **j–l.** Aedeagus and connective; **j.** Lateral view; **k.** Ventral view; **l.** Dorsal view; **m.** Apex of aedeagal shaft, ventral view; **n–q.** Female genitalia; **n.** Apex of abdomen; **o.** Female sternite VII, dorsal view; **p.** Female genital capsule, lateral view; **q.** Apex of second valvula.

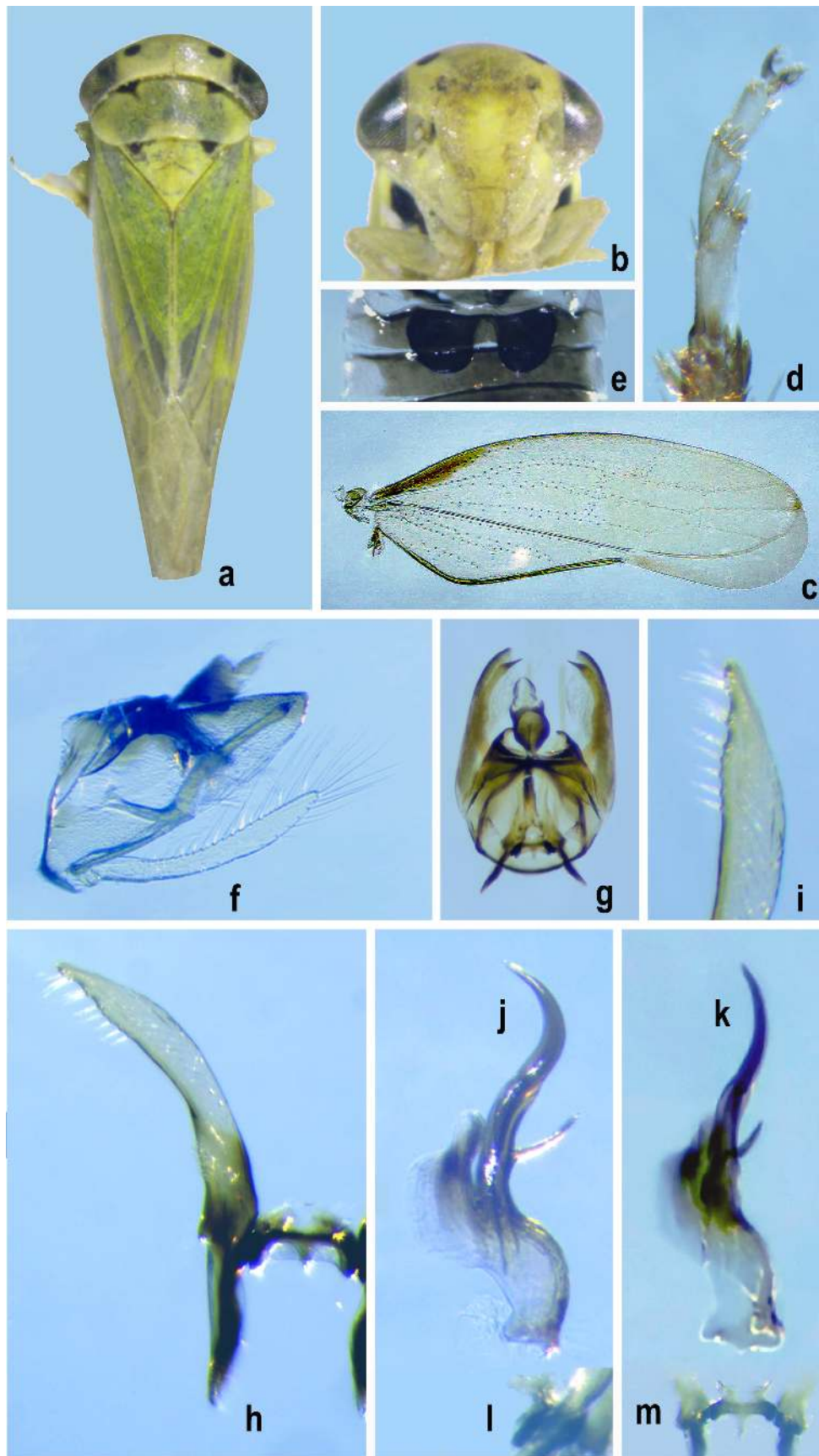


Figure 5. *Paramritodus introflexus* Xue & Zhang, 2020. **a.** Habitus, dorsal view; **b.** Face; **c.** Forewings; **d.** Apex of hind first tarsomere, ventral view; **e.** Male apodemes of sternites III, dorsal view; **f, g.** Male genital capsule; **f.** Lateral view; **g.** Dorsal view; **h.** Style, lateral view; **i.** Apex of style, lateral view; **j–k.** Aedeagus; **j.** Lateral view; **k.** Dorsolateral view; **l–m.** Connective; **l.** Lateral view; **m.** Dorsal view.



Figure 6. a. *Myrica rubra* (Lour.) Siebold & Zucc. (Myricaceae), the host plant of *Chinaica viraktamathi* Zhang, gen. nov. et sp. nov.; b. A male adult of *Chinaica viraktamathi* Zhang, gen. nov. et sp. nov. in its natural habitat (male); c. A nymph of the same species.

margin close together. Apodemes of sternite II (Fig. 4c) elongate and triangular, with inner margins gradually diverging from base toward apex, and slightly tapering apically. Apodemes of tergite III (Fig. 4d) similar to those of *C. myrica* but slightly shorter, with U-shaped notch more widely separated.

Male genitalia. Male genitalia similar to that of *C. myrica*, but with ventral pygofer process (Fig. 4f) slightly different in shape (compare figs 3h and 4h), style apophysis (Fig. 4i) with 9–11 dorsal setae subapically and aedeagus with shaft (Fig. 4j) more strongly S-shaped and bifurcated apically.

Female. Similar in overall coloration to male but face slightly paler and antennal sockets dark brown.

Female genitalia. Female genitalia with hind margin of sternite VII (Fig. 4n, o) deeply excavated, forming an inverted arc.

Measurements (mm). Male: body length 5.1–5.3 mm. Female: body length 5.2–5.4 mm.

Material examined. Holotype: • ♂, CHINA: Jiangxi Province, Mt. Jinggangshan, 320 m, 21.vii.2008, collected by B. Zhang, sweeping *Myrica rubra*; **paratypes:** CHINA: • 1 ♂, 1 ♀, same data as holotype; • 3 ♂♂, 10 ♀♀, Zhejiang Province, Taishun County, 356 m, 7.vii.2020, collected by B. Zhang, sweeping *Myrica rubra*; • 3 ♀♀, Zhejiang Province, Taishun county, 921 m, 13.vii.2020, collected by B. Zhang, sweeping *Myrica rubra*; • 5 ♀♀, Zhejiang province, Wenzhou, Wuyanling National Nature Reserve, 382 m, 10.vii.2022, collected by Z.Y. Fu and R. Chen, sweeping *Myrica rubra*; • 3 ♂♂, 7 ♀♀, Fujian Province, Shaowu, 516 m, 25.vii.2023, collected by

X. Li, sweeping *Myrica rubra*; • 2 ♂♂, Fujian Province, Fuzhou, Luoyuan County, 102 m, 19.v.2025, collected by X. Li and H.M. Wang, sweeping *Myrica rubra*; • 3 ♂♂, 2 ♀♀, Fujian Province, Ningde, Gutian County, 679 m, 19.v.2025, collected by X. Li and H.M. Wang, sweeping *Myrica rubra*; • 6 ♂♂, 11 ♀♀, Fujian Province, Quanzhou, Yongchun County, 114 m, 23.v.2025, collected by X. Li and H.M. Wang, sweeping *Myrica rubra*; • 15 ♂♂, 19 ♀♀, Fujian Province, Sanming, Datian County, 862 m, 24.v.2025, collected by X. Li and H.M. Wang, sweeping *Myrica rubra*.

Host plant. Waxberry (*Myrica rubra*).

Etymology. The species is named in honor of Prof. C.A. Viraktamath, a renowned hemipterist, in recognition of his outstanding contributions to the taxonomy of Idiocerinae.

Remarks. *C. viraktamathi* sp. nov. differs from *C. myrica* sp. nov. by the aedeagal shaft being more strongly sinuate with apex bifurcate, and the deeply excavated hind margin of the female sternite VII.

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