

## Two new Asian Scaphytopiini leafhoppers (Hemiptera: Cicadellidae: Deltocephalinae) with description of a new genus

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### Abstract

The following new leafhopper taxa of the deltocephaline tribe Scaphytopiini are described: *Grammacephalus furcatus* Dai & Zhang **sp. nov.** from China, and *Sikhamani* Viraktamath & Webb **gen. nov.** with type species *S. delicatula* Viraktamath & Webb **sp. nov.** from Nepal and China. Detailed morphological descriptions and illustrations of the new species are given and a checklist to the species of *Grammacephalus* Haupt is provided. The type specimens are deposited in the Entomological Museum of Northwest A&F University, The Natural History Museum, London, the B.P. Bishop Museum, Hawaii, U.S.A. and the University of Agricultural Sciences, Bangalore, India.

**Key word:** Hemiptera; Cicadellidae; Deltocephalinae; *Grammacephalus*; new species; China

### Introduction

Deltocephalinae is the largest subfamily within the Cicadellidae. Deltocephaline species are predominantly found on grasses but they also occur on shrubs and trees, and some are vectors of plant pathogens. One tribe, Scaphytopiini, was reviewed by Webb & Godoy (1993) and contained nine genera. Subsequently, four new genera (from India) were added by Viraktamath & Anantha Murthy (1999) and four other new Oriental genera were added by Viraktamath (2004). Scaphytopiini is distinguished mainly by the dorsally visible genae (see Figs. 1 and 10), but *Proceps* Mulsant & Rey, without this feature, was also included in the tribe by Dmitriev (2002), based on nymphal characters. In the current work new taxa of Scaphytopiini are described including a new genus (*Sikhamani*) with one new species

(from Nepal and China) and a new species of *Grammacephalus* (from China, new generic record). The China records are of interest, as information on the tribe to the east of India are limited to the *Varta* group genera (Viraktamath, 2004) and one indeterminable female of *Grammacephalus* Haupt from the Philippines (see below).

The type specimens of the new species are deposited in the Entomological Museum of Northwest A&F University (NWAUFU), The Natural History Museum, London (BMNH), the B.P. Bishop Museum, Hawaii, U.S.A., and the University of Agricultural Sciences, Bangalore, India.

## Taxonomy

### *Grammacephalus* Haupt

*Grammacephalus* Haupt, 1929, type species *Platymetopius pugio* Noualhier

*Remarks.* The genus *Grammacephalus* was revised for the Afrotropical region by Linnavuori (1978), who described three new species and erected two new combinations. Later, two species were moved into the genus and one new species was added by Viraktamath (1981) and another by Viraktamath and Anantha Murthy (1999), all from the Indian subcontinent. The new species described below represents the first record of the genus from China and only the second Asian record outside of the Indian subcontinent; an undetermined female specimen from The Philippines was recorded by Webb & Godoy (1993).

*Hosts.* Species of *Grammacephalus* have been collected on species of *Acacia* (Leguminosae) and *Zizyphus* (Rhamnaceae) (Viraktamath, 1981), and the new species on *Dodoneae viscosa* (L.) (Sapindaceae)

### World check-list of the species of *Grammacephalus*

*Grammacephalus acuticeps* Linnavuori, 1978:479

DISTRIBUTION: Sudan, Somalia.

*Grammacephalus furcatus* Dai & Zhang **sp. nov.**

DISTRIBUTION: China.

*Grammacephalus harpago* Linnavuori, 1978:476

DISTRIBUTION: Yemen.

*Grammacephalus indicus* Viraktamath and Anantha Murthy, 1999:42

DISTRIBUTION: India.

*Grammacephalus kempfi* (Pruthi, 1934: 28) (*Platymetopius*); *G. kempfi*, Viraktamath, 1981:9

DISTRIBUTION: India.

*Grammacephalus niveimarginatus* (Melichar, 1904: 43) (*Platymetopius*); *G. niveimarginatus*, Linnavuori, 1978:477.

DISTRIBUTION: Sudan.

*Grammacephalus pallidus* Linnavuori, 1978:479; Viraktamath, 1981:8

DISTRIBUTION: India, Sudan.

*Grammacephalus pugio* (Noualhier, in Puton & Noualhier 1895: 176) (*Platymetopius*); *G. pugio*, Linnavuori, 1978:476

DISTRIBUTION: Turkey, Syria, Israel.

*Grammacephalus raunoi* Viraktamath, 1981:9

DISTRIBUTION: India.

*Grammacephalus rahmani* (Pruthi, 1930: 33) (*Platymetopius*); *G. rahmani*, Viraktamath, 1981:7

DISTRIBUTION: India, Pakistan.

*Grammacephalus turneri* (Evans, 1947: 258) (*Caffretus*); *G. turneri*, Linnavuori, 1978:477

DISTRIBUTION: Cape Verde Islands, Nigeria, South Africa, Egypt.

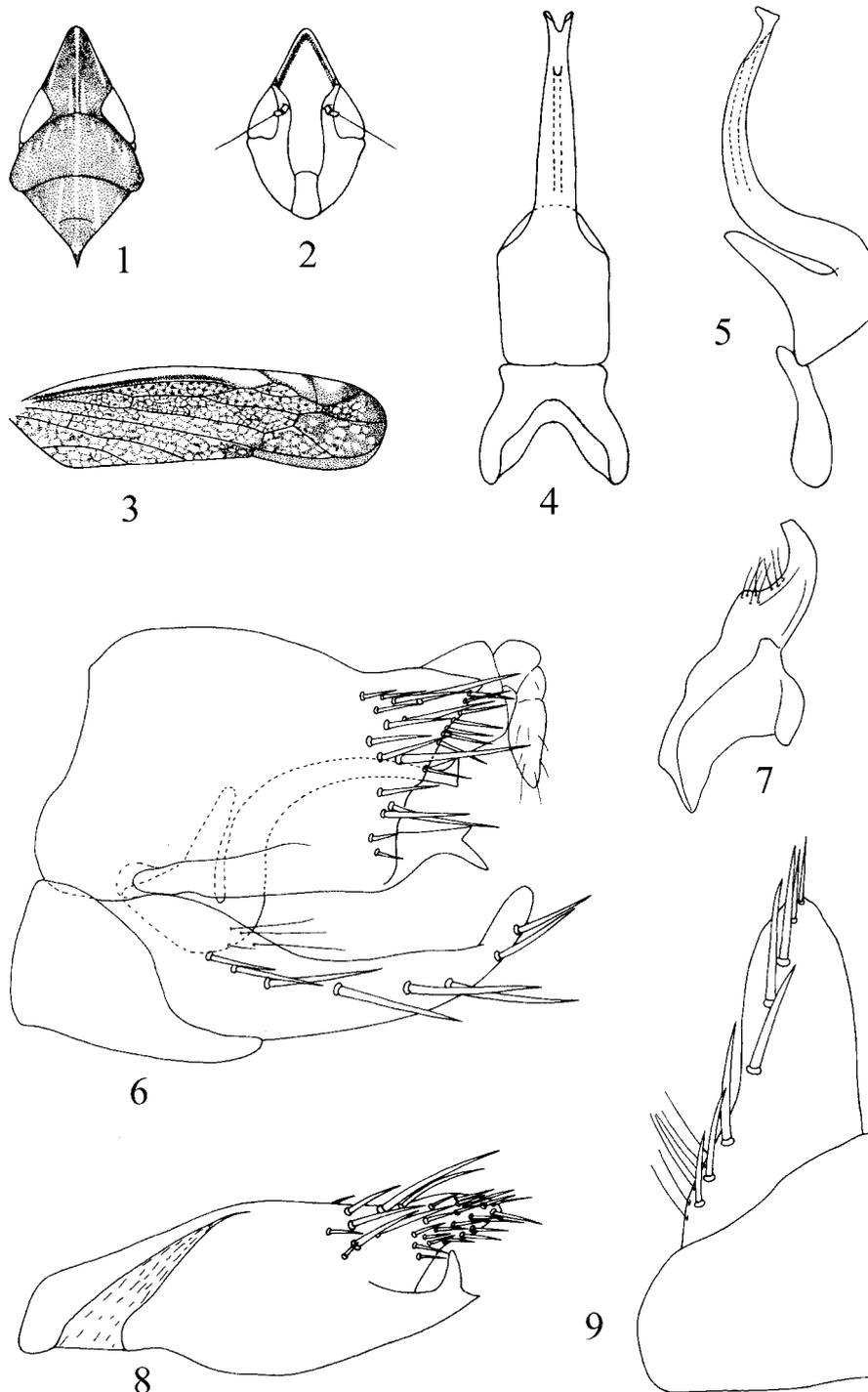
***Grammacephalus furcatus* Dai & Zhang, sp. nov.**

Figs 1–9.

Vertex brown with a stripe along midline slightly widened at apex, a shorter longitudinal stripe on each side of midline over basal half, and a stripe on each side of lateral margin, ochraceous; face creamy white with narrow brown band along anterior margin. Pronotum brown with pale roundish irregular spots. Scutellum brown with pale markings comprising two short lateral spots, a pair of lateral stripes and a median stripe. Fore wing densely speckled with brown; costal margin whitish-yellow with dark brown margin.

Head strongly produced. Crown nearly flat, medial length almost one and one half times length of greatest width between eyes; ocelli near lateral margins of crown, separated from eye by distance less than their own diameter. Frontoclypeus basally widened, approximately three times as long as wide near clypellus. Clypellus strongly constricted basally and expanded apically, roundly produced at apex. Genae expanded beyond eyes and visible in dorsal view. Pronotum wider than head including eyes, anterior margin roundly produced and posterior margin slightly concave. Scutellum almost as long as head, transverse depression distinct, curved, and depressed. Tegmen long and narrow, about four times as long as wide, appendix well developed; inner anteapical cell open basally, outer anteapical cell triangular, central anteapical cell about twice as long as outer.

*Male genitalia*: Pygophore with side truncate posteriorly, with several macrosetae posteriorly including a tuft of setae at posterior margin, caudoventral margin with a well sclerotized process, branched at apex. Subgenital plate long, lateral margin slightly incurved at mid-length, with a uniseriate row of macrosetae ventrally from base to apex,



**FIGURES 1–9.** *Grammagephalus furcatus* Dai & Zhang **sp. nov.** 1, head and thorax, dorsal view; 2, face; 3, forewing; 4, aedeagus and connective, ventral view; 5, aedeagus and connective, lateral view; 6, pygofer, lateral view; 7, style, dorsal view; 8, pygofer side, ventral view; 9, genital valve and subgenital plate, ventral view.

apical margin rounded. Style apical process elongate, curved laterally and truncate at apex; lateral lobe well developed with a group of small setae. Connective U-shaped with arms well developed. Aedeagus reflexed basally and apical half extending caudad, narrowed gradually to apex, with a pair of apical appendages curved dorsally; gonopore apical on ventral surface.

*Measurement:* Male 5.1mm long (including tegmen).

*Material examined:* Holotype ♂, China: Yunnan Prov., Yuanmou county, Yuanmazhen, Yuelongcun, Daheishan, 4 Nov. 2005, coll. Li Qiao (NWAUFU).

*Host:* *Dodoneae viscosa* (L.)

*Remarks:* This species resembles *Grammacephalus rahmani* (Pruthi) externally but can be distinguished from the latter by: 1) Pygofer side with a two-branched process at caudoventral margin; 2) aedeagus reflexed basally and apical half extending caudad, with a pair of appendages curved dorsally. The new species is also very similar to *G. pallidus* Linnavuori in the shape of the aedeagus, but differs from the latter by: 1) Pygofer process branched at apex; 2) aedeagus with a pair of appendages curved dorsally.

*Etymology.* This new species is named for its branched process at the caudoventral margin of the male pygofer.

### ***Sikhamani Viraktamath & Webb gen. nov.***

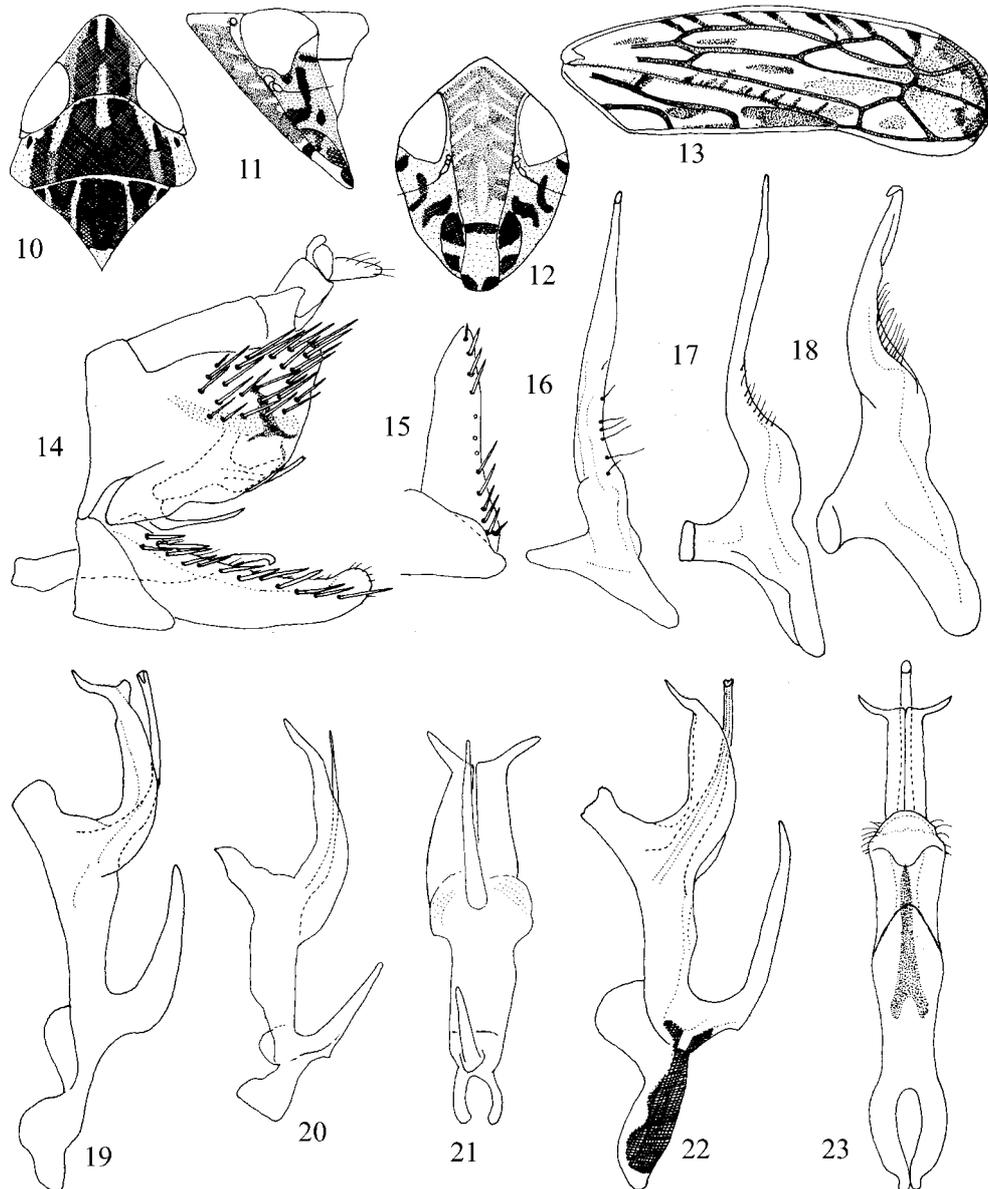
Type species: *Sikhamani delicatula sp. nov.*

Small leafhoppers 5.00 mm long. Ochraceous with dark brown markings.

Head narrower than pronotum, conically produced anteriorly. Vertex longer medially than interocular width, flat, transition between vertex and face angular but not carinate. Face longer than wide, frontoclypeus 1.7 times as wide at antennal base as at apex. Clypellus wider near apex than at base, extending beyond genal curve. Pronotum widened posteriorly, about twice as wide as long, about as long as vertex, lateral margin carinate. Scutellum slightly longer than pronotum. Forewing with three subapical and three apical cells, outer subapical cell almost triangular, inner subapical cell open behind, a series of 8 reflexed veins to costa. Arrangement of setae on hind tibia:  $R_1$  18±2,  $R_2$  14±1,  $R_3$  18±1. Hind basitarsus with 4 platellae on distal transverse row of setae.

Male pygophore longer than high, with a mesal process directed mesally, long setae confined to caudal half. Tenth segment long, sclerotized. Subgenital plate elongate, triangular with a row of marginal setae. Style with broad anterior part, subapical lobe discernable but not well-developed, apophysis of style elongate, tapering caudally. Connective fused with aedeagus, its arms close together, with a distal spinelike paraphysis. Aedeagus complex, with stout preatrium and platelike basal processes, shaft very slender, tubular with apical gonopore.

*Remarks:* In the key to genera of Scaphytopiini of the Indian subcontinent by Viraktamath and Anantha Murthy (1999), *Sikhamani* keys out to *Sudhamruta* Viraktamath and Anantha Murthy. It differs from *Sudhamrura* in having cylindrical apophysis of style, well developed preatrium, and basal processes to the aedeagal shaft, and arcuate arms of the connective.



**FIGURES 10–23.** *Sikhamani delicatula* Viraktamath & Webb **sp. nov.** (10–12, holotype; 13–23, paratypes). 10, 11, head and thorax, dorsal and lateral view respectively; 12, face; 13, fore wing (Nepal); 14, male genital capsule, lateral view (Nepal); 15, subgenital plate, ventral view (Nepal); 16–18, style (Laos, Tonkin and Nepal respectively); 19–23, aedeagus, lateral view (Tonkin), lateral and ventral view respectively (Laos), lateral and dorsal view respectively (Nepal).

*Etymology.* The generic name is to be treated as an arbitrary combination of letters, and the gender is feminine.

***Sikhamani delicatula* Viraktamath & Webb sp. nov.**

Figs 10–23.

Ochraceous with pale brown and dark brown markings (Figs. 10–13).

*Male genitalia:* Pygophore lobe with slightly oblique caudal margin, caudodorsal angle rounded, with setae restricted to caudodorsal area, and mesal sclerotized process having a basal stem with anterior and mesal projections distally. Style with broad anterior part, apophysis either bent distally (specimens from Nepal) or prolonged to an acute apex (specimen from Tonkin). Connective arms of the Y either close together or slightly separated, paraphysis variable in curvature and length. Preatrium and dorsal apodeme of aedeagus well-developed, variable in thickness and length, platelike, ventrolateral processes to shaft variable in curvature and width, laterocaudal angle produced into a hornlike process; aedeagal shaft slender, curved caudodorsally, its basal 0.25–0.5 flanked by ventrolateral plate-like processes.

*Measurements:* Male 5.00 mm long, 1.72 mm wide across eyes, 1.82 mm wide across hind margin of head and 2.00 mm wide across hind margin of pronotum.

*Material examined:* Holotype ♂, NEPAL: Pokhara, 910 m, 18–27.ix.[19]65, L.W. Quate, Malaise Trap (BPBM). Paratypes: 11 ♂, data as for holotype (9 ♂ in BPBM, 2 ♂ in UAS, 2 ♂ in BMNH). Other material: LAOS: 1 ♂, Vientiane Prov. Ban van Eue, 31.i.1967, Native Collector, Bishop Museum (BPBM). TONKIN: 1 ♂, Patham, at light, 4.xii.[19]29, R. Wheeler (IRSNB). CHINA: 3 ♂, Yunnan, Menglun, 19.v.1991 and 6.vi.1991, Wang Yinglun and Tian Rungang (NWAUFU).

*Remarks.* Externally *S. delicatula* resembles *Thryaksha recurvatus* Viraktamath & Anantha Murthy, but differs in the pronotal coloration and in the structure of male genitalia. Although there is considerable variation in the male genitalia among the specimens examined, all are identical externally and are considered to belong to the same species.

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