



Review of the grass feeding leafhopper genus *Gurawa* Distant (Hemiptera: Cicadellidae: Deltocephalinae) from the Indian subcontinent with description of two new species

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ABSTRACT: Three species of *Gurawa*, *G. intermediata* Pruthi, *G. minorcephala* Pruthi and *G. vexillum* Distant are redescribed and illustrated. Two new species of *Gurawa* with constricted head in front of eyes, *G. ceylonica* sp. nov. (Sri Lanka: Peradeniya) and *Gurawa constricta* sp. nov. (INDIA: Karnataka) are described and illustrated. A key to known species of *Gurawa* from the subcontinent is also provided. ©Association for Advancement of Entomology

Key words: *Gurawa*, new species, Chiasmini, India, Sri Lanka.

INTRODUCTION

Distant (1908) established the genus *Gurawa* with *G. vexillum* Distant from Sikkim as the type species. Pruthi (1930, 1936) added two new species, *G. minorcephala* and *G. intermediata*, respectively, in addition to redescribing *G. vexillum* in 1934 (Pruthi 1934). Jacobi (1941) described the fourth species, *G. albofasciata* from Flores (Indonesia). Earlier the genus was placed in the tribe Aphrodini of the subfamily Aphrodinae (Metcalf 1963, Oman *et al.* 1990). Zahniser (2008) redefined the tribe Chiasmini and placed the genus *Gurawa* in that tribe based on the sculpturing of the female valvulae, though the aedeagus lacks the basal articulation found in other genera of the tribe. Duan & Zhang (2012) reviewed the genus from China and in addition to recording *G. minorcephala* from China described the fifth species of the genus *G. truncata* Duan & Zhang.

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The species of the genus *Gurawa* are rare and are found on grasses mixed with herbs in India. They can readily be recognized by the foliaceous, triangular head that is usually longer than median length of pronotum, ocelli marginal, placed half way between eye and midlength of crown, forewings thickened with raised veins and hind wings often very much reduced. In this paper three known species from the Indian subcontinent and two new species one each from India and Sri Lanka are described and illustrated. The new species are peculiar in the sense they have the head constricted beyond eyes at level of ocelli, reminiscent of *Listrophora* Boulard (Ulopinae).

The following are the institutions and their abbreviations used in the text where the material studied will be deposited as indicated under each species.

BMNH - The Natural History Museum, London, United Kingdom.

NPC - National Pusa Collection, Indian Agricultural Research Institute, New Delhi, India.

UASB - University of Agricultural Sciences, Bangalore, India.

ZSI - Zoological Survey of India, Kolkata, India.

TAXONOMY

Checklist of *Gurawa* of the Indian subcontinent

Gurawa Distant 1908: 263.

ceylonica sp. nov.

Sri Lanka.

constricta sp. nov.

India (Karnataka).

intermediata Pruthi 1936: 107-108,
text fig. 121, plate VIII, figs. 7, 7a.

India (Jammu & Kashmir, West Bengal,
Sikkim, Meghalaya).

minorcephala Pruthi 1930: 29-30. Text
figs. 41-42, plate II, figs. 10, 10a, 10b.

India (West Bengal, Karnataka, Tamil Nadu,
Kerala). Pakistan. China.

vexillum Distant 1908: 263, fig. 169

India (Himachal Pradesh, West Bengal,
Meghalaya).

Genus *Gurawa* Distant

[Modified from Pruthi 1930, 1934 and Dun & Zhang 2012]

Gurawa Distant 1908: 263; Pruthi 1930: 29, 1934: 78; Rao 1990: 22-23; Zahniser 2008: 22; Duan & Zhang 2013: 41-44. Type species: *Gurawa vexillum* Distant, by original designation.

Small (3.5-4.2 mm long), brown leafhoppers with or without reddish brown to dark brown markings. Head wider than pronotum, crown medially either as long or longer than distance between eyes, surface wrinkled (in some species granulose) laterally; anteriorly subacute, foliaceous, often raised, lateral margins distinct and thin, either constricted at level with location of ocelli or entire. Ocelli on lateral margins of vertex about midway between eye and apex of crown. Face longer than broad, frontoclypeus long, with shallow depression in upper part, clypellus parallel sided, distally bilobed. Lora narrow, not reaching apex of genae. Genae expanded, exceeding clypellus, deeply concavely excavated below eyes. Labium short reaching front coxae. Pronotum flat, either twice or more as broad as medially long, often with median and sublateral ridges, lateral margins carinate. Scutum and scutellum together as long as or longer than median length of pronotum. Forewings coriaceous, longer than body, 2.5 to 3.5 times as long as wide at broadest region, venation prominent, raised, appendix wanting. Hind wings reduced often scale-like. Profemur setal row AV with 13-15 peg-like setae, m1 present. Protibia rounded in cross section with dorsal macrosetal formula 1+1(AD+PD). Hind femoral setal formula either 2+0 or 2+1, hind tibiae with row AD setae 6 ± 1 , AV setae 7 ± 1 and PD setae 8 ± 1 , apical transverse row with four to five cucullate setae of which median two to three with platellae-like. Apical transverse row of hind basitarsus with four platellae.

Male: Pygofer without macrosetae, basolateral cleft absent, constricted at about basal 0.33. Valve triangular with acutely rounded posterior angle. Subgenital plates small, rather triangular, without macrosetae. Style broad basally, with rather parallel sided middle portion, subapical lobe well-developed, apophysis of style slightly curved laterally, with one prominent tooth on ventral margin and often with series of smaller teeth more distally. Connective with arms about as long as or slightly longer than stem. Aedeagus with well developed dorsal apodeme, shaft curved, laminately expanded laterally in distal third with dentate lateral margins and with prominent lateroapical spine, gonopore subapical.

Female: Seventh sternite as broad or broader than long, posteriorly produced, posterior margin with median concavity. Pygofer devoid of macrosetae. Ovipositor protruding from pygofer. First pair of valvula with rami almost straight, dorsal sculpturing maculose to granulose, not attaining dorsal margin. Second valvula abruptly broadening in distal half with obliquely triangular teeth.

Remarks: Zahniser (2008), while transferring the genus *Gurawa* to the tribe Chiasmini, discussed its relationship with other chiasmine genera. The genus would appear to be related to *Baileyus* Pruthi judging from the original description of the latter. It can be distinguished from *Baileyus* by the structure of the pygofer which is not constricted at its midlength (see Pruthi, 1930: 32, fig.44A) and by the more deeply bifid shaft of the aedeagus in lateral view (see Pruthi, 1930: 32, fig.44B). Confirmation of the identity of *Baileyus* has not been possible as the male genitalia slides of its type species could not be found in ZSI.

Two new species described below differ from the typical *Gurawa* in the following features (characters of *Gurawa* in parenthesis): a) head constricted at level of placement of ocelli (not so constricted); b) crown of vertex with sublateral ridges (without such ridges); c) frons with short keel in the basal foveae (without such keel in the basal fovea); d) pronotum with median and sublateral ridges (pronotum without prominent ridges, sometimes with weak median carina); e) apophysis of style with one prominent tooth on ventral margin (apophysis of style in addition to one prominent tooth, 4-8 smaller teeth distally). Therefore, these species are only provisionally placed in *Gurawa* pending more detailed study on the genus *Baileyus* pending collection of fresh material.

KEY TO INDIAN SPECIES OF *GURAWA* DISTANT

1. Head constricted at level of ocelli in dorsal view (Fig. 43, 45, 47, 49)2
- Head not constricted at level of ocelli (Figs. 51, 55)3
2. Lateral margins of crown beyond constriction diverging (Figs. 43, 45) (Sri Lanka)*G. ceylonica* sp. nov.
- Lateral margins of crown beyond constriction parallel sided, not diverging (Figs. 47, 49) (India: Karnataka)*G. constricta* sp. nov.
3. Lateroapical spines on apex of aedeagal shaft wide apart, almost parallel to each other (Fig. 27); apophysis of style with 4-5 teeth on ventral margin (Fig. 26).....*G. minorcephala* Pruthi
- Lateroapical spines on apex of aedeagal shaft close together convergent (Fig. 20) or overlapping (Fig. 37); apophysis of style with 7-8 teeth on ventral margin (Figs 21, 33)4
4. Apices of lateroapical spines of aedeagus overlapping in posterodorsal view (Fig. 37)*G. vexillum* Distant
- Apices of lateroapical spines of aedeagus not overlapping in posterodorsal view (Fig. 20)*G. intermediata* Pruthi

***Gurawa ceylonica* Viraktamath and Gnaneswaran sp. nov. (Figs. 1-7, 38, 43-46, 63-64)**

urn:lsid:zoobank.org:act:DAB6D899-38BC-471B-8C49-CA352454BD35

Male: Pale brown. Anterior lobe of crown with median broad dark brown stripe, lateral margins of lobe and one spot, fuscous brown. Ridge between anterior and posterior lobe pale, spot on anterior margin of posterior lobe dark brown. Face dark brown, lateral margins pale ochraceous, elongate spot below antennal bases dark brown, lateral margins of genae, apex of clypeus and labium, fuscous brown. Pronotum with median line, lateral margins and stripe before lateral

margins, pale ochraceous, spot on either side of median line in anterior half, dark brown; median line on scutum and scutellum pale ochraceous, lateral faint stripe on scutellum fuscous in anterior half.

Female: Cinnamon brown, face much darker compared to male.

Head about 2.5 times longer than pronotum; crown laterally deeply incised and divided into anterior and posterior lobes, round ridge separating the anterior lobe, sublateral region with ridge, surface shagreened, posterolateral margins of anterior lobe strongly divergent. Frons with median keel in basal fovea. Pronotum with median and sublateral longitudinal ridges, more than three times as wide as long. Forewing 3.4 times as long as wide. Hind wing very small, not extending beyond base, 0.25 length of forewings. Hind femoral spinulation 2+0.

Male genitalia: Pygofer with dorsal margin concave beyond midlength, posterior margin rounded and ventral margin concave. Valve triangular, twice as broad at base as long medially. Subgenital plate about as long along inner margin as wide at base. Style about 3 times as long as wide at base, apophysis elongate, slightly curved laterally, 0.4 times as long as total length, with one prominent denticle on ventral margin before midlength. Connective with arms as long as stem, posterior margin of stem straight. Aedeagus curved dorsally and then anteriorly, with poorly developed hood, lateroapical margin with widely spaced prominent tooth, lateroapical spine longer than median lobe of shaft and divergent in posterodorsal view, gonopore subapical.

Female genitalia: Seventh sternite 1.8 times as wide as long, posterior margin concavely produced and medially concavely excavated.

Measurements: Male 3.6 mm long and 1.0 mm wide across eyes. Female 3.85 mm long and 1.0 mm wide across eyes.

Material examined: SRI LANKA: HOLOTYPE ♂, Peradeniya, 13.v.2008, R. Gnaneswaran (UASB). PARATYPE 1 ♀, same data as holotype but collected on 24.x.2008(UASB).

Remarks: *G. ceylonica* sp. nov. resembles *G. constricta* sp. nov. externally but has strongly divergent posterolateral margins of the anterior lobe of head. It also differs in the structure of aedeagus as given in the key.

***Gurawa constricta* Viraktamath and Gnaneswaran sp. nov. (Figs. 8-14, 39, 47-50, 65-66)**

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Ochraceous. Face with elongate spot beneath antennal bases, basal spot at lateral area of clypeal suture, spot on gena adjacent to Lorum, dark brown; anterior lobe spotted with fuscous. Head with anterior margin, spots on sublateral margin of lobe, spot each near base of crown on either side of median line, black; anterior lobe marked with fuscous brown. Pronotum

ochraceous with longitudinal ridges paler. Scutellum with one spot on anterior margin of scutum dark brown. Forewing cells pale brown, veins pale white. Labrum dark brown, mesosternum except median line and ventral most areas of mesopleura, dark brown. Spot on proepimeron dark brown. Basal abdominal sternites infuscated.

Head wider than long, longer (more than 1.5 times) than median length of pronotum and also combined length of scutum and scutellum, slightly wider than pronotum; crown of vertex constricted thus dividing it into anterior small and posterior large lobes at position of ocelli, posterolateral margins of anterior lobe straight, posterior lobe with sublateral longitudinal ridge. Pronotum 2.5 to 3.0 times as wide as long, with median and sublateral carinae. Hind femoral spinulation 2+0. Forewing 2.9-3.4 times as long as wide; hind wings reduced, half as long as forewings.

Male genitalia: Pygofer with posterior margin slightly concave in posterior half, posterior margin rather truncate and ventral margin concave. Valve about twice as broad at base as median length. Subgenital plate as long along inner margin as broad at base. Style slightly more than twice as long as broad at base, apophysis 0.45 times as long as total length, with one prominent tooth in basal half. Connective with arms as long as stem, posterior margin of stem slightly concave. Aedeagus similar to that in *G. ceylonica*, lateroapical spines subequal to median lobe, and crossing over each other ventrad of median lobe in posterodorsal view, gonopore subapical on the dorsal surface.

Female genitalia: Seventh sternite 1.7 times as wide at base as long, posterior half of sternite narrowed distally and posterior margin concave with acutely rounded lateral angles.

Measurements: Male 3.5-3.6 mm long, 0.95-1.0 mm wide across eyes. Female 3.6-3.7 mm long and 1.0 mm wide across eyes.

Material examined: INDIA: Karnataka: HOLOTYPE ♂, 35 Km W. Jog Falls, Kogar, 27.ix.1991, C.A. Viraktamath (UASB). PARATYPES, 4 ♂, 2 ♀, data same as holotype (UASB, NPC).

Remarks: *G. constricta* sp. nov. is much paler than *G. ceylonica*. Both sexes have the same coloration unlike that in *G. ceylonica* where the female is much darker than the male. This and *G. ceylonica* also differs from other known species of *Gurawa* in the shape of head and structure of aedeagus as given in the key.

***Gurawa intermediata* Pruthi (Figs. 15-21, 40, 51-54, 67-68, 73-74)**

Gurawa intermediatus Pruthi 1936: 107-108, text fig. 121, plate VIII, figs. 7, 7a. Datta 1988: 73-74.

Ochraceous brown. Faint median stripe on crown reddish brown, similar spot on upper part of face and spot below bases of antennae reddish to dark brown. Labium fuscous brown, mesosternum reddish brown, apical margin of clypellus fuscous brown.

Head as long or slightly longer than pronotum; crown of vertex laterally wrinkled, without ridges. Pronotum more than 2.5 times as wide as long, about as long as combined length of scutum and scutellum, without sublateral ridges. Forewings 2.5-2.7 as long as wide. Hind wings small, extending to 0.60-0.75 length of forewings.

Male genitalia: Pygofer with posterior half of dorsal margin concave, posterior margin slightly convex and ventral margin oblique. Valve twice as wide at base as median length, posterior angle acutely rounded. Subgenital plate triangular, about as broad at base as long along inner margin. Style slightly more than twice as long as wide at base, apophysis broad at midlength then tapered distally in dorsal view, 0.25 times as long as total length, with basal prominent tooth and 6-7 smaller distal teeth on ventral margin. Connective with arms slightly longer than stem, latter with median concavity on posterior margin. Aedeagus similar to that in *G. minorcephala* but hood with lateroapical spines more prominent and closer to each other, convergent but not overlapping, gonopore subapical on dorsal surface.

Female genitalia: Seventh sternite twice as wide as long, posterior margin with median concavity, lateral margins concave and rounded.

Measurement: Males 3.7-3.8 mm long and 1.3 mm wide across eyes. Female 3.8-4.2 mm long and 1.3 mm wide across eyes.

Material examined: Type material: INDIA: Holotype ♀, 'Gangtok, 6000ft, Sikkim, 13.viii.1927, Bailey' '*G. intermediatus* sp. nov., H.S. Pruthi, Det. 1935' '5391/H7' (ZSI). Other material. INDIA: Jammu & Kashmir: 1 ♂, Pahalgam, Gulmarg, 22.vi.1985, J.S. Mann & Mandes. West Bengal: 1 ♀, Tiger Hill, 2578 m, 24.x.1981, C.A. Viraktamath; 1 ♂, Algarah, 1658 m, 27.x.1981, C.A. Viraktamath. Sikkim: 1 ♀, Gangtok, 1759 m, 10.vi.2005, C.A. Viraktamath (UASB).

Remarks: Identification of other material is based on the comparison with the type specimen. See under *G. minorcephala*.

***Gurawa minorcephala* Pruthi (Figs. 22-29, 41, 55-58, 69-70)**

Gurawa minorcephala Pruthi 1930: 29-30. Text figs. 41-42, plate II, figs. 10, 10a, 10b. Datta 1988: 74-75, figs. 126-127; Zahniser 2008: 22, figs. 77-85; Dai *et al.* 2011: 38, fig. 1.

Pale brown to brown with dark brown spots. Crown with median stripe dark brown to black. Face mottled with dark brown spots. Mesosternum dark brown. Front coxae entirely dark brown. Femora marked with dark brown.

Male genitalia: Pygofer with dorsal margin concave in posterior half, posterior margin slightly convex and ventral margin oblique. Valve 2.3 times as broad at base as long, posterior angle conically rounded. Subgenital plate 1.35 times as wide at base as long along inner margin. Style more than twice as long as wide at base, apophysis 0.25 as long as total length, tapering

distally with one prominent basal tooth followed by four smaller distal teeth on ventral margin. Connective with arms as long as stem, posterior margin rounded. Aedeagus in lateral view curved dorsally and in posterior view hood-like, with lateral margins dentate, lateroapical margin produced into a prominent spine directed anteriorly and not overlapping with each other, gonopore subapical.

Female genitalia: Seventh sternite about 1.5 times as long as wide, posterior margin with median and lateral shallow concavity, lateral angles bluntly rounded.

Measurements: Male 3.7-4.0 mm long and 1.2-1.3 mm wide across eyes. Female 3.9-4.1 mm long, 1.3-1.35 mm wide across eyes.

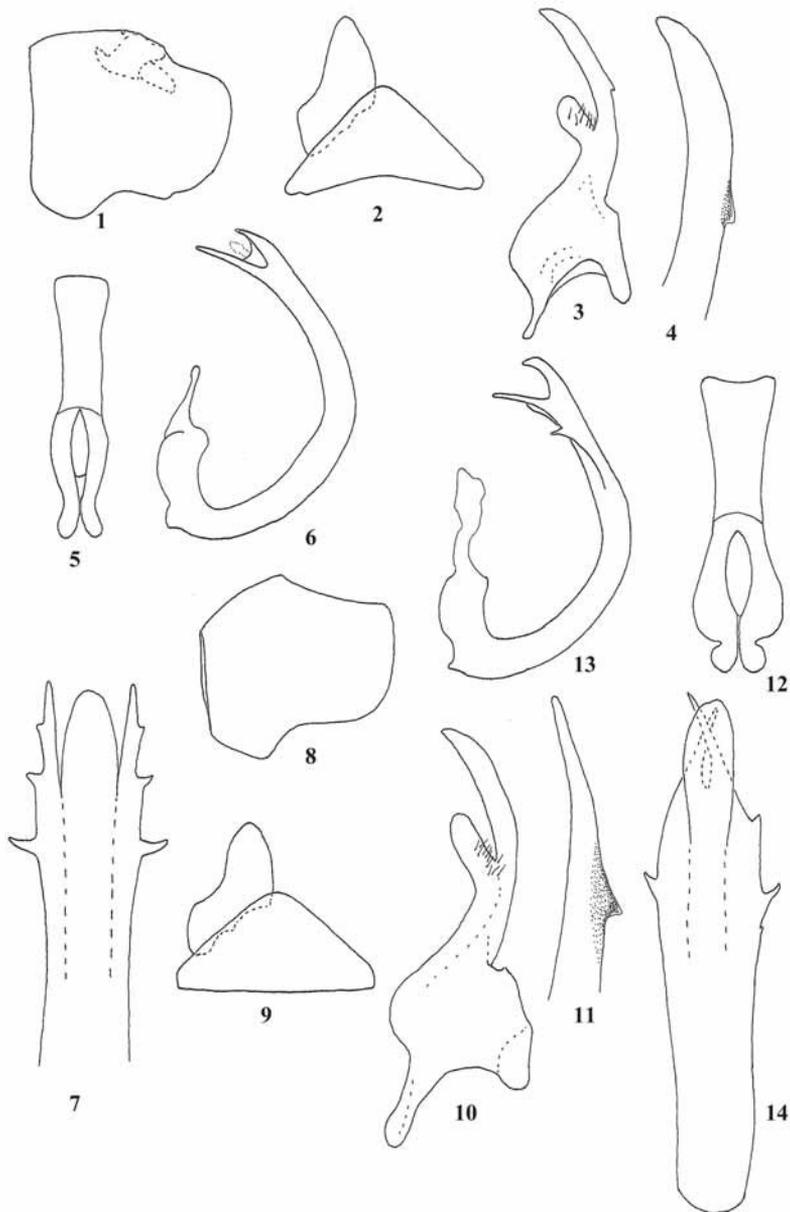
Material examined: Type material. PAKISTAN: Syntypes. 1 ♂, '687/H7' 'Jhikka Gali, 6730ft, Murree subdivision, Punjab, sta. 23, 17.ix.1928, H.S.Pruthi'; 1 ♀ same data, 1 ♂, 'Murree, ca 7242 ft, Punjab, (Light trap), sta 7, 4.ix.28, H.S.Pruthi' '690/H7'; 1 ♀, 'Kulduna, 7006 ft, Murree Subdivn. Punjab, sta 9, 6.ix.28, H.S.Pruthi' (ZSI). Other material. INDIA: Karnataka: 5 ♂, 1 ♀, Nandi Hills, 1467 m, 17.vii.1979, S. Viraktamath; 4 ♂. Same data but collected on 1.v.1976, B. Mallik (1 ♂), 1.v.1980, S. Viraktamath (1 ♂), 21.vii. 1975 (1 ♂) and 28.ix.1978 (1 ♂), C.A. Viraktamath; 1 ♀, Bannerghatta nr Bangalore, 26.i.1975, C.A. Viraktamath, 1 ♂, 2 ♀, same data but collected on 10.viii.1975; 2 ♂, 1 ♀, Jog Falls, 534 m, 17.xi.1976, C.A. Viraktamath; 1 f: 35 Km W. Jog Falls, 18.xi.1976, B. Mallik; 1 ♂, Mudigere, 970 m, 6.iv.1980, C.A. Viraktamath; 1 ♀, Donigar nr Sakleshpur, 7.ii.2005, C.A. Viraktamath; 1 ♂, 2 ♀, Bangalore 10.viii.1986, Sivaramakrishnan. Kerala: 1 ♀, Walayar Forest, 305 m, 26.x.1975, C.A. Viraktamath. Tamil Nadu: 2 ♀, Oothu near Ootacamund, 29.x.1975, C.A. Viraktamath. West Bengal: 1 ♀, Algarah nr Kalimpong, 1638 m, 27.x.1981, C.A. Viraktamath; 1 ♀, 8 Km E Kalimpong, 29.x.1981, C.A. Viraktamath (UASB).

Remarks: Pruthi (1930) labelled one male and one female specimens as holotypes and remaining two specimens as paratypes. These are here considered as syntypes. *G. intermedia* and *G. minorcephala* resemble each other externally and also have similar male genitalia. They can however, be distinguished by the structure of the apex of the aedeagal shaft as given in the key.

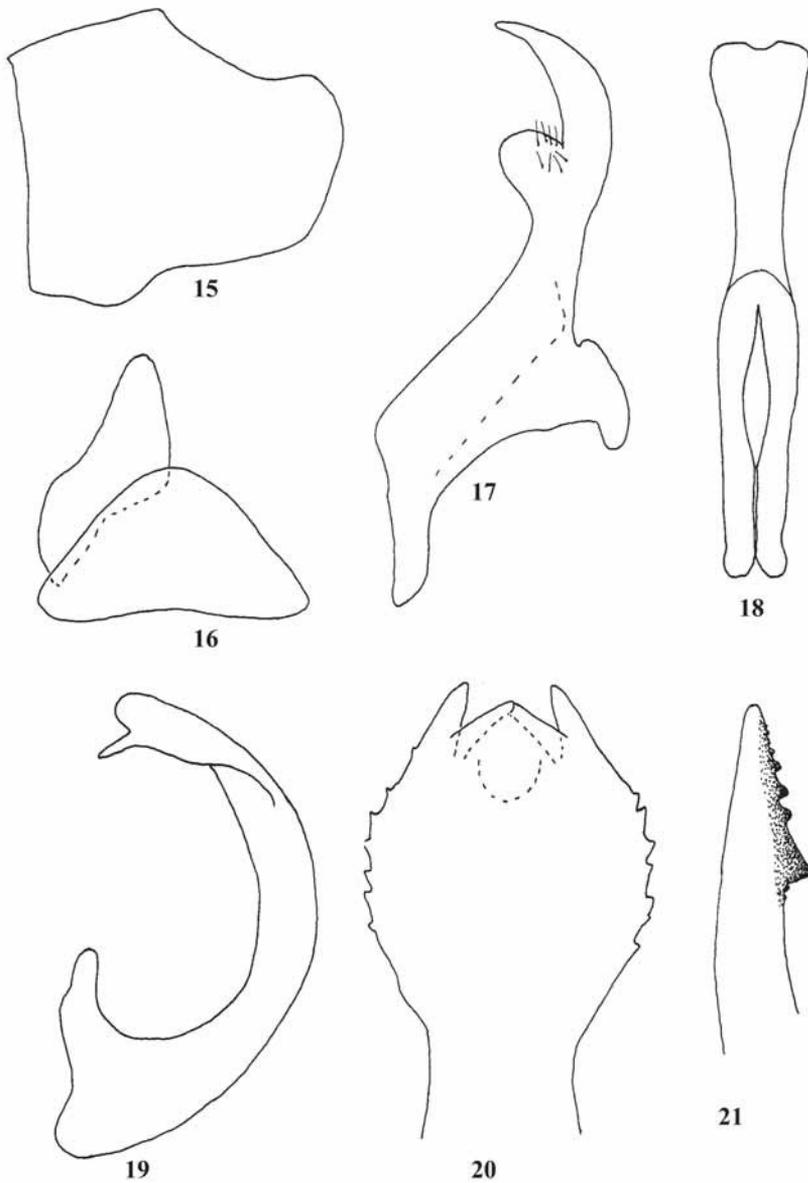
***Gurawa vexillum* Distant (Figs. 30-37, 42, 59-62, 71, 72, 75)**

Gurawa vexillum Distant 1908: 263, fig. 169; Pruthi 1934: 77-78, Fig. 96; Datta 1988: 75-76, fig. 128; Rao 1990: 23-25, fig. 4.

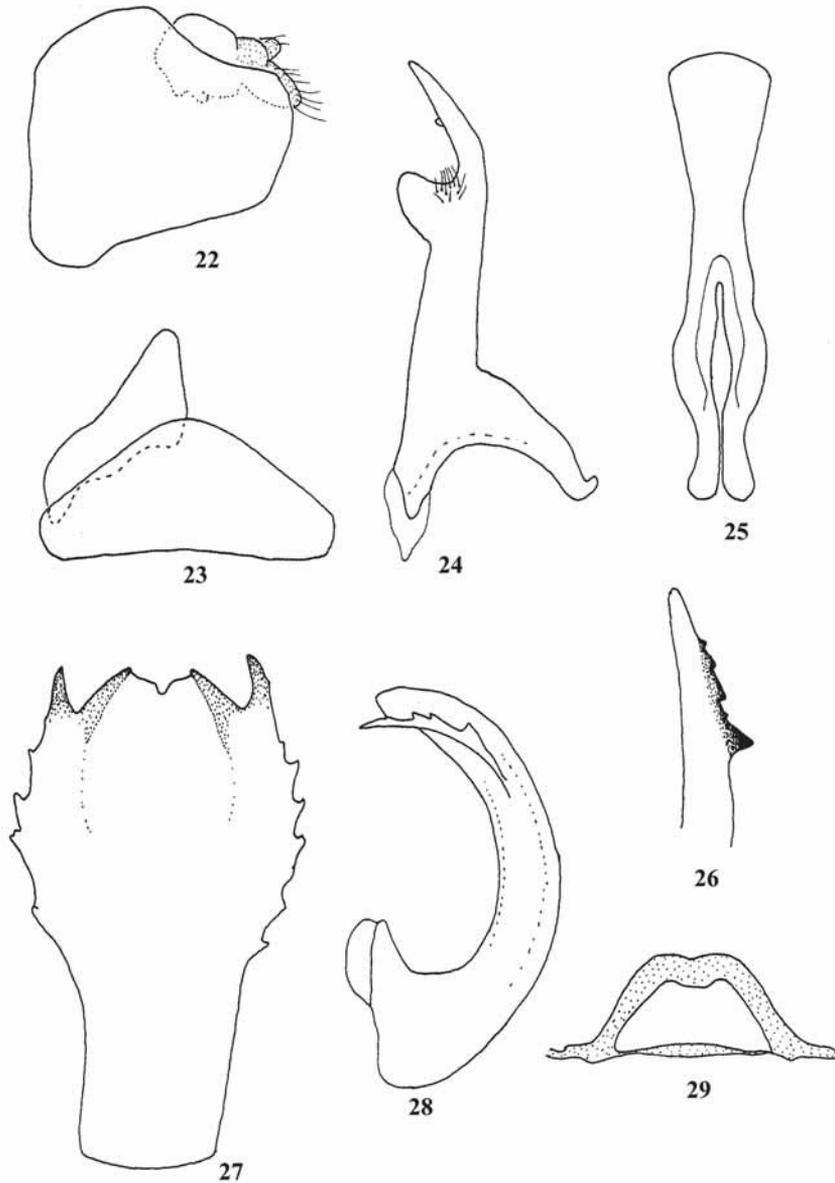
Pale brown to brown with darker spots. Crown with median stripe dark brown in darker specimens and reddish brown in paler specimens. Face mottled with dark brown spots. Mesosternum dark brown. Femora marked with dark brown in darker specimens.



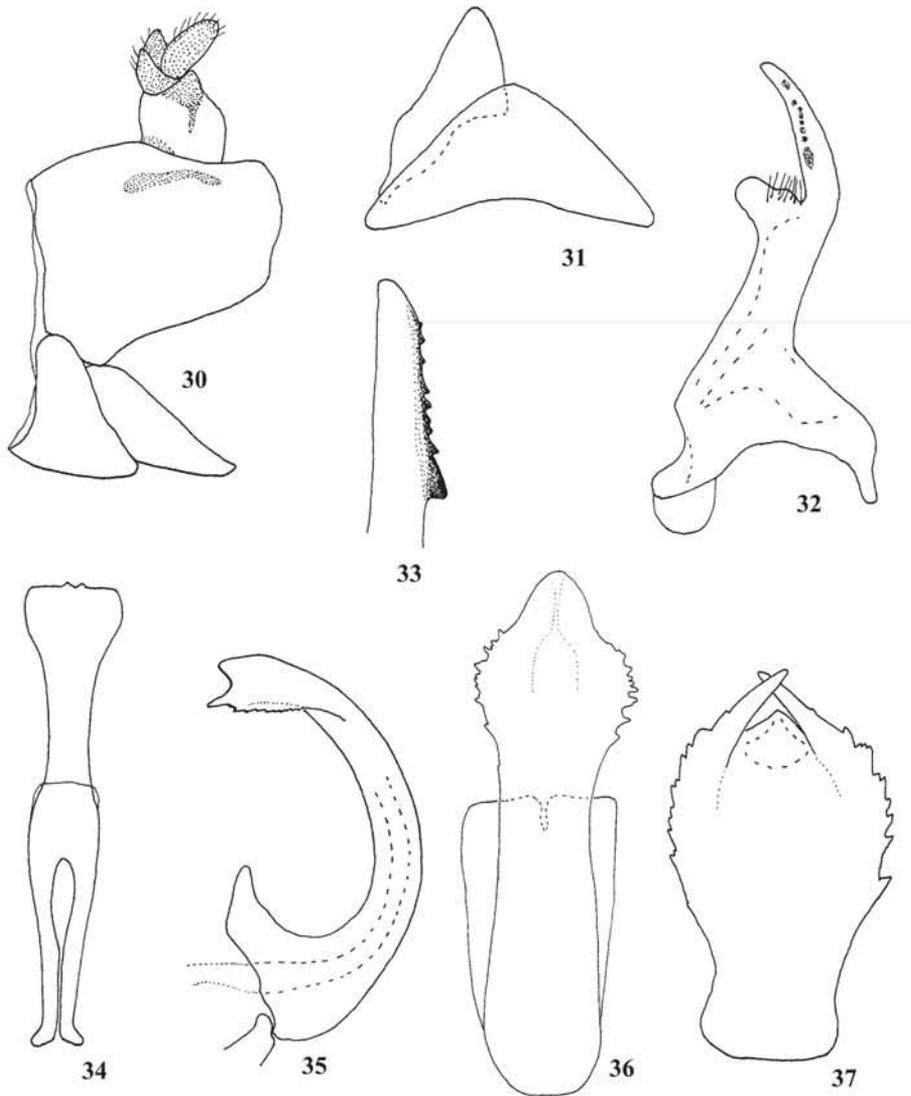
Figs. 1-14. Male genitalia of species of *Gurawa*. 1-7. *Gurawa ceylonica* sp. nov.: 1. Pygofer, lateral view; 2. Valve and subgenital plate, ventral view; 3. Style, dorsal view; 4. Apophysis of style, lateral view; 5. Connective, dorsal view; 6. Aedeagus, lateral view; 7. Apex of aedeagus, dorsoposterior view. 8-14. *Gurawa constricta* sp. nov.: 8. Pygofer, lateral view; 9. Valve and subgenital plate, ventral view; 10. Style, dorsal view; 11. Apophysis of style, lateral view; 12. Connective, dorsal view; 13. Aedeagus, lateral view; 14. Apex of aedeagus, dorsoposterior view.



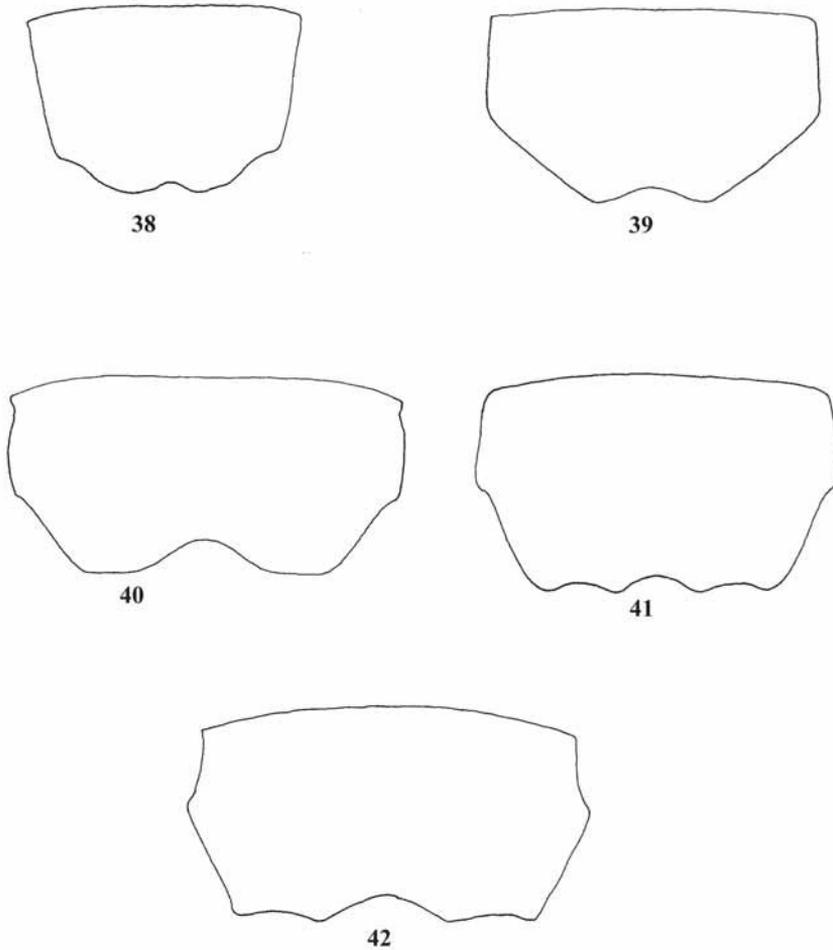
Figs. 15-21. Male genitalia of *Gurawa intermediata* Pruthi: 15. Pygofer, lateral view; 16. Valve and subgenital plate, ventral view; 17. Style, dorsal view; 18. Connective, dorsal view; 19. Aedeagus, lateral view; 20. Apex of aedeagus, dorsoposterior view; 21. Apophysis of style, lateral view.



Figs. 22-29. Male genitalia of *Gurawa minorcephala* Pruthi: 22. Pygofer, lateral view; 23. Valve and subgenital plate, ventral view; 24. Style, dorsal view; 25. Connective, dorsal view; 26. Apophysis of style lateral view; 27. Apex of aedeagus, dorsoposterior view; 28. Aedeagus, lateral view; 29. Connective, dorsal view.



Figs. 30-37. Male genitalia of *Gurawa vexillum* Distant: 30. Male genital capsule, lateral view; 31. Valve and subgenital plate, ventral view; 32. Style, dorsal view; 33. Apophysis of style, lateral view 34. Connective, dorsal view; 35. Aedeagus, lateral view; 36. Aedeagus, ventroposterior view; 37. Apex of aedeagus, dorsoposterior view.



Figs. 38-42. Female seventh sternite, ventral view of species of *Gurawa*. 38. *Gurawa ceylonica* sp. nov.; 39. *Gurawa constricta* sp. nov.; 40. *Gurawa intermediata* Pruthi; 41. *Gurawa minorcephala* Pruthi; 42. *Gurawa vexillum* Distant.

Male genitalia: Pygofer with dorsal margin in posterior half slightly concave and ventral margin oblique and sinuate. Valve triangular, 2.5 times as wide at base as long medially, posterior margin more acutely rounded compared to that in *G. minorcephala*. Subgenital plate triangular, about 1.25 times as wide at base as long along inner margin. Style about twice as long as wide at base, apophysis rather straight in basal 0.75 then laterally curved, slightly, 0.3 times as long as total length, with one basal stout tooth followed by 8 smaller teeth on ventral margin. Connective with stem longer than arms, with median concavity on posterior margin. Aedeagus as in *G. minorcephala* but hood with lateroapical spines prominent, longer and overlapping each other at apex in posterodorsal view, gonopore subapical.

Female genitalia: Seventh sternite about twice as broad as long with prominent median concavity and less prominent lateral concavity, lateral angles acutely rounded.

Measurements: Male 3.65-mm long and 1.2-1.3 mm wide across eyes. Female 4.0-4.2 mm long and 1.3-1.4 mm wide across eyes.

Material examined: INDIA: Himachal Pradesh: 1 ♀, Kufri, 2600 m, 15.x.1979, C.A. Viraktamath; 1 ♂, Manali. 15.x.1981, I. Dworakowska. West Bengal: 2 ♀, Kurseong, 1483 m, 22.x.1981, C.A. Viraktamath (1 ♀) and S. Viraktamath (1 ♀); 1 ♀, 8 Km E. Kalimpong, 29.x.1981, C.A. Viraktamath; 2 ♂, 3 ♀, Algarah nr Kalimpong, 1788 m, 7.vi.2005, C.A. Viraktamath (UASB).

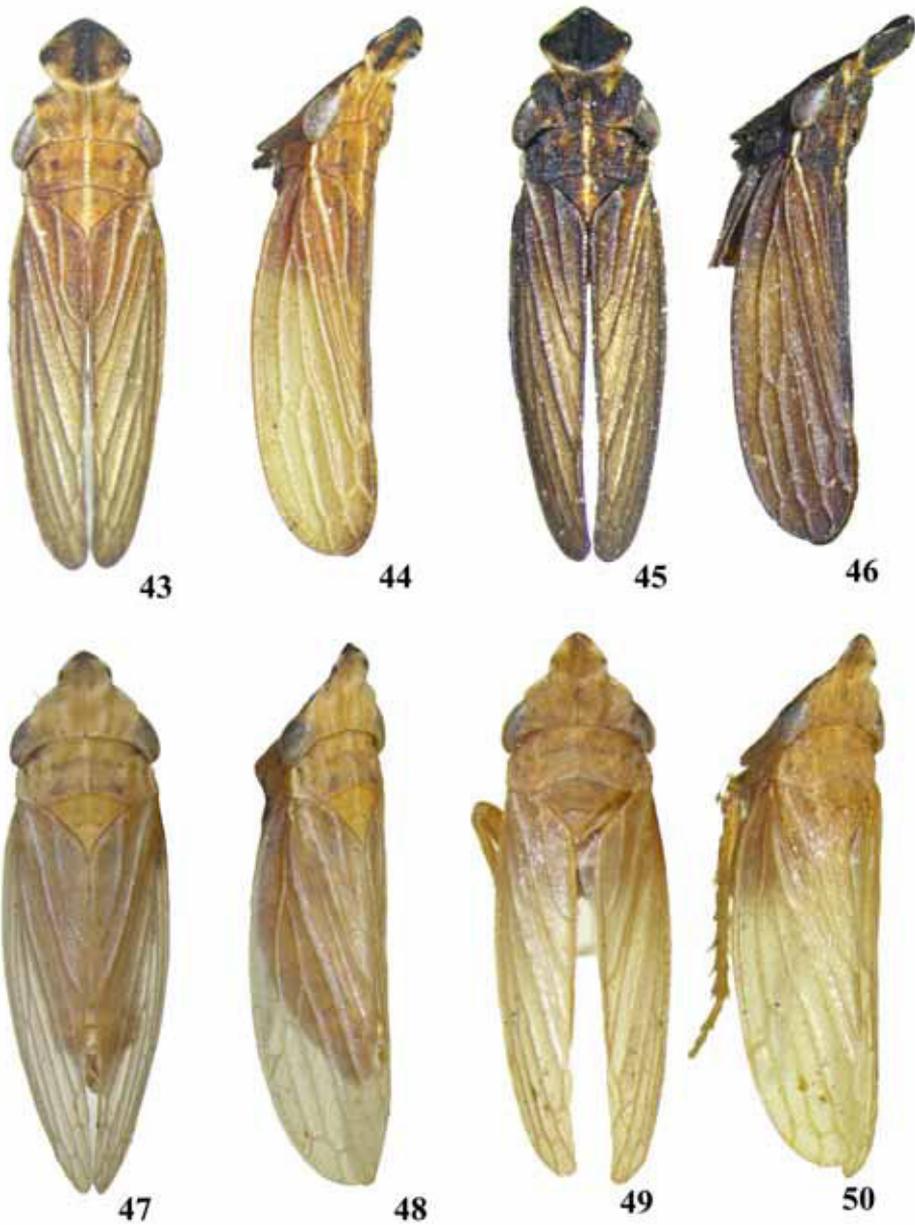
Remarks: Described from a single specimen from “Sikhim; Mungphu (Atkinson, Coll. Dist.)”. Identity of other specimens is provisional based on the external appearance and proximity to the type locality. The holotype specimen (Fig. 75) has lost its abdomen (M.D. Webb, pers. com.). Specimens provisionally identified as *G. vexillum* have heads either as long as or slightly longer or shorter than pronotum. Specimens from Algarah are much darker especially the females.

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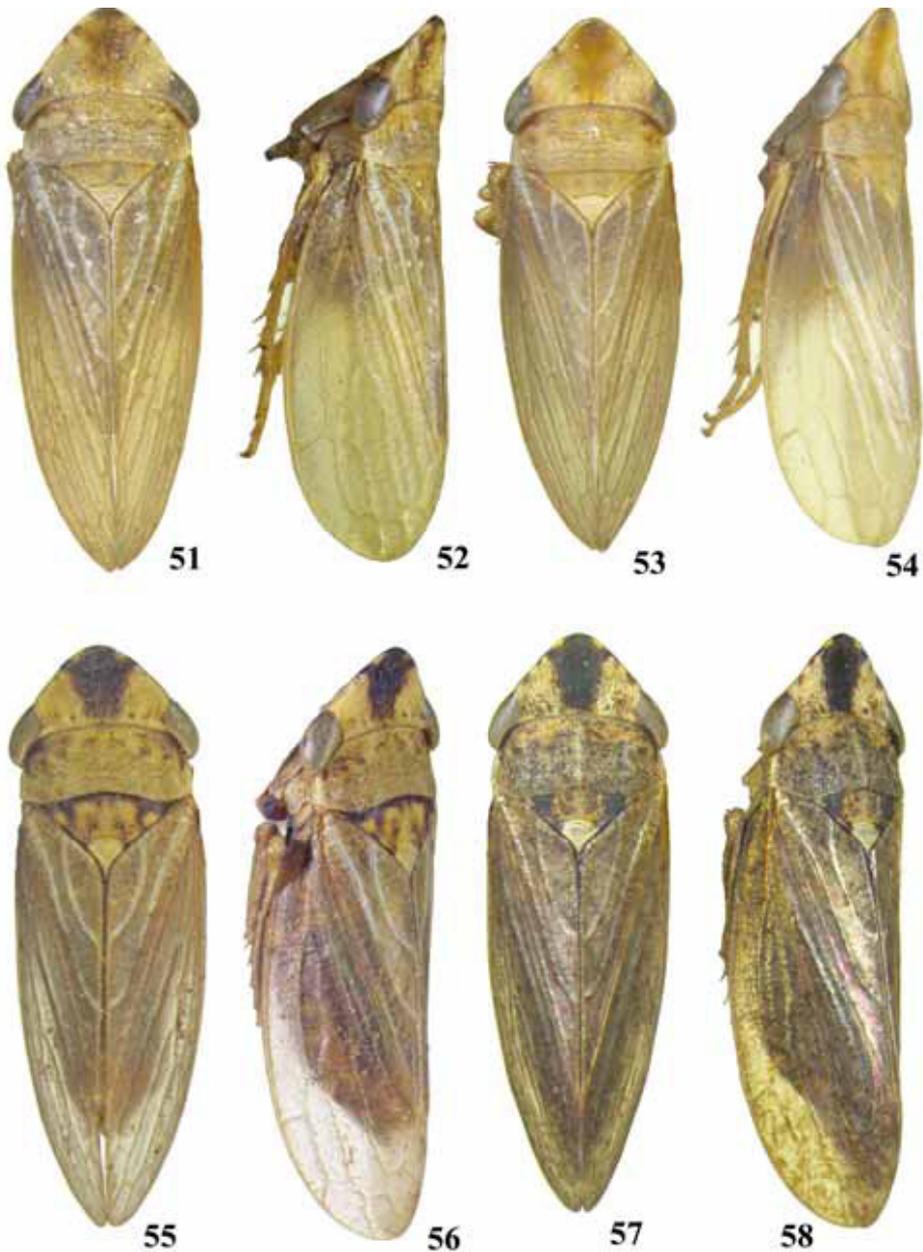
We are thankful to Mr M.D. Webb (BMNH) for providing information on the holotype of *G. vexillum* Distant and also its photograph (Fig. 75). Mr Webb and Dr Dai Wu (Northwest A & F University, Yangling, China) provided constructive criticism on an earlier draft of this paper. Dr Yeshwanth, H.M. (UASB) helped in the preparation of the plates and also provided the field photographs of the species of *Gurawa*.

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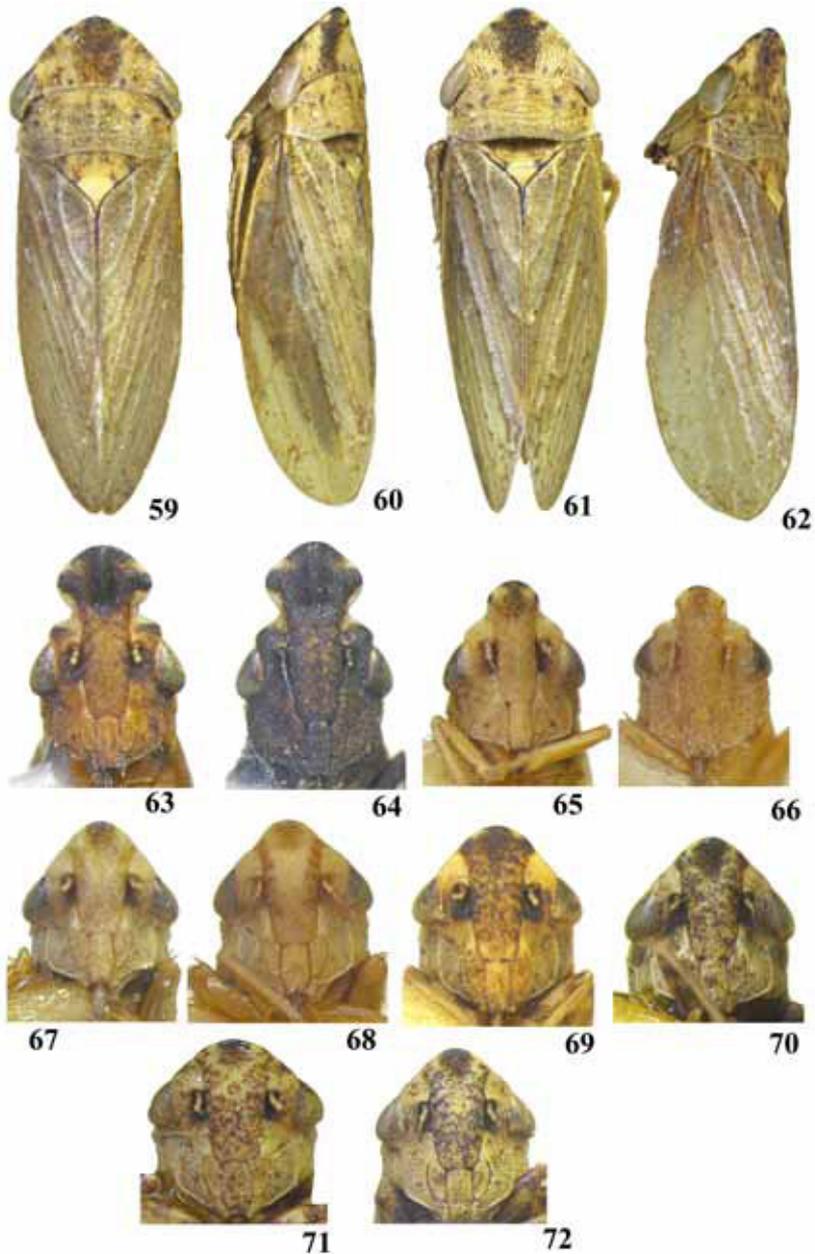
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Figs. 43-50. Habitus of species of *Gurawa*. 43-46. *Gurawa ceylonica* sp. nov.; 47-50. *Gurawa constricta* sp. nov. : Males: 43& 47. Dorsal view; 44 & 48. Lateral view. Females: 45& 49. Dorsal view; 46 & 50. Lateral view.



Figs. 51-58. Habitus of species of *Gurawa*. 51-54. *Gurawa intermediata* Pruthi; 55-58. *Gurawa minorcephala* Pruthi: Males 51 & 55. Dorsal view; 52 & 56. Lateral view. Females: 53 & 57. Dorsal view; 54 & 58. Lateral view.



Figs. 59-72. Habitus and face of species of *Gurawa*. 59-60. Male *Gurawa vexillum*, dorsal and lateral views; 61 & 62. Female *G. vexillum*, dorsal and lateral views; 63 & 64. *G. ceylonica* male and female face; 65 & 66. *G. constricta* male and female face; 67 & 68. *G. intermediata* male and female face; 69 & 70. *G. melanocephala* male and female face; 71 & 72. *G. vexillum* male and female face.



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Figs. 73-75. Species of *Gurawa*. 73-74. Female *Gurawa intermediata* in natural habitat. 75. *Gurawa vexillum* holotype, dorsal view.

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