INSECTA MATSUMURANA

NEW SERIES 42 : 93-110 NOVEMBER 1989

SOME HIGHER HIMALAYAN TYPHLOCYBINE LEAFHOPPERS (HOMOPTERA, CICADELLIDAE) OF NEPAL

By V.K. THAPA

Research Trips for Agricultural and Forest Insects in the Subcontinent of India, Scientific Report No. 40.

Abstract

THAPA, V.K. 1989. Some higher Himalayan typhlocybine leafhoppers (Homoptera, Cicadellidae) of Nepal. *Ins. matsum. n. s.* 42 : 93-110, 12 figs.

Four new genera (*Tosioma, Rolwalia, Damania, Thecana*), based on four new species, are proposed. Two species of *Alebroides* Mats. (*A. sohii, A. dolkhensis*), two species of *Aguriahana* Dist. (*A. rhododendri, A. nepalensis*), two species of *Typhlocyba* Germ. (*T. ferruginea, T. albida*), two species of *Arboridia* Zachv. (*A. erythrina, A. suwai*), and one species of *Motaga* Dwor. (*M. himalensis*), are described as new species. *Duttaella punjabensis* Ram. et. Men., *Typhlocyba chandrai* Dwor. are newly recorded from higher Himalayas of Nepal.

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Supported by Grant-in-Aid, Ministry of Education, Science and Culture, Japan, No. 58041001 (1983).

Contents

INTRODUCTION

This is a part of work carried out in connection with "Research Trips for Agricultural and Forest Insects in the Subcontinent of India" in 1983 (Aug.-Dec.) under a joint venture of the members of Hokkaidô University of Japan, Tribhuvan University and Entomology Division (Deptt. of Agriculture, HMG) of Nepal.

In this paper 13 new leafhoppers collected by the author himself from the higher Himalayas (alt. 2,000 m and above) of Dolkha, Kathmandu and Makwanpur Districts of Nepal (midland region) are described and illustrated. Two other species are newly recorded from this region.

Earlier descriptions of new species of high altitude typhlocybine leafhoppers of Nepal were made by Knight (1968) and Dworakowska (1969, 1972) from East Nepal (Taplejung Dist., alt. 6,200 ft., coll. R.L. Coe). Later Dworakowska (1980) described a few other new species from Nagarkot (alt. ca. 2000 m).

The Tribe Zyginellini Dwor. is not included in this paper since most of the material collected was from lower altitudes (1,500 m and below). Here, one species of Dikraneurini, two species of Empoascini, six species of Typhlocybini, and six species of Erythroneurini are dealt with. The holotypes of all new species will be deposited at the British Museum (Nat. Hist.), London and paratypes in the Natural History Museum, Tribhuvan University, Kathmandu (Nepal), Forest Research Institute, Dehra Dun (India), and Entomological Institute, Hokkaidô University, Sapporo (Japan).

NEW TAXA AND NEW RECORDS

Tribe Dikraneurini McAtee
Duttaella Ram. et Men., 1971

1. *Duttaella punjabensis* Ram. et Men., 1971, p. 462. Pakistan.

Specimens examined. 25♂♂, 69♀♀, Dolkha: Rolwaling Village nr. Rolwaling River (alt. 3,250 m), 16.viii.1983, ex *Viburnum* sp. 1♂, Kathmandu: Chandragiri Dale (alt. 2,300 m), 27.ix.1983, host plant not identified.

Tribe Empoascini Ahmed
Alebroides Mats., 1931

2. *Alebroides sohii* sp. nov. (Fig. 1)

Larger yellowish-grey species with brownish eyes and long antennae, vertex yellowish, ocellus at the centre of white mark near anterior margin of vertex, coronal suture more than half of vertex midlength. Posterior half of pronotum, scutum and scutellum fuscous, anterior half of pronotum white in middle region and griseous in rest region (Fig. 1.1); basal triangles indiscernible. Frontoclypeus mainly light yellow and rest white with a yellow tinge, anteclypeus declivous anteriorly. Last abdominal tergites and last tarsal segments black. Fore wing long, almost equal width, with three fuscous spots on posterior margin (areas marked with cross-lines in Fig. 1.3), light yellow between the spots (dotted region in Fig. 1.3); hind wing with two apical cells.

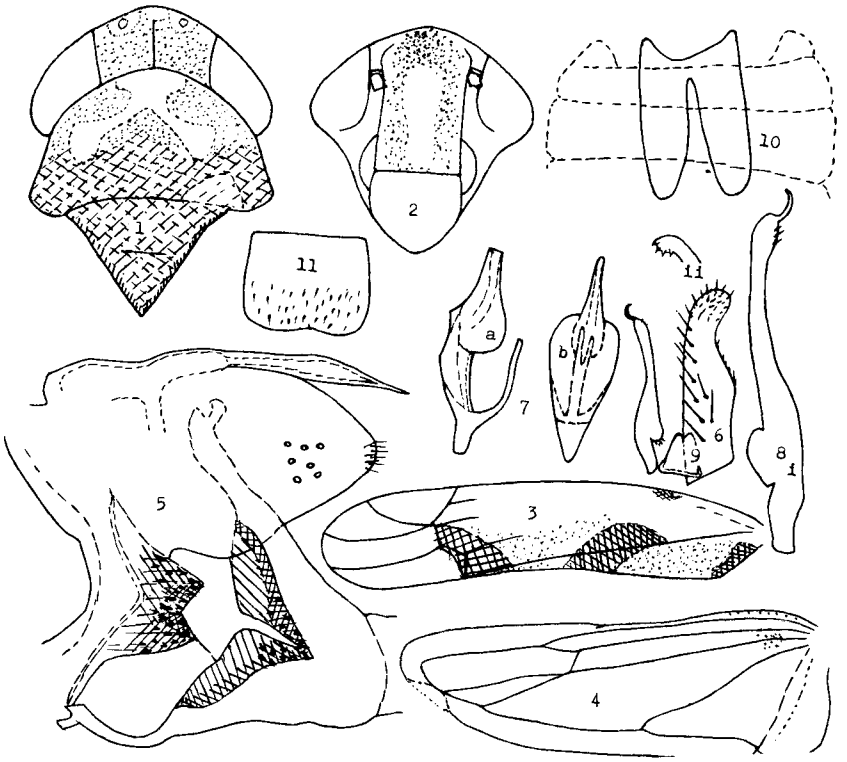

Fig. 1. *Alebroides sohii* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, lateral view, b, dorsal view. 8. i, Paramere, ii, paramere apex. 9. Connective. 10. Abdominal apodeme. 11. Female seventh abdominal sternite.

Male genitalia. Pygofer side with a group of setae apically, lateral process tapering and anal tube process forked apically ; subgenital plate agrees with generic characters, paramere enlarged subapically and penis with apically forked preatrial process and shaft enlarged subapically (Fig. 1.7a, b), gonopore terminal.

Measurements. Male : 5.30 mm long and 1.10 mm wide. Female : 5.20-5.30 mm long.

Specimens examined. Holotype ♂ and paratypes 4♂♂, 7♀♀, Dolkha : above Simigaon (alt. 2,600 m), 24.viii.1983, at light.

Remarks. It is distantly related to *A. fuscus* Dwor., 1981, but differs from the latter in body size, colouration as well as in the structure of pygofer side, anal tube processes, and apical region of paramere. This new species is named in honour of Dr. Amrik S. Sohi of PAU (Ludhiana), India, who has described many new species of *Alebroides*.

3. *Alebroides dolkhensis* sp. nov. (Fig. 2)

Medium sized, greyish-yellow species. Eyes black dorsally and light brown ventrally, ocellus closer to anterior margin of vertex, vertex (cracked in holotype) yellow tinged with grey, with a small grey patch at the end of coronal suture. Face

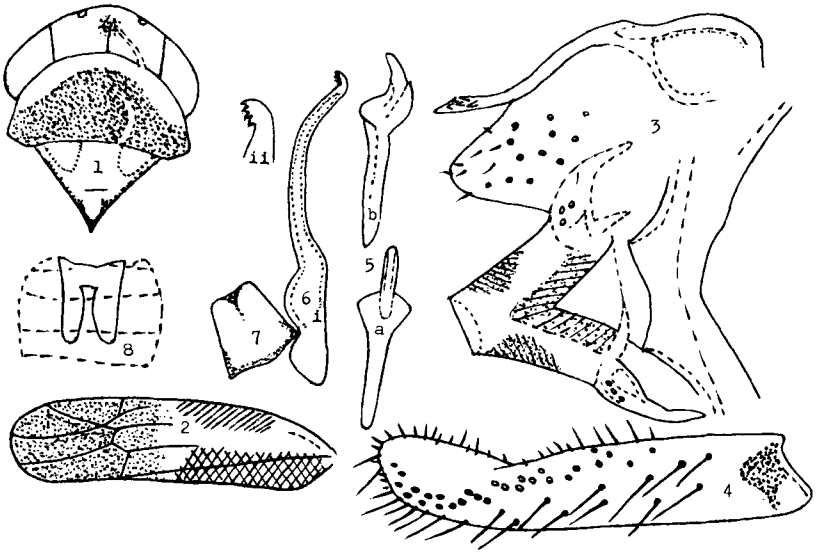

Fig. 2. *Alebroides dolkhensis* sp. nov. 1. Head, dorsal view. 2. Fore wing. 3. Pygofer and anal tube. 4. Subgenital plate. 5. Penis, a, dorsal view, b, lateral view. 6. i, Paramere, ii, paramere apex. 7. Connective. 8. Abdominal apodeme.

light yellow and conical apically, frontoclypeus cylindrical and frontal suture extending more than antennal base. Pronotum yellow along anterior margin and light fuscous on rest parts, black spots in an oblique row on each lateral side (Fig. 2.1), scutellum brown apically (Fig. 2.1). Fore wing light fuscous in apical half, clavus darker. Hind wing veins brown. Abdomen light black, legs citrine-yellow.

Male genitalia. Very similar to those of *A. soror* Dwor. but penis apical extention different in lateral view (Fig. 2.5b), anal tube process a little longer and with double arms.

Measurements. Male: 3.90 mm long and 0.90 mm wide. Female: 4.20–4.50 mm long.

Specimens examined. Holotype ♂ and paratypes 2♂♂, 2♀♀, Dolkha: Shyakpa Danda (alt. 2,500 m), 13.viii.1983, ex *Artemisia* sp.

Remarks. This species is very close to *A. soror* Dwor., 1981, but it differs from the latter in body colour and perhaps in size as well. Present species has an oblique row of black spots on each side of thorax, the row lacking in its allied species. Also, this new species has abdominal apodeme shorter, penis apical extention not pointed on lateral view and anal tube with double arms. Species name is after its locality.

Tribe Typhlocybini Young
Aguriahana Dist., 1918

4. *Aguriahana rhododendri* sp. nov. (Fig. 3)

Large, cylindrical, yellowish-orange species with a little flattened body. Head with brownish eyes, vertex yellowish at centre, anterior margin of vertex and scutellum white with a yellow tinge, coronal suture more than half of vertex

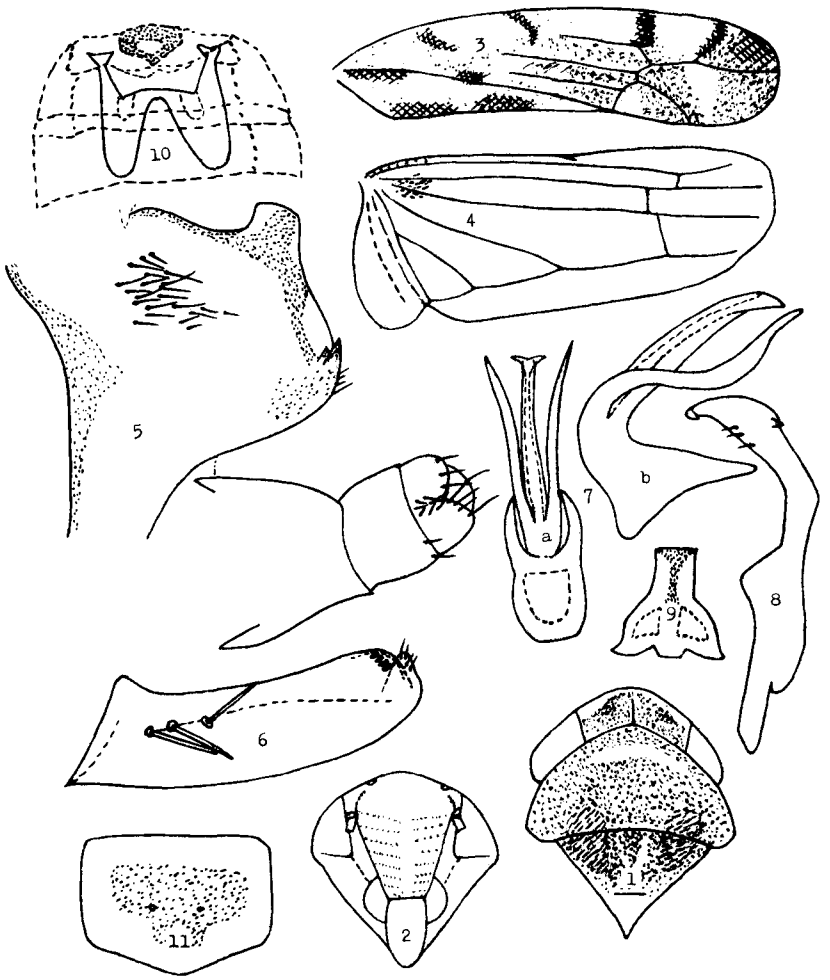

Fig. 3. *Aguriahana rhododendri* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme. 11. Female seventh abdominal sternite.

midlength. Pronotum and scutum citrine with light fuscous basal triangles, scutum declivous posteriorly ; face creamy yellow, ocellus near the margin, frontoclypeus large and conical. Fore wing light fuscous, with fuscous spots (cross-lined areas in Fig. 3.3), veins and proximal half of wing including wax-field citrine ; hind wing hyaline, of typical *Eypteryx*-complex.

Male genitalia. Pygofer side with a larger and smooth apico-lateral lobe and a separate smaller apico-dorsal lobe with denticles, and with a group of smaller stiff lateral setae. Paramere as in *A. pictilis* (Stål, 1853), with a distinct preapical tooth but with bent apex in this species. Abdominal apodeme, subgenital plate, connective and penis as in *A. niisimai* (Mats.) but subgenital plate with three macrosetae and subapically with four peg-like setae, and penis with a long pair of preatrial

processes, shaft arcuated and forked apically (Fig. 3.7a, b), gonopore terminal.

Female seventh abdominal sternite quadrate, with hind margin produced in a low triangle (Fig. 3.11).

Measurements. Male: 5.0 mm long and 1.0 mm wide. Female: 5.0-5.10 mm long.

Specimens examined. Holotype ♂ and paratypes 25♂♂, 18♀♀, Dolkha: Rolwaling Village (above Simigaon) (alt. 3,500-3,950 m), 15.viii.1983, ex *Rhododendron campanulatum* D. Don.

Remarks. This is perhaps the largest known species of the genus without distinct marking on head, and is exclusively a subalpine species. It is related to *A. niisimai* (Mats., 1932), but is well differentiated from the same in body size and colouration as well as in the structure of fore wing, pygofer side and penis. This species is named after its host plant.

5. *Aguriahana nepalensis* sp. nov. (Fig. 4)

Bigger, greyish-yellow species without distinct marking on head. Head with dark brown eyes; vertex, pronotal disc and scutum together with scutellum and fore wing uniformly greyish-yellow, vertex narrowing anteriorly, coronal suture nearly upto half of its midlength and scutum declivous posteriorly. Face uniformly dusty yellow with ocellus near the anterior margin. Wing venation as in *A. uncinata* (Vilbaste), apical cells of fore wing light smoky and occupying less than 1/3 of total wing length, veins greyish-yellow except submarginal vein and cross-veins of hind

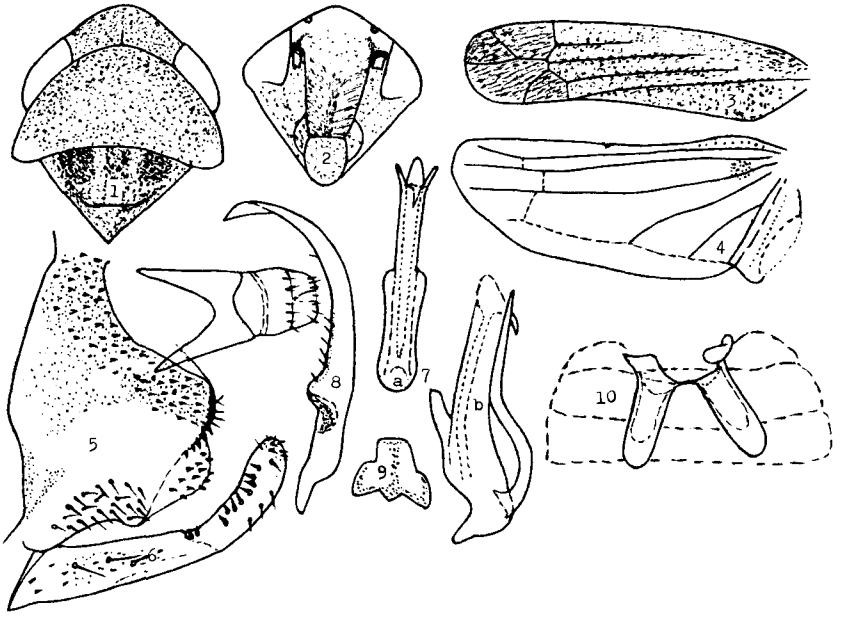

Fig. 4. *Aguriahana nepalensis* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme.

wing transparent. Abdominal apodeme double, developed upto fifth segment.

Male genitalia. Pygofer side with a distinct central lobe and upper lobe not well developed but with smaller denticles, setae on lateral sides; subgenital plate long, almost uniform width, no twisted seta apically and peg-like setae subapically. Paramere almost as in *A. stellulata* (Burm., 1841), having no preapical lobe but apical region shorter, flattened and twisted. Connective and penis as those of *A. uncinata* (Vilb.) in outline, but penis with a smaller ventral unpaired shaft process and smooth surface in the apical region of basal process.

Measurements. Male: 4.0 mm long and 0.90 mm wide. Female: 4.30-4.50 mm long.

Specimens examined. Holotype ♂ and paratypes 8♂♂, 5♀♀, Makwanpur: Daman (alt. 2,250 m), 8.ix.1983, ex blue pine (*Pinus excelsa* Wall.).

Remarks. This is almost a subalpine species and has no distinct marking on head. It is distantly related to *A. uncinata* (Vilb., 1965) due to similar structure of wings, connective and penis, and in development of abdominal apodeme. But this species has completely different structure of paramere and subgenital plate as well as pygofer side as described above.

Typhlocyba Germ., 1833

6. *Typhlocyba ferruginea* sp. nov. (Fig. 5)

Medium sized, ferrugineous and a little flattened species. Head with testaceous eyes and light creamy vertex with ferrugineous band near the anterior margin; face light yellow with frontoclypeus dark (shadowed in Fig. 5.2), anteclypeus and lora dirty black, margin white, a black fascia anterior to white margin. Pronotum with broad transverse ferrugineous band on disc and at anterior margin, scutum fuscous, with basal triangles rusty-orange, scutellum light creamy centrally, blackish apically. Proximal half of fore wing with brownish-orange (cross-lined regions in Fig. 5.3). Wax-field proximal half with a yellow tinge and distal half citrine, dark

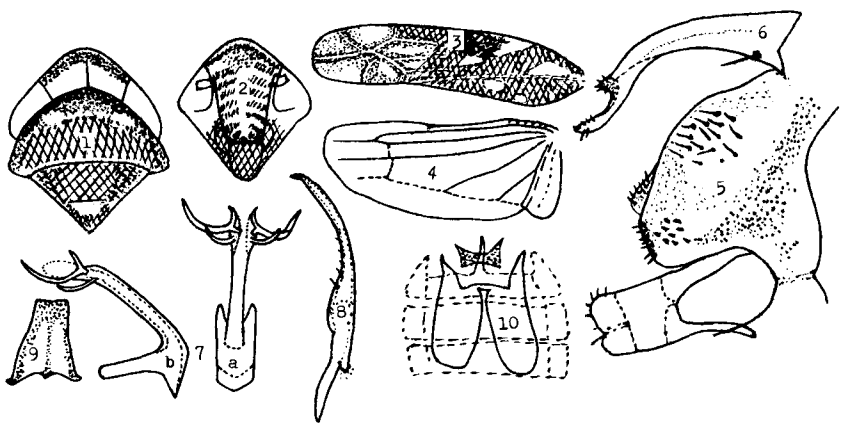

Fig. 5. *Typhlocyba ferruginea* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme.

fuscous mark on either side of wax-field, sides of all apical cells light fuscous. Hind wing with cu_1-cu_2 cross-vein internal to m-cu_1. Abdominal apodeme smaller, upto fifth segment.

Male genitalia. External genital structures as well as paramere and connective as in *T. arborea* Dwor. but penis structure different. Apical process of shaft clearly biramous (Fig. 5.7a, b).

Measurements. Male: 3.40 mm long and 0.80 mm wide. Female: 3.20-3.40 mm long.

Specimens examined. Holotype ♂ and paratypes 2♂♂, 5♀♀, Makwanpur: Daman (alt. 2,260 m), 8.ix.1983, ex *Lyonia ovalifolia* (Wall.)

Remarks. This species is closely related to *T. arborea* Dwor., 1979 but different in the colour of the body and wings. Hind wing venation, structure of apical shaft process of penis are different. Abdominal apodeme in the present species is smaller. Species name is due to its rusted iron colour.

7. *Typhlocyba albida* sp. nov. (Fig. 6)

Medium sized, uniformly dirty white and a little flattened species. Head with narrowing vertex and testaceous eyes, coronal suture distinct and less half of vertex midlength, vertex and pronotum dirty white, partly light yellow (thicker dotted areas in Fig. 6.1), scutum centre and scutellum whitish with a yellow tinge, basal triangles and pronotal centre tinged yellow. Face uniformly dirty yellow with fusiform frontoclypeus. Fore wing dirty white but wax-field white and light fuscous apically. Abdomen yellowish but a few basal tergal sclerites black, and with apodeme

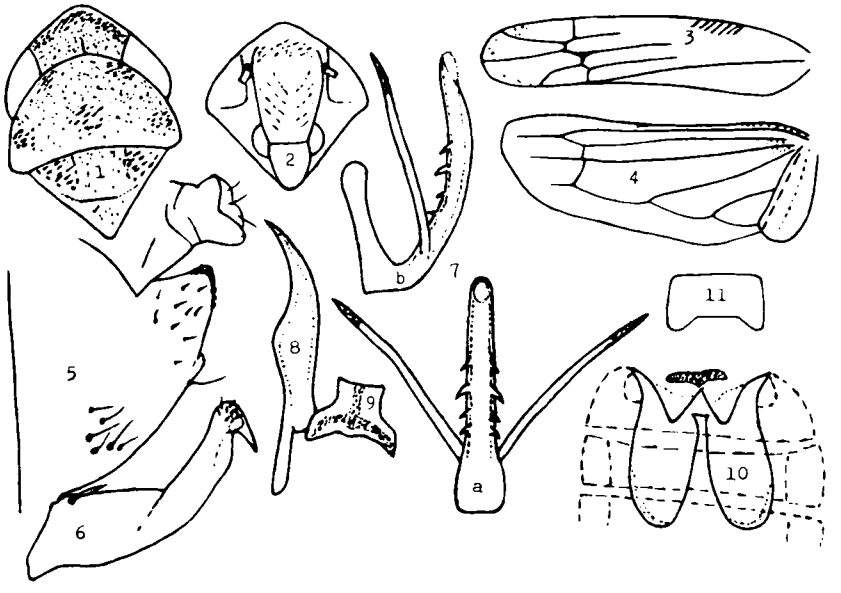

Fig. 6. *Typhlocyba albida* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer and anal tube (a part). 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 9. Connective. 10. Abdominal apodeme. 11. Female seventh abdominal sternite.

extending upto fifth segment.

Male genitalia. Almost as in *T. simlensis* Dwor. but pygofer side with a group of lateral setae, connective shorter and penis shaft cylindrical with a few unequal sized teeth and no apical process.

Female seventh abdominal sternite widely emarginate on hind margin.

Measurements. Male: 3.60 mm long and 0.70 mm wide. Female: 3.80-4.0 mm long.

Specimens examined. Holotype ♂ and paratypes 16♂♂, 22♀♀, Dolkha: Dongo (alt. 2,470 m), 23.viii.1983, ex *Sorbus* sp.

Remarks. It is quite close to *T. simlensis* Dwor., 1981 but bigger in size and whitish in colour; third apical cell of fore wing not petiolate, and penis shaft with different teeth as described above. The new species is named after its body colour.

8. *Typhlocyba chandrai* Dwor., 1981, p. 596. India (Simla).

Specimens examined. 2♂♂, 4♀♀, Kathmandu: Chandragiri Dale (alt. 2,300 m), 27.ix.1983, ex *Quercus glauca* Thunb.

Tosioma gen. nov.

Type-species: *Tosioma querci* sp. nov.

Pygofer side without distinct process, but with a dorsal sclerotized thickening; subgenital plate with a single basal macroseta; connective lamellate and paramere proximally short and arcuated distally; penis with a distinct dorsal apodeme and a pair of basal processes. Fore wing with third apical cell narrowing proximally and hind wing with close cross-veins. Abdominal apodeme very large and double.

9. *Tosioma querci* sp. nov. (Fig. 7)

Medium sized, whitish species with large brown eyes on head. Vertex white with a yellow tinge and marked with light yellow (cross-lined in Fig. 7.1), coronal suture small and not well clear, ground colour of pronotum white with a yellow tinge and disc light yellow (marked with cross-lines in Fig. 7.1). Anterior margin of pronotum and face transparent, frontoclypeus cylindrical. Fore wing spotted, light yellow but apical cells light fuscous and occupying nearly 1/3 of wing length; hind wing with both cross-veins almost in one line.

Abdominal apodeme extended upto the sixth segment.

Male genitalia. Pygofer side (Fig. 7.5) conical, with stiff setae apically and on disc, dorsal thickening lobed medially, lateral lobe of the side present; subgenital plate with a few peg-like microsetae on apical region and scaly ventro-laterally. Connective small and paramere foot-like apically. Penis with a long pair of arcuated atrial processes longer than a shaft.

Measurements. Male: 3.50 mm long and 0.70 mm wide. Female: 3.80-4.0 mm long.

Specimens examined. Holotype ♂ and paratypes 4♂♂, 10♀♀, Kathmandu: Chandragiri Dale (alt. 2,300 m), 27.ix.1983, ex *Quercus glauca* Thunb.

Remarks. This genus can be compared with *Guheswaria* Thapa, 1983 due to the same host plant, similar fore wing venation, abdominal apodeme, pygofer setae and in outline shape of the subgenital plate. But this new genus is different from the

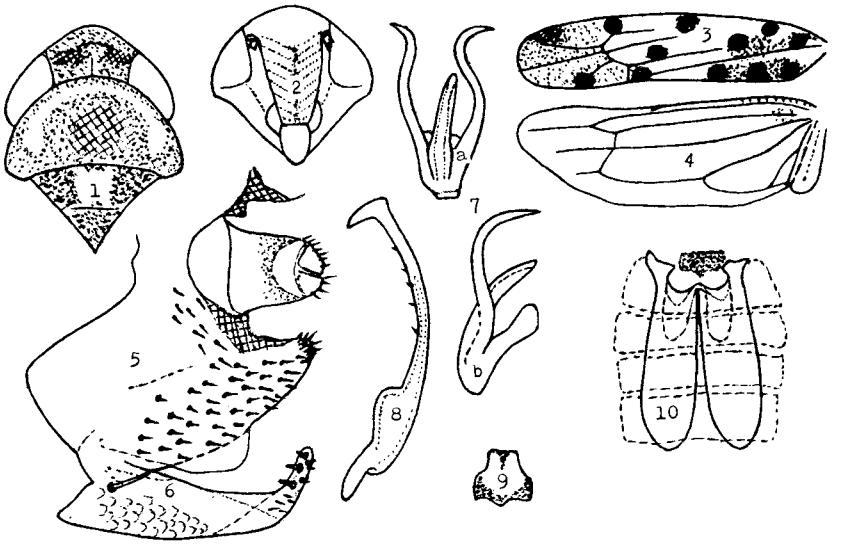

Fig. 7. *Tosioma querci* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme.

latter in body colouration as well as in paramere, connective, and penis structure. Types of setae of subgenital plate are also different. The new genus is in honour of Dr. Tosio Kumata of Hokkaidô University, Japan.

Tribe Erythroneurini Young
Arboridia Zachvatkin, 1946

10. *Arboridia erythrina* sp. nov. (Fig. 8.1-8.11)

Totally red coloured, medium sized species. Head with black eyes; vertex, pronotum and scutum marked with red (dotted in Fig. 8.1) and rest regions creamy yellow, basal triangles (oblique lines in Fig. 8.1) citrine and scutellum creamy yellow. Face light creamy with a red mark between the ends of frontal sutures beyond antennal bases. Fore wing erythreous (red coloured), a little wider towards apex and apical cells transparent and occupying more than apical 1/3 of wing. Hind wing with red veins. Abdominal tergites black, red body colour often bleached, apodemes bigger, extending upto fifth segment.

Male genitalia. Pygofer side and paramere as in *A.* (*Arboridia*) *tertina* but dorsal pygofer process biramous. Subgenital plate shorter, thumb-like apically. Connective almost as in *A.* (*E.*) *stolata* (McAtee) but penis with longer preatrium and reduced dorsal apodeme, shaft short and laterally flattened, arcuated with terminal gonopore.

Female seventh abdominal sternite with a median lobe at hind margin (Fig. 8.11).

Measurements. Male: 3.80 mm long and 0.70 mm wide. Female: 3.80 mm long.

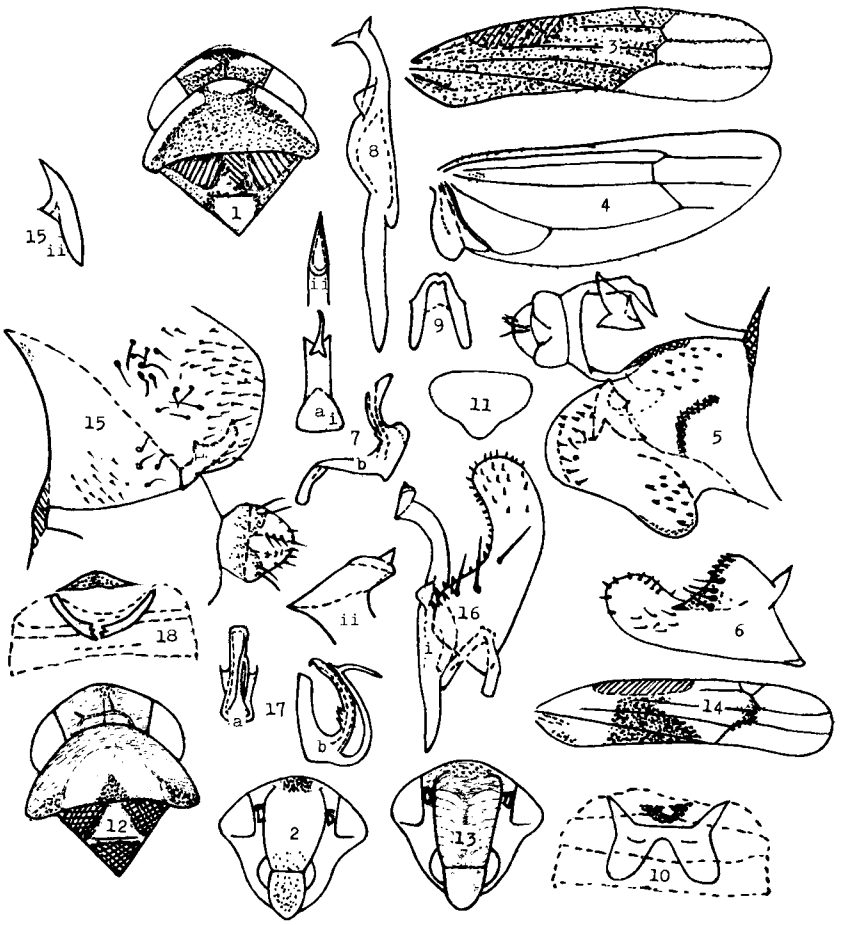

Fig. 8. *Arboridia erythrina* sp. nov. (Figs. 1-11). 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6. Subgenital plate. 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme. 11. Female seventh abdominal sternite.
Arboridia suwai sp. nov. (Figs. 12-18). 12. Head, dorsal view. 13. Head, ventral view. 14. Fore wing. 15. Pygofer side, anal tube (a part), ii, anal hook. 16. Subgenital plate, connective and paramere, ii, paramere apex. 17. Penis, a, dorsal view, b, lateral view. 18. Abdominal apodeme.

Specimens examined. Holotype ♂ and paratypes 5♂♂, 12♀♀, Dolkha: above Simigaon (alt. 2,300 m), 24.viii.1983, ex *Schizandra* sp.

Remarks. This species is distantly related to *A.* (*A.*) *tertina* Dwor. et Virak., 1978 but differs in body colour, structure of connective, penis, dorsal pygofer process, abdominal apodeme, etc. The new species is named after its red body colour.

11. *Arboridia suwai* sp. nov. (Fig. 8.12-8.18)

Medium sized, yellowish species with red marks. Head with brownish eyes and yellow vertex (cracked in holotype), coronal suture nearly indistinct and red mark

near the apex. Pronotum yellow except light red marks (denoted by dots in Fig. 8.12) on postero-lateral region; scutum and scutellum brown except at centre of scutum yellowish. Anterior region of face including frontoclypeus almost transparent and posterior region yellowish with a red tinge (marked by dots in Fig. 8.13), frontal suture beyond antennal base. Fore wing light yellow with distinct red mark (denoted by dots in Fig. 8.14) nearly at middle and scarred at other regions, apical cells dusty and about 1/3 region of total wing length. Hind wing transparent. Abdominal apodeme small (Fig. 8.18).

Male genitalia. Subgenital plate, pygofer side and its dorsal process almost as in *A.* (*A.*) *cardinalis* (Dist.) but pygofer side with more setae. Paramere and penis (Figs. 8.16 & 8.17) different in structure from those of species so far described. Paramere pointed and appearing coiled apically, preapical lobe nearly mesal; penis with short preatrium, well developed dorsal apodeme and unequally divided atrial process near apex, shaft with denticles near base.

Measurements. Male: 3.60 mm long and 0.70 mm wide. Female: 3.80 mm long.

Specimens examined. Holotype ♂ and paratypes 3♂♂, 1♀, Dolkha: above Simigaon (alt. 2,300 m), 24.viii.1983, ex *Schizandra* sp.

Remarks. It is also distantly related to *A.* (*A.*) *cardinalis* (Dist., 1918). Present species can be distinguished from the latter in many characters such as body colour, structure of penis, paramere, connective, etc. This species is named in honour of Dr. Masaaki Suwa of Hokkaidô University, Japan.

Motaga Dwor., 1979

12. *Motaga himalensis* sp. nov. (Fig. 9)

Medium sized, brownish-yellow species. Head with dark brown-black eyes, vertex almost rounded on anterior margin, sordid yellow in ground colour, with a distinct coronal suture extending upto middle; two pairs of stalked rounded marks on vertex, and two pairs of rounded marks, interjoined on each side, near anterior region of pronotal disc (Fig. 9.1), posterior half of pronotum light brown. Vertex, scutum and scutellum yellowish and scutum declivous posteriorly. Face a little longer than wide, frontoclypeus and anteclypeus yellowish with light brown marks near posterior margin, sides of face light yellow. Fore wing of almost equal width, distal half light fuscous and proximal half yellow and light fuscous. First apical vein often branched (so first apical cell divided in holotype). Hind wing veins fuscous and cross-vein transparent with cu_1-cu_2 external to m-cu_1. Abdominal apodeme reduced.

Male genitalia. Pygofer side with its process attached to upper margin, subgenital plate and connective structure as in *M. rokfa* Dwor. Paramere with shorter second apical extension; penis with smaller dorsal apodeme, shaft spiny apically and with a pair of smaller subapical processes (Fig. 9.7a), gonopore terminal.

Measurements. Male: 3.0 mm long and 0.60 mm wide. Female: 2.80-3.0 mm long.

Specimens examined. Holotype ♂ and paratypes 18♂♂, 47♀♀, Dolkha: Chetchet (alt. 2,000 m approx.), 11.viii.1983, ex *Strobilanthus* sp.

Remarks. This species is alike to the type-species of *Motaga, M. rokfa* Dwor.,

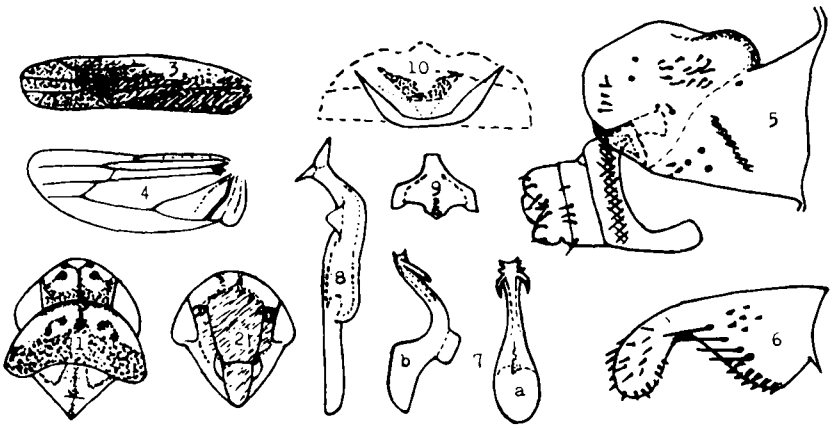

Fig. 9. *Motaga himalensis* sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side and anal tube. 6 & 7. Penis, a, dorsal view, b, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme.

1979, described from Vietnam, in the structure of pygofer, subgenital plate, connective as well as paramere. But this species differs from the latter in body pigmentation and size, shape of penis and wing venation. Shape of abdominal apodeme is also different.

Rolwalia gen. nov.

Type-species: *Rolwalia simplex* sp. nov.

Pygofer side simple without lateral extention, but dorsal process present; subgenital plate without macrosetae. Paramere with almost mesal lobe; connective small and penis without dorsal apodeme. Abdominal apodeme short but wide, and wing venation as in *Arboridia* Zachv., 1946.

13. *Rolwalia simplex* sp. nov. (Fig. 10)

Bigger, blackish-yellow species with brown eyes, and coronal suture less marked and nearly half of vertex midlength, vertex with almost rounded anterior margin. Vertex, pronotum and scutellum including basal triangles with black marks as in Fig. 10.1. Face a little elongated with light yellow frontoclypeus, whitish gena and black anteclypeus, other black patches as in Fig. 10.2, frontal suture beyond antennal base. Fore wing light fuscous and a little wider distally; wax-field white and other areas (marked with cross-lines in Fig. 10.3) fuscous; hind wing with fuscous veins except transverse and subapical. Abdomen black and its apodeme extended upto third segment.

Male genitalia. Pygofer side with almost rounded hind margin, its process and apically bifid paramere as in *Arboridia soror* Dwor. Subgenital plate thumb-like distally, without macrosetae but a group of filiform microsetae subapically. Connective bell-shaped and penis with a pair of short conical atrial processes, shaft flattened and bifid apically (Fig. 10.8a), gonopore terminal.

Female seventh abdominal sternite conical at hind margin.

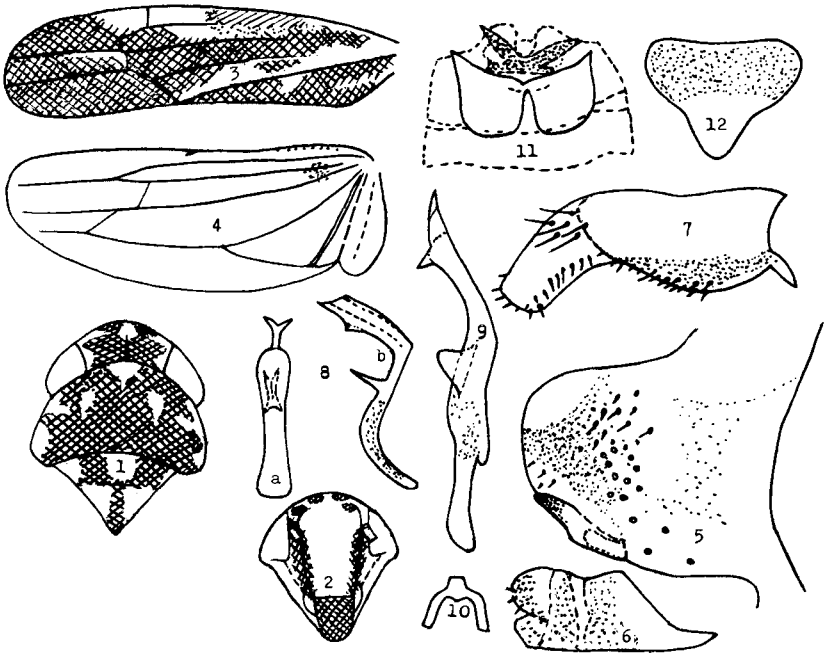

Fig. 10. *Rolwalia simplex* gen. et sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer side. 6. Anal tube. 7. Subgenital plate. 8. Penis, a, dorsal view, b, lateral view. 9. Paramere. 10. Connective. 11. Abdominal apodeme. 12. Female seventh abdominal sternite.

Measurements. Male: 4.10 mm long and 0.85 mm wide. Female: 4.0-4.25 mm long.

Specimens examined. Holotype ♂ and paratypes 18♂♂, 9♀♀, Dolkha: Rolwaling Village (alt. 3,250 m), 22.viii.1983, ex *Rubus* sp.

Remarks. This genus is nearer to *Arboridia* Zachv. due to similar structure of the pygofer side and its process as well as paramere and penis structure. But the present genus differs in lacking macrosetae on subgenital plate and dorsal apodeme on penis atrium. Pygofer side without lateral extention and shape of connective also different. This new genus is named after Rolwaling Village where the material was collected.

Damania gen. nov.

Type-species: *Damania aurantiaca* sp. nov.

Pygofer with a lateral finger-like lobe and dorsal process absent, paramere truncated apically, connective almost rectangular with two mesal lobes, penis with large shaft, abdominal apodeme reduced and cross-vein cu_1-cu_2 external to m-cu_1.

14. *Damania aurantiaca* sp. nov. (Fig. 11)

Medium sized, orange coloured species. Vertex, anterior half of pronotum, scutum and scutellum orange coloured; eyes, abdomen and basal triangles black.

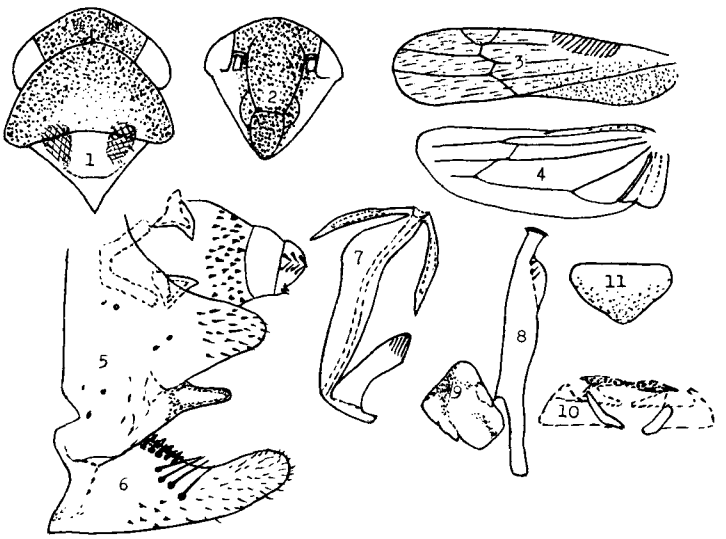

Fig. 11. *Damania aurantiaca* gen. et sp. nov. 1. Head, dorsal view. 2. Head, ventral view. 3. Fore wing. 4. Hind wing. 5. Pygofer and anal tube. 6. Subgenital plate. 7. Penis, lateral view. 8. Paramere. 9. Connective. 10. Abdominal apodeme. 11. Female seventh abdominal sternite.

Vertex narrowing anteriorly, a pair of very light marks at middle, coronal suture upto middle of vertex, scutum declivous posteriorly. Face yellowish except at sides (Fig. 11.2), frontal suture less distinct and exceeding beyond antennal base. Fore wing proximal region light orange and distal region light fuscous and broadened, apical cells more than 1/3 part of total wing length.

Male genitalia. Pygofer side narrowing, microsetae at distal half, lateral lobe separate and finger-like, anal tube process simple and conical; subgenital plate, paramere and penis almost as in *Empoascanara dura* Dwor. and *Seriana jaina* Dwor. Penis shaft laterally flattened with a pair of longer terminal processes, gonopore terminal.

Female seventh abdominal sternite conical at hind margin.

Measurements. Male: 3.65 mm long and 0.70 mm wide. Female: 3.50-3.60 mm long.

Specimens examined. Holotype ♂ and paratypes 12♂♂, 14♀♀, Makwanpur: Daman (alt. 2,255 m), 7.ix.1983, ex *Indigofera* sp.

Remarks. Present genus is similar to *Empoascanara* Dist., 1918 and *Seriana* Dwor., 1971, but different from them in the structure of pygofer side and its process, structure of connective and penis. Generic name is after its locality and species name is after its body colour.

Thecana gen. nov.

Type-species: *Thecana flavida* sp. nov.

Pygofer side with large, double processes, subgenital plate narrowing distally and paramere short and truncated apically, connective also truncated posteriorly.

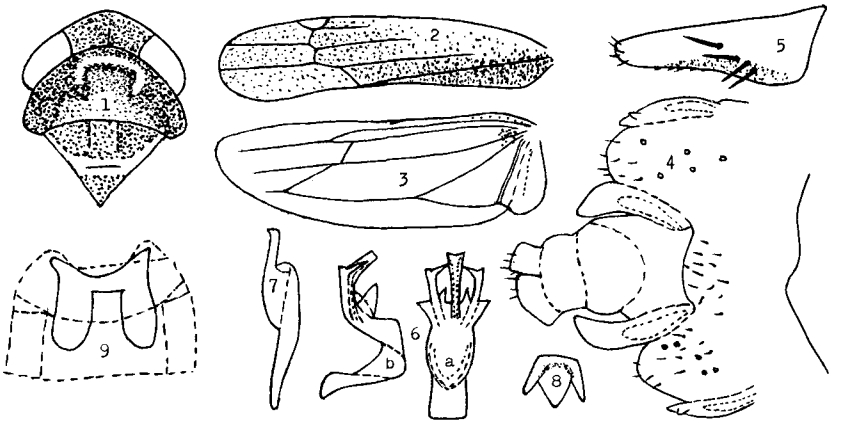

Fig. 12. *Thecana flavida* gen. et sp. nov. 1. Head, dorsal view. 2. Fore wing. 3. Hind wing. 4. Pygofer and anal tube. 5. Subgenital plate. 6. Penis, a, dorsal view, b, lateral view. 7. Paramere. 8. Connective. 9. Abdominal apodeme.

Penis with a long preatrium and a pair of atrial processes. Hind wing venation as in *Tautoneura* Anufriev, 1969.

15. *Thecana flavida* sp. nov. (Fig. 12)

Smaller light yellow species with light brown eyes. Vertex and pronotum anterior margin light yellow but disc and posterior margin of pronotum and scutellum including basal triangles yellowish. Coronal suture nearly upto middle of vertex. Face uniformly creamy-yellow except gena and anteclypeus, frontal suture slightly exceeding antennal base. Fore wing light yellow, corium and clavus darker, apical region a little wider, apical cells occupying more than 1/3 part of total wing length.

Male genitalia. Pygofer side small, with a few setae in distal region, no macrosetae laterally, and double processes as in *Tautoneura* Anufriev but the lateral process separate and with a small side-process subapically (Fig. 12.4); subgenital plate with four macrosetae and connective with larger median lobe. Paramere widened mesad, with beak-like apical extension. Atrial process and lobe bifid apically (Fig. 12.6a, b) and shaft widening towards apex, gonopore terminal.

Measurements. Male: 2.0 mm long and 0.35 mm wide. Female: 2.0–2.20 mm long.

Specimens examined. Holotype ♂ and paratypes 5♂♂, 1♀, Dolkha: above Simigaon (alt. 2,740 m, Dongo), 24.viii.1983, ex *Acer campbelli* Hooker.

Remarks. This new genus is similar to *Tautoneura* Anufriev, 1969 in the morphology of the insect, wing venation, abdominal apodeme, pygofer side with double processes and trilobed condition of the connective. But it is different from the latter in pygofer processes, structure of paramere and subgenital plate as well as median lobe connective. Penis is also different in having no dorsal apodeme. The name is an arbitrary combination of letters.

ACKNOWLEDGEMENTS

The author is thankful to the Tribhuvan University authorities for granting leave and to the Goverment of Japan for financial support for the trip. He extends his sincere gratitude to Prof. Dr. Sadao Takagi of Hokkaidô University (Japan) for providing facilities in a team as a research member ; to him and Dr. Masaaki Suwa for critically going through the manuscript and making necessary corrections in the writing practice. He is equally grateful to Prof. Y.K. Malla, Chairman of Central Department of Zoology (T.U.), Kirtipur for the facilities he provided to work in the department. He is indepted to Dr. T. Kumata and Dr. M. Suwa of Hokkaidô University (Sapporo, Japan), and Dr. I. Kudô (Japan) for their help in different ways. My appreciation is also extended to Mr. N.R. Sharma who accompanied in the trip as a research member from Nepal.

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