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Eight new species of Typhlocybae from India (Insecta, Homoptera, Auchenorrhyncha, Cicadellidae)

With 86 Figures

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Eight typhlocybinae species reported in this paper were collected from different parts of India. The type series of the newly described species are deposited at Indian Agricultural Research Institute in New Delhi, India (IARI), University of Agricultural Sciences in Bangalore, India (B), British Museum (Nat. Hist.) in London, U. K. (BM), Staatliches Museum für Tierkunde in Dresden (D), United States National Museum, Smithsonian Institution, in Washington (USNM), Canadian National Collection (Dr K. G. A. HAMILTON) in Ottawa, Canada (Hamilton), and Punjab Agricultural University, Ludhiana (PAU). The curator of holotype is mentioned on the first place at description.

Tribe Erythroneurini

Accacidia DWORAKOWSKA, 1971

Accacidia divergiprocessicae sp. n. (Figs. 1–12)

Body colour olivaceous, vertex rounded anteriorly and two times broader than long. Coronal suture distinct, two oval brownish black spots each on either side of the coronal suture. Eyes black, posterior part of pronotum and anterior part of scutellum pale green. Fore wing with third apical cell broader at apex, fourth apical cell roughly triangular.

Length ♂ 2.16 mm, ♀ 2.19 mm.

Male genitalia similar to *A. lyriflora* DWORAKOWSKA, 1979a, but differs in being larger in size, spear-shaped tip of the preatrial process and aedeagal apical processes more divergent laterally.

Holotype, male, and paratype, 1 ♂ 1 ♀, India, New Delhi, Budha Jayanti Park, ex *Acacia leucophloea* (ROXB.) WILLD., 26. X. 1985, coll. M. SHENHMAR (IARI, PAU).

Arboridia ZACHVATKIN, 1946

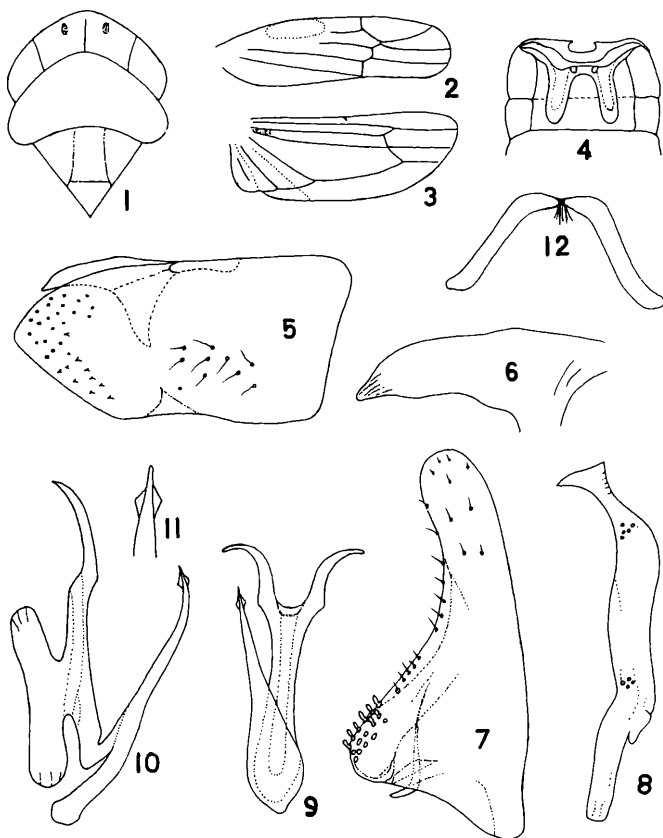
Arboridia (s. str.) *lamellaris* sp. n. (Figs. 13–21)

Sides of face and light areas on vertex and pronotum yellowish-white. Centre of face suffused with reddish, sides of anterior margin of vertex yellowish-rosy. The streak in mid-line of vertex, its centre, centre and sides of pronotum as well as sides of scutum reddish. Hind margin of pronotum sordid-ochre. Centre of scutum and scutellum ochre-yellow. Eyes and basal triangles blackish. Fore wing yellowish-beige with inner costal margins red. Clavus, veins, wax-field and basal halves of longitudinal cells suffused with tomato-red.

Length ♂ 3.1 mm.

Paramere and subgenital plate resembles *Arboridia* (s. str.) *ata* DWORAKOWSKA, 1980.

Holotype, male, India, U.P., Kumaun Hills, Nainital 6600', Sept.-Dec. 1934, coll. J. A.



Figs. 1–12. *Accacidia divergiprocessicae* sp. n.

1: Head and thorax – 2: forewing – 3: hindwing – 4: abdominal apodemes – 5: pygofer – 6: pygofer process – 7: subgenital plate – 8: paramere – 9: aedeagus, caudal view – 10: aedeagus, lateral view – 11: praeatrial tip (magnified) – 12: connective.

Graham (BM). Paratypes ♂, H. P., Simla, Summer Hill, 2100 m, 19. X. 1981, coll. I. DWORAKOWSKA (D); 1 ♂ 2 ♀, H. P., Kasauli, 6000', 8. V 1985, coll. M. SHENHMAR (PAU, IARI).

Coganoa DWORAKOWSKA, 1976

***Coganoa brevis* sp. n.** (Figs. 22–28)

Body robust, yellowish-testaceous. Centre of face, scutum and scutellum ochre-yellow. Apical cells smoked.

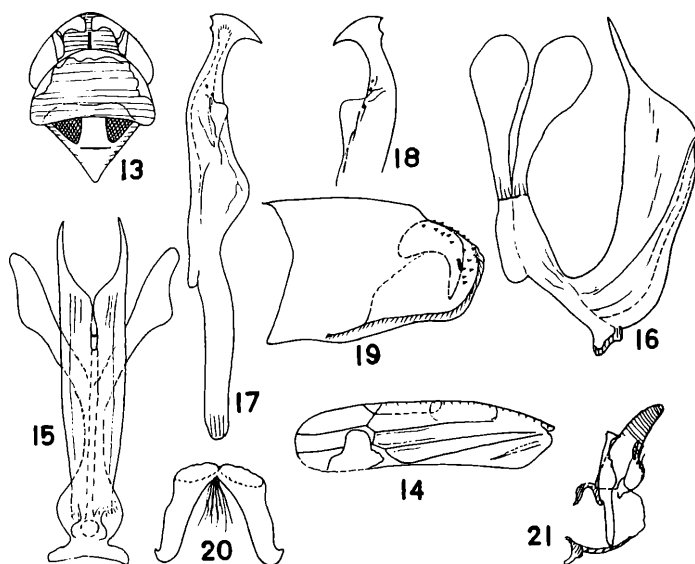
Length ♂ 3.0 mm, ♀ 3.1 mm.

Male genitalia similar to those of *Coganoa indica* sp. n., differing by straight apical part of penis stem, larger dorsal extensions and by shorter pygofer appendage.

Holotype, male, and paratypes ♀, India, U.P., Sahasradhara nr. Dehra-Dun, 7 IV 1978, I. DWORAKOWSKA (BM); 7 ♂ and 5 ♀, Haryana, Pinjore, ex *Acacia* sp., 9. V 1985, coll. M. SHENHMAR (PAU, IARI).

***Coganoa indica* sp. n.** (Figs. 29–38)

Body slim, pale yellowish-testaceous, scutum and scutellum darker. Anterior margin of pronotum irregularly ivory. Apical cells of fore wing slightly dim.

Figs. 13–21. *Arboridia (s. str.) lamellaris* sp. n.

13 Head and thorax – 14: forewing – 15: aedeagus, ventral view – 16: aedeagus, lateral view – 17 paramere – 18: paramere tip – 19: pygofer – 20: connective – 21: proportions of male plate, paramere, connective and ninth abdominal sternite.

Length ♂ 2.7 mm, ♀ 3.1 mm.

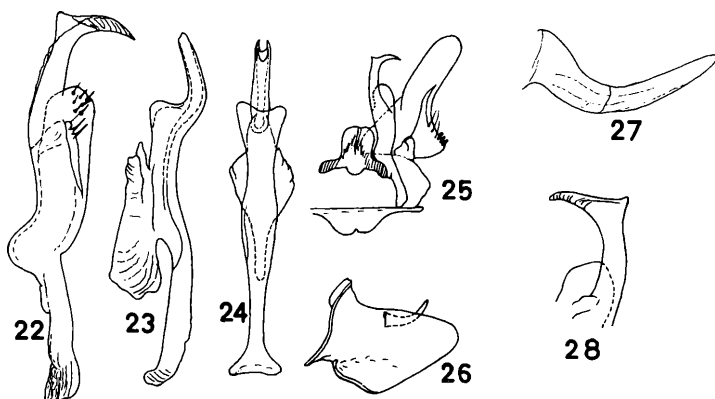
Male genitalia resemble those of *Coganoa asiatica* DWORAKOWSKA, 1979b.

Holotype, male, and paratypes, 32 ♂♂, 65 ♀♀, India, Karnatka, Mahadeswaramalai Hills, above 1000 m, 11. VIII. 1977 coll. C. A. VIRAKTAMATH (B, BM, D, USNM, Hamilton).

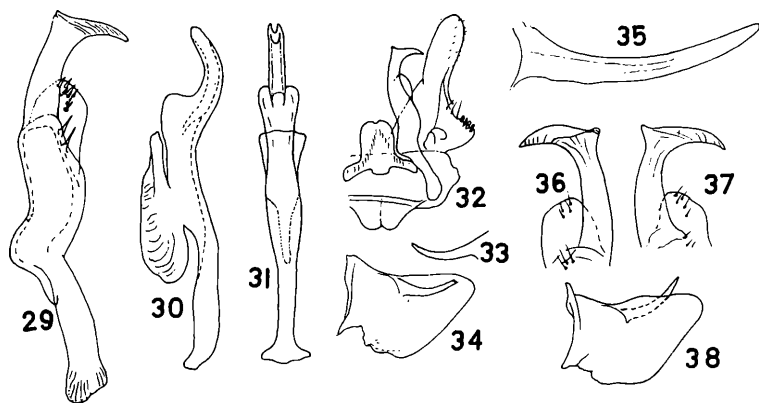
Salka DWORAKOWSKA, 1972

Salka kasauliensis sp. n. (Figs. 39–49)

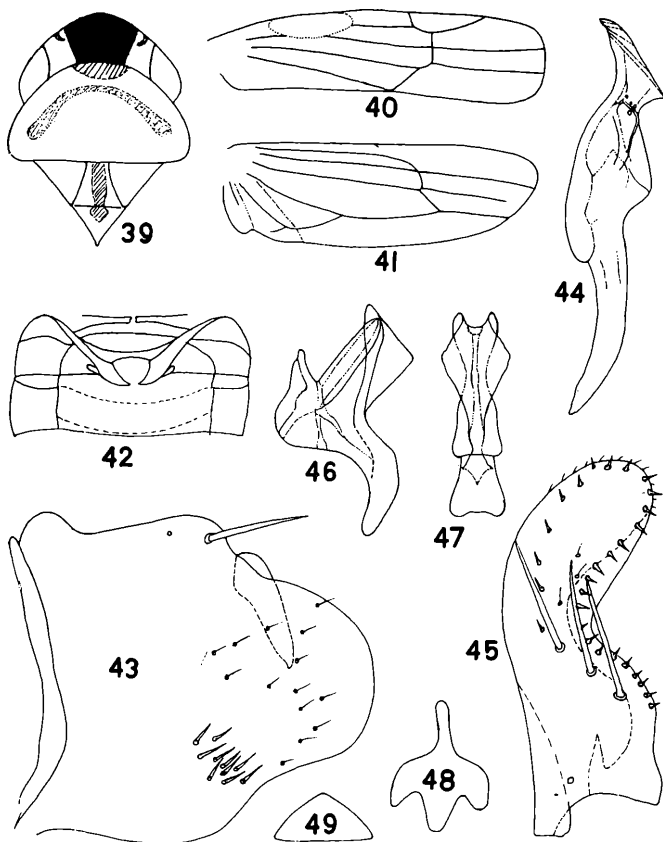
Body colour brownish, eyes black, vertex yellow-testaceous with quadrangular black spot in centre along with two brown testaceous patches in the anterior margin. Pronotum and

Figs. 22–28. *Coganoa brevis* sp. n.

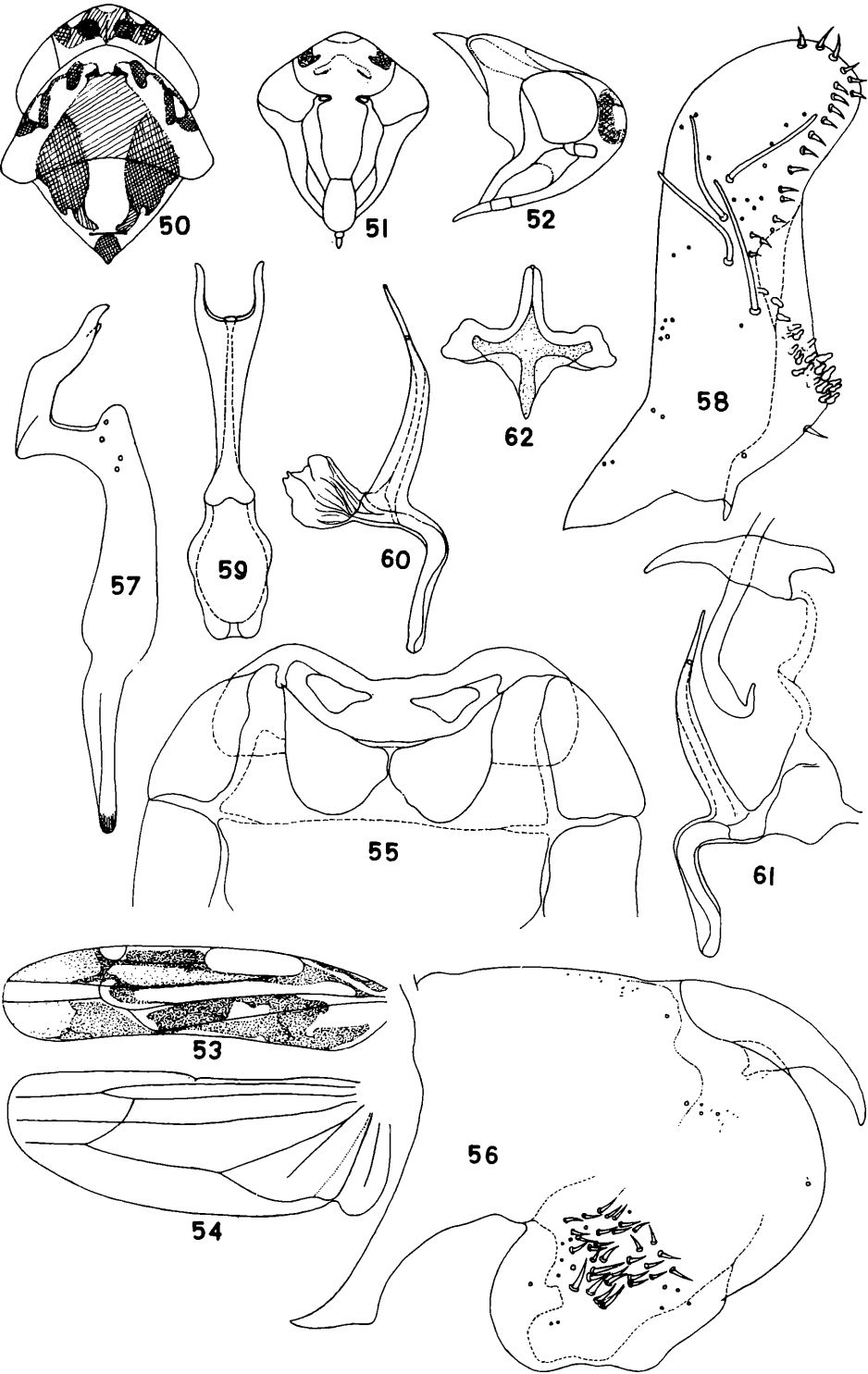
22: Paramere – 23: aedeagus, lateral view – 24: aedeagus, posterior view – 25: proportions of male plate, paramere, connective and ninth abdominal sternite – 26: pygofer – 27 pygofer process – 28: paramere tip.

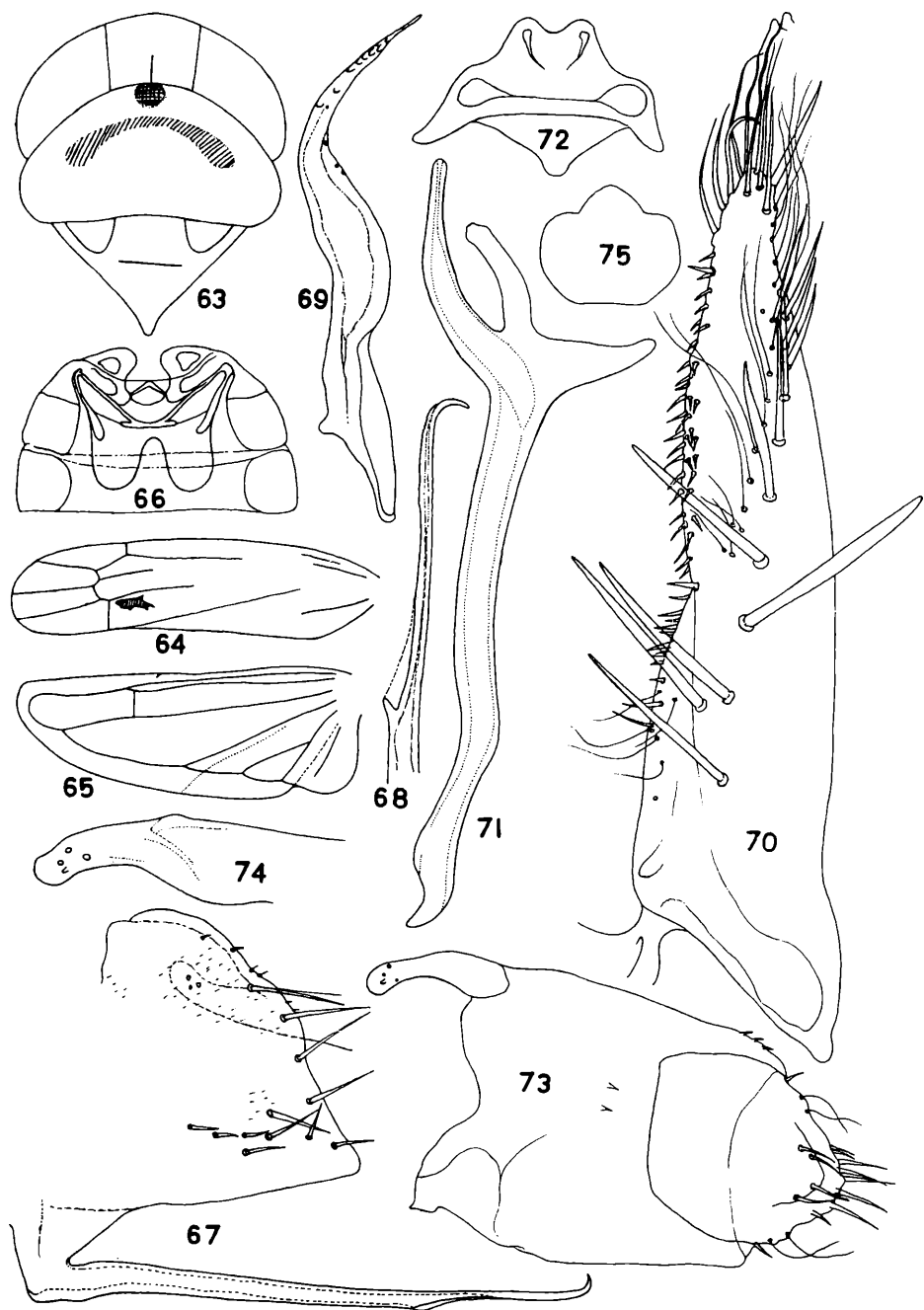
Figs. 29-38. *Coganoa indica* sp. n.

29: Paramere - 30: aedeagus, lateral view - 31: aedeagus, posterior view - 32: proportions of male plate, paramere, connective and ninth abdominal sternite - 33+35: pygofer processes - 34+38: pygofers - 36+37: paramere tips.

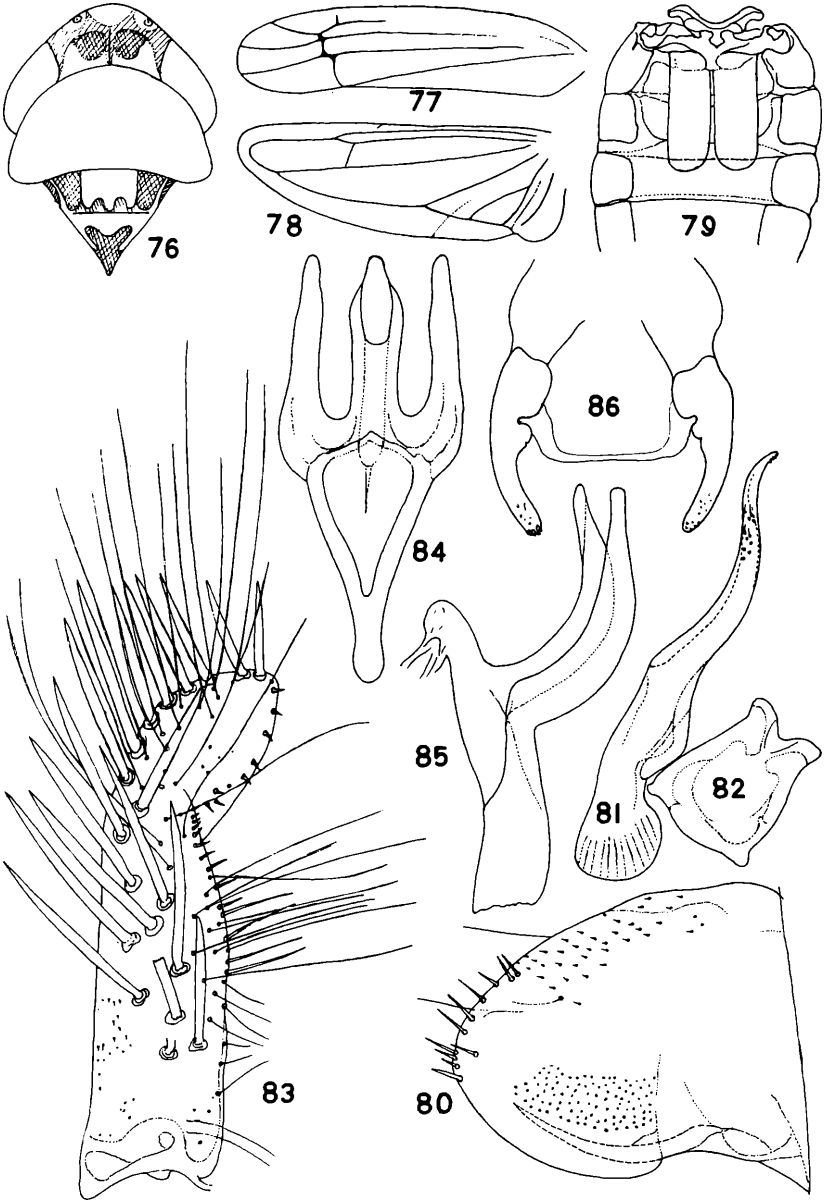
Figs. 39-49. *Salka kasauliensis* sp. n.

39: Head and thorax - 40: forewing - 41: hindwing - 42: abdominal apodemes - 43: pygofer - 44: paramere - 45: subgenital plate - 46: aedeagus, lateral view - 47: aedeagus, posterior view - 48: connective - 49: seventh sternite, female.



Figs. 63–75. *Amrasca delhiensis* sp. n.

63: Head and thorax – 64: forewing – 65: hindwing – 66: abdominal apodemes – 67: pygofer with process – 68: pygofer tip, enlarged – 69: paramere – 70: subgenital plate – 71: aedeagus, lateral view – 72: connective – 73: anal tube – 74: anal tube appendage – 75: seventh sternite, female.



Figs. 76–86. *Empoasca (s. str.) pinjorensis* sp. n.

76: Head and thorax – 77: forewing – 78: hindwing – 79: abdominal apodemes – 80: pygofer – 81: paramere – 82: connective – 83: subgenital plate – 84: aedeagus, posterior view – 85: aedeagus, lateral view – 86: anal tube appendages.

(Legend to p. 41)

Figs. 50–62. *Tautoneura maculosa* sp. n.

50: Head and thorax, dorsal view – 51: head and thorax, front view – 52: head and thorax, lateral view – 53: forewing – 54: hindwing – 55: abdominal apodemes – 56: pygofer – 57: paramere – 58: subgenital plate – 59: aedeagus, posterior view – 60: aedeagus, lateral view – 61: proportions of pygofer process, anal tube, appendage and aedeagus – 62: connective.

scutellum brownish black with light yellowish areas in the anterior part of pronotum just below the black spot and in the middle of the scutellum (marked with stripes). Fore wing brownish with brownish black wax field.

Length ♂ 2.73 mm, ♀ 2.78 mm.

This species is close to *Salka nigra* DWORAKOWSKA 1979b, in colour and body markings but differs in the shape of paramere, connective, aedeagus and pygofer process.

Holotype male, and paratypes, 2 ♀♀, India, H. P. Kasauli, 6000', 8. X. 1985, ex *Rosa indica* (LINNAEUS) HIERN., coll. M. SHENHMAR (IARI, PAU).

Tautoneura ANUFRIEV, 1969

Tautoneura maculosa sp. n. (Figs. 50–62)

Body colour dull yellow. Head and pronotum with light brown coloration (Fig. 50), eyes ochraceous. Coronal suture distinct. Triangles and posterior part of scutellum brownish black. Wings hyaline with brownish markings (Fig. 53), wax field dull yellow.

Length ♂ 3.13 mm, ♀ 3.18 mm.

This species belongs to the *dubiosa* group of genus *Tautoneura*. It is close to *T. dukara dukara* (DWORAKOWSKA, 1981a) and *T. dukara fusa* (DWORAKOWSKA, 1981b) in the shape of the paramere. However, the shape of the process of the paramere is quite peculiar and differs from the above group.

Holotype, male, and paratypes, 7 ♂♂ 5 ♀♀, India, Jammu and Kashmir, Pahalgam, 7000', 20. VI. 1985, ex *Celtis australis* LINN., coll. J. S. MANN and M. SHENHMAR (IARI, PAU, Hamilton).

Tribe Empoascini

Amrasca GHOURI, 1967

Amrasca delhiensis sp. n. (Figs. 63–75)

Body colour yellowish, coronal suture distinct, pronotum as broad as head including eyes, eyes yellowish brown. Pronotum with an arc-shaped depressed area in the anterior half, triangles lighter yellow. Fore wing with an irregular brownish black spot in apical area of cubital cell.

Length ♂ 3.20 mm, ♀ 3.27 mm.

This species is close to *A. bomboxia* (GHOURI, 1964) but differs in having the tip of the paramere strongly arcuated outwardly, the aedeagus with unpaired atrial process and the lower pygofer process hooked apically.

Holotype, male, and paratypes, 10 ♂♂, 10 ♀♀, India, New Delhi, Buddha Jayanti Park, 26. X. 1985, ex *Salmaia malabarica* (DC.) SCHOOT & ENDL., coll. M. SHENHMAR (IARI, PAU).

Empoasca WALSH, 1863

Empoasca (s. str.) pinjorensis sp. n. (Figs. 76–86)

Body colour yellowish green with suffused orange red markings on anterior side of vertex as well as basal scutellar triangles. Fore wing with second and third apical cells broad at apex.

Length ♂ 3.10 mm.

This species falls in between the *decedens* and *warchalowskii* groups. Both the fore and hind wing, anal tube appendages, pygofer lobe and subgenital plate are similar to *decedens*

group while the other male genital parts are similar to *warchalowskii* group. In *warchalowskii* group, the new species is close to *Empoasca* (*s. str.*) *simbava* DWORAKOWSKA, 1981a but the aedeagal structure is very stout and its processes are almost equal to the length of the shaft.

Holotype male, and **paratypes**, 2 ♂♂, India, Haryana, Ambala, Pinjore, 9. V 1985, ex *Trifolium alexandrium* LINN., coll. M. SHENHMAR (IARI, PAU).

Acknowledgements

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