

NOTES ON A SMALL COLLECTION OF LEAFHOPPERS  
(HOMOPTERA : CICADELLIDAE) FROM PERIYAR  
AND SALEM DISTRICTS, TAMILNADU

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INTRODUCTION

Our knowledge of leafhoppers of India is mainly based on the works of Distant (1908, 1916, 1918) and Sing-Pruthi (1930, 1934, 1936) and no work is available so far on the group from Periyar and Salem districts.

The present paper lists fifteen species of leafhoppers along with notes on collection data and taxonomical observations. The classification and arrangement of subfamilies followed here is after Nielson (1985) and Rao (1990). Of the species dealt with, four are recorded here for the first time from South India and all are new records from Salem or Periyar districts. The works of Knight (1987), Rao (1990), Ross (1968) and Young (1986) among others were referred for recognition of economically important species.

Subfamily : CICADELLINAE Latreille

1. *Anatikina infecta* (Distant)

1908. *Tettigoniella infecta* Distant, *Fauna Brit. India, Rhynchota*, iv : 210.

1918. *Tettigoniella gemina* Distant, *Fauna Brit. India, Rhynchota*, vii : 2.

1986. *Anatikina infecta* (Distant) : Young, *Tech. Bull. N. C. Agric. Expt. Stn.*, 281 : 46.

Vertex with two discal and two small black spots near ocelli. Pronotum with a central longitudinal carination and two small black spots on anterior margin.

*Measurements* : Male 7.4 mm long and 1.88 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 1 ♀, 4.1.1990 ; 1 ♂, 30.12.1989, coll. P.T. Cherian.

*Distribution* : India : Kodaikanal ; Myanmar.

## 2. *Atkinsoniella opponens* (Walker)

1858. *Tettigonia opponens* Walker, *List. Hom.* 111 : 757.

1908. *Tettigoniella bellona* Distant,

1908. *Tettigoniella marpessa* Distant,

1914. *Tettigoniella cuprea* Melichar,

1908. *Kolla canidia* Distant,

1911. *Kolla maculifrons* (Schmidt),

1911. *Kolla maculifrons* var *similaris* (Schmidt),

1911. *Kolla trimaculata* Schmidt,

1918. *Kolla tigrina* Distant,

1935. *Kolla melichari* China,

Young, 1986. *Tech. Bull. N. C. agric. Expt. Stn.*, 281 : 97,

Saffron yellow coloured species. Vertex with two transverse black spots near anterior margin; Ocelli testaceous. Face with a large central spot at base partially visible on ventral side. Pronotum with two transverse black fasciae. Forewing ochraceous, clavus and costa marked with three long black streaks.

*Measurements* : Male 5.12 to 5.20 mm long and 1.2 to 1.28 mm wide. Female 5.8 mm long and 1.26 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 4 ♂♂ ; 1 ♀ ; 4.1.1990, coll. P.T. Cherian.

*Distribution* : India : Aiur (Salem), Darjeeling, Dehradun, Fraserpet (Karnataka), Kottur (Vellore), Kumaon, Punjab, Sikkim ; Chap ; China ; Fukien ; Java ; Kangean islands ; Laos ; Malaysia ; Myanmar ; Philippines ; Sarowak ; Sumatra ; Thailand ; Vietnam.

## 3. *Bothrogonia sclerotica* Young

1986. *Bothrogonia sclerotica* Young, *Tech. Bull. N. C. agric. Expt. Stn.*, 281 : 220.

Vertex with two small apical and one discal spots. Pronotum broader than vertex and with five brown spots. Scutellum with a central brownish spot. Tegmen ochraceous.

*Measurements* : 13.12 mm long and 2.6 mm wide.

*Material examined* : Tamilnadu : Salem dist., Kolli Hills, 1 ♀, 30.11.1989, coll. P.T. Cherian.

*Distribution* : S. India : Anamalai Hills, Coimbatore, Coorg, Gudalur, Malabar, Naliampathi, Nilgiri Hills, Thanjavur, Travancore.

*Remarks* : Face and clypellus brown ; abdomen greyish ochraceous. Fore tibia entirely black ; intermediate and hind tibiae black at base and apex only.

#### 4. *Cofana spectra* (Distant)

1853. *Tettigoniella albida* (nec Walker) Signoret, *Ann. Soc. Ent. Fr.* Pl. 21, 193 : 663.

1908. *Tettigoniella spectra* Distant, *Fauna Brit. India, Rhynchota*, iv : 211, new name for *Tettigonia albida* Signoret, 1853, not *Tettigonia albida* Walker, 1851.

1979. *Cofana spectra* (Distant) : Young, *Proc. ent. Soc. Wash.*, 81 (1) : 21 ; Rao, 1986. *Rec. zool. Surv. India*, 84 (1-4) : 50.

Specimens less than 10 mm in length. Head with median length less than interocular width. Vertex with median apical and discal spots. Aedeagus without processes, shaft cylindrical. Seventh sternum of female with posterior margin slightly undulating.

*Measurements* : Male 7.4 to 7.88 mm long and 1.64 to 1.92 mm wide. Female 8.4 to 9.6 mm long and 1.64 to 1.92 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Dhimbam, 5 ♂♂, 3 ♀♀, 1.1.1990 coll. P. T. Cherian.

*Distribution* : India : Patacharkuchi, Dibrugarh, Manipur, Silent Valley ; Africa ; Australia ; Japan ; Myanmar ; Philippines ; Sri Lanka.

*Remarks* : A distinct fovea is seen in some females. This species is known to be a mild pest of rice.

### 5. *Kolla paulula* (Walker)

1858. *Tettigoniella paulula* Walker, *List. Hom. Suppl.*, 219.

1986. *Kolla paulula*: Young, *Tech. Bull. N. C. agric. Expt. Stn.*, 281 : 135.

Vertex with two large black spots anteriorly and two small spots on disc. Face with a brown spot at apex. Pronotum with basal margin black and produced into a triangle at middle. Fore wings black, costal area broadly stramineous. Scutellum with a brown spot at each basal angle.

*Measurements* : Male 5.28 to 6.52 mm long and 1.36 to 1.84 mm wide. Female 4.64 to 5.2 mm long and 1.28 to 1.32 mm wide.

*Material examined* : Tamilnadu : Salem dist., Hair Pin Bend No. 10. Yercaud Road, 2 ♂♂, 2 ♀♀, 29. xii. 1989, coll. P. T. Cherian ; Salem dist., Kolli Hills, 2 ♂♂, 2 ♀♀, 30. xii. 1989, coll. P. T. Cherian ; Periyar dist., Dhimbam, 1 ♀, 1.1.1990, coll. P. T. Cherian ; Periyar dist., Gethesal, 10 ♂♂, 11 ♀♀, 4.1.1990, coll. P. T. Cherian ; Periyar dist., Karpalam, 1 ♀ 6.1.1990, coll. P. T. Cherian.

*Distribution* : India : Calcutta ; Sri Lanka ; S. E. Asia.

*Remarks* : Basal marginal band of pronotum not triangularly produced in some specimens.

Subfamily : NIRVANINAE Baker

### 6. *Nirvana pallida* Melichar

1903. *Nirvana pallida* Melichar, *Hom. Fauna, von Ceylon*, 166 ; Distant. 1908. *Fauna Brit. India, Rhynchota*, iv : 284 ; Sing-Pruthi, 1934. *Indian Forest Rec. ent. ser.*, 19 (4) : 17 ; Ishihara, 1953, *Matsuyama agric. coll. Sci. Rept.*, 11 : 19 ; Viraktamath & Wesley, 1988. *Mem. Great Basin Nat.* No. 12 : 213. Rao, 1990. *Rec. zool. Surv. India, Occ. paper*, 127 : 38.

Vertex less than twice as long as pronotum and marked with a median white line from apex to base and an orange yellow streak on each lateral side. Face medially carinate from basal one third. Fore wing with two large marginal oblique brownish stripes on costa beyond middle.

*Measurements* : Female 2.4 mm long and 0.8 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Dhimbam, 1 ♀, 1.1.1990, coll. P. T. Cherian.

*Distribution* : Throughout India, Sri Lanka ; Indo-Chinese ; Indo-Malayan and Oriental Regions.

Subfamily : HECALINAE Distant

7. *Hecalus arcuatus* (de Motschulsky)

1859. *Acocephalus arcuatus* de Motschulsky, *Etud. Ent.*, 8 : 15.  
 1918. *Thomsoniella arcuata* : Distant, *Fauna, Brit. India, Rhynchota*, iv : 280.  
 1966. *Linnavuoriella arcuata* (de Motsch.) : Evans, *Mem. Aust. Mus.*, 12 : 134.  
 1973. *Hecalus arcuatus* (de Motsch.) Morrison, *Pacif. Insects*, 15 (3-4)  
 (= *Linnavuoriella arcuata*) : Rao, 1989. *Hexapoda*, 1 (1) : 66.  
 (= *Varta moshiensis* Rao)

Head and Thorax with sanguineous paraboloid fasciae. Pygofer large Apophysis broad and attached to style mid laterally. Connective Y-shaped arms distinct and curved laterally at apex. Aedeagus with two pairs of apical processes.

*Measurements* : Male 4.52 mm long and 1.2 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 1 ♂, 4.1.1990, coll. P. T. Cherian.

*Distribution* : Throughout India ; Flores ; Java ; Sri Lanka ; Queensland.

8. *Hecalus porrectus* (Walker)

1858. *Acocephalus porrectus* (Walker), *List. Hom. Brit. Mus. suppl.*, 362.  
 1918. *Parabolocratus porrectus* Distant, *Fauna, Brit. India, Rhynchota*, vii : 31  
 (= *Thomsoniella porrecta* Walker)  
 1973. *Hecalus porrectus* : Morrison, *Pacif. Insects*, 15 (3-4) : 421.  
 (= *Parabolocratus porrectus* Walker. *Thomsoniella albomaculata* Distant) ; Rao, 1990, *Rec. zool. Surv. India, Occ. Paper*, 127 : 50.

Species beautifully marked with orange fasciae—four on vertex, six on pronotum and three or four on scutellum. Fore wing in males with white spots at apex and female without them. Aedeagus with a pair of apical processes directed laterad,

*Measurements* : Male 4.42 mm long and 1.3 mm wide. Female 6.02 mm long and 1.4 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 1 ♂, 4.1.1990, coll. P. T. Cherian.

*Distribution* : Throughout India ; Australia ; Formosa ; Java ; Karatatau ; Maldive islands ; Myanmar ; Sambawa ; Sri Lanka ; Sunda islands.

*Remarks* : This insect is known to attack rice, apricot and peach.

### Subfamily : DELTOCEPHALINAE Fieber

#### 9. *Aconurella montana* (Distant)

1908. *Deltocephalus montanus* Distant, *Fauna Brit. India, Rhynchota*, iv : 384.

1930. *Cicadula montanus* (Distant) : Sing-Pruthi, *Mem. Indian Mus.*, 11 (1) : 58.

1964. *Aconurella montana* (Distant) : Emeljanov, *Ent. Obozr.*, 43 : 626.

Pale ochraceous. Vertex with a black transverse fascia, medially continued to apex. Pronotum almost as long as vertex. Scutellum with two small spots before transverse impression. Tegmina not covering posterior end of abdomen. Male pygofer large with thick spines at caudal end.

*Measurements* : Male 2.29 mm long and 9.7 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Karapalayam, 1 ♂, 6.1.1990, coll. P. T. Cherian.

*Distribution* : India : Khasi Hills (Meghalaya), Dalhousie Hills, Kahitama, (Assam) ; Muree Hills (Himalayas), Simla.

*Remarks* : This is reported here for the first time from South India.

#### 10. *Balclutha saltuella* (Kirschbaum)

1868. *Jassus saltuella* Kirsch. *Massau. ver. t. Naturk. Jahrb.*, 21-22 : 86.

1906. *Balclutha saltuella* (Kirsch.) : Oshanin, *Liefereng. Mus. Zoel. St. Petersburg. Ann.*, 11 : 186 (= *Jassus (Thamnotettix) saltuella* Kirsch., = *Gnathodus angustus* (Then),

1987. *Balclutha saltuella* (Kirsch.) : Knight, *J. nat. Hist.*, 21 (*Typhlocyba delicatula* Dist., 1918 ; *Empoanara lineolata* Dist., 1918 ; = *Anomiana longulus* Dist., 1918 ; = *Eugnathodus ocellata* Sing-Pruthi, 1939,

Vertex with a brown spot on each side of median line. Pronotum dull greyish with five linear greyish brown fasciae. Style small. Apophysis finger shaped and directed laterad.

*Measurements* : Female 2.99 mm long and 0.75 mm wide.

*Material examined* : Tamilnadu. Periyar dist., Gethesal, 1 ♂, 4.1.1990, coll. P. T. Cherian.

*Distribution* : Throughout India ; Egypt ; Europe.

### 11. *Balclutha rubrostriata* (Melichar)

1903. *Gnathodus rubrostriatus* Melichar, *Hom. Fauna, Ceylon*, 208.  
 1905. *Gnathodus rubrotinctus* Melichar, Knight, 1987, *J. nat. Hist.* 21 : 1211.  
 1906. *Nesosteles sanguinescens* Kirkaldy, Evans, 1977, *Rec. Aus. Mus.*, 31P 120.  
 1918. *Typhlocyba rubrostriata* Dist., Knight, 1987, *J. Nat. Hist.*, 21 : 1211.  
 1918. *Typhlocyba rufuscula* Dist., Knight, 1987, *Ibid*, 21 : 1211.  
 1987. *Balclutha rubrostriata* (Melichar) : Knight, 1987, *J. Nat. Hist.*, 21 : 1211.

Head as wide as pronotum. Pronotum with longitudinal stripes extending to posterior margins of vertex and scutellum. Aedeagus at base with a pair of expansions. Shaft anterior portion recurved.

*Measurements* : 3.52 mm long and 0.75 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 4.1.1990, 1 ♂, coll. P. T. Cherian.

*Distribution* : India : Chikkabalapura, Calcutta, Delhi ; Australia ; Formosa ; Philippines ; Polynesia ; Sri Lanka ; W. Indies.

### 12. *Changwhania ceylonensis* (Baker)

1903. *Deltocephalus bimaculatus* Melichar, *Hom. Fauna, Ceylon*, 204.  
 1825. *Deltocephalus ceylonensis* Baker, *Nom. nov. Proc. Deltocephalus bimaculatus* Melichar (1903) nec. *Deltocephalus bimaculatus* Gillette and Baker, 1855. *Philippine jour. Sci.*, 27 : 537.  
 1990. *Changwhania ceylonensis* (Baker) : Webb and Heller, *Stutt. Beltr. Natur. Ser. A. (Biol.)*, 452 : 10 ; Rao (in press). *Rec. zool. Surv. India*.

Vertex with two large round spots at anterior margin of eyes. Face longer

than broad, lateral frontal sutures extending to ocelli. Style broad at base, caudal end produced to form a beak-like structure. Aedeagal shaft long with two asymmetrical processes at apex. The processes notched at middle on outer margin.

*Measurements* : Female 3.4 mm long and 1 mm wide.

*Material examined* : Tamilnadu : Salem Dist., 1 ♀, Kolli Hills, 30.xii.1989, coll. P. T. Cherian.

*Distribution* ; India ; Sri Lanka ; South East Asia. Rao (in press) gave an account of the discontinuous distribution of the species in India.

### 13. *Exitianus indicus* (Distant)

1863. *Athysanus fusconervosus* de Motschulsky, *Bull. Soc. Nat. Mosc.*, 36 : 97.

1908. *Athysanus indicus* Distant, *Fauna Brit. India, Rhynchota*, iv : 344.

1918. *Phrynomorphus fusconervosus* : Distant, *Fauna Brit. India, Rhynchota*, vi : 51 (= *Athysanus fusconervosus* Dist.).

1968. *Exitianus indicus* : Ross, *Bull. Br. Mus. nat. Hist. (Ent.)*, 22 : 12, Rao, 1990. *Rec. zool. Surv. India, Occ. Paper* : 27 : 97.

Dorsum of head with a single arcuate dark line reaching linear margins of eyes. Anterior margin of pronotum with a series of black spots arranged in an arc. Style large, apophysis pointed but not drawn into a spine.

*Measurements* : Male 3.92 to 5 mm long and 1.2 to 1.6 mm wide. Female 5.28 to 5.4 mm long and 1.36 to 1.44 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Dhimbam, 3 ♂ ♂, 2 ♀ ♀, 7.1.1990, coll. P. T. Cherian.

*Distribution* : Throughout India.

*Remarks* : The piceous transverse band of vertex is seen interrupted in some specimens.

### 14. *Recilia intermedia* (Melichar)

1903. *Deltocephalus intermedius* Melichar, *Hom. Fauna, Ceylon*, 205.

1989. *Recilia intermedia* : Rao, *Hexapoda*, 1 (1) : 75, Rao 1990. *Rec. zool. Surv. India, Occ. paper*, 127 : 74.



Pronotum pale ochraceous. Anterior margin rounded, posterior margin truncate. Scutellum broader than long, lateral margin sinuate. Fore wing with four apical and three ante-apical cells and a small appendix. Connective, racket shaped. Aedeagus and connective fused, aedeagal shaft curved in lateral aspect and produced into a spine.

*Measurements* : Male 2.48 to 2.84 mm long and 0.76 to 0.80 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Dhimbam, 2 ♂♂, 1.1.1990, coll. P. T. Cherian.

*Distribution* : This is known from India and Sri Lanka. From India it is known from Khasi Hills.

Subfamily : TYPHLOCYBINAE

15. *Seriana jaina* (Distant)

1908. *Typhlocyba jaina* Distant, *Fauna. Brit. India, Rhynchota*, iv : 413.

1978. *Seriana jaina* (Distant) : Dworakowska, Nagalch and Singh, *Bulletin, Acad. Pol. Sci. (Ser. Sci. biol.)*, 26 : (4) 246-247.

Pale ochraceous. Pronotum medially two and half a times longer than vertex. Vertex anteriorly rounded with a large central apical spot. Scutellum with a large brown central patch at each basal angle.

*Measurements* : Female 3.32 mm long and 0.64 mm wide.

*Material examined* : Tamilnadu : Periyar dist., Gethesal, 1 ♂, 4.1.1990, coll. P. T. Cherian.

*Distribution* : Found throughout India.

SUMMARY

Taxonomical analysis, collection data and distributional records for 15 species of leafhoppers of Periyar and Salem districts are provided in this paper. This study has established two new records to Salem district and nine records to Periyar district.

## ACKNOWLEDGEMENTS

The author thanks Dr. P. T. Cherian, Scientist 'SF' and Officer-in-Charge, Southern Regional Station, Zoological Survey of India, Madras, for all laboratory facilities and encouragements given to carry out this work. He also thanks Dr. C. A. Viraktamath, University of Agricultural Sciences, Bangalore, for kindly providing information and literature on some species of Cicadellinae, Deltocephalinae and Nirvaninae.

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