

ON A COLLECTION OF TETRANYCHOID MITES FROM TAMIL NADU
WITH DESCRIPTION OF A NEW SPECIES OF *APONYCHUS*
(ACARI : TETRANYCHIDAE)

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ABSTRACT

Eighteen species of tetranychoid mites belonging to ten genera and two families are reported here from Tamil Nadu which includes one new species of *Aponychus* Rimando is described here.

INTRODUCTION

The tetranychidae or spider mites and Tenuipalpidae or false-spider mites are plant feeders and, hence are of economic importance. So far only ten species of tetranychoid mite are known from Tamil Nadu (Prasad, 1974). Recently, the author had an opportunity to examine a small collection of tetranychoid mites from Tamil Nadu and the present paper is based on that.

Altogether, sixteen species of Tetranychidae in eight genera including a new species of *Aponychus* and two species of Tenuipalpidae in two genera are treated here. Of these, fourteen species are new records for Tamil Nadu.

1. *Bryobia praetiosa* Koch

Bryobia praetiosa Koch, 1836. *Deutsche crustacea. Myriopoda, Arachnida*, 1 : 8.

Bryobia praetiosa, Prasad, 1975. *Intl. J. Acar.*, 1 (1) : 13.

Material examined : 1 ♀, Tamil Nadu : Kodaikanal, St. Marry Road, on pine tree, 24.ii.1983, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Assam, Delhi, Himachal Pradesh, Jammu and Kashmir, Punjab, Tamil Nadu (New record), Uttar Pradesh, West Bengal.

Remarks : No male of this mite has been recorded so far. These mites occur on both the surface of the host leaves.

2. *Eutetranychus orientalis* (Klein)

Eutetranychus orientalis (Zacher) Klein, 1936. *Bull. agric. Res. Stn. Rehovoth*. 21 : 3.

Eutetranychus orientalis, Manson, 1963. *Acarologia*, 5 : 851.

Material examined : Sev. exs., Tamil Nadu : Madras, Christian College, On cocount, 2.xii.1975 ; 2 ♀ ♀, Cape comorin, therakalputhoo, on coconut, 12.xii.1975, (Coll. S. K. Gupta) ; 1 ♀, Top Slip, Karion Shola, on an undetermined plant, 20.ii.1982, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Andaman and Nicobar Islands, Assam, Delhi, Gujarat, Kerala, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu (new record), Uttar Pradesh, West Bengal.

Remarks : It was observed that the shape and size of dorsal idiosomal setae, some times varied with the host on which the mites fed.

3. *Aponychus corpuzae* (Rimando)

Aponychus corpuzae Rimando, 1966. *Philipp. J. Agric.*, **50** : 107.

Aponychus corpuzae, Gupta, 1976. *Oriental. Ins.*, **10** (3) 332-333.

Material examined : 2 ♀♀, Tamil Nadu : Kodai Kanal, Bear Shola, On Strawberry, 20.ii.1982, (Coll. S. K. Bhattacharyya & Y. N. Gupta).

Distribution in India : Andaman and Nicobar Islands, Meghalaya, Tamil Nadu (New record), Uttar Pradesh, West Bengal.

Remarks : *Aponychus corpuzae* was described from Philippines and was included in subfamily Aponychinae erected to accommodate this genus (Rimando, 1966), but Tuttle and Baker (1968) did not agree to it.

4. *Aponychus kodaikanalensis* n. sp.

(Fig. 1, 1-5.)

Female : Body oblong, including rostrum 400 μ long, 250 μ wide. Idiosoma with dorsal integument wrinkled as figured. Dorsal idiosomal setae lanceolate and hairy. II and III propodosomals, humeral, 1st and IInd dorsolateral and inner sacrals large. 1st to IIIrd dorsocentral, third dorsolateral medium sized while 1st propodosomals, and cluanals same in length. Outer sacrals absent. peritreme at distal end anastomosing. Genital flap with transverse striae. Stylophore deeply cleft mediodistally, Medioventral setae of moderate size. Palpus with terminal sensillum slender and twice long as broad. Tibia I with 5 tactile and one sensory setae ; tarsus I with 8 tactile and one sensory setae. Tibia II with

two tactile and one sensory setae ; tarsus II with 6 tactile and one sensory setae.

Male : Not known.

Holotype : ♀, (Reg. No. 3725/17), India : Tamil Nadu : Kodaikanal, on way to Golf club., on bamboo, 24.ii.1982, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Paratype : 1 ♀, (Reg. No. 3726/17), Data same as for Holotype.

Remarks : *Aponychus kodaikanalensis* n. sp. similar to *A. nakaoui* Ehara, in the absence of the outer sacral setae but the former is easily distinguished from the latter by having the idiosomal and caudal setae much longer and serrate.

5. *Panonychus citri* (McGregor)

Tetranychus citri McGregor, 1916. *Ann. ent. Soc. Am.*, **9** : 284.

Metatetranychus citri, Pritchard and Baker, 1955, *Mem. Pac. Coast. Entomol. Soc.*, **2** : 97.

Panonychus citri, Meyer and Ryke, 1959. *J. ent. Soc. sth. Afr.*, **22** (2) : 350-351.

Panonychus citri, Prasad, 1975. *Intl. J. Acar.*, **1** (2) : 22.

Material examined : 15 ♀♀, Tamil Nadu : Kodai Kanal, Melpellam, on cucumber, 22.ii.1982, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Himachal Pradesh, Jammu and Kashmir, Manipur, Tamil Nadu (New record), Tripura, Uttar Pradesh, West Bengal.

Remarks : *Panonychus citri*, the citrus red mite is well known as an important pest of citrus in many parts of the world.

6. *Eotetranychus sexmaculatus* (Riley)

Tetranychus 6 maculatus Riley, 1890. *Insect life*, **2** : 225-226.



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Figs. 1-5. *Aponychus kodaikanalensis* n. sp.

1. Dorsum of female

Eotetranychus sexmaculatus, Pritchard and Baker, 1955. *Mem. Pac. Coast. Entomol. Soc.*, 2 : 202-203.

Eotetranychus sexmaculatus, Gupta and Gupta, 1977. *Newsl. zool. Surv. India*, 2 (1) : 27-29.

Material examined : 1 ♂, 6 ♀♀, Tamil Nadu : Kodaikanal, Bear shola, on strawberry, 20.ii.1982, (Coll. S.K. Bhattacharyya and Y.N. Gupta).

Distribution in India : Assam, Rajasthan, Tamil Nadu, (New record), Uttar Pradesh.

Remarks : This species is a serious pest of citrus in Florida and Southern California. These mites form restricted colonies under the host leaves.

7. *Eotetranychus kankitus* Ehara

Eotetranychus kankitus Ehara, 1955. *Annotoes zool. Jap.*, 28 : 178.

Eotetranychus kankitus, Manson, 1963. *Acarologia*, 5 : 353.

Material examined : 1 ♂, 2 ♀♀, Tamil Nadu : Velve Junction, Naduvattam. On an undertermined plant, 13.ii.1982 ; 1 ♂, 25 ♀♀, Kodaikanal, Forest Rest House, on Rose, 21. ii. 1982, (Coll. *S. K. Bhattacharyya* and *Y. N. Gupta*).

Distribution in India : Assam, Tamil Nadu (New record), Uttar Pradesh.

Remarks : This is an Indian species.

8. *Eotetranychus pamela* Manson

Eotetranychus pamela Manson, 1968. *Acarologia*, 5 : 353-356.

Material examined : 2 ♂♂, 20 ♀♀, Tamil Nadu, Kodai Kanal, Perumalmalai, on an unidentified plant, 25.ii.1982, (Coll. *S. K. Bhattacharyya* and *Y. N. Gupta*).

Distribution in India : Assam, Himachal Pradesh, Tamil Nadu (New record).

Remarks : This is an Indian species. The present species bear some resembles to *Eotetranychus kankitus* Ehara but can be distinguished from it by the shape of aedeagus manson (1963).

9. *Schizotetranychus andropogoni* (Hirst)

Tetranychus (Schizotetranychus) andropogoni Hirst, 1926. *Proc. Zool. Soc. Lond.*, 2 : 829.

Schizotetranychus andropogoni, Narsimha, 1952, *Curr. Sci.*, 21 : 163-164.

Schizotetranychus andropogoni, Ghai, 1964. *Entomology in India* : 392.

Material examined : 1 ♂, 8 ♀♀, Tamil Nadu : Coimbatore, Tamil Nadu Agriculture univ., on *Zinia* sp., 17.xii.1975, (Coll. *S. K. Gupta*).

Distribution in India : Bihar, Delhi, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal.

Remarks : It has been observed that tenent hairs split very often two or more fine hairs.

10. *Oligonychus biharensis* (Hirst)

Paratetranychus biharensis Hirst, 1924. *Proc. Zool. Soc. Lond.*, 69.

Oligonychus biharensis, pritchard and Baker, 1955, *Mem. Pac. Coast. Entomol. Soc.* 12 : 364-365.

Material examined : 2 ♂♂, 5 ♀♀, Tamil Nadu : Coimbatore, Tamil Nadu Agric. university, on an unidentified plant, 18. xii. 1975 ; 3 ♂♂, 12 ♀♀, Coimbatore, Tamil Nadu. Horticultural Garden, on potato, 3.xii.1975, (Coll. *S. K. Gupta*) ; 2 ♂♂, 15 ♀♀, Nilgiri, Mudumalai, on wood apple, 12.ii.1982, (Coll. *S. K. Bhattacharyya* and *Y. N. Gupta*).

Distribution in India : Andaman and Nicobar Islands, Bihar, Gujarat, Karnataka, Kerala, Tamil Nadu, (New record), West Bengal.

Remarks : This species has also been recorded from Thailand feeding on citrus. (Manson, 1963).

11. *Oligonychus mangiferus* (Rahman and Sapra)

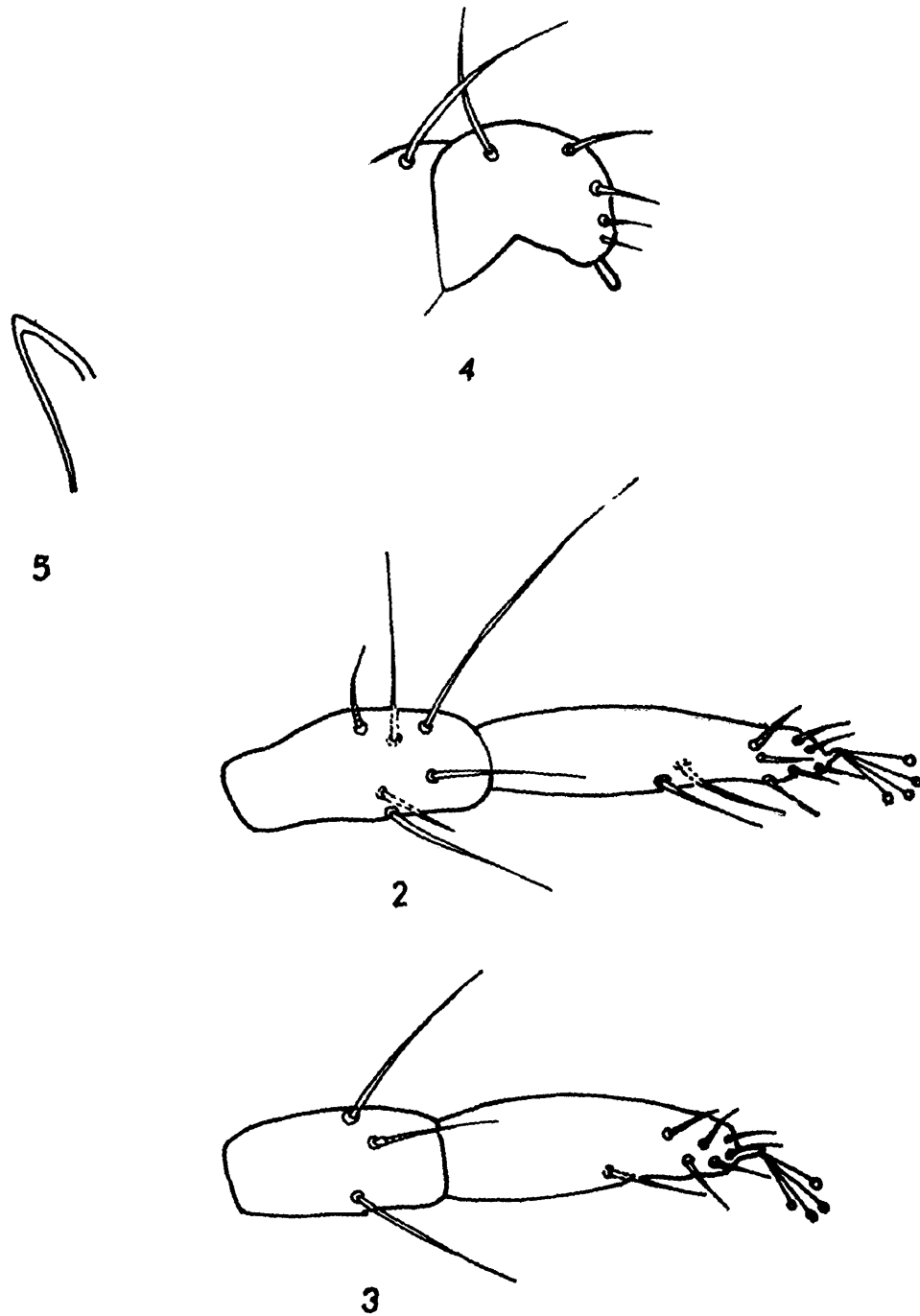
Paratetranychus mangiferus Rahman and Sapra, 1940. *Proc. Indian Acad. Sci.*, 11 (B) : 192.

Oligonychus mangiferus, Pritchard and Baker, 1955. *Mem. Pac. Coast. Entomol. Soc.*, 2 : 33.

Material examined : 1 ♂, 7 ♀♀, Tamil Nadu ; Topslip, On Mango, 17.ii.1982, (Coll. *S. K. Bhattacharyya* and *Y. N. Gupta*).

Distribution in India : Haryana, Himachal Pradesh, Punjab, Rajasthan, Tamil Nadu (N. record), West Bengal.

Remarks : This species has been reported feeding on mango, grape, *Eugenia jambolana*, *Anona* sp., rose.



Figs. 1-5. *Aponychus kodaikanalensis* n. sp.

2. Tibia and Tarsus I of female 3. Tibia and Tarsus II of female
4. Distal segment of palpus of female 5. Peritreme of female.

12. *Oligonychus iseilemae* (Hirst)

Paratetranychus iseilemae (Hirst), 1924. *Ann. Mag. nat. Hist. London*, 9 (14) : 524.

Oligonychus iseilemae, Pritchard and Baker, 1955. *Mem. Pac. Coast. Entomol. Soc.*, 2 : 358.

Material examined : Sev. ♂♂, ♀♀, Tamil Nadu ; Madras, Christian College, On Coconut, 2.xii.1975, (Coll. S. K. Gupta).

Distribution in India : Andhra Pradesh, Andaman and Nicobar Islands, Timal Nadu.

Remarks : This is a grass infesting mite. This species is known only from South India.

13. *Tetranychus cinnabarinus* (Boisduval)

Acarus cinnabarinus Boisduval, 1867. *Ent. Hort.*, 88.

Tetranychus telarius, Rahman and Sapra, 1940. *Proc. Indian. Acad. Sci.*, 11 B : 182-185.

Tetranychus cinnabarinus, Tuttle and Baker, 1977. *Tuscon Ariz. univ. Ariz. Press* : 129.

Material examined ; Sev. ♂♂, ♀♀, Tamil Nadu : Kodaikanal, Chettiar Park, On Castor, 22.ii.1982 ; Sev. ♂♂, ♀♀, Kodaikanal, Chettiar Park, on Rose, 26.ii.1982, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Meghalaya, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh., West Bengal.

Remarks : This species has a world wide distribution and is a serious pest of many cultivated plants.

14. *Tetranychus ludeni* Zacher

Tetranychus ludeni Zacher, 1913. *Mitt. Kais. Bio. Anst. Lond. Forst.*, 14 : 40.

Tetranychus ludeni, Prasad, 1974. *A Catalogue of mites of India*. Indira Acarology publishing House, Ludhiana : 125.

Material examined : 1 ♂, 16 ♀♀, Tamil Nadu : Coimbatore, Tamil Nadu Agri. univ., On Cotton, 9.xii.1975, (Coll. S. K. Gupta).

Distribution in India : Andhra Pradesh, Karnataka, Kerala, Tamil Nadu (N. record).

Remarks : *Tetranychus ludeni* Zacher has a world wide distribution and occurs on cultivated and as well as on wild plants,

15. *Tetranychus macfarlanei*

Baker and Pritchard

Tetranychus macfarlanei Baker and Pritchard, 1960. *Hilgardia*, 29 : 537.

Material examined : 1 ♂, ♀♀, Tamil Nadu : Topslip, Kayhikamuthi, on banana, 18.ii.1982, (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Andaman and Nicobar Islands, Madhya Pradesh, Rajasthan, Tamil Nadu (New record), West Bengal.

Remarks : This mite attacks on a large variety of vegetable crops.

16. *Tetranychus neocaledonicus* Andre'

Tetranychus neocaledonicus Andre', 1933. *Bull. Mus. natn. Hist. nat., Paris*, 5 (2) : 302.

Tetranychus cucurbitae, Ghai, 1974. *Entomology in India* : 392.

Tetranychus neocaledonicus, Prasad, 1974. *A catalogue of mites of India*, Indira Acarology publishing House, Ludhiana : 125-126.

Material examined : 1 ♂, 8 ♀♀, Tamil Nadu : Madras, Loyalla college compound, on *Bauhinia purpurea*, 30.xi.1975 ; sev, ♂♂, ♀♀, Pondicherry, on *Bauhinia purpuria*, 4.xii.1975. (Coll. S. K. Gupta), 4 ♂♂. 6 ♀♀, Coimbatore, univ. Botanical Garden, on rose, 10.ii.1982 ; 2 ♂♂, 12 ♀♀, Mudumalai, on wild plant, 12.ii.1982 ; 1 ♂, 12 ♀♀, Kodaikanal, perumalmalai, on Castor, 25.ii.1983 ; 1 ♂, 20 ♀♀, Topslip, on papaya, 17.ii.1982 ; sev. ♂♂, ♀♀, Kodaikanal, Kurinja Adavantemple compound, on banana, 26.ii.1982 ; 1 ♂, 25 ♀♀, Mudumalai, on wild grass, 12.ii.1982 ; 2 ♂♂, 26 ♀♀, Kodaikanal. Melpallam. on banana 22.ii.1982 (Coll. S. K. Bhattacharyya and Y. N. Gupta).

Distribution in India : Assam, Delhi, Gujarat, Jammu and Kashmir, Karnataka,

Kerala, Orissa, Punjab, Rajasthan, Tamil Nadu (N. record), Uttar Pradesh, West Bengal.

Remarks : This is a serious pest of a large variety of vegetables and fruits.

Family TENUIPALPIDAE

17. *Brevipalpus phoenicis* (Geijskes)

Tenuipalpus phoenicis Geijskes, 1939, *Meded. Land bouwh wageningen*, 42 (4) : 230.

Brevipalpus phoenicis, Sayed, 1946. *Bull. Soc. Fouad. Ler. Ent.*, 30 : 99.

Brevipalpus phoenicis (Geij), 1961. Two and a Bud, *Cinnamara*, 8 : 3-4.

Material examined : 20 ♀ ♀, Tamil Nadu : Ooty, Ooty lake, On an unidentified plant, 9.ii.1982 ; 25 ♀ ♀, Kodai kanal, Forest Rest House compound, on an unidentified plant, 11.ii.1982, (Coll. S. K. *Ehattacharyya* and Y. N. *Gupta*).

Distribution in India : Assam, Bihar, Delhi, Himachal Pradesh, Karnataka, Madhya Pradesh, Meghalaya, Punjab, Maharashtra, Orissa, Rajasthan, Tamil Nadu (new record).

Remarks : This mite is known to have a world wide distribution infesting a wide range of plants.

18. *Raoiella indica* Hirst

Raoiella indica Hirst, 1924. *Ann. Mag, Nat. Hist.*, 14 (9) : 5-22.

Material examined : Sev. ♂ ♂, ♀ ♀, Tamil Nadu : Coimbatore, univ. Botanical Garden, On beans, 10.ii.1982. (Coll. S. K. *Bhattacharyya* and Y. N. *Gupta*).

Distribution in India : Gujarat, Karnataka, Madhya Pradesh, Punjab, Tamil Nadu.

Remarks : This is South Indian species. So far only two species of this genus has been reported from India.

KEY TO THE FAMILIES, GENERA AND SPECIES OF TETRANYCHOID MITES TREATED IN THIS PAPER

1. Palpus Simple, without a claw on the fourth palpal segment... Family Tenuipalpidae ... 2
- Palpus with a claw like appendage on fourth palpal segment. ...Family Tetranychidae ... 3
2. Tarsus I and II with a single sensory rod, Hysterosoma with 4 pairs of dorsosublaterals. ... *Raoiella indica* Hirst
- Tarsus II with two sensory rods Hysterosoma without dorsosublaterals. ... *Brevipalpus phoenicis* (Geijskes)
3. With three pairs of propodosomal setae. Propodosomal and hysterosomal setae not subspatulate ... 4
- With four pairs of propodosomal setae. Propodosomal and hysterosomal setae subspatulate. ... *Bryobia praetiosa* (Koch)
4. Tarsus I with a single set or duplex setae absent. ... 5
- Tarsus I with two pairs of duplex setae, empodium claw like or split distally. ... 7
5. Empodial claw absent, female with two pairs of para-anal setae, male with four pairs of genitoanal setae, dorsal striae of the propodosoma more or less parallel. ... *Eutetranychus orientalis* (Klein)
- Empodial claw absent, female with one pair of para-anal setae, male with three pairs of genito-anal setae. Dorsal striae of the propodosoma not parallel. ... *Aponychus* ... 6

6. Outer sacral setae present. ... *Aponychus cor-puzae* Rimando
 — Outer sacral setae absent. ... *Aponychus kodaikanalensis* n. sp.
7. Empodium claw like with two pairs of para anal setae. ... 8
 — Empodium ending a tuft of hairs with one pair of para-anal setae. ... 12
 8. Empodium claw like. ... 9
 — Empodium ending in a tuft of hairs. ... *Eotetranychus* 10
9. Empodium a single claw like structure, Dorsal setae borne on strong tubercles and about $1\frac{1}{2}$ longer than interval between their bases. ... *Panonychus citri* (McGregor)
 — Empodium split into two claw like structure, usually with appendant hairs. Dorsal setae not ; borne on strong tubercles and about as long as intervals between their bases. ... *Schizotetranychus andropogoni* (Hirst)
10. Dorsal idiosomal setae serrate... *hankitus* Ehara
 — Dorsal idiosomal setae not serrate. ... 11
11. Genital flap with longitudinal striae. ... *sexmaculatus* (Riley)
 — Genital flap with transverse striae. ... *pamelae* Manson
12. Empodium claw like, with proximoventral hairs, duplex setae of tarsus I distal and approximate. ... *Oligonychus* 13
 — Empodium split distally, usually into three pairs of hairs, duplex setae of tarsus I well developed. ... *Tatranychus* 15
13. Aedeagus bent dorsal. ... *mangiferus* (Rahman and Sapra)
 — Aedeagus bent ventrad. ... 14
14. Tarsus I with proximoventral empodial appendages forming a pair of empodial spurs, on monocot mostly grasses. ... *iseilemae* (Hirst)
 — Tarsus I with three pairs of proximoventral hairs on empodium, on other hosts. ... *biharensis* (Hirst)
15. Tarsus I with proximal pair of duplex setae in line with most other proximal setae. ... 16
 — Tarsus I with proximal pair of duplex setae distad of other proximal tactile setae. ... 17
16. Aedeagus knob with anterior and posterior augulation. ... *macfarlanei* Baker and Pritchard
 — Aedeagus without posterior augulation. ... *ludeni* Zacher
17. Knob of aedeagus berry like round, anterior posterior more strongly developed than the posterior convexity. ... *neocaledonicus* Andre'
 — Knob of aedeagus not globular the caudal projection augulate... *cinnabarinus* (Boisd.)

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