

## FOUR NEW ERIOPHYID SPECIES (ACARI: ERIOPHYOIDEA) FROM NORTH BENGAL, INDIA

BY S. CHAKRABARTI\* and R. K. PANDIT\*

NEW SPECIES  
ERIOPHYIDS  
ACARI  
NORTH BENGAL  
INDIA

SUMMARY: Four new species of eriophyids collected from North Bengal districts, India are described and figured. They are: *Acaricalus artocarpae*, infesting *Artocarpus lakoocha* Roxb.; *Colomerus trichodesmae*, infesting *Trichodesma khasianum* Clarke; *Neodichopelmus cordiae*, infesting *Cordia myxa* L.; and *Cosetacus eupatori*, infesting *Eupatorium odoratum* L.

NOUVELLES ESPÈCES  
ERIOPHYIDES  
ACARI  
NORD BENGAL  
INDE

RÉSUMÉ : Quatre espèces nouvelles d'eriophyides récoltées en Inde, dans le Nord de Bengale, sont décrites: *Acaricalus artocarpae* sur *Artocarpus lakoocha* Roxb. ; *Colomerus trichodesmae* sur *Trichodesma khasianum* Clarke ; *Neodichopelmus cordiae* sur *Cordia myxa* L. ; et *Cosetacus eupatori* sur *Eupatorium odoratum* L.

Recent surveys in the districts of North Bengal, India have revealed several new and hitherto little-known eriophyid mites. In this paper we describe four new species, two in the subfamily Phyllocoptinae, viz. *Acaricalus artocarpae*, infesting *Artocarpus lakoocha*, and *Neodichopelmus cordiae*, infesting *Cordia myxa*, and two in the subfamily Eriophyinae, viz. *Colomerus trichodesmae*, infesting *Trichodesma khasianum*, and *Cosetacus eupatori*, infesting *Eupatorium odoratum*.

All measurements are expressed in micrometres ( $\mu\text{m}$ ). In the text, measurements of the holotype are followed by the range of measurements of the paratypes in parenthesis.

The type slides are deposited in the collections of Biosystematics Research Unit, Department of Zoology, University of Kalyani, Kalyani 741 235, India.

### *Acaricalus artocarpae* sp. nov.

(Fig. 1)

*Female*: Body 135 (121–135) long, 32.6 (30.8–36.0) wide; colour yellowish; wedge shaped. Rostrum 23.0 (20.5–23.0) long, projecting obliquely down; subapical seta 5 (4–6) long. Shield subtriangular, 40.1 (37.0–40.0) long, 37 (37–40) wide, with broad anterior lobe without any spine and with a central keel; median line complete; admedian line absent; submedian line complete and few lateral lines present on anterolateral shield. Dorsal tubercles set ahead of rear shield margin; 12 (9–12) apart, seta 9 (9–12) long; directed up and centrad. Foreleg from the base of trochanter 21 (21–23) long; femur 11 (9–11) long and seta 10 (8–10) long; patella 2.8 (2.8–4.0) long, seta 15.9 (15.9–16.8) long; tibia 4.6 (3.0–4.6) long and seta 7.5 (6.5–8.0) long; tarsus 4.6 (4.6–5.6) long with two setae, each seta 11 (11–12) long; claw 6.5 (5.6–6.5) long; featherclaw divided, 6-rayed on each side. Hind-

\* Biosystematics Research Unit, Department of Zoology, University of Kalyani, Kalyani 741 235, India.

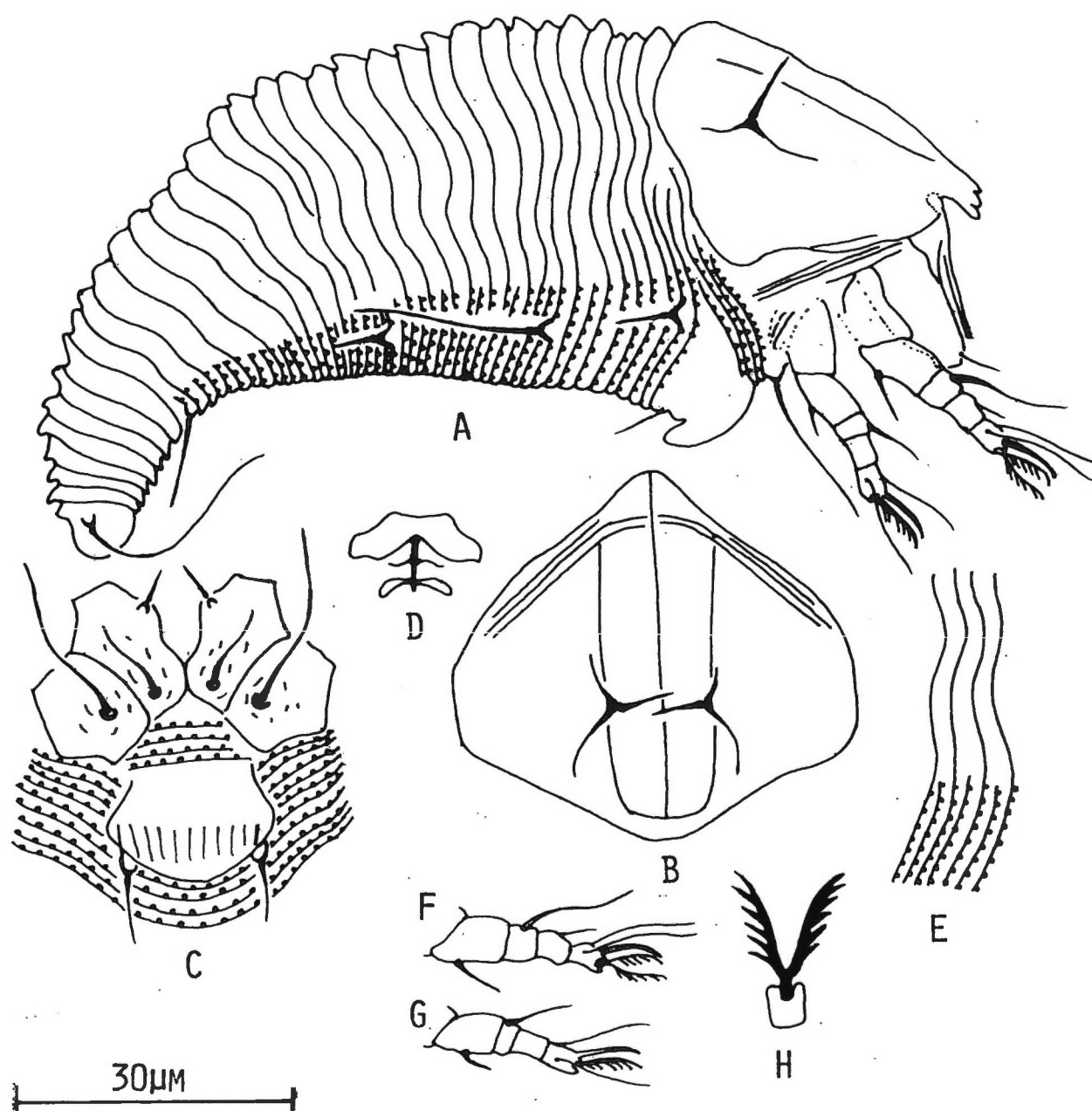


FIG. 1: *Acariculus artocarpae* sp. nov.

A. — Lateral view. B. — Dorsal shield. C. — Coxae with female genitalia. D. — Internal female apodeme. E. — Side skin structure. F. — Foreleg. G. — Hindleg. H. — Featherclaw.

leg 20.5 (18.6–20.5) long from base of trochanter; femur 11 (9–11) long, seta 6.5 (6.5–8.4) long; patella 2.8 (2.8–3.6) long and seta 10 (9–10) long; tibia without seta; tarsus 4.6 (4.6–5.8) long, two setae each 13 (13–14) long; other characters as in foreleg. Fore-coxae connate with short sternal line, ornamented with short fine lines; all three pairs of setiferous

tubercles present. First coxal setae placed further apart than second coxal setae and second coxal setae placed ahead of the level of third tubercles.

Opisthosoma with 43 (40–45) broad tergites and 70 (65–70) narrow, finely microtuberculated sternites; microtubercles bead-like and set on anterior margin of each sternite; thanosoma with one middorsal and

two subdorsal ridges, central ridge extending back to about tergites 21 and subdorsal ridges fading caudad. Lateral seta 7.4 (6.5–7.4) long, on tergites 6 (6–7); first ventral seta 23 (18–23) long on sternites 16 (15–16); second ventral seta 4.6 (4.6–5.6) long, on sternite 27 (27–30); telosome with 7 (6–7) rings; not microtuberculated, telosomal seta 9 (9–11) long; accessory seta absent. Genitalia 12 (12–13) long; 23 (18.6–23) wide; coverflap with about 14 (12–14) longitudinal rings; genital seta 9 (8–9) long.

*Male:* Not observed.

*Type material.* Holotype: Female (marked) on slide (No. 1189/5/1992), INDIA, WEST BENGAL, Jalpaiguri, Lataguri forest, 21 May 1992, from *Artocarpus lakoocha* (Moraceae), coll. R. K. PANDIT. Paratypes: 6 females on the slide bearing the holotype and 15 females on 4 slides (Nos. 1190–1193/5/1992); 12 females INDIA, WEST BENGAL, Jalpaiguri, Garumara forest, 1 Sept. 1993, from *Artocarpus lakoocha*, coll. R. K. PANDIT on 2 slides (Nos. 1194–1195/5/1993).

*Relation to host:* The mites are vagrants on under-surface of leaves. No appreciable damage symptoms were noticed from their infestation.

*Remarks:* The present new species resembles *Acariculus ilexopacae* Keifer, 1959 and *A. sengundus* Keifer, 1940 in having a high central keel on the shield, ornamented coxae, and coverflap with longitudinal furrows. However, it differs from *A. ilexopacae* in having a simple claw, a 6-rayed divided featherclaw, and in the absence of admedian line on shield, and from *A. sengundus* in having a sternal line and 12–14 longitudinal furrows on the genital coverflap.

The species of this genus infest a wide variety of hosts belonging to the families Betulaceae, Aquifoliaceae, Hedyoticioae, Fagaceae. The new species is the only representative infesting a host plant of the family Moraceae.

*Colomerus trichodesmae* sp. nov.

(Fig. 2)

*Female:* Body 145.6 (145.6–186.7) long and 48.5 (45.7–51.8) wide; robust, cylindrical; white in colour. Rostrum 16.8 (14.0–18.6) long with subapical seta 4.6 (4.6–5.6) long. Shield suboval, not projecting over the

rostrum base, 23.3 (23.3–28.0) long and 42 (37–42) wide; shield design represents numerous broken and faint longitudinal lines; dorsal tubercles ahead of rear shield margin, 18.6 (14.9–18.6) apart; dorsal setae 14.9 (14.9–18.6) long; projecting upwards. Foreleg 23 (21–25) long from trochanter base; femur 9.3 (7.3–10.2) long with seta 9.3 (7.3–9.3) long; patella 2.8 (2.8–3.6) long with a seta 21.4 (18.6–21.4) long; tibia 3.8 (3.8–4.6) long and seta 7 (7–10) long; tarsus 5.6 (5.6–6.5) long, with two tarsal setae each 16.8 (14.9–16.8) long; claw simple, 5.6 (4.5–5.6) long; featherclaw simple, 4-rayed. Hindleg 23 (20.5–24.0) long from trochanter base; femur 9.3 (7.4–9.3) long, with seta 9.3 (8.4–9.3) long; patella 2.8 (2.8–3.6) long and seta 14 (9.3–14.0) long; tibia 3.8 (3.8–4.6) long, without seta; tarsus 5.6 (5.6–6.5) long with two setae each 16.8 (14.9–16.8) long; claw longer than that of foreleg 5.6 (5.6–6.5) long; featherclaw 4-rayed. Coxal surface smooth; forecoxae contiguous with a mid-ventral or sternal line; first coxal tubercles just above the anterior coxal junction; second coxal tubercles well below the first coxal tubercles and distinctly above the transverse line through third coxal tubercles.

Opisthosoma with narrow, completely microtuberculated rings, which are approximately equal dorso-ventrally, 56 (52–58) in number. Dorsal microtubercles bead-like and larger than ventral ones. Abdominal setae normal; lateral seta 10.2 (9.3–10.2) long on sternite 6 (6–8); first ventral seta 14 (13.0–14.9) long on sternite 18 (17–19); second ventral seta 19.6 (19.6–22.0) long on sternite 31 (31–33); third ventral seta 9.3 (9.3–11.2) long, on sternite 6 (6–7) from rear end; caudal seta 46.6 (37.3–46.6) long; accessory seta absent. Genitalia more or less appressed to the coxae, 14 (10.2–17.7) long and 20.5 (18.6–20.5) wide; genital coverflap with 16 (14–16) longitudinal lines of unequal length.

*Male:* Not observed.

*Type material.* Holotype: female (marked), on slide (No. 1210/74/1993), INDIA, WEST BENGAL, Jalpaiguri, Lataguri forest, 20 July 1992, from *Trichodesma khasianum* Clarke (Boraginaceae), coll. R. K. PANDIT. Paratypes: 6 females on slide bearing the holotype and 29 females on 2 slides (Nos. 1211–1212/28/1992); 14 females on 2 slides (Nos. 1213–1214/74/1993), INDIA: WEST BENGAL, Darjee-

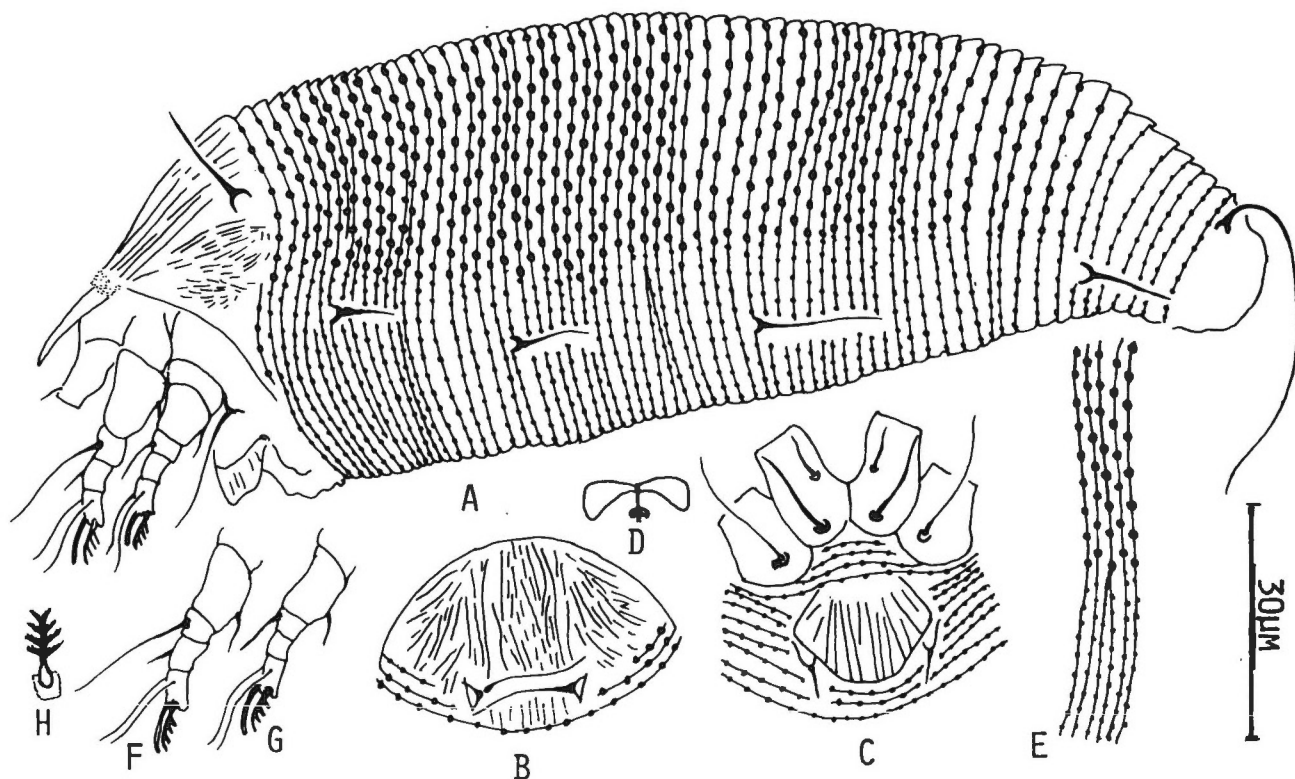


FIG. 2: *Colomerus trichodesmae* sp. nov.

A. — Lateral view. B. — Dorsal shield. C. — Coxae with female genitalia. D. — Internal female apodeme. E. — Side skin structure. F. — Foreleg. G. — Hindleg. H. — Featherclaw.

ling, Satmile jangal, 11 Sept. 1993, from *Trichodesma khasianum*, coll. R. K. PANDIT.

**Relation to host:** The mites were collected from bead galls on both surfaces of the leaves. Due to infestation, a large number of galls develop during the monsoon period, which dry out in October. The size of the galls on immature leaves is small (about 0.25–1.00 mm in diameter), but on mature leaves it is larger (about 1–2 mm in diameter). During heavy infestation, leaves turn yellowish. Curling and shrinkage of leaves also occur to a great extent.

**Remarks:** *Colomerus trichodesmae* sp. nov. closely resembles to *C. vitis* (Pagenstecher, 1957) and *C. alangii* Keifer, 1978 in having numerous longitudinal lines on the propodosomal shield and also by its 14–16 longitudinal lines on the female genital cover flap. However, the new species differs from both *vitis* and *alangii* in having a 4-rayed featherclaw, smooth coxal area, and bead-like microtubercles on opisthosoma.

*Cosetacus eupatori* sp. nov.

(Fig. 3)

**Female:** Body 102.9 (102.9–149.7) long, 40 (39.3–41.0) wide; worm-like; white in colour. Rostrum 18 (18–22) long, projecting obliquely forward; subapical seta (6–8) long. Shield subtriangular, 19.6 (18.0–21.0) long and 32.6 (28.0–32.6) wide, with a large number of closely-set, fine, discontinuous lines, giving the shield a wrinkled appearance; dorsal tubercles on rear shield margin, 18.6 (18.6–20.0) apart, 16.8 (16.8–18.6) long, setae directed divergently to rear. Foreleg from trochanter base 23 (22–25) long; femur 7.4 (7.0–9.0) long, seta 6.5 (6.5–8.0) long; patella 2.8 (2.8–3.0) long, with seta 14 (14–16) long; tibia 3.7 (2.8–3.7) long, without seta; tarsus 4.6 (3.7–4.6) long, with two setae, each 16.8 (15.0–16.8) long; claw 4.6 (4.6–6.0) long, moderately arched; featherclaw simple, 4-rayed. Hindleg 19.6 (19.6–23.0)

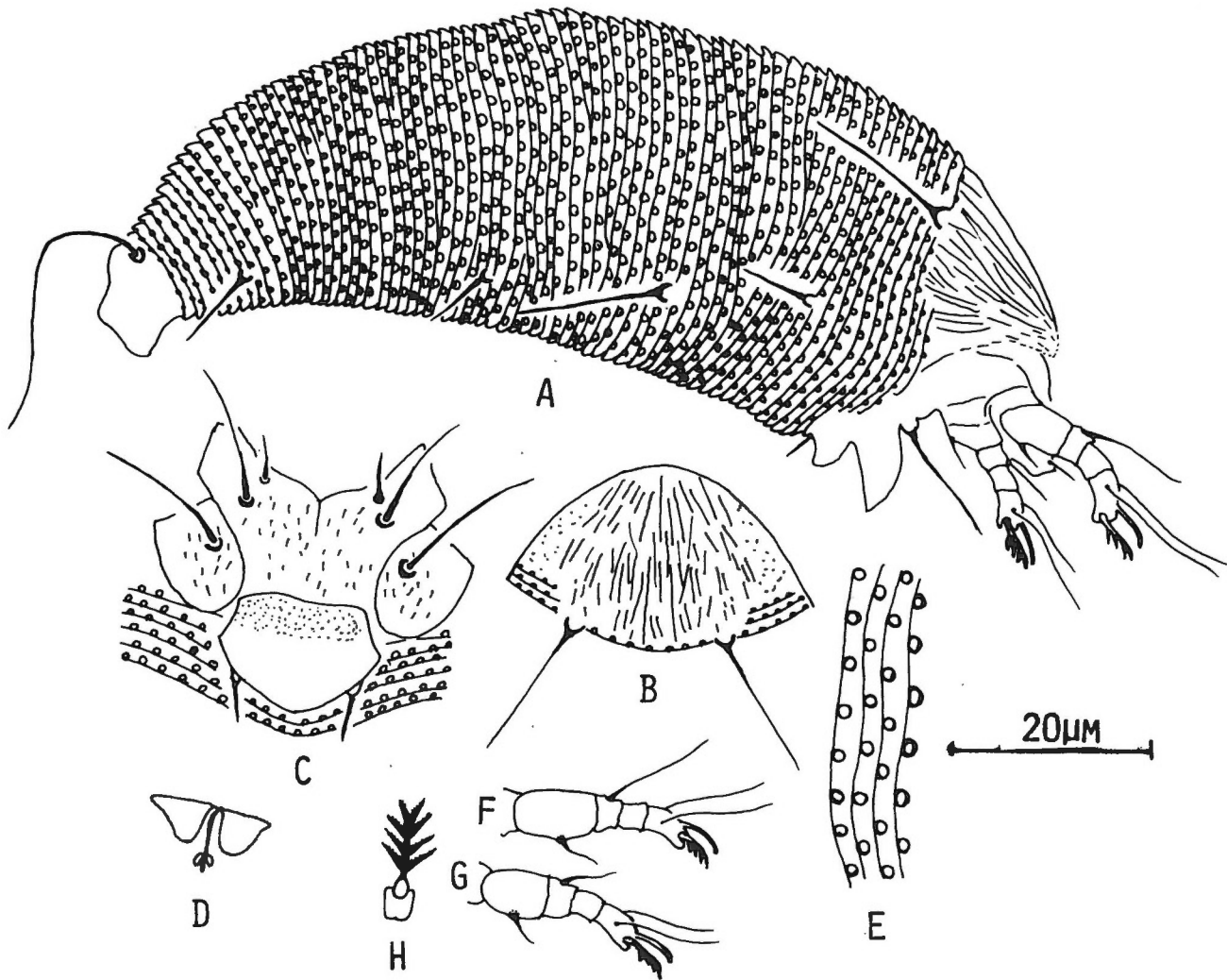


FIG. 3: *Cosetacus eupatori* sp. nov.

A. — Lateral view. B. — Dorsal shield. C. — Coxae with female genitalia. D. — Internal female apodeme. E. — Side skin structure. F. — Foreleg. G. — Hindleg. H. — Featherclaw.

long from base of trochanter; femur 6.5 (6.0–7.0) long, with seta 6.5 (5.0–6.5) long; patella 2.8 long, with seta 10 (9–10) long; tibia 3.7 (2.8–3.7) long, without seta; tarsus 3.7 (3.0–5.0) long, with two setae each 15 (15–17) long; claw 5 (4.6–6.0) long, moderately arched; featherclaw simple, 4-rayed. Coxae contiguous, ornamented with spinules; sternal line short, first setiferous coxal tubercles placed at the level of anterior coxal junction; second coxal tubercles set well ahead of the line between the third coxal tubercles.

Opisthosoma with 68 (68–75) uniformly microtuberculate rings; microtubercles round and placed on

ring margin. Lateral seta 14 (13–15) long, on ring 12 (11–13); first ventral seta 28.0 (28.0–30.8) long, on ring 22 (22–25); second ventral seta 9.3 (9.3–11.0) long, on ring 46 (42–47); telosomal seta 14 (12–14) long, on ring 6 (6–7) from rear; caudal seta 39 (39–42) long; accessory seta absent. Genitalia 12.1 (12.0–13.0) long and 15.8 (14.9–16.0) wide; genital coverflap granulated anteriorly; genital seta 5.6 (4.6–5.6) long.

*Male:* Not observed.

*Type material.* Holotype: female (marked), on slide (No. 1207/26/1993), INDIA: WEST BENGAL, Darjeeling, Sebak, 25 May 1992, from *Eupatorium odora-*



*tum* (Compositae), coll. R. K. PANDIT. Paratypes: 8 females on slide bearing the holotype and 27 females on 3 slides (Nos. 1207-1209/26/1992); 17 females on 2 slides (Nos. 1210-1211/83/1993), INDIA, WEST BENGAL, Jalpaiguri, Maynaguri, 30 Sept. 1993, from *Eupatorium odoratum*, coll. R. K. PANDIT.

*Relation to host:* This species inhabits the erineae of leaves. During heavy infestation, white-coloured erineae develop on both leaf surfaces and cause distortion of leaves and apical buds. Signs of infestation are intense during the monsoon period and the erineae become blackish and subsequently dry out by November.

*Remarks:* So far, two species, including one from India, are known in this genus (KEIFER, 1945; DAS & CHAKRABARTI, 1985). *Cozetacus eupatori* sp. nov. differs from the other two congeners, viz. *C. camelliae* Keifer, 1945 and *C. citrifolis* Das and Chakrabarti, 1985, by its shield structure, simple claw, 4-rayed featherclaw and anteriorly granulated genital coverflap.

*Neodichopelmus cordiae* sp. nov.

(Fig. 4)

*Female:* Body 168 (148–170) long, 56 (51–56) wide; robust, fusiform; whitish in colour. Rostrum 21 (20–25) long, projecting obliquely down; subapical seta 8 (8.0–10.5) long. Shield subtriangular, 37 (32.6–37.0) long, 56 (46.6–56.0) wide, with a broad anterior lobe; median line complete, somewhat sinuous; admedian complete, sinuous, meeting by cross lines with median at 0.20 length of rear shield margin; submedian lines incomplete, curved and reaching up to 0.45 length of the anterior shield; shield margin with granules and short longitudinal dashes. Dorsal tubercles at rear shield margin, 31 (28–33) apart, 21 (19.6–21.0) long, setae directed divergently caudad. Foreleg from the trochanter base 28 (26–30) long; femur 11.2 (9.3–11.2) long, with a seta 9.3 (9.3–11.2) long; patella 3.7 (2.8–3.7) long, seta 23 (23–25) long; tibia 5.6 (4.6–5.6) long, seta absent; tarsus 6.5 (5.6–6.5) long, with two setae, each 18.6 (18.0–20.0) long; claw simple 9.3 (9.3–10.0) long, moderately arched; featherclaw divided and 5-rayed. Hindleg 23.3 (23.3–25.0) long from trochanter base;

femur 9.3 (7.0–9.3) long, seta 9.3 (9.3–11.0) long; patella 3.7 (2.8–3.7) long, seta 11.2 (10.3–12.0) long; tibia 4.6 (4.6–5.6) long, without seta; tarsus 5.6 (5.6–6.5) long, with two upper setae each 18.6 (18.6–20.0) long; other characters as in foreleg. Forecoxae separated, coxal area ornamented with a few faint longitudinal lines; first coxal tubercles placed ahead of level of second coxal tubercles and third coxal tubercles placed further apart than second coxal tubercles.

Opisthosoma with 52 (48–55) tergites and 63 (61–67) sternites, both tergites and sternites microtuberculated; tergites with fine microtubercles and sternites with broad, oval microtubercles on anterior ring margin. Lateral seta 14 (12–14) long, on sternite 10 (8–11); first ventral seta 56 (50–60) long, on sternite 19 (18–20); second ventral seta 8.4 (8.4–10.0) long, on sternite 30 (28–30); third ventral seta 18.6 (16.0–18.6) long, on sternite 7 (6–7) from rear; sternites which are microstriated ventrally; caudal seta 42 (40–47) long; accessory seta absent. Genitalia 16.8 (16–18) long and 22.4 (22.4–24.0) wide, appressed to hind coxae; coverflap with 10 (10–12) longitudinal ribs; internal female apodeme shortened; genital seta 10.2 (9.0–10.2) long.

*Male:* Not observed.

*Type material.* Holotype: Female (marked), on slide (No. 1221/62/1993), INDIA, WEST BENGAL, Darjeeling, Rong Tong, 10 Sept. 1993, from *Cordia myxa* L. (Boraginaceae), coll. R. K. PANDIT. Paratypes: 5 females on slide bearing holotype and 12 females on 2 slides (Nos. 1222-1223/62/1993); 12 females on 2 slides (Nos. 1224-1225/92/1994), INDIA, WEST BENGAL, Darjeeling, Bagmore, 1 Oct. 1994, from *Cordia myxa*, coll. R. K. PANDIT.

*Relation to host:* Mites occur in considerable numbers on the lower leaf surface and are always under a thin white web. They are associated with veins, especially the mid rib, and provoke no apparent damage symptoms in the plant. The species is found during September to November only.

*Remarks:* The genus *Neodichopelmus* Manson was previously monotypic, known only by the type species, *N. samoanus* Manson, 1972 from Levin, New Zealand (MANSON, 1972). The second species under in genus, *N. cordiae* sp. nov., differs from *N. samoanus* in having microtuberculated tergites and sternites, a

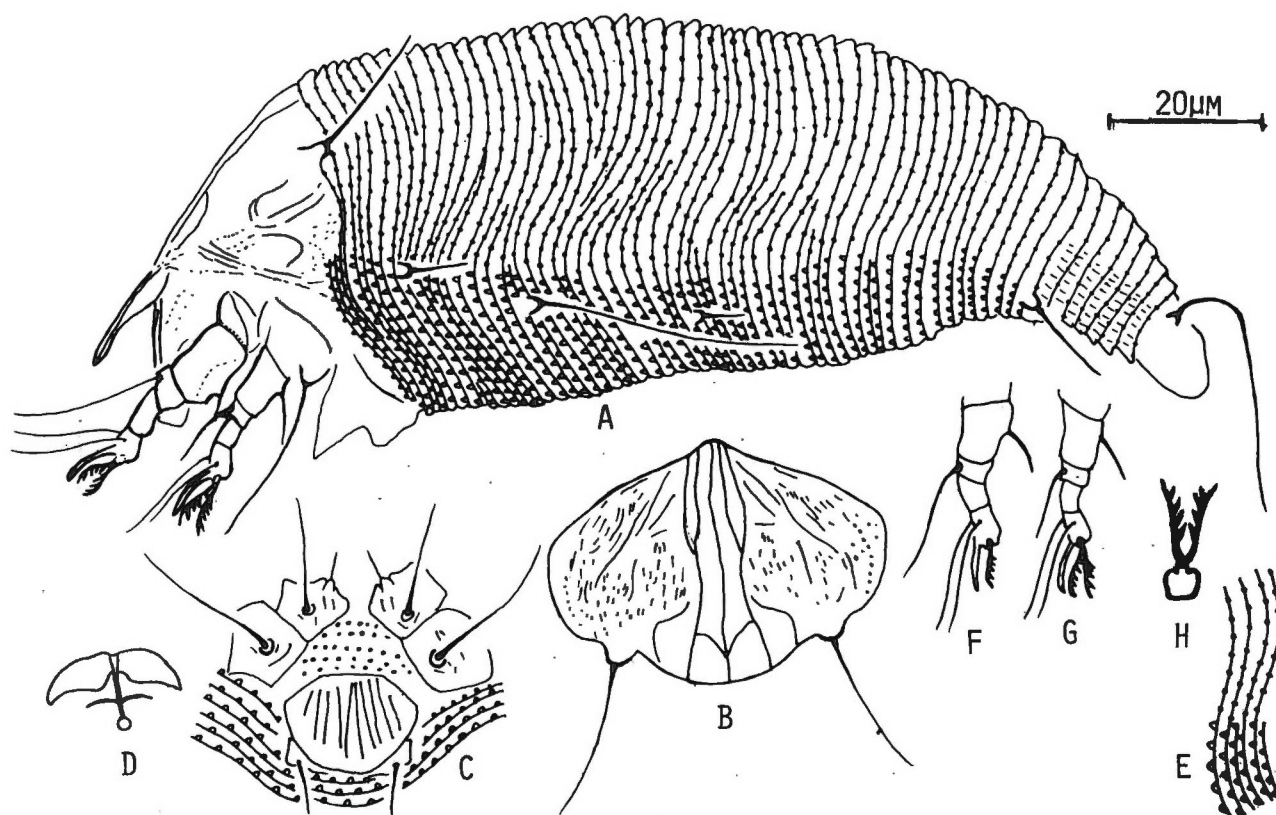


FIG. 4: *Neodichopelmus cordiae* sp. nov.

A. — Lateral view. B. — Dorsal shield. C. — Coxae with female genitalia. D. — Internal female apodeme. E. — Side skin structure. F. — Foreleg. G. — Hindleg. H. — Featherclaw.

5-rayed featherclaw, a simple claw, and in details of the shield structures.

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