

ERIOPHYID STUDIES C - 15

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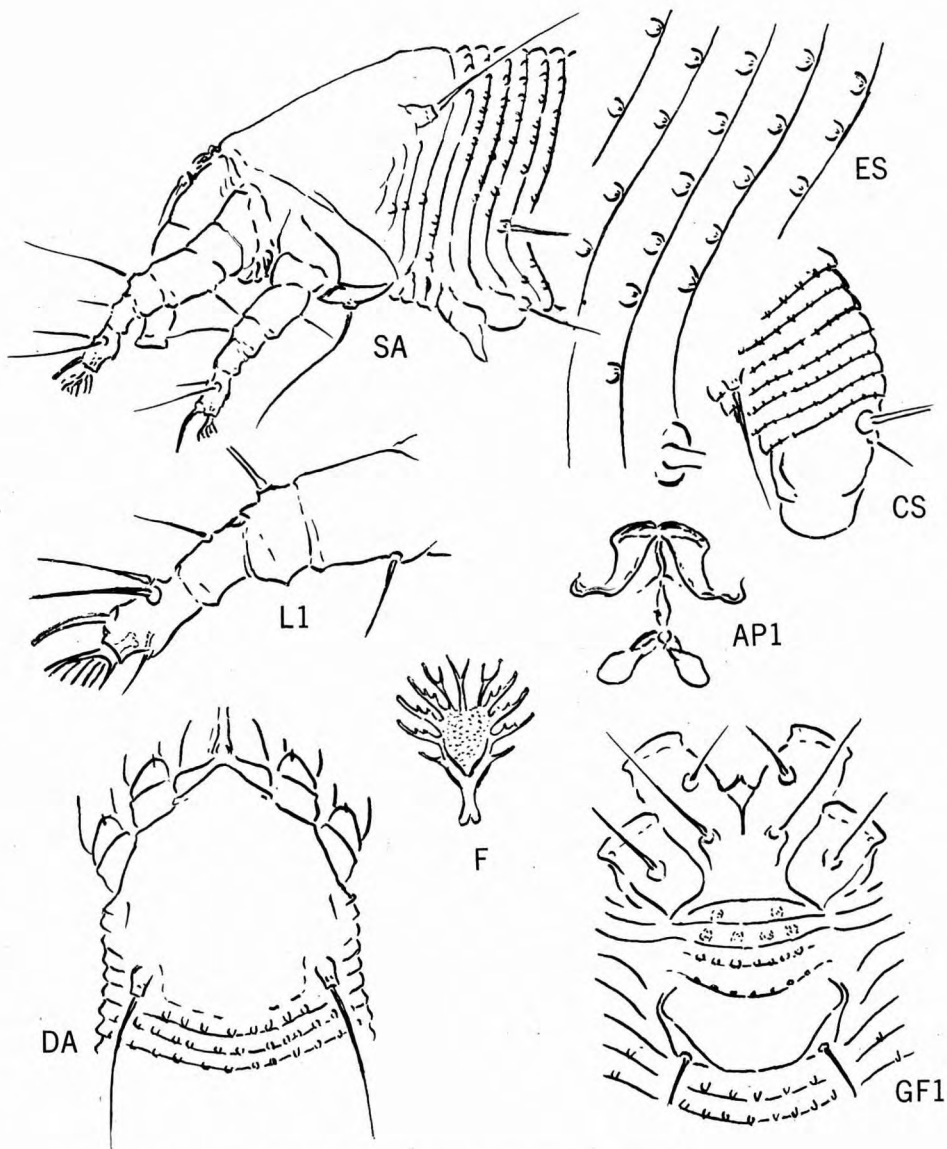


Plate 1 - *Eriophyes konoi*, new species

Eriophyes konoi, new species

Plate 1

At present there is no other species in the genus Eriophyes that is comparable to konoi. The 6-rayed featherclaw shows signs of developing into a divided structure. The features of this mite, as well as the featherclaw, are the smooth shield, rather wide-spaced microtubercles, and the sublateral areas lacking microtubercles.

Female from front of shield to terminal lobes 145 μ -160 μ in length, 32 μ thick. Body wormlike. Color light yellowish-white. Gnathosome 20 μ long, curved down; antapical gnathosomal seta 5 μ long. Shield 30 μ long by 30 μ wide, subtriangular in dorsal view, bulging laterally. No shield pattern or ornamentation present; 3-4 partial rings below dorsal tubercles. Dorsal tubercles 16 μ apart, on rear margin, directing 34 μ dorsal setae divergently to rear. Foreleg from trochanter base 24 μ long; tibia 4.5 μ long, with 5 μ seta from 1/2-1/3; tarsus 5.5 μ long; claw 5 μ long; featherclaw palmate, 6-rayed, stem of central ray pair from sunken origin; base of featherclaw thickened on sides. Hindleg 23 μ long, tibia 4 μ long, tarsus 5 μ long, claw 5.5 μ long. Sternal line between forecoxae short, hardly reaching to between second tubercles. Coxae lacking lines or ornamentation. First setiferous coxal tubercles farther apart than second, slightly ahead of divided anterior end of sternal line; second tubercles ahead of line across third tubercles. Abdominal thanosome with about 44 rings. Microtubercles moderately prominent, slightly pointed and well separated; microtubercles present dorsally and ventrally but absent in irregular longitudinal bands sublaterally. Microtubercles more pointed over ring margins toward rear. Lateral seta 27 μ long, on ring 6 behind shield; first ventral seta 29 μ long, on ring 17; second ventral seta 12 μ long, on ring 28. Abdominal telosome with 5 rings; completely microtuberculate, the microtubercles fine, pointed over margins. Telosomal seta 17 μ long. Accessory seta 5 μ long. Female genitalia 12 μ long by 20 μ wide; coverflap lacking ribs; seta 6.5 μ long.

Male about 124 μ long, perhaps more microtuberculate than female.

Type locality: Hotel grounds, Academy Bay, Santa Cruz Isl., Galapagos.

Collected: June 24, 1977 by Tokuo Kono, for whom the species is named.

Host: Sporobolus virginicus (L.) K. (Graminae), a grass.

Relation to host: The mites live in terminal blade whorls and in grooves.

Type material: A vial with mites and plant parts in sugar-alcohol sol.

A type slide with the above data.

Four paratype slides with above data.

Designations on Plates -

AP1- Internal female genital structures	GF1- Female genitalia and coxae
CS - Lateral view of caudal section	L1 - Left anterior leg
D - Dorsal diagram of mite	L2 - Left second leg
DA - Dorsal view of anterior section	S - Side diagram of mite
ES - Lateral epidermal structures	SA - Anterior side view of mite
F - Empodium or featherclaw	

Telosome- caudal abdominal section beginning
with third ventral seta

Thanosome- abdomen from rear shield margin to telosome

Eriophyes noumeae, new species

Plate - 2.

Definitive characters of noumeae are the obscure curved lines on the center of the shield, the partially defined lateral ocellar spot on the shield, 4-rayed featherclaws, weak sternal line ending in a darker spot well back of the second coxal tubercles, and the lateral change on the abdomen from longer microtubercles on the dorsum to smaller microtubercles on the venter. Perhaps the closest species to noumeae is Eriophyes raucus Nal. which Nalepa characterizes as having a 4-rayed featherclaw but with numerous lateral lines on the shield.

Ref. for raucus - Verh. Ges. Wein 68:68, 1918.

Female 130 μ -200 μ long from anterior shield edge, 37 μ thick. Body light yellowish-white, wormlike. Gnathosome 15 μ long, curved down; ant-apical seta 2 μ long. Propodosomal shield 25 μ long by 29 μ wide. Central shield area with faint curved lines, mostly longitudinal; median line apparently broken up into several lines; admedian lines present to rear just ahead of dorsal tubercle area; a moderately strong submedian line from rear of shield margin curving outward in front of dorsal tubercles to about 1/3. Shield subtriangular with somewhat bulging ocellar spot at rear angle, followed by about three partial rings. Dorsal tubercles 15 μ apart, on rear margin; dorsal setae 21 μ long, projecting back and diverging somewhat. Foreleg from trochanter bas \acute{e} 24 μ long; tibia 5 μ long with 4 μ seta at 1/3; tarsus 8 μ long; claw 5 μ long, slightly knobbed; featherclaw 4-rayed. Hindleg 22 μ long, tibia 3.5 μ long, tarsus 6 μ long, claw 6 μ long. Sternal line between forecoxae faint, ending at level of third coxal tubercles in a stronger elongate spot; slight forking around spot. First setiferous coxal tubercles closer than second tubercles, about opposite anterior end of sternal line; second tubercles well ahead of level of third tubercles and not far within line from first to third tubercles; faint curved lines around tubercles. Abdominal thanosome with about 50 rings; microtubercles elongate dorsally, touching ring margins. Shorter microtubercles ahead of margins ventrally, extending generally up to lateral thanosomal area. Lateral seta 16 μ long, on ring 7 behind shield; first ventral seta 42 μ long, on ring 18; second ventral seta 9 μ long, on ring 31. Abdominal telosome with 5-6 rings, the microtubercles fine; seta 17 μ long, moderately strong. Accessory seta 4.5 μ long. Female genitalia 11 μ long by 16 μ wide; coverflap basally with transverse line to which appended curved lines laterally and granules centrally; 10-12 longitudinal ribs on coverflap. Genital seta 5 μ long.

Male not seen.

Type locality: Noumea, New Caledonia (Nouvelle-Caledonie).

Collected: October 24, 1977 by J. Gutierrez.

Host: Ficus frasieri Miq. (Moraceae, Urticales) a fig.

Relation to host: The mites make small bead galls on the leaves with lower surface openings.

Type material: Dry leaves with above data and with galls and mites. Three slides with above data, one labelled type.

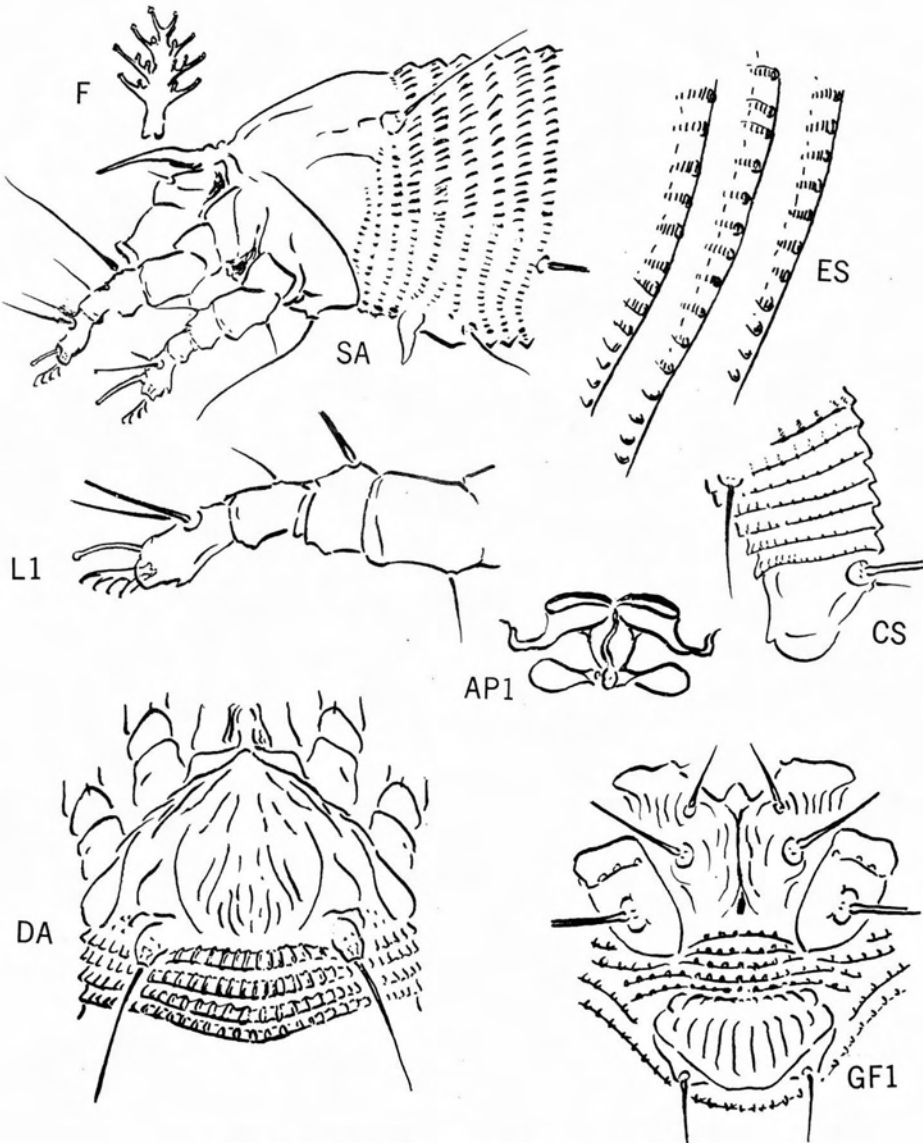


Plate 2 - *Eriophyes noumeae*, new species

Eriophyes zealus, new species

Plate - 3

This is another member of the widespread tenuis group of grass infesting species. It is close to Eriophyes zeasinis (K.) 1962, but differs by lacking a central cross line on the propodosomal shield, by the featherclaws having a 5-6 ray arrangement (zeasinis has 6-rayed featherclaws), and by the flatter microtubercles. The specific name is Zea, plus alo, meaning to nourish.

Reference for tenuis - Nalepa, Das Tierreich, p. 7, 1898.

Reference for zeasinis - Keifer, Eriophyid Studies B-8:13, July 1962.

Female yellowish-white; body length from anterior point of propodosomal shield to terminal lobes 210μ - 250μ ; thickness about 48μ . Body wormlike in shape. Gnathosome comparatively short, curved down, 23μ long; antapical seta 5μ long. Shield 39μ long by 42μ wide, subtriangular in dorsal view. Shield design of longitudinal lines composed of short dashes with fine connections. Median line present on rear half of shield and somewhat broken. Admedian lines complete, sinuate, gradually diverging to rear margin. A line of dashes just inside dorsal tubercle. First submedian line from anterior point of shield, extending toward dorsal tubercle but turning outward ahead of tubercle. Second submedian from anterior edge of shield, diverging from first submedian, and ending at rear margin lateral to tubercle. Side of shield with rather broad band of granules above coxae and longitudinal line within this band; two or three partial rings below tubercle. Foreleg from trochanter base about 33μ long; tibia $5-1\frac{1}{2}\mu$ long, with 10μ seta from about $1/2$; tarsus 7.5μ long; claw 10μ long, tapering; featherclaw 5-6 rayed, 5 on outside. Hindleg 30μ long, tibia 6μ long, tarsus 6μ long, claw 10μ long, featherclaw 5-6 rayed. Sternal line between forecoxae moderately long, ending between second coxal tubercles. Coxae generally with lines of short dashes, a line from first coxal tubercle extending back to just inside second tubercle. First setiferous coxal tubercles even with front end of sternal line and farther apart than second tubercles. Second coxal tubercles in line across third tubercles. Abdominal thanosome with about 70-75 rings; rings completely microtuberculate the microtubercles somewhat linear, flattened, mostly ahead of rear ring margins except dorsally and midventrally. Lateral seta 30μ long, on ring 8 behind shield; first ventral seta 4μ long, on ring 24; second ventral seta 14μ long on ring 45. Abdominal telosome with 5 rings; microtubercles fine, linear and touching margins, longer below. Telosomal seta 20μ long. Accessory seta 3μ long. Female genitalia 17μ long by 21μ wide, deep bowl-shaped; 9-11 longitudinal ribs on coverflap; internal anterior apodeme of moderate anterior length. Genital seta 16μ long.

Male 170μ - 185μ long.

Type locality: Sopetran, Antioquia, Colombia, elevation 750 meters.

Collected: August 5, 1977 by E. J. Urueta.

Host: Zea mays L. (Maydeae, Graminae, Glumiflorae) Indian corn.

Relation to host: The mites infest both sides of the leaves as they project out of the husk. Infested plants show yellowish streaks on blades, but few plants in a field are usually involved. Whether the yellow streaks are due solely to the mite, or to a virus, is yet unknown.

Type material: Mites and leaves in liquid with above data.

Three slides with above data, one indicated as type.

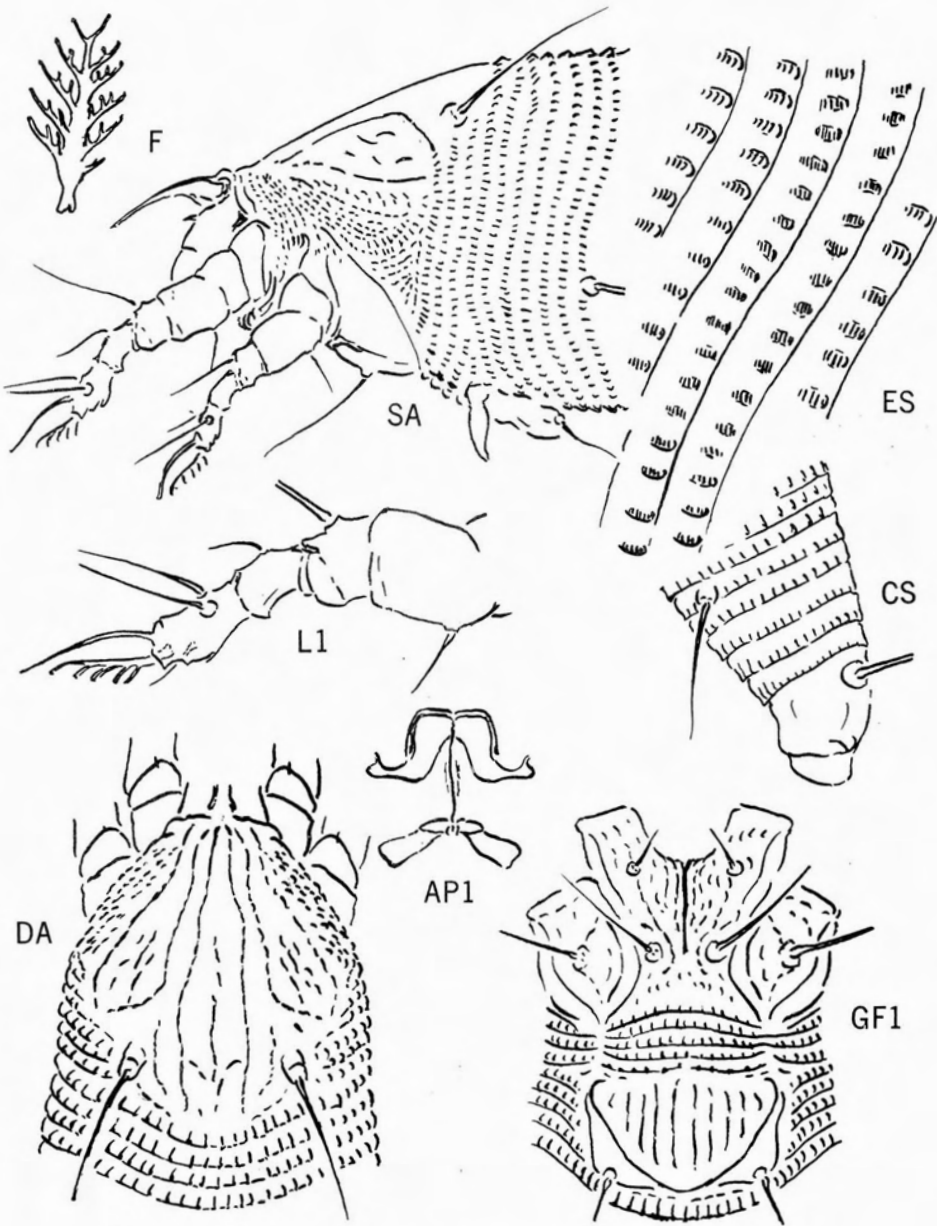


Plate 3 - *Eriophyes zealus*, new species

Eriophyes dinus Styer and Keifer, new species

Plate 4

Several types of eriophyid-induced leag galls and deformities develop on tupelo leaves. Two of these are caused by eriophyids having 3-rayed featherclaws. The slightly produced genital tubercles on these 3-rayed species ally them to 3-rayed mites that infest walnuts and hickories.

The two types of leaf deformation referred to are first, small upper surface compound bead galls, and, second, leaf edgerolling. While it has not been possible to separate the mite populations taken from the two kinds of deformations on the basis of structural differences, the two types of leaf injury appear quite independently of each other. Occasionally both the galls and the edgerolling are on the same leaf.

The specific name *dinus*, is for the purpose of recognizing the distinctly different functions of these two populations. The designation *dinus* is from *dinos*, meaning *turning*.

The bead gall-making eriophyid on tupelo leaves is *Nyssae* Trotter 1903. Trotter's original specimens came from North Carolina. Trotter described the deutogyne of the species, indicating that what he had showed no ring microtubercles.

Reference: Trotter, Marcellia V. 2, p. 67, 1903.

Males of both the gall maker and the edgeroller are completely microtuberculate, the microtubercles resting on rear ring margins. Part of the females have these microtubercles, but many of them lack such strong microtuberculation, and this fades to no visible microtubercles at all on many specimens. These females with suppressed microtubercles, or that lack these punctuations, are presumably the ones that successfully live over winter, and are therefore the deutogynes.

Females (with microtubercles) from front of shield to terminal lobes, 180 μ -240 μ long, about 54 μ thick. Ganthosome 22 μ long, projecting diagonally down; antapical seta about 2 μ long. Propodosomal shield 24 μ long by 35 μ wide, lacking lines or design, but with very short line at rear edge center. Two or 3 partial rings below dorsal tubercles. Dorsal tubercles 16 μ apart; dorsal setae 21 μ long, projecting diagonally outward to rear. Foreleg from trochanter base 28 μ long; tibia 4.5 μ long with 1.5 μ seta from 1/2 or 2/3 position; tarsus 7 μ long; claw 7.5 μ long; featherclaw 3-rayed. Hindleg 26 μ long, tibia 4 μ long, tarsus 6.5 μ long, claw 7.5 μ long. Sternal line between forecoxae extending back past second setiferous tubercle; coxae not ornamented. First setiferous coxal tubercles slightly farther apart than second and close to end of first coxae; second coxal tubercles well ahead of level of third tubercles and just inside line between first and third tubercles. Thanosome with about 56 rings, completely microtuberculate, the microtubercles either resting on rear ring margins or slightly ahead when these microtubercles are somewhat suppressed. The microtubercles elliptical in shape and not produced. Lateral seta 16 μ long, on ring 4 behind shield; first ventral seta 17 μ long, on ring 14; second ventral seta 9 μ long, on ring 31. Telosome with 6 rings, the microtubercles present as well-spaced beads on margins, with faint forward extensions, except ventrally, where more numerous. Telosomal seta attenuate, 22 μ long. Accessory seta 5 μ long. Female genitalia 9 μ long by 16 μ wide; coverflap lacking ribs; setiferous tubercles somewhat produced, rounded apically; seta 2.5 μ long. Deutogyne, with very faint microtubercles, or lacking these structures, 156 μ -184 μ long.

Male 115 μ -130 μ long, robust; microtubercles strong and resting on ring margins.

Type locality: East Islip, Long Island, New York.

Collected: August 17, 1961, by G. R. Nielsen and W. E. Wallner, then connected with Cornell University.

Host: *Nyssa sylvatica* Marsh. (Nyssaceae, Myrtiflorae) tupelo.

Relation to host: The mites make leaf edgerolls onto the leaf upper surface. The rolls either continuous for some distance, or short rolls making leaf edge scallops. Severe edgerolling deforms or stunts leaf.

Type material: Dry leaves bearing edgerolls (and galls) with above data. Eight slides with above data; one indicated as type.

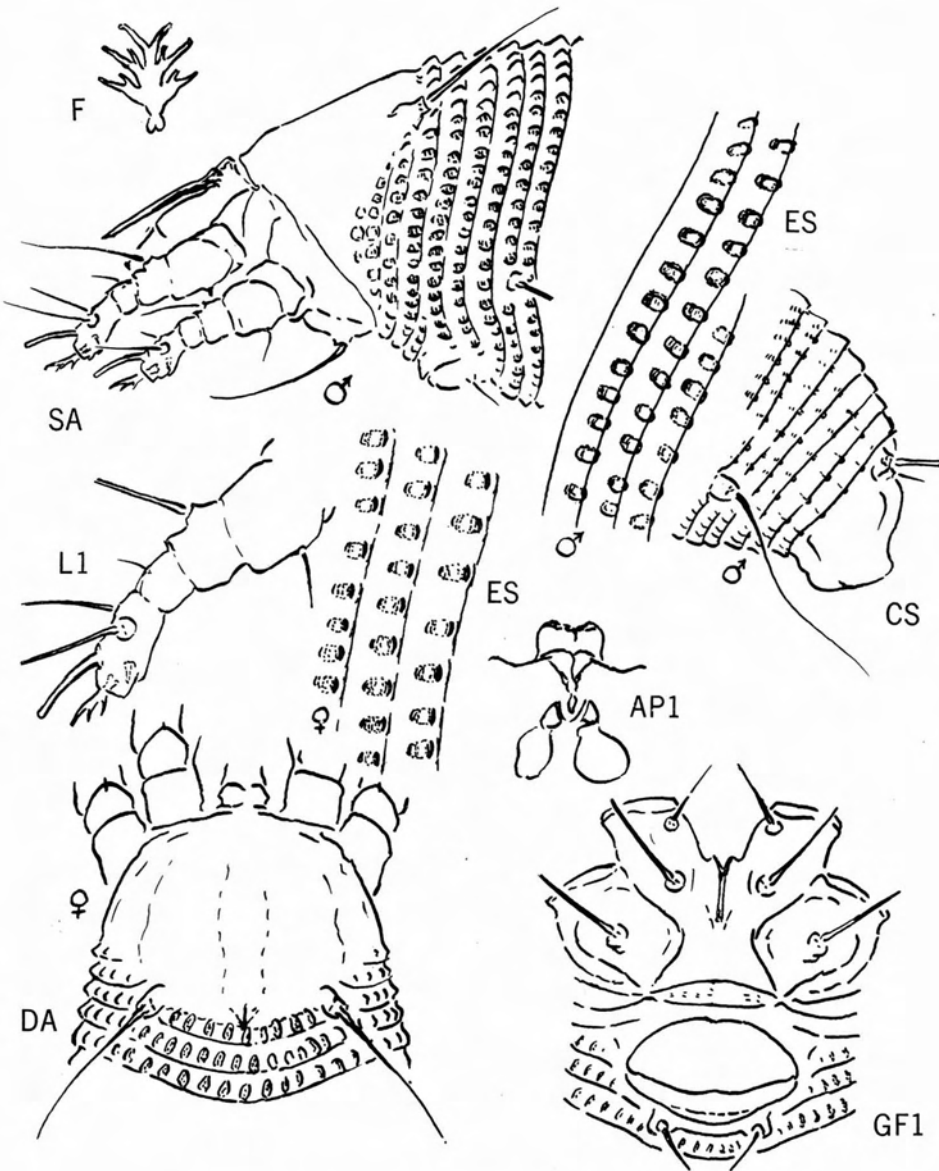


Plate 4 - *Eriophyes dinus* Styer and Keifer, new species

W. E. Styer works in the Department of Entomology, Ohio Agricultural Research and Development Center, Wooster, Ohio. He has published the descriptions of several new eriophyid mites.

Aculops oresterae, new species

Plate - 5

The galls of oresterae are irregular globular, being from 2mm to 8mm in diameter, often severely deforming the leaves. They are covered with white pile and cavernous inside. These galls protrude from the underside of the leaves. The host of oresterae is a low growing willow, found at 8-11000 feet elevation in the Sierra Nevada mountains. The new species is a member of the Aculops tetanothrix (Nal.) complex, but the general type of gall formed by this complex of mites is a bead-like gall that is about 3mm in diameter, protrudes from both leaf surfaces, has the opening on the underside, and internally has rigid partitions. Oresterae differs from the general run of the tetanothrix type by having a fine shield network of lines composed of granules or short dashes. It resembles Aculops niphocladae K., and is distinct from that species by having the microtubercles touching ring margins.

Reference to tetanothrix - Nalepa, Sitz.Akad.Wiss.Wien 89:145, 1889
 Ref. to niphocladae - Keifer, Eriophyid Studies B-21:19, Cal.Dept.Agr. Nov. 23, 1966

Protogyne 190 μ -210 μ long, 72 μ thick; robust-fusiform; color light yellowish-white. Gnathosome 27 μ long, downcurved; antapical seta 5 μ long. Shield 40 μ long by 56 μ wide, rather subtriangular in dorsal view with short anterior lobe over gnathosome base. Shield design a network of fine lines composed of granules and short dashes. Median shield line present on rear 2/3 of shield. Admedian lines complete, curving back from sides of center of anterior lobe and meeting cross line from first submedian at 1/4, continuing to rear 1/3 and meeting a second cross line and then curving to rear 4/5 and forking in front of rear shield margin. First submedian line present beside admedian on front 1/4, obscure beyond that. Second submedian lateral to first anteriorly, meeting cross line at 1/4, curving back and meeting cross line at 1/2 and turning laterally in front of dorsal tubercle. Laterally the shield with longitudinal line and granular area above coxae. Dorsal shield tubercles on rear shield margin, 29 μ apart; dorsal setae 36 μ long, somewhat diverging to rear. Foreleg from trochanter base 35 μ long; tibia 9 μ long, with 8 μ seta from 1/4; tarsus 7.5 μ long; claw 7.5 μ long; featherclaw 4-rayed. Hindleg 33 μ long, tibia 7 μ long, tarsus 8 μ long, claw 8.5 μ long. Forecoxae separated centrally by moderately strong sternal line, slightly forked at rear. Coxae generally ornamented with granules in more or less curved lines. First setiferous coxal tubercles behind anterior coxal approximation and farther apart than second; second coxal tubercles somewhat ahead of line across third tubercles. Abdominal thanosome with about 65 nearly equal rings dorsoventrally, the tergites less in number than the sternites; a sternal count - 67. Microtubercles moderately prominent, resting on rear ring margins and acuminate. Lateral seta 22 μ long, on ring 8 behind shield; first ventral seta 35 μ long, on ring 23; second ventral seta 19 μ long, on ring 47. Abdominal telosome with 5 rings; microtubercles fine, on margins, longer ventrally; telosomal seta 20 μ long. Accessory seta 3 μ long. Female genitalia 19 μ long by 25 μ wide; coverflap basally with four heavy transverse lines, followed by about 14 longitudinal ribs; internal apodeme elongate anteriorly; genital seta 13 μ long.

Deutogyne 170 μ -180 μ long; dorsal microtubercles generally faint.

Male 185 μ -196 μ long; microtubercles as on protogyne.

Type locality: Near Winnemucca Lake, Alpine County, Cal.

Collected: August 13, 1977 by H. K. Wagnon.

Host: Salix orestera C. K. Schneid. (Salicaceae) a prostrate willow.

Relation to host: The mites make irregular globular cavernous galls protruding from the leaf underside.

Type material: An envelope with dry leaves, galls and mites, with above data.

Type and five paratype slides bear this data.

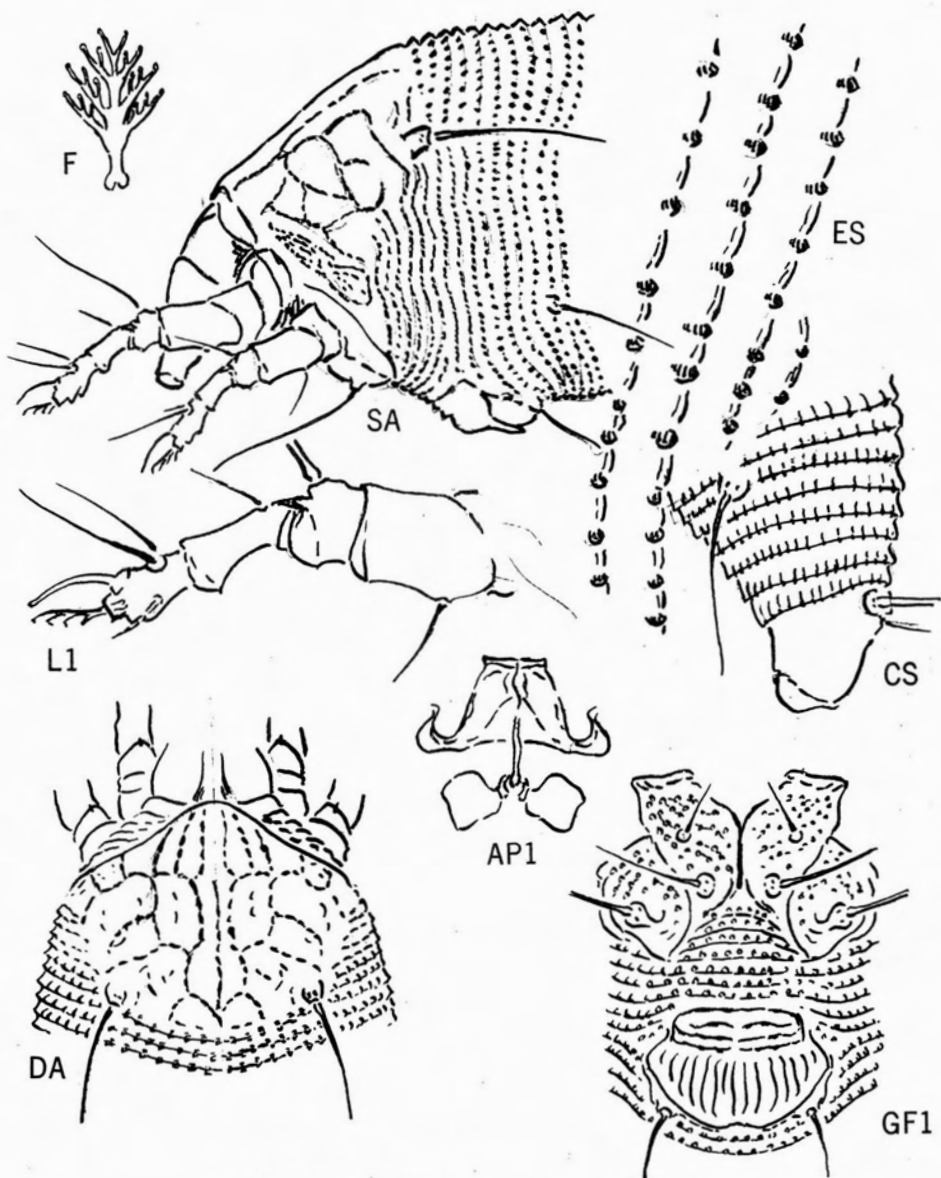


Plate 5 - *Aculops oresterae*, new species

Thacra, new genus

The type species, *Thacra piperasia*, would go into *Tegolophus* but the lateral thanosomal seta is missing. In addition the large lower internal tarsal seta is a most unusual feature. The genus name is *Th* from Thailand, and *acra* as an emendation of *acarus*.

Narrow fusiform species with large anterior propodosomal shield lobe overhanging gnathosome. Oral stylet in gnathosome of short type. Dorsal shield tubercles on rear margin, directing setae to rear. Legs with usual segments and setae except inner lower tarsal seta extra large. Sternal line present between forecoxae. Abdominal thanosome divided into broad tergites and narrow sternites. Lateral thanosomal seta missing; first and second ventral setae present. Abdominal telosome with broad rings. Female genital anterior apodeme broad.

Type species as follows:

Thacra piperasia, new species

Plate 6

Female 150 μ -160 μ long, 47 μ thick; color light yellowish. Anterior shield lobe thick, anterior point emarginate apically in dorsal view. Median shield line broken, present only in center and toward rear margin. Admedian lines from central emargination, curving out and giving off lateral line at anterior lobe base; from there curving back to nearly 1/2 and arching out around central elliptical 'cell'; at rear of cell forking, one branch meeting median line between dorsal tubercles, the outer fork curving back to rear margin. Laterally the shield with two strong longitudinal lines above coxae, extending to rear shield angle. A few partial sternites under rear shield angle. Dorsal tubercles 25 μ apart, directing 8 μ setae straight back. Foreleg from trochanter base 33 μ long; tibia 4 μ long, with 2.5 μ seta at about 1/3; tarsus 4 μ long; claw 6 μ long; featherclaw 4-5 rayed. Hindleg 31 μ long, tibia 3 μ long, tarsus 3.5 μ long, claw 6 μ long. Sternal line extending back to between second tubercles, slightly forked anteriorly; coxae relatively unornamented. First setiferous coxal tubercles slightly ahead of anterior sternal fork and further apart than second tubercles. Second tubercles ahead of level of third tubercles. Abdominal thanosome with 15 broad tergites lacking microtubercles. About 44 sternites, the microtubercles anteriorly small and ahead of rear sternal margins; toward rear of thanosome the microtubercles on sternites becoming longer, more linear, and forming small spinules on margins. Lateral seta missing. First ventral seta 41 μ long, on sternite 15; second ventral seta 5.5 μ long, on sternite 27. Abdominal telosome with 5 rings, moderately broad. Microtubercles present only ventrally and then elongate and forming spinules on rear margins; telosomal seta 10 μ long. Accessory seta absent. Female genitalia 12 μ long by 18 μ wide; coverflap with about 4 transverse curved lines and about 10 longitudinal ribs; seta 10 μ long.

Male 130 μ -140 μ long.

Type locality: Bangkhen, Thailand.

Collected: Oct. 15, 1976 by L. C. Knorr and sent under #T504.

Host: *Piper* sp. (Piperaceae, Piperales) pepper.

Relation to host: The mites are undersurface leaf vagrants and do no damage that has been noted.

Type material: Dry leaves with sparse number of dry mites.

Two slides with above data, one labelled type.

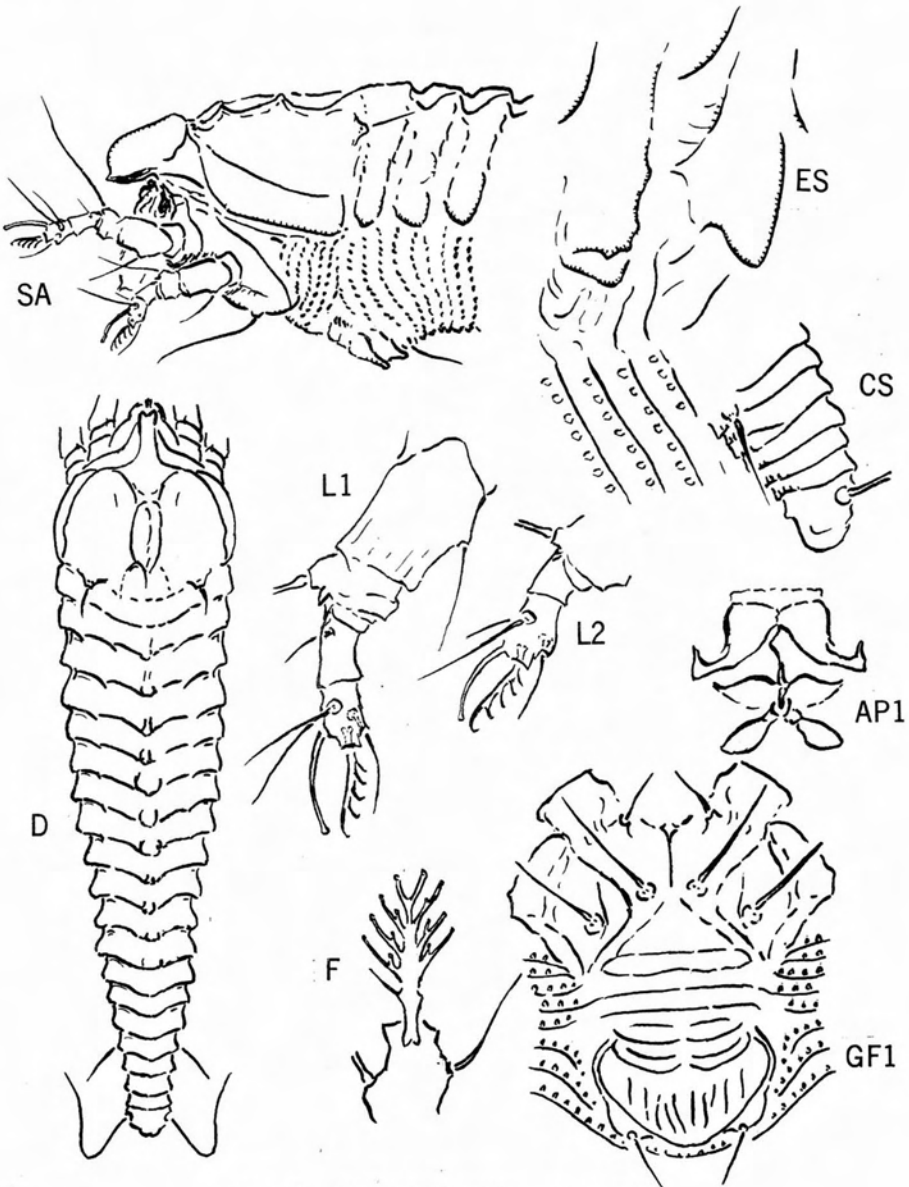


Plate 6 - *Thacra piperasia*, new species

Tegolophus bangkokensis, new species

Plate 7

The genus Tegolophus has dorsal setae pointing to the rear and the middorsal ridge is as long as the subdorsal ridge. The various species in this genus display a variety of ring widths, from those with wide tergites and narrow sternites to those which have narrow tergites and show hardly any increase in sternite number. The present new species belongs to the latter group but it is not very close to any of the named species. Named species with these features have featherclaws with 4 or 5 rays, whereas the present new species has a 6-7 featherclaw, with the greater number of rays on the outer side.

Female 140 μ -160 μ long, 38 μ wide, 36 μ thick. Body generally elongate-fusiform. Color in life probably light yellowish-white. Rostrum 23 μ long, downcurved; antapical seta 3.5 μ long. Shield 32 μ long by 30 μ wide, acuminate toward front with sharp short anterior lobe. Median line almost complete, broken and weak anteriorly. Admedian lines complete from sides of anterior lobe, extending almost straight back, subparallel to median, with side branch at 4/5 and thence converging to meet at about rear margin. First submedian complete from just lateral to admedian, broken, slightly diverging and ending just on inside of dorsal tubercle. Second submedian as a small branch from first just ahead of dorsal tubercle. Third submedian from side of second near front margin and ending at rear shield margin lateral to dorsal tubercle. A lateral shield line and some granules above coxae; 3-4 partial rings below dorsal tubercle. Dorsal tubercles 18 μ apart, on rear shield margin and directing 18 μ long dorsal setae divergently to rear. Foreleg 28 μ long; tibia 7 μ long, with 7 μ seta from 1/4; tarsus 6 μ long; claw 6.5 μ long; featherclaw 6-7 rayed, with greater number on outside. Hindleg 26 μ long, tibia 5 μ long, tarsus 6 μ long, claw 7.5 μ long. Sternal line thin and reaching second coxal tubercles. First setiferous coxal tubercles slightly behind anterior end of sternal line and farther apart than seconds; second coxal tubercles a little ahead of level of third tubercles. Coxae with few lines. Abdominal thanosome with about 45 rings, narrow, completely microtuberculate. Microtubercles rounded, on ring margins. Dorsal thanosomal ridge and subdorsal longitudinal furrow weak, the furrow visible from a few rings to rear of shield to several rings ahead of telosome. Lateral seta 18 μ long, on ring 6 behind shield; first ventral seta 40 μ long, on ring 15; second ventral seta 16 μ long, on ring 28. Abdominal telosome with 5 rings. Microtubercles small and projecting from ring margins as numerous tiny points. Telosomal seta 18 μ long. Female genitalia 13 μ long by 20 μ wide; coverflap with 2 cross lines basally and with 18-20 long ribs; seta 17 μ long.

Male 130 μ -150 μ long.

Type locality: Bangkok, Thailand.

Collected: February 27, 1977 by L. C. Knorr and sent under # T514c.

Host: Gigantochloa liquolata Gamble (Bambusae, Graminae, Glumiflorae)
a lumber bamboo.

Relation to host: The mites live in upper surface blade grooves, mostly near blade base.

Type material: Four slides with the above data and a type designated.
Dry leaf bases with dead mites from which the slides
were made.

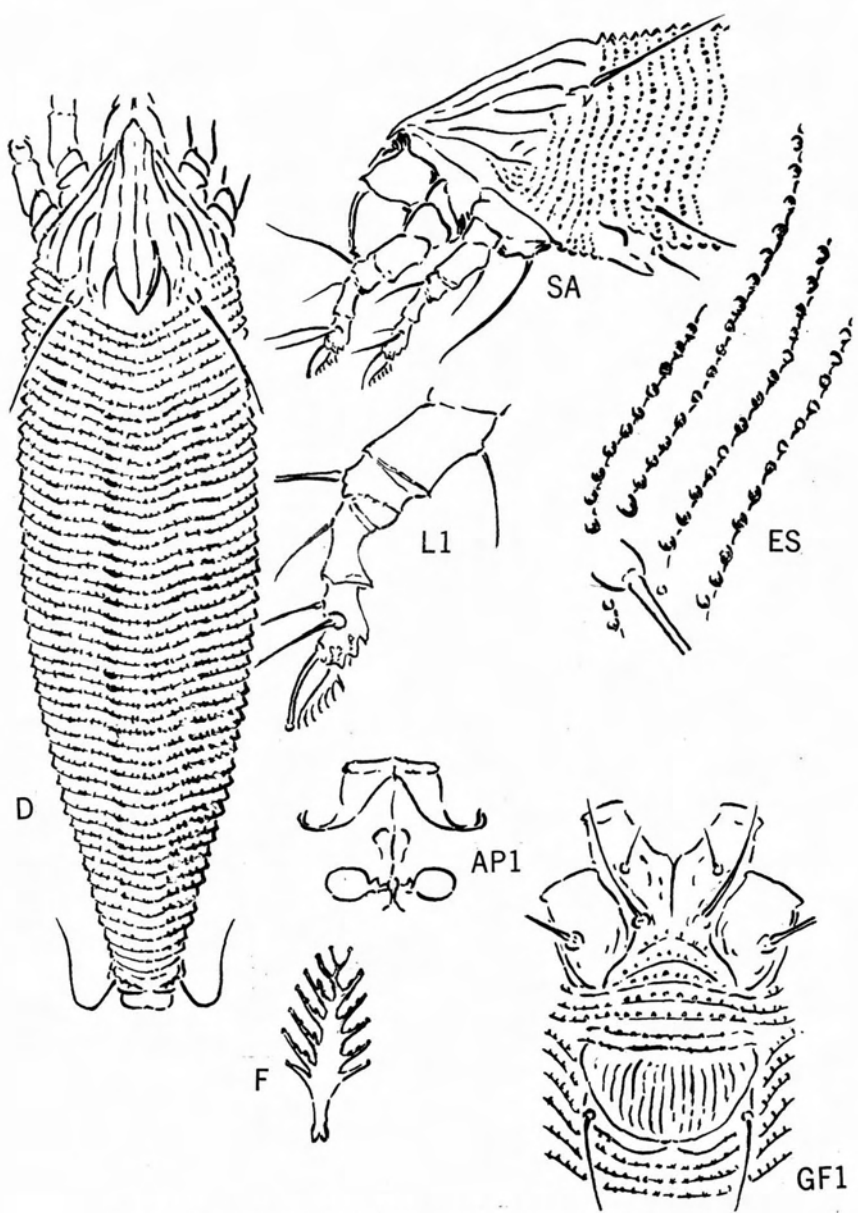


Plate 7 - *Tegolophus bangkokensis*, new species

Acaphyllisa, new genus

This new genus differs from Acaphylla by the possession of the first setiferous coxal tubercle on the forecoxae. The genotype of Acaphylla is steinwedeni K., considered by some to be the same as the orange tea rust mite, theae, of Watt and Mann. Whether or not steinwedeni, which lives on camellia in California and elsewhere will transfer to tea, and vice versa, remains to be tested.

Additional species of rust mites referable to Acaphyllisa are: distasa (K.), indiae (K.), and possibly acromius (Nal.).

The genus name is from Acaphylla plus a modification of isos, meaning like. References to these names are below.

Generic description: Gnathosome with short formoral stylet. Propodosomal shield with lobe over gnathosome base; shield setiferous tubercles at about 2/3. Forecoxae with first setiferous tubercles. Legs with all usual setae; featherclaw divided. Abdomen with all usual setae; divided along lateral line into broader tergites and narrow sternites. Tergites with central longitudinal ridge, fading to rear. Female genital apodeme extended forward a short distance, terminally narrow; spermathecae on short tubes.

Type of genus Acaphyllisa parindiae.

Acaphyllisa parindiae, new species

Plate - 8

The new species differs from indiae by the much simpler shield pattern, by the apically positioned foretibial seta, and by lacking granulations along basal coverflap lines.

Female length from anterior end of shield lobe to terminal lobes 138 μ -145 μ , 68 μ wide (shield), 35 μ thick. Body flattened-fusiform with tapering abdomen. Color in life probably light yellow. Gnathosome 20 μ long, projecting down; antapical seta minute. Shield 53 μ long by 68 μ wide, anterior half subsemicircular in dorsal view. Anterior lobe with irregular front; shield design obscure except for admedian lines which are essentially complete, short recurving sections, meeting cross lines at 1/4 and 2/3. Coarse granules below rear lateral angle of shield. Foreleg from trochanter base 25 μ long; tibia 5 μ long with seta at outer edge; tarsus 5 μ long; claw 4 μ long, knobbed; featherclaw with about 3 rays on a side. Hindleg 24 μ long, tibia 4 μ long, tarsus 5 μ long, claw 4.5 μ long. Sternal line of moderate length, ending between second coxal tubercles. First setiferous coxal tubercles set on anterior edge of forecoxae and well ahead of anterior end of sternal line fork, farther apart than second tubercles. Second coxal tubercles somewhat ahead of level of third tubercles. Abdominal gnathosome with about 10 tergites, moderately broad, lacking microtubercles. About 45 narrow sternites, with microtubercles as fine granules set ahead of rear sternal margins anteriorly, becoming longer to rear, reaching to and pointed over rear sternal margins to rear on gnathosome. Lateral seta 13 μ long, on about sternite 6. First ventral seta 26 μ long, on sternite 10. Second ventral seta 10 μ long, on sternite 28. Abdominal telosome with five tergites and five sternites; ventral microtubercles long, absent above. Telosomal seta 15 μ long. No accessory seta. Female genitalia 13 μ long by 21 μ wide; coverflap with longitudinal ribs in 2 ranks, about 14 in basal rank with granules; apical ribs 12 to 14 in number and lacking granules. Genital seta 7 μ long.

Male 120 μ -130 μ long.

Type locality: Cinchona district near Coimbatore, Southern India.

Collected: November 1977.

Host: Thea chinensis L. (Theaceae; Parietales) tea.

Relation to host: the mites are rust mites on the leaves.

Type material: Four slides with above data, one labelled type.

Vial with above data and mites in sugar-water alcohol.

References: Acaphylla, Eriophyid Studies XIII, Bul. Cal. Dept. Agr.

XXXIII(3):214, Oct. 14, 1943. On camellia in California.

-acromius (Nal.) (Epitrimerus) - Zoologica p. 275, (1910) 1911.

Host: Betula verrucosa Ehrh. in Europe.

-distasa (Keifer), ES B-4:6, Cal. Bur. Ent., Dec. 4, 1961.

Host: Betula populifolia Marsh. in Maine.

-indiae (K.), ES XXII, Bul. Cal. Dept. Agr. XLIII(3):126, Sept. 1954.

Host: Thea chinensis L. in Northern India.

-theae (Watt & Mann), Pests and Blights of Tea Plant, 1903,
(Nalepa lists this name as nude in Marcellia 25:133, 1929.

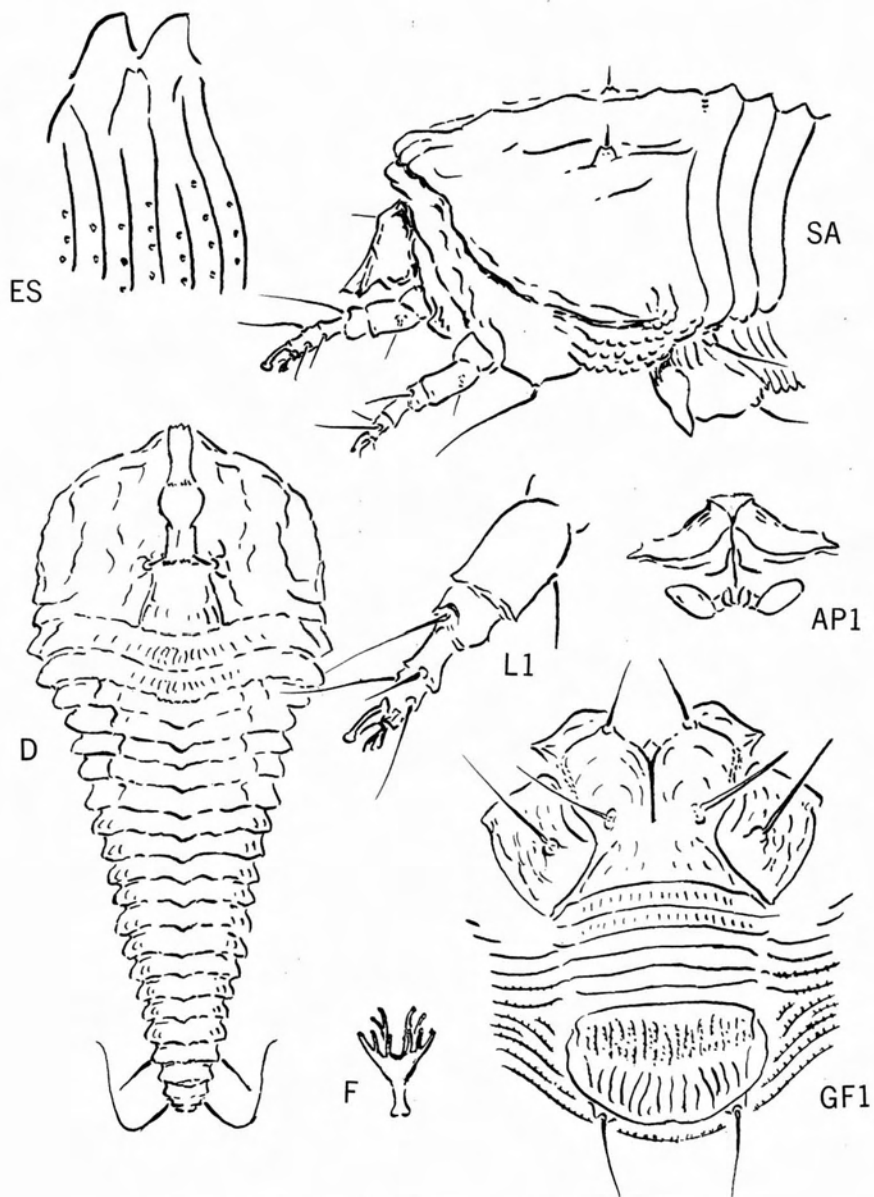


Plate 8 - *Acaphyllisa parindiae*, new species

Circaces, new genus

The genotype of Circaces would fit into Paraphytoptus except for the genital structures. The genital structures place the genotype in the Cecidophyinae. In Jeppson et al, Mites Injurious to Economic Plants p. 571, the genotype of Circaces runs to Cosetacus, but it differs by having the thanosomal division into tergites and sternites, and by possessing the foretibial seta. Circaces has no near relatives so far described.

Wormlike species with short gnathosome and short-form oral stylet. Propodosomal shield subtriangular but lacking projection over gnathosome base. Dorsal tubercles on rear shield margin and directing dorsal seta to rear. Legs with typical segmentation and with foretibial seta. Featherclaw undivided. Coxae with three pair of setiferous tubercles; forecoxae diverging from moderately short sternal line. Abdominal thanosome with lateral, first and second ventral setae. Thanosome on both sexes variably divided anteriorly into tergites and sternites: from second ventral seta to telosome with broad tergites. Abdominal telosome with first ring often partially divided into tergite and sternite. Female genitalia appressed to coxae and with shortened internal apodeme. Female genital coverflap ribs not divided into two ranks.

Type species of genus Circaces chakrabarti.

Circaces chakrabarti, new species

Plate - 9

Female length from 132 μ to 168 μ ; 32 μ thick. Wormlike species probably light yellowish-white in life, Gnathosome 18 μ long, downcurved; antapical seta 5.5 μ long. Propodosomal shield 30 μ long by 31 μ wide; subtriangular and acuninate anteriorly. Shield lacking discernable marks or pattern. Dorsal tubercles 13 μ apart; dorsal setae 21 μ long, somewhat divergent. Foreleg 23 μ long; tibia 4.5 μ long, with 3 μ seta from about 1/3; tarsus 6 μ long; claw 6.5 μ long, downcurved; featherclaw 4-rayed. Hindleg 18 μ long, tibia 2.5 μ long, tarsus 4.5 μ long, claw 11.5 μ long. Ornamentation on coxae faint; forecoxae rather divergent from sternal line which line is of moderate length. The three coxal setiferous tubercles nearly in line, the first tubercle slightly ahead of anterior end of sternal line. Abdominal thanosome variably divided into tergites and sternites along lateral line: abdominal rings to lateral seta either even dorsoventrally or with 4 tergites and about 6 sternites; to first ventral seta 8 to 12 tergites to 13 sternites; to second ventral seta about 11 tergites to 16 sternites; beyond second ventral seta about 11 tergites to 19 sternites. Total tergites varying from 34 to over 40 and sternites to 54 or more. Microtubercles on sternites elongate-beadlike; on tergites elongate anteriorly, more elongate to rear except faint or absent on last 5 or 6 tergites on thanosome. Abdominal telosome with 5 rings, the first partially divided laterally into tergite and sternite. Telosomal seta 9 μ long. Accessory seta 5 μ long. Female genitalia 10 μ long by 19 μ wide; coverflap with about 10 longitudinal ribs, curving central to rear; seta 8 μ long.

Male about 145 μ long, with thanosomal structures of female.

Type locality: Kalyani, West Bengal, India.

Collected: May 7, 1977 by S. Mondel and sent by Dr. Samiran Chakrabarti, of the University of Kalyani, a student of eriophyids for whom I name the species.

Host: Alangium saviifolium Wangerin (Alangiaceae, Myrtiflorae).

Relation to host: This species is presumably inquilin in the erineum made by Colomerus alangii K.

Type material: An envelope with erineum bearing dry leaves with mites. A type slide with above data, so marked. Six slides with above data.

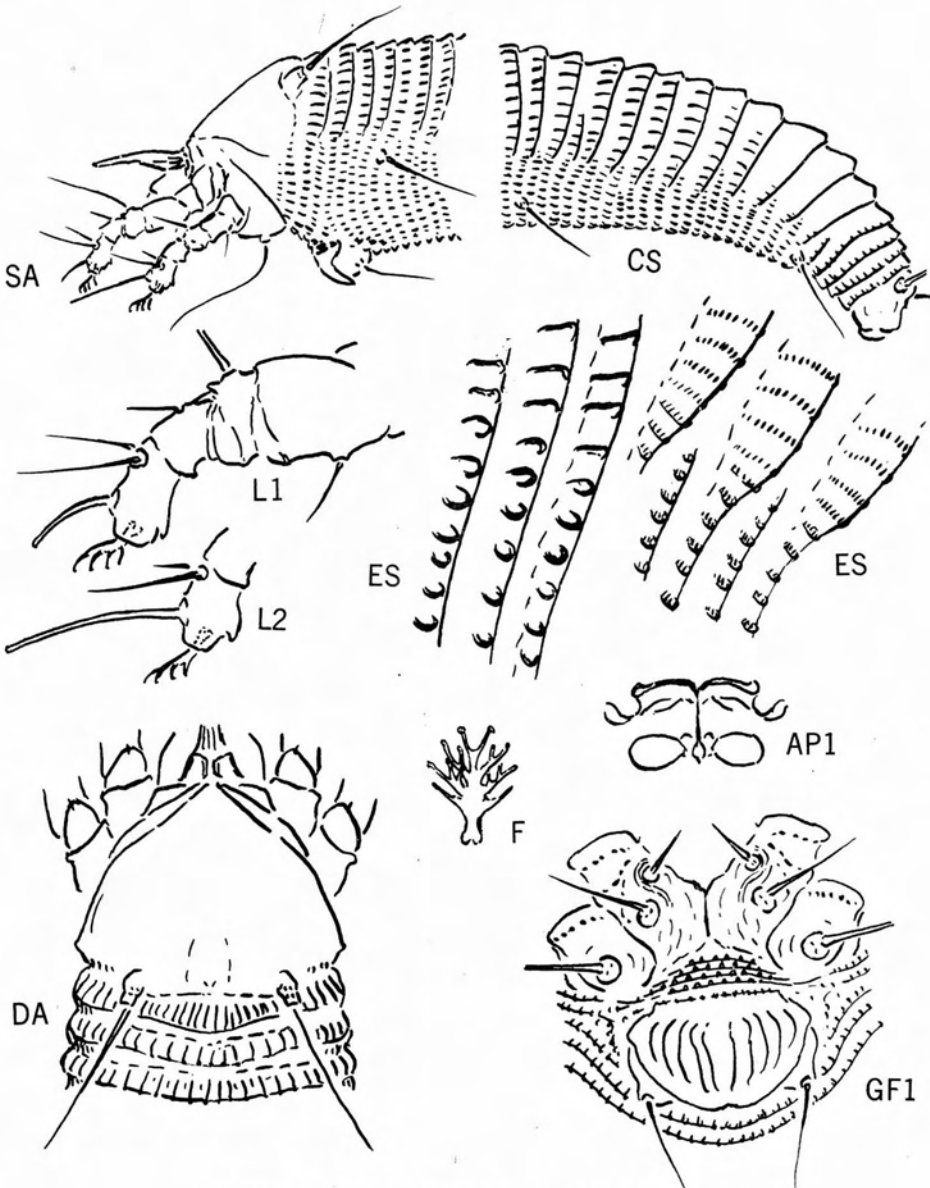


Plate 9 - *Circaces chakrabarti*, new species

Colomerus alangii, new species

Plate - 10

Colomerus alangii probably resembles C. vitis (Pgst.) most closely, both by the numerous longitudinal lines on the propodosomal shield, and also by the sternal line which is separate from the ring around the second setiferous coxal tubercles. Both species also have rather elongate microtubercles dorsally. The new species, alangii, has, in common with three of the four other species so far referable to this genus, a prominent lateral ocellar spot on the shield. All species have 5-rayed feather-claws.

Female from front edge of shield to terminal lobes 128 μ -156 μ long, 36 μ thick. Body yellowish and wormlike. Gnathosome 18 μ long, projecting down; antapical gnathosomal seta 3.5 μ long. Propodosomal shield 24 μ long by 32 μ wide; subtriangular in dorsal view, bulging laterally in area of ocellar spot. Shield design of numerous curved lines of various lengths; median line broken into several lines and discontinuous. Admedian shield lines present, partially obscure. Laterally the shield with numerous short lines and a prominent ocellar spot above coxae. Two or 3 partial rings below dorsal tubercles. Dorsal tubercles 17 μ apart, projecting up and directing 26 μ dorsal setae up and laterally. Foreleg from trochanter base 25 μ long; tibia 5 μ long, with 6 μ seta from 1/3; tarsus 5 μ long; claw 5.5 μ long, somewhat curved; featherclaw 5-rayed. Hindleg 25 μ long, tibia 3.5 μ long, tarsus 5 μ long, claw 7 μ long, downcurved. Coxae with some lines, the sternal line distinct, short, forked slightly to rear. Forecoxae with lines surrounding setae; hindcoxae not noticeably lined. First setiferous coxal tubercles slightly nearer to each other than second, and ahead of anterior end of sternal line fork. Third setiferous coxal tubercles well behind second and almost in line with first and second. Abdominal thanosome with about 49 rings; completely microtuberculate, anteriorly the microtubercles more elongate dorsally and touching ring margins, below partly ahead of margins, but pointed and touching margins to rear. Dorsally to rear the microtubercles becoming weaker but pointing over ring margins. Lateral setae 17 μ long on ring 12 behind rear shield edge. First ventral seta 34 μ long, on ring 24; second ventral 30 μ long, on ring 40. Abdominal telosome with 6 rings; completely microtuberculate, the microtubercles resting on ring margins and thinly extended ahead, more elongate below; telosomal seta 16 μ long. No accessory seta. Female genitalia 10 μ long by 19 μ wide; coverflap with about 14 ribs, weakly divided into two ranks. Genital seta 10 μ long.

Male about 120 μ long. Male shield with fewer longitudinal lines.

Type locality: Kalyani, West Bengal, India.

Collected: May 7, 1977 by S. Mondel and sent by Dr. Samiran Chakrabarti of the University of Kalyani.

Host: Alangium saviifolium Wangerin (Alangiaceae, Myrtifoliae).

Relation to host: The mites make moderate-sized areas of erineum on the underside of the leaves, the erineal hairs stiff and branched. The erineum patches bulge out onto the upper leaf surfaces.

Type material: An envelope with dry leaves with the above data. Type slide with the above data and so designated. Four additional slides.

Note: The mites on the slides are both Colomerus alangii and Circaces chakrabarti.

Reference for Colomerus vitis: description - Eriophyid Studies XIV, Bul. Cal. Dept. Agr. XXXIII(1):21, and figure p.33 of same number, 1943.

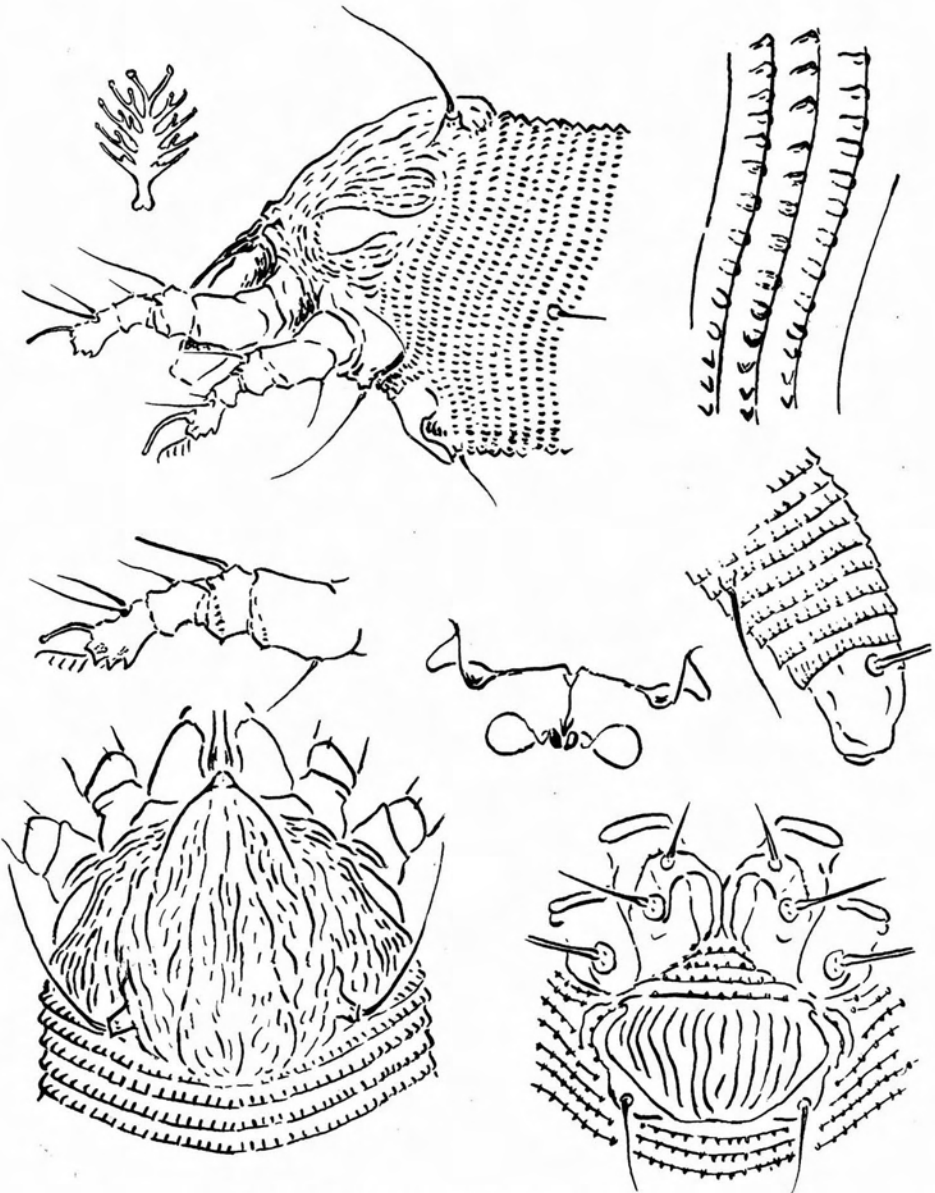


Plate 10 - *Colomerus alangii*, new species

Calacarus alocasiae, new species

Plate - 11

Calacarus brionesae K. 1963 is the nearest species to alocasiae. The new species differs most from brionesae on the anterior part of the shield pattern where the admedian lines behind the transverse line across the base of the anterior lobe are farther apart and diverge from there more than on brionesae. The sternal line on the new species is shorter and the coverflap ribs are perhaps stronger. The hosts of the two species are quite unrelated.

Ref. to brionesae, Eriophyid Studies B-9:11, Bur.Ent.Cal. Feb.20, 1963.

A robust purple species with five longitudinal lines of white wax; female length from anterior shield lobe 148 μ -165 μ ; thickness about 58 μ . Gnathosome 34 μ long, downcurved; antapical seta 7 μ long. Shield 50 μ long by 50 μ wide. Shield design of curved lines: median line present only on anterior lobe. Admedian lines from sides of anterior lobe to cross line at lobe base; from there curving out gently to just past 1/3, then re-curving strongly toward center and out again, meeting cross line at about 1/2; from 2/3 arching out and back to rear margin, with short perpendicular dashes mostly on outer side; at rear margin acutely recurving outwardly and meeting remnant of dorsal tubercle to side. Submedian lines present as dashes. Laterally the shield with line of 4 partially closed cells, below which are longitudinal lines and some partial rings at rear shield angle. Foreleg from trochanter base 33 μ long; tibia 9 μ long, with 6 μ seta from 1/3; tarsus 7 μ long; claw 7 μ long, knobbed; featherclaw 4-rayed. Hindleg 30 μ long, tibia 6 μ long, tarsus 6.5 μ long, claw 7.5 μ long, with knob. Sternal line between forecoxae short, not reaching back to between second tubercles. Coxae generally ornamented with short curved lines. First setiferous coxal tubercles farther apart than second and slightly ahead of anterior end of sternal line; second tubercles ahead of line across third tubercles. Abdominal thanosome with about 56 tergites and 71 sternites; microtubercles fine, on sternal margins, faint or absent on tergites. Thanosomal ridges thickened for wax production. Lateral seta 22 μ long, on sternite 8 behind shield; first ventral seta 41 μ long, on sternite 23; second ventral seta 21 μ long, on sternite 49. Abdominal telosome with 8 rings, the microtubercles fine on margins; seta 21 μ long. Accessory seta absent. Female genitalia 18 μ long by 26 μ wide; coverflap basally with transverse area of fine short longitudinal dashes; apically the coverflap with about 12 obscure ribs; genital seta 11 μ long.

Male 140 μ long.

Type locality: Bangkok, Thailand.

Collected: May 17, 1977, by L. C. Knorr, and sent under #T568a.

Host: Alocasia sp. (Araceae - Spathiflorae), a monocot.

Relation to host: The mites are underside leaf rusters.

Type material: Dry leaves showing damage in envelope with above data.

Four slides from this material, one designated type.

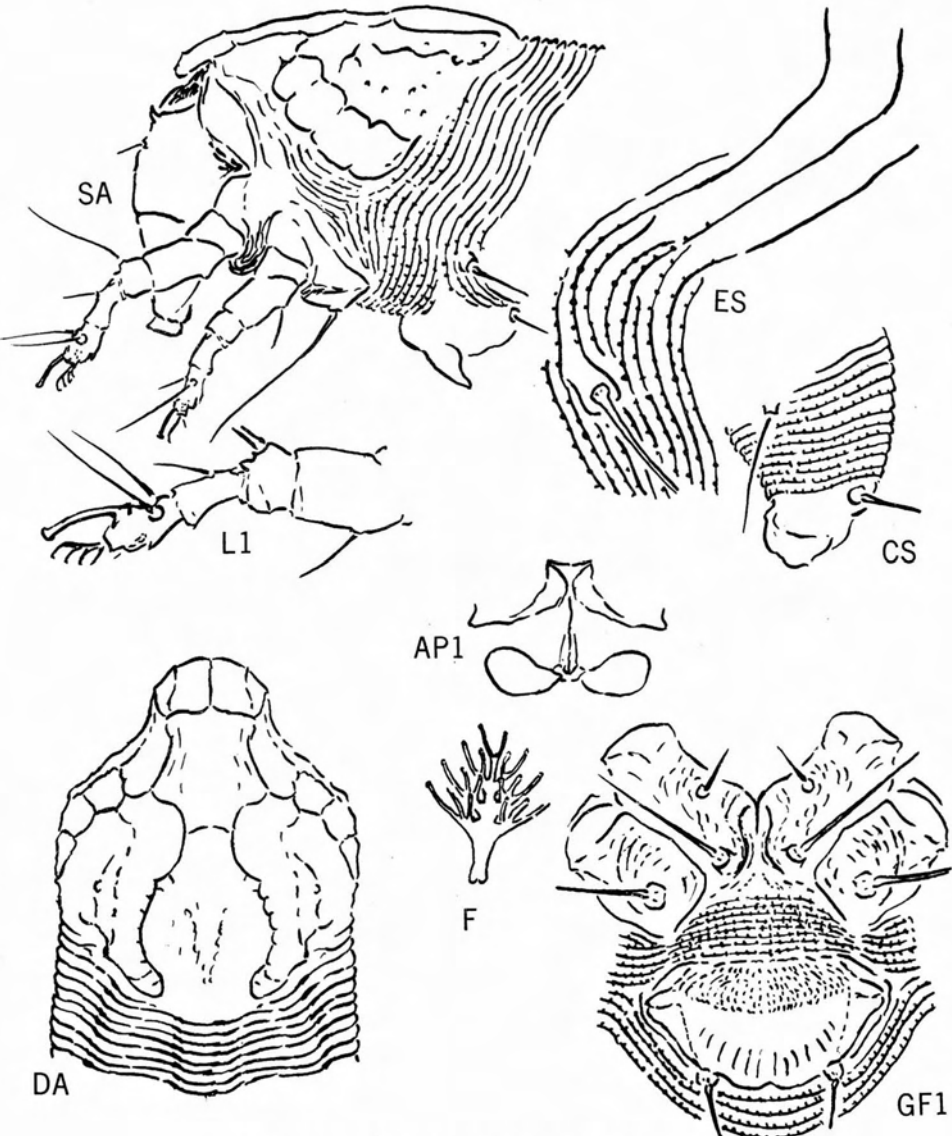


Plate 11 - *Calacarus alocasiae*, new species

Cosella cissi, new species

Plate 12

The differences between cissi and Cosella fleschneri (K.) are that fleschneri has longer microtubercles but lacks the curved lines just ahead of the rear margin female genital coverflap.

References -

Cosella - Mites Injurious to Economic Plants, Jeppson, L. R.; Keifer, H. H.; Baker, E. W., University of California Press p. 570, 1975

fleschneri - Eriophyid Studies XXVIII, Occasional Papers #2, p.12, 1960.

Female from front of shield to terminal lobes 155 μ -170 μ long, 50 μ thick; a robust pearly-white mite. Rostrum about 18 μ long, with antapical seta minute. Shield 43 μ long by 48 μ wide and declivitous in front. Shield design a network with many short irregular lines between main lines. Anterior shield lobe very short. Median line complete except for short distance behind anterior lobe. Admedian lines complete from anterior edge of shield, with irregular curves; cross lines between median line at 1/4, about 1/2 and just before 3/4. Submedian lines irregular. Laterally the shield with concentric curved lines forming a design open anteriorly. Dorsal tubercles somewhat ahead of rear shield margin and directing dorsal setae up and to rear. Dorsal tubercles 22 μ apart; dorsal setae 9 μ long. Foreleg from trochanter base 22 μ long; tibiotarsus 13 μ long; claw 4 μ long, knobbed and projecting inwardly from side of tibiotarsus; featherclaw 4-rayed. Hindleg 19 μ long, tibiotarsus 7 μ long, claw 6.5 μ long, with knob. Anterior coxae fused across central line obliterating a sternal line; coxae with numerous pointed granules. Second setiferous coxal tubercles somewhat ahead of line across third tubercles. Abdominal thanosome with about 40 rings, subequal dorso-ventrally; microtubercles present only laterally and ventrally anteriorly but rear thanosomal rings completely microtuberculate. Lateral seta 20 μ long, on ring 4-5 behind shield; first ventral seta 18 μ long, on ring 12; second ventral 4.5 μ long, on ring 23. Telsome with 7 rings, completely microtuberculate; telosomal seta 14 μ long. Accessory seta absent. Female genitalia 12 μ long by 19 μ wide, mostly granular, with median longitudinal line and 1 or 2 curved lines on each side roughly subparallel to rear coverflap margin. Genital seta 6 μ long.

Male 100 μ -120 μ long.

Type locality: Bangkok (Bangkok), Thailand.

Collected: September 7, 1976, by Dr. L. C. Knorr and sent under #T467.

Host: Cissus trifoliata L. (Vitaceae, Rhamnales) a vine.

Relation to host: The pearly-white mites live on leaf undersides and possibly cause slight rusting.

Type material: An envelope with dry leaves and mites.
Ten slides with above data, one designated type.

Corrections for: Mites Injurious to Economic Plants, Jeppson, L. R. et al, University of California Press, 1975

p. 347 - top paragraph, Diptilomiopus is correct spelling.

p. 395 - Mani, M. S. does not belong in Felt's reference.

p. 480 - under d. in Figure, substitute T. carinatus for T. scolocenus.

p. 570 - in key to genera of Cecidophyinae, second part of couplet 1.

This second part leads to couplet 8.

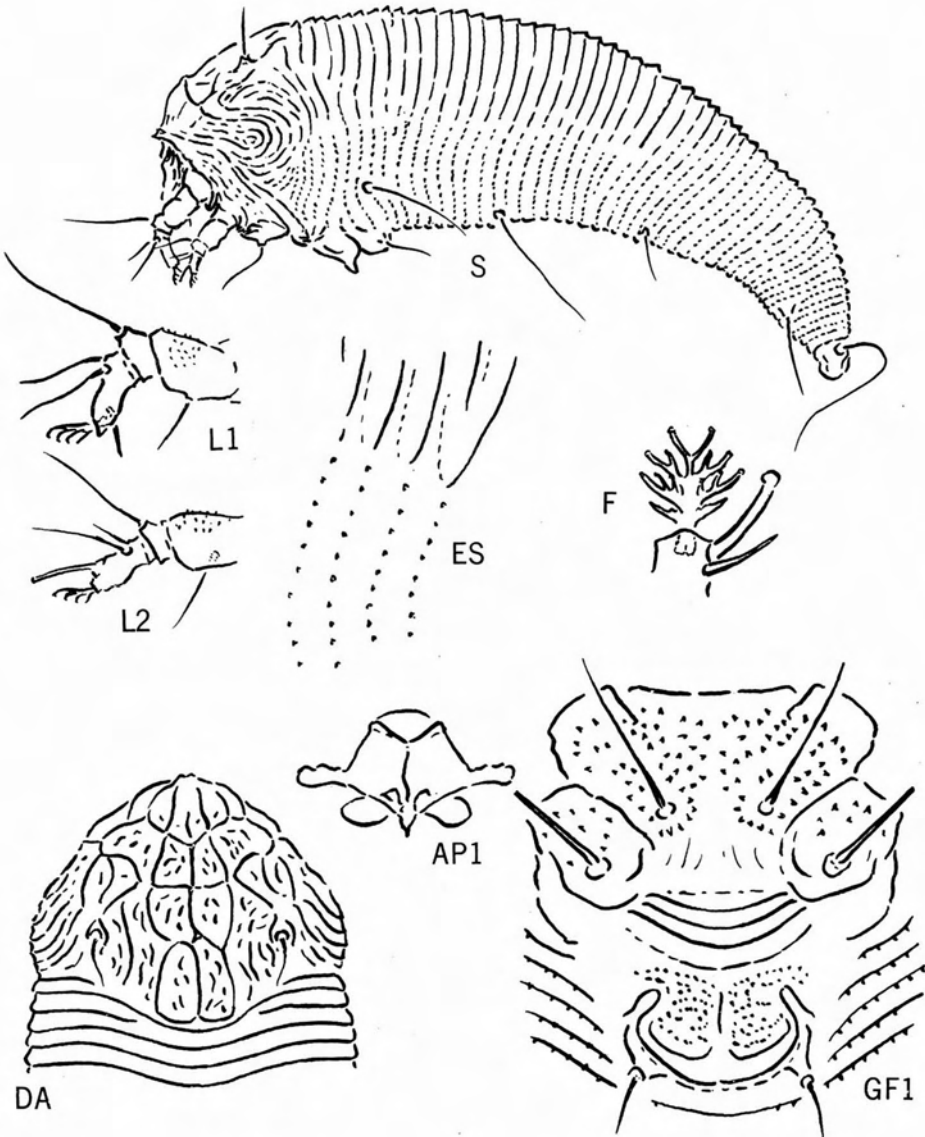


Plate 12 - *Cosella cissi*, new species