

ERIOPHYID STUDIES C-14

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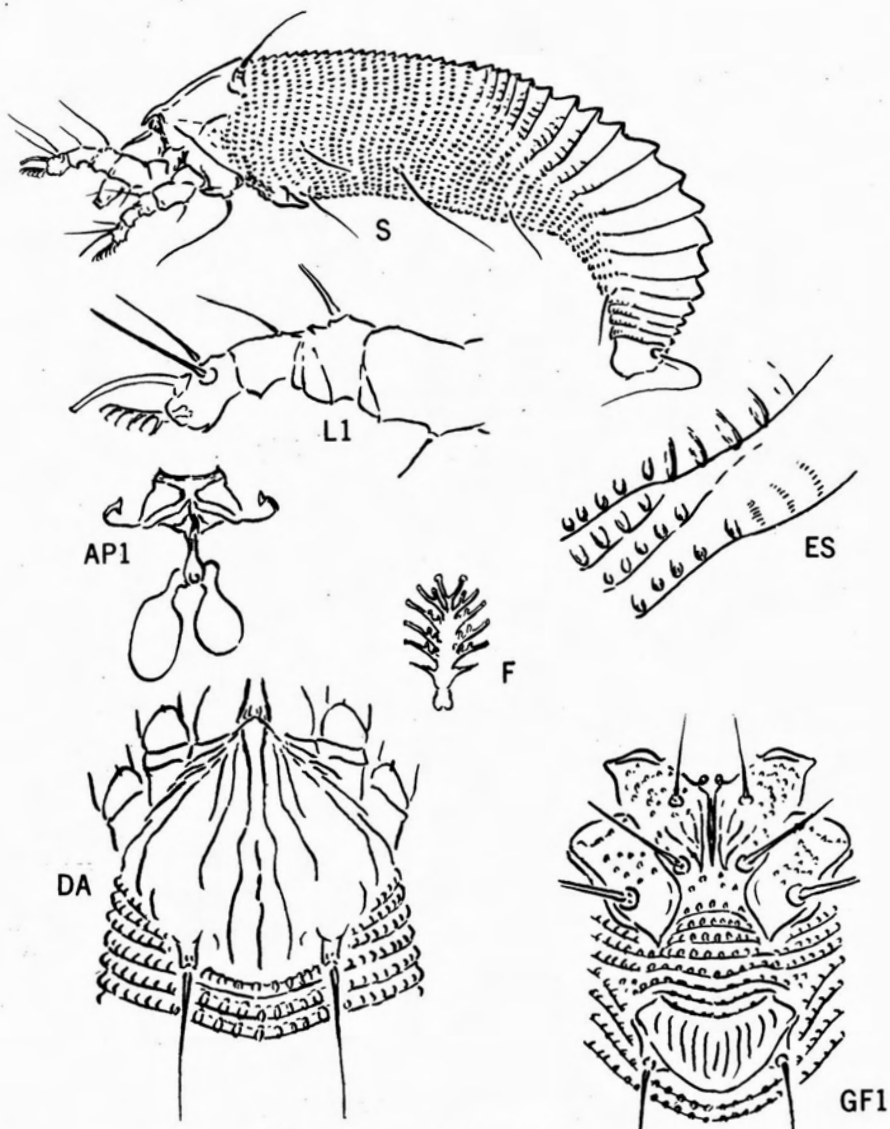


Plate 1 - *Eriophyes binarius*, new species

Plate 1

All males of this species have typical Eriophyes configuration, but part of the females have the Paraphytoptus form. Among the females there are all intergrades between the two forms. The proper selection of a genus for the species rests therefore on an interpretation of the meaning of the two types of females present and the intergrades. The opinion adopted for this species is that the variation in female form represents one aspect of deuteroecy and therefore the correct genus name to use is Eriophyes, with Paraphytoptus left intact.

The extreme Paraphytoptus form of this species is the one used in the delineations. The anterior end of the body in all cases is identical.

References -

- Eriophyes von Siebold, Jahresb. Schles. Ges. 28:89, 1851
Eriophyes von S., Mites Injurious to Economic Plants, Jeppson, L. R. et al, Univ. of California Press p. 574, 1975
Paraphytoptus Nalepa, Anz. Akad. Wiss. Wien 33:55, 1896
Paraphytoptus Nal., Mites Injurious to Economic Plants, Jeppson, L. R. et al, Univ. of Cal. Press p. 575, 1975

Female with broad rear tergites on thanosome 124-140 μ long, 30 μ thick; body color light yellowish-white; body mainly wormlike, rear section strongly downcurved. Rostrum 20 μ long, projecting down; antapical seta 5 μ long. Shield 25 μ long by 24 μ wide; anteriorly subtriangular, with small, thin projection over rostrum base. Shield pattern of lines: median line present on about rear half of shield. Admedian lines extending back from anterior shield lobe, close on anterior half but somewhat diverging and sinuate on rear half. Two submedian lines, the first extending back from side of anterior lobe to about 3/4 in front of dorsal tubercle, the second subparallel to it and ending at 1/2. Laterally the shield with more or less obscure lines and about three partial rings below dorsal tubercle. Dorsal tubercles about 12 μ apart, on rear margin; dorsal setae 21 μ long, projecting back or up. Foreleg from trochanter base 23 μ long; tibia 5 μ long, with 7 μ seta from 1/3-1/2; tarsus 5 μ long; claw 7 μ long; featherclaw 6-rayed. Hindleg 22 μ long, tibia 4 μ long, tarsus 4 μ long, claw 8 μ long. Coxae with strong sternal line, ending between second coxal tubercles. Coxae somewhat ornamented with granules and lines. First setiferous coxal tubercles slightly farther back than anterior end of sternal line, and farther apart than second tubercles. Second tubercles ahead of level of third tubercles. Abdominal thanosome with rear third curved down. About 33 rings present to second ventral seta, and ventrally 13 more, totalling 46. Dorsally the broader tergites are 9 in number (intergrades have more narrow tergites). Microtubercles elliptical, mostly rounded, few with slight point; on broader tergites the microtubercles absent, or if present then elongate. Lateral seta 12 μ long, on ring 7 behind shield; first ventral seta 47 μ long, on ring 20; second ventral seta 12 μ long, on ring 33 (at start of broader tergites). Telosome with 5 rings, microtuberculate below; seta 13 μ long. Accessory seta 3 μ long. Female genitalia 10 μ long by 16 μ wide; about 12 longitudinal ribs and 3 basal cross lines on coverflap; seta 16 μ long.

Wormlike female 140-180 μ long; legs tending to be longer than on shorter female. Thanosome with up to 57 rings, the dorsal microtubercles tending to be somewhat elongate. Female coverflap with 12 to 14 ribs.

Male 130-140 μ long, with only narrow rings on thanosome.

Type locality: Bangkhen (Bangkok), Thailand.

Collected: December 1, 1976 by Dr. L. C. Knorr and sent under #T531.

Host: Peltophorum pterocarpum Backer (Leguminosae, Caesalpinionodeae).

Relation to host: The mites longitudinally roll entire leaflet series and cause thickening to develop in the rolls.

Type material: An envelope containing dry leaflets and mites.

Six slides, one designated type, with the above data, from which the slides were made.

Copies of the 'C' Series are obtainable from -

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Eriophyes annui, new species

Plate 2

The rather unique feature of this pepper erineum mite is the lateral branch of the admedian line at just beyond 1/3 which curves backward from the second submedian line and runs into the admedian which then continues to the rear shield margin. On annui the forecoxae are almost fused across the center line, leaving a weak sternal line between the two coxae.

Female length from anterior shield lobe 156 μ -181 μ ; thickness 32 μ -35 μ . Body wormlike with rather declivitous shield; color in life probably light yellowish-white. Rostrum 16 μ long, projecting down; antapical seta 3 μ long. Shield subtriangular with sides straight or slightly concave, slight anterior lobe over rostrum base. Median line visible only toward rear. Admedian lines complete from sides of anterior lobe to rear shield margin, sinuate, receiving a curved line from second submedian line at just before 1/2, which continues to rear. First submedian line present only on rear 1/2, outwardly convex and ending at rear margin. Second submedian line present on rear 2/3 of shield, extending back from lateral line to rear and ending in front of dorsal tubercle. Two or three lateral lines above coxae and 3 or 4 partial rings below dorsal tubercle. Dorsal tubercles 15 μ apart; dorsal setae 20 μ long, extending divergently to rear. Foreleg from trochanter base 26 μ long; tibia 4 μ long with 5.5 μ seta at 1/2; tarsus 8 μ long; claw 4.5 μ long; feather-claw 6-rayed. Hindleg 24 μ long, tibia 3 μ long, tarsus 6 μ long, claw 7.5 μ long; featherclaw 5-rayed. Anterior coxae almost fused with weak sternal line between. Coxal surfaces generally set with scattered granules; first setiferous coxal tubercles moved ahead to near front edge of forecoxae; second coxal tubercles about as far apart as first and well ahead of line across third setiferous tubercles. Abdominal thanosome with about 54 rings, completely microtuberculate. Dorsal and lateral microtubercles slightly elongate, those on lower sides and ventrally more bead-like and tending to be ahead of margins for most of thanosome. Microtubercles half way between second ventral seta and telosome becoming smaller and more numerous on margins, more elongate ventrally. Lateral seta 15 μ long, on ring 7-8; first ventral seta 31 μ long, on ring 18; second ventral seta 38 μ long, on ring 35. Abdominal telosome with 7 rings, the microtubercles similar to those on adjacent thanosome rings and quite fine on margins; laterally and dorsally the microtubercles not visibly extended anteriorly from margins, but elongate ventrally. Telosomal seta 16 μ long. Accessory seta 2.5 μ long. Female genitalia 10 μ long by 16 μ wide; about 8-10 longitudinal ribs on coverflap and about 2 cross lines of tubercles on base of coverflap. Genital seta 11 μ long. Male 150 μ -175 μ long.

Type locality: Guarne, Antioqua, Colombia, Elevation 2,150 meters.
Collected: March 18, 1977 by E. J. Urueta S., of the office of the
Secretaria de Agricultura Y Fomento.

Host: Capsicum annuum L. (Solanaceae, Tubiflorae) Cayenne pepper.

Relation to host: the mites make erineum on buds, stems, and leaves.
On leaves the erineum starts on embryonic leaves.

Type material: Four slides with the above data and one designated type.
The other three slides paratypes.
There is also a vial with leaves and mites in liquid
from which the slides were made.

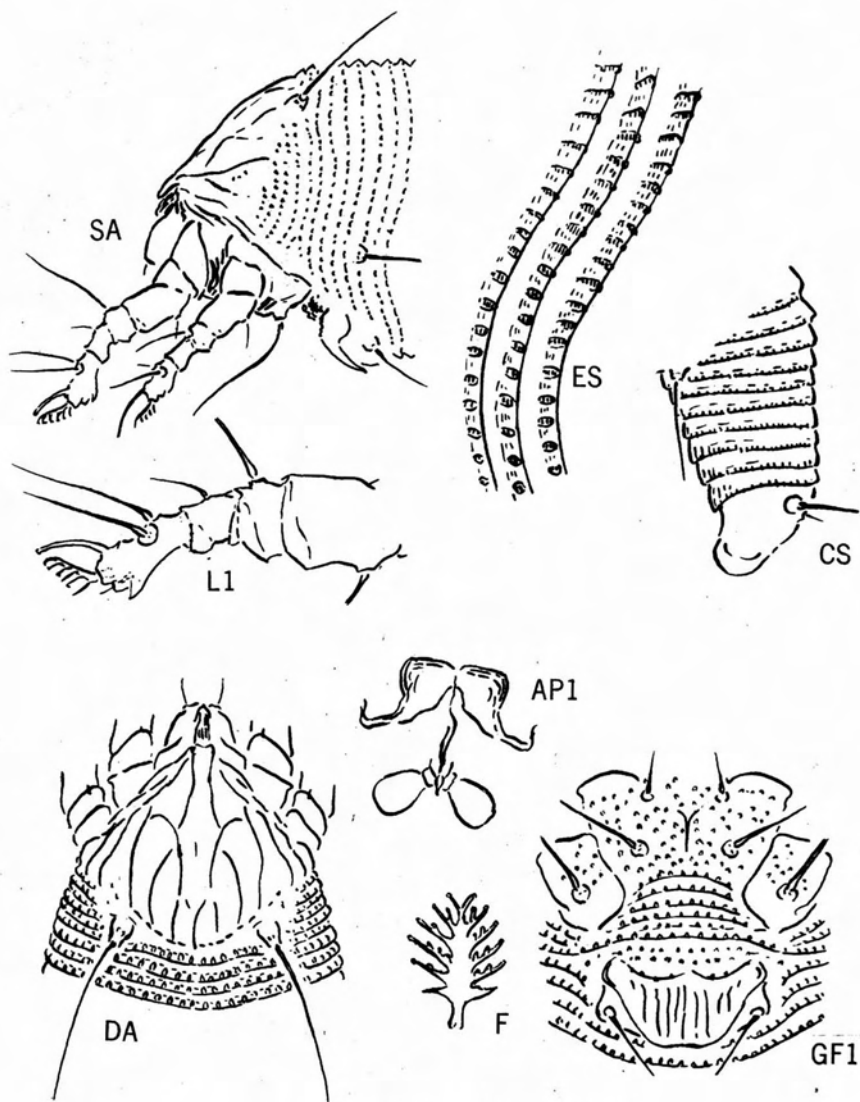


Plate 2 - *Eriophyes annui*, new species

Acalitus rapanae, new species

Plate 3

Acalitus gilae K. is perhaps the closest species to rapanae. The new species differs from gilae by having fewer longitudinal lines in the center of the shield and less acuminate microtubercles. Both species have extensive lateral granular areas on the shield, and both have the accessory setae on the rear lobes.

Ref. to gilae - Eriophyid Studies C-4, USDA, Oct. 30, 1970

Female from anterior point on shield to terminal lobes 13 μ -180 μ long, 25 μ -30 μ thick; a slender species, light yellowish-white in color, worm-like. Rostrum 14 μ long, curved down anteriorly; antapical seta not seen. Shield 21 μ long by 23 μ wide, five central longitudinal lines with subdorsal areas and sides of shield heavily granular. Median shield line on rear 2/3. Admedian lines complete, subparallel, close together anteriorly, somewhat separated on rear 2/3 of shield, recurving before rear margin and ending in lines of granulations. First submedian line present, subparallel to admedian and ending in granules in front of dorsal tubercle. Lateral rear angle of shield with ocellar-like spot, somewhat bulging, with heavy granules. Dorsal tubercles 13 μ apart on rear margin and directing 24 μ long dorsal setae divergently to rear. Foreleg from trochanter base 23 μ long, tibia 4 μ long, tarsus 5 μ long, claw 6 μ long, featherclaw 5-rayed. Hindleg 20 μ long, tibia 3.5 μ long, tarsus 4 μ long, claw 7 μ long. Coxae generally covered with granules. Anterior coxae almost fused, sternal line not evident, a central longitudinal line of granules forking to rear. First setiferous coxal tubercles near anterior end of first coxa; second tubercles almost in line with third and first tubercles. Abdominal thanosome with about 65 rings, nearly even dorsoventrally; completely microtuberculate, the microtubercles rounded or slightly acuminate ventrally. Lateral seta 14 μ long, on ring 8 behind shield; first ventral seta 32 μ long, on ring 23; second ventral seta 19 μ long, on ring 41. Abdominal telosome with 7 rings; microtubercles somewhat elongate, moreso ventrally, set ahead of ring margins. Telosomal seta 14 μ long. Accessory seta 3 μ long. Female genitalia 9 μ long by 14 μ wide; coverflap granular, the granules moderately heavy and somewhat elongate near rear margin. Genital seta 6 μ long.

Male 115 μ -125 μ long.

Type locality: Chihuahua, Mexico.

Intercepted at El Paso, Texas, January 4, 1977 by C. Bejarano and R. Eads.

Host: Rapana sp. (Myrsinaceae, Primulales).

Relation to host: The mites make small bead galls on the underside of the leaf.

Type material: Dry leaves with the above data and bearing the USDA #77-3110;
Three slides with above data and with type designated.

Designations on Plates -

API - Internal female genital structures
CS - Lateral view of caudal section GF1 - Female genitalia and coxae
D - Dorsal diagram of mite L1 - Left anterior leg
DA - Dorsal view of anterior section L2 - Left second leg
ES - Lateral epidermal structures S - Side diagram of mite
F - Empodium or featherclaw SA - Anterior side view of mite
Telosome - caudal abdominal section beginning with third ventral seta
Thanosome - abdomen from rear shield margin to telosome

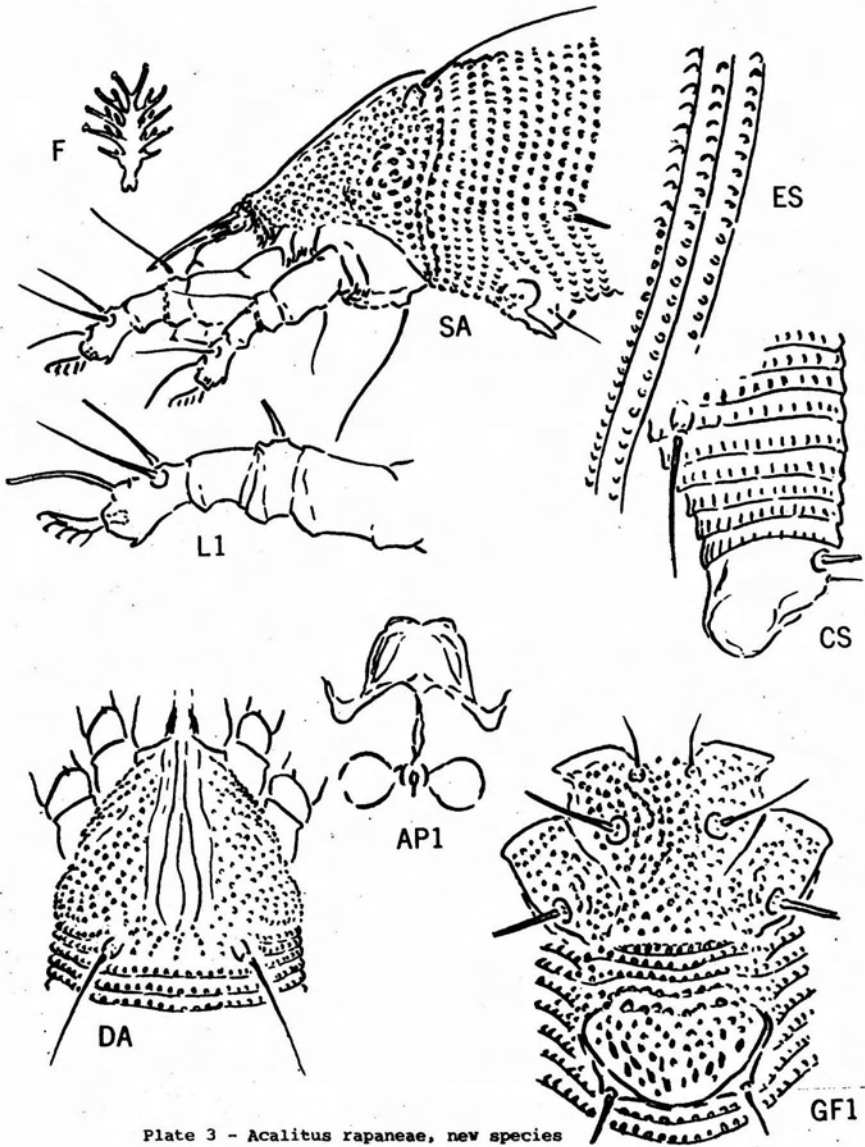


Plate 3 - *Acalitus rapanae*, new species

Acalitus ipomocarneae, new species

Plate 4

A species of *Acalitus*, described from Trinidad seven years ago, is closely allied to *ipomocarneae*. This related species is *A. adoratus* K., on *Eupatorium adoratum*. (See Eriophyid Studies C-4, p. 3-4, Oct. 30, 1970). The new species differs from *adoratus* as follows: median and admedian shield lines more definite toward rear; lateral granular shield area smaller; spines on undersides of femora and patella weaker; forecoxae not as closely united across midline and with weak sternal line present.

Female 170 μ -195 μ long, about 40 μ thick, wormlike and light yellowish white in color. Rostrum 20 μ long, curved down; antapical seta very small. Shield subsemicircular in anterior outline, heavily ornamented with numerous longitudinal lines, mostly short, the lines extending down onto lateral area above granular area above coxae. Median and admedian lines discernable, complete, submedian lines obscured. Shield length 20 μ , width 28 μ . Dorsal tubercles 16 μ apart, on rear margin and directing 26 μ setae divergently to rear. Foreleg from trochanter base about 28 μ long, with a ventral spine near apex of femur and a spine on underside of patella; tibia 4.5 μ long, tarsus 7 μ long, claw 6 μ long, featherclaw 4-rayed. Hindleg also with a spine each on femur and patella, tibia 3 μ long, tarsus 6 μ long, claw 9 μ long. Coxae generally irrorated with granules; forecoxae with weak sternal line between, slightly divided to rear. First setiferous coxal tubercles small and with small setae, behind level of anterior forecoxal approximation; second setiferous tubercles far ahead of line through third coxal tubercles and almost in a line from first to third tubercles. Abdominal telosome with about 60 rings, completely microtuberculate, the lateral and dorsal microtubercles somewhat elongate, especially dorsally, and slightly acuminate; ventrally the microtubercles rounder, mostly ahead of rear ring margins, becoming longer ventrally to rear and projecting over margins as small spines. Lateral seta 15 μ long, on ring 8 behind shield; first ventral seta 53 μ long, on ring 21; second ventral seta 36 μ long, on ring 36. Abdominal telosome with five rings; microtubercles mostly as beads on ring margins, with fine anterior elongations, stronger ventrally. Telosomal seta 16 μ long, stiff. Accessory seta about 2 μ long. Female genitalia 16 μ long by 18 μ wide; coverflap heavily granular and with one or two submarginal concentric rings. Genital seta 8 μ long.

Male about 150 μ -165 μ long.

Type locality: Barquisimeto, State of Lara, Venezuela.

Collected: March 23, 1977 by Ernesto Doreste S. of the Facultad de Agronomia, Universidad Central de Venezuela.

Host: *Ipomoea carnea* Jacq. (Convolvulaceae, Tubiflorae) known locally as "Campenuela".

Relation to host: The mites make irregular bead galls or somewhat elongate galls that project from the upper leaf surface in large numbers. The galls are hairy both inside and out.

Type material: Three dry leaves with numerous galls and mites from the type locality.

Four slides with above data, one designated as type.

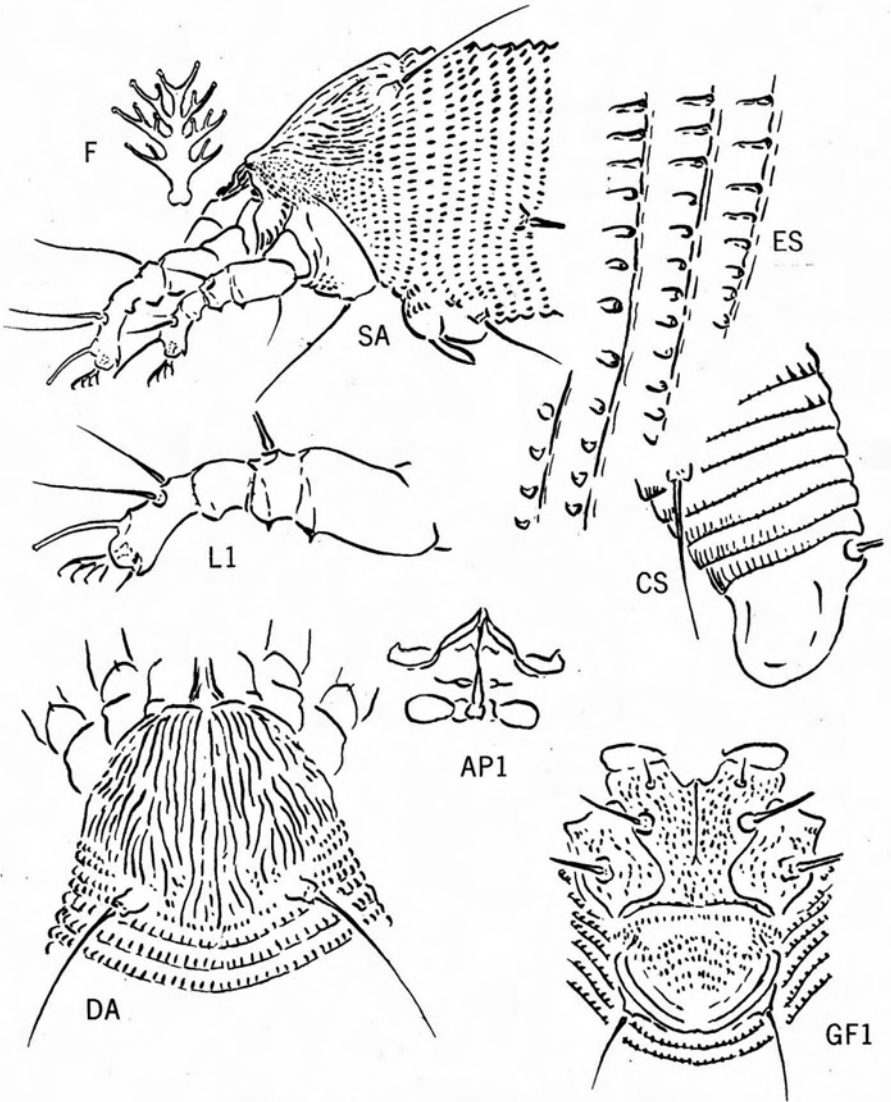


Plate 4 - *Acalitus ipomocarneae*, new species

Aculops atypta Hall and Keifer, new species

Plate 5

The bead gall inquillin described under the name *atypta* differs from other *Aculops* with 4-rayed featherclaws by having a shield bearing numerous granules and small humps, and with the usual shield lines obscure.

Female 175 μ -185 μ long, about 48 μ thick; wormlike and whitish-yellow. Rostrum 26 μ long, curved down; antapical seta 5 μ long. Shield 33 μ long by 41 μ wide; subsemicircular in dorsal view but with short acuminate anterior lobe over rostrum. Shield with anterior lobe and area immediately behind it devoid of granules. Median shield line absent. Admedial lines of short dashes and granules, beginning well apart back of base of anterior lobe, diverging to rear margin where they converge somewhat. Laterally the shield granular, a lateral line of short dashed well above coxae and below it a band of granules. Four or 5 partial rings below dorsal tubercle. Dorsal tubercles 20 μ apart, on rear margin and directing 34 μ long dorsal setae divergently to rear. Foreleg from trochanter base 30 μ long; tibia 7.5 μ long, with 5 μ seta at 1/4 or 1/5; tarsus 6.5 μ long; claw 7 μ long, with slight knob; featherclaw 4-rayed. Hindleg 28 μ long, tibia 6 μ long, tarsus 6 μ long, claw 7 μ long. Coxae generally ornamented with granules; sternal line rather long, ending forked between second tubercles. First setiferous coxal tubercles farther apart than second and behind anterior coxal approximation. Second coxal tubercles not far ahead of level of third tubercles. Abdominal thanosome with about 55 rings and very little dorsoventral difference in ring number. Microtubercles generally touching ring margins, smaller below, coarser dorsally, rounded off. Lateral seta 12 μ long, on ring 9 behind shield; first ventral thanosomal seta 32 μ long, on ring 21; second ventral seta 16 μ long, on ring 36. Abdominal telosome with 6 rings; generally microtuberculate, the microtubercles longer ventrally. Telosomal seta 17 μ long. Accessory seta 3 μ -4 μ long. Female genitalia 14 μ long by 20 μ wide; coverflap with about 10 irregular ribs and basally with three cross lines of granules. Genital seta 22 μ long.

Male 175 μ long.

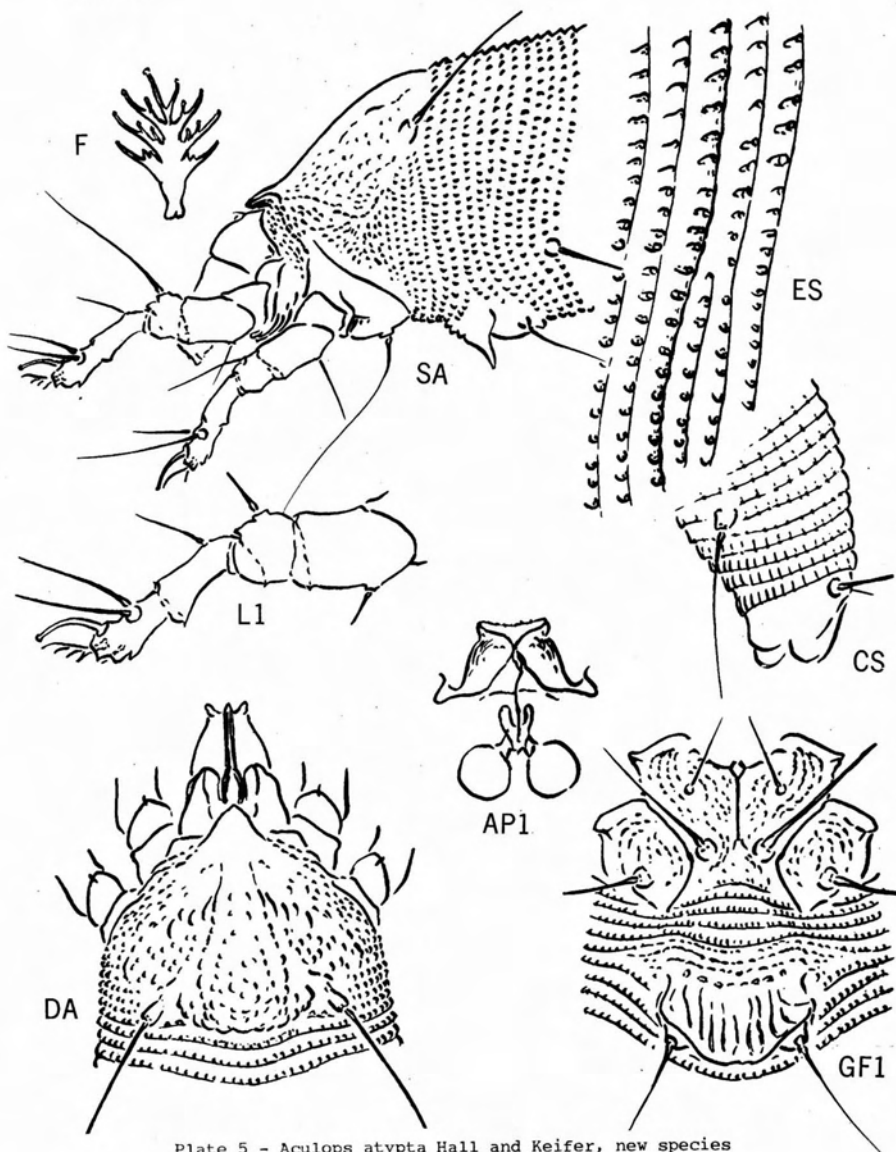
Type locality: Cheboygan County, Michigan.

Collected: June 30, 1967 by Dr. C. C. Hall and numbered M-18.

Host: *Salix* sp. (Salicaceae - Salicales) willow.

Relation to host: The mites are inquillin in hairy bead galls on the leaves, the galls made by one of the *Aculops tetranothrix* complex.

Type material: An envelope with dry leaves and galls;
five designated slides of type material, one designated as type.

Plate 5 - *Aculops atypta* Hall and Keifer, new species

Dr. C. C. Hall is professor of Acarology at the University of Texas at Arlington, Texas. He has been interested in the Eriophyoidea and published the Eriophyoidea of Kansas in the University of Kansas Science Bulletin 47(9):601-675, Oct. 1967.

Phyllocoptruta arga Styer and Keifer, new species

Plate 6

The abdominal thanosome of this mite has a broad longitudinal trough, the anterior part of which, just behind the shield, gives way to a convex area. This species of *Phyllocoptruta* is distinct in the genus by having a 3-rayed featherclaw and by the rather stiff dorsal setae, which end slightly enlarged.

Female 125 μ -140 μ long, about 50 μ wide and 40 μ thick. Rostrum 19 μ long; antapical seta not seen. Shield 48 μ long by 50 μ wide, subtriangular in dorsal view with sides bulging and upper part of anterior lobe laterally concave above, and ending in an acute blunt point; this lobe with transverse creases below. Median shield line obscure. Admedian lines close to each other, undulating, extending back centrally and ending between dorsal tubercles. Rear central part of shield emarginate, with geminate enclosed areas. Dorsal tubercles 14 μ apart; dorsal setae 12 μ -14 μ long, stiff, slightly enlarged end. Foreleg from trochanter base 25 μ long; tibia 3.5 μ long, with 4 μ seta from 2/3; tarsus 6 μ long; claw 3.5 μ long; featherclaw 3-rayed. Hindleg 23 μ long, tibia 3 μ long, tarsus 5.5 μ long, claw 7.5 μ long. Coxae obscurely lined; anterior coxae separate, with no contiguous sternal line. First setiferous coxal tubercles closer than second and ahead of anterior coxal approximation. Second coxal tubercles well ahead of line across third tubercles. Abdominal thanosome with about 23 tergites and 43 sternites. Broad longitudinal shallow dorsal trough, preceded for 4 or 5 tergites by raised area just behind shield, the trough ending just before telosome. Some lateral indications of microtubercles laterally on tergites. Microtubercles on sternites somewhat elongate, especially caudally. Lateral seta 18 μ long, on sternite 4 behind shield; first ventral seta 22 μ long, on sternite 16; second ventral seta 6 μ long, on sternite 29. Abdominal telosome with 5 rings, microtubercles weak above but elongate below. Telosomal seta 18 μ long. Accessory seta absent. Female genitalia 14 μ long by 20 μ wide; a pair of basal areas enclosed by curved lines convex to rear; no coverflap ribs. Genital seta 5 μ -6 μ long.

Male 125 μ -135 μ long.

Type locality: Oak Openings Park, Toledo area, Ohio.

Collected: August 1976 by W. E. Styer.

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

Relation to host: The mites are leaf vagrants found mostly on upper side.

Type material: A vial with leaf parts and mites wrapped in tissue three slides, one designated type.

Phyllocoptruta Keifer, Bul. Cal Dept. Agr. XXVII(2):193, June 22, 1938
genotype: *oleivora* (Ashm.) (originally given as *oleivorus*)

New synonymy - *Notalox* Keifer, Eriophyid Studies B-3:4-5, May 22, 1951
genotype: *rubigator* Keifer.

The original separation of *Notalox* from *Phyllocoptruta* relied principally on the position of the dorsal tubercles, which are well ahead of the rear shield margin on *oleivora*, and touching the rear margin on *rubigator*. With the discovery of more species having dorsal troughs and that have dorsal tubercles placed in various relationships to the rear shield margin the distinctness of *Notalox* disappears.

The genus as now considered has species in the Indo-Maylasiian region, in South America, and in North America (as exemplified by *rubigator* and *arga*).

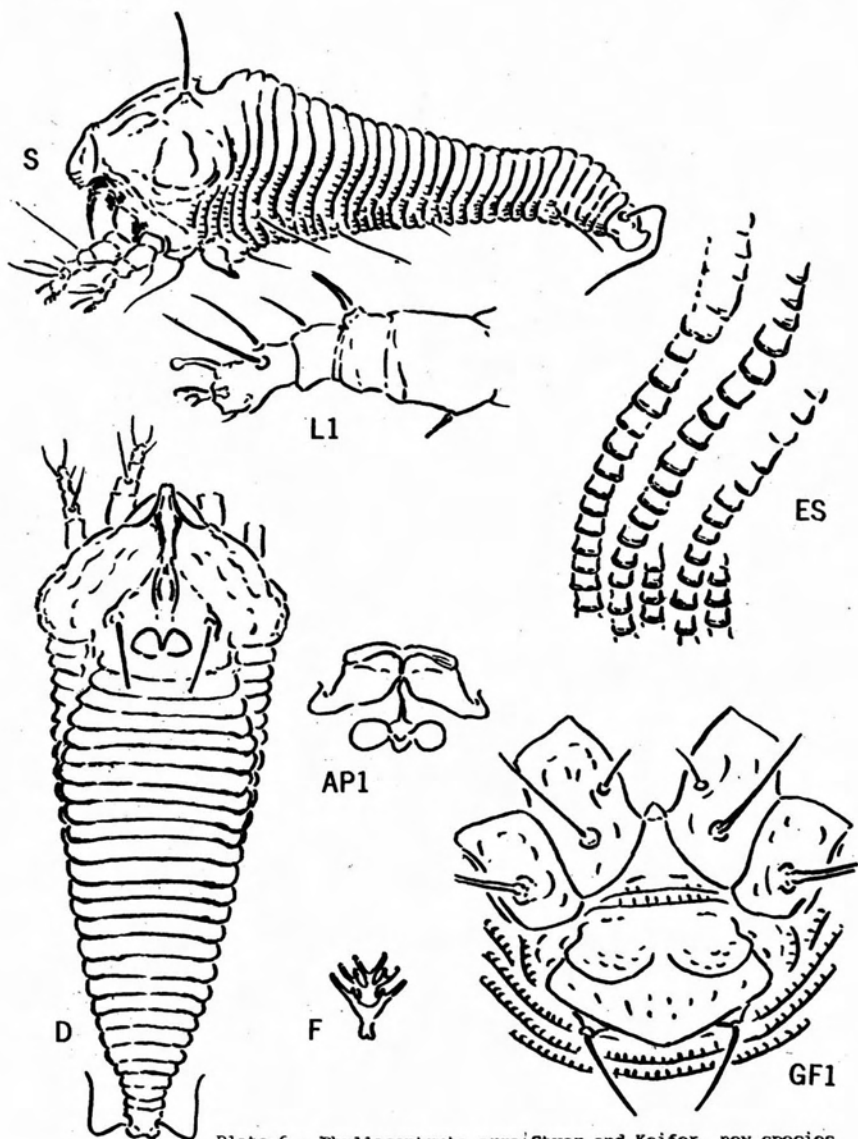


Plate 6 - *Phyllocoptruta arga* Styer and Keifer, new species

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.

Phyllocoptura morindae, new species

Plate 7

The genotype of this genus (*Oleivora* Ashm.) has dorsal tubercles situated somewhat ahead of rear shield margin and has 4-rayed featherclaws. The new species has dorsal tubercles which nearly touch the rear shield margin and the featherclaw is 5-rayed.

Female from anterior lobe of shield to terminal lobes 135 μ -145 μ long, 60 μ wide, 40 μ -45 μ thick. Body flattened-fusiform. Color dull tan. Rostrum 24 μ long, projecting down; antapical rostral seta 4 μ long. Shield 45 μ long by 50 μ wide, subtriangular in dorsal view with sides somewhat bulging. Shield design a more or less obscure network; median line absent except for Y-shaped mark at rear. Anterior shield lobe moderately blunt, with fine edge teeth and admedian lines curving back from sides. Admedians then curving out to lateral 'cells', then angling toward center and meeting cross line at 1/2. Admedians then forming suppressed S and ending on inner side of dorsal tubercles. Submedian lines partially obscure, connected to admedian at center by outward curving lateral line. Shield laterally with vertical lines forming 'cells' with lateral margin. Some lines of granules at rear angle. Dorsal tubercles close to rear margin, axes converging to front, 25 μ apart. Dorsal setae 4.5 μ long, pointing to rear. Foreleg from trochanter base 32 μ long; tibia 7 μ long, with 6 μ seta from about 1/4; tarsus 7.5 μ long; claw 7.5 μ long, slender, with slight terminal knob; featherclaws 5-rayed. Hindleg 30 μ long, tibia 7 μ long, tarsus 6.5 μ long, claw 8 μ long. Coxae ornamented with granules, most in lines. Sternal line heavy but short, between second coxal tubercles. First setiferous coxal tubercles set far ahead of level of anterior coxal approximation and farther apart than second tubercles. Second setiferous tubercles on coxae almost in line across third tubercles. Abdominal thanosome with about 35 to 39 tergites and about 58 sternites. Thanosome with broad dorsal trough from a few tergites behind shield to near telosome. Tergal microtubercles suppressed, extending slightly over tergal margins but becoming more pointed toward telosome. Sternal microtubercles pointed over ring margins, elongate to rear. Telosome with 6 rings; microtubercles fine and pointed over margins, elongate below. Telosome seta 25 μ long. Accessory seta 3 μ long. Female genitalia 12 μ long by 21 μ wide; coverflap with 3 basal transverse lines and 10-12 longitudinal ribs; seta 14 μ long.

Male 130 μ -140 μ long.

Type locality: Umpai Propagation House, Bangkok, Thailand.

Collected: April 19, 1977, by Dr. L. C. Knorr.

Host: *Morinda citrifolia* L. (Rubiaceae, Rubiales).

Relation to host: the mites are leaf vagrants or rust mites.

Type material: Dry leaves with sparse number of dry mites.
A designated type slide with above data.
Two paratype slides with above data.

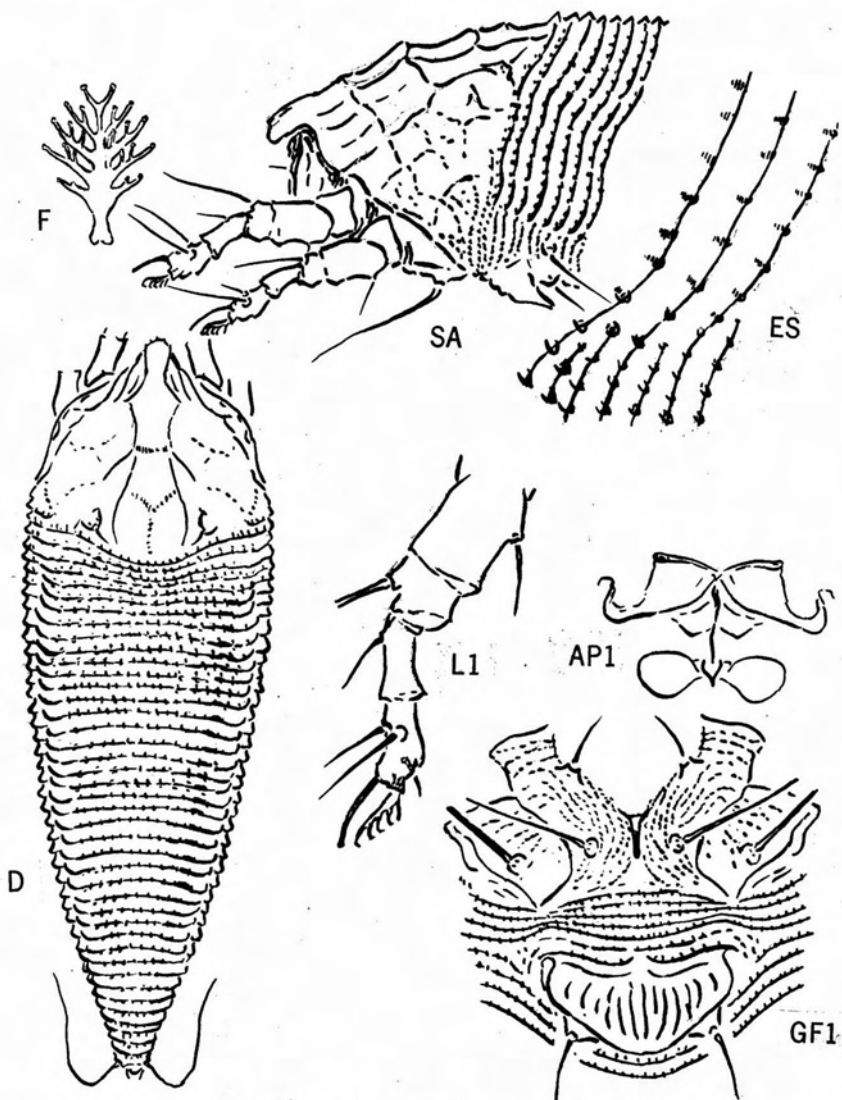


Plate 7 - *Phyllocoptuta morindae*, new species

Abacarus digitariae, new species

Plate 8

The new species is similar to A. setariae K. of Brasil, but differs by having no submedian lines on the shield and by having a 7-rayed feather-claw. On part of the legs of setariae the featherclaws are 7-8 rayed while on digitariae all featherclaws seen are only 7-rayed. On the new species the middorsal longitudinal ridge on the thanosome is rough and indented.

Reference for setariae- Eriophyid Studies C-12:3, USDA, April 22, 1976

Female from anterior lobe point 180μ - 205μ long, 50μ wide, 40μ thick. Body elongate-fusiform, with low central ridge in longitudinal trough on the thanosome. Color probably light yellowish-white. Rostrum 23μ long, projecting down; antapical seta 10μ long. Shield subtriangular in anterior outline, with anterior lobe acute in dorsal view, bent down and apically emarginate in lateral view. Median shield line short, on rear $1/3$ only. Admedian lines closely subparallel, curving back from sides of anterior point, slightly sinuate, farther apart when enclosing median line, and ending at rear margin of shield. No submedian lines. Shield with lateral line above coxae and lines of fine granules. Two or three partial rings below dorsal tubercle. Dorsal tubercles on rear margin and 20μ apart; dorsal setae 10μ long, projecting back slightly divergently. Foreleg from trochanter base 26μ long; tibia 5μ long, with 5.5μ seta from about $1/3$; tarsus 7μ long, claw 8μ long; featherclaw 7-rayed. Hindleg 24μ long, tibia 3.5μ long, tarsus 5.5μ long, claw 8μ long. Coxae ornamented with lines of fine granules; sternal line fairly strong, ending between second coxal tubercles. First setiferous coxal tubercles slightly ahead of anterior coxal approximation and farther apart than second tubercles; second tubercles almost as far back as line across third tubercles. Abdominal thanosome with about 35 tergites and 45 sternites. Thanosome longitudinal trough broad; central dorsal ridge low, the tergal edges more or less rough and central ridge with indentations; central ridge ending about tergite 27. Microtubercles on tergites present as points over margins on lateral ridges, somewhat extended forward slightly. Microtubercles on sternites as fine granules on margins. Lateral seta 27μ long, on sternite 6 behind shield; first ventral seta 40μ long, on sternite 17; second ventral seta 17μ long, on sternite 30. Abdominal telosome with 5 rings; microtubercles as faint marginal granules dorsally and laterally, as elongate lines ventrally. Telosomal seta 28μ long. Accessory seta 4μ long. Female genitalia 14μ long by 20μ wide; coverflap with two convex cross lines basally and about 10-12 longitudinal ribs. Genital seta 24μ long.

Male 144μ - 160μ long.

Type locality: Sarraoutou, Island of Santo, New Hebrides.

Collected: April 18, 1977, by Dr. J. Gutierrez.

Host: Digitaria sp. (Gramineae-Paniceae) a grass.

Relation to host: The mites are blade vagrants.

Type material: Avial with mites in sugar-alcohol syrup.
Drawings from five specimens on one slide.

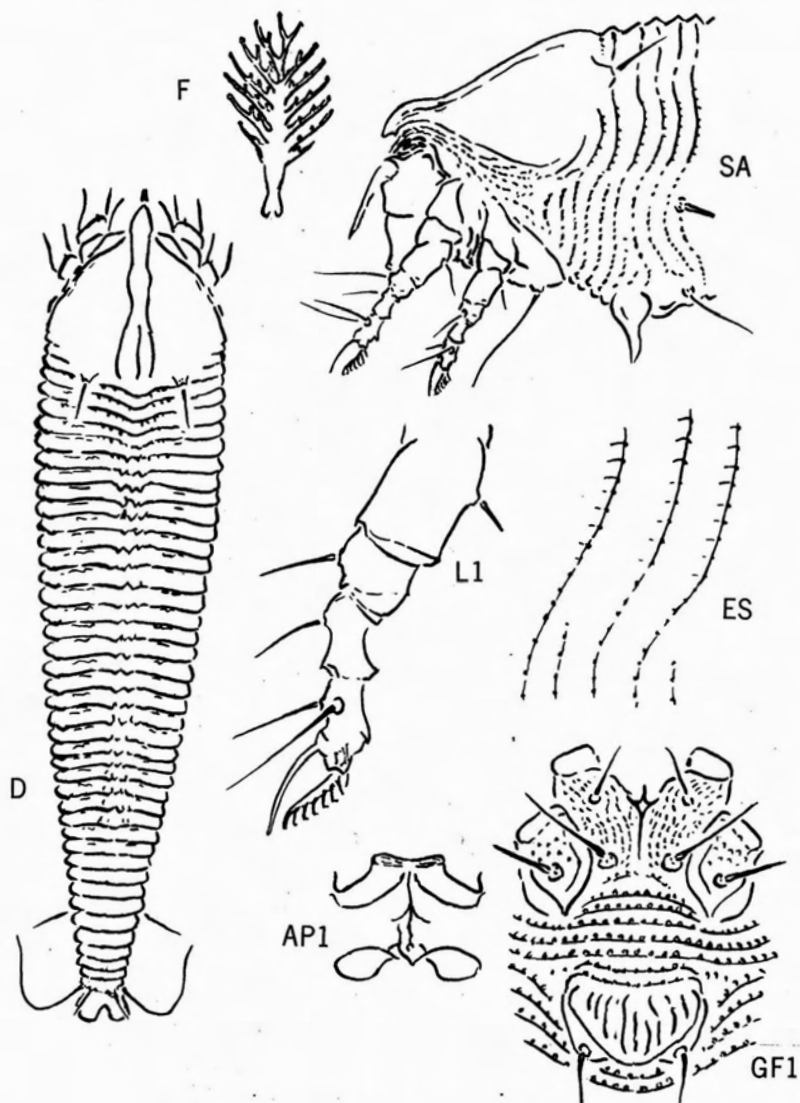


Plate 8 - *Abacarus digitariae*, new species

Tegolophus artocarpi, new species

Plate 9

The distinctive features of artocarpi that set it apart from other known species in the genus are the dorsal tubercles that project laterally from the central cephalothoracic shield 'disc', the central longitudinal female genital line that is divided for almost half of its anterior length, and the gland on the central rear margin of the female genitalia.

Length of female from the anterior shield lobe to terminal lobes 170 μ -180 μ ; width 55 μ -60 μ ; thickness about 35 μ . Rostrum 24 μ long, projecting down; antapical rostral seta 4 μ long. Shield 45 μ long by 58 μ wide; anterior lobe broad, thick in lateral view; shield sides convex, with granular outline. Median line not evident. Admedian lines curving back a short distance from sides of anterior lobe and not present back of that. Central 'disc' outlined as subquadrate area, not defined anteriorly but with undulating cross line to rear. Laterally the shield with partial lateral lines and longitudinal band of granules above coxae; partial sternites below lateral angles. Dorsal tubercles extended laterally from sides of disc, the setae arising about 22 μ apart; dorsal setae 6 μ long, projecting to rear. Foreleg from trochanter base 24 μ long; tibia 4.5 μ long, with 4 μ seta from 1/2; tarsus 5 μ long; claw 5 μ long, knobbed; featherclaw 4-rayed. Hindleg 22 μ long, tibia 3 μ long, tarsus 5 μ long, claw 5 μ long. Coxae unornamented. Sternal line fairly strong, extending back to just past second tubercles. First setiferous coxal tubercles farther apart than second and slightly above level of anterior coxal approximation; second coxal tubercles ahead of level of third tubercles. Abdominal thanosome with about 17 moderately broad tergites and 43 sternites. Microtubercles absent from tergites, present as slightly elongate beads on sternal margins. Lateral seta 21 μ long, on sternite 4 behind shield; first ventral seta 38 μ long, on sternite 13; second ventral seta 12 μ long, on sternite 27. Telosome with 5 rings and not differentiated dorsally from thanosome. Telosome ventrally with elongate microtubercles. Telosomal seta 19 μ long. Accessory seta absent. Female genitalia 15 μ long by 22 μ wide. Genital coverflap with 16-18 longitudinal ribs. Central subcircular gland on rear margin of female genitalia. Central female longitudinal line divided anteriorly for almost half its length and partially dividing anterior apodeme.

Males numerous, 14 μ -155 μ long.

Type locality: Chiang Mai, Thailand.

Collected: June 25, 1977 by Dr. L. C. Knorr and sent under #T576.

Host: Artocarpus integrifolia L. F. (Moraceae - Urticales) jackfruit.

Relation to host: The mites are leaf vagrants or rust mites on both surfaces, mainly on late juvenile leaves.

Type material: An envelope with dry leaves and mummified mites from which the following slides came.

Five slides with the above data, one of which is designated as the type slide.

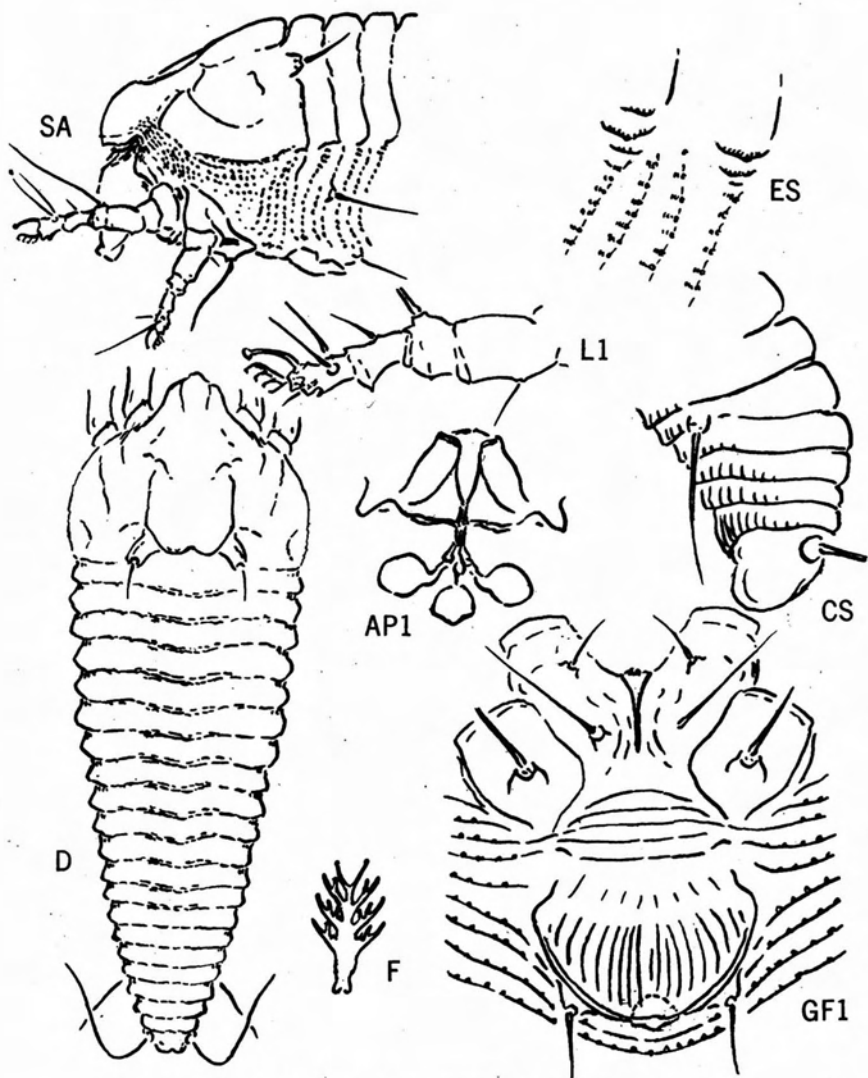


Plate 9 - *Tegolophus artocarpi*, new species

Abacarus pantici, new species

Plate 10

A rice rust mite, *Abacarus oryzae* K. 1963, is quite similar to the new species but has a narrower middorsal thanosomal ridge and a 9-rayed featherclaw. There are details in the shield pattern that also set the two species apart.

Reference to *oryzae*: Eriophyid Studies B-9, Cal. Dept. of Agriculture, pages 1 and 2, February 20, 1963.

Female from front shield lobe to terminal lobes 140 μ -165 μ long, 48 μ wide, 44 μ thick. Body fusiform in shape, tapering, color in life light brown. Rostrum 20 μ long, projecting diagonally down; antapical seta 4 μ long. Shield subtriangular anteriorly with acute frontal lobe over rostrum; lobe thin in side view. Shield design of strong lines: median line almost complete, starting just behind frontal lobe and ending just ahead of junction of admedian lines near rear shield margin. Admedian lines complete from base of frontal lobe, subparallel, gradually diverging, forking at about 4/5, the inner fork running diagonally centrad and joining just ahead of rear shield margin; outer admedian fork extending slightly outward and ending at rear margin. First submedian line running slightly outward and back toward dorsal tubercle, ending just ahead of tubercle, with fork at about 2/3 that ends just ahead of tubercle. Two longitudinal lateral lines and granular areas above coxae. Four or 5 partial rings below dorsal tubercle. Dorsal tubercles 19 μ apart, projecting over rear shield margin and projecting 12 μ dorsal setae straight back. Foreleg 29 μ long from trochanter base; tibia 8 μ long, with 6 μ seta from 1/4 or 1/3; tarsus 7 μ long; claw 9 μ long, slender; feather-claw 7-rayed on anterior legs, 6-rayed on hindlegs. Hindleg 27 μ long, tibia 5 μ long, tarsus 6 μ long, claw 9 μ long. Sternal line moderately strong, ending between second coxal tubercles. Coxae with some lines and granules; first setiferous coxal tubercles opposite anterior coxal approximation, farther apart than second tubercles; second tubercles nearly back to a line between third tubercles. Abdominal thanosome with 45-48 tergites and 50-52 sternites, completely microtuberculate except for dorsum just ahead of telosome where the microtubercles fade. Microtubercles bead-like and rather crowded along ring margins, moderately strong. Middorsal thanosomal ridge with some breadth, low, extending back from tergite 3 or 4 behind shield and running to rear in slight dorsal trough, the ridge ending 9 or 10 tergites ahead of telosome. Lateral seta 18 μ long, on sternite 5 behind shield; first ventral seta 40 μ long, on sternite 18; second ventral seta 31 μ long, on sternite 31. Telosome with 5 rings, the microtubercles faded or absent above, strong and elongate below. Telosomal seta 20 μ long. Accessory seta 2 μ long. Female genitalia 12 μ long, 21 μ wide; coverflap with 2 or 3 basal transverse lines of granulations basally and about 14 longitudinal ribs. Genital seta 11 μ long.

Male 140 μ long; with 6-rayed featherclaw.

Type locality: Bangkok, Thailand

Collected: July 14, 1977, by Dr. L. C. Knorr and sent under # T585a

Host: *Bambusa ventricosa* Maccl. (Graminae - Glumiflorae)

Common name - Buddha's belly bamboo

Relation to host: The mites are mostly found as vagrants in grooves on upper leaf surfaces, the leaves showing no damage.

Type material: An envelope with dry leaves and mites with above data. Four slides made from mites from leaves, one designated as type.

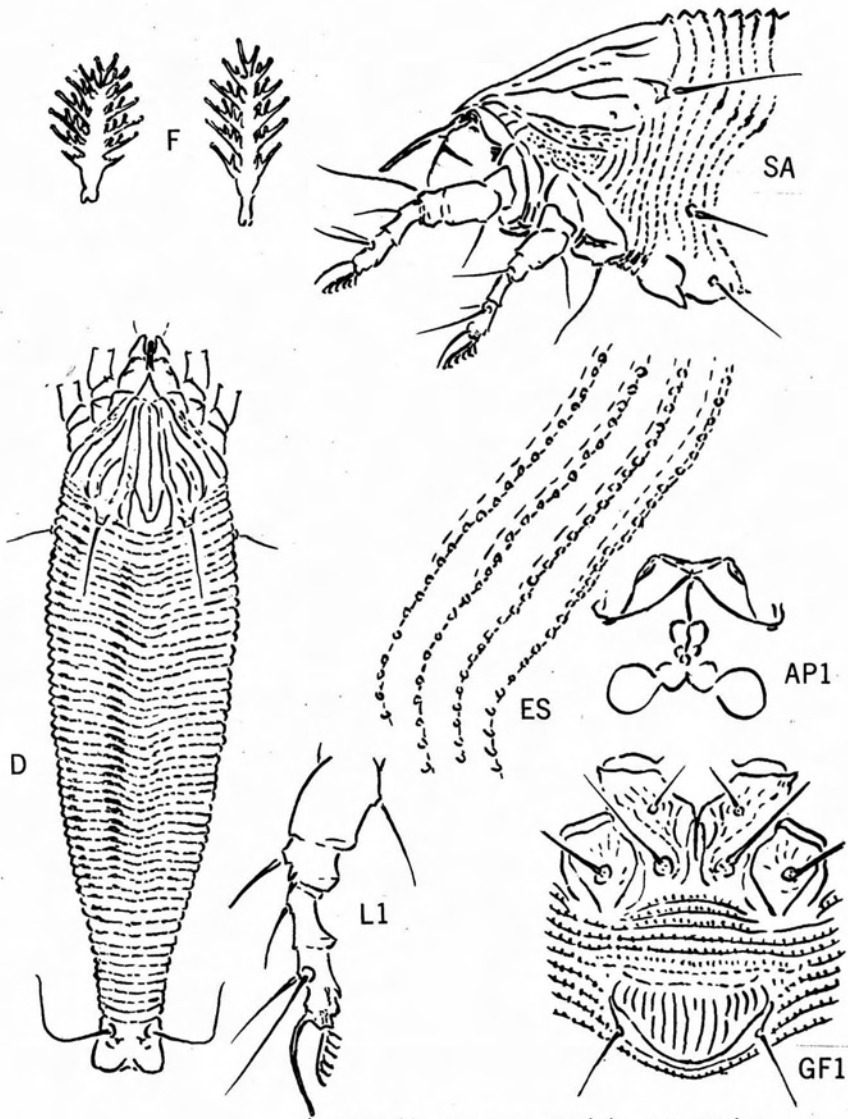


Plate 10 - *Abacarus panticis*, new species

Calacarus mussaendae, new species

Plate 11

The features distinguishing mussaendae from all previously studied species of Calacarus are: 1. subdorsal network of fine lines connected with anterior cell of the four lateral shield cells; the last three being above coxae; 2. irregular placement of small dorsal tubercles which are just ahead of rear margin; 3. absence of foretibial seta which is sometimes replaced by small spine.

A robust grayish-purple species with three heavy longitudinal lines of white wax on dorsum of abdomen; female length 140 μ -150 μ ; thickness about 60 μ . Body thick-fusiform with telosome noticeably tapering. Notum 35 μ long, projecting down, antapical setal seta 10 μ long. Shield 48 μ long by 58 μ wide, anterior shield lobe broad, blunt. Median shield line absent except for very short section in center of anterior lobe. Admedian lines about complete from center of anterior lobe, receiving diagonal line at lobe base from lateral curve, extending as a line to rear not far from center line to about 2/3, recurring out at that point and then curving back, describing moderately broad central cell, then with short curve to rear shield margin, the two lines not meeting. Admedian line with fine perpendicular marginal lines on outside for most of length. Laterally the shield with four cells, more or less connected, the anterior cell extending inward toward admedian line and ending in fine and involved network of cells and perpendicular lines. Dorsal tubercles irregular; when present somewhat inside rear shield margin and about 25 μ apart. No dorsal setae. Foreleg from trochanter base 29 μ long; tibia usually lacking any indication of seta, or rarely with short spine present about at 1/2 position. Foretarsus 8 μ long; claw knobbed, 8 μ long; featherclaw with 7 rays. Hindleg 28 μ long, tibia 5.5 μ long, tarsus 6 μ long, claw 8 μ long. Sternal line thin ending between second coxal tubercles slightly forked. First setiferous coxal tubercles opposite anterior approximation of forecoxae and slightly farther apart than second tubercles; second tubercles somewhat ahead of third coxal tubercles. Coxae not ornamented. Abdominal thanosome with broad dorsal ridge and a subdorsal and a lateral ridge; rings close set, the microtubercles fine, beadlike on ring margins and only present ventrally. Lateral seta 15 μ -18 μ long, on ring 8 behind shield; first ventral seta 35 μ long, on ring 26; second ventral seta 24 μ -26 μ long, on ring 45. Total thanosomal rings about 60. Telosome with 8 rings; microtubercles fine, on margins, weak or absent dorsally, elongate ventrally. Telosomal seta thin, 20 μ long. Accessory seta absent. Female genitalia 20 μ long by 26 μ wide; coverflap with few irregular marks. Genital seta 10 μ long.

Male about 136 μ long.

Type locality: Bangkok, Thailand.

Collected: From Oct. 14, 1976 to April 6, 1977, by L. C. Knorr, and sent under Nos. T503, T503a, T509c.

Host: #T503a Mussaenda philippica A. Rich. (Gardeniinae, Rubiaceae, Rubiales) - a white flowered plant.

#T509c a pink flowered hybrid Mussaenda, one parent philippica.

Relation to host: The mites are underside vagrants among leaf hairs

Type material: Envelops and dry leaves with mites under the above numbers.

Type slide from hybrid #T509c.

A total of 7 paratype slides, one T503; 2 T503a; 4 T509.

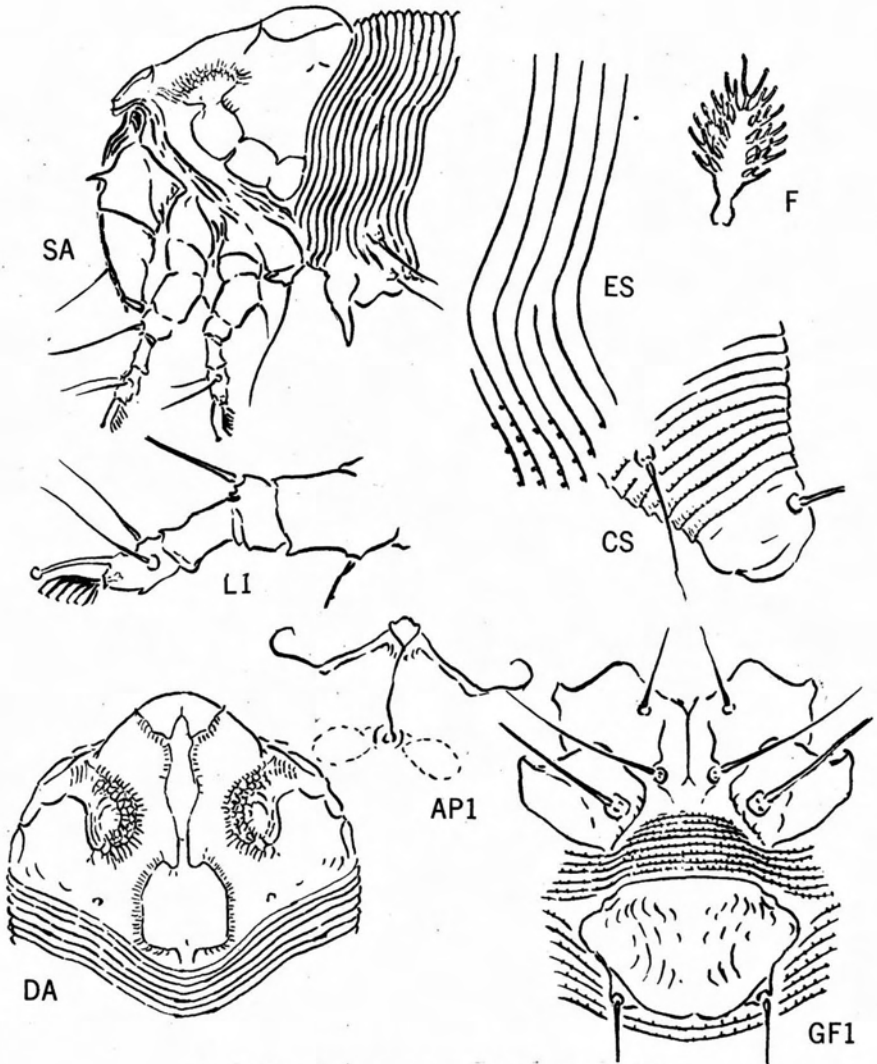


Plate 11 - *Calacarus mussaendae*, new species

Colomerus novaehbridensis, new species

Plate 12

As reviewed in Jeppson, et al, *Mites Injurious to Economic Plants* p. 572, U. C. Press, 1975, the genus *Colomerus* contains three species up to this paper. The three principal defining features of this genus are: 1. dorsal setae directed diagonally ahead or straight ahead; 2. female genitalia appressed to hind coxae causing the internal apodeme to appear shortened in ventral view; 3. female genital coverflap with longitudinal ribs arranged in two uneven ranks. The new species differs from the other three species by having the dorsal tubercles set some distance ahead of the rear shield margin. Of particular note on *novaehbridensis* are the prominent ocellar spots on the sides of the shield and the distinct separation of the forecoxae.

Female 185 μ -200 μ long, about 36 μ thick; body wormlike and light yellow in color. Rostrum 19 μ long, projecting diagonally ahead and down; ant-apical rostral seta 5 μ long. Shield 31 μ long by 32 μ wide, projecting to a blunt apex anteriorly. Shield heavily lined; median line about complete from just behind chelicera base, broken, ending nearly at rear margin. Admedian lines complete, subparallel, slightly sinuate, gently diverging to rear. Submedian shield lines obscured by numerous longitudinal lines. Shield laterally with numerous short lines, mostly longitudinal, and a prominent ocellar spot above rear coxae with lines below the spot. About 6 partial rings on side of shield, taking up much of side of shield. Dorsal tubercles well ahead of rear margin and 12 μ apart; dorsal setae 16 μ long, projecting up and forward. Foreleg from trochanter base 25 μ long; tibia 4 μ long, with 4 μ seta from about 1/2; tarsus 5 μ long; claw 7.5 μ long, featherclaw 5-rayed. Hindleg 24 μ long, tibia 3 μ long, tarsus 5.5 μ long, claw 9 μ long. Forecoxae well separated by centrally parallel lines, and with various irregular longitudinal lines. First setiferous coxal tubercles well ahead of anterior approximation of forecoxae and ahead of second tubercles. Second coxal tubercles a little ahead of level of third tubercles. Abdominal thansome with about 70 rings, various irregularities. Microtubercles mostly elongate, touching rear ring margins; more beadlike and a little ahead of margins laterally. Lateral seta 20 μ long, on ring 7 behind shield. First ventral seta 46 μ long, on ring 22; second ventral seta 42 μ long, on ring 41. Abdominal telosome with 6 rings; microtubercles elongate dorsally and ventrally, shorter and fainter laterally. Telosomal seta 10 μ long, stiff. Accessory seta absent. Female genitalia 9 μ long by 18 μ wide; coverflap with 10-12 longitudinal ribs, more or less in two ranks; genitalia appressed to rear coxae to some extent; genital seta 2.5 μ long.

Male 150 μ -170 μ long.

Type locality: Saraoutou, Santo, New Hebrides Islands.

Collected: July 6, 1977 by G. de Taffin and submitted by J. Guttierrez of the Office de la Recherche Scientifique et Technique. Outre-Mer.

Host: *Cocos nucifera* L. (Palmae, Principes) coconut,

Relation to host: The mites were found under bracts of fallen nuts.

Type material: A vial of mites in sugar-water-alcohol syrup.
Eight slides made from these mites.
One slide with above data designated type.

Corrections for: *Mites Injurious to Economic Plants*, Jeppson, L. R. et al, Univ. of Cal. Press 1975

Page 473 - substitute birch for alder in top paragraph.

Page 585 - substitute hind leg for both legs in second part of couplet 8 at bottom of page.

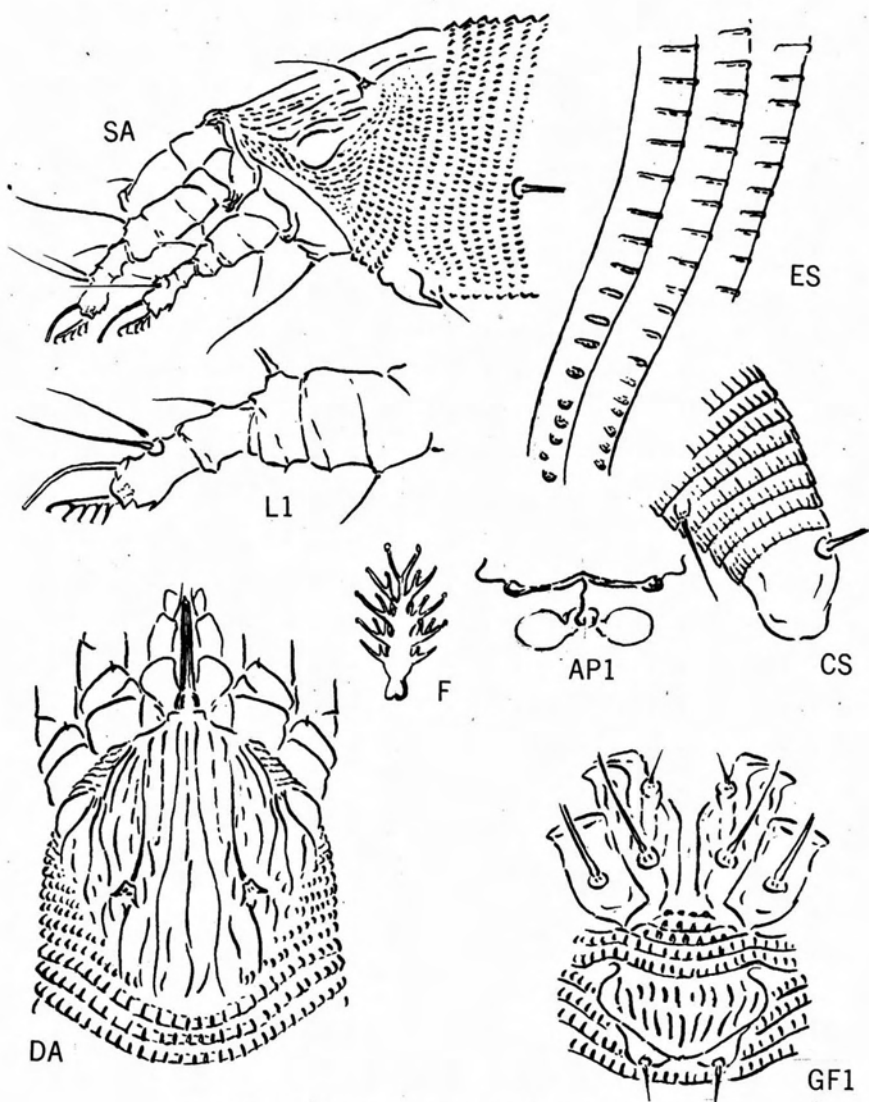


Plate 12 - *Colomerus novaehbridensis*, new species