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# The False Spider Mites of Mexico (Tenuipalpidae: Acari)

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This bulletin includes descriptions and figures for 165 species of plant-feeding false spider mites (Tenuipalpidae) of Mexico, of which 65 are described as new to science. Less than one-third (48) of the Mexican tenuipalps are distributed in 8 genera (Aegyptobia, Dolichotetranychus, Pentamerismus, Phytoptipalpus, Priscopalpus, Pseudoleptus, Tenuipalpus, and Ultratenuipalpus), and over two-thirds (117) are in the genus Brevipalpus. Also included are keys to subfamilies, genera, species groups, and species; descriptions, figures, host plants, and distribution data for each mite species; and list of Mexican species and their host plants. The fauna is examined principally by analysis of the morphological characters, distribution, and host plants, and an introduction to the classification of the neotropical Tenuipalpidae is outlined.

The following species groups and subgroups are established under each subfamily and genus: Brevipalpinae: Aegyptobia - macswaini and tragardhi groups; Brevipalpus - californicus, cuneatus, frankeniae, obovatus, phoenicis, and portalis groups; Dolichotetranychus - carnea, floridanus, and summersi groups; Pentamerismus - erythreus and oregonensis groups; Phytoptipalpus - cercidium and paradoxus groups; Priscopalpus - macropilis group; Tenuipalpinae: Tenuipalpus - caudatus group (annonae, anoplus, and bakeri subgroups) and proteae group; and Ultratenuipalpus - meekeri and younguisti groups.

Nomenclatural changes are as follows: Brevipalpus solanum Baker, Tuttle, and Abbatiello and B. incanum Baker, Tuttle, and Abbatiello are junior

synonyms of B. crotoni De Leon and B. portalis Baker and Tuttle, respectively. B. tagetinae, n. n., is a replacement name for B. psilostropheae Baker, Tuttle, and Abbatiello. Aegyptobia cercidium Baker, Tuttle, and Abbatiello and A. ceibae De Leon are transferred to the genus Phytoptipalpus.

KEYWORDS: Brevipalpinae, false spider mites, identification, plant feeding mites, species groups, taxonomy, Tenuipalpidae, Tenuipalpinae.

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**The False Spider Mites of Mexico  
(Tenuipalpidae: Acari)**

by Edward W. Baker and Donald M. Tuttle<sup>1/</sup>

The plant feeding tenuipalps, or false spider mites, are widely distributed and more numerous in warmer regions of the world. Meyer (1979) reported 504 species in 21 genera for the world fauna. Many of the species are pests of economic plants, such as ornamentals and fruit trees (Jeppson et al., 1975). Undoubtedly, there are still many potential pest species among the known and as yet undescribed tenuipalps. Biological data, except for a few common pest species, are almost nonexistent.

The Tenuipalpidae of Mexico is composed of a large group of false spider mites, with the genus Brevipalpus containing most of the species. De Leon (1956-62) published several papers, in which he described many new species and one new genus. Baker et al. (1975) added several new species and attempted to group them. In 1970 and 1974, Tuttle, Baker, and Abbatiello made some extremely valuable collections in Mexico, so that the Mexican fauna needs to be reviewed. This publication, therefore, is considered an introduction to the taxonomy of the New World false spider mites.

This study is based on specimens collected by D. M. Tuttle, E. W. Baker, and M. J. Abbatiello (T.B.A.)

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We thank M. J. Abbatiello, N.Y. State College of Agriculture, Farmingdale, Long Island, for his invaluable help in collecting these mites and R. G. Mitchell, USDA Forest Service, Corvallis, Oreg., for figures 1 and 2.

and from the collection that De Leon used in his 1956-62 studies on Mexican tenuipalps. Other specimens were taken on plant material intercepted at quarantine stations along the Mexican-American border.

Tenuipalps may be collected either by (1) visual examination of the individual plant or part under the dissecting microscope or by (2) the beat-funnel method, which is beating the plants over a sieve screen fitted to a plastic funnel with vial attachment. The first method is slow and tedious, but it provides effective observations of the mites. The second method is rapid and effective for collecting plant-feeding as well as predaceous mites. It is also easy to use and allows the collector to sample many plants over a large area. However, the beat-funnel method is not expected to replace visual examination as used by De Leon. Some mites are not easily dislodged by beating, particularly the Tenuipalpus species, which cling to the leaves, and the grass-inhabiting species of Dolichotetranychus and Pseudoleptus, which feed within the sheath. Tuttle et al. used the beat-funnel method in their surveys, which probably accounts for the lack of grass-inhabiting mites and members of the genus Tenuipalpus in their collections.

In the appendix are given the known host plants and Mexican species of Tenuipalpidae. Many of these mites are not at all host specific in their feeding habits, although a few species appear to be restricted to certain plant families.

The Mexican tenuipalp types of species described by De Leon are preserved at the Museum of Comparative Zoology, Cambridge, Mass., with paratypes in the mite collection of the U.S. National Museum of Natural History at Beltsville, Md. The present types and other type material of previous authors are also there.

Keys to genera and species are given, as well as habitus drawings of each

species. SEM photographs of certain species are also included to illustrate the diverse body sculpturing in the Tenuipalpidae (figs. 1-2). Data from all specimens are included under the heading "Specimens examined." Body length is measured from the tip of the rostrum to the posterior margin of the hysterosoma, and width is

measured across the widest part of the body, usually at the sejugal suture. All measurements are given in micrometers. We have revised the terms used by previous authors for naming the body setae (fig. 3) in this family. The following terms are precise, more descriptive, and less cumbersome than those used by others.

---

Used Here

Propodosomals  
Exterior verticals (Ve)  
Interior scapulars (Sci)  
Exterior scapulars (Sce)

Hysterosomals  
Laterals (L) (including humerals)  
Dorsolaterals (DL)  
Dorsocentrals (DC)

Intercoxal setae  
IC<sub>3</sub>  
IC<sub>4</sub>

Used by Others

Propodosomals  
1st pair  
2d pair  
3d pair

Hysterosomals  
Dorsolaterals (excluding humerals)  
Dorsosublaterals  
Dorsocentrals

Intercoxal setae  
Anterior medioventrals  
Posterior medioventrals

The "setae" found on the distal segment of the palpus are the eupathidia and solenidion of the Tetranychidae as illustrated by Grandjean (1948) and Robaux and Gutierrez (1973). These two structures are collectively termed setae in this publication. True setae (tactiles of Pritchard and Baker) are absent on the distal segment of the palpus, but they may be present on the second or the penultimate segments or both.

The term "pore" as used here denotes either a functional pore with an opening into the body or a nonfunctional pore without an opening as seen in certain species of Brevipalpus (figs. 20, A, and 30, A). It consists of a rosette design of areolae at the pore site on the dorsum of the propodosoma or hysterosoma. In the Tenuipalpus, the ringlike pores (figs. 151-152) appear to be part of the dorsal surface sculpturing and lack openings into the body.

In this bulletin, the body surface sculpturing is used to separate species, and for the first time it is possible to accurately describe the intricate designs. The terminology used to describe the surface sculpturing is based on that given by Harris (1979). Line drawings of specific dorsal ventral surface sculpturing are given for each Mexican species of Tenuipalpidae. They were made with a Wild drawing tube.

Castagnoli (1974) published a short excellent paper on the spermathecae of several Brevipalpinae females, illustrated by black and white drawings and photographs. A relatively few spermathecae were found in the Mexican species and were probably due to Hoyer's mounting medium clearing them as well as the other internal organs. Maturity of the female may be a factor here. The spermathecae are definitely distinctive for each species. Pijnacker et al. (1981) in their discussion of the males of Brevipalpus obovatus Donnadieu stated that some

individuals appeared to have a single ovotestis and were named intersexes. All the tenuipalpid males we studied had this single round ovotestis of varying sizes.

Males of false spider mites are rarely collected. Although heteromorphic, they usually are similar to females in general body surface sculpturing. Basic sexual differences are the form of the body, the lack of genital and pregenital plates, and the presence of a styletlike aedeagus. The body form is usually greatly narrowed posteriorly, and the hysterosoma is divided into metapodosoma and opisthosoma.

The immatures--larva, protonymph, and deutonymph--differ greatly from the adults. They have more obvious setal characters and are useful for species identification. Unfortunately, only a few of the Mexican species have associated immatures.

#### CLASSIFICATION

The classification of the Mexican Tenuipalpidae given here follows that of Pritchard and Baker (1958) and Baker et al. (1975). Most of Mitrofanov's (1973a, b) and Mitrofanov and Strunkova's (1979) genera and subgenera at present are not recognized as valid as discussed by Meyer (1979). When more information becomes available, a thorough worldwide study of the family at the generic level may produce further changes in generic names. However, it is unlikely that future changes will greatly affect the Mexican fauna.

Nine genera are recognized in the Tenuipalpidae from Mexico. After the new synonymy in Brevipalpus, 100 names of previous authors remain recognized as valid and 65 new species are described here, totaling 165 Mexican species. The Mexican fauna is obviously rich in Brevipalpus, with 117 species. The grass-feeding species of Dolichotetranychus and Pseudoleptus are poorly represented because grasses were rarely sampled. Tenuipalpus

species are even much less represented than the grass-feeding species. De Leon (1957) described several Mexican species of Tenuipalpus that were not collected by Tuttle, Baker, and Abbatiello. These mites apparently are not dislodged by beating or the beat-funnel method. Undoubtedly, many tenuipalpid species in Mexico are as yet undescribed, and certain adults and immatures taken in association with the host plants need further clarification.

The family Tenuipalpidae in Mexico is divided here into subfamilies, genera, species groups, and subgroups as follows:

#### Subfamily Brevipalpinae

##### Genus Aegyptobia Sayed

###### A. macswaini group

A. allioniae Baker, Tuttle, and Abbatiello

A. cactorum, n. sp.

A. curtipilis, n. sp.

A. glyptus Pritchard and Baker

A. incarnatae Baker, Tuttle, and Abbatiello

A. macswaini (Pritchard and Baker)

###### A. tragardhi group

A. ambrosiae, n. sp.

A. arbutusae, n. sp.

A. bapetus (Pritchard and Baker)

A. cactaceae, n. sp.

A. cassiae Baker and Tuttle

A. crotanae Baker and Tuttle

A. desertorum Baker and Tuttle

A. pennatulae, n. sp.

A. solanum, n. sp.

A. vannus Pritchard and Baker

##### Genus Brevipalpus Donnadieu

###### B. californicus group

B. aepi De Leon

B. alternatus De Leon

B. ambrosiae, n. sp.

B. ardisiae De Leon

B. californicus (Banks)

B. cercidium Baker, Tuttle, and Abbatiello

B. cochlospermi De Leon

B. cordiae De Leon

B. crataegus, n. sp.

B. dentatae, n. sp.

B. encinarius De Leon

B. gliricidiae De Leon

- B. lepidium, n. sp.  
B. longisetosus Baker  
B. lotus, n. sp.  
B. neoardisiae, n. sp.  
B. neobicolpus, n. sp.  
B. ornatus, n. sp.  
B. proboscidius De Leon  
B. pseudopini, n. sp.  
B. rostratus De Leon  
B. trinidadensis Baker  
B. viquierae Baker, Tuttle, and Abbatiello  
B. cuneatus group  
B. abiesae, n. sp.  
B. acatlanus, n. sp.  
B. albus De Leon  
B. allenrolfeae Baker, Tuttle, and Abbatiello  
B. alni De Leon  
B. amecensis, n. sp.  
B. arizonicae, n. sp.  
B. baccharis, n. sp.  
B. boucheae Baker, Tuttle, and Abbatiello  
B. cassiae Baker, Tuttle, and Abbatiello  
B. castillejae, n. sp.  
B. celtis Baker, Tuttle, and Abbatiello  
B. chamaedoreae Baker, Tuttle, and Abbatiello  
B. chucamayi De Leon  
B. cnidosculos, n. sp.  
B. crotonellae, n. sp.  
B. crotoni De Leon = B. solanum Baker, Tuttle, and Abbatiello, n. syn.  
B. desmodium, n. sp.  
B. emarginatae, n. sp.  
B. essigi Baker  
B. ewpristori De Leon  
B. filifer De Leon  
B. formosus De Leon  
B. geranium, n. sp.  
B. hamelrectae, n. sp.  
B. hypti De Leon  
B. incarnatae, n. sp.  
B. insinuatus De Leon  
B. johnstoni, n. sp.  
B. juniperus, n. sp.  
B. lagasceae De Leon  
B. lantanae, n. sp.  
B. levis De Leon  
B. lewisi McGregor  
B. lippiae, n. sp.  
B. mexicanus, n. sp.  
B. moreliensis, n. sp.  
B. mori De Leon  
B. neohyptis, Baker, Tuttle, and Abbatiello  
B. neoreligiosae, n. sp.  
B. nodiflorae, n. sp.  
B. oaxacensis De Leon  
B. oreopanacis De Leon  
B. pachucensis, n. sp.  
B. perseae De Leon  
B. piniceltis, n. sp.  
B. piniwaltheriae, n. sp.  
B. plucheae Baker, Tuttle, and Abbatiello  
B. pseudoleptoides De Leon  
B. pseudophoenicis Baker, Tuttle, and Abbatiello  
B. pseudopiniculus, n. sp.  
B. quercicolus De Leon  
B. querensis, n. sp.  
B. religiosae De Leon  
B. rubus, n. sp.  
B. rugosus De Leon  
B. salix, n. sp.  
B. serratus De Leon  
B. sidae Baker, Tuttle, and Abbatiello  
B. similis, n. sp.  
B. spitzeri, n. sp.  
B. stenolobae, n. sp.  
B. stipae, n. sp.  
B. striatus De Leon  
B. tepicbutilonae, n. sp.  
B. tepicensis, n. sp.  
B. testudinalis De Leon  
B. tlaxcensis, n. sp.  
B. tuberellus De Leon  
B. variolatus De Leon  
B. venutus, n. sp.  
B. zempoalensis, n. sp.  
B. frankeniae group  
B. frankeniae Baker, Tuttle, and Abbatiello  
B. obovatus group  
B. edax De Leon  
B. edwinae Baker  
B. lupinus, n. sp.  
B. obovatus Donnadieu  
B. origanum Baker, Tuttle, and Abbatiello  
B. pocillator De Leon  
B. phoenicis group  
B. phoenicis (Geijskes)  
B. portalis group  
B. artemisiae Baker and Tuttle  
B. coldeniae Baker, Tuttle, and Abbatiello  
B. combreti De Leon

- B. enceliae Baker, Tuttle, and Abbatiello  
B. erectus, n. sp.  
B. filifoliae Baker, Tuttle, and Abbatiello  
B. parthenium Baker and Tuttle  
B. physalis De Leon  
B. portalis Baker and Tuttle = B. incanum Baker, Tuttle, and Abbatiello, n. syn.  
B. ruelliae, n. sp.  
B. spatulatus, n. sp.  
B. tagetinae, n. n. (for psilostropheae Baker, Tuttle, and Abbatiello)  
B. verbenae, n. sp.  
B. zinniae, n. sp.
- Genus Dolichotetranychus Sayed  
D. floridanus group  
D. floridanus (Banks)
- Genus Pentamerismus McGregor  
P. erythreus group  
P. abnormis, n. sp.  
P. arbutusae, n. sp.  
P. erythreus (Ewing)  
P. oregonensis group  
P. oregonensis McGregor
- Genus Phytoptipalpus Tragardh  
P. cercidium group  
P. ceibae (De Leon), n. comb.  
P. cercidium (Baker, Tuttle, and Abbatiello), n. comb.  
P. conostegiae, n. sp.
- Genus Priscapalpus De Leon  
P. macropilis group
- P. macropilis De Leon  
Genus Pseudoleptus Bruyant  
P. palustria Pritchard and Baker
- Subfamily Tenuipalpinae  
Genus Tenuipalpus Donnadieu  
T. caudatus group  
T. annonae subgroup  
T. annonae De Leon  
T. anoplus subgroup  
T. anoplomexus, n. sp.  
T. anoplus Baker and Pritchard  
T. burserae De Leon  
T. cedrelae De Leon  
T. chamaedoreae, n. sp.  
T. coyacus De Leon  
T. crescentiae De Leon  
T. dasples Baker and Pritchard  
T. kapoki De Leon  
T. lucumae De Leon  
T. sanblasensis De Leon  
T. tabebuiae De Leon  
T. tepicensis De Leon  
T. unimerus De Leon  
T. uvae De Leon  
T. bakeri subgroup  
T. bakeri McGregor  
T. chiclorum De Leon  
T. coccolobicolus De Leon  
T. rhyssus Baker and Pritchard
- Genus Ultratenuipalpus Mitrofanov  
U. meekeri group  
U. meekeri (De Leon)  
U. younguisti group  
U. younguisti, n. sp.

KEY TO GENERA OF  
TENUIPALPIDAE

- |        |   |   |
|--------|---|---|
| 1.     | Intercoxal setae IC <sub>3</sub> and IC <sub>4</sub> situated on hysterosoma; dorsolateral setae (DL) present or absent (Brevipalpinae)-----                      | 2                                       |
| --     | Intercoxal setae IC <sub>3</sub> situated on posterior region of propodosoma, IC <sub>4</sub> on hysterosoma; dorsolateral setae (DL) absent (Tenuipalpinae)----- | 8                                       |
| 2 (1). | Dorsolateral setae present-----   | 3                                       |
| --     | Dorsolateral setae absent-----  | 7                                       |
| 3 (2). | Palpus five-segmented; with four pairs of dorsolateral setae-----   | 4                                       |
| --     | Palpus three- to five-segmented; with one or two pairs of dorsolateral setae-----   | 5                                       |
| 4 (3). | With three pairs of anal setae; hysterosoma with six pairs of lateral setae (L <sub>1-6</sub> ); pregenital plate usually present-----                            | <u>Aegyptobia</u> Sayed (p. 6)          |
| --     | With two pairs of anal setae; hysterosoma with five or six pairs of lateral setae (L <sub>1-5,6</sub> ); pregenital plate absent-----                             | <u>Phytoptipalpus</u> Tragardh (p. 115) |

- 5 (3). Palpus three-segmented; hysterosoma with one pair of dorsolateral setae (DL<sub>1</sub>), two pairs of dorso-central setae (DC<sub>1-2</sub>), and six pairs of lateral setae (L<sub>1-6</sub>); with one or two pairs of genital setae; pregenital plate lacking-----  
-----Dolichotetranychus Sayed (p. 110)
- Palpus four- or five-segmented; hysterosoma with two pairs of dorsolateral setae (DL<sub>1-2</sub>), three pairs of dorsocentral setae (DC<sub>1-3</sub>), and more than six pairs of lateral setae; pregenital plate present or absent----- 6
- 6 (5). Hysterosoma divided into metapodosoma and opisthosoma by transverse striae; with seven pairs of lateral setae (L<sub>1-7</sub>); pregenital plate absent; palpus four- or five-segmented----Pseudoleptus Bruyant (p. 119)
- Hysterosoma not divided into metapodosoma and opisthosoma; with seven or eight pairs of lateral setae (L<sub>1-7,8</sub>); pregenital plate present; palpus five-segmented-----Pentamerismus McGregor (p. 111)
- 7 (2). Palpus two-segmented; pregenital plate absent; genital flap rudimentary; hysterosoma with two or three pairs of dorsocentral setae (L<sub>1-5,6</sub>)-----  
-----Priscapalpus De Leon (p. 118)
- Palpus three- or four-segmented; pregenital plate and genital flap present, usually strongly developed; hysterosoma with one to three pairs of dorsocentral setae and five to seven pairs of lateral setae-----  
-----Brevipalpus Donnadieu (p. 18)
- 8 (1). Postanal setae lacking; with two pairs of anal setae and more than two pairs each of intercoxal setae (IC<sub>3</sub> and IC<sub>4</sub>); hysterosoma with five to seven pairs of lateral setae including posterior pair of whiplike setae; palpus one- to three-segmented-----Tenuipalpus Donnadieu (p. 120)
- Postanal setae present; with one pair of anal and only two pairs of intercoxal setae (IC<sub>3</sub> and IC<sub>4</sub>); hysterosoma with six to seven pairs of lateral setae without posterior pair of whiplike setae; palpus four-segmented-----  
-----Ultratenuipalpus Mitrofanov (p. 136)

SUBFAMILY BREVIPALPINAE

Genus AEGYPTOBIA Sayed

Aegyptobia Sayed, 1950: 1015; Pritchard and Baker, 1958: 179; Baker and Tuttle, 1964: 3; 1972: 18; Mitrofanov, 1973a: 508; Baker, Tuttle, and Abbatiello, 1975: 1; Meyer, 1979: 117. Type-species: Aegyptobia tragardhi Sayed, by original designation.  
Aegyptobia, subg. Aegyptobiopsis

Mitrofanov, 1973a: 508; Meyer, 1979: 117 (syn.). Type-species: Pentamerismus macswaini Pritchard and Baker, by original designation.

Diagnosis.--Palpus five-segmented, with or without seta on second segment, with three setae on distal segment; without rostral shield; with three pairs of propodosomal setae; hysterosoma with six pairs of lateral setae (L<sub>1-6</sub>), four pairs of dorso-lateral (DL<sub>1-4</sub>), and three pairs of

dorsocentral setae (DC<sub>1-3</sub>); pre-genital plate and genital flap well developed; with one pair of pregenital and two pairs of genital setae; three pairs of anal setae and two pairs of intercoxal setae, IC<sub>3</sub> and IC<sub>4</sub>, both pairs on hysterosoma; tarsal claws uncinata or padlike; number of setae on trochanter and genu of legs variable. Body form ovate to obovate.

group of false spider mites in the semiarid region with two distinct groups of species. Based on the structure of the tarsal claws, the species in the macswaini group have padlike claws and those in the tragardhi group have uncinata claws. With 9 previously known and 7 new species described here, the Aegyptobia species from Mexico now total 16.

Discussion.--Aegyptobia is a large

KEY TO MEXICAN  
SPECIES OF  
AEGYPTOBIA

- |          |  |    |
|----------|--|----|
| 1.       | Tarsal claws uncinata ( <u>tragardhi</u> group)-----   | 2  |
| --       | Tarsal claws padlike ( <u>macswaini</u> group)-----  | 11 |
| 2 (1).   | Palpus without seta on second segment-----   | 3  |
| --       | Palpus with seta on second segment-----  | 4  |
| 3 (2).   | Dorsal setae spatulate to obovate; dorsum of propodosoma and hysterosoma corrugated-rugose (fig. 17, <u>A</u> )----- <u>pennatulae</u> , n. sp. (p. 16)                    |    |
| --       | Dorsal setae broadly fan-shaped; dorsum of propodosoma rugose, hysterosoma striate-rugose (fig. 19, <u>A</u> )----- <u>vannus</u> Pritchard and Baker (p. 17)              |    |
| 4 (2).   | Genua I and II each with two setae (fig. 16, <u>A</u> )----- <u>desertorum</u> Baker and Tuttle (p. 15)  |    |
| --       | Genua I and II each with three setae-----  | 5  |
| 5 (2).   | Rostrum extending only to genu I; dorsum of propodosoma and hysterosoma crowded areolate-rugose (fig. 13, <u>A</u> )----- <u>cactaceae</u> , n. sp. (p. 14)                |    |
| --       | Rostrum extending beyond genu I; propodosoma and hysterosoma variously sculptured-----   | 6  |
| 6 (5).   | Rostrum extending to tarsus I; intercoxal setal area smooth (fig. 18, <u>A</u> )----- <u>solanum</u> , n. sp. (p. 17)  |    |
| --       | Rostrum extending only to tibia I; intercoxal setal area smooth or strigate-----   | 7  |
| 7 (6).   | Hysterosomal pores absent-----   | 8  |
| --       | Hysterosomal pores present-----  | 9  |
| 8 (7).   | Dorsal setae slender, sublanceolate, serrate (fig. 11, <u>A</u> )----- <u>arbutusae</u> , n. sp. (p. 12)   |    |
| --       | Dorsal setae spatulate, nude (fig. 10, <u>A</u> )----- <u>ambrosiae</u> , n. sp. (p. 12)   |    |
| 9 (8).   | Dorsal setae spatulate, nude; genital flap coarsely punctate; intercoxal setal area broadly strigate (fig. 12, <u>B</u> )----- <u>baptus</u> (Pritchard and Baker) (p. 13) |    |
| --       | Dorsal setae spatulate, serrate; genital flap smooth or subrugose; intercoxal setal area smooth (figs. 13, <u>B</u> ; 15, <u>B</u> )-----                                  | 10 |
| 10 (9).  | Hysterosoma with transverse dorsocentral "break" between DC <sub>2</sub> and DC <sub>3</sub> (fig. 15, <u>A</u> )----- <u>crotonae</u> Baker and Tuttle (p. 15)            |    |
| --       | Hysterosoma without transverse dorsocentral "break" (fig. 14, <u>A</u> )----- <u>cassiae</u> Baker and Tuttle (p. 14)  |    |
| 11 (10). | Rostrum extending only to femur I; propodosoma and hysterosoma lightly rugulose (fig. 6, <u>A</u> )----- <u>curtipilis</u> , n. sp. (p. 9)                                 |    |



- Rostrum extending beyond femur I; propodosoma and hysterosoma variously sculptured----- 12
- 12 (11). Rostrum extending to tibia I; seta on second segment of palpus stout, twice as long as width of segment (fig. 9, A)-----
- macswaini (Pritchard and Baker) (p. 11)
- Rostrum extending to genu I; palpal seta on second segment slender or weak, scarcely longer than width of segment----- 13
- 13 (12). Dorsal body setae stout, sickle-shaped; dorsum of propodosoma and hysterosoma rugose-costate (figs. 8, A; 9, A)----- 14
- Dorsal body setae slender, weak; propodosoma and hysterosoma not as above, with transverse lines on hysterosoma----- 15
- 14 (13). Propodosomal setae serrate, most hysterosomal setae nude; inner pair of genital setae anterior to outer pair (fig. 8, A, B)-----
- incarnatae B.T.A. (p. 10)
- Propodosomal and hysterosomal setae serrate; inner pair of genital setae almost in straight line with outer pair (fig. 4, A, B)-----
- allioniae B.T.A. (p. 8)
- 15 (13). Propodosoma finely striate (fig. 5, A); intercoxal setal area striate, with lines forming looped design (fig. 5, B)-----cactorum, n. sp. (p. 9)
- Propodosoma confused rugose, with indistinctly areolate-rugose areas (fig. 7, A); intercoxal setal area with subtriangular linear impressions (fig. 7, B)-----glyptus Pritchard and Baker (p. 10)

DESCRIPTIONS OF SPECIES IN AEGYPTOBIA  
MACSWAINI GROUP

Aegyptobia allioniae Baker, Tuttle, and Abbatiello  
(Fig. 4, A, B)

Aegyptobia allioniae Baker, Tuttle, and Abbatiello, 1975: 4 (as allionia); Meyer, 1979: 117.

Female.--Rostrum extending beyond femur to middle of genu I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma convex, entire; propodosomal setae stout, sickle-shaped, sparsely serrate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma lightly rugose-costate (fig. 4, A); all hysterosomal setae similar to propodosomals, except varying in

length; L<sub>1</sub> and DL<sub>1</sub> more robust than other setae; DL<sub>2-4</sub> and DC<sub>1-3</sub> more slender than posterior laterals; hysterosoma lightly rugose-costate as on propodosoma (fig. 4, A); pores absent; pregenital plate with sides not well defined, slightly rugose; genital flap costate or rugose; genital setae stout, slightly shorter than pregenitals, paired laterally, arranged in straight line (fig. 4, B); area posterior to IC<sub>4</sub> broadly stri-gate; intercoxal setal area smooth; IC<sub>4</sub> and IC<sub>3</sub> subequal in length, nearly as long as pregenitals; dorsal setae on femora and genua I and II slightly more robust than propodosomals, with femoral setae longer than width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 353, width 199.

Male.--Not known.

Specimen examined.--Holotype (female), ex Allionia incarnata L., 16 km south of Chihuahua, Chihuahua, August 7, 1970 (T.B.A.).

Discussion.--The only available specimen of this species was the female type described here. A. allioniae is similar to incarnatae in all respects except the form of the dorsal setae and arrangement of the genital setae. Dorsally, allioniae is less rugose than incarnatae and close to macswaini. The arrangement of the genital setae in an almost straight, transverse line will separate allioniae from its relatives. A. allioniae may perhaps be considered an intermediate species between incarnatae and macswaini.

Aegyptobia cactorum, new species  
(Fig. 5, A, B)

Female.--Rostrum extending beyond femur to middle of genu I; palpus five-segmented, with three distal setae and weak dorsal seta on second segment; anterior margin of propodosoma slightly truncate, entire; propodosomal setae slender; Ve slightly shorter than Sci and Sce, sparsely serrate, about 1/3 as long as distance between their bases; Sci as long as Sce, nude; propodosoma finely striate (fig. 5, A); hysterosomal setae L<sub>1-6</sub>, L<sub>1-4</sub>, and DC<sub>1-3</sub> slender, weak, shorter than propodosomals, nude; hysterosoma confused rugose between DL<sub>1</sub>, DC<sub>1</sub>, and DL<sub>2</sub>, and DC<sub>2</sub>; strigate between L<sub>2</sub>, DL<sub>2</sub>, DC<sub>2</sub>, and L<sub>3</sub>; DL<sub>3</sub> and DC<sub>3</sub> separating metapodosoma from opisthosoma (fig. 5, A); area posterior to DL<sub>3</sub> and DC<sub>3</sub> indistinctly areolate-rugose; pores absent; pregenital plate not well defined; genital flap smooth; genital setae slender and much shorter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> finely strigate; intercoxal setal area striate, with lines forming looped pattern (fig. 5, B); IC<sub>4</sub> as long as IC<sub>3</sub>, both setae much shorter than pregenitals; dorsal setae on femora and genua I and II

similar to body setae, nude, shorter than width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 279, width 165.

Male.--Not known.

Holotype.--Female, ex unidentified cactus sp. (Echinicerinae: Cactaceae), Baja California at San Ysidro, California quarantine station, November 10, 1968 (W. D. Roberts).

Paratypes.--Four females, with same data as holotype (length 228-285, width 125-159).

Discussion.--This species resembles glyptus in body form and type of dorsal setae, but the overall dorsal sculpturing is very different in the two species. In addition, cactorum has short intercoxal setae, much shorter than pregenitals; whereas in glyptus, the intercoxal setae are as long as pregenitals. Also the intercoxal setal area of cactorum is very distinctive in having a looped pattern of lines.

Aegyptobia curtipilis, new species  
(Fig. 6, A, B)

Female.--Rostrum extending to middle of femur I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma nearly pointed and deeply notched medially; propodosomal setae slender, weak, finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma lightly rugose (fig. 6, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> weak as propodosomals except shorter and nude; hysterosoma entirely lightly rugose (fig. 6, A); area immediately posterior to sejugal suture with short, light transverse lines or streaks; pores absent; pregenital plate with sides pinched medially, rugose; genital flap smooth; genital setae slender but stronger than dorsal setae, slightly shorter than pregeni-

tals, paired laterally; area posterior to IC<sub>4</sub>, broadly strigate; intercoxal setal area lightly striate; IC<sub>4</sub> as long as IC<sub>3</sub>, both setae slightly longer than pregenitals (fig. 6, B); dorsal setae on femora and genu I and II similar to propodosomals except for sparsely serrate seta on femora I and II, all setae shorter than width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 230, width 143.

Male.--Not known.

Holotype.--Female, ex Salvia sp., 67.3 km east of Huauapan, Oaxaca, July 11, 1974 (T.B.A.).

Discussion.--The lightly rugose dorsal sculpturing is similar to that of macswaini, but curtipilis is distinctive in having weak dorsal body setae and a seta on the second segment of the palpus. The type female specimen is unique.

Aegyptobia glyptus Pritchard and Baker (Fig. 7, A, B)

Aegyptobia glyptus Pritchard and Baker, 1958: 180; De Leon, 1962: 203; Meyer, 1979: 117.

Female.--Rostrum extending slightly beyond femur to base of genu I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma rounded, entire; propodosomal setae slender, sparsely serrate, slightly less than 1/2 as long as distance between bases of Ve; propodosoma confused rugose, with indistinctly areolate-rugose dorsolateral and lateral areas (fig. 7, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals except nude and shorter; hysterosoma indistinctly areolate-rugose between DL<sub>1</sub>, DC<sub>1</sub>, DL<sub>2</sub>, and DC<sub>2</sub>; opisthosoma rugose between DC<sub>1</sub> and DC<sub>2</sub>; transverse lines posterior to L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> separating metapodosoma

from opisthosoma (fig. 7, A); transverse lines on dorsocentral area immediately posterior to sejugal suture minutely tuberculate; pores absent; pregenital area not well defined, rugose; genital flap smooth; genital setae slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> with minutely tuberculate transverse lines; intercoxal setal area with subtriangular linear impressions (fig. 7, B); intercoxal setae IC<sub>4</sub> short, as long as IC<sub>3</sub> and pregenitals; dorsal setae on femora and genua I and II slightly stouter than body setae, sparsely serrate, about 1/2 as long as width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 279, width 160.

Variation.--Length 262-296, width 143-160.

Male.--Similar to female except for sexual differences; dorsal markings somewhat obscure, without definite pattern. Length 251-257, width 114-120.

Specimens examined.--Holotype (female) and paratypes (five females and one male), ex Ferocactus sp., Guaymas, Sonora at Nogales, Arizona quarantine station, December 27, 1955 (Alexander and Darling).

Discussion.--This species is distinguished by the areolate-rugose dorsal surface sculpturing, with microtuberculate striae on the anterior dorsocentral area of the propodosoma, as well as on the area posterior to IC<sub>4</sub>, and by the subtriangular linear impression on the intercoxal setal area.

Aegyptobia incarnatae Baker, Tuttle, and Abbatiello (Fig. 8, A, B)

Aegyptobia incarnatae Baker, Tuttle, and Abbatiello, 1975: 4 (as incarnata); Meyer, 1979: 117.

Female.--Rostrum extending beyond femur to distal 1/3 of genu I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma strongly convex, entire; propodosomal setae stout, sickle-shaped, serrate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma entirely rugose-costate (fig. 8, A); all hysterosomal setae similar to propodosomals except for length, and some laterals may be serrate; hysterosoma more rugose-costate than on propodosoma (fig. 8, A); pores absent; pregenital plate with sides pinched medially, slightly rugose anteriorly; pregenital setae wide apart, inserted laterad and unusually stout; genital flap slightly rugose medially; genital setae shorter than and not as robust as pregenitals, paired laterally, with inner pair inserted anterior to outer pair (fig. 8, B); area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area smooth; IC<sub>4</sub> slender but robust, serrate, barely longer than pregenitals and IC<sub>3</sub>; dorsal setae on femora and genua I and II slightly more robust than propodosomals, with femoral setae longer than width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 371, width 182.

Variation.--Length 348-370, width 194-211.

Male.--Similar to female except for sexual differences; dorsal body setae slender, serrate. Length 285, width 143.

Specimens examined.--Holotype (female) and paratypes (six females and one male), ex Allionia incarnata L., Hermosillo, Sonora, July 18, 1970 (T.B.A.).

Discussion.--A. incarnatae is separated from allioniae by the more rugose dorsum and arrangement of genital setae. The pregenital setae

are stout and far apart from each other. The arrangement of the genital setae is similar to that of macswaini, but the dorsal sculpturing is different, although basically similar.

Aegyptobia macswaini (Pritchard and Baker)

(Fig. 9, A, B)

Pentamerismus macswaini Pritchard and Baker, (1951) 1952: 8.

Aegyptobia macswaini, Pritchard and Baker, 1958: 180; De Leon, 1962: 204.

Aegyptobia macswaini, Mitrofanov, 1973a: 508; Meyer, 1979: 117.

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma rounded, entire; propodosomal setae stout, sickle-shaped, nude, about 2/3 as long as distance between bases of Ve; propodosoma lightly rugose (fig. 9, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals, with slightly shorter posterior lateral setae; hysterosoma rugose as on propodosoma (fig. 9, A); pores absent; pregenital plate with sides pinched posteriorly, smooth except between setae; genital flap slightly rugose; genital setae stout, serrate, nearly as long as pregenitals, paired laterally, with inner pair inserted anterior to outer pair (fig. 9, B); area posterior to IC<sub>4</sub> and intercoxal setal area smooth; IC<sub>4</sub> as long as IC<sub>3</sub> and pregenitals; dorsal setae on femora and genua I and II slender, strong serrate, longer than width of segments; tarsal claws padlike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 313, width 165.

Variation.--Length 342-365, width 165-194.

Male.--Similar to female except for sexual differences; rostrum extending past genu I; dorsal body setae stouter

than those of female, serrate; setae of femora and genua I and II similar, stout, serrate, at least twice as long as width of segments. Length 246, width 116.

Specimens examined.--Holotype (female), ex Gutierrezia californica T.&G., Tesla, Calif., July 27, 1950 (A. E. Pritchard); paratype (one male), ex Hemizonia virgata Gray, Tesla, Calif., September 25, 1949 (J. W. Macswain); four females, ex Pectis arenaria Benth., San Blas, Nayarit, April 26, 1957 (D. De Leon); one female, ex Abronia maritima Nutt. & Wats., Hermosillo, Sonora, July 17, 1970 (T.B.A.).

Discussion.--A. macswaini is easily distinguished by the nude dorsal setae, stout and serrate seta on the second palpal segment, as well as the rugose dorsum of propodosoma and hysterosoma. In this respect it is similar to allioniae, but the dorsal setae are serrate and the seta on the second palpal segment is short and slender in allioniae.

#### DESCRIPTIONS OF SPECIES IN AEGYPTOBIA TRAGARDHI GROUP

Aegyptobia ambrosiae, new species  
(Fig. 10, A-C)

Aegyptobia crotonae, of Baker, Tuttle, and Abbatiello, 1975: 2. Misidentification.

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma strongly convex, entire; propodosomal setae leaflike, spatulate, nude, about 1/3 as long as distance between bases of Ve; propodosoma striate-rugose, with almost areolate-rugose lateral areas posterior to eyes (fig. 10, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> spatulate as propodosomals; hysterosoma rugose, with areolate-rugose dorsolateral areas posterior to DC<sub>2</sub> and DL<sub>2</sub>; pores absent; pre-

genital plate with sides pinched medially, smooth; genital flap smooth; genital setae stout, slightly shorter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> broadly striate; intercoxal setal area striate; IC<sub>4</sub> about as long as IC<sub>3</sub>, longer than pregenitals (fig. 10, B); dorsal setae on femora and genua I and II spatulate as body setae, about as long as width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 291, width 160.

Variation.--Length 279-319, width 143-171.

Male.--Similar to female except for sexual differences (fig. 10, C); anterior margin of propodosoma rounded; dorsal setae on genu I vary from slender, setiform, sublanceolate to oblanceolate with acute tip. Length 205-222, width 97-114.

Holotype.--Female, ex Ambrosia confertiflora (DC.) Rydb., Culiacán, Sinaloa, June 28, 1974 (T.B.A.).

Paratypes.--Ten females and 2 males, with same data as holotype.

Other specimens examined.--Two females and one male, with same host as types, Riverside, Calif. (no date and collector).

Discussion.--This species is nearly identical to crotonae and was mistaken for that species by Baker et al. (1975). The absence of the dorsocentral "break" on the hysterosomal pattern and the striate intercoxal setal area separate ambrosiae from crotonae.

Aegyptobia arbutusae, new species  
(Fig. 11, A, B)

Female.--Rostrum extending beyond femur and genu to middle of tibia I;

palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma convex, notched medially; propodosomal setae slender, linear, serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose, becoming subareolate-rugose on dorsolateral and lateral areas (fig. 11, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals; hysterosoma rugose (fig. 11, A); pores absent; pregenital plate with sides pinched medially, smooth; genital flap smooth; genital setae slender, as long as pregenitals, paired laterally; areas posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area striate, with transverse lines between IC<sub>3</sub> and IC<sub>4</sub>; IC<sub>4</sub> shorter than IC<sub>3</sub>, longer than pregenitals (fig. 11, B); dorsal setae on femora and genu I more slender than body setae, serrate; femoral setae longer than genual setae and width of segments; genual setae about as long as width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/1/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 302, width 165.

Male.--Not known.

Holotype.--Female, ex Arbutus sp., 152 km north of Matehuala, San Luis Potosí, July 18, 1974 (T.B.A.).

Paratypes.--Two females, with same data as holotype (length 314-316, width 153-154).

Discussion.--A. arbutusae resembles baptus most closely, especially in the dorsal pattern, but arbutusae has slender, linear dorsal setae, and intercoxal setae IC<sub>4</sub> are much longer than pregenitals.

Aegyptobia baptus (Pritchard and Baker) (Fig. 12, A-C)

Pentamerismus baptus Pritchard and Baker, (1951) 1952: 10.

Aegyptobia baptus, Pritchard and Baker, 1958: 181; Baker and Tuttle,

1972: 25; Baker, Tuttle, and Abbatiello, 1975: 2.

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma weakly emarginate to deeply notched medially (fig. 12, A, C); propodosomal setae leaflike, spatulate, nude, less than 1/2 as long as distance between bases of Ve; propodosoma striate-rugose, with areolate-rugose spots on antero-medial dorsocentral and posterolateral areas (fig. 12, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> spatulate as propodosomals, with slightly smaller laterals; hysterosoma with striate-rugose dorsocentral area, subareolate-rugose dorsolateral and rugose lateral areas; pores present; pregenital plate with sides pinched posteriorly, nearly smooth; genital flap coarsely punctate; genital setae robust, serrate, shorter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area broadly strigate; intercoxal setae IC<sub>4</sub> short, as long as pregenitals (fig. 12, B); dorsal setae on femora and genua I and II similar to body setae, about 1/2 as long as width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 285, width 148.

Variation.--Length 308-325, width 160-171.

Male.--Not known.

Specimens examined.--Holotype (female), ex Hemizonia virgata Gray, Tesla, Calif., September 25, 1949 (J. W. MacSwain); nine females, ex Haplopappus tenuisectus (Greene) Blake and Senecio sp., Fresnillo, Zacatecas, August 3, 1970, and two females, ex Hymenoclea mongyra Torr. & Gray, Chihuahua, Chihuahua, August 8, 1970; (all collected by T.B.A.).

Discussion.--This species is similar

to flourensiae Baker and Tuttle from Arizona, but baptus has nude dorsal setae and a punctate genital flap, which flourensiae lacks. The entirely rugose dorsocentral area of the hysterosoma is also distinctive for baptus.

Aegyptobia cactaceae, new species  
(Fig. 13, A, B)

Female.--Rostrum extending beyond femur to middle of genu I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma conical, nearly pointed, deeply notched medially; propodosomal setae leaflike, spatulate, finely serrate, slightly less than 1/2 as long as distance between bases of Ve; propodosoma crowded areolate, rugose (fig. 13, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals; hysterosoma entirely areolate-rugose as in propodosoma (fig. 13, A); pores absent; pregenital plate with sides slightly pinched medially, slightly rugose; genital flap subscutellate; genital setae slender, as long as pregenitals, serrate, paired laterally; area posterior to IC<sub>4</sub> nearly smooth; intercoxal setal area substrigate (fig. 13, B); intercoxal setae IC<sub>4</sub> about as long as pregenitals, shorter than IC<sub>3</sub>; dorsal setae on femora and genua I and II similar to body setae, shorter than width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 393, width 211.

Variation.--Length 325-370, width 171-211.

Male.--Not known.

Holotype.--Female, ex cactus debris, Sonora at Nogales, Arizona quarantine station, March 24, 1967 (C. H. Spitzer).

Paratypes.--Two females, with same data as holotype; four females, ex

cactus debris, Sinaloa and Baja California at Nogales, Arizona quarantine station, November 17, 1972, and February 2, 1973 (J. Bache-Wiig). One female, ex galls on Atriplex sp., Sonora at Nogales, Ariz., March 27, 1967 (D. Laddey), is presumably this species.

Discussion.--The areolate-rugose dorsal pattern and subscutellate genital flap are unlike those of any presently known members of the group. The substrigate intercoxal setal area is also characteristic of cactaceae.

Aegyptobia cassiae Baker and Tuttle  
(Fig. 14, A, B)

Aegyptobia cassiae Baker and Tuttle, 1964: 12; Baker, Tuttle, and Abbatiello, 1975: 2.

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma strongly convex, pointed, notched medially; propodosomal setae leaflike, spatulate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose, with indistinctly areolate dorsocentral area (fig. 14, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all spatulate as propodosomals; hysterosoma rugose to subareolate-rugose (fig. 14, A); pores absent; pregenital plate with sides slightly pinched posteriorly, smooth; genital flap slightly rugose; genital setae shorter than pregenitals, serrate, paired laterally; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area smooth (fig. 14, B); intercoxal setae IC<sub>4</sub> as long as pregenitals, slightly longer than IC<sub>3</sub>; dorsal setae on femora and genua I and II similar to body setae, slightly shorter than width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 342, width 182.

Male and deutonymph.--Not found in Mexico.

Specimens examined.--Holotype (female), ex Cassia covesii Gray, Sells, Ariz., October 5, 1960 (D. M. Tuttle); one female, ex Tillandsia usneoides L., Pueblo at El Paso, Texas quarantine station, January 25, 1972 (J. H. Cross).

Discussion.--A. cassiae is easily recognized by the areolate-rugose dorsal sculpturing that lacks the dorsocentral break between DC<sub>2</sub> and DC<sub>3</sub> and by the very short genital setae. It most closely resembles crotonae.

Aegyptobia crotonae Baker and Tuttle (Fig. 15, A-C)

Aegyptobia crotonae Baker and Tuttle, 1972: 21; Baker, Tuttle, and Abbatiello, 1975: 2.

Female.--Rostrum extending beyond femur and genu to about middle of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma conical, entire or emarginate to deeply notched (fig. 15, C) medially; propodosomal setae leaflike, spatulate, serrate, 1/3 as long as distance between bases of Ve; propodosoma rugose, with subareolate-rugose areas posterior to eyes (fig. 15, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals except lateral setae becoming smaller posteriorly; hysterosoma rugose, areolate-rugose posterior to DC<sub>2</sub>; transverse dorsocentral break between DC<sub>2</sub> and DC<sub>3</sub>; pores present; pregenital plate with sides pinched at middle, smooth; genital flap smooth or subrugose; genital setae about 2/3 as long as or barely shorter than pregenitals, serrate, paired laterally; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area smooth (fig. 15, B); intercoxal setae IC<sub>4</sub> as long as IC<sub>3</sub> and pregenitals; dorsal setae on femora and genua I and II similar to

body setae, shorter than width of segments; tarsal claws uncinatae; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 302, width 160.

Variation.--Length 257-314, width 114-125.

Male.--Similar to female except for sexual differences. Length 210-245, width 103-114.

Specimens examined.--Holotype (female), ex Croton corymbulosus Engelm., Portal, Ariz., September 2, 1967 (D. M. Tuttle); 20 females and 11 males, ex C. corymbulosus, Cuencame, Zacatecas, August 4, 1970; ex Sida diffusa H.B.K. and Tridens pulchellus (H.B.K.) Hitchc., Chihuahua, Chihuahua, and 128 km south of Cd. Juarez, Chihuahua, August 8, 1970 (T.B.A.); ex Solanum elaeagnifolium Cav. and Opuntia cylindrica (Lam.) DC., Chihuahua at El Paso, Texas quarantine station, September 24, 1969 (J. Cross and R. Eads); 8 females, ex Crusea sp., Guadalajara, Jalisco, July 31, 1970 (T.B.A.).

Discussion.--The dorsal sculpturing of the hysterosoma with a dorsocentral "break" between DC<sub>2</sub> and DC<sub>3</sub>, smooth intercoxal setal area, and the similarly short intercoxal setae and pregenitals separate crotonae from other members of the group. The anterior margin of the propodosoma varies from entire to emarginate to notched medially, and the genital setae may be nearly as long as the pregenitals in some Mexican specimens.

Aegyptobia desertorum Baker and Tuttle (Fig. 16, A, B)

Aegyptobia desertorum Baker and Tuttle, 1964: 23; 1972: 18; Baker, Tuttle, and Abbatiello, 1975: 2.

Female.--Rostrum extending beyond femur and genu to base of tibia I; palpus five-segmented, with three distal setae and dorsal seta on second



segment; anterior margin of propodosoma convex, entire; propodosomal setae leaflike, spatulate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma entirely striate (fig. 16, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> spatulate as propodosomals; hysterosoma striate as on propodosoma, with lines running lengthwise from DC<sub>1</sub> to L<sub>6</sub>, oblique or transverse dorsolaterally and laterally (fig. 16, A); pores present; pregenital plate with sides pinched posteriorly, substrigate-rugose; genital flap smooth; genital setae slender, nearly as long as pregenitals; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area broadly striate, with lines forming biconcave pattern (fig. 16, B); intercoxal setae IC<sub>4</sub> as long as IC<sub>3</sub> and pregenitals; dorsal setae on femora and genua I and II spatulate, similar to body setae except slightly smaller, about as long as width of segments; tarsal claws uncinuate; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 2/2/1/0; tibia - 4/4/3/3. Length 285, width 177.

Variation.--Length 268-325, width 142-177.

Male.--Similar to female except for sexual differences. Length 199, width 97.

Specimens examined.--Holotype (female) and paratypes (10 females), ex Atriplex canescens (Pursh) Nutt., Dome Valley, Ariz., January 8, 1963 (D. M. Tuttle); 1 male, ex A. polycarpa (Torr.) Wats., Arlington, Ariz., September 13, 1969 (D. M. Tuttle); 1 female, ex A. acanthocarpus (Torr.) Wats., Torreon, Coahuila, August 5, 1970 (T.B.A.).

Discussion.--A. desertorum is readily distinguished by the completely striate dorsal pattern, spatulate dorsal setae, and the rounded, entire anterior margin of the propodosoma. The genital setae are nearly as long as the pregenitals and intercoxal setae IC<sub>3</sub> and IC<sub>4</sub>.

Aegyptobia pennatulae, new species  
(Fig. 17, A, B)

Female.--Rostrum extending beyond femur and genu to tibia I; palpus five-segmented, with three distal setae, without seta on second segment; anterior margin of propodosoma nearly pointed, deeply notched medially; propodosomal setae leaflike, spatulate to obvate, serrate, about 2/3 as long as distance between bases of Ve; propodosoma corrugated-rugose dorsocentrally, rugose dorsolaterally and laterally (fig. 17, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> similar to propodosomals; hysterosoma rugose or corrugated-rugose as on propodosoma (fig. 17, A); pores absent; pregenital plate "square," with longitudinal biconvex lines; genital flap smooth; genital setae stout, as long as pregenitals, serrate, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area finely strigate (fig. 17, B); intercoxal setae IC<sub>4</sub> longer than IC<sub>3</sub>, about three times as long as pregenitals; dorsal setae on femora and genua I and II similar to body setae except smaller, shorter than width of segments; tarsal claws uncinuate; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 2/2/0/0; tibia - 4/4/3/3. Length 268, width 131.

Male.--Not known.

Protonymph.--With same type of setae as female.

Holotype.--Female, ex Acacia pennatula (Cham. & Schlecht.) Benth., Chapala, Jalisco, June 29, 1974 (T.B.A.).

Paratypes.--One female, with same data as holotype; one female, ex Mimosa biuncifera Benth., Fresnillo, Zacatecas, July 3, 1974, and one molting protonymph, ex Mentha sp., 19.2 km east of Morelia, Michoacan, July 3, 1974 (T.B.A.).

Discussion.--The distinctive corrugate-rugose dorsal pattern, biconvex

pattern of lines on pregenital plate, finely strigate posterior to IC<sub>4</sub>, and very long intercoxal setae IC<sub>4</sub> characterize pennatulae. The absence of a seta on the second segment of the palpus is highly distinctive, resembling only vannus, which has an entirely different dorsal seta and striation pattern.

Aegyptobia solanum, new species  
(Fig. 18, A, B)

Female.--Rostrum greatly elongate, extending to apex of tarsus I; palpus five-segmented, with three distal setae and dorsal seta on second segment; anterior margin of propodosoma convex, entire; propodosomal setae leaflike, spatulate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma completely rugose (fig. 18, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> all similar to propodosomals; hysterosoma with rugose dorsocentral area, areolate-rugose dorsolateral areas, and rugose lateral areas; pores absent; pregenital plate with side pinched medially, smooth; genital flap smooth; genital setae slender, slightly shorter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> broadly strigate (fig. 18, B); intercoxal setal area smooth; IC<sub>4</sub> as long as pregenitals, longer than IC<sub>3</sub>; dorsal setae on femora and genua I and II similar to body setae except lanceolate or oblanceolate with acute tips, about as long as width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 314, width 142.

Variation.--Length 291-336, width 137-160.

Male.--Similar to female except for sexual differences. Length 222-257, width 103-114.

Holotype.--Female, ex Solanum elaeagnifolium Cav., Alamos, Sonora, July 20, 1970 (T.B.A.).

Paratypes.--Five females, with same data as holotype; 29 females and 6 males, with same host as holotype, south of Culiacán, Sinaloa, June 28, 1970 (T.B.A.).

Discussion.--The extremely elongate rostrum, smooth pregenital plate, and genital flap easily separate solanum from the rest of the tragardi group. The entire convex anterior margin of the propodosoma is constant in this species.

Aegyptobia vannus Pritchard and Baker  
(Fig. 19, A, B)

Aegyptobia vannus Pritchard and Baker,  
1958: 183; De Leon, 1962: 203.

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three distal setae, without seta on second segment (fig. 19, A); anterior margin of propodosoma strongly convex, nearly pointed, deeply notched medially; propodosomal setae large, broadly fan-shaped, serrate (fig. 19, A); propodosoma completely rugose (fig. 19, A); hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> fan-shaped as propodosomals; pores present; hysterosoma striate-rugose, with lines running obliquely on dorsolateral areas, transverse between DC<sub>2</sub> (fig. 19, A); pregenital plate not well defined, fused with genital flap (fig. 19, B); genital flap smooth; genital setae slender, serrate, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> strigate; intercoxal setal area striate; intercoxal setae IC<sub>4</sub> longer than IC<sub>3</sub> and pregenitals; dorsal setae on femora and genua I and II leaflike, spatulate, about as long as width of segments; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 2/2/0/0; tibia - 4/4/3/3. Length 239, width 120.

Male.--Not known.

Deutonymph.--Similar to female except

for small size and dorsum of hysterosoma with transverse lines.

Specimens examined.--Holotype (female) and paratypes (two females and four deutonymphs), ex Prosopis glandulosus Torr., Nogales at Arizona quarantine station, May 11, 1956 (Alexander).

Discussion.--The extremely broadly fan-shaped dorsal setae and rugose dorsal sculpturing distinguish vannus. The ventral surface pattern is very much like that of pennatulae, but the length of the setae are different in the two species. The lack of seta on the second palpal segment is apparent and will also help identify vannus.

#### Genus BREVIPALPUS Donnadieu

Brevipalpus Donnadieu, 1875: 116; Baker, 1949: 350; Pritchard and Baker, (1951) 1952: 13; 1958: 196; Mitrofanov, 1973a: 510; Meyer, 1979: 74. Type-species: Brevipalpus obovatus Donnadieu, by subsequent designation of Vitzthum (1942).  
Brachypalpus Mitrofanov, 1973a: 511; Meyer, 1979: 74 (syn.). Type-species: Brevipalpus absens De Leon, by original designation.  
Hystripalpus Mitrofanov, 1973a: 510; Meyer, 1979: 74 (syn.). Type-species: Caligonus cuneatus Canestrini & Fanzago, by original designation.

Diagnosis.--Palpus usually four-segmented, with one to three setae on distal segment; with rostral shield; with three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with six or seven pairs of lateral setae ( $L_{1-6, 7}$ ) and one to three dorsocentral setae ( $DC_{1-3}$ ), without dorsolateral setae; pregenital plate and genital flap well developed; one pair of pregenital and two pairs of genital setae and two pairs of anal setae; one pair each of intercoxal setae,  $IC_3$  and  $IC_4$ , both pairs situated on hysterosoma; without postanal setae; tarsal claws uncinata

except for female of quercicolus De Leon, which has padlike claws; number of leg setae as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/1; tibia - 5/5/3/3; tarsus - 6/6/5/5. Body form ovate.

Discussion.--Brevipalpus is a large, widespread genus, with many distinct groups of species (Baker et al., 1975; Meyer, 1979). The generic synonymy involving Brachypalpus Mitrofanov and Hystripalpus Mitrofanov is adequately discussed by Meyer (1979). The genus Genopalpus Pritchard and Baker, which had been placed in synonymy with Brevipalpus by Meyer (1979), remains recognized as valid. This genus is not presently known in Mexico.

De Leon (1960, 1961a) described 37 species of Brevipalpus from Mexico. Baker (1949) and Baker et al. (1975) added 25 species. Fifty-two species are described here for the first time, totaling 114 Mexican species of Brevipalpus.

Based primarily on the number of lateral setae on the hysterosoma, the number of solenidia on tarsus II of the female, and the number of setae on the distal segment of the palpus, the Mexican species of Brevipalpus are grouped as follows, based on Baker et al. (1975).

(1) californicus group--hysterosoma with seven pairs of lateral setae ( $L_{1-7}$ ) and three pairs of dorsocentral setae ( $DC_{1-3}$ ) usually well differentiated from laterals; tarsus II of female with two distal solenidia; palpus four-segmented, with three setae on distal segment. Group formula - 7/4/3/2 (refers to number of lateral hysterosomal setae/number of palpal segments/number of setae on distal segment of palpus/number of tarsus II solenidia).

(2) cuneatus group--hysterosoma with seven pairs of lateral setae ( $L_{1-7}$ ) and three pairs of dorsocentral setae ( $DC_{1-3}$ ) well differentiated from

laterals; tarsus II of female with one solenidion; palpus four-segmented, with three setae on distal segment. Group formula - 7/4/3/1.

II of female with one solenidion; palpus three-segmented, with one seta on distal segment. Group formula - 7/3/1/1.

(3) portalis group--hysterosoma with seven pairs of lateral setae (L<sub>1-7</sub>) and three pairs of dorsocentral setae (DC<sub>1-3</sub>) similar to laterals; tarsus II of female with two solenidia; palpus four-segmented, with two setae on distal segment. Group formula - 7/4/2/1.

(5) phoenicis group--hysterosoma with six pairs of lateral setae (L<sub>1-6</sub>) and three pairs of dorsocentral setae (DC<sub>1-3</sub>) well differentiated from laterals; tarsus II of female with two solenidia; palpus four-segmented, with three setae on distal segment. Group formula - 6/4/3/2.

(4) frankeniae group--hysterosoma with seven pairs of lateral setae (L<sub>1-7</sub>) and three pairs of dorsocentral setae (DC<sub>1-3</sub>) similar to laterals; tarsus

(6) obovatus group--with same group characters found in phoenicis group except tarsus II of female with one solenidion. Group formula - 6/4/3/1.

KEY TO MEXICAN SPECIES OF BREVIPALPUS FEMALES

- |        |   |     |
|--------|---|-----|
| 1.     | Hysterosoma with seven pairs of lateral setae (L <sub>1-7</sub> )-----  | 1/2 |
| --     | Hysterosoma with six pairs of lateral setae (L <sub>1-6</sub> )-----  | 5   |
| 2 (1). | Palpus appears to be three-segmented; distal segment coalesced with tibia; group formula 7/3/1/1 ( <u>frankeniae</u> group)-- <u>frankeniae</u> B.T.A (p. 93)     |     |
| --     | Palpus distinctly four-segmented-----   | 3   |
| 3 (2). | With two setae on distal segment of palpus; tarsus II with one solenidion; group formula 7/4/2/1 ( <u>portalis</u> group)-----                                    | 6   |
| --     | With three setae on distal segment of palpus; tarsus II with one or two solenidia-----  | 4   |
| 4 (3). | Tarsus II with two solenidia; group formula 7/4/3/2 ( <u>californicus</u> group)-----   | 19  |
| --     | Tarsus II with one solenidion; group formula 7/4/3/1 ( <u>cuneatus</u> group)-----  | 41  |
| 5 (1). | Tarsus II with two solenidia; group formula 6/4/3/2 ( <u>phoenicis</u> group)-----  |     |
| --     | ----- <u>phoenicis</u> (Geijskes) (p. 98)   |     |
| --     | Tarsus II with one solenidion; group formula 6/4/3/1 ( <u>obovatus</u> group)-----  | 111 |
| 6 (3). | Rostrum extending beyond femur I-----   | 7   |
| --     | Rostrum not extending beyond femur I-----   | 12  |
| 7 (6). | Rostrum extending beyond genu to tibia I-----   |     |
| --     | ----- <u>enceliae</u> B.T.A. (p. 102)   |     |
| --     | Rostrum not extending beyond genu to tibia I-----   | 8   |
| 8 (7). | All dorsal body setae broadly leaflike, oblanceolate; area posterior to IC <sub>4</sub> and intercoxal setal area smooth----- <u>spatulatus</u> , n. sp. (p. 107) |     |

1/Group formula refers to number of lateral hysterosomal setae/number of palpal segments/number of setae on distal segment of palpus/number of tarsus II solenidia.

- Dorsal body setae not as above, slender or ensiform; area posterior to IC<sub>4</sub> and intercoxal setal area variously sculptured----- 9
- 9 (8). Dorsal body setae ensiform to lanceolate; intercoxal setal area with punctation only-----  
-----erectus, n. sp. (p. 103)
- Dorsal body setae not as above, slender, or Ve, Sci, and DC<sub>1</sub> may be narrow ensiform, and with short L<sub>1-7</sub> and DC<sub>2-3</sub>----- 10
- 10 (9). Dorsum of propodosoma and hysterosoma entirely rugose, with strongly rugose dorsocentral area; Ve and Sci narrow ensiform-----  
-----ruelliae, n. sp. (p. 107)
- Dorsum of propodosoma and hysterosoma areolate-rugose, with areolate-rugose dorsocentral area; Ve and Sci narrow ensiform, or slender----- 11
- 11 (10). Propodosoma with distinct horseshoe-shaped furrow; Ve and Sci narrow ensiform -----  
-----parthenium Baker and Tuttle (p. 104)
- Propodosoma without horseshoe-shaped furrow, with strongly rugose or irregular areolae on dorsocentral and dorsolateral areas; Ve and Sci slender-----coldeniae B.T.A. (p. 100)
- 12 (6). Propodosomal setae leaflike, ensiform, lanceolate, or oblanceolate----- 13
- Propodosomal setae not leaflike, usually short-- 15
- 13 (12). Propodosomal and hysterosomal setae except DC<sub>1-3</sub> oblanceolate; with dorsolateral furrows on hysterosoma; pregenital plate and area posterior to IC<sub>4</sub> substrigate-rugose-----  
-----combreti De Leon (p. 101)
- Propodosomal and hysterosomal setae including DC<sub>1-3</sub> ensiform to lanceolate; without dorsolateral furrows on hysterosoma; pregenital plate and area posterior to IC<sub>4</sub> areolate-rugose----- 14
- 14 (13). Ve more than two times as long as distance between bases; DC<sub>1-2</sub> as long as Ve-----  
-----portalis Baker and Tuttle (p. 106)
- Ve as long as distance between bases; DC<sub>1-2</sub> shorter than Ve-----filifoliae B.T.A. (p. 103)
- 15 (12). Intercoxal setal area finely strigate, with sparse punctation; area posterior to IC<sub>4</sub> strigate-rugose-----tagetinae, n. n. (p. 108)
- Intercoxal setal area and area posterior to IC<sub>4</sub> variously sculptured----- 16
- 16 (15). Rostral shield with strongly tapered median and ancillary lobes; dorsal body setae mostly long, finely serrate, with Ve about 2/3 as long as distance between their bases-----  
-----artemisiae Baker and Tuttle (p. 99)
- Rostral shield with conical median lobes, without ancillary lobes; dorsal setae mostly short, nude, with Ve 1/3 to 1/2 as long as distance between their bases----- 17

|          |   |    |
|----------|---|----|
| 17 (16). | Dorsocentral area of propodosoma subareolate-rugose; with propodosomal pores; intercoxal setal area with punctation-- <u>zinniae</u> , n. sp. (p. 109)  |    |
| --       | Not as above-----   | 18 |
| 18 (17). | Pregenital plate strongly rugose; area posterior to IC <sub>4</sub> and posterior 1/2 of intercoxal setal area subareolate-rugose; genital flap scutellate-rugose----- <u>verbenae</u> , n. sp. (p. 109)  |    |
| --       | Pregenital plate pebbly areolate-rugose; area posterior to IC <sub>4</sub> and most of intercoxal setal area pebbly areolate; genital flap imbricate-rugose----- <u>physalis</u> De Leon (p. 105)   |    |
| 19 (4).  | Rostrum extending beyond femur I-----   | 20 |
| --       | Rostrum not extending beyond femur I-----   | 23 |
| 20 (19). | Propodosoma fossulate-rugose, or strongly rugose-----   | 21 |
| --       | Propodosoma areolate, or areolate-rugose-----   | 22 |
| 21 (20). | Dorsal setae Ve, Sci, Sce, DC <sub>1</sub> , and L <sub>1-2</sub> leaf-like, larger than other setae; dorsum of propodosoma strongly rugose with raised design; entire intercoxal setal area finely strigate----- <u>ornatus</u> , n. sp. (p. 41) |    |
| --       | All dorsal setae short and slender; propodosoma fossulate-rugose; anterior intercoxal setal area smooth----- <u>longisetosus</u> Baker (p. 39)  |    |
| 22 (20). | Propodosomal setae slender; with areolate dorsocentral and dorsolateral areas; rostrum extending to middle of genu I---- <u>rostratus</u> De Leon (p. 43)   |    |
| --       | Propodosomal setae leaflike, lanceolate, or oblanceolate; with rugose dorsocentral area and areolate-rugose dorsolateral areas; rostrum extending beyond genu to tibia I----- <u>proboscidius</u> De Leon (p. 42)                                 |    |
| 23 (19). | Propodosoma with fossulate, or fossulate-rugose dorsocentral area; hysterosoma with narrow longitudinal dorsolateral furrows-----   | 24 |
| --       | Propodosoma and hysterosoma not as above, variously sculptured-----   | 30 |
| 24 (23). | Hysterosoma sparsely rugose, with conspicuous dorsolateral furrows-----   | 25 |
| --       | Hysterosoma strongly rugose, with not so conspicuous dorsolateral furrows-----  | 27 |
| 25 (24). | Area posterior to IC <sub>4</sub> areolate; dorsocentral area of propodosoma partly fossulate-rugose----- <u>lepidium</u> , n. sp. (p. 38)  |    |
| --       | Area posterior to IC <sub>4</sub> substrigate- or rugose-areolate; dorsocentral area of propodosoma fossulate, or fossulate-rugose-----   | 26 |
| 26 (25). | Dorsocentral area of propodosoma fossulate; hysterosomals L <sub>1-3</sub> as large as propodosomals--- <u>encinarius</u> De Leon (p. 36)   |    |
| --       | Dorsocentral area of propodosoma fossulate-rugose; L <sub>1-3</sub> smaller than propodosomals----- <u>pseudopini</u> , n. sp. (p. 42)  |    |
| 27 (24). | Propodosomal setae slender; hysterosomals L <sub>1-7</sub> as long as propodosomals----- <u>cochlospermi</u> De Leon (p. 33)  |    |

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|----------|---|----|
| --       | Propodosomal setae leaflike; hysterosomals L <sub>1-7</sub> shorter than propodosomals-----   | 28 |
| 28 (27). | Dorsocentral area of propodosoma with dense fossulae; dorsolateral areas striate-rugose; much of intercoxal setal area areolate, with sparse punctation between IC <sub>3</sub> --- <u>gliricidae</u> De Leon (p. 37) | 37 |
| --       | Dorsocentral area of propodosoma with sparse fossulae; dorsolateral areas nearly smooth or rugose; intercoxal setal area with sparse punctation medially-----   | 29 |
| 29 (28). | Dorsolateral areas of propodosoma distinctly rugose; pregenital plate and genital flap scutellate-rugose----- <u>alternatus</u> De Leon (p. 30)   | 30 |
| --       | Dorsolateral areas of propodosoma nearly smooth; pregenital plate subareolate-rugose, genital flap scutellate-rugose----- <u>dentatae</u> , n. sp. (p. 36)  | 36 |
| 30 (23). | Propodosoma striate-rugose-----   | 31 |
| --       | Propodosoma areolate, or areolate-rugose-----   | 33 |
| 31 (30). | Propodosomal pores present; with rugose dorsocentral and striate-rugose dorsolateral areas of propodosoma; intercoxal setal area with sparse punctation between IC <sub>3</sub> --- <u>aepi</u> De Leon (p. 29)       | 29 |
| --       | Propodosomal pores absent; with striate-rugose dorsocentral and dorsolateral areas of propodosoma; intercoxal setal area not as above-----  | 32 |
| 32 (31). | Intercoxal setal area entirely finely strigate-rugose, with sparse punctation; dorsocentral and dorsolateral areas of propodosoma crowded striate-rugose----- <u>lotus</u> , n. sp. (p. 39)                           | 39 |
| --       | Intercoxal setal area mostly areolate, finely strigate anteriorly; dorsocentral and dorsolateral areas of propodosoma not crowded striate-rugose----- <u>neobicolpus</u> , n. sp. (p. 41)                             | 41 |
| 33 (30). | Dorsocentral area of propodosoma rugose-----  | 34 |
| --       | Dorsocentral area of propodosoma areolate, or areolate-rugose, with irregular or rugose areolate-----   | 35 |
| 34 (33). | Propodosomal pores present; hysterosomals L <sub>1-7</sub> nude; intercoxal setal area finely strigate, with sparse punctation----- <u>californicus</u> (Banks) (p. 32)   | 32 |
| --       | Propodosomal pores absent; hysterosomals L <sub>1-7</sub> serrate; intercoxal setal area smooth medially, with sparse punctation----- <u>ardisiae</u> De Leon (p. 31)   | 31 |
| 35 (33). | Propodosomal pores present-----   | 36 |
| --       | Propodosomal pores absent-----  | 37 |
| 36 (35). | Intercoxal setal area entirely pebbly areolate----- <u>trinidadensis</u> Baker (p. 44)  | 44 |
| --       | Intercoxal setal area areolate-punctate----- <u>cercidium</u> B.T.A. (p. 33)  | 33 |
| 37 (35). | Propodosoma entirely pebbly areolate; hysterosomal pores absent----- <u>crataegus</u> , n. sp. (p. 35)  | 35 |
| --       | Propodosoma not pebbly areolate; hysterosomal pores present or absent-----  | 38 |
| 38 (37). | Intercoxal setal area smooth, with barely areolate posterior margin; dorsal setae on femora I and II broadly leaflike--- <u>viquierae</u> B.T.A. (p. 45)  | 45 |

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| --       | Intercoxal setal area areolate, or with punctation; dorsal setae on femora I and II slender, or narrow ensiform-----  | 39  |
| 39 (38). | Area posterior to IC <sub>4</sub> and intercoxal setal area pebbly areolate as in <u>trinidadensis</u> ; dorsal setae on femora I and II narrow ensiform-----<br>----- <u>cordiae</u> De Leon (p. | 34) |
| --       | Not as above-----   | 40  |
| 40 (39). | Area posterior to IC <sub>4</sub> substrigate-rugose medially, areolate laterally; hysterosomal pores present----- <u>neoardisiae</u> , n. sp. (p.  | 40) |
| --       | Area posterior to IC <sub>4</sub> with scattered pebbly areolae; hysterosomal pores absent-----<br>----- <u>ambrosiae</u> , n. sp. (p.  | 31) |
| 41 (4).  | Rostrum extending beyond femur I-----   | 42  |
| --       | Rostrum not extending beyond femur I-----   | 53  |
| 42 (41). | Intercoxal setal area with punctation-----  | 43  |
| --       | Intercoxal setal area smooth-----   | 47  |
| 43 (42). | Propodosomal pores present-- <u>baccharis</u> , n. sp. (p.  | 50) |
| --       | Propodosomal pores absent-----  | 44  |
| 44 (43). | Dorsocentral area of propodosoma subrugose, with smooth spot at center; pregenital plate rugose----- <u>pseudopiniculus</u> , n. sp. (p.  | 79) |
| --       | Dorsocentral area of propodosoma areolate; pregenital plate areolate-----   | 45  |
| 45 (44). | Propodosomal and hysterosomal setae nude; intercoxal setal area entirely punctate-----<br>----- <u>crotoni</u> De Leon (p.  | 56) |
| --       | Propodosomal and hysterosomal setae serrate; intercoxal setal area areolate-punctate-----   | 46  |
| 46 (45). | Intercoxal setal area areolate, punctate medially----- <u>similis</u> , n. sp. (p.  | 85) |
| --       | Intercoxal setal area punctate, with few areolae posteriorly----- <u>essigi</u> Baker (p.   | 58) |
| 47 (42). | Propodosomal and hysterosomal setae broadly leaflike-----   | 48  |
| --       | Not as above-----   | 49  |
| 48 (47). | DC <sub>1-2</sub> broadly leaflike, as large as propodosomal setae; pregenital plate strigate-rugose-----<br>----- <u>celtis</u> B.T.A. (p.   | 53) |
| --       | DC <sub>1-2</sub> slender, smaller than propodosomals; pregenital plate rugose, or areolate-rugose-----<br>----- <u>lagasceae</u> De Leon (p.   | 65) |
| 49 (47). | Propodosomal setae very long and stout, pectinate, similar to hysterosomals L <sub>1-3</sub> and DC <sub>1-3</sub> -----<br>----- <u>hypti</u> De Leon (p.  | 62) |
| --       | Not as above-----   | 50  |
| 50 (49). | Dorsocentral area of propodosoma longitudinally rugose; pregenital plate and area posterior to IC <sub>4</sub> strigate-rugose----- <u>desmodium</u> , n. sp. (p.                                 | 57) |
| --       | Dorsocentral area of propodosoma areolate, or areolate-rugose; pregenital plate and area posterior to IC <sub>4</sub> variously sculptured-----   | 51  |
| 51 (50). | Hysterosoma with dorsolateral furrows; Ve stouter than Sci and Sce; pregenital plate smooth; female with padlike claws-----<br>----- <u>quercicolus</u> De Leon (p.                               | 80) |



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| --       | Hysterosoma without dorsolateral furrows; Ve similar to Sci and Sce; pregenital plate sculptured-----  | 52 |
| 52 (51). | Area posterior to IC <sub>4</sub> strigulate; pregenital plate subscutellate-rugose-----<br>----- <u>pseudoleptoides</u> De Leon (p. 78)                                       |    |
| --       | Area posterior to IC <sub>4</sub> substrigulate-rugose medially, areolate laterally; pregenital plate pebbly areolate----- <u>acatlanus</u> , n. sp. (p. 46)                   |    |
| 53 (41). | Hysterosoma with dorsolateral furrows-----   | 54 |
| --       | Hysterosoma without dorsolateral furrows-----  | 77 |
| 54 (53). | Propodosoma and hysterosoma with smooth areas; hysterosoma with conspicuous narrow longitudinal dorsolateral furrows-----  | 55 |
| --       | Propodosoma and hysterosoma variously sculptured; dorsolateral furrows not as above-----   | 56 |
| 55 (54). | Propodosomal setae larger than hysterosomals; propodosoma lacking definite pattern, slightly rugose----- <u>rubus</u> , n. sp. (p. 82)   |    |
| --       | Propodosomal setae as large as hysterosomals; propodosoma with fossulate-rugose dorsocentral area----- <u>levis</u> De Leon (p. 67)  |    |
| 56 (54). | Dorsolateral furrows with well-defined rugose margins-----   | 57 |
| --       | Dorsolateral furrows not as above-----   | 60 |
| 57 (56). | Rostral shield without ancillary lobes; propodosomal setae long and strong-----<br>----- <u>arizonicae</u> , n. sp. (p. 49)  |    |
| --       | Rostral shield with ancillary lobes; propodosomal setae of various forms-----  | 58 |
| 58 (57). | Sci and Sce slender, Ve narrow leaflike; intercoxal setal area sparsely punctate-----<br>----- <u>insinuatus</u> De Leon (p. 63)   |    |
| --       | Not as above-----  | 59 |
| 59 (58). | Sce slender, Ve and Sci broadly leaflike; intercoxal setal area smooth----- <u>moreliensis</u> , n. sp. (p. 69)  |    |
| --       | All propodosomal setae leaflike; intercoxal setal area strigulate----- <u>neohyptis</u> B.T.A. (p. 70)   |    |
| 60 (56). | Dorsocentral area of propodosoma fossulate, or fossulate-rugose-----   | 61 |
| --       | Dorsocentral area of propodosoma areolate, or rugose-----  | 64 |
| 61 (60). | Intercoxal setal area with punctation-----   | 62 |
| --       | Intercoxal setal area smooth, or areolate posteriorly-----   | 63 |
| 62 (61). | Genital flap scutellate-----<br>----- <u>pseudophoenicis</u> B.T.A. (p. 78)  |    |
| --       | Genital flap rugose----- <u>variolatus</u> De Leon (p. 92)   |    |
| 63 (61). | Dorsolateral areas of propodosoma finely striate; propodosomal setae leaflike; much of intercoxal setal area smooth-----<br>----- <u>striatus</u> De Leon (p. 87)              |    |
| --       | Dorsolateral areas of propodosoma rugose, minutely striate; propodosomal setae slender; anterior 1/2 of intercoxal setal area smooth-----<br>----- <u>mori</u> De Leon (p. 70) |    |

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| 64 (60). | Dorsocentral area of propodosoma rugose-----  | 65 |
| --       | Dorsocentral area of propodosoma areolate-----  | 67 |
| 65 (64). | Propodosomal pores present; propodosomal setae<br>short and stout----- <u>lewisii</u> McGregor (p. 67)  |    |
| --       | Propodosomal pores absent; propodosomal setae<br>long, narrow leaflike, ensiform-----   | 66 |
| 66 (65). | Intercoxal setal area coarsely punctate-----<br>----- <u>querensis</u> , n. sp. (p. 80)   |    |
| --       | Intercoxal setal area without punctation,<br>smooth anteriorly----- <u>rugosus</u> De Leon (p. 82)  |    |
| 67 (64). | Dorsocentral area of propodosoma pebbly areo-<br>late, or areolate-rugose-----  | 68 |
| --       | Dorsocentral area of propodosoma areolate (form<br>of areolate distinctly polygonal)-----   | 71 |
| 68 (67). | Propodosomal pores present-----   | 69 |
| --       | Propodosomal pores absent-----  | 70 |
| 69 (68). | Dorsum of propodosoma strongly areolate-rugose--<br>----- <u>boucheae</u> B.T.A. (p. 51)  |    |
| --       | Dorsum of propodosoma crowded pebbly areolate-<br>rugose----- <u>sidae</u> B.T.A. (p. 84)   |    |
| 70 (68). | Intercoxal setal area sparsely punctate; area<br>posterior to IC <sub>4</sub> areolate; hysterosomal<br>pores present----- <u>alni</u> De Leon (p. 48)                                      |    |
| --       | Intercoxal setal area and area posterior to IC <sub>4</sub><br>finely strigate; hysterosomal pores absent-----<br>----- <u>albus</u> De Leon (p. 47)  |    |
| 71 (67). | Propodosomal pores present-----   | 72 |
| --       | Propodosomal pores absent-----  | 76 |
| 72 (71). | Intercoxal setal area and area posterior to IC <sub>4</sub><br>entirely pebbly areolate; pregenital plate<br>areolate-rugose----- <u>plucheae</u> B.T.A. (p. 77)                            |    |
| --       | Not as above-----   | 73 |
| 73 (72). | Pregenital plate and genital flap pebbly areo-<br>late----- <u>mexicanus</u> , n. sp. (p. 69)   |    |
| --       | Not as above-----   | 74 |
| 74 (73). | Intercoxal setal area with punctation between<br>IC <sub>3</sub> ; genital flap areolate-----<br>----- <u>tepicensis</u> n. sp. (p. 88)   |    |
| --       | Without punctation between IC <sub>3</sub> ; genital flap<br>not as above-----  | 75 |
| 75 (74). | Intercoxal setal area obscure areolate-rugose<br>to substrigate; propodosomal setae short, as<br>long as hysterosomals----- <u>lippiae</u> , n. sp. (p. 68)                                 |    |
| --       | Intercoxal setal area sparsely areolate, may be<br>obscure; propodosomal setae longer than hystero-<br>somals----- <u>crotonellae</u> , n. sp. (p. 55)                                      |    |
| 76 (71). | Intercoxal setal area smooth; area posterior to<br>IC <sub>4</sub> and pregenital plate strigate-rugose;<br>genital flap scutellate-rugose-----<br>----- <u>oaxacensis</u> De Leon (p. 72)  |    |
| --       | Intercoxal setal area and area posterior to IC <sub>4</sub><br>areolate-perlate; pregenital plate strongly<br>rugose; genital flap imbricate-----<br>----- <u>geranium</u> , n. sp. (p. 61) |    |
| 77 (53). | Propodosomal pores present-----   | 78 |
| --       | Propodosomal pores absent-----  | 79 |

- 78 (77). Intercoxal setal area strigate-rugose, without punctation; area posterior to IC<sub>4</sub> areolate-scutellate-----castillejae, n. sp. (p. 52)
- Intercoxal setal area pebbly areolate and finely strigate-punctate; area posterior to IC<sub>4</sub> pebbly areolate-----pachucensis, n. sp. (p. 74)
- 79 (77). Propodosoma rugose, or tuberculate-rugose----- 80
- Propodosoma not as above, usually areolate-rugose----- 83
- 80 (79). Propodosoma rugose, with strigate-rugose dorso-central area; Ve ensiform, as large as Sci-----allenrolfeae B.T.A. (p. 47)
- Propodosoma tuberculate-rugose, with rugose dorsocentral area; Ve broadly leaflike, considerably larger than Sci----- 81
- 81 (80). Seta on second segment of palpus leaflike; intercoxal setal area finely strigate-punctate-----formosus De Leon (p. 60)
- Seta on second segment of palpus slender; intercoxal setal area tuberculate-punctate----- 82
- 82 (81). DC<sub>3</sub> widely spaced, in line with DC<sub>1-2</sub>; medial punctate area of intercoxal setal area triangular in shape-----tuberellus De Leon (p. 91)
- DC<sub>3</sub> close to each other, not in line with DC<sub>1-2</sub>; medial punctate area of intercoxal setal area rounded-----chamaedoreae B.T.A. (p. 53)
- 83 (79). Dorsocentral area of propodosoma smooth, not completely sculptured----- 84
- Dorsocentral area variously sculptured, or with punctation----- 86
- 84 (83). Intercoxal setal area smooth-----pinialtheriae, n. sp. (p. 76)
- Intercoxal setal punctate----- 85
- 85 (84). Area posterior to IC<sub>4</sub> strigate-rugose; pregenital plate and genital flap substrigate-rugose-----tlaxcensis, n. sp. (p. 90)
- Area posterior to IC<sub>4</sub> sparsely punctate; pregenital plate and genital flap areolate-rugose or scutellate-rugose-----juniperus, n. sp. (p. 64)
- 86 (83). Dorsocentral area of propodosoma with punctation----- 87
- Dorsocentral area variously sculptured, but not punctate----- 88
- 87 (86). Lateral areas of propodosoma and hysterosoma rugose; area posterior to IC<sub>4</sub> pebbly areolate-rugose-----amecensis, n. sp. (p. 49)
- Lateral areas smooth, with punctation; area posterior to IC<sub>4</sub> lightly substrigate-punctate-----piniceltis, n. sp. (p. 76)
- 88 (86). Dorsocentral area of propodosoma fossulate----- 89
- Dorsocentral area of propodosoma not as above--- 90
- 89 (88). Propodosomal and hysterosomal pores present; dorsal seta on femur I broadly leaflike; intercoxal setal area entirely punctate-----nodiflorae, n. sp. (p. 72)

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| --        | Propodosomal and hysterosomal pores absent;<br>dorsal seta on femur I short and slender; in-<br>tercoxal setal area sparsely punctate medially-  |     |
| 90 (88).  | Dorsocentral area of propodosoma rugose, or<br>substrigate-rugose-----   | 91  |
| --        | Dorsocentral area of propodosoma areolate, or<br>areolate-rugose-----  | 95  |
| 91 (90).  | Dorsocentral area of propodosoma distinctly<br>rugose-----   | 92  |
| --        | Dorsocentral area of propodosoma substrigate-<br>rugose-----   | 94  |
| 92 (91).  | Intercoxal setal area smooth--- <u>cassiae</u> B.T.A. (p. 51)  |     |
| --        | Intercoxal setal area variously sculptured-----  | 93  |
| 93 (92).  | Pregenital plate areolate; intercoxal setal<br>area and area posterior to IC <sub>4</sub> areolate-----  |     |
| --        | ----- <u>johnstoni</u> , n. sp. (p. 64)  |     |
| --        | Pregenital plate rugose; intercoxal setal area<br>strigate; area posterior to IC <sub>4</sub> strigate-rugose-<br>areolate-----  |     |
| 94 (91).  | Dorsal setae on femora I and II stout but not<br>leaflike; pregenital plate subscutellate;<br>large species, 472 long, 255 wide-----   |     |
| --        | ----- <u>abiesae</u> , n. sp. (p. 46)  |     |
| --        | Dorsal setae on femora I and II narrow leaf-<br>like, lanceolate; pregenital plate areolate,<br>with rugose areolae; small species, 285<br>long, 165 wide-----   |     |
| 95 (90).  | Propodosomal setae broadly leaflike, ensiform,<br>lanceolate, or spatulate-----  | 96  |
| --        | Propodosomal setae not as above-----   | 101 |
| 96 (95).  | DC <sub>1-3</sub> leaflike, similar to hysterosomal later-<br>als L <sub>1-7</sub> -----   | 97  |
| --        | DC <sub>1-3</sub> slender, well differentiated from hyster-<br>osomal laterals-----  | 98  |
| 97 (96).  | All dorsal body setae lanceolate-spatulate,<br>nude; much of intercoxal setal area coarsely<br>punctate-----   |     |
| --        | ----- <u>stenolobae</u> , n. sp. (p. 86)   |     |
| --        | All dorsal body setae ensiform or lanceolate,<br>serrate; anterior intercoxal setal area finely<br>strigate and punctate-----  |     |
| 98 (96).  | Propodosomal and hysterosomal setae about 1/4<br>as long as distance between bases of Ve;<br>intercoxal setal area areolate, with small<br>punctate area medially-- <u>zempoalensis</u> , n. sp. (p. 93) |     |
| --        | Propodosomal and hysterosomal setae 1/2 to 2/3<br>as long as distance between bases of Ve; inter-<br>coxal setal area not as above-----  | 99  |
| 99 (98).  | Intercoxal setal area sparsely punctate-----   |     |
| --        | ----- <u>tepicbutilonae</u> , n. sp. (p. 88)   |     |
| --        | Intercoxal setal area punctate-areolate, or<br>strigulate-punctate-----  | 100 |
| 100 (99). | Area posterior to IC <sub>4</sub> and pregenital plate pebbly<br>areolate; intercoxal setal area coarsely punctate<br>anteriorly, areolate posteriorly-----  |     |
|           | ----- <u>serratus</u> De Leon (p. 83)  |     |

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| --         | Area posterior to IC <sub>4</sub> areolate-scutellate;<br>pregenital plate rugose-subareolate; intercoxal<br>setal area strigulate-punctate-----<br>----- <u>incarnatae</u> , n. sp. (p. 63)   |     |
| 101 (95).  | Propodosomal setae long, slender, or stout,<br>more than 2/3 as long as distance between<br>bases of Ve-----   | 102 |
| --         | Propodosomal setae short, less than 1/2 as long<br>as distance between bases of Ve-----  | 105 |
| 102 (101). | Propodosomal areolate rounded or pebbly; inter-<br>coxal setal area sparsely punctate; pregenital<br>plate with straight lateral margins; deutonymphs<br>with short body setae (fig. 85, C)-----<br>----- <u>oreopanacis</u> De Leon (p. 73) |     |
| --         | Intercoxal setal area smooth; pregenital plate<br>with rounded lateral margins; deutonymphs with<br>long stout body setae----- <u>chucamayi</u> De Leon (p. 54)  |     |
|            | Propodosomal areolae polygonal-----  | 103 |
| 103 (102). | Intercoxal setal area smooth-- <u>filifer</u> De Leon (p. 59)  |     |
| --         | Intercoxal setal area punctate-----  | 104 |
| 104 (103). | Dorsal setae on femora I and II similar to Ve<br>and Sci; dorsolateral areolae rounded-----<br>----- <u>salix</u> n. sp. (p. 83)   |     |
| --         | Dorsal setae on femora I and II similar to Ve<br>only; dorsolateral areolae polygonal as on<br>dorsocentral area----- <u>hamelrectae</u> , n. sp. (p. 61)  |     |
| 105 (101). | Dorsal setae on femora I and II leaflike,<br>lanceolate, well differentiated from propodo-<br>somals----- <u>religiosae</u> De Leon (p. 81)  |     |
| --         | Dorsal setae on femora I and II slender, not<br>much different from propodosomals-----   | 106 |
| 106 (105). | Pregenital plate smooth or nearly so; inter-<br>coxal setal area entirely punctate-----<br>----- <u>spitzeri</u> , n. sp. (p. 85)  |     |
| --         | Not as above-----  | 107 |
| 107 (106). | Intercoxal setal area and area posterior to IC <sub>4</sub><br>entirely areolate; genital flap imbricate-----<br>----- <u>emarginatae</u> , n. sp. (p. 57)   |     |
| --         | Not as above-----  | 108 |
| 108 (107). | Intercoxal setal area punctate-strigate; area<br>posterior to IC <sub>4</sub> strigate-rugose-----<br>----- <u>venutus</u> n. sp. (p. 92)  |     |
| --         | Intercoxal setal area punctate-areolate or<br>cancellate; area posterior to IC <sub>4</sub> areolate<br>or cancellate-----   | 109 |
| 109 (108). | Pregenital plate and area posterior to IC <sub>4</sub><br>pebbly areolate; intercoxal setal area pebbly<br>areolate, with small rounded punctate area<br>medially----- <u>ewpristori</u> De Leon (p. 59)                                     |     |
| --         | Not as above-----  | 110 |
| 110 (109). | Pregenital plate and area posterior to IC <sub>4</sub><br>areolate-cancellate; intercoxal setal area<br>areolate-cancellate, with punctate area be-<br>tween IC <sub>3</sub> ----- <u>lantanae</u> , n. sp. (p. 66)                          |     |
| --         | Pregenital plate and area posterior to IC <sub>4</sub><br>areolate-rugose; intercoxal setal area punc-<br>tate medially, areolate laterally-----   |     |

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|------------|---|-----|
|            | ----- <u>stipae</u> , n. sp. (p. 87)                                      |     |
| 111 (5).   | Gnathosoma extending beyond femur to genu I-----                          |     |
| --         | ----- <u>pocillator</u> De Leon (p. 98)                                   |     |
| 112 (111). | Gnathosoma not extending beyond femur I-----                              | 112 |
|            | Hysterosoma with conspicuous longitudinal                                 |     |
| --         | dorsolateral furrows-----   | 113 |
| 113 (112). | Hysterosoma without dorsolateral furrows-----                             | 115 |
|            | L <sub>5-6</sub> as long as L <sub>1-4</sub> ; propodosoma with pores---- |     |
| --         | ----- <u>obovatus</u> Donnadieu (p. 96)                                   |     |
|            | L <sub>5-6</sub> shorter than L <sub>1-4</sub> ; propodosoma without      |     |
| 114 (113). | pores-----  | 114 |
|            | Propodosoma and hysterosoma with smooth areas;                            |     |
| --         | intercoxal setal area sparsely punctate, areo-                            |     |
|            | late posteriorly----- <u>edwinae</u> Baker (p. 95)                        |     |
| 115 (114). | Propodosoma and hysterosoma without smooth                                |     |
|            | areas; intercoxal setal area strigate-punctate,                           |     |
| --         | areolate posteriorly----- <u>lupinus</u> , n. sp. (p. 96)                 |     |
|            | Dorsocentral area of propodosoma rugose; Ve                               |     |
| 115 (114). | about 2/3 as long as distance between their                               |     |
| --         | bases----- <u>edax</u> De Leon (p. 94)                                    |     |
|            | Dorsocentral area sparsely punctate; Ve about                             |     |
|            | 1/4 as long as distance between their bases----                           |     |
|            | ----- <u>origanum</u> B.T.A. (p. 97)                                      |     |

DESCRIPTIONS OF SPECIES IN BREVIPALPUS CALIFORNICUS GROUP

Brevipalpus aepi De Leon  
(Fig. 20, A-C)

Brevipalpus aepi De Leon, 1961a: 43;  
Baker, Tuttle, and Abbatiello, 1975:  
16.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical, overlapping median lobes and poorly developed ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly slender, nude or finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma rugose, with striate-rugose dorsolateral areas (fig. 20, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> very short, much shorter than propodosomals, nude or barbed; hysterosoma more rugose than propodosoma, with striate-rugose longitudinal dorsolateral furrows (fig. 20, A); pores present; distant rugose lateral grooves; pregenital plate with

sides uneven, slightly pinched at middle, areolate to subareolate-rugose as in genital flap sculpturing (fig. 20, B); genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate; intercoxal setal area with sparse punctation between IC<sub>3</sub> (fig. 20, B); dorsal setae on femora I and II narrow leaflike, sublanceolate, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 253, width 147.

Variation.--Length 251-279, width 142-156.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; all dorsal setae except Sci and L<sub>7</sub> very small to minute, not more than two times as long as diameter of bases (fig. 20, C); Sci fairly stout, about three times as long as Ve or Sce; L<sub>7</sub> large, narrow leaflike, ensiform, strongly serrate; dorsal setae on femora I and II fairly stout, barbed, slightly shorter than

Sci, three to four times as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (7 females and 1 deutonymph), ex Eupatorium hemiteropododum Rob. and Lippia hypoleia Broq., Tuxtla Gutierrez, Chiapas, January 15, 1957 (D. De Leon); ex Heliocarpus tomentosus Trucz., Cordova, Vera Cruz, February 4, 1957; ex Verbesina sp., Tepic, Nayarit, March 25, 1957 (D. De Leon); 25 females, 5 deutonymphs, and 1 protonymph, ex Solanum sp. and Leonotis sp., San Vicente, 130 km north of Pachuca, Hidalgo, July 15, 1974, and ex Zinnia sp., Acatlan, Jalisco, July 1, 1974; (all collected by T.B.A.).

Discussion.--The rugose dorsocentral area and striate-rugose dorsolateral areas of the propodosoma, the sparse punctation on the intercoxal setal area between IC<sub>3</sub>, as well as the presence of propodosomal pores and the strongly rugose dorsum of the hysterosoma, with longitudinal dorsolateral furrows, characterize aepi. Although the pregenital plate and genital flap sculpturing varies from subareolate-rugose to distinctly areolate, aepi is not likely to be confused with any other species in the group. The deutonymph is distinctive by its dorsal setae (fig. 20, C).

Brevipalpus alternatus De Leon  
(Fig. 21, A-C)

Brevipalpus alternatus De Leon, 1961a:  
46; Baker, Tuttle, and Abbatiello,  
1975: 16.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with slender, tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce small, leaflike, lanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma with sparse sculpturing, fossulate-rugose (fig. 21, A), with sparse and irregular fossulae on dorsocentral

area and rugose dorsolateral and lateral areas; pores absent; hysterosomal setae L<sub>1-7</sub> very small, leaflike, much smaller than propodosomals, lanceolate, serrate; DC<sub>1-3</sub> much smaller than laterals, lanceolate, finely serrate; hysterosoma much more rugose than propodosoma, with narrow longitudinal dorsolateral furrows becoming obscure posteriorly (fig. 21, A); pores present; distinct lateral grooves; pregenital plate with sides straight, scutellate-rugose as in genital flap (fig. 21, B); genital setae slightly stronger and longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> areolae, with rugose or irregular areolae; intercoxal setal area with sparse punctation (fig. 21, B); dorsal setae on femora I and II not much larger than propodosomals, lanceolate, serrate, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 278, width 154.

Variation.--Length 274-276, width 148-156.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci and L<sub>5</sub> very long and whiplike, nearly as long as width of body (fig. 21, C); Ve, L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> very small to minute, one to two times as long as diameter of their bases; Sce and L<sub>7</sub> large, leaflike, lanceolate, serrate, as long as distance between bases of Sci and Sce; dorsal setae on femora I and II small, leaflike, oblanceolate or ovate, serrate, about 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (two females and two deutonymphs), ex Conocarpus erecta L., San Blas, Nayarit, March 28, 1957 (D. De Leon).

Discussion.--This species has the characteristic narrow longitudinal dorsolateral furrows on the hysterosoma and fossulate-rugose dorsum of propo-

dosoma. It is recognized by having sparse and irregular fossulae on the dorsocentral area of the propodosoma and scutellate-rugose pregenital plate and genital flap. The deutonymph is very distinctive by having very long, whiplike dorsal setae Sci and L<sub>5</sub> (fig. 21, C).

Brevipalpus ambrosiae, new species  
(Fig. 22, A, B)

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small, rounded ancillary lobes; propodosomal setae Ve, Sci, Sce slender, fairly strong, tapered to pointed tips, nude, about 1/2 as long as distance between bases of Ve; propodosoma areolate except for rugose lateral margins (fig. 22, A); pores absent; hysterosomal setae L<sub>1-7</sub> slender, nude, about 1/3 shorter than propodosomals; DC<sub>1-3</sub> fairly weak, about as long as laterals; hysterosoma areolate-rugose; rugose lateral areas and dorsocentral area posterior to DC<sub>3</sub>, with areolate dorsolateral areas, without furrows; pores absent; rugose lateral grooves (fig. 22, A); pregenital plate with sides straight, slightly widened posteriorly, crowded areolate; genital flap sub-scutellate; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate, with scattered pebbly areolae (fig. 22, B); intercoxal setal area with punctation and finely strigate medially; dorsal setae on femora I and II strong, ensiform, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 268, width 153.

Male.--Not known.

Holotype.--Female, ex Ambrosia sp., 9.6 km north of Oaxaca, Oaxaca, July 16, 1974 (T.B.A.), on same slide with one female designated as paratype. Holotype female is in center of coverslip, above paratype as marked and mapped on label.

Paratypes.--Two females, with same data as holotype. Length 251-268, width 139-148.

Discussion.--B. ambrosiae has the same basic type of dorsal surface sculpturing as neoardisiae. It is distinguished by the nude dorsal setae, by the scattered pebbly areolae on the area posterior to IC<sub>4</sub>, and by the stronger dorsal setae on femora I and II.

Brevipalpus ardisiae De Leon  
(Fig. 23, A-C)

Brevipalpus ardisiae De Leon, 1961a: 42; Baker, Tuttle, and Abatiello, 1975: 16. Misspelling.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with strongly tapered median and very small, rounded ancillary lobes; propodosomal setae Ve, Sci, Sce fairly short and strong, sublanceolate, barbed or sparsely serrate, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose dorsocentral area (fig. 23, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> nearly as large as propodosomals, barbed or sparsely serrate; hysterosoma with sculpturing as on propodosoma; rugose dorsocentral and areolate dorsolateral areas; longitudinal dorsolateral furrows (fig. 23, A); pores present; barely distinct rugose lateral grooves; pregenital plate with sides uneven, subareolate-rugose as in genital flap; genital setae stouter and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> subareolate; intercoxal setal area smooth medially, with sparse punctation (fig. 23, B); dorsal setae on femora I and II narrow leaflike, much larger than propodosomals, lanceolate, serrate, slightly more than 1/2 as long as width of segments; tarsus II with two solenidia. Length 278, width 152.

Variation.--Length 273-285, width 148-154.



Male.--Not known.

Deutonymph.--Rostrum barely extending to middle of femur I; dorsal setae Ve, Sci, Sce, and all hysterosomal setae including DC<sub>1-3</sub> long and narrow leaflike, ensiform, serrate, about 2/3 as long as distance between bases of Ve (fig. 23, C); dorsal setae on femora I and II similar to body setae except for shorter femur II seta.

Specimens examined.--Holotype (female) and paratypes (two females and two deutonymphs), ex Ardisia revoluta H.B.K., Mirador del Aguila, west of Tepic, Nayarit, March 29, 1957 (D. De Leon).

Discussion.--B. ardisiae is characterized by having areolate-rugose dorsal surface sculpturing with rugose dorsocentral area. The lack of propodosomal pores, the barbed or serrate hysterosomal setae, and the medially smooth intercoxal setal area with sparse punctation will separate ardisiae from californicus. The long and narrow leaflike dorsal setae of the deutonymph will help identify ardisiae with certainty. One female ex Doxantha unguis-cati (L.) Rehd. from the type locality and identified as Brevipalpus ardisiae by De Leon is apparently a new species.

Brevipalpus californicus (Banks)  
(Fig. 24, A-C)

Tenuipalpus californicus Banks, 1904:  
55.

Brevipalpus californicus, Pritchard and Baker, (1951) 1952: 30; 1958: 216; De Leon, 1961a: 46; Baker, Tuttle, and Abbatiello, 1975: 16.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly conical median and very small, dentate or rounded ancillary lobes; propodosomal setae Ve, Sci, Sce very short, fairly slender, nude, 1/5 to 1/4 as long as distance between bases of Ve; propodosoma areolate-

rugose, convoluted rugose dorsocentral area and areolate-rugose dorsolateral areas (fig. 24, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> much shorter than propodosomals; nude; hysterosoma with sculpturing as on propodosoma, with subareolate-rugose dorsolateral and dorsocentral areas and indistinct dorsolateral furrows (fig. 24, A); lateral areas strongly rugose as on propodosoma, with barely distinct grooves; pores present; pregenital plate with sides uneven, subareolate-rugose; genital flap imbricate-scutellate; genital setae stouter than and as long as pregenitals, barely perceptibly equidistant from each other; area posterior to IC<sub>4</sub> subareolate-rugose; intercoxal setal area finely strigate, with sparse punctation (fig. 24, B); dorsal setae on femora I and II narrow leaflike, lanceolate, finely serrate; femur I seta larger than femur II seta, both setae about 1/2 as long as width of segments; tarsus II with two solenidia. Length 268-275, width 150-155 (type series only).

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sce and L<sub>4-7</sub> large, leaflike, oblanceolate, serrate, about 1/3 as long as distance between Ve; Sci and L<sub>1</sub> subequal in size, about 1/2 as large as Sce; Ve, L<sub>2-3</sub>, and DC<sub>1-3</sub> very small to minute, stout, two to three times as long as diameter of bases; dorsal setae on femora I and II leaflike, oblanceolate, smaller than Sce, about 1/2 as long as width of segments (fig. 24, C).

Specimens examined.--Lectotype here designated. Type series, six females, ex citrus peel, Redlands, Calif. (no date) (S. A. Pearse); six females, ex Chamaecyparis sp., Croton sp., Dodonaea viscosa Jacq., and Senecio sp., Fortin, Vera Cruz, July 12, 1974 (T.B.A.).

Discussion.--This species has been reported from a variety of plants

throughout the world. Examination of types of californicus has shown that what has been identified as californicus may be a complex of undescribed species. The previous description and figures are taken from type specimens, but there is little doubt as to the identity of the species from Mexico. B. californicus may be recognized from its related species, ardisiae, by the convoluted rugose dorsocentral area of the propodosoma, the presence of propodosomal pores, the much shorter and nude hysterosomal setae, and imbricate-scutellate genital flap. The deutonymph is distinguished by the leaflike, oblanceolate dorsal setae Sc<sub>e</sub> and L<sub>4-7</sub> and by the small Sci subequal in size to L<sub>1</sub> (fig. 24, C). The type slide with 11 females and 1 deutonymph, bearing the following data, has been remounted: Brevipalpus californicus (Banks)/Redlands, Calif./S. A. Pearse/10008/Rmmtd Feb. 1950/USNM 1827. One female from this series is here designated as lectotype.

Brevipalpus cercidium Baker, Tuttle, and Abbatiello  
(Fig. 25, A-C)

Brevipalpus cercidium Baker, Tuttle, and Abbatiello, 1975: 18.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with subconical median lobes, with or without ancillary lobes; propodosomal setae Ve, Sci, Sc<sub>e</sub> slender, fairly strong, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with confused rugose or irregular areolae on dorsocentral and dorsolateral areas (fig. 25, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-7</sub> similar to propodosomals except for much shorter and slightly stronger posterior laterals; hysterosoma much more rugose than propodosoma (fig. 25, B); subareolate-rugose longitudinal dorsolateral furrows and dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub>; pores present;

distinct rugose lateral grooves; pregenital plate with sides uneven, nearly straight, pebbly subareolate becoming rugose along margins (fig. 25, A); genital flap substrigaterugose; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area pebbly areolate; anterior intercoxal setal area with sparse punctation (fig. 25, B); dorsal setae on femora I and II narrow leaflike, lanceolate, strongly serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 235, width 130.

Male.--Not known.

Deutonymph.--Based on single poor specimen; rostrum extending beyond femur to base of genu I; all dorsal setae minute except Ve, Sci, Sc<sub>2</sub>, L<sub>1</sub>, and DC<sub>1</sub> (fig. 25, C); Ve and Sci stouter and slightly longer than Sc<sub>e</sub>, L<sub>1</sub>, and DC<sub>1</sub>, about 1/3 as long as distance between bases of Ve; dorsal setae on femora I and II very short, fairly stout, about 1/3 as long as width of segments.

Specimens examined.--Holotype (female) and one deutonymph, ex Cercidium floridum Benth., Mazatlan, Sinaloa, July 24, 1970 (T.B.A.).

Discussion.--B. cercidium is characterized by its areolate-rugose dorsal surface sculpturing, with confused rugose or irregular areolae (fig. 25, A). It is distinguished from trinidadensis by the punctate anterior intercoxal setal area, as well as by the much more rugose or irregular areolae. The deutonymph differs by having minute dorsal setae L<sub>2-7</sub> and DC<sub>2-3</sub>, whereas trinidadensis has broadly leaflike L<sub>5</sub>, L<sub>7</sub>, Sci, and Sc<sub>e</sub>.

Brevipalpus cochlospermi De Leon  
(Fig. 26, A-D)

Brevipalpus cochlospermi De Leon, 1961a: 43; Baker, Tuttle, and Abbatiello, 1975: 16.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with strongly conical median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly slender, finely serrate, about 1/4 as long as distance between bases of Ve; propodosoma fossulate-rugose; strongly fossulate dorsocentral area (fig. 26, A); pores absent; hysterosomal setae L<sub>1-7</sub> similar to propodosomals; DC<sub>1</sub> nearly as large as laterals, DC<sub>2-3</sub> very small, weak; hysterosoma more rugose than propodosoma; strongly rugose dorsocentral and dorsolateral areas; longitudinal striate dorsolateral furrows (fig. 26, A); pores present; distinct lateral grooves; pregenital plate with sides uneven, slightly expanded at middle, subareolate-rugose; genital flap scutellate-rugose; genital setae much longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> subareolate-rugose to substrigate-rugose toward intercoxal setal area (fig. 26, B); intercoxal setal area partly substrigate, with sparse and coarse punctation; dorsal setae on femora I and II narrow leaflike, much larger than propodosomals, serrate, about 1/2 as long as width of segments; tarsus II with two solenidia; spermatheca elongate oval (fig. 26, A). Length 257-274, width 136-147.

Male.--Not known.

Deutonymph.--Rostrum extending beyond middle of femur I; propodosomal setae narrow leaflike, of different lengths; Ve smallest, about 1/5 as long as distance between bases; Sci two times as large as Ve; Sce two times as large as Sci; L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, not more than two times as long as diameter of bases (fig. 26, C); L<sub>5</sub> and L<sub>7</sub> large, leaflike, lanceolate, serrate, longer than distance between setal bases; dorsal setae on femora I and II very small, not much larger than Ve, about 1/4 as long as width of segments.

Protonymph.--Similar to deutonymph.

Specimens examined.--Paratypes (11 females, 1 deutonymph, and 2 protonymphs), ex Cochlospermum sp., San Blas, Nayarit, May 21, 1957 (D. De Leon).

Discussion.--B. cochlospermi is nearest to gliricidia in that the dorsal surface sculpturing is nearly like that of gliricidia. But the form of the dorsocentral fossulae is very different from that of gliricidia or any of the related species. The uniformly short propodosomal and hysterosomal lateral setae and the distinctly scutellate-rugose genital flap also will help identify cochlospermi. The deutonymph (fig. 26, D) is easily recognized in having minute hysterosomal setae L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub>.

Brevipalpus cordiae De Leon  
(Fig. 27, A-C)

Brevipalpus cordiae De Leon, 1961a: 42.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with subconical median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce fairly slender, tapered to pointed tips, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose or irregular areolae on dorsocentral and dorsolateral areas (fig. 27, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, as long as propodosomals, may be slightly robust, barbed or sparsely serrate; hysterosoma more rugose than on propodosoma; rugose areolae on dorsocentral and dorsolateral areas as on propodosoma; dorsolateral furrows and strongly rugose lateral areas (fig. 27, A); pores present; distinct rugose lateral grooves; pregenital plate with sides straight, subareolate-rugose; genital flap subareolate-rugose to subimbricate-rugose; genital setae stouter and longer than pregenitals,

equidistant from each other; area posterior to IC<sub>4</sub> and most of intercoxal setal area pebbly areolate (fig. 27, B); anterior intercoxal setal area between IC<sub>3</sub> with areolae arranged in rows; dorsal setae on femora I and II narrow leaflike, large, lanceolate, serrate, about as long as width of segments; tarsus II with two solenidia. Length 237, width 129.

Variation.--Length 231-255, width 125-136.

Male.--Not known.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; all dorsal setae very small to minute (fig. 27, C), Ve and Sci very small, lanceolate, serrate, about 1/4 as long as distance between bases of Ve; Sce fairly slender, as long as Sci; other setae not more than two times as long as diameter of bases except one seta of L<sub>7</sub> lanceolate as Ve; dorsal setae on femora I and II lanceolate, not much larger than Ve and Sci, less than 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (6 females), ex Cordia boissieri DC., Reynosa, Tamaulipas, December 18, 1957 (D. De Leon); 18 females and 1 deutonymph, ex Solanum umbellatum Mill., Guadalajara, Jalisco, July 31, 1970 (T.B.A.).

Discussion.--This species has the areolate-rugose dorsal surface sculpturing, with rugose or irregular areolae and longitudinal dorsolateral furrows. The entirely pebbly areolate area posterior to IC<sub>4</sub> and intercoxal setal area and the narrow leaflike dorsal setae on femora I and II will identify cordiae. It should not be confused with trinidadensis, the only other species with similar intercoxal setal area sculpturing. The deutonymph is distinguished by its very small to minute dorsal setae (fig. 27, C).

Brevipalpus crataegus, new species (Fig. 28, A-C)

Female.--Rostrum extending near middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with fingerlike median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce fairly slender and long, tapering to pointed tips, serrate, about 2/3 as long as distance between bases of Ve; propodosoma entirely pebbly areolate, with small, dense areolae (fig. 28, A); pores absent; hysterosomal setae L<sub>1-7</sub> short, fairly stout, and slender, serrate or barbed, 1/2 to 2/3 as long as propodosomals; DC<sub>1-3</sub> fairly weak, slightly shorter than posterior laterals; hysterosoma pebbly areolate as in propodosoma except for rugose dorsocentral area posterior to DC<sub>2</sub>; rugose narrow longitudinal dorsolateral furrows; pores absent; distinct rugose lateral grooves; pregenital plate with sides straight, slightly narrowing posteriorly, areolate, with stout serrate setae; genital flap scutellate; genital setae stouter than pregenitals, almost sublanceolate, serrate, paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area areolate (fig. 28, B); anterior intercoxal setal area strigate-rugose (fig. 28, B); dorsal setae on femora I and II large, leaflike, lanceolate, serrate; femur I seta larger than femur II seta, both setae about 2/3 as long as width of segments; tarsus II with two solenidia. Length 258, width 148.

Male.--Not known.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, L<sub>5</sub>, and L<sub>7</sub> very large, leaflike, ensiform, serrate (fig. 28, C), as long as distance between bases of Ve; L<sub>4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, less than two times as long as diameter of their bases; dorsal setae on femora I and II leaflike, lanceolate, serrate, about 1/2 as long as propodosomals.

Holotype.--Female, ex Crataegus sp., 22.4 km east of Morelia, Michoacán,

July 3, 1974 (T.B.A.), on same slide with one female designated as paratype and one unknown species. Female at lower part of coverslip is the holotype, above it is a paratype, and on left is an unknown species (see map on label).

Paratypes.--Twenty-six females (length 245-291, width 131-135) and 1 deutonymph, with same data as holotype.

Discussion.--The completely pebbly areolate dorsum of the propodosoma, the lack of both propodosomal and hysterosomal pores, and the stout, serrate genital and pregenital setae are very unusual and will distinguish crataegus from any known species in the californicus group. The deutonymph is very distinctive by having very large, ensiform dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, L<sub>5</sub>, and L<sub>7</sub>.

Brevipalpus dentatae, new species  
(Fig. 29, A, B)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce fairly small, leaflike, lanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma with fossulate dorsocentral area, nearly smooth dorsolateral areas, and slightly rugose lateral margins (fig. 29, A); hysterosomal setae L<sub>1-7</sub> leaflike, much smaller than propodosomals, lanceolate, serrate; DC<sub>1-3</sub> very small, two to three times as long as diameter of their bases; hysterosoma strongly rugose posterior to DC<sub>2</sub> and lateral areas; narrow longitudinal dorsolateral furrows (fig. 29, A); pores present; distinct lateral grooves; pregenital plate with sides uneven, slightly narrowing posteriorly, subareolate-rugose; genital flap scutellate-rugose; genital setae stouter and much longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> nearly pebbly

areolate (fig. 29, B); intercoxal setal area with sparse punctation; dorsal setae on femora I and II leaflike, slightly larger than propodosomals, lanceolate, serrate, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 274, width 155.

Male.--Not known.

Holotype.--Female, ex Cordia alba (Jacq.) Roem. & Schultz, Tuxtla Gutierrez, Chiapas, January 10, 1957 (D. De Leon), on same slide with two females designated as paratypes. The female holotype is in the center of the coverslip above the paratypes; its position is marked on the coverslip and mapped on the label.

Paratypes.--Two females, with same data as holotype. Length 270-285, width 155-159.

Discussion.--This species is characterized by having fossulate dorsocentral area of the propodosoma and narrow longitudinal dorsolateral furrows. It is distinguished from alternatus by the nearly smooth dorsolateral areas of the propodosoma, areolate-rugose pregenital plate, and long, stout genital setae.

Brevipalpus encinarius De Leon  
(Fig. 30, A-C)

Brevipalpus encinarius De Leon, 1961a: 42; Baker, Tuttle, and Abbatiello, 1975: 16.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with slender, tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, serrate, oblanceolate or lanceolate; Ve noticeably larger than Sci and Sce, about 2/3 as long as distance between their bases; Sci slightly longer than Sce; propodosoma with fossulate dorsocentral area (fig. 30, A); pores absent; hysterosomal setae leaflike as

propodosomals; L<sub>1-3</sub> as large as propodosomals, L<sub>4-7</sub> much smaller than L<sub>1-3</sub>; DC<sub>1-3</sub> very small or minute, not more than three times as long as diameter of bases; hysterosoma with smooth areas as propodosoma, sparsely rugose (fig. 30, A); slightly rugose dorsocentral area posterior to DC<sub>2</sub> and conspicuous longitudinal narrow furrows on dorsolateral areas; pores present; without lateral grooves; pregenital plate with sides uneven, areolate-rugose; genital flap areolate-rugose to strigate-rugose; genital setae much stouter and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose medially, areolate laterally (fig. 30, B); intercoxal setal area with sparse punctation; dorsal setae on femora I and II leaflike as propodosomals, with femur I seta larger than that of femur II, as long as width of segment; femur II seta about 2/3 as long as width of segment; tarsus II with two solenidia. Length 266, width 154.

Variation.--Length 268-296, width 148-177.

Male.--Not seen; according to De Leon (1961a), it "resembles female, but dorsum covered with small rounded areolae."

Deutonymph.--Rostrum extending to distal 2/3 of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-2</sub>, L<sub>4-5</sub>, and L<sub>7</sub> large, leaflike, oblanceolate to lanceolate, serrate, about 1/2 as long as distance between bases of Ve (fig. 30, C); L<sub>3</sub>, L<sub>6</sub>, and DC<sub>2-3</sub> very small, about two times as long as diameter of bases; DC<sub>1</sub> slender, three times as long as DC<sub>2</sub>; dorsal setae on femora I and II similar to propodosomals except that on II narrower, both setae shorter than width of segments.

Specimens examined.--Holotype (female) and one deutonymph, ex Quercus sp., east of Morelia, km post 297, Route 15, June 15, 1957 (D. De Leon); three females, ex Quercus sp., Quiraga,

Michoacan, March 11, 1957 (D. De Leon). One female, ex Quercus sp., Ocozocoxtla, Chiapas, January 1957 (D. De Leon) proved to be a different species.

Discussion.--B. encinarius is characterized by the fossulate dorsocentral area of the propodosoma, by the sparsely rugose dorsum of the hysterosoma, with conspicuous longitudinal dorsolateral furrows, and by the large, leaflike propodosomal and hysterosomal lateral setae. However, when separating encinarius with closely related species, characters of the deutonymph should also be used. The description and figure here of the encinarius deutonymph are based on a single specimen, which De Leon (1961a, fig. 27, B) showed to have L<sub>6</sub> equal in size to L<sub>5</sub> and L<sub>7</sub>. We did not observe this variation and presume that his figure is erroneous.

Brevipalpus gliricidia De Leon (Fig. 31, A-C)

Brevipalpus gliricidia De Leon, 1961a: 43.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce small, narrow leaflike, finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma fossulate-rugose, with dense fossulae on dorsocentral area and striate-rugose dorsolateral areas (fig. 31, A); pores absent; hysterosomal setae L<sub>1-7</sub> very small, leaflike, much smaller than propodosomals; DC<sub>1-3</sub> fairly slender, as long as laterals; hysterosoma more rugose than propodosoma (fig. 31, A); strongly rugose dorsocentral and lateral areas; narrow longitudinal furrows becoming obscure posteriorly on dorsolateral areas; pores present; indistinct lateral grooves; pregenital plate with sides straight, pebbly areolate ar-

ranged like peanut pods (fig. 31, B); genital flap rugose, partly scutellate; genital setae stouter and longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> and much of intercoxal setal area areolate with indefinite outline; intercoxal setal area between IC<sub>3</sub> with sparse punctation (fig. 31, B); dorsal setae on femora I and II leaflike, larger than propodosomals, lanceolate, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 279, width 153.

Variation.--Length 275-295, width 143-154.

Male.--Not known.

Deutonymph.--Rostrum extending beyond femur to middle of genu I; dorsal setae Sci, Sce, L<sub>1</sub>, L<sub>5</sub>, and L<sub>7</sub> large, leaflike, lanceolate or ensiform, serrate, about as long as distance between setal bases; Ve and L<sub>2</sub> narrow leaflike, much smaller than other leaflike setae; L<sub>3-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> very small to minute, not more than two times as long as diameter of their bases (fig. 31, C); dorsal setae on femora I and II leaflike, slightly smaller than Sci and Sce, ensiform, serrate, nearly as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (seven females and one deutonymph), ex Gliricidium sepium (Jacq.) Steud., Tuxtla Gutierrez, Chiapas, and Vera Cruz, January 1, 18, 1957 (D. De Leon).

Discussion.--This species is characterized by the fossulate-rugose dorsum of the propodosoma, with dense fossulae on the dorsocentral area and narrow longitudinal dorsolateral furrows on the hysterosoma. The hysterosomal setae L<sub>1-7</sub> are much smaller than the propodosomals, and the pregenital plate is pebbly areolate resembling peanut shells or pods. The deutonymph is distinguished by the minute dorsal setae L<sub>3-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub>; other body setae are large and leaflike.

Brevipalpus lepidium, new species  
(Fig. 32, A, B)

Female.--Rostrum barely extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with stout, fingerlike median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, lanceolate or oblanceolate, serrate; Ve slightly longer than Sci and Sce, about 2/3 as long as distance between bases; propodosoma sparsely sculptured, with partly fossulate-rugose dorsocentral area (fig. 32, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals, with L<sub>4-7</sub> slightly smaller than L<sub>1-3</sub>; DC<sub>1-3</sub> very small, nearly leaflike, about 1/2 as long as L<sub>1-3</sub>; hysterosoma sparsely sculptured as propodosoma, with rugose dorsocentral area posterior to DC<sub>2</sub>; narrow longitudinal furrows on dorsolateral areas (fig. 32, A); pores present; without lateral grooves; pregenital plate with sides slightly pinched posteriorly, subareolate-rugose or rugose; genital flap subscutellate-rugose; genital setae slender and much longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> nearly pebbly areolate (fig. 32, B); intercoxal setal area with sparse punctation; dorsal seta on femur I not seen, that on femur II leaflike, oblanceolate, serrate, shorter than propodosomals, about 1/3 as long as width of segment; tarsus II with two solenidia. Length 287, width 172.

Male.--Not known.

Holotype.--Female, ex Lepidium sp., La Placita, 145 km north of Pachuca, Hidalgo, July 15, 1974 (T.B.A.).

Discussion.--This species is similar to encinarius and pseudopini in having conspicuous narrow longitudinal dorsolateral furrows on the hysterosoma. B. lepidium, however, is distinguished by its sparsely sculptured dorsal surface and areolate area posterior to IC<sub>4</sub>.

Brevipalpus longisetosus Baker

(Fig. 33, A-C)

Brevipalpus longisetosus Baker, 1949:  
377; Pritchard and Baker, 1958: 219;  
De Leon, 1961a: 46.

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate or simple ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, nude, about 1/4 as long as distance between bases of Ve; propodosoma rugose, with fossulate dorsocentral area (fig. 33, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> short and slender as propodosomals; hysterosoma entirely rugose, with striate longitudinal narrow furrows on dorsolateral areas (fig. 33, A); pores present; distinct lateral grooves; pregenital plate with sides slightly uneven, confused areolate or areolate-rugose; genital flap subscutellate-rugose; genital setae stouter and longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area confused areolate; anterior intercoxal setal area smooth (fig. 33, B); dorsal setae on femora I and II stouter than body setae, short and serrate, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 245, width 150.

Variation.--Length 256-273, width 131-148.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, and L<sub>5</sub> very long, whiplike, longer than width of body (fig. 33, C); Ve, L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> very small to minute, two to three times as long as diameter of bases; L<sub>7</sub> large, leaflike, lanceolate, serrate, longer than distance between bases; dorsal seta on femur I lanceolate, serrate, larger than femur II dorsal seta,

about 1/2 as long as width of segment.

Specimens examined.--Holotype (female) and paratypes (3 females, 1 deutonymph), ex undetermined plant, Yauco, Puerto Rico, November 23, 1935 (L. C. Fife); 11 females, 3 deutonymphs, and 6 larvae, ex Annona sp., Vera Cruz, Vera Cruz, February 26, 1957 (D. De Leon). One female and one protonymph, ex mango, Tuxtla Gutierrez, Chiapas, January 18, 1957, identified as longisetosus by De Leon (1961a) proved to be a different species.

Discussion.--The dorsal surface sculpturing is very much like that of gliricidia, but longisetosus has sparse dorsocentral fossulae, short and slender body setae, and long gnathosoma.

The deutonymphs of the two species are completely different; longisetosus has whiplike dorsal setae Sci, Sce, and L<sub>5</sub>; these setae are leaflike, lanceolate in gliricidia.

Brevipalpus lotus, new species

(Fig. 34, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce slender, fairly stout, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma strongly striate-rugose (fig. 34, A); pores absent; hysterosomal setae short and slender, much shorter than propodosomals, finely serrate or nude; DC<sub>1-3</sub> similar to laterals but fairly weak; hysterosoma strongly rugose (fig. 34, A); striate longitudinal dorsolateral furrows; pores present; distinct lateral grooves; pregenital plate with sides straight, pebbly areolate-rugose; genital flap strigate-rugose; genital setae stouter and slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate, with small and irregular areolae nearly similar to



pregenital plate (fig. 34, B); intercoxal setal area finely strigate-rugose, with sparse punctation; dorsal setae on femora I and II stout, nearly ensiform, serrate, longer than propodosomals and width of segments; tarsus II with two solenidia. Length 234, width 125.

Male.--Not known.

Protonymph.--Based on single specimen; all dorsal body setae very small to minute, not more than two times as long as diameter of bases (fig. 34, C); dorsal setae on femora I and II slightly longer than body setae.

Holotype.--Female, ex Lotus sp., 1.6 km north of Oaxaca, Oaxaca, July 10, 1974 (T.B.A.), on same slide with two females designated as paratypes. Holotype is on upper right of paratypes, as mapped on label.

Paratypes.--Three females (length 244-256, width 120-137) and one protonymph, with same data as holotype.

Other specimen examined.--One female, ex Ligustrum sp., 145 km north of Pachuca, Hidalgo, July 15, 1974 (T.B.A.).

Discussion.--B. lotus is another distinctive Mexican species in the californicus group easily identifiable by the striate-rugose sculpturing of the propodosoma (fig. 34, A) and by the finely strigate intercoxal setal area with sparse punctation.

Brevipalpus neoardisiae, new species (Fig. 35, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered, asymmetrical median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce fairly slender, finely serrate, 1/2 as long as distance between bases of Ve; propodosoma areolate except for rugose lateral areas (fig. 35, A); pores absent; hysterosomal setae L<sub>1-7</sub> slender,

about 1/3 shorter than propodosomals; DC<sub>1-3</sub> fairly weak, not much longer than laterals; hysterosoma areolate-rugose, with more rugose lateral areas than on propodosoma (fig. 35, A); areolate-rugose dorsolateral areas, without furrows; pores present; distinct rugose lateral grooves; pregenital plate with sides uneven, subareolate-rugose; genital flap subareolate to imbricate-rugose; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose medially, areolate laterally (fig. 35, B); intercoxal setal area subrugose, with sparse punctation; dorsal setae on femora I and II stouter than propodosomals, almost ensiform, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 351, width 160.

Male.--Not known.

Deutonymph.--Rostrum extending beyond femur to near middle of genu I; all dorsal setae narrow leaflike, ensiform or sublanceolate, strongly serrate, subequal in length except for noticeably smaller Ve (fig. 35, C); dorsal setae on femora I and II similar to body setae except femur II seta very short, about 1/2 as long as femur I seta; femur I seta as long as width of segment.

Holotype.--Female, ex Baccharis heterophylla H.B.K., 19.2 km east of Morelia, Michoacán, July 3, 1974 (T.B.A.).

Paratypes.--Three deutonymphs, with same data as holotype.

Discussion.--This species is nearest ambrosiae, with nearly entirely areolate dorsum of propodosoma and stout, almost ensiform dorsal setae on femora I and II. B. neoardisiae, however, is distinguished by the subrugose intercoxal setal area with sparse punctation and by the substrigate-rugose and areolate intercoxal setal area. The deutonymph is highly distinctive by having all narrow

leaflike dorsal setae (fig. 35, C).

Brevipalpus neobicolpus, new species  
(Fig. 36, A, B)

Female.--Rostrum barely extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with subconical median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce small, narrow leaflike, sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma with coarsely striate-rugose dorsocentral and dorsolateral areas (fig. 36, A); pores absent; hysterosomal setae L<sub>1-7</sub> shorter than propodosomals but stout and strongly serrate; DC<sub>1-3</sub> fairly stout, shorter than laterals, barbed; hysterosoma more strongly rugose than propodosoma; striate-rugose longitudinal furrows on dorsolateral areas (fig. 36, A); pores present; distinct rugose lateral grooves; pregenital plate with sides uneven, slightly narrowing posteriorly, confused subareolate-rugose; genital flap subareolate-rugose; genital setae as stout and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and most of intercoxal setal area pebbly areolate; anterior intercoxal setal area finely strigate beyond IC<sub>3</sub> (fig. 36, B); dorsal setae on femora I and II narrow leaflike, larger than propodosomals, lanceolate, serrate, about as long as width of segments; tarsus II with two solenidia. Length 285, width 148.

Male.--Not known.

Holotype.--Female, ex Lupinus sp., 6.4 km east of Pachuca (El Manzana), Hidalgo, July 4, 1974 (T.B.A.), on same slide with paratypes of pachucensis, n. sp. The holotype female of neobicolpus is as marked on the slide. See under pachucensis.

Paratype.--One female, with same data as holotype. Length 291, width 160. On same slide with paratypes of pachucensis.

Discussion.--This species is nearest aepi in general dorsal surface sculpturing. B. neobicolpus is easily distinguished by its lack of propodosomal pores, by the coarsely striate-rugose dorsocentral and dorsolateral areas of the propodosoma, and by the mostly areolate intercoxal setal area (fig. 36, B).

Brevipalpus ornatus, new species  
(Fig. 37, A, B)

Female.--Rostrum extending beyond femur to about middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate or simple ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike and long, ensiform, serrate, as long as distance between bases of Ve; propodosoma strongly rugose, with raised horseshoe-shaped design on dorsocentral area (fig. 37, A) and finely striate dorsolateral furrows; pores absent; hysterosomal setae L<sub>1-2</sub> and DC<sub>1</sub> ensiform, as large as propodosomals; L<sub>3-4</sub>, L<sub>6-7</sub>, and DC<sub>2-3</sub> very small to minute, less than two times as long as diameter of bases; L<sub>5</sub> slightly stout, about three times as long as L<sub>3-4</sub> (fig. 37, A); hysterosoma strongly rugose as propodosoma, with raised mushroom-shaped design on dorsocentral area (fig. 37, A) and subareolate dorsolateral furrows; pores absent; subareolate lateral grooves; pregenital plate with sides straight, slightly narrowed posteriorly, subscutellate-rugose; genital flap subscutellate-rugose; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> rugose; intercoxal setal area finely strigate (fig. 37, B); dorsal setae on femora I and II ensiform, serrate, 1/3 shorter than propodosomal but longer than width of segments; tarsus II with two solenidia. Length 239, width 128.

Male.--Not known.

Holotype.--Female, ex Atriplex sp., 19 km south of Morelia, Michoacán, July 3, 1974 (T.B.A.).

Paratypes.--Two females, with same data as holotype (length 251-257, width 142-144).

Discussion.--B. ornatus is one of the most easily recognized members of the californicus group because of its very distinctive dorsal surface sculpturing. It has large, leaflike dorsal setae Ve, Sci, Sce, DC<sub>1</sub>, and L<sub>1-2</sub>, whereas the other dorsal setae are small to minute and the intercoxal setal area is entirely finely strigate.

Brevipalpus proboscidius De Leon  
(Fig. 38, A, B)

Brevipalpus proboscidius De Leon,  
1961a: 41.

Female.--Rostrum extending beyond femur and genu to tibia I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered, widely parted median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, lanceolate to oblanceolate, serrate; Ve and Sci slightly longer than Sce, about 2/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose dorsocentral area (fig. 38, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals, with L<sub>4-7</sub> much smaller than L<sub>1-3</sub>; DC<sub>1-3</sub> slender, fairly stout, with DC<sub>1</sub> much longer than DC<sub>2-3</sub>; hysterosoma much more rugose than propodosoma, with areolate-rugose dorsocentral area (fig. 38, A); pores absent; indistinct lateral grooves; pregenital plate with sides slightly widened posteriorly, subareolate-rugose; genital flap imbricate; genital setae slender, as long as pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> substrigate-rugose, subareolate-rugose laterally (fig. 38, B); intercoxal setal area finely strigate, with sparse punctation; dorsal setae on femora I and II leaflike, smaller than

propodosomals, oblanceolate or lanceolate, strongly serrate, about 1/3 shorter than width of segments; tarsus II with two solenidia. Length 340, width 154.

Variation.--Length 336-371, width 148-165.

Specimens examined.--Holotype (female) and paratypes (three females), ex Liabum glabrum var. hypoleucum Greenm., Tuxtla Gutierrez, Chiapas, January 22, 1957 (D. De Leon).

Discussion.--B. proboscidius is an easily recognized species on the basis of its extremely elongate rostrum, the leaflike propodosomal and hysterosomal lateral setae, and the areolate-rugose dorsal surface sculpturing with mostly rugose dorsocentral area.

Brevipalpus pseudopini, new species  
(Fig. 39, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce broadly leaflike, oblanceolate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma sparsely sculptured, with fossulate-rugose dorsocentral area (fig. 39, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, oblanceolate or lanceolate, but much smaller than propodosomals; L<sub>1</sub> largest of laterals, about 2/3 as large as propodosomals; L<sub>2-7</sub> 1/2 to 1/3 smaller than L<sub>1</sub>; DC<sub>1-3</sub> very small, sublanceolate, not more than three times as long as diameter of bases; hysterosoma sparsely sculptured as propodosoma, with lightly rugose dorsocentral and lateral areas (fig. 39, A); narrow longitudinal furrows on dorsolateral areas; pores present; slightly distinct lateral grooves; pregenital plate with sides uneven, slightly pinched posteriorly, strongly rugose; genital flap rugose to scutellate; genital setae stout,

longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> rugose or substrigate-rugose medially, areolate laterally (fig. 39, B); intercoxal setal area with sparse punctation; dorsal setae on femora I and II broadly leaflike, as large as propodosomals, ovate or oblanceolate, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 270, width 160.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, L<sub>1-2</sub>, L<sub>4-7</sub> large, leaflike, oblanceolate, serrate (fig. 39, C); Ve small, lanceolate, about 1/5 as long as distance between bases; L<sub>3</sub> and DC<sub>1-3</sub> minute, less than two times as long as diameter of bases; dorsal setae on femora I and II as large as Sci, ovate, serrate, 2/3 as long as width of segments.

Holotype.--Female, ex Quercus sp., 22.4 km east of Morelia, Michoacán, July 3, 1974 (T.B.A.), on same slide with three female types of B. moreliensis, n. sp. The holotype female of pseudopini is at lower right of holotype of moreliensis. Specimens are marked on the coverslip, and the position is mapped on the label.

Paratypes.--Three females (length 273-296, width 154-165) and two deutonymphs, with same data as holotype; one female, ex Atriplex sp., 19 km east of Morelia, Michoacán, July 3, 1974 (T.B.A.). On the same slide are four specimens of moreliensis.

Discussion.--This species resembles encinarius, especially in the dorsal and ventral surface sculpturing as well as the type of dorsal setae. B. pseudopini is distinguished by the fossulate-rugose dorsocentral area of the propodosoma, by the smaller lateral setae, and by the stout genital setae. The deutonymph is easily recognized by the small propodosomal setae Ve and leaflike hysterosomal setae L<sub>1-2</sub> and L<sub>4-7</sub>.

Brevipalpus rostratus De Leon  
(Fig. 40, A-C)

Brevipalpus rostratus De Leon, 1961a:  
41.

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with tapered, asymmetrical median and ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long and slender, sparsely serrate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma distinctly areolate except for rugose lateral areas (fig. 40, A); pores absent; hysterosomal setae L<sub>1-7</sub> similar to propodosomals except posterior setae L<sub>4-7</sub> about 1/3 shorter; DC<sub>1-3</sub> slender, fairly weak, and shorter than laterals; hysterosoma areolate with areolate-rugose dorsocentral area between DC<sub>1</sub> and DC<sub>3</sub> and rugose lateral areas as on propodosoma (fig. 40, A); without dorsolateral furrows; pores absent; indistinct lateral grooves; pregenital plate with sides uneven, mostly pebbly areolate; genital flap scutellate; genital setae long and slender, much longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate as in pregenital plate, becoming substrigate-rugose toward intercoxal setal area; intercoxal setal area lightly strigate to rugose, with few punctations (fig. 40, B); dorsal setae on femora I and II larger and stronger than body setae, nearly ensiform, serrate, about 2/3 as long as width of segments; tarsus II with two solenidia. Length 307, width 167.

Variation.--Length 337-350, width 154-167.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of genu I; dorsal setae Ve, Sci, Sce, and all hysterosomal laterals long and stout, tapered to pointed tips, strongly serrate, about as long as distance between bases of

Ve (fig. 40, C); dorsocentrals DC<sub>1-3</sub> considerably smaller than laterals, nude; dorsal seta on femur I stouter and larger than femur II dorsal seta, both setae slightly shorter than width of segments.

Variation.--One deutonymph specimen (fig. 40, C) has an extra lateral seta on one side of the hysterosoma.

Specimens examined.--Holotype (female) and paratypes (three females and four deutonymphs), ex Myrica mexicana Willd., San Cristobal, Chiapas, January 22, 1957 (D. De Leon).

Discussion.--B. rostratus differs from its related species with the long rostrum by the distinctly areolate dorsocentral and dorsolateral areas of the propodosoma, by the scutellate genital flap with long setae, and by the pebbly areolate pregenital plate and most of the area posterior to IC<sub>4</sub>. The deutonymph may be distinguished by the long and stout propodosomal and hysterosomal lateral setae and considerably short and slender dorsocentrals.

Brevipalpus trinidadensis Baker (Fig. 41, A-C)

Brevipalpus trinidadensis Baker, 1949: 381; Pritchard and Baker, 1958: 217; De Leon, 1961a: 46.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft and widely parted, with strongly conical median lobes, without or with very small ancillary lobes; propodosomal setae Ve, Sci, Sce fairly slender and stout, finely serrate, slightly less than 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose; irregular areolae on dorsocentral and dorsolateral areas (fig. 41, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> similar to propodosomals except 1/3 shorter; hysterosoma with areolate-rugose dorsocentral and dorsolateral areas

(fig. 41, A) and strongly rugose lateral areas; longitudinal dorso-lateral furrows; pores present; distinct rugose lateral grooves; pregenital plate with sides straight, confused or crowded pebbly areolate or subareolate; genital flap confused rugose; genital setae stouter and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area completely pebbly areolate (fig. 41, B); dorsal setae on femora I and II broadly leaflike, oblanceolate, serrate, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 251, width 134.

Variation.--Length 228-262, width 114-142.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, L<sub>5</sub>, and L<sub>7</sub> broadly leaflike, oblanceolate, serrate (fig. 41, C); Ve and L<sub>1</sub> very short, about 1/5 as long as distance between bases of Ve; L<sub>1</sub> may be stout; L<sub>2-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, less than two times as long as diameter of their bases; dorsal setae on femora I and II leaflike, as large as Sci and Sce, slightly shorter than width of segments.

Protonymph.--Similar to deutonymph.

Specimens examined.--Holotype (female) and paratypes (2 females and 1 deutonymph), ex Lantana sp., St. Augustine, Trinidad, May 20, 1937 (G. R. Fennah); 32 females, 3 deutonymphs, and 4 protonymphs, ex Pluchea odorata (L.) Cassini, Los Mochis and Topolobampo, Sinaloa, July 23-24, 1970; ex Thuja occidentalis L., Obregon, Sonora, July 23, 1970; (all collected by T.B.A.); ex "agualama" (shrublike tree), San Blas, Nayarit, April 6, 1957 (D. De Leon). Additional females, ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station (no date) (D. Johnston), and ex Rhynchosytrum repens (Willd.) C. E. Hubb., Tepic, Nayarit, July 25, 1970 (T.B.A.),

cannot be identified with certainty as trinidadiansis. The female holotype of trinidadiansis is on the same slide with two female paratypes on the left as originally marked on the label.

Discussion.--B. trinidadiansis appears to be a widely distributed species of the californicus group. It is characterized by having areolate-rugose dorsal surface sculpturing with irregular areolae and by the presence of propodosomal pores. B. trinidadiansis is distinguished by its entirely pebbly areolate intercoxal setal area. The deutonymph, when available, will easily identify this species by the broadly leaflike dorsal setae Sci, Sce, L<sub>5</sub>, and L<sub>7</sub>.

Brevipalpus viquierae Baker, Tuttle, and Abbatiello  
(Fig. 42, A-C)

Brevipalpus viquierae Baker, Tuttle, and Abbatiello, 1975: 16.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with conical median and dentate or rounded ancillary lobes; propodosomal setae Ve, Sci, Sce short, sublanceolate, nude or finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with irregular or rugose areolae on dorsocentral area (fig. 42, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> very short, sublanceolate, about 1/3 shorter than propodosomals; hysterosoma much more rugose than propodosoma, with strongly rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas; areolate-rugose dorsolateral furrows (fig. 42, A); pores present; distinct rugose lateral grooves; pregenital plate with sides straight, subareolate; genital flap subimbricate-rugose; genital setae fairly stout, slightly longer than pregenitals, barely paired laterally; areas posterior to IC<sub>4</sub> subareolate; intercoxal setal area smooth, with barely subareolate posterior margin

(fig 42, B); dorsal setae on femora I and II broadly leaflike, oblanceolate, serrate, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 282, width 147.

Variation.--Length 256-273, width 125-142.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia as in female. Length 245, width 119.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Ve, Sci, Sce, and L<sub>1-7</sub> broadly leaflike, oblanceolate, serrate, about 1/2 as long as distance between bases of Ve (fig. 42, C); DC<sub>1-3</sub> very short and slender; dorsal setae on femora I and II broadly leaflike, as large as propodosomals, ovate or oblanceolate, serrate, about 2/3 as long as width of segments.

Specimens examined.--Lectotype here designated. Type series, 56 females, 1 male, and 3 deutonymphs, ex Viquiera sp., Los Mochis, Sinaloa, July 23, 1970 (T.B.A.).

Discussion.--This species is characterized by the areolate-rugose dorsum of the propodosoma, with rugose or irregular dorsocentral areolae, and by the subareolate pregenital plate and area posterior to IC<sub>4</sub>. The broadly leaflike dorsal setae on femora I and II and the smooth intercoxal setal area, with barely subareolate posterior margin, will separate viquierae from its nearest relative, ardisiae. The deutonymph is distinguished by its broadly leaflike dorsal setae on femora I and II and propodosomal and hysterosomal lateral setae (fig. 42, C). The type slide labeled "holotype" with seven females and one nymph bears the following data: "Brevipalpus viquiera BTA/Viquiera sp./Los Mochis, Mex./July 23, 1970/Tuttle-Abb.-Baker." A female at lower right is designated here as the lectotype; its position is marked on the coverslip and mapped on the label.

DESCRIPTIONS OF SPECIES IN BREVIPALPUS  
CUNEATUS GROUP

Brevipalpus abiesae, new species  
(Fig. 43, A, B)

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, sparsely serrate, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose; substrigate-rugose dorsocentral area and areolate dorsolateral areas (fig. 43, A); pores absent; hysterosomal setae L<sub>1-7</sub> slightly smaller and more slender than propodosomals; DC<sub>1-3</sub> weak and hairlike, nearly as long as laterals; hysterosoma almost nearly areolate, with areolate-rugose dorsocentral area (fig. 43, A); without dorsolateral furrows; pores absent; lateral grooves indistinct; pregenital plate with sides straight, subscutellate; genital flap subscutellate-rugose; genital setae stronger and longer than pregenitals; area posterior to IC<sub>4</sub> areolate, becoming obscure medially, with sparse punctation continuing to intercoxal setal area (fig. 43, B); dorsal setae on femora I and II fairly stouter and longer than propodosomals, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 472, width 255.

Male.--Not known.

Holotype.--Female, ex Abies religiosa (H.B.K.) Schlecht. & Cham., nr Amecameca, Mexico, December 19, 1960 (M. L. Estebanes).

Discussion.--This species is very similar to neoreligiosae, from which abiesae is readily distinguished by its large size. B. abiesae is one of the largest Mexican Brevipalpus species found on Abies religiosa.

Brevipalpus acatlanus, new species  
(Fig. 44, A, B)

Female.--Rostrum extending beyond femur to near apex of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly conical median and ancillary lobes; propodosomal setae Ve, Sci, Sce stout, short, serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose lateral areas (fig. 44, A); pores absent; hysterosomal setae L<sub>1-7</sub> less robust and shorter than propodosomals; L<sub>4-7</sub> much shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> similar to laterals; hysterosoma areolate-rugose as on propodosoma except for more rugose dorsocentral and lateral areas; pores absent; without lateral grooves; pregenital plate with sides uneven or straight, pebbly areolate; genital flap scutellate to imbricate; genital setae fairly stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose to almost smooth medially, areolate laterally (fig. 44, B); intercoxal setal area smooth, lightly strigate near IC<sub>4</sub>; dorsal seta on femur I lanceolate, broader than propodosomals and femur II dorsal seta, shorter than width of segment; femur II dorsal seta as stout as propodosomals, shorter than width of segment; tarsus II with one solenidion. Length 353, width 176.

Male.--Not known.

Holotype.--Female, ex Salix sp., Acatlan, Jalisco, July 1, 1974 (T.B.A.).

Paratype.--One female, with same data as holotype.

Discussion.--The strongly rugose dorsal surface sculpturing of the areolae is very distinctive in acatlanus, not closely resembling any other species in the group. The pebbly areolate pregenital plate, the scutellate-imbricate genital flap, and the smooth intercoxal setal area will easily identify acatlanus.

Brevipalpus albus De Leon  
(Fig. 45, A-C)

Brevipalpus albus De Leon, 1960: 179;  
Baker, Tuttle, and Abbatiello, 1975:  
7.

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with subconical median and emarginate ancillary lobes; propodosomal setae Ve, Sci, Sce long and slender, serrate, about 2/3 as long as distance between bases of Ve; propodosoma crowded pebbly areolate, with rugose lateral and anterior margins (fig. 45, A); pores absent; hysterosomal setae L<sub>1-7</sub> similar to propodosomals except length, L<sub>1-3</sub> nearly as long as Sce, L<sub>4-7</sub> slightly shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> more slender and slightly shorter than laterals, finely serrate or nude; hysterosoma crowded pebbly areolate as on propodosoma except with rugose dorsocentral area posterior to DC<sub>2</sub> and areolate-rugose dorsolateral longitudinal furrows (fig. 45, A); pores absent; lateral grooves indistinct; pregenital plate with sides slightly expanded at middle, substrigate-rugose, with setae inserted laterad; genital flap areolate, becoming rugose posteriorly; genital setae stouter and slightly longer than pregenitals, serrate, paired laterally; area posterior to IC<sub>4</sub> finely strigate anteriorly to much of intercoxal setal area (fig. 45, C); spermatheca rounded (fig. 45, B); dorsal setae on femora I and II leaflike, stout ensiform, and strongly serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 228-273, width 125-139 (paratypes).

Male.--Not known.

Specimens examined.--Holotype (female) and paratypes (11 females), ex Quercus aristata Hook. & Arn., Santa del Oro, Nayarit, March 24, 1957 (D. De Leon); 3 females, ex Pinus sp. and Quercus sp., Zimapan, Hidalgo, January 13, 1961 (M. L. Estebanes).

Discussion.--This species is near alni, but albus is more pebbly areolate dorsally. In addition, albus has a very distinctive contrasting sculpture pattern on the genital flap and pregenital plate, finely strigate intercoxal setal area to area posterior of IC<sub>4</sub> (fig. 45, C), and no hysterosomal pores. This is not so in alni.

Brevipalpus allenrolfeae Baker,  
Tuttle, and Abbatiello  
(Fig. 46, A-D)

Brevipalpus allenrolfeae Baker and  
Tuttle, 1964: 49; Baker, Tuttle, and  
Abbatiello, 1975: 7.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment (fig. 46, D); rostral shield deeply cleft medially, with slender, tapered median and conical ancillary lobes; propodosomal setae Ve and Sci narrow leaflike, ensiform, serrate, about 2/3 as long as distance between bases of Ve; Sce slender, about 2/3 as long as Ve and Sci; propodosoma strongly rugose, with strigate-rugose dorsocentral area (fig. 46, A); pores absent; hysterosomal setae L<sub>1-7</sub> small, narrow leaflike, lanceolate; all laterals except L<sub>1</sub> about 2/3 as long as Sce; L<sub>1</sub> nearly as large as Sci; DC<sub>1-2</sub> long and stout, as long as L<sub>1</sub>, barbed; DC<sub>3</sub> short, as long as other laterals; hysterosoma strongly rugose as on propodosoma (fig. 46, A), with strigate-rugose dorsocentral area; dorsolateral furrows; pores absent; distinct lateral grooves; pregenital plate with sides straight, strongly strigate-rugose or scutellate-rugose; genital flap scutellate-rugose; genital setae fairly slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose (fig. 46, B); intercoxal setal area sparsely punctate; dorsal setae on femora I and II leaflike, lanceolate, shorter than Ve and Sci, nearly as long as width of segments; tarsus II with one solenidion. Length 274, width 148.



Variation.--Length 262-275, width 143-160.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia; hysterosomal setae DC<sub>1-3</sub> fairly slender, pectinate or serrate. Length 211-239, width 114-125.

Deutonymph.--Gnathosoma extending beyond middle of femur I; propodosomal setae Ve and Sci small leaflike, lanceolate, serrate, about 1/2 as long as distance between bases of Ve; Sce slender, serrate, not as long as Ve and Sci; hysterosomal setae L<sub>1-3</sub> and DC<sub>1</sub> similar to Sce; L<sub>4</sub> lanceolate, not much larger than L<sub>3</sub>; L<sub>5-7</sub> leaflike, as large as Ve and Sci; DC<sub>2-3</sub> very small, barbed, about 1/2 as long as DC<sub>1</sub>; dorsal setae on femora I and II leaflike, as large as Ve and Sci, slightly shorter than width of segments (fig. 46, C).

Protonymph.--Similar to deutonymph except without setae on genua I and II.

Specimens examined.--Lectotype here designated. Type series, 3 females, 2 males, and 1 deutonymph, ex Allenrolfea occidentalis (Wats.) Kuntze, Dome, Ariz., July 1, 1960 (D. M. Tuttle); 27 females, 10 males, 2 protonymphs, and 4 deutonymphs with data as follows: ex A. occidentalis, Los Mochis and Topolobampo, Sinaloa, July 24, 1970; ex Monanthochloe littoralis Engelm., Los Mochis, July 21, 1970; ex Atriplex polycarpa (Torr.) Wats.; (all collected by T.B.A.).

Discussion.--B. allenrolfeae is very distinctive and should not be confused with presently known species from Mexico. The striking dorsal and ventral surface sculpturing is unique. The deutonymph is recognized by the equally small, leaflike dorsal setae Ve, Sci, L<sub>5-7</sub>, and dorsal setae on femora I and II.

Brevipalpus alni De Leon  
(Fig. 47, A-C)

Brevipalpus alni De Leon, 1960: 183.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce short, narrow leaflike, sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma crowded pebbly areolate on dorsocentral and dorsolateral areas, with dorsolateral furrows on pore sites (fig. 47, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike, about 2/3 as long as propodosomals; DC<sub>1-3</sub> needlelike, as long as laterals; hysterosoma strongly rugose except for areolate dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub> (fig. 47, A); longitudinal dorsolateral striate-rugose furrows; pores present; distinct lateral grooves; pregenital plate with sides nearly straight, areolate-rugose; genital flap areolate-rugose or subscutellate; genital setae stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and posterior margin of intercoxal setal area areolate; much of intercoxal setal area sparsely punctate (fig. 47, B); dorsal setae on femora I and II leaflike, larger than propodosomals, about 1/2 as long a width of segments; tarsus II with one solenidion. Length 272, width 160.

Variation.--Length 296-304, width 160-173.

Male.--Not known.

Deutonymph.--Gnathosoma extending to about middle of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-2</sub>, L<sub>4-5</sub>, and L<sub>7</sub> large, leaflike, oblanceolate; L<sub>3</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute (fig. 47, C); Ve about 2/3 as long as distance between their bases; Sci, Sce, and L<sub>1</sub> as long as Ve; L<sub>2</sub> and L<sub>4-5</sub> slightly shorter than L<sub>1</sub>, subequal in length; L<sub>7</sub> about 2/3 as long as other laterals; dorsocentrals and L<sub>3</sub> and L<sub>6</sub> less than two times as long as diameter of bases; dorsal setae on

femora I and II similar to propodosomals, as long as width of segments.

Protonymphs.--Setal pattern similar to that of deutonymph except leaflike setae much broader than in deutonymph (fig. 47, C). A protonymph with same data as holotype differs in having L<sub>2-3</sub> and L<sub>6</sub> minute; another protonymph from Quercus sp. shows similar variation in that L<sub>3</sub> are unequal in size.

Larva.--With the same setal pattern as deutonymph except L<sub>6</sub> long, whiplike, and two times as long as L<sub>7</sub>.

Specimens examined.--Holotype (female) and paratypes (one female and one deutonymph), ex Alnus arguta (Schlecht.) Spach, San Cristobal, Chiapas, January 22, 1957 (D. De Leon); one female and one protonymph, ex Alnus sp., Zaragoza, Puebla, March 4, 1957 (D. De Leon); one female, two protonymphs, one deutonymph, and one larva, ex Quercus sp., Zempoala, Mexico, July 8, 1974 (T.B.A.).

Discussion.--The pebbly areolate dorsum of the propodosoma with dorsolateral furrows, the strongly rugose dorsum of the hysterosoma except for the areolate dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub>, and the sparsely punctate intercoxal setal area will easily separate alni from its nearest relative, alnus. The deutonymph and protonymph have very distinctive dorsal body setae.

Brevipalpus amecensis, new species (Fig. 48, A, B)

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with slender, tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, ensiform, serrate; Ve and Sci subequal in length, about 1/2 as long as distance between bases of Ve; Sce slightly shorter than Sci and Ve; propodosoma areolate-rugose, with

punctuation on dorsocentral area (fig. 48, A) and areolate dorsolateral areas; pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, nearly as long as Sci or Sce; DC<sub>1-2</sub> slender, slightly serrate, about as long as laterals; DC<sub>3</sub> fairly weak, shorter than DC<sub>1-2</sub>; hysterosoma areolate-rugose as on propodosoma, with punctuation on dorsocentral area between DC<sub>1</sub> and DC<sub>3</sub> and areolate dorsolateral areas; without dorsolateral furrows; lateral areas strongly rugose, with indistinct grooves; pores absent (fig. 48, A); pregenital plate with sides straight, slightly widened posteriorly, areolate; genital flap scutellate; genital setae stouter and longer than pregenitals, barbed, barely paired laterally; area posterior to IC<sub>4</sub> pebbly areolate-rugose; intercoxal setal area with sparse punctuation (fig. 48, B); dorsal setae on femora I and II stouter than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 393, width 216.

Male.--Not known.

Holotype.--Female, ex Abies religiosa (H.B.K.) Schlecht. & Cham., nr Amecameca, Mexico, December 19, 1960 (M. L. Estebanes).

Discussion.--The dorsal surface sculpturing of this species is highly distinctive, particularly the dorsocentral punctuation on the propodosoma and hysterosoma. In this respect, amecensis somewhat resembles piniceltis, but the former is easily recognized by the pebbly areolate-rugose area posterior to IC<sub>4</sub> and areolate pregenital plate. This is not so in piniceltis (fig. 88, B).

Brevipalpus arizonicae, new species (Fig. 49, A-C)

Female.--Rostrum extending nearly to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, conical, without ancillary lobes; propodosomal setae Ve, Sci, Sce long and stout,

serrate, as long as distance between bases of Ve; propodosoma areolate, with broken or irregular areolae on dorsocentral area (fig. 49, A) and with rugose lateral margin and propodosomal shield; pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, finely serrate, shorter than propodosomals; L<sub>1-7</sub> becoming much shorter posteriorly; hysterosoma areolate as on propodosoma, with areolae becoming rugose or indistinct posterior to DC<sub>3</sub>; dorsolateral furrows not linear, with rugose margins (fig. 49, A); distinct lateral grooves; pores present; pregenital plate with sides straight, widened posteriorly, strigate-rugose to scutellate (fig. 49, B); genital flap scutellate; genital setae slender, slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area finely strigate medially (fig. 49, B), rest of area smooth; dorsal setae on femora I and II stout, about as long as width of segments; tarsus II with one solenidion. Length 245, width 142.

Variation.--Length 242-268, width 120-137.

Male.--Not known.

Deutonymph.--Gnathosoma extending to about middle of femur I; propodosoma and hysterosoma with distinctive papillate dorsal pattern (fig. 49, C); dorsal setae Ve, Sci, Sce, and hysterosomal setae L<sub>1-7</sub> narrow lanceolate to ensiform, finely serrate, as long as distance between bases of Ve; dorsocentrals DC<sub>1-3</sub> almost hairlike, 1/2 to 1/3 as long as laterals (fig. 49, C); dorsal setae on femora I and II narrow lanceolate, as long as Ve, longer than width of segments.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Quercus arizonica Sarg., Tlaxco, Tlaxcala, July 14, 1974 (T.B.A.), on same slide with two females, two deutonymphs, and one protonymph designated as paratypes.

The holotype female is as marked and mapped on the slide.

Paratypes.--Eleven females, 12 deutonymphs, and 3 protonymphs, with same data as holotype.

Discussion.--The characters of arizonicae are the conical propodosomal shield lacking ancillary lobes, the medially finely strigate area posterior to IC<sub>4</sub> and intercoxal setal area, the strigate-rugose-scutellate pregenital plate, and the scutellate genital flap. The papillate dorsal surface sculpturing on the propodosoma and hysterosoma of the deutonymph are also highly distinctive.

Brevipalpus baccharis, new species  
(Fig. 50, A, B)

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with asymmetrical, widely parted median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce long and slender, sparsely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral and anterior areas (fig. 50, A); pores present; hysterosomal setae L<sub>1-7</sub> more slender and shorter than propodosomals except L<sub>1</sub> about as long as Sce, other setae becoming shorter posteriorly, L<sub>6-7</sub> being shortest; DC<sub>1-3</sub> similar to laterals, not much longer than L<sub>1</sub>; hysterosoma areolate-rugose, with strongly rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas (fig. 50, A); pores absent; pregenital plate with sides narrowing posteriorly, rugose; genital flap subimbricate-rugose; genital setae stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> strigate-rugose (fig. 50, B); intercoxal setal area sparsely punctate; dorsal setae on femora I and II similar to propodosomals, as long as width of segments; tarsus II with one solenidion. Length 261, width 131.

Male.--Not known.

Holotype.--Female, ex Baccharis heterophylla H.B.K., 30 km south of Acatlan, Jalisco, June 30, 1974 (T.B.A.).

Discussion.--The long gnathosoma in combination with the presence of pores on the propodosoma and the distinctive ventral surface sculpturing will readily distinguish baccharis from other species.

Brevipalpus boucheae Baker, Tuttle, and Abbatiello  
(Fig. 51, A-D)

Brevipalpus boucheae Baker, Tuttle, and Abbatiello, 1975: 11 (as bouchea).

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce slender, fairly stout, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma strongly areolate-rugose, with more rugose areolae on dorso-central area (fig. 51, A, D); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, nearly as long as propodosomals, finely serrate or nude; hysterosoma areolate-rugose as on propodosoma, areolate-rugose dorsocentral and dorsolateral areas; striate-rugose longitudinal dorso-lateral furrows (fig. 51, A); pores present; distinct lateral grooves; pregenital plate with sides slightly expanded at middle, strongly rugose; genital flap rugose as in pregenital plate; genital setae stouter and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate to posterior intercoxal setal area (fig. 51, B); anterior intercoxal setal area with sparse punctation; dorsal setae on femora I and II stout, serrate, much larger than propodosomals, about as long as width of segments; tarsus II with one solenidium. Length 240, width 123.

Variation.--Length 228-245, width 114-125.

Male.--Not known.

Deutonymph.--Gnathosoma barely extending to middle of femur I; setae Ve, DC<sub>1-3</sub>, and L<sub>1-6</sub> minute, not more than two times as long as diameter of bases; Sci and Sce stout, about two times as large as Ve; L<sub>7</sub> leaflike and large, lanceolate, serrate, 1/3 longer than distance between bases; dorsal setae on femora I and II small leaflike, about 1/2 as long as width of segments (fig. 51, C).

Specimens examined.--Holotype (female) and paratypes (eight females and one deutonymph), ex Bouchea prismatica (L.) Kuntze, Guadalajara, Jalisco, July 31, 1970 (T.B.A.). The holotype female is on right of four female paratypes, as marked and mapped on the label when first described.

Discussion.--B. boucheae is nearest to sidae. The differences in the dorsal surface areolate (fig. 51, B) and the form of the dorsal setae on femora I and II described here should serve to separate the two species.

Brevipalpus cassiae Baker, Tuttle, and Abbatiello  
(Fig. 52, A, B)

Brevipalpus cassiae Baker, Tuttle, and Abbatiello, 1975: 12 (as cassia).

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly produced, asymmetrical median and ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, ensiform, serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with lightly rugose dorsocentral area (fig. 52, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike, subequal in length, 1/3 shorter than propodosomals; DC<sub>1-3</sub> slender, nude or finely serrate, as long as laterals; hyster-

osoma areolate-rugose as on propodosoma, with rugose dorsocentral area and strongly rugose lateral areas (fig. 52, A); dorsolateral areas areolate, without furrows; pores absent; distinct lateral grooves; pregenital plate with sides uneven, gradually widening posteriorly, scutellate-rugose; genital flap scutellate or scutellate-rugose; genital setae as stout and as long as pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> rugose near anterior margin of pregenital plate, smooth anteriorly to intercoxal setal area (fig. 52, B); dorsal seta on femur I broadly leaflike, larger than propodosomals and femur II dorsal seta, about as long as width of segment; femur II dorsal seta sublanceolate, 1/3 shorter than width of segment; tarsus II with one solenidion. Length 274, width 131.

Male.--Not known.

Specimens examined.--Female (holotype) and paratypes (two females), ex Cassia crotolarioides Kunth, Fresno, Zacatecas, August 3, 1970 (T.B.A.). Type slide with holotype female only.

Discussion.--B. cassiae is characterized by the areolate-rugose dorsum of the propodosoma and hysterosoma, with a rugose dorsocentral area. It differs from its related species, johnstoni and cnidosculos, by the smooth intercoxal setal area and by the scutellate-rugose pregenital plate and genital flap.

Brevipalpus castillejae, new species  
(Fig. 53, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply and widely notched medially, with slender, fingerlike median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long and slender, finely serrate, about 2/3 as long as distance between bases of Ve; propo-

dosoma almost entirely areolate (fig. 53, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender and fairly weak, about 2/3 as long as propodosomals; hysterosoma areolate-rugose, with rugose lateral areas; pores present; without dorsolateral furrows; with distinct lateral grooves; pregenital plate with sides almost straight, areolate-rugose, with setae inserted laterad; genital flap scutellate; genital setae slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> scutellate to pebbly areolate (fig. 53, B); intercoxal setal area strigate-rugose; dorsal setae on femora I and II large and stout, serrate, about as long as width of segments; tarsus II with one solenidion. Length 302, width 159.

Variation.--Length 268-296, width 120-165.

Male.--Not known.

Holotype.--Female, ex Castilleja sp., Tlaxco, Tlaxcala, July 14, 1974 (T.B.A.).

Paratype.--One female, with same data as holotype.

Other specimens examined.--Thirteen females, ex Allionia incarnata L., Baccharis heterophylla H.B.K., Bouvardia ternifolia (Cav.) Schlecht., Croton sp., Lythrum acinifolium Koehn, Prunus persica (L.) Batsch., and Senecio sp., 19.2-22.4 km east of Morelia and east of Morelia at Valle del Bravo turnoff, Michoacán, July 3-4, 1974 (T.B.A.).

Discussion.--This species is similar to pachucensis, but castillejae differs by having the strigate-rugose intercoxal setal area lacking punctation, by the scutellate genital flap, and by the areolate-rugose lateral areas of the hysterosoma. B. pachucensis has pebbly areolate and finely strigate-punctate intercoxal setal area, imbricate genital flap, and strongly rugose lateral areas of the hysterosoma.

Brevipalpus celtis Baker, Tuttle, and Abbatiello  
(Fig. 54, A-C)

Brevipalpus celtis Baker, Tuttle, and Abbatiello, 1975: 11.

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with tapered median and ancillary lobes; propodosomal setae Ve, Sci, Sce large, leaflike, oblanceolate to lanceolate, serrate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma entirely areolate (fig. 54, A, B), with distinctly rugose or irregular areolae on dorsocentral area; pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals, lanceolate or sublanceolate, subequal in length, as long as propodosomals; DC<sub>1-3</sub> leaflike, with DC<sub>1-2</sub> oblanceolate, as long as laterals, DC<sub>3</sub> smallest; hysterosoma areolate-rugose, with areolate, depressed dorsolateral areas and rugose lateral areas (fig. 54, A); pores absent; without lateral grooves; pregenital plate with sides uneven, barely perceptibly expanded posteriorly, strigate-rugose; genital flap subscutellate-rugose; genital setae fairly stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> lightly rugose, almost smooth medially; intercoxal setal area smooth (fig. 54, C); dorsal setae on femora I and II leaflike, as large as propodosomals, as long as width of segments; tarsus II with one solenidion. Length 365, width 210.

Male.--Not known.

Specimen examined.--Holotype (female), ex Celtis pallida Torr., Torreón, Coahuilla, August 3, 1960 (T.B.A.).

Discussion.--The unique type is the only specimen available for study. B. celtis is distinguished by the large, leaflike dorsal setae, by the smooth intercoxal setal area, and by the strigate-rugose pregenital plate.

Brevipalpus chamaedoreae Baker, Tuttle, and Abbatiello  
(Fig. 55, A-E)

Brevipalpus chamaedoreae Baker, Tuttle, and Abbatiello, 1975: 8 (as chamaedorea).

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment and slender seta on second segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve broadly leaflike, considerably larger than Sci and Sce, obovate, serrate, about 1/3 longer than distance between bases; Sci and Sce small, narrow leaflike, about 1/2 as long as Ve; Sce narrower and slightly shorter than Sci; propodosoma strongly tuberculate-rugose, with strongly rugose dorsocentral area (fig. 55, A); pores absent; hysterosomal L<sub>1-7</sub> leaflike, about as large as Sci and Sce, spatulate, or lanceolate with acute tips, considerably smaller than dorsocentrals; DC<sub>1-3</sub> broadly leaflike, obovate, as large as Ve; DC<sub>3</sub> inserted close to each other (fig. 55, A); hysterosoma tuberculate-rugose as propodosoma, with rugose dorsocentral area; without dorsolateral furrows; pores absent; lateral grooves indistinct; pregenital plate with sides expanded at middle, tuberculate-rugose; genital flap subscutellate-tuberculate; genital setae much stouter and longer than pregenitals, barbed or serrate, equidistant from each other; area posterior to IC<sub>4</sub> and much of ventral area tuberculate; intercoxal setal area tuberculate, with rounded medial punctate area (fig. 55, B); dorsal setae on femora I and II leaflike, lanceolate, slightly larger than Sci, about 2/3 as long as segments; tarsus II with one solenidion. Length 307, width 182.

Variation.--Length 285-314, width 171-185.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia.

Variation.--Length 245-279, width 125-137.

Deutonymph.--Gnathosoma extending near middle of femur I; dorsal setae Sci, Sce, and L<sub>5</sub> very long, whiplike, finely serrate, longer than width of body (fig. 55, C); Ve, L<sub>2-3</sub>, L<sub>6-7</sub>, and DC<sub>1-3</sub> very small, not more than three times as long as diameter of their bases; L<sub>1</sub> narrow leaflike, sublanceolate, serrate; L<sub>4</sub> slender, rodlike, slightly shorter than L<sub>1</sub>; dorsal setae on femora I and II small leaflike, lanceolate, shorter than width of segments.

Protonymph.--Similar to deutonymph except for stout, spinelike L<sub>1</sub> and very small L<sub>4</sub> (fig. 55, D).

Larva.--As figured (fig. 55, E), based on single specimen, with many missing setae.

Specimens examined.--Holotype (female), ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station, May 21, 1973 (D. Johnston); 36 females, 4 males, 1 larva, 1 protonymph, 3 deutonymphs, ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station, June 12, November 5, and December 10, 24, and 27, 1974, February 4, March 7, April 29, May 7, and June 3, 1975, March 8 and August 17, 1976, and July 27, 1977 (D. Johnston); Mexico at Cd. Juarez, El Paso, Texas quarantine station, March 15, 1974 (R. Alvarez), and October 17, 1974 (J. H. Glass); Mexico at Detroit, Michigan quarantine station, January 5, 1976 (R. S. Taylor).

Discussion.--B. chamaedoreae is closest to tuberellus in that both have a slender seta on the second segment of the palpus and a tuberculate-punctate intercoxal setal area except the punctate area is rounded in chamaedoreae and triangular in tuberellus. The dorsocentral setae DC<sub>3</sub> are inserted close to each other in chamaedoreae, whereas they are wide apart and in line with DC<sub>1-2</sub> in tuberellus. Although the deutonymph

of chamaedoreae is very similar to that of tuberellus, the protonymph is entirely different from that of tuberellus.

Brevipalpus chucamayi De Leon (Fig. 56, A-C)

Brevipalpus chucamayi De Leon, 1960: 179.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce fairly stout with drawn out tips, serrate, as long as distance between bases of Ve; propodosoma entirely pebbly areolate, with smaller areolae on dorsocentral and dorsolateral areas (fig. 56, A) than on lateral areas; pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slightly shorter than and not noticeably as stout as propodosomals, serrate; hysterosoma entirely pebbly areolate as on propodosoma (fig. 56, A); pores absent; distinct rugose lateral grooves; pregenital plate with sides peculiarly rounded, not much larger than genital flap, pebbly areolate, with irregular areolae; pregenital setae stout and serrate; genital flap areolate-rugose, with elongate areolae; genital setae longer than pregenitals, barbed, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area entirely smooth (fig. 56, B); dorsal setae on femora I and II stouter than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 266, width 165.

Male.--Not known.

Deutonymph.--Rostrum extending to apex of femur I; all dorsal body setae except DC<sub>1</sub> long and stout, about as long as distance between bases of Ve, strongly serrate and borne on prominent tubercles (fig. 56, C); DC<sub>1</sub> fairly strong and short, about 1/3 as long as other setae, serrate; DC<sub>2</sub> missing or

absent; dorsal setae on femora I and II as stout as body setae but shorter.

Specimens examined.--Holotype (female) and paratypes (two females and one deutonymph), ex Styrax argenteus Presl. (as Styrax argentata), Trinidad, Chiapas, January 26, 1957 (D. De Leon).

Discussion.--This species is very close to oreopanacis. The dorsal setae of chucamayi are longer than in oreopanacis, the pregenital plate is nearly as large as the genital flap, the area posterior to IC<sub>4</sub> is pebbly areolate, and the intercoxal setal area is smooth. The deutonymph has long and stout dorsal body setae, including DC<sub>3</sub>; this is not so in oreopanacis deutonymph, which has very small DC<sub>1-3</sub>, L<sub>4</sub>, and L<sub>6</sub> (fig. 85, C).

Brevipalpus cnidosculos, new species  
(Fig. 57, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, finely serrate, 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose dorsocentral area (fig. 57, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> sublanceolate, 1/3 shorter than propodosomals, barbed or nude; hysterosoma areolate-rugose as on propodosoma, with rugose dorsocentral area; dorsolateral areas areolate-rugose, without furrows; pores absent; distinct lateral grooves; pregenital plate with sides straight, barely perceptibly widened posteriorly, rugose with characteristic pattern (fig. 57, B); genital flap imbricate; genital setae fairly stout, as long as pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> strigate-rugose medially, areolate laterally; much of intercoxal setal area finely strigate (fig. 57, B);

dorsal seta on femur I leaflike, lanceolate, larger than femur II seta, about 2/3 as long as width of segment; femur II dorsal seta about 1/2 as long as width of segment; tarsus II with one solenidion. Length 308, width 172.

Male.--Not known.

Holotype.--Female, ex Cnidosculos sp., 9 km south of Iguala, Guerrero, July 7, 1974 (T.B.A.).

Discussion.--The dorsal surface sculpturing of this species is very similar to that of johnstoni, but the ventral surface sculpturing of cnidosculos is highly distinctive and unlike that of johnstoni. See remarks under johnstoni.

Brevipalpus crotonellae, new species  
(Fig. 58, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strong tapered median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long, slender, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose lateral areas (fig. 58, A); pores present; hysterosomal setae L<sub>1-7</sub> about 2/3 as long as propodosomals, fairly slender and sparsely serrate; DC<sub>1-3</sub> as long as laterals; hysterosoma almost nearly areolate between dorsolateral furrows, with strongly rugose lateral areas (fig. 58, A); longitudinal dorsolateral furrows continuing posteriorly; pores present; distinct lateral grooves; pregenital plate with sides slightly expanded at middle, areolate-rugose; genital flap scutellate-rugose; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area sparsely areolate, may be obscure, smooth between IC<sub>4</sub> (fig. 58, B); dorsal setae on femora I and II narrow leaflike, lanceolate, serrate, slightly



shorter than width of segments; tarsus II with one solenidion. Length 385, width 142.

Variation.--Length 242-279, width 137-154.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 222, width 108.

Deutonymph.--Gnathosoma extending to basal 1/3 of femur I; propodosomal setae Ve, Sci, Sce very short, fairly stout, forked or barbed distally, about 1/4 as long as distance between bases of Ve; all hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> minute, less than two times as long as diameter of bases, dorsal setae on femora I and II small leaflike, lanceolate, serrate, about 1/2 as long as width of segments (fig. 58, C).

Holotype.--Female, ex Croton ciliatoglandulosus Ortega, Santa Catarina, San Luis Potosí, July 16, 1974 (T.B.A.), on same slide with three females and one deutonymph designated as paratypes. The female in the center, lying horizontal and pointing left, is the holotype (see map on the label).

Discussion.--This species has the same type of dorsal surface sculpturing found in lippiae, mexicanus, and tepicensis. The ventral surface sculpturing (fig. 58, B) will easily separate crotonellae from its closely related species. The deutonymph is distinctive in that all dorsal body setae are very small or minute.

Brevipalpus crotoni De Leon  
(Fig. 59, A-B)

Brevipalpus crotoni De Leon, 1960: 177.  
Brevipalpus solanum Baker, Tuttle, and Abbatiello, 1975: 7. NEW SYNONYMY.

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median

and very small, asymmetrical ancillary lobes; propodosomal setae Ve, Sci, Sce slender but strong, nude, about 1/2 as long as distance between bases of Ve; propodosoma almost entirely areolate, with lightly rugose lateral and anterior margins (fig. 59, A); pores absent; hysterosomal setae L<sub>1-7</sub> shorter and less robust than propodosomals, nude; DC<sub>1-3</sub> similar to laterals; hysterosoma areolate-rugose, with small rugose area between DC<sub>2</sub> and DC<sub>3</sub>; lateral areas more rugose than on propodosoma (fig. 59, A); pores absent; distinct lateral grooves; pregenital plate with sides straight, crowded areolate-rugose; genital flap areolate-rugose; genital setae slender, as long as pregenitals, nude, median inner pair close to each other; area posterior to IC<sub>4</sub> pebbly areolate-rugose; intercoxal setal area completely punctate; dorsal setae on femora I and II slender but stronger than propodosomals, nude, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 248-296, width 142-154 (based on type series of crotoni and solanum).

Male.--Not seen; according to De Leon (1960), similar to female; tarsus II with two solenidia.

Deutonymph.--Gnathosoma extending to middle of femur I; all dorsal setae short and slender, nude (fig. 59, B); Ve, Sci, Sce, L<sub>1</sub>, and DC<sub>1</sub> slightly more robust and longer than other setae, 1/4 as long as distance between bases of Ve; L<sub>2-7</sub> and DC<sub>2-3</sub> much shorter, 1/2 to 2/3 as long as L<sub>1</sub>.

Protonymph.--Similar to deutonymph.

Specimens examined.--Type series of crotoni and solanum, except male; 29 females, 12 deutonymphs, and 7 protonymphs, ex Abutilon sp., Topolobampo, Sinaloa, July 24, 1970; ex Abutilon incanum (Link) Sweet, Tepic, Nayarit, and Culiacán, Sinaloa, June 28, 1974; ex Cirsium wheeleri (Gray) Petrak, Chihuahua, Chihuahua, August 8, 1970; ex Euphorbia sp., Santa Catarina, San Luis Potosí, July 16, 1974; ex Psilo-

strophe tagetina (Nutt.) Greene, Torreón, Coahuila, August 5, 1970; ex Sida sp., south of Culiacán, Sinaloa, June 28, 1974; ex Solanum elaeagnifolium Cav., Alamos, Sonora, July 20, 1970; ex Solidago sparsifolia Gray, Tepic, Nayarit, June 28, 1970; ex Tephrosia sp., Tequila, Jalisco, July 26, 1970; (all collected by T.B.A.); ex Croton ciliato-glandulosus Ortega, Cd. Victoria, Tamaulipas, June 12, 1957 (D. De León).

Discussion.--B. crotoni may be distinguished from other species with elongate gnathosoma and slender, nude dorsal setae by the completely punctate intercoxal setal area, as well as by the areolate sculpturing of the pregenital plate and genital flap. The median insertion of the inner pair of genital setae is also distinctive. The short dorsal setae of the deutonymph will further help to separate the species. B. solanum Baker, Tuttle, and Abbatiello has been found to be conspecific with crotoni.

Brevipalpus desmodium, new species (Fig. 60, A, B)

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered, distally overlapping median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce short, sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma pebbly areolate-rugose, with strongly longitudinally rugose dorsocentral and lateral areas; lateral rugose surface minutely or finely strigate (fig. 60, A); pores absent; hysterosomal setae L<sub>1-7</sub> sublanceolate, serrate, slightly shorter than propodosomals; L<sub>4-7</sub> much shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> very small; hysterosoma with sculpturing similar to that of propodosoma except with transverse furrow on dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub> (fig. 60, A); pores absent; distinct lateral grooves; pregenital plate with sides uneven, substrigate-

rugose; genital flap rugose-subscutellate; genital setae stouter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> strigate-rugose; intercoxal setal area smooth (fig. 60, B); dorsal setae on femora I and II lanceolate, serrate, larger than propodosomals, almost as long as width of segments; tarsus II with one solenidion. Length 261, width 137.

Male.--Not known.

Holotype.--Female, ex Desmodium sp., Puerto Palmas, Oaxaca, July 9, 1974 (T.B.A.).

Discussion.--B. desmodium is a very distinctive species based on its dorsal surface sculpturing, with minutely strigate rugose surface, by the smooth intercoxal setal area, and by the strigate-rugose pregenital plate and area posterior to IC<sub>4</sub>.

Brevipalpus emarginatae, new species (Fig. 61, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, nude, about 1/3 as long as distance between bases of Ve; propodosoma crowded areolate, with small and pebbly areolae on dorsocentral area; anterior and lateral margins rugulose (fig. 61, A); pores absent; hysterosomal setae L<sub>1-7</sub> nude and slender, as long as propodosomals; DC<sub>1-3</sub> more slender and shorter than laterals, nude; hysterosoma crowded areolate as on propodosoma, with rugose dorsocentral area posterior to DC<sub>3</sub> and lateral areas; distinct lateral grooves; pores absent; pregenital plate with sides straight, crowded pebbly areolate; genital flap imbricate; genital setae slightly longer than pregenitals, slender, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area uniformly areolate (fig. 61, B); dorsal setae on femora I and

II similar to propodosomals, about 1/3 as long as width of segments; tarsus II with one solenidion. Length 268, width 148.

Male.--Not known.

Protonymph.--With all dorsal setae very short and slender, two to three times as long as diameter of bases (fig. 61, C); dorsal setae on femora I and II similar to body setae, not more than three times as long as diameter of their bases.

Holotype.--Female, ex Atamisquea emarginata Miers., Los Mochis, Sinaloa, July 23, 1970 (T.B.A.).

Paratype.--One protonymph, with same data as holotype.

Discussion.--B. emarginatae is distinguished by the uniformly areolate intercoxal setal area and area posterior to IC<sub>4</sub>, by the imbricate genital flap, as well as by the nude dorsal body setae. The dorsal surface sculpturing is also very distinctive.

Brevipalpus essigi Baker  
(Fig. 62, A-C)

Brevipalpus essigi Baker, 1949: 367;  
Pritchard and Baker, (1951) 1952: 18;  
1958: 205; De Leon, 1961a: 50;  
Baker, Tuttle, and Abbatiello, 1975:  
12.

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small, dentate ancillary lobes; propodosomal setae Ve, Sci, Sce slender or sublanceolate, serrate, 1/2 as long as distance between bases of Ve; propodosoma areolate, with strongly rugose anterior and lateral margins (fig. 62, A); pores absent; hysterosomal setae L<sub>1-7</sub> slender, shorter than propodosomals, subequal in length, finely serrate; DC<sub>1-3</sub> almost similar to laterals; hysterosoma

areolate as on propodosoma, with strongly rugose lateral areas (fig. 62, A); pores absent; distinct lateral grooves; pregenital plate with sides uneven, areolate or subscutellate; genital flap scutellate-rugose; genital setae stouter and longer than pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> areolate, with areolae becoming smaller toward IC<sub>4</sub>; intercoxal setal area punctate, with few areolae posteriorly (fig. 62, B); dorsal setae on femora I and II stouter and longer than propodosomals, with femur I seta longer than width of segment, that on II shorter than width of segment; tarsus II with one solenidion. Length 331, width 165.

Variation.--Length 313-336, width 154-160.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion. Length 302, width 136. Not found in Mexican collections.

Deutonymph.--Gnathosoma not observed; dorsal setae Ve, Sci, and Sce robust, serrate, about 1/3 as long as distance between bases of Ve; L<sub>1-7</sub> and DC<sub>1-3</sub> shorter than propodosomals, nude, serrate or bifid (fig. 62, C); dorsal setae on femora I and II robust, serrate, of varying lengths, but longer than propodosomals.

Specimens examined.--Holotype (female) and paratypes (three females and five deutonymphs), ex Acuba sp., Berkeley, Calif., January 28, 1938 (E. W. Baker); two females, ex orchid plant, Guadalajara, Jalisco at Nogales, Arizona quarantine station, May 15, 1949 (R. Allen); two females and three deutonymphs, ex Chlorophytum sp., Mexico at San Antonio, Texas quarantine station, December 30, 1978 (D. Johnston); one male, ex Hebe buxifolia (Benth.) Cockayne & Allan, Richmond, Calif., November 2, 1950 (S. Mather). The holotype female, a whole specimen on lower part of coverslip, is as marked and indicated on the right label.

Discussion.--The areolate dorsal surface sculpturing with pronounced rugose lateral areas is very distinctive in essigi, as well as the punctate-areolate intercoxal setal area.

Brevipalpus ewpristori De Leon  
(Fig. 63, A-C)

Brevipalpus ewpristori De Leon, 1960:  
180.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with large overlapping median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce slender, nude, about 1/2 as long as distance between bases of Ve; propodosoma almost entirely areolate (fig. 63, A); pores absent; hysterosomal setae L<sub>1-7</sub> more slender and shorter than propodosomals, nude; DC<sub>1-3</sub> similar to laterals; DC<sub>3</sub> inserted close to each other; hysterosoma areolate, with rugose lateral areas (fig. 63, A); distinct lateral grooves; pores absent; pregenital plate with sides uneven, slightly expanded medially, pebbly areolate; genital flap areolate-scutellate; genital setae robust, slightly longer than pregenitals, nude, equidistant from each other; area posterior to IC<sub>4</sub> and surrounding area pebbly areolate; intercoxal setal area pebbly areolate, with small medial punctate area (fig. 63, B); dorsal setae on femora I and II stout, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 359, width 198.

Variation.--Length 342-370, width 145-191.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 325, width 162.

Deutonymph.--Gnathosoma extending beyond middle of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-5</sub>, and L<sub>7</sub> robust,

narrow lanceolate, strongly serrate (fig. 63, C); L<sub>6</sub> varying from 1/2 to 1/3 as long as other laterals, serrate or barbed; dorsocentrals DC<sub>1-3</sub> very small, not more than three times as long as diameter of bases; dorsal setae on femora I and II lanceolate, serrate, robust, variable in length, may be shorter than width of segments.

Specimens examined.--Holotype (female) and paratypes (three females, two males, and one deutonymph), ex Baccharis conferta H.B.K., Jalapa, Vera Cruz, March 3, 1957 (D. De Leon); four females, three males, seven deutonymphs, and one protonymph, ex unknown plant, Jalapa, Vera Cruz, March 3, 1957 (D. De Leon), and ex Fuchsia sp. and Senecio aschenborneanus Schauer, nr km post 258 east of Morelia, Michoacán, June 5, 1957 (D. De Leon).

Discussion.--B. ewpristori is distinguished by the pebbly areolate pregenital plate and area posterior to IC<sub>4</sub>, as well as the intercoxal setal area, with a small, rounded punctate area, and by the nude dorsal body setae. The deutonymph is distinct in that the dorsal body setae except DC<sub>1-3</sub> are stout and strongly serrate.

Brevipalpus filifer De Leon  
(Fig. 64, A-D)

Brevipalpus filifer De Leon, 1960: 182.

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield crenate, deeply cleft medially, with asymmetrical ancillary lobes (fig. 64, A, B); propodosomal setae Ve, Sci, Sce slender, serrate, as long as distance between bases of Ve; propodosoma with areolate dorso-central and dorsolateral areas; rugose laterally and in area anterior to Ve (fig. 64, A); pores absent; hysterosomal setae L<sub>1-7</sub> more slender and shorter than propodosomals; L<sub>1-4</sub> longer and more robust than L<sub>5-7</sub>, all setae sparsely serrate; dorsocentrals DC<sub>1-3</sub> similar to laterals except

shorter; hysterosoma areolate dorso-centrally between DC<sub>1</sub> and DC<sub>2</sub>, rugose posterior to DC<sub>2</sub>; dorsolateral areas areolate-rugose; lateral areas rugose to rugulose (fig. 64, A); pores absent; distinct grooves; pregenital plate with sides straight, expanded posteriorly, scutellate; genital flap scutellate; genital setae robust, longer than pregenitals; area posterior to IC<sub>4</sub> areolate to rugose; intercoxal setal area smooth (fig. 64, C); dorsal setae on femora I and II long and slender but more robust than propodosomals, serrate, shorter than width of segments; tarsus II with one solenidion. Length 228, width 142.

Variation.--Length 268-279, width 142-160.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 211, width 91.

Protonymph.--Based on a single specimen, with varying lengths of propodosomal and hysterosomal lateral setae; Ve and Sce long and slender, serrate, slightly shorter than distance between bases of Ve; Sci shorter than Sce and Ve; L<sub>1</sub> as long as L<sub>2</sub>; L<sub>3-7</sub> of various lengths, from 1/2 to 2/3 as long as Sce; dorso-centrals DC<sub>1-3</sub> slender, short, nude, 1/3 to 1/4 as long as L<sub>1</sub>.

Larva.--Similar to protonymph (fig. 64, D).

Specimens examined.--Holotype (female) and paratypes (five females, one male, one protonymph, and one larva), ex Persea schideana Nees, San Cristobal, Chiapas, January 27, 1957 (D. De Leon); two females and two males included in the type series but not labeled.

Discussion.--The dorsal pattern of filifer is of the general type found in crotoni and ewpristori, and all species lack dorsal pores. B. filifer is easily distinguished by the scutellate genital flap, pregenital plate, and smooth intercoxal setal area.

Brevipalpus formosus De Leon  
(Fig. 65, A, B)

Brevipalpus formosus De Leon, 1960: 177; Baker, Tuttle, and Abbatiello, 1975: 7.

Female.--Rostrum extending just before middle of femur I; palpus four-segmented, with three setae on distal segment and broadly leaflike seta on second segment (fig. 65, A); rostral shield deeply notched, with tapered median and small ancillary lobes; propodosomal setae Ve broadly leaflike, considerably larger than Sci and Sce, obovate, serrate, slightly longer than distance between bases; Sci and Sce small, narrow leaflike, lanceolate, serrate, 1/2 to 2/3 as long as Ve; propodosoma tuberculate-rugose, with strongly rugose dorsocentral area (fig. 65, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, as large as Sci and Sce, considerably smaller than dorsocentrals, DC<sub>1-3</sub> broadly leaflike, as large as Ve (fig. 65, A); hysterosoma tuberculate-rugose as on propodosoma, with strongly rugose dorsocentral area; without dorsolateral furrows; pores absent; lateral grooves indistinct (fig. 65, A); pregenital plate with sides straight, slightly narrowing posteriorly, rugose; genital flap scutellate; genital setae slender, slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> tuberculate-rugose; intercoxal setal area finely strigate-tuberculate, with fine punctation (fig. 65, B); dorsal setae on femora I and II leaflike, as large as Sci and Sce, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 262, width 165.

Variation.--Length 261-265, width 163-166.

Male.--Not known.

Specimens examined.--Holotype (female) and paratypes (four females), ex Licaria sp., Aticama, Nayarit, April 8, 1957 (D. De Leon).

Discussion.--B. formosus is a very distinctive species. It has the same tuberculate-rugose type of dorsal surface sculpturing and broadly leaflike dorsal setae Ve and DC<sub>1-3</sub> as tuberellus and chamaedoreae, but the combination of leaflike seta on the second segment of the palpus and the finely strigate-punctate intercoxal area readily separate formosus.

Brevipalpus geranium, new species  
(Fig. 66, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, strongly conical, without ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly strong, nude, about 1/3 as long as distance between bases of Ve; propodosoma areolate, with strongly rugose lateral areas (fig. 66, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> fairly strong, slightly shorter than propodosomals, nude; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>2</sub> and strongly rugose lateral areas (fig. 66, A); areolate-rugose longitudinal dorsolateral furrows; pores absent; lateral grooves indistinct; pregenital plate with sides straight, slightly expanded posteriorly, strongly rugose; genital flap imbricate; genital setae slightly longer and stouter than pregenitals, barely perceptibly equidistant from each other; area posterior to IC<sub>4</sub> and intercoxal setal area areolate-perlate (fig. 66, B); dorsal setae on femora I and II short and stout, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 268, width 148.

Variation.--Length 285-313, width 154-177.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 222, width 125.

Deutonymph.--Rostrum extending to middle of femur I; all dorsal body

short and slender as in female; dorsal setae on femora I and II similar to body setae (fig. 66, C).

Holotype.--Female, ex Geranium sp., Mexico at Roma, Texas quarantine station, June 21, 1954 (T. P. Chapman), on same slide with paratypes listed below. The female holotype is second from left in center of coverslip, as marked and mapped on the label.

Paratypes.--Seven females, one male, and two deutonymphs, with same data as holotype.

Other specimens examined.--Eight females, ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station, December 22, 1975 (D. Johnston); ex Gaillardia pulchella Fong., Cd. Juarez, Chihuahua, August 9, 1970 (T.B.A.); ex Phyla nodiflora (L.) Greene and Solanum elaeagnifolium Cav., Monclova, Coahuila, July 19, 1975 (T.B.A.); ex Viquiera sp., Torren, Coahuila, August 3, 1970 (T.B.A.).

Discussion.--B. geranium is distinguished by the short, nude dorsal body setae, the areolate-perlate intercoxal setal area, and by the imbricate genital flap. The dorsal surface sculpturing is of the type found in mexicanus and crotonellae, but geranium lacks the propodosomal pores.

Brevipalpus hamelrectae, new species  
(Fig. 67, A, B)

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield conical, pointed, deeply cleft medially, with asymmetrical ancillary lobes; propodosomal setae Ve stout, pectinate, larger than Sci and Sce, about 2/3 as long as distance between bases; Sci slightly stouter than Sce, finely serrate; both setae shorter than Ve; propodosoma areolate, with rugose lateral areas (fig. 67, A); pores absent; hysterosomal setae L<sub>1-7</sub> short and slender, much shorter than propodosomals, sparsely serrate;

DC<sub>1-3</sub> more slender than laterals, subequal in length; hysterosoma areolate rugose, with rugose dorso-central area posterior to DC<sub>3</sub> and strongly rugose lateral areas (fig. 67, A); indistinct lateral grooves; pores absent; pregenital plate with sides straight, barely perceptibly expanded posteriorly, areolate-rugose; genital flap scutellate-rugose; genital setae slender, longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area coarsely punctate (fig. 67, B); dorsal setae on femora I and II stout, similar to Ve, as long as width of segments; tarsus II with one solenidion. Length 342, width 176.

Male.--Not known.

Holotype.--Female, ex Hamelia erecta Jacq., Fortin, Vera Cruz, July 12, 1974 (T.B.A.).

Discussion.--This species resembles salix in many respects, but the dorsal and ventral surface sculpturings are very distinct; see figure 99, A, B, for differences in patterns. Also the dorsal setae on femora I and II are similar to Ve only in hamelrectae, whereas in salix, the femora I and II dorsal setae are similar to Ve and Sci.

Brevipalpus hypti De Leon  
(Fig. 68, A-C)

Brevipalpus hypti De Leon, 1960: 176;  
Baker, Tuttle, and Abbatiello, 1975:  
8.

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and ancillary lobes; propodosomal setae Ve, Sci, Sce very long, stout, spiculate or pectinate (fig. 68, A); Ve longer than Sci and Sce, about three times as long as distance between their bases; Sci and Sce subequal in length, longer than distance between bases; propodosoma

and propodosomal shield entirely uniformly pebbly areolate (fig. 68, A); hysterosomal setae L<sub>1-3</sub> and DC<sub>1-3</sub> subequal in length, as long as and similar to propodosomals; L<sub>4-7</sub> very short, 1/4 to 1/3 as long as anterior laterals, lanceolate, serrate; hysterosoma with areolate sculpturing similar to that of propodosoma; pores absent; distinct lateral grooves; pregenital plate with sides expanded posteriorly, pebbly areolate; genital flap areolate-rugose or rugose; genital setae slender, barbed, longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> pebbly areolate medially; much of ventral and intercoxal setal area smooth (fig. 68, B); dorsal setae on femora I and II similar to propodosomals, longer than width of segments; tarsus II with one solenidion. Length 284, width 157.

Variation.--Length 273-291, width 143-160.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 239, width 109.

Protonymph.--Form of dorsal setae similar to that of female (fig. 68, A); all dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, and DC<sub>1-3</sub> long and slender, serrate, subequal in length, longer than distance between bases of Ve; L<sub>4</sub> missing, L<sub>5-7</sub> very small, not more than three times as long as diameter of bases (fig. 68, C); dorsal setae on femora I and II narrow lanceolate, pectinate, as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (eight females and two males), ex Hyptis albida Kunth, Ixtlan del Rio, Nayarit, March 24, 1957 (D. De Leon); four females and one protonymph, ex H. albida, Guadalajara, Jalisco, March 23, 1957 (D. De Leon); four females, ex Hyptis sp., Tequila, and 30 km south of Acatlan, Jalisco, July 26, 1970, and June 30, 1974 (T.B.A.).

Discussion.--The very long and stout dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, and DC<sub>1-3</sub> and the uniformly pebbly areolate dorsal sculpturing of the propodosoma and hysterosoma are highly distinctive and unique in the group.

Brevipalpus incarnatae, new species  
(Fig. 69, A, B)

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply and widely cleft medially, with asymmetrical ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, lanceolate, serrate, about 2/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with distinctly rugulose areolae (fig. 69, A); pores present; hysterosomal setae L<sub>1-7</sub> slender leaflike, sublanceolate, serrate, smaller and shorter than propodosomals, with L<sub>6-7</sub> considerably smaller than other laterals; DC<sub>1-3</sub> needlelike, nude, shorter than laterals; hysterosoma areolate-rugose as on propodosoma, with rugulose areolae; pores present; indistinct lateral grooves; pregenital plate with sides indistinct, rugose to subareolate; genital flap imbricate to scutellate; genital setae stouter and longer than pregenitals, barely perceptibly paired laterally; area posterior to IC<sub>4</sub> areolate-scutellate; intercoxal setal area finely strigate punctate (fig. 69, B); dorsal setae on femora I and II leaflike, as robust as propodosomals, femur I seta as long as width of segment, that on femur II shorter than width of segment; tarsus II with one solenidion. Length 296, width 165.

Male.--One paratype in poor condition appears similar to female except for sexual differences; tarsus II with two solenidia. Length about 216, width about 108.

Holotype.--Female, ex Allionia incarnata L., south of Cucula, Jalisco, July 1, 1974 (T.B.A.).

Paratypes.--One female and one male (poor condition), with same data as holotype.

Discussion.--B. incarnatae may be recognized by the distinctly rugulose dorsal areolae, imbricate scutellate genital flap, and the finely strigate-rugose punctate intercoxal setal area. It should not be confused with its nearest relative, serratus. See under serratus.

Brevipalpus insinuatus De Leon  
(Fig. 70, A-D)

Brevipalpus insinuatus De Leon, 1960:  
180.

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and dentate ancillary lobes; propodosomal setae Ve narrow leaflike, ensiform, about 2/3 as long as distance between bases; Sci and Sce slender, subequal in length to Ve; propodosoma areolate-rugose, with pebbly areolate dorsocentral area; short dorsolateral furrows (fig. 70, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> more slender and shorter than propodosomals, finely serrate; L<sub>5-7</sub> much shorter than L<sub>1-4</sub>; hysterosoma areolate-rugose as on propodosoma, with areolae becoming rugose on dorsocentral area posterior to DC<sub>2</sub> and strongly rugose laterad of dorsolateral furrows; pores present; distinct lateral grooves (fig. 70, A); pregenital plate with sides uneven, narrowing posteriorly, crowded pebbly areolate; genital flap areolate to scutellate (fig. 70, C); genital setae stouter and longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> areolate, becoming rugose medially; intercoxal setal area sparsely punctate; spermatheca ovoid, finely spiculate (fig. 70, B); dorsal setae on femora I and II broadly leaflike, lanceolate, serrate, as long as width of segments; tarsus II with one solenidion. Length 268-274, width 148-154 (based on paratypes).

Male.--Not known.

Deutonymph.--Rostrum barely extending



to femur I; dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, L<sub>5</sub>, and L<sub>7</sub> long and leaf-like, ensiform or narrow lanceolate, serrate; L<sub>4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, not more than two times as long as diameter of bases; dorsal setae on femora I and II leaflike, oblanceolate, less than 1/2 as long as Ve, but more than 1/2 as long as width of segments (fig. 70, D).

Specimens examined.--Holotype (female) and paratypes (one female and one deutonymph), ex Quercus sp., Tuxtla Gutierrez, Chiapas, January 15, 1957 (D. De Leon); three females, ex Quercus laurina DC., near km post 277 east of Morelia, Michoacán, no date (D. De Leon).

Discussion.--This species may be confused with quercicolus in having dorso-lateral furrows on the hysterosoma, narrow leaflike propodosomal setae Ve, and nearly similar dorsal surface sculpturing. B. insinuatus is recognized by the sparsely punctate intercoxal setal area, by the pebbly areolate pregenital plate, and by the broadly leaflike dorsal setae on femora I and II.

Brevipalpus johnstoni, new species  
(Fig. 71, A, B)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, almost spinelike, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose dorso-central area (fig. 71, A); pores absent; hysterosomal setae L<sub>1-3</sub> similar to propodosomals, subequal in length; DC<sub>1-3</sub> fairly weak, slightly shorter than laterals; hysterosoma areolate-rugose as on propodosoma; rugose dorsocentral area and areolate-rugose dorsolateral areas; without furrows; pores absent; lateral areas strongly rugose, with indistinct grooves; pregenital plate with sides

uneven areolate-rugose; genital flap rugose; genital setae stouter and longer than pregenitals, paired laterally; area posterior to IC and much of intercoxal setal area pebbly areolate (fig. 71, B); anterior intercoxal setal area between IC<sub>3</sub> smooth; dorsal setae on femora I and II sublanceolate, stronger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 268, width 142.

Male.--Not known.

Holotype.--Female, ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station, December 22, 1976 (D. Johnston).

Discussion.--B. johnstoni is characterized by the areolate-rugose dorsal surface sculpturing and particularly by the rugose dorsocentral area of the propodosoma and hysterosoma. It is nearest to cnidosculus, from which johnstoni is recognized by the areolate-rugose pregenital plate, pebbly areolate area posterior to IC<sub>4</sub>, and much of intercoxal setal area. B. cnidosculus has a strigate intercoxal setal area and strigate-rugose-areolate area posterior to IC<sub>4</sub>, and the pregenital plate is characteristically rugose (fig. 71, B).

Brevipalpus juniperus, new species  
(Fig. 72, A-C)

Female.--Rostrum extending near middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with stubby median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce small, narrow leaflike, serrate, sublanceolate, about 1/3 as long as distance between bases of Ve; propodosoma lightly areolate-rugose, with smooth dorsocentral area and areolate dorsolateral areas (fig. 72, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, L<sub>1-3</sub> nearly as long as Sce, L<sub>4-7</sub> slightly shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> slender, 1/3 shorter than laterals,

nude; hysterosoma lightly areolate-rugose as on propodosoma, with lightly rugose dorsocentral area and areolate-rugose dorsolateral areas, without furrows; pores absent; distinct lateral grooves (fig. 72, A); pregenital plate with sides straight, slightly expanded posteriorly, areolate, or scutellate-rugose (fig. 72, B); genital flap scutellate to rugose; genital setae strong, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> with sparse punctation; intercoxal setal area entirely punctate (fig. 72, B); dorsal seta on femur I broadly leaflike, larger than propodosomals and femur II dorsal seta; both femoral setae slightly shorter than width of segments; tarsus II with one solenidion. Length 325, width 177.

Variation.--Length 314-324, width 165-176.

Male.--Not known.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; propodosomal setae Ve and Sci very small, about 1/4 as long as distance between bases of Ve; Sce broadly leaflike, oblanceolate, 1/2 as long as distance between bases of Ve; hysterosomal setae L<sub>1</sub> and L<sub>4-7</sub> leaflike, as large as Sce, obovate; L<sub>2-3</sub> and DC<sub>1-3</sub> slightly smaller than Sce, not more than two times as long as diameter of bases (fig. 72, C); dorsal setae of femora I and II leaflike; seta on femur I larger than femur II seta, as long as width of segment; that on II shorter than width of segment.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Juniperus mexicanus Spreng., Tlaxco, Tlaxcala, July 14, 1974 (T.B.A.).

Paratypes.--Eight females, seven deutonymphs, and one protonymph, with same data as holotype.

Discussion.--B. juniperus is distinguished from tlaxcensis by the sparse punctation on the area posterior to

IC<sub>4</sub> and by the areolate- or scutellate-rugose pregenital plate and genital flap; and from piniwaltheriae by the entirely punctate intercoxal setal area. The deutonymph may be recognized by the broadly leaflike dorsal setae Sce, L<sub>1</sub>, and L<sub>4-7</sub>.

Brevipalpus lagasceae De Leon  
(Fig. 73, A-C)

Brevipalpus lagasceae De Leon, 1960: 176; Baker, Tuttle, and Abbatiello, 1975: 7.

Female.--Rostrum extending beyond femur to apex of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce large, leaflike, oblanceolate, serrate, about 2/3 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral areas (fig. 73, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals except smaller, particularly posterior setae L<sub>4-7</sub> or L<sub>5-7</sub>; DC<sub>1-3</sub> sublanceolate, sparsely serrate, much narrower and slightly shorter than laterals; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas (fig. 73, A); pores absent; distinct lateral grooves; pregenital plate with sides slightly uneven, barely perceptibly widening posteriorly, areolate-rugose to rugose; genital flap scutellate to rugose; genital setae stouter and slightly longer than pregenitals, paired laterally; area immediately posterior to IC<sub>4</sub> and intercoxal setal area smooth (fig. 73, B); dorsal setae on femora I and II as large as propodosomals, oblanceolate, slightly shorter than width of segments; tarsus II with one solenidion. Length 341, width 173.

Variation.--Length 314-342, width 148-171.

Male.--Similar to female except for sexual differences; dorsal setae

slightly longer than those of female; tarsus II with one solenidion as in female. Length 285, width 115.

Protonymph.--Based on single specimen with missing dorsal setae Ve and L<sub>1</sub>; Sci and L<sub>2-7</sub> large, leaflike, serrate, oblanceolate, about 1/2 as long as distance between bases of Ve (fig. 73, C); dorsocentrals DC<sub>1-3</sub> short and slender, with DC<sub>3</sub> shortest, 1/2 as long as DC<sub>1-2</sub>; dorsal setae on femora I and II leaflike, with femur I seta oblanceolate, larger than femur II seta.

Specimens examined.--Holotype (female) and paratypes (six females, one male, and one protonymph), ex Lagascea angustifolia DC., Arenal, Jalisco, March 24, 1957 (D. De Leon).

Discussion.--B. lagascae is very much like celtis by having leaflike dorsal setae, smooth intercoxal setal area, and elongate gnathosoma. The latter is recognized by the slender and small DC<sub>1-3</sub>. These setae in celtis are nearly broadly leaflike. There are also distinct differences in the areolate sculpturing of the propodosoma.

Brevipalpus lantanae, new species  
(Fig. 74, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield conical, deeply cleft medially, with very small ancillary lobes; propodosomal setae Ve, Sci, Sce short and stout, serrate, about 1/3 as long as distance between bases of Ve; propodosoma crowded pebbly areolate, with rugose lateral margins and dorsolateral depressions in pore sites (fig. 74, A); hysterosomal setae L<sub>1-7</sub> slender, much shorter than propodosomals, nude or sparsely serrate; DC<sub>1-3</sub> needlelike, nude, shorter than laterals; hysterosoma crowded areolate as on propodosoma, with rugose lateral areas; dorsolateral areas depressed posterior to pore sites (fig. 74, A); distinct lateral

grooves; pores absent; pregenital plate with sides pinched posteriorly at junction with genital plate, areolate-cancellate; genital flap scutellate; genital setae stouter and longer than pregenitals, nude, barely perceptibly paired laterally; area posterior to IC<sub>4</sub> and surrounding areas areolate-cancellate as in pregenital plate; intercoxal setal area areolate-cancellate, with punctate area between IC<sub>3</sub> (fig. 74, B); dorsal setae on femora I and II stout, serrate, stronger than propodosomals, slightly shorter than width of segments; tarsus II with one solenidion. Length 331, width 180.

Variation.--Length 308-353, width 160-182.

Male.--Not known.

Deutonymph.--Rostrum extending to base of femur I, with very small dorsal setae; propodosomal setae more robust than hysterosomals, sparsely serrate or nude; Ve about 1/3 as long as distance between bases, more robust and slightly longer than Sci and Sce; lateral L<sub>1-7</sub> very short, slightly more than two times as long as diameter of bases, sparsely serrate or bifid distally; dorsocentral DC<sub>1-3</sub> shorter than laterals (fig. 74, C); dorsal setae on femora I and II more robust than Ve, sparsely serrate, slightly more than 1/2 as long as width of segments.

Holotype.--Female, ex Lantana sp., Zempoala, Mexico, July 8, 1974 (T.B.A.).

Paratypes.--Fourteen females, 3 protonymphs, and 5 deutonymphs, ex Lantana sp., Lupinus sp., Ambrosia sp., Brickellia lacinata Gray, Solanum umbellatum Mill., Zempoala, Mexico, July 8, 1974, and ex Fuchsia thymifoliae H.B.K., east of Morelia, Michoacán, and Valle del Bravo turnoff, July 4, 1974 (T.B.A.).

Discussion.--B. lantanae is another distinctive Mexican species that is

easily recognizable by the areolate-cancellate ventral surface sculpturing and by the dorsolateral depressions on the propodosoma and hysterosoma.

Brevipalpus levis De Leon

(Fig. 75, A-C)

Brevipalpus levis De Leon, 1960: 183.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce small, leaflike, spatulate or obovate, serrate; Ve and Sci slightly smaller than Sce, about 1/5 as long as distance between bases of Ve; propodosoma lightly rugose, with fossulate-rugose dorsocentral area and smooth dorsolateral areas (fig. 75, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> leaflike, as large as Ve and Sci, spatulate, serrate, subequal in length; hysterosoma lightly rugose, with longitudinal, narrow dorsolateral furrows almost joining posteriorly; dorsocentral area posterior to DC<sub>3</sub> more rugose than lateral areas (fig. 75, A); pores present; lateral grooves indistinct; pregenital plate with sides nearly straight, areolate-rugose, with setae inserted laterad; genital flap transversely rugose; genitals stronger and longer than pregenitals, paired laterally, traversing middle of plate (fig. 75, B); area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area entirely punctate; dorsal setae on femora I and II leaflike, oblanceolate, slightly larger than propodosomals; femur I dorsal setae larger than those of femur II; about 1/2 as long as width of segments; tarsus II with one solenidion. Length 290, width 142-154.

Variation.--Length 273-285, width 142-154.

Male.--Not known.

Deutonymph.--Rostrum extending beyond

middle of femur I; dorsal setae Sci, Sce, L<sub>1</sub>, and L<sub>4-7</sub> leaflike, lanceolate, serrate; Ve, L<sub>2-3</sub>, and dorsocentrals DC<sub>1-3</sub> minute to very small (fig. 75, C); Sci small, about 1/2 as long as Sce; Sce and other leaflike setae longer than distance between bases of lateral setae L<sub>4-7</sub>; dorsal seta on femur I leaflike, obovate, larger than femur II seta, about 2/3 as long as width of segment; femur II seta obovate, about 1/2 as long as width of segment.

Specimens examined.--Holotype (female) and paratypes (three females and one deutonymph), ex Cordia glabra Cham., Vera Cruz, Vera Cruz, December 25, 1956 (D. De Leon); three females, ex unknown tree, and four females, ex Coccolobis sp., Vera Cruz, Vera Cruz, February 19, 1957 (D. De Leon).

Discussion.--B. levis is characterized by the longitudinal dorsolateral furrows on the hysterosoma, the uniformly small leaflike dorsal setae, the fossulate-rugose dorsocentral area of the propodosoma, and the rugose genital flap with setae transversing the plate. B. rubus is a closely related species. See remarks under that species.

Brevipalpus lewisi McGregor

(Fig. 76, A-C)

Brevipalpus lewisi McGregor, 1949: 17; Pritchard and Baker, (1951) 1952: 28; 1958: 217; Baker, Tuttle, and Abbatiello, 1975: 12; Meyer, 1979: 89.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly stout, finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma with rugose dorsocentral area, subareolate-rugose dorsolateral and rugose lateral areas (fig. 76, A); pores present; hysterosomal setae

L<sub>1-7</sub> fairly stout, slightly shorter than propodosomals, barbed or sparsely serrate; DC<sub>1-3</sub> almost hairlike, shorter than laterals; hysterosoma subareolate-rugose as on propodosoma, with striate-rugose longitudinal dorsolateral furrows (fig. 76, A); pores present; lateral grooves indistinct; pregenital plate with sides straight or slightly expanded at middle, subareolate-rugose; genital flap rugose; genital setae stouter than and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> almost pebbly areolate; intercoxal setal area sparsely punctate (fig. 76, B); dorsal setae on femora I and II sublanceolate, broader than propodosomals, shorter than width of segments; tarsus I with one solenidion. Length 262, width 142 (lectotype).

Variation.--Length 256-279, width 137-154 (lewisii type series from California); length 274-302, width 154-171 (Mexican series).

Male.--Not known.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; propodosomal setae Ve and Sci considerably smaller than Sce, about 1/4 as long as distance between bases of Ve; Sce leaflike, lanceolate, about 2/3 as long as distance between bases of Ve; hysterosomal setae L<sub>1-7</sub> leaflike, lanceolate, serrate, slightly shorter than Sce; L<sub>2-3</sub> and DC<sub>1-3</sub> very small, slightly more than two times as long as diameter of bases (fig. 76, C); dorsal setae on femora I and II lanceolate, about 1/2 as long as Sce and width of segments.

Protonymph.--Similar to deutonymph.

Specimens examined.--Ten females on type slide labeled "Brevipalpus lewisii n. sp./ on lemons/ Porterville, Calif./ Dec. 11, 1942/ H. C. Lewis/ Coll./ Type 1527." Sixteen females, 2 deutonymphs, and 5 protonymphs, ex lemon fruit, Porterville, Calif., July 17 and 29, 1947 (E. W. Baker); 12 females and 1 deutonymph, ex Abutilon sp., Topolobampo, Sinaloa, July 24,

1970; ex Amorpha fruticosa L. and Asclepias curassavica L., Cd. Obregon, Sonora, July 22, 1970; ex Lythrum acinifolium Koehn, Morelia, Michoacán, July 3, 1974; ex Parthenocissus tricuspidata (Sieb. & Zucc.) Planch. and P. quinquefolia (L.), Planch., Chihuahua, Chihuahua, August 7, 1970; ex Trixus californicus Kellogg, Hermosillo, Sonora, July 18, 1970; (all collected by T.B.A.); ex tangerine fruit, Mexico at Nogales, Arizona quarantine station, March 15, 1953 (T. Allen).

Lectotype female here designated from type slide: Porterville, Calif.

Discussion.--This is an easily recognized species based on its dorsal surface sculpturing, propodosomal pores, and short, stout propodosomal setae. The different forms of dorsal setae of the deutonymph are also very characteristic.

Brevipalpus lippiae, new species (Fig. 77, A, B)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with tapered median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly stout, sublanceolate, sparsely serrate or barbed, about 1/3 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral areas (fig. 77, A); pores present; hysterosomal setae L<sub>1-7</sub> similar to propodosomals, subequal in length; DC<sub>1-3</sub> needlelike, about 2/3 as long as laterals; hysterosoma almost nearly areolate between dorsolateral furrows, with strongly rugose lateral areas; dorsolateral furrows continuing posteriorly; pores present; distinct lateral grooves (fig. 77, A); pregenital plate with sides uneven, or pinched posteriorly at junction with genital flap, areolate with rugose lateral and posterior margins, setae inserted laterad; genital flap scutellate-rugose; genital setae stronger and longer than

pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area obscure areolate-rugose to substrigate (fig. 77, B); dorsal setae on femora I and II narrow leaflike, lanceolate, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 285, width 148.

Male.--Not known.

Holotype.--Female, ex Lippia sp., Puerto Palma, Oaxaca, July 9, 1974 (T.B.A.).

Paratype.--One female, ex Bouchea prismatica (L.) Kuntze, 9.6 km south of Iguala, Guerrero, July 7, 1974 (T.B.A.).

Discussion.--The dorsal surface sculpturing of lippiae is that of the plucheae-mexicanus type, but the length of the dorsal body setae and the overall ventral surface sculpturing are very different.

Brevipalpus mexicanus, new species (Fig. 78, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with large, conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce stout, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral areas (fig. 78, A); pores present; hysterosomal setae L<sub>1-7</sub> short, fairly strong, sparsely serrate, 2/3 to 1/2 as long as propodosomals; DC<sub>1-3</sub> as long as laterals; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>3</sub> and strongly rugose lateral areas; longitudinal dorsolateral furrows becoming obscure posteriorly; lateral grooves distinct; pores present (fig. 78, A); pregenital plate with sides nearly straight, pebbly areolate as in genital flap; genital setae stouter and slightly longer than pregenitals,

paired laterally; area posterior to IC<sub>4</sub> pebbly areolate as in pregenital plate and genital flap (fig. 78, B); intercoxal setal area sparsely areolate to rugose; dorsal setae on femora I and II leaflike, lanceolate, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 332, width 185.

Male.--Not known.

Holotype.--Female, ex Juniperus mexicanus Spreng., Tlaxco, Tlaxcala, July 14, 1974 (T.B.A.).

Discussion.--Although mexicanus is based on a single specimen, the areolate sculpturing of the ventral surface is very distinctive and should not be confused with that of plucheae or crotonellae. The pebbly areolate pregenital plates and genital flaps will readily identify mexicanus.

Brevipalpus moreliensis, new species (Fig. 79, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and very small ancillary lobes; propodosomal setae Ve and Sci large, leaflike, lanceolate, serrate, longer than distance between bases of Ve; Sce slender, sparsely serrate, slightly shorter than Sci and Ve; propodosoma areolate, becoming rugose toward lateral margins, with dorsolateral furrows joined anteriorly forming wide arch (fig. 79, A); pores absent; hysterosomal setae L<sub>1-7</sub> slender, nude, shorter than Sce, becoming much shorter posteriorly; DC<sub>1-3</sub> similar to laterals; hysterosoma areolate-rugose, with rugose dorsolateral furrows and transverse grooves on dorsocentral area immediately anterior to DC<sub>3</sub>; pores present; distinctive lateral grooves (fig. 79, A); pregenital plate with sides nearly straight, subareolate-rugose; genital flap scutellate; genital setae stouter and longer than pregenitals, paired

laterally; area posterior to IC<sub>4</sub> lightly rugose, smooth medially; intercoxal setal area completely smooth (fig. 79, B); dorsal setae on femora I and II broadly leaflike, as large as Ve and Sci, oblanceolate to lanceolate, longer than width of segments; tarsus II with one solenidion. Length 245, width 137.

Male.-- Not known.

Holotype.--Female, ex Quercus sp., 22.4 km east of Morelia, Michoacán, July 3, 1974 (T.B.A.) (on slide with pseudopini).

Paratype.--One female, with same data as holotype.

Discussion.--The large, leaflike propodosomal setae Ve and Sci, in contrast with the slender setae Sce, and the smooth intercoxal setal area immediately separate moreliensis from its close relative, neohyptis. The areolate-rugose dorsal surface sculpturing with characteristic dorsolateral furrows on both propodosoma and hysterosoma is highly distinctive in moreliensis.

Brevipalpus mori De Leon  
(Fig. 80, A-C)

Brevipalpus mori De Leon, 1960: 184.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly stout, serrate, about 1/3 as long as distance between bases of Ve; propodosoma fossulate-rugose, with minutely striate rugose dorsolateral areas (fig. 80, A); pores absent; hysterosomal setae L<sub>1-7</sub> sublanceolate, shorter than propodosomals, serrate; DC<sub>1-3</sub> more slender than laterals, finely serrate or nude; hysterosoma rugose, with strongly rugose dorsocentral area and striate longitudinal dorsolateral furrows

becoming obscure posteriorly; pores present; pregenital plate with sides slightly expanded at middle, areolate-scutellate, with setae inserted laterad; genital flap areolate-scutellate; genital setae stouter and longer than pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> and posterior intercoxal setal area areolate; anterior intercoxal setal area smooth (fig. 80, B); dorsal setae on femora I and II stout, stronger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 282, width 154.

Variation.--Length 256-272, width 142-156.

Male.--Not known.

Protonymph.--Dorsal setae Sci, Sce, and L<sub>5</sub> very long, whiplike, longer than width of body (fig. 80, C); Ve, L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, less than two times as long as diameter of bases; L<sub>7</sub> almost leaflike, lanceolate, serrate, longer than distance between bases; dorsal setae on femora I and II narrow lanceolate to slender, sparsely serrate, about 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (three females and one protonymph), ex Morus alba L., Trinidad, Oaxaca, January 26, 1957 (D. De Leon).

Discussion.--B. mori is characterized by the minutely striate rugose dorsolateral areas of the propodosoma, by the slender propodosomal setae Ve, Sci, and Sce, and by the smooth anterior intercoxal setal area. The ventral surface sculpturing is similar to that of striatus. See remarks under that species.

Brevipalpus neohyptis Baker, Tuttle, and Abbatiello  
(Fig. 81, A, B)

Brevipalpus neohyptis Baker, Tuttle, and Abbatiello, 1975: 8.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with large, conical median and small ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, lanceolate to oblanceolate, serrate, subequal in length, about 2/3 as long as distance between bases of Ve; propodosoma pebbly areolate, with strongly rugose lateral and anterior areas (fig. 81, A); pores absent; hysterosomal setae  $L_{1-7}$  slender, shorter than propodosomals,  $L_1$  strongest and longest of laterals;  $DC_{1-3}$  not much longer than laterals, slender, nude; hysterosoma areolate-rugose on dorsocentral area, with strongly rugose dorsolateral and lateral areas and well-defined rugose dorsolateral furrows (fig. 81, A); pores absent; lateral grooves indistinct; pregenital plate with sides straight, slightly widened posteriorly, lightly strigate-rugose, with setae inserted laterad; genital flap imbricate; genital setae slightly stouter than and as long as pregenitals, paired laterally; area posterior to  $IC_4$  and intercoxal setal area finely strigate (fig. 81, B); dorsal setae on femora I and II leaflike, oblanceolate, nearly as large as propodosomals, shorter than width of segments; tarsus II with one solenidion. Length 256, width 142.

Male.--Not known.

Specimens examined.--Holotype (female) and paratype (one female), ex Hyptis sp., Zapotlanejo, Jalisco, July 30, 1970 (T.B.A.).

Discussion.--B. neohyptis is characterized by the uniformly pebbly areolate and rugose dorsum of the propodosoma, by the leaflike propodosomal setae Ve, Sci, and Sce, and by the finely strigate area posterior to  $IC_4$  and intercoxal setal area. It is close to moreliensis. See remarks under that species.

Brevipalpus neoreligiosae, new species  
(Fig. 82, A-C)

Brevipalpus religiosae De Leon, 1960:  
186 (in part, paratypes only).

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate or conical ancillary lobes; propodosomal setae Ve, Sci, Sce short and almost spinelike, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose, with substrigate-rugose dorsocentral area (fig. 82, A); pores absent; hysterosomal setae  $L_{1-7}$  similar to but slightly shorter than propodosomals, nude or sparsely serrate;  $DC_{1-3}$  fairly weak, nearly as long as laterals; hysterosoma areolate-rugose as on propodosoma, with substrigate-rugose dorsocentral area and areolate, depressed dorsolateral areas; pores absent; distinct lateral grooves; pregenital plate with sides straight or uneven, areolate, with irregular or rugose areolae (fig. 82, B); genital flap subimbricate-rugose; genital setae stouter and slightly longer than pregenitals, paired laterally; area posterior to  $IC_4$  areolate, obscure medially and replaced by sparse punctation continuing to intercoxal setal area; dorsal setae on femora I and II narrow leaflike, lanceolate, larger than propodosomals, more than 1/2 as long as width of segments; tarsus II with one solenidion. Length 285, width 165.

Male.--Not known.

Deutonymph.--Rostrum extending slightly beyond middle of femur I; dorsal body setae, except dorsocentrals, broadly leaflike, lanceolate, serrate, about 2/3 as long as distance between bases of Ve; dorsocentrals  $DC_{1-3}$  very small, two to three times as long as diameter of bases (fig. 82, C); dorsal



setae on femora I and II similar to body setae, about 2/3 as long as width of segments.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Abies religiosa (H.B.K.) Schlecht. & Cham., nr Mexico, D.F., March 10, 1957 (D. De Leon).

Paratypes.--Two females, one deutonymph, and three protonymphs, with same data as holotype; one female, same host, nr Amecameca, Mexico, December 19, 1960 (M. L. Estebanes).

Discussion.--This species is characterized by the substrigate-rugose dorso-central area of the propodosoma, by the rugose areolae on the pregenital plate, and by the punctate intercoxal setal area and median area posterior to IC<sub>4</sub>. The deutonymph is recognized by the broadly leaflike dorsal setae Ve, Sci, Sce, and L<sub>1-7</sub> and by the very small DC<sub>1-3</sub>.

Brevipalpus nodiflorae, new species (Fig. 83, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with stubby median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce short, fairly slender, sparsely serrate, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with fossulate dorsocentral area (fig. 83, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> about 1/3 shorter than propodosomals, sparsely serrate or nude; hysterosoma more rugose than on propodosoma, with strongly rugose dorsocentral area (fig. 83, A); dorsolateral areas areolate-rugose, without furrows; pores present; distinct lateral grooves; pregenital plate with sides slightly expanded at middle, subareolate-rugose, with setae inserted laterad; genital flap rugose to subimbricate; genital setae stronger and slightly longer than pregenitals, paired laterally; area posterior to

IC<sub>4</sub> areolate; intercoxal setal area entirely punctate (fig. 83, B); dorsal seta on femur I broadly leaflike, larger than femur II dorsal seta, about 2/3 as long as width of segment; tarsus II with one solenidion. Length 286, width 142.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, L<sub>1-7</sub> leaflike, serrate, varying from lanceolate to oblanceolate; Ve and DC<sub>1-3</sub> very small, about 1/5 as long as distance between bases of Ve; Sci and Sce slightly more than 1/2 as long as distance between bases; L<sub>1</sub> and L<sub>4-7</sub> subequal in length, as long as Sce; L<sub>2-3</sub> about 1/3 shorter than L<sub>1</sub>; dorsal setae on femora I and II leaflike as Sci and Sce, oblanceolate, with seta on femur I larger than that on femur II; both setae shorter than width of segments (fig. 83, C).

Holotype.--Female, ex Phyla nodiflora (L.) Greene, south of Los Mochis, Sinaloa, June 28, 1974 (T.B.A.).

Paratypes.--Two females and one deutonymph, with same data as holotype; one female, ex Abutilon incanum (Link) Sweet, Guaymas, Sonora, June 27, 1974 (T.B.A.).

Discussion.--The dorsal surface of this species is similar to that of testudinalis, both having fossulate dorsocentral area of the propodosoma. B. nodiflorae can be separated easily by the broadly leaflike dorsal seta on femur I, by the presence of both propodosomal and hysterosomal pores, and by the entirely punctate intercoxal setal area. The deutonymph is recognized by the leaflike dorsal setae Sci, Sce, and L<sub>1-7</sub> (fig. 83, C).

Brevipalpus oaxacensis De Leon (Fig. 84, A-D)

Brevipalpus oaxacensis De Leon, 1960: 182.

Female.--Rostrum extending nearly to

apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long and stout, with Ve stouter than Sci and Sce, finely serrate, about 2/3 as long as distance between bases of Ve; propodosoma areolate-rugose (fig. 84, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, nude, about 2/3 as long as propodosomals; hysterosoma areolate-rugose, with strongly rugose dorsolateral areas (fig. 84, A); longitudinal dorsolateral furrows becoming obscure posteriorly; pores absent; lateral grooves indistinct; pregenital plate with sides nearly straight, strigate-rugose; genital flap scutellate-rugose (fig. 84, B); genital setae as stout and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> strigate-rugose as pregenital plate; intercoxal setal area smooth (fig. 84, C); dorsal setae on femora I and II stout, serrate; femur I dorsal seta longer than that of femur II, about as long as width of segment; femur II seta 2/3 as long as width of segment; tarsus II with one solenidion; spermatheca ovoid, with spicules (fig. 84, B). Length 249, width 142.

Variation.--Length 245-279, width 120-148.

Male.--Similar to female except for sexual differences; propodosoma and hysterosoma pebbly areolate; propodosomal setae Ve lanceolate, serrate; other dorsal setae slender, finely serrate or nude; tarsus II with two solenidia. Length 228, width 103.

Deutonymph.--Rostrum extending beyond femur to middle of genu I; dorsal setae Ve, Sce, L<sub>1-2</sub>, L<sub>5</sub>, and L<sub>7</sub> large, leaflike, oblanceolate, serrate, about 2/3 as long as distance between bases of Ve; Sci small, sublanceolate, serrate, 1/2 as long as Sce, DC<sub>1-3</sub>, L<sub>3-4</sub>, and L<sub>6</sub> minute, less than two times as long as diameter of their bases (fig. 84, D); dorsal setae on

femora I and II lanceolate, serrate, slightly larger than Sci, more than 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (two females, two males, and three deutonymphs), ex Quercus conzatii Trel., Oaxaca, Oaxaca, February 1, 1957 (D. De Leon); eight females, ex Quercus sp., 43 km north of Oaxaca, Oaxaca, July 10, 1974 (T.B.A.).

Discussion.--B. oaxacensis is easily distinguished by the smooth intercoxal setal area and contrasting pattern of pregenital plate and genital flap. (As in geranium, oaxacensis lacks propodosomal pores.) The deutonymph is distinguished by the broadly leaflike dorsal setae Ve, Sce, L<sub>1-2</sub>, L<sub>5</sub>, and L<sub>7</sub> and by the minute DC<sub>1-3</sub>, L<sub>3-4</sub>, and L<sub>6</sub>.

Brevipalpus oreopanacis De Leon (Fig. 85, A-C)

Brevipalpus oreopanacis De Leon, 1960: 180; Baker, Tuttle, and Abbatiello, 1975: 7.

Female.--Rostrum barely extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, conical medially, with very small or poorly developed ancillary lobes; propodosomal setae Ve, Sci, Sce stout, spiculate or pectinate, as long as distance between bases of Ve; propodosoma with dense pebbly rounded areolae on dorsocentral and dorsolateral areas; lateral and anterior areas rugose (fig. 85, A); hysterosomal setae L<sub>1-7</sub> stout as propodosomals, or ensiform, serrate, or spiculate, or varying length; L<sub>1-3</sub> and L<sub>5</sub> subequal in length, about 2/3 as long as Sce; L<sub>4</sub> and L<sub>6-7</sub> shorter than other laterals, subequal in length; DC<sub>1-3</sub> slender, sparsely serrate, slightly shorter than L<sub>1</sub>; hysterosoma with areolate dorsocentral and dorsolateral areas, becoming rugose posterior to DC<sub>3</sub> and lateral areas; pores absent; distinct lateral grooves;

pregenital plate with sides nearly straight, rugose; genital flap scutellate; genital and pregenital setae stout, serrate, subequal in length; pregenital setae inserted near lateral margin of plate; genital setae paired laterally; area posterior to IC<sub>4</sub> transversely rugose medially, pebbly areolate laterally (fig. 85, B); intercoxal setal area sparsely punctate; dorsal setae on femora I and II ensiform, more robust than propodosomals, as long as width of segments; tarsus II with one solenidion. Length 308, width 182.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 265, width 122.

Deutonymph.--Rostrum extending just before middle of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, L<sub>5</sub>, and L<sub>7</sub> long and rodlike with pointed tips, serrate, two times as long as distance between bases of Ve (fig. 85, C); L<sub>4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> very small, simple or bifid, not more than three times as long as diameter of bases; dorsal setae of femora I and II ensiform to narrow lanceolate, shorter than propodosomals, longer than width of segments.

Specimens examined.--Holotype (female) and paratypes (three females, two males, and one deutonymph), ex Oreopanax peltatum Lind., Santa Maria del Oro, Nayarit, March 24, 1957 (D. De Leon).

Discussion.--The dorsal surface sculpturing with small, rounded areolae is very much like that of chucamayi. In addition to the stout, nearly ensiform or lanceolate dorsal body setae, the rugose pregenital plate, the scutellate genital flap, and the sparsely punctate intercoxal setal area will easily separate oreopanacis from other species of the cuneatus group. The deutonymph is distinguished by the very short DC<sub>1-3</sub>, L<sub>4</sub>, and L<sub>5</sub> (fig. 85, C).

Brevipalpus pachucensis, new species  
(Fig. 86, A-C)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, strongly conical with dentate, asymmetrical median lobes; without ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long and slender, finely serrate, about 2/3 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral areas (fig. 86, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender and nude, about 2/3 as long as propodosomals; hysterosoma areolate-rugose, with strongly rugose lateral areas; without dorsolateral furrows (fig. 86, A); pores present; distinct lateral grooves; pregenital plate with sides straight, slightly widened posteriorly, crowded areolate, with setae inserted laterad; genital flap imbricate; genital setae as stout and as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area pebbly areolate (fig. 86, B); anterior intercoxal setal area finely strigate-punctate; dorsal setae on femora I and II narrow leaflike, stout lanceolate or sublanceolate, serrate, as long as width of segments; tarsus II with one solenidion. Length 285, width 159.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion as in female. Length 245, width 125 (based on one specimen).

Deutonymph.--Rostrum extending to middle of femur I; propodosomal setae Ve and Sci narrow leaflike, sublanceolate, serrate, 1/2 as long as distance between bases of Ve; Sce minute, not more than two times diameter of bases; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> very small to minute, not more than two times as long as diameter of bases (fig. 86, C); dorsal setae on femora I and II similar to Ve and Sci, about as long as width of segments.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Lupinus sp., 6.4 km east of El Manzana, Pachuca, Hidalgo, July 14, 1974 (T.B.A.).

Paratypes.--Three females, 13 deutonymphs, and 3 protonymphs, with same data as holotype.

Other specimens examined.--Thirty females, 2 males, 18 deutonymphs, and 6 protonymphs, ex Castilleja sp. and Stipa ichu (Ruiz & Pav.) Kunth, Tlaxco, Tlaxcala, July 14, 1974; ex Haplopappus venutus (H.B.K.) Blake and Phalaris sp., 20 km north of Pachuca, Hidalgo, July 15, 1974; ex Lantana sp. and Sida sp., 8 km south of Puebla, Puebla, July 13, 1974; (all collected by T.B.A.).

Discussion.--This species is close to castillejiae, but pachucensis is easily recognized by the strongly rugose lateral areas of the hysterosoma, by the pebbly areolate area posterior to IC<sub>4</sub>, and by the imbricate genital flap. The deutonymph is distinguished by the narrow leaflike dorsal setae Ve and Sci; all other dorsal body setae are very small or minute (fig. 86, C).

Brevipalpus perseae De Leon  
(Fig. 87, A-C)

Brevipalpus perseae De Leon, 1960: 182.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, long, ensiform or lanceolate, strongly serrate; Ve as long as distance between bases, slightly longer than Sci and Sce; propodosoma areolate-rugose, with areolate dorsocentral and dorsolateral areas; pores absent (fig. 87, A); hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> leaflike as propodosomals; L<sub>1-4</sub> nearly as long as Sce, L<sub>5-7</sub> slightly shorter than L<sub>1-4</sub>; DC<sub>1-3</sub> as long as Sce; hysterosoma areolate-rugose as on propodosoma, rugose

dorsocentral area and areolate rugose dorsolateral areas; without dorso-lateral furrows; pores absent; lateral grooves indistinct; pregenital plate with sides nearly straight, areolate-rugose; genital flap scutellate; genital setae much stouter and longer than pregenitals, barbed or serrate, paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area pebbly areolate; anterior intercoxal setal area finely strigate, with coarse punctation (fig. 87, B); dorsal setae on femora I and II leaflike, as large as propodosomals, as long as width of segments; tarsus II with one solenidion. Length 302, width 177.

Male.--Similar to female except for sexual differences; dorsal setae DC<sub>1-3</sub> not leaflike, setiform; tarsus II with two solenidia.

Variation.--Length 233-268, width 132-145.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; dorsal setae Sci, Sce, L<sub>1</sub>, and L<sub>5</sub> very long, whiplike, serrate, about 1/2 as long as length of body; Ve, L<sub>7</sub>, and DC<sub>1-3</sub> minute, less than two times as long as diameter of bases; L<sub>2</sub> and L<sub>4</sub> rodlike, serrate, about 1/3 as long as L<sub>1</sub>; L<sub>3</sub> and L<sub>6</sub> spinelike, 1/2 to 1/3 as long as L<sub>2</sub> (fig. 87, C); dorsal seta on femur I rodlike, serrate, similar to L<sub>2</sub> and L<sub>4</sub>, two times as long as width of segment; femur II dorsal seta very small, as large as L<sub>3</sub>, about 1/2 as long as width of segment.

Specimens examined.--Holotype (female) and paratypes (three females, two males, and one deutonymph), ex Persea hintonii C. K. Allen, Tepic, Nayarit, March 25, 1957 (D. De Leon).

Discussion.--B. perseae is distinguished from other species with areolate-rugose dorsal surface sculpturing by the similarly ensiform or lanceolate dorsal body setae, including DC<sub>1-3</sub>, and by the pebbly areolate area posterior to IC<sub>4</sub> and

intercoxal setal area with finely strigate and punctate spot. The scutellate genital flap is distinctive in having long and strong serrate setae.

**Brevipalpus piniceltis**, new species  
(Fig. 88, A-C)

**Female.**--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with stout, fingerlike median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, strongly serrate, ensiform or sublanceolate, about 1/3 as long as distance between bases of Ve; propodosoma with punctation on smooth dorsocentral and lateral areas (fig. 88, A); dorso-lateral areas areolate-rugose; pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, L<sub>1-3</sub> about as long as Sce, L<sub>4-7</sub> slightly shorter than L<sub>1-3</sub>; DC<sub>1-2</sub> slender, serrate, as long as L<sub>1</sub>, DC<sub>3</sub> about 1/3 shorter than DC<sub>2-3</sub>, nude; hysterosoma with sculpturing as on propodosoma, with punctation on dorsocentral area and anterior lateral areas (fig. 88, A); dorsolateral areas areolate-rugose to rugose posteriorly; lateral areas rugose, with indistinct grooves; pores absent; pregenital plate with sides straight, scutellate-rugose; genital flap scutellate; genital setae as long as and as stout as pregenitals; area posterior to IC<sub>4</sub> lightly substrigate and sparsely punctate medially, areolate or scutellate laterally (fig. 88, B); intercoxal setal area with sparse punctation; dorsal setae on femora I and II similar to propodosomals except stouter, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 370, width 183.

**Variation.**--Length 371-376, width 177-182.

**Male.**--Similar to female except for sexual differences (fig. 88, C); tarsus II with one solenidion as in female.

**Variation.**--Length 285-308, width 123-131.

**Holotype.**--Female, ex Celtis reticulata Torr., Saltillo, Coahuila, July 18, 1974 (T.B.A.).

**Paratypes.**--Two females and three males, with same data as holotype.

**Discussion.**--The dorsal surface sculpturing and the shape of the spermatheca will readily identify piniceltis. It should not be confused with amecensis.

**Brevipalpus piniwaltheriae**, new species  
(Fig. 89, A-C)

**Female.**--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma lightly sculptured (fig. 89, A), with smooth dorsocentral area and rugose dorsolateral areas; pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, lanceolate or sublanceolate; L<sub>1-3</sub> as long as Sce; L<sub>4-7</sub> slightly shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> slender, nude or finely serrate, about as long as posterior laterals; hysterosoma lightly sculptured as propodosoma, with rugose dorsocentral area posterior to DC<sub>2</sub> and much of dorsolateral areas (fig. 89, A); pores absent; without dorsolateral furrows; distinct lateral grooves; pregenital plate with sides uneven, slightly expanded posteriorly, strigate-rugose; genital flap strigate-rugose; genital setae stouter and slightly longer than pregenitals, paired laterally; median area posterior to IC<sub>4</sub> and intercoxal setae area smooth (fig. 89, B); dorsal setae on femora I and II slightly larger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 257, width 137.

Male.--Not known.

Protonymph.--With small, narrow leaf-like dorsal setae Ve, Sci, Sce, and L<sub>1-3</sub>, about 1/5 as long as distance between bases of Ve; L<sub>4</sub> and L<sub>6</sub> broadly leaflike, obovate, about two times larger than other laterals; DC<sub>1-3</sub> very small, almost spinelike; other dorsal setae missing (fig. 89, C); dorsal setae on femora I and II not much larger than propodosomals, about 1/3 as long as width of segments.

Larva.--With strong, slender dorsal setae Ve and Sci, about 1/5 as long as distance between bases of Ve; Sce and L<sub>1-2</sub> narrow leaflike, as long as Ve, Sci lanceolate or sublanceolate; L<sub>3-5</sub> and L<sub>7</sub> broadly leaflike, obovate, of varying sizes, two times larger than L<sub>1-2</sub>; L<sub>6</sub> long, whip-like, about 1/2 as long as width of body; DC<sub>1-2</sub> almost similar to Ve and Sci; DC<sub>3</sub> broadly leaflike, obovate, as large as L<sub>3</sub>.

Holotype.--Female, ex Waltheria sp., San Vicente, 208 km north of Pachuca, Hidalgo, July 15, 1974 (T.B.A.).

Paratypes.--One female, one larva, and one protonymph, with same data as holotype.

Discussion.--The overall dorsal surface sculpturing, with the smooth dorso-central area of the propodosoma, relates pinawaltheriae to juniperus and tlaxcensis, but the ventral surface sculpturing is very different in each species. B. pinawaltheriae is easily recognized by its smooth intercoxal setal area.

Brevipalpus plucheae Baker, Tuttle, and Abbatiello  
(Fig. 90, A-C)

Brevipalpus plucheae Baker, Tuttle, and Abbatiello, 1975: 12 (as plucheae).

Female.--Rostrum barely extending to middle of femur I; palpus four-seg-

mented, with three setae on distal segment; rostral shield deeply cleft medially, with stout, tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce slender but strong, fairly short, about 1/3 as long as distance between bases of Ve; propodosoma with areolate dorso-central and dorsolateral areas, strongly rugose lateral areas (fig. 90, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> short and stout, finely serrate, about 2/3 as long as propodosomals; hysterosoma areolate-rugose, with rugose dorso-central area posterior to DC<sub>2</sub> and strongly rugose lateral areas; longitudinal dorsolateral furrows becoming obscure posteriorly; distinct rugose lateral grooves; pores present; pregenital plate with sides uneven, barely perceptibly widening posteriorly, areolate-rugose; genital flap rugose to subimbricate-rugose; genital setae slender, slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area pebbly areolate (fig. 90, B); dorsal setae on femora I and II leaflike, lanceolate, serrate, slightly more than 1/2 as long as width of segments; tarsus II with one solenidion. Length 251, width 125.

Variation.--Length 234-268, width 124-148.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, L<sub>5</sub>, and L<sub>7</sub> large, leaflike, lanceolate, about three times as long as diameter of bases; Sci and Sce about 1/3 as long as distance between bases of Ve; L<sub>2-4</sub>, L<sub>6</sub>, and dorso-centrals DC<sub>1-3</sub> minute, less than two times as long as diameter of bases (fig. 90, C); L<sub>5</sub> and L<sub>7</sub> larger than Sci and Sce; dorsal setae on femora I and II lanceolate or oblanceolate, serrate, about 2/3 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (30 females and 1 deutonymph), ex Plucheae odorata (L.) Cassini, Topolobampo and Los Mochis, Sinaloa, July 24, 1970 (T.B.A.).

Discussion.--The dorsal surface sculpturing of plucheae is of the general type found in mexicanus, crotonellae, and tepicensis, but the ventral surface sculpturing and particularly the entirely pebbly areolate intercoxal setal area to area posterior to IC<sub>4</sub> (fig. 90, B) will identify plucheae quite easily. The deutonymph is distinguished by the leaflike dorsal setae Sci, Sce, L<sub>5</sub>, and L<sub>7</sub>.

Brevipalpus pseudoleptoides De Leon  
(Fig. 91, A-C)

Brevipalpus pseudoleptoides De Leon,  
1960: 176.

Female.--Rostrum extending beyond femur to apex of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with large asymmetrical median and ancillary lobes; propodosomal setae Ve, Sci, Sce slender, serrate, about 2/3 as long as distance between bases of Ve; propodosoma areolate except for rugose lateral areas (fig. 91, A); pores absent; hysterosomal setae L<sub>1-7</sub> as stout as propodosomals, L<sub>4-7</sub> slightly shorter than L<sub>1-3</sub>; DC<sub>1-3</sub> slender, serrate, as long as L<sub>1-3</sub>; hysterosoma areolate-rugose, with strongly lateral areas (fig. 91, A); pores absent; lateral grooves; pregenital plate with sides slightly expanding posteriorly, subscutellate-rugose; genital flap imbricate; genital setae slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> finely strigate; intercoxal setal area smooth (fig. 91, B); dorsal setae on femora I and II stouter than propodosomals; femur I dorsal seta much larger than femur II dorsal seta, about as long as width of segment; that on femur II 2/3 as long as width of segment; tarsus II with one solenidion. Length 268, width 131.

Variation.--Length 291-331, width 120-131.

Male.--Not seen; according to De Leon (1960), it is similar to female; tarsus II with two solenidia.

Deutonymph.--Based on a single, partially destroyed specimen, with slender, sparsely serrate propodosomal setae; Ve slightly more than 1/2 as long as distance between bases; Sci and Sce longer than Ve; hysterosomal setae L<sub>1-7</sub> slender, more robust than propodosomals, about as long as Ve, serrate-pectinate; dorsocentrals DC<sub>1-3</sub> more slender and shorter than laterals, nude (fig. 91, C); dorsal setae on femora I and II slender, serrate; femur I seta almost as long as width of segment; that on II 2/3 as long as segment.

Specimens examined.--Holotype (female), ex Dodonaea viscosa Jacq., km post 681, Route 190, Oaxaca, January 31, 1957 (D. De Leon); paratypes (six females and one deutonymph), ex D. viscosa, Etna, Oaxaca, February 1, 1957, and one female, ex Lippia umbellata Cav., Tepic, Nayarit, March 25, 1957; (all collected by D. De Leon).

Discussion.--The smooth intercoxal setal area in combination with the finely strigate area posterior to IC<sub>4</sub> and the imbricate genital flap will readily distinguish pseudoleptoides from other members of the group with elongate gnathosoma.

Brevipalpus pseudophoenicis Baker,  
Tuttle, and Abbatiello  
(Fig. 92, A-C)

Brevipalpus pseudophoenicis Baker,  
Tuttle, and Abbatiello, 1975: 11.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with large, conical median and small ancillary lobes; propodosomal setae Ve, Sci, Sce stout, serrate, about 2/3 as long as distance between bases of Ve; propodosoma striate-rugose, with fossulate-rugose dorsocentral area (fig. 92, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1</sub> similar to propodosomals except for slightly slender and shorter posterior setae; DC<sub>2-3</sub> more slender

and shorter than DC<sub>1</sub>, nude; hysterosoma rugose, with longitudinal dorsolateral furrows becoming obscure posteriorly (fig. 92, A); lateral areas strongly rugose, with indistinct grooves; pores present; pregenital plate with sides straight, slightly widened posteriorly, rugose; genital flap scutellate; genital setae slender, as long as pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> lightly rugose to smooth; intercoxal setal area sparsely punctate (fig. 92, B); dorsal setae on femora I and II stout, ensiform, stouter than propodosomals and longer than width of segments; tarsus II with one solenidion. Length 282, width 160.

Variation.--Length 287-308, width 148-165.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 245, width 114.

Protonymph.--With dorsal setae Sci, L<sub>5</sub>, and L<sub>7</sub> long, robust, rodlike, with pointed tips, serrate, about two times as long as distance between bases of Ve; Ve, Sce, L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> very small to minute, not more than two times as long as diameter of bases (fig. 92, C); dorsal setae on femora I and II minute.

Specimens examined.--Holotype (female) and paratypes (five females, two males, and one protonymph), ex Sida sp., Zapotlenja, Jalisco, July 31, 1970 (T.B.A.).

Discussion.--B. pseudophoenicis is an easily recognized species based on its dorsal surface sculpturing, scutellate genital flap, and rugose pregenital plate, as well as sparsely punctate intercoxal setal area.

Brevipalpus pseudopiniculus, new species

(Fig. 93, A, B)

Female.--Rostrum extending beyond femur to apex of genu I; palpus four-segmented, with three setae on distal

segment; rostral shield conical, deeply cleft medially, with very small ancillary lobes; propodosomal setae Ve, Sci, Sce slender, nude, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with smooth spot at middle of dorsocentral area (fig. 93, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, nude, nearly subequal in length, shorter than propodosomals; hysterosoma with substrigate-rugose dorsocentral area, areolate-rugose dorsolateral areas, and confused rugose lateral areas (fig. 93, A); pores absent; distinct lateral grooves; pregenital plate with sides slightly expanded posteriorly, strongly rugose; genital flap imbricate (fig. 93, B); genital setae slender, nude, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose medially, pebbly areolate laterally; intercoxal setal area with punctation; dorsal setae on femora I and II slender and weaker than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 319, width 147.

Variation.--Length 314-324, width 142-143.

Male.--Not known.

Holotype.--Female, ex Juniperus mexicanus Spreng., Tlaxco, Tlaxcala, July 10, 1974 (T.B.A.).

Paratypes.--Five females, with same data as holotype.

Discussion.--As usual in this group, the dorsal and ventral surface sculpturing of pseudopiniculus is highly distinctive. The combination of elongate rostrum and slender, nude dorsal body setae will also help to identify this species.



Brevipalpus quercicolus De Leon  
(Fig. 94, A-C)

Brevipalpus quercicolus De Leon, 1960:  
175.

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply notched medially, with stubby median and small, conical ancillary lobes; propodosomal setae Ve, Sci, Sce long; Ve narrow leaflike, ensiform, serrate, about as long as distance between bases; Sci and Sce considerably slender, subequal in length to Ve, serrate; propodosoma crowded areolate, with rugose lateral areas (fig. 94, A); pores absent; hysterosomal setae L<sub>1-7</sub> considerably more slender and shorter than propodosomals, finely serrate or nude; DC<sub>1-3</sub> finer than laterals, nude or finely serrate; hysterosoma crowded areolate on dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub>, rest of area areolate-rugose; dorsolateral furrows becoming indistinct posteriorly; lateral areas rugose, with indistinct grooves; pores absent; pregenital plate with sides expanded posteriorly, smooth; genital flap scutellate (fig. 94, B); genital setae fairly stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> nearly smooth or lightly rugose-strigate; intercoxal setal area smooth (fig. 94, B); dorsal setae on femora I and II ensiform, as large as Ve, longer than width of segments; tarsus II with one solenidion; all tarsal claws padlike. Length 256, width 135.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-2</sub>, L<sub>4-5</sub>, and L<sub>7</sub> large, leaflike, oblanceolate, serrate, about 2/3 as long as distance between bases of Ve; L<sub>3</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> minute, not more than two times as long as diameter of bases (fig. 94, C); dorsal seta on femur I larger than femur II dorsal seta, oblanceolate to lanceolate, serrate, both setae

about 2/3 as long as width of segments; tarsal claws uncinatae.

Specimens examined.--Holotype (female) and paratypes (two females and three deutonymphs), ex Quercus sp., nr km Post 134, Route 71, Mexico, March 10, 1957 (D. De Leon).

Discussion.--Characters readily identifying quercicolus are the smooth pregenital plate and intercoxal setal area, scutellate genital flap, stout propodosomal setae Ve, dorsolateral furrows on the hysterosoma, and padlike claws.

Brevipalpus querensis, new species  
(Fig. 95, A-C)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce fairly long, narrow leaflike, ensiform, serrate, about 2/3 as long as distance between bases of Ve; propodosoma with rugose dorsocentral area, areolate-rugose toward lateral areas (fig. 95, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, L<sub>1-3</sub> nearly as long as Sce, L<sub>4-7</sub> short, about 2/3 as long as L<sub>1-3</sub>; DC<sub>1-3</sub> not leaflike, DC<sub>1</sub> stouter than DC<sub>2-3</sub>, as long as posterior laterals, finely serrate; hysterosoma areolate-rugose, with strongly rugose lateral areas; longitudinal dorsolateral furrows (fig. 95, A); pores present; lateral grooves indistinct; pregenital plate with sides uneven, slightly expanded at middle, strongly rugose; genital flap scutellate; genital setae slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate; intercoxal setal area sparsely punctate (fig. 95, B); dorsal setae on femora I and II broadly leaflike, not much longer than propodosomals, as long as width of segments; tarsus II with one solenidion. Length 302, width 154.

Variation.--Length 291-313, width 163-171.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 279, width 131.

Deutonymph.--Rostrum extending just before middle of femur I; leaflike dorsal setae except DC<sub>1-3</sub> lanceolate, serrate, about as long as distance between bases of Ve; L<sub>4-5</sub> and L<sub>7</sub> ob lanceolate, serrate, less than 2/3 as long as anterior laterals; L<sub>6</sub> spatulate-lanceolate, smallest of laterals, about 1/2 as long as preceding setae; dorsocentrals DC<sub>1-3</sub> very small, lanceolate, less than two times as long as diameter of bases; dorsal setae on femur I and II ob lanceolate, serrate, shorter than width of segments; femur II dorsal seta may be reduced in size as figured.

Holotype.--Female, ex Quercus sp., 43 km, north of Oaxaca, Oaxaca, July 10, 1974 (T.B.A.).

Paratypes.--Two females, one male (molt), and three deutonymphs, with same data as holotype.

Discussion.--The dorsal surface sculpturing of querensis most nearly resembles that of lewisi, but querensis lacks pores on the propodosoma and has long and narrow leaflike propodosomal setae. The deutonymph is very distinctive (fig. 95, C).

Brevipalpus religiosae De Leon (Fig. 96, A-C)

Brevipalpus religiosae De Leon, 1960: 186.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield with tapered, pointed median lobes, with deeply cleft and asymmetrical ancillary lobes; propodosomal setae Ve, Sci, Sce short and stout, sparsely serrate, about 1/4 as long as distance between Ve; propodosoma areolate, with lightly

rugose lateral areas (fig. 96, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> not much larger than propodosomals, sparsely serrate, sublanceolate; hysterosoma areolate-rugose, with transversely rugose dorsocentral area and areolate dorsolateral areas; lateral areas rugose, with distinct grooves; pores present; pregenital plate with sides slightly uneven, areolate; genital flap scutellate; genital setae stout, barbed, as long as pregenitals, paired laterally or equidistant from each other; area posterior to IC<sub>4</sub> irregularly areolate; intercoxal setal area areolate, with medial punctate area (fig. 96, C), extending beyond IC<sub>3</sub>; spermatheca ovoid, with ribbonlike tube (fig. 96, B); dorsal setae on femora I and II small, leaflike, lanceolate, serrate, about 2/3 as long as width of segments; tarsus II with one solenidium. Length 398, width 220.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 342, width 171.

Specimens examined.--Holotype (female) and paratype (one male), ex Abies religiosa (H.B.K.) Schlecht. & Cham., east of Morelia, Michoacán, nr km Post 270 on Route 15, June 15, 1957 (D. De Leon).

Discussion.--Two species are in the type series. The female holotype and male paratype bearing the above data are religiosae. The paratypes (three females, one deutonymph, and three protonymphs) labeled "Brevipalpus religiosae De Leon, ex Abies religiosa (H.B.K.) Schlecht. & Cham., nr Mexico, D.F., March 10, 1957 (De Leon)" are different from religiosae and are considered to be a new species. The dorsal surface sculpturing, the presence of pores on the hysterosoma, the leaflike dorsal setae on femora I and II, as well as the areolate-punctate intercoxal setal area will distinguish religiosae.

Brevipalpus rubus, new species  
(Fig. 97, A, B)

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered, asymmetrical median and small, conical ancillary lobes; propodosomal setae Ve, Sci, Sce leaflike, oblanceolate, serrate; Ve slightly larger than Sci and Sce, more than 1/2 as long as distance between bases; propodosoma slightly rugose, lacking definite pattern (fig. 97, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, smaller than propodosomals; L<sub>1-2</sub> oblanceolate, much larger than spatulate L<sub>3-7</sub>; DC<sub>1-3</sub> very small, lanceolate, about 1/2 as large as L<sub>3-7</sub>; hysterosoma lightly rugose, with longitudinal dorsolateral furrows almost joining posteriorly (fig. 97, A); dorsocentral area posterior to DC<sub>2</sub> slightly more rugose than lateral areas (fig. 97, A); pores present; lateral grooves indistinct; pregenital plate with sides straight, rugose; genital flap areolate-scutellate; genital setae stouter and longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose, with areolate lateral areas; intercoxal setal area punctate (fig. 97, B); dorsal setae on femora I and II leaflike, oblanceolate, nearly as large as propodosomals, slightly shorter than width of segments. Length 269, width 160.

Male.--Not known.

Holotype.--Female, ex Rubus cortifolius Liebm., 19 km east of Morelia, Michoacán, July 3, 1974 (T.B.A.).

Paratype.--One female, with same data as holotype except for host, Oxalis sp. This is probably an accidental host plant.

Discussion.--B. rubus is closest to levis, both having less profuse dorsal surface sculpturing and with conspicuous longitudinal dorsolateral furrows

on the hysterosoma. B. rubus is differentiated from levis by the large propodosomals Ve, Sci, Sce, and hysterosomals L<sub>1-2</sub>, by the lack of a definite pattern on the propodosoma, and by the substrigate-rugose pregenital plate and median area posterior to IC<sub>4</sub>.

Brevipalpus rugosus De Leon  
(Fig. 98, A, B)

Brevipalpus rugosus De Leon, 1960: 184.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce long, narrow ensiform, serrate, slightly shorter than distance between bases of Ve; propodosoma strongly rugose, with distinct longitudinal dorsolateral furrows (fig. 98, A); pores absent; hysterosomal setae L<sub>1-7</sub> slender, L<sub>1-4</sub> about as long as Sce, L<sub>5-7</sub> slightly shorter than L<sub>1-4</sub>; DC<sub>1</sub> longer and stouter than DC<sub>2-3</sub>; hysterosoma strongly rugose as on propodosoma, with longitudinal dorsolateral furrows (fig. 98, A); pores present; distinct lateral grooves; pregenital plate with sides uneven, slightly expanded at middle, areolate-scutellate; genital flap areolate-scutellate; genital setae stout, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and posterior intercoxal setal area substrigate-rugose to areolate (fig. 98, B); anterior intercoxal setal area smooth; dorsal setae on femora I and II lanceolate, stronger than propodosomals, slightly shorter than width of segments; tarsus II with one solenidion. Length 285, width 160.

Variation.--Length 279-303, width 155-15.

Male.--Not seen; according to De Leon (1960), similar to female; tarsus II with two solenidia.

Specimens examined.--Holotype (female)

and paratypes (seven females), ex Quercus magnoliaefolia Nees, Nochtlan, Oaxaca, February 1, 1957 (D. De Leon).

Discussion.--B. rugosus is an easily recognized species based on its strongly rugose dorsal sculpturing and by the dorsolateral furrows on the propodosoma. The long and narrow leaflike propodosomal setae are similar to those of querensis.

Brevipalpus salix, new species  
(Fig. 99, A-D)

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield with large median and ancillary lobes, deeply cleft medially; propodosomal setae Ve, Sci, Sce stout, strongly serrate, with Ve slightly longer than Sci and Sce, about 2/3 as long as distance between bases; propodosoma areolate-rugose, with polygonal areolae on dorsocentral area and distinctly rounded areolae on dorsolateral areas (fig. 99, A); pores absent; hysterosomal setae L<sub>1-7</sub> short and stout to sublanceolate, shorter than propodosomals DC<sub>1-3</sub>, slender, nude; DC<sub>1-2</sub> as long as L<sub>1</sub> and longer than DC<sub>3</sub>; DC<sub>3</sub> inserted close to each other; hysterosoma distinctively sculptured (fig. 99, A), with areolate dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub> narrowly rugose posteriorly; dorsolateral areas depressed, with rounded areolae as in propodosoma (fig. 99, A); lateral areas strongly rugose, with distinct grooves; pores absent; pregenital plate with sides nearly straight, areolate; genital flap scutellate becoming rugose posteriorly; genital setae slender, as long as pregenitals, paired laterally; pregenital setae inserted near lateral margin of plate; area posterior to IC<sub>4</sub> areolate-punctate; intercoxal setal area completely punctate (fig. 99, B); dorsal setae on femora I and II stout, ensiform, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 285, width 154.

Variation.--Length 267-313, width 139-172.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 262, width 125.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Ve, Sci, Sce, and hysterosomal laterals L<sub>1-3</sub> sublanceolate, serrate-pectinate, about 2/3 as long as distance between bases of Ve (fig. 99, C); L<sub>4-5</sub> vary from very small to as long as L<sub>3</sub>; L<sub>6</sub> very small, not more than two times diameter of bases; L<sub>7</sub> similar to L<sub>1-3</sub>, lanceolate, serrate, about 1/2 as long as L<sub>3</sub>; dorsocentrals DC<sub>1-3</sub> very short and slender; DC<sub>1-2</sub> not more than three times diameter of bases; DC<sub>3</sub> shortest, slightly more than diameter of bases; dorsal setae on femora I and II sublanceolate, serrate, about 2/3 as long as width of segments.

Protonymph.--Similar to deutonymph except L<sub>4-5</sub> and L<sub>7</sub> only slightly shorter than L<sub>3</sub> (fig. 99, D).

Holotype.--Female, ex Salix sp., 9.6 km north of Oaxaca, July 10, 1974 (T.B.A.).

Paratypes.--Fourteen females, 1 male, 1 deutonymph, and 3 protonymphs, with same data as holotype.

Discussion.--B. salix is similar to hamelrectae. As in most members of the group, salix may be recognized by the distinctive areolate dorsal pattern, as well as by the punctate intercoxal setal area. See remarks under hamelrectae.

Brevipalpus serratus De Leon  
(Fig. 100, A-C)

Brevipalpus serratus De Leon, 1960:  
176.

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with ancillary lobes; propodosomal setae

Ve, Sci, Sce sublanceolate, spiculate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose dorsocentral area; dorsolateral depressions at pore sites (fig. 100, A); pores absent; hysterosomal setae  $L_{1-7}$  lanceolate, spiculate, slightly shorter than propodosomals, except  $L_1$  as long as Sce, other setae becoming much shorter posteriorly;  $DC_{1-3}$  slender, not leaflike, serrate, shorter than laterals; hysterosoma areolate-rugose as on propodosoma (fig. 100, A) except dorsocentral area transversely areolate-rugose posterior to  $DC_2$ ; slightly impressed dorsolateral areas; pores absent; lateral grooves indistinct; pregenital flap with sides nearly straight, barely perceptibly expanded posteriorly, pebbly-areolate; genital flap areolate-rugose; genital setae slender, as long as pregenitals, paired laterally; area posterior to  $IC_4$  and surrounding area pebbly areolate; intercoxal setal area sparsely areolate posteriorly, coarsely punctate anteriorly (fig. 100, B); dorsal setae on femora I and II sublanceolate to lanceolate, spiculate, not much larger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 349, width 177.

Male.--Not known.

Deutonymph.--Rostrum extending to apex of femur I; dorsal body setae similar to those of female; Ve, Sci, and Sce lanceolate, spiculate, about 2/3 as long as distance between bases of Ve;  $L_1$  as long as propodosomals,  $L_{2-7}$  slightly shorter than  $L_1$ ;  $DC_{1-2}$  slender and shorter than laterals, spiculate (fig. 100, C); dorsal setae on femora I and II similar to propodosomals, about as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (three deutonymphs), ex unknown tree, Tuxtla Gutierrez, Chiapas, January 21, 1957 (D. De Leon).

Discussion.--This species may be distinguished from its nearest relatives, incarnatae and tepic-butilonae, by having a pebbly-areolate area posterior to  $IC_4$  and pregenital plate and by the areolate-punctate intercoxal setal area. The strongly rugose-areolate dorsum of the propodosoma, with dorsolateral depressions on the pore sites, is very distinctive of serratus.

Brevipalpus sidae Baker, Tuttle, and Abbatiello

(Fig. 101, A-C)

Brevipalpus sidae Baker, Tuttle, and Abbatiello, 1975: 8 (as sida).

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft, with conical median and ancillary lobes; propodosomal setae Ve, Sci, Sce slender but strong, sparsely serrate, about 1/2 as long as distance between bases of Ve; propodosoma crowded pebbly areolate-rugose, with rugose lateral margins (fig. 101, A, B); pores present; hysterosomal setae  $L_{1-7}$  about 2/3 as long as propodosomals, finely serrate or nude;  $DC_{1-3}$  as long as laterals; hysterosoma areolate-rugose as on propodosoma, with strongly rugose lateral areas and rugose dorsolateral furrows (fig. 101, A); pores present; distinct lateral grooves; pregenital plate with sides slightly expanded at middle, rugose; genital flap areolate to rugose-subimbricate; genital setae stronger and longer than pregenitals, barely perceptibly paired laterally; area posterior to  $IC_4$  pebbly areolate to posterior intercoxal setal area; anterior intercoxal setal area sparsely punctate (fig. 101, C); dorsal setae on femora I and II narrow leaflike, lanceolate, considerably larger than propodosomals, shorter than width of segments; tarsus II with one solenidion. Length 234, width 120.

Male.--Not known.

Specimen examined.--Single specimen, holotype (female), ex Sida sp., Tequila, Jalisco, July 26, 1970 (T.B.A.).

Discussion.--This species is very close to boucheae, but sidae has less rugose dorsal areolae and narrow leaflike dorsal setae on femora I and II and pores on the propodosoma.

Brevipalpus similis, new species (Fig. 102, A, B)

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and pointed, conical ancillary lobes; propodosomal setae Ve, Sci, Sce small, leaflike, lanceolate or sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma entirely areolate except for rugose margins (fig. 102, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, as large as propodosomals, subequal in length; DC<sub>1-3</sub> slender, nude or finely serrate, not much longer than laterals; hysterosoma areolate as on propodosoma except for rugose area posterior to DC<sub>3</sub> and lateral areas (fig. 102, A); pores present; indistinct lateral grooves; pregenital plate with sides slightly uneven or straight, pebbly areolate; genital flap subscutellate; genital setae slender, slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate as in pregenital plate; intercoxal setal area pebbly areolate, punctate medially (fig. 102, B); dorsal setae on femora I and II leaflike as propodosomals, slightly shorter than width of segments; tarsus II with one solenidion. Length 294, width 211.

Male.--Not known.

Holotype.--Female, ex Abies religiosa (H.B.K.) Schlecht. & Cham., Zempoala, Mexico, July 8, 1974 (T.B.A.).

Paratypes.--Two females, with same

data as holotype (on slide mixed with population of zempoalensis). Length 360-382, width 194-205.

Discussion.--This species is close to essigi, but similis differs by having small, leaflike propodosomal, femoral, and hysterosomal lateral setae and by the medially punctate intercoxal setal area.

Brevipalpus spitzeri, new species (Fig. 103, A-C)

Female.--Rostrum extending almost to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and asymmetrical ancillary lobes; propodosomal setae Ve, Sci, Sce slender but fairly strong, sparsely serrate or barbed, about 1/3 as long as distance between base of Ve; propodosoma areolate-rugose, with distinctly rugose areolae (fig. 103, A); lateral areas rugose; pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> all similar to propodosomals, subequal in length; hysterosoma areolate-rugose as on propodosoma, with rugose areolae; dorsocentral area rugose (fig. 103, A); dorsolateral and lateral areas areolate-rugose, with distinct lateral grooves; pores absent; pregenital plate with sides uneven, barely rugose, nearly smooth; genital flap scutellate-rugose; genital setae slender, barbed distally, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> nearly smooth medially, areolate laterally; intercoxal setal area punctate (fig. 103, B); dorsal setae on femora I and II stout, serrate, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 342, width 194.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Ve, Sci, Sce, L<sub>1-3</sub>, and DC<sub>1-3</sub> very short and slender, nude or bifid at tips (fig. 103, C), each seta about 1/4 as long as distance between bases

of Ve; L<sub>4-7</sub> lanceolate, pectinate, longer than distance between bases; dorsal setae on femora I and II lanceolate, pectinate, as L<sub>4-7</sub>, shorter than width of segments (fig. 103, C).

Holotype.--Female, ex cactus, Mexico at Nogales, Arizona quarantine station, May 4, 1967 (C. H. Spitzer).

Paratype.--One female, with same data as holotype.

Discussion.--As usual in this group, spitzeri may be distinguished by the details of the dorsal areolate pattern as well as differences in the ventral surface sculpturing. The deutonymph will also identify spitzeri with certainty based on the dorsal setae as described.

Brevipalpus stenolobae, new species (Fig. 104, A-C)

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce spatulate or lanceolate, with acute tips, nude, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose; strongly rugose lateral areas and areolate dorsocentral and dorsolateral areas (fig. 104, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> spatulate, nude, slightly smaller than propodosomals; hysterosoma areolate-rugose as on propodosoma; strongly rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas (fig. 104, A); pores absent; distinct lateral grooves; pregenital plate with sides straight, barely widened posteriorly, areolate-rugose with rugose or irregular areolae (fig. 104, B); genital flap scutellate; genital setae stouter and slightly longer than pregenitals, barely perceptibly equidistant from each other; area posterior to IC<sub>4</sub> areolate, with

rugose areolae as in pregenital flap; much of intercoxal setal area coarsely punctate (fig. 104, B); dorsal setae on femora I and II spatulate, nude, as large as propodosomals, 2/3 as long as width of segments; tarsus II with one solenidion. Length 291, width 154.

Variation.--Length 285-342, width 136-153.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion as in female. Length 291, width 120.

Variation.--Length 289-297, width 119-131.

Deutonymph.--Rostrum extending near middle of femur I; all dorsal setae very small, lanceolate-spatulate, subequal in length, 1/5 to 1/4 as long as distance between bases of Ve (fig. 104, C); dorsal setae on femora I and II similar to body setae except slightly larger, about 1/2 as long as width of segments.

Holotype.--Female, ex Viquiera stenoloba Blake, 91 km north of Matehuala, San Luis Potosí, July 18, 1974 (T.B.A.).

Paratypes.--Twenty-nine females, 11 males, 2 protonymphs, and 11 deutonymphs, with same data as holotype; 16 females, 5 males, 2 deutonymphs, ex Viquiera stenoloba, Torren, Coahuila, August 5, 1970 (T.B.A.).

Discussion.--B. stenolobae is another species with areolate-rugose dorsal surface sculpturing. It is recognized by the lanceolate or spatulate nude dorsal body setae, by the coarser punctation on the intercoxal setal area, and by the rugose or irregular areolae on the pregenital plate and area posterior to IC<sub>4</sub>. The deutonymph is very distinctive in having equally very small dorsal body setae (fig. 104, C).

Brevipalpus stipae, new species  
(Fig. 105, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with large median and dentate small ancillary lobes; propodosomal setae Ve, Sci, Sce short and weak, about 1/6 as long as distance between bases of Ve, nude; propodosoma areolate-rugose, with rugulose areolae (fig. 105, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> similarly short and slender, as long as propodosomals, nude; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas; indistinct lateral grooves; pores absent (fig. 105, A); pregenital plate with sides straight, slightly expanded posteriorly, areolate-rugose, with setae inserted laterad; genital flap scutellate-rugose; genital setae as long as and slightly stouter than pregenitals, nude, barely equidistant from each other; area posterior to IC<sub>4</sub> areolate-rugose; intercoxal setal area punctate medially, areolate laterally (fig. 105, B); dorsal setae on femora I and II sublanceolate, larger than dorsal body setae, serrate, about 2/3 as long as width of segments. Length 302, width 165.

Male.--Not known.

Deutonymph.--Rostrum short, at most extending to base of femur I; propodosomal setae, hysterosomal lateral L<sub>1-4</sub>, and dorsocentrals DC<sub>1-3</sub> minute, not more than two times diameter of bases; L<sub>5-7</sub> large, leaflike, serrate, lanceolate, longer than distance between bases (fig. 105, C); dorsal seta on femur I lanceolate, serrate, larger than femur II dorsal seta, slightly more than 1/2 as long as width of segment; femur II dorsal seta slender, serrate, less than 1/2 as long as width of segment.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Stipa ichu (Ruiz

& Pav.) Kunth, Tlaxcala, Tlaxcala, July 14, 1974 (T.B.A.).

Other specimens examined.--One deutonymph and one protonymph, with same data as holotype.

Discussion.--As in most members of the group, stipae may be recognized by the dorsal surface sculpturing, particularly on the propodosoma. It is distinguished from lantanae by the areolate-rugose area posterior to IC<sub>4</sub> and pregenital plate and by the areolate-punctate intercoxal setal area. The short, nude dorsal body setae are also distinctive.

Brevipalpus striatus De Leon  
(Fig. 106, A-D)

Brevipalpus striatus De Leon, 1960:  
183.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce small, leaflike, lanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma with fossulate dorsocentral area and finely striate dorsolateral areas becoming rugose toward lateral margin (fig. 106, A); pores absent; hysterosomal setae L<sub>1-7</sub> considerably smaller than propodosomals, sublanceolate, serrate; DC<sub>1-3</sub> smaller and more slender than laterals; hysterosoma finely striate-rugose, with fossulate dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub>, with longitudinal striate dorsolateral furrows (fig. 106, A); pores present; lateral grooves indistinct; pregenital plate with sides straight, slightly narrowing posteriorly, areolate-rugose, with setae inserted laterad; genital flap areolate-rugose; genital setae slightly stronger and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate-rugose; much of intercoxal setal area smooth (fig. 106, B); dorsal setae on femora



I and II lanceolate, not much larger than propodosomals, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 290, width 158.

Male.--Not known.

Deutonymph.--Rostrum extending slightly beyond middle of femur I; dorsal setae Sce, L<sub>1</sub>, L<sub>5</sub>, and L<sub>7</sub> large, leaflike, lanceolate, serrate; Ve, Sci, L<sub>4</sub>, and L<sub>6</sub> very small, robust, two to three times as long as diameter of their bases; L<sub>2-3</sub> and DC<sub>1-3</sub> very small, slender, about two times as long as diameter of bases (fig. 106, C); dorsal setae on femora I and II leaflike, lanceolate, serrate, 2/3 as long as Sce and width of segments.

Protonymph.--Based on single poor specimen (fig. 106, D); similar to deutonymph except for large Sci and Sce.

Specimens examined.--Holotype (female), one protonymph (poor condition), and one deutonymph, ex "mata gusano" - a large tree, Trinidad, Chiapas, January 26, 1957 (D. De Leon).

Discussion.--B. striatus is another member of the group that is easily recognized by the dorsal surface sculpturing. The ventral sculpturing relates it to mori, but the areolate pattern on the area posterior to IC<sub>4</sub> extends forward to the middle of the intercoxal setal area in mori; this is not so in striatus. Also, striatus has leaflike propodosomal setae Ve, Sci, and Sce; these setae in mori are slender.

Brevipalpus tepicbutilonae, new species (Fig. 107, A-D)

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield strongly conical, pointed, deeply and widely cleft medially, without ancillary lobes; propodosomal setae Ve, Sci, Sce fairly broadly leaflike, spatulate, serrate, about 1/2 as long

as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose lateral areas (fig. 107, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals, L<sub>5-7</sub> slightly smaller than L<sub>1-4</sub>; DC<sub>1-2</sub> similar to and 1/3 smaller than laterals; DC<sub>3</sub> missing; hysterosoma areolate-rugose as on propodosoma, with strongly rugose lateral areas; pores absent; indistinct lateral grooves; pregenital plate with sides uneven, pebbly areolate with rugose margins; genital flap scutellate, becoming imbricate posteriorly (fig. 107, B); genital setae stout, sparsely serrate, as long as pregenitals, barely perceptibly paired laterally; area posterior to IC<sub>4</sub> sparsely areolate; intercoxal setal area sparsely punctate; dorsal seta on femur I lanceolate, serrate, larger than propodosomals and dorsal seta on femur II, about 2/3 as long as width of segment; dorsal seta on femur II slightly longer than 1/2 width of segment; tarsus II with one solenidion. Length 296, width 148.

Male.--Similar to female except for sexual differences (fig. 107, C, D); DC<sub>1-3</sub> strong and spinelike; tarsus II with two solenidia. Length 274, width 120.

Holotype.--Female, ex Abutilon sp., Tepic, Nayarit, July 28, 1970 (T.B.A.).

Paratype.--One male, with same data as holotype.

Discussion.--The pebbly areolate pregenital plate and area posterior to IC<sub>4</sub> in contrast to the scutellate-imbricate sculpturing on the genital flap, as well as the strongly conical propodosomal shield without ancillary lobes, make tepicbutilonae an easily recognizable species.

Brevipalpus tepicensis, new species (Fig. 108, A-D)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal

segment; rostral shield deeply notched, with asymmetrical and overlapping median and very small ancillary lobes (fig. 108, D); propodosomal setae Ve, Sci, Sce slender, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate, with rugose lateral areas (fig. 108, A); pores present; hysterosomal setae L<sub>1-7</sub> short and strong, about 2/3 as long as propodosomals, sparsely serrate; DC<sub>1-3</sub> nearly as long as laterals, slender, finely serrate; hysterosoma areolate-rugose, with rugose dorso-central area posterior to DC<sub>3</sub>; strongly rugose lateral areas and longitudinal dorsolateral furrows becoming obscure posteriorly (fig. 108, A); pores present; distinct lateral grooves; pregenital plate with sides uneven, subareolate-rugose; genital flap areolate; genital setae stouter and 1/3 longer than pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> and much of intercoxal setal area pebbly areolate (fig. 108, B); anterior intercoxal setal area between IC<sub>3</sub> with sparse punctation; dorsal seta on femur I broadly leaflike, lanceolate; that on femur II not leaflike but stout; both setae about 2/3 as long as width of segments; tarsus II with one solenidion. Length 274, width 142.

Variation.--Length 251-274, width 131-148.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 234, width 103.

Deutonymph.--Rostrum extending to middle of femur I; leaflike dorsal setae Sci, L<sub>5</sub>, and L<sub>7</sub>; Ve and Sce very short, fairly strong, about 1/5 as long as distance between bases of Ve (fig. 108, C); L<sub>1-4</sub>, L<sub>6</sub>, and DC<sub>1-3</sub> almost minute, not more than two times diameter of bases; dorsal setae on femora I and II leaflike as Sci, L<sub>5</sub>, and L<sub>7</sub>, about 2/3 as long as width of segments.

Holotype.--Female, ex Hyptis sp., Tepic, Nayarit, July 28, 1970 (T.B.A.).

Paratypes.--One male, 1 deutonymph, and 10 females, with same data as holotype.

Discussion.--B. tepicensis is very similar to plucheae and mexicanus based on its dorsal surface sculpturing, but the ventral surface sculpturing of tepicensis is very distinctive. The deutonymph is distinguished by the leaflike dorsal setae Sci, L<sub>5</sub>, and L<sub>7</sub>.

Brevipalpus testudinalis De Leon (Fig. 109, A-D)

Brevipalpus testudinalis De Leon, 1960: 186; Baker, Tuttle, and Abbatiello, 1975: 7.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce very small, lanceolate, sparsely serrate, about 1/6 as long as distance between bases of Ve; propodosoma areolate-rugose, with fossulate dorsocentral area (fig. 109, A); pores absent; hysterosomal setae L<sub>1-7</sub> as small as propodosomals, with L<sub>1-6</sub> subequal in size or length, L<sub>7</sub> slightly longer or tending to be longer than other laterals; DC<sub>1-3</sub> much smaller than laterals; hysterosoma areolate-rugose, with rugose dorso-central area posterior to DC<sub>2</sub>; dorsolateral areas areolate-rugose, without furrows; pores absent; distinct lateral grooves (fig. 109, A); pregenital plate with sides slightly expanded at middle, pebbly areolate-rugose; genital flap subscutellate-rugose; genital setae much stouter and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area sparsely punctate medially, pebbly areolate laterally (fig. 109, C); spermatheca bell-shaped or flowerlike (fig. 109, B); dorsal setae on femora I and II stouter than and two times larger than propodosomals, sublanceolate, serrate, slightly less than 1/2

as long as width of segments; tarsus II with one solenidion. Length 291, width 148.

Variation.--Length 290-314, width 147-165.

Male.--Similar to female except for sexual differences; tarsus II with two solenida.

Variation.--Length 294-299, width 147-150.

Protonymph.--With very small dorsal setae Ve, Sci, L<sub>2-4</sub>, and L<sub>6</sub>, about 1/5 as long as distance between bases of Ve; Sce, L<sub>1</sub>, L<sub>5</sub>, and L<sub>7</sub> long and narrow leaflike, serrate, ensiform to lanceolate, about 2/3 as long as distance between bases of Ve, DC<sub>1-3</sub> minute, less than two times as long as diameter of bases (fig. 109, D); dorsal setae on femora I and II small leaflike, lanceolate, two times as large as Ve, about 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (nine females, two males, and three protonymphs), ex unknown tree, San Blas, Nayarit, April 23, 1957 (D. De Leon).

Discussion.--B. testudinalis is characterized by the fossulate dorsocentral area of the propodosoma, by the equally very small dorsal body setae, and by the lack of dorsal pores. It is easily separated from nodiflorae by the sparsely punctate-areolate intercoxal setal area.

Brevipalpus tlaxcensis, new species (Fig. 110, A, B)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply notched medially, with stubby median and small, rounded ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, sublanceolate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma lightly rugose, with smooth

dorsocentral area and areolate-rugose dorsolateral areas (fig. 110, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike as propodosomals, sublanceolate, serrate, about 1/3 shorter than propodosomals; DC<sub>1</sub> slender, finely serrate or nude, as long as L<sub>1</sub>; DC<sub>2-3</sub> fairly weak, 1/3 shorter than DC<sub>1</sub>; hysterosoma more rugose than on propodosoma (fig. 110, A), with smooth areas between dorsocentral setae, rugose posterior to DC<sub>3</sub> and lateral areas; dorsolateral areas areolate-rugose, without furrows; pores absent; distinct lateral grooves; pregenital plate with sides straight, barely perceptibly expanded posteriorly, strongly rugose to substrigate-rugose as in genital flap; genital setae slightly stronger and longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> strigate-rugose; intercoxal setal area punctate (fig. 110, B); dorsal setae on femora I and II slightly larger and broader than propodosomals, lanceolate, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 370, width 177.

Variation.--Length 370-399, width 176-182.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion as in female. Length 280, width 137.

Holotype.--Female, ex Pinus sp., Tlaxco, Tlaxcala, July 14, 1974 (T.B.A.).

Paratypes.--Two females and one male, with same data as holotype.

Discussion.--The dorsal surface sculpturing of tlaxcensis is of the type found in juniperus and pinivaltheriae. It is closest to juniperus, but tlaxcensis differs by having strigate-rugose area posterior to IC<sub>4</sub> and rugose or substrigate-rugose pregenital plate and genital flaps.

Brevipalpus tuberellus De Leon  
(Fig. 111, A-D)

Brevipalpus tuberellus De Leon, 1960:  
177; Baker, Tuttle, and Abbatiello,  
1975: 7.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment and slender seta on second segment; rostral shield deeply cleft medially, with strongly tapered, pointed median and very small ancillary lobes; propodosomal setae Ve broadly leaflike, considerably larger than Sci and Sce, obovate, serrate, about as long as distance between bases; Sci and Sce small, narrow leaflike, lanceolate, serrate, about 1/2 as long as Ve; propodosoma tuberculate-rugose, with strongly rugose dorsocentral area (fig. 111, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, as large as Sci and Sce, lanceolate, serrate, considerably smaller than dorsocentrals; DC<sub>1-3</sub> broadly leaflike, as large as Ve, obovate (fig. 111, A); hysterosoma tuberculate-rugose as on propodosoma, with strongly rugose dorsocentral area (fig. 111, A); without dorsolateral furrows; pores absent; lateral grooves indistinct; pregenital plate with sides uneven, slightly narrowing posteriorly, subtuberculate-rugose; genital flap imbricate-rugose; genital setae stouter and longer than pregenitals, barbed or serrate, barely paired laterally; area posterior to IC<sub>4</sub> and much of ventral area tuberculate; intercoxal setal area tuberculate-punctate, with medial punctate area triangular in shape (fig. 111, B); dorsal setae on femora I and II leaflike, lanceolate, larger than Sci and Sce, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 317, width 199.

Variation.--Length 290-314, width 165-194.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 274-290, width 142-143.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Sci, Sce, and L<sub>5</sub> very long, whiplike, longer than width of body; Ve, L<sub>2</sub>, and L<sub>3</sub> minute, about two times as long as diameter of bases; L<sub>1</sub> and L<sub>4</sub> short and slender, about three times as long as L<sub>2</sub>; L<sub>6</sub> lanceolate, minute, not more than three times as long as diameter of bases; L<sub>7</sub> sublanceolate, serrate, two times as long as L<sub>6</sub>; dorsocentrals DC<sub>1-3</sub> minute to very small, with forked tips (fig. 111, C); dorsal seta on femur I sublanceolate, very small, serrate, larger than femur II dorsal seta; both setae about 1/2 as long as width of segments.

Protonymph.--Similar to deutonymph.

Larva.--Dorsal setae long and stout, rodlike with pointed tips, serrate, of various lengths (fig. 111, D); Ve 1/3 shorter than Sci, slightly longer than Sce; L<sub>1-3</sub> as long as Sce; L<sub>4</sub> about 1/2 as long as L<sub>3</sub>; L<sub>5</sub> slightly shorter than L<sub>3</sub>; L<sub>6</sub> as long as Sci, whiplike, longest of lateral setae; L<sub>7</sub> slightly shorter than L<sub>5</sub>; dorsocentrals DC<sub>1-3</sub> subequal in length, longer than most laterals except L<sub>6</sub>; dorsal seta on femur I sublanceolate, serrate, larger than femur II seta, 2/3 as long as width of segment; femur II dorsal seta slender, nude, 1/2 as long as width of segment.

Specimens examined.--Holotype (female) and paratypes (3 females, 2 males, and 3 deutonymphs), ex Phoebe tampicensis Mwz., near Antiguo Morelos, Tamaulipas, December 20, 1956 (D. De Leon); 10 females, 2 males, 3 larvae, 1 protonymph, and 2 deutonymphs, ex Phoebe mexicana Meissn., Matias Romero, Oaxaca, January 30, 1957; ex lauraceous tree, Nectandra tabascensis Lundell, "Capulincilla," and "ahuacatilla," San Blas, Nayarit, March 28-29 and May 3, 1957 (D. De Leon).

Discussion.--B. tuberellus is one of the three species in this group with tuberculate-rugose dorsal surface

sculpturing and broadly leaflike dorsal setae Ve and DC<sub>1-3</sub>. The slender seta on the second segment of the palpus, the widely spaced DC<sub>3</sub>, and the triangular punctate area on the intercoxal setal area will identify this species. The deutonymph is highly distinctive in having very long, whiplike dorsal setae Sci, Sce, and L (fig. 111, C).

Brevipalpus variolatus De Leon  
(Fig. 112, A, B)

Brevipalpus variolatus De Leon, 1960:  
184.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and small ancillary lobes; propodosomal setae Ve, Sci, Sce stout, serrate; Ve and Sci slightly longer than Sce, about 1/2 as long as distance between bases of Ve; propodosoma with fossulate dorsocentral area and strongly rugose dorsolateral and lateral areas (fig. 112, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender but stout, sparsely serrate or barbed, much shorter than propodosomals; DC<sub>1-3</sub> finely serrate or nude, hysterosoma strongly rugose, with longitudinal dorsolateral furrows becoming striate-rugose posteriorly; pores present; distinct lateral grooves; pregenital plate with sides straight, substrigate-rugose; genital flap rugose; genital setae slightly stouter than and as long as pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> substrigate-rugose; intercoxal setal area sparsely punctate (fig. 112, B); dorsal setae on femora I and II stout, ensiform, stouter than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 251-268, width 131-142.

Male.--Not known.

Specimens examined.--Holotype (female) and paratypes (eight females), ex

Ceiba acuminata (Wats.) Rose, Trinidad, Chiapas, January 18, 1957 (D. De Leon).

Discussion.--The dorsal surface sculpturing of variolatus is very similar to that of mori, but the form of dorsal body setae and ventral surface sculpturing are very different. B. variolatus is distinguished by the sparsely punctate intercoxal setal area and the rugose or strigate-rugose pregenital plate and genital flap.

Brevipalpus venutus, new species  
(Fig. 113, A-C)

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with three setae on distal segment; rostral shield with asymmetrical, deeply cleft, and widely parted median and ancillary lobes; propodosomal setae Ve, Sci, \*Sce short and slender but stouter than hysterosomal setae, nude, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose anterior dorsocentral area and lateral margins (fig. 113, A); hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> much more slender and shorter than propodosomals, with lateral setae becoming much shorter posteriorly; hysterosoma areolate-rugose as on propodosoma, with rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas; distinct lateral grooves; small pores present; pregenital plate with sides straight, barely perceptibly expanded posteriorly scutellate-rugose; genital flap rugose to scutellate; genital setae as long as pregenitals, equidistant from each other; pregenital setae inserted close to each other almost at middle of plate; area posterior to IC<sub>4</sub> strigate-rugose; intercoxal setal area punctate, with few transverse lines posteriorly (fig. 113, B); dorsal setae on femora I and II stout, stouter than propodosomals, nude, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 274, width 150.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion as in female. Length 262-268, width 137-139.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae very short (fig. 113, C); Ve, Sci, and Sce about 1/5 as long as distance between bases of Ve, slightly longer and more robust than hysterosomal setae; laterals L<sub>1-7</sub> and dorsocentrals DC<sub>1-3</sub> two to three times diameter of bases; dorsal setae on femora I and II similar to propodosomals, about 1/2 as long as width of segments.

Holotype.--Female, ex Haplopappus venutus (H.B.K.) Blake, 20 km north of Pachuca, Hidalgo, July 15, 1974 (T.B.A.).

Paratypes.--Two females, two males, one deutonymph, and one protonymph, with same data as holotype; eight females, ex Haplopappus tenuisectus (Greene) Blake, 12.8 km south of San Luis Potosí, S.L.P., July 17, 1974, and ex Brickellia californicum (Torr. & Gray) Gray, Fresnillo, Zacatecas, August 3, 1970 (T.B.A.).

Discussion.--This species is characterized by the short, nude dorsal body setae, by the median insertion of pregenital setae, by the punctate-strigate intercoxal setal area, and by the rugose-strigate area posterior to IC<sub>4</sub>.

Brevipalpus zempoalensis, new species (Fig. 114, A, B)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with asymmetrical, conical median and ancillary lobes; propodosomal Ve, Sci, Sce small, leaflike, lanceolate, serrate, about 1/4 as long as distance between bases of Ve; propodosoma almost entirely areolate except for rugose lateral margins (fig. 114, A); pores absent; hysterosomal setae L<sub>1-7</sub> lanceolate, serrate, as large as propodosomals; DC<sub>1-3</sub> slender, fairly weak, nude or finely serrate; DC<sub>1-2</sub> as long as L<sub>1</sub>; DC<sub>3</sub> shortest, about 1/2 as long as DC<sub>1</sub>; hysterosoma with sculpturing similar

to that of propodosoma except for areolate-rugose dorsocentral area posterior to DC<sub>2</sub> and lateral margins (fig. 114, A); pores absent; distinct lateral grooves; pregenital plate with sides uneven, crowded pebbly areolate; genital flap scutellate; genital setae fairly strong, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> pebbly areolate as in pregenital plate; intercoxal setal area pebbly areolate, with small median punctate spot (fig. 114, B); dorsal seta on femur I larger than that of femur II, both setae lanceolate, serrate, and larger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 456, width 245.

Variation.--Length 439-462, width 228-251.

Male.--Not known.

Holotype.--Female, ex Abies religiosa (H.B.K.) Schlecht. & Cham., Zempoala, Mexico, July 8, 1974 (T.B.A.).

Paratypes.--Four females, with same data as holotype (on slide mixed with population of similis).

Discussion.--The almost entirely areolate propodosoma, the equally small leaflike propodosomal and hysterosomal lateral setae, and the pebbly areolate intercoxal setal area with a median punctate spot characterize zempoalensis very well. It is also one of the few large species in Brevipalpus, which makes zempoalensis highly distinctive.

#### DESCRIPTION OF SPECIES IN BREVIPALPUS FRANKENIAE GROUP

Brevipalpus frankeniae Baker, Tuttle, and Abbatiello (Fig. 115, A-E)

Brevipalpus frankeniae Baker, Tuttle, and Abbatiello, 1975: 14.

Female.--Rostrum extending beyond

femur to middle of genu I; palpus three-segmented, with one seta on distal segment (fig. 115, B); rostral shield deeply cleft medially, with asymmetrical median and ancillary lobes (fig. 115, A); propodosomal setae Ve, Sci, Sce broadly leaflike, obovate with rounded cupped apices, serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose or irregular areolae on dorsocentral and dorsolateral areas; lateral areas strongly rugose (fig. 115, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike and nearly as large as propodosomals; DC<sub>1-3</sub> leaflike, with DC<sub>1</sub> as large as laterals, DC<sub>2-3</sub> small, about 1/2 as large as DC<sub>1</sub>; hysterosoma more areolate-rugose than on propodosoma, with strongly dorsocentral and lateral areas (fig. 115, A); dorsolateral areas depressed, areolate-rugose; pores absent; indistinct lateral grooves; pregenital plate with sides straight, expanded posteriorly, rugose, with short, stout, and serrate setae; genital flap scutellate; genital setae broadly leaflike as dorsal body setae, serrate, paired laterally (fig. 115, C); area posterior to IC<sub>4</sub> and intercoxal setal area broadly strigate or costate; intercoxal setae IC<sub>4</sub> short, as long as IC<sub>3</sub> (fig. 115, C); dorsal setae on femora I and II leaflike as body setae, slightly shorter than width of segments; tarsus II with one solenidion. Length 306, width 140.

Variation.--Length 285-312, width 142-188.

Male.--Similar to female except for sexual differences (fig. 115, D); rostral shield with conical median and ancillary lobes; areolate-scutellate dorsocentral area of propodosoma and metapodosoma; dorsal setae slightly larger than those of female; tarsus II with two solenidia.

Variation.--Length 239-262, width 108-120.

Deutonymph.--Rostrum extending beyond femur to middle of genu I; dorsal setae leaflike as in female, including dorsal setae on femora I and II (fig. 115, E).

Protonymph.--Similar to deutonymph.

Specimens examined.--Holotype (female) and paratypes (25 females, 9 males, 9 deutonymphs, and 8 protonymphs), ex Frankenia palmeri S. Wats., Hermosillo, Sonora, July 17, 1970 (T.B.A.).

Discussion.--B. frankeniae is presently the only member of this group. The three-segmented palpus with one seta on the distal segment, the distinctive ventral surface sculpturing combined with the leaflike genital setae, and the short intercoxal setae IC<sub>4</sub> and IC<sub>3</sub> set frankeniae apart from other Mexican species of Brevipalpus.

#### DESCRIPTIONS OF SPECIES IN BREVIPALPUS OBOVATUS GROUP

Brevipalpus edax De Leon  
(Fig. 116, A-C)

Brevipalpus edax De Leon, 1961a: 48.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with tapered median and dentate ancillary lobes; propodosomal setae Ve, Sci, Sce large, leaflike, lanceolate, serrate, about 2/3 as long as distance between bases of Ve; Sci and Sce slightly narrower than Ve; propodosoma with strongly rugose dorsocentral area and areolate-rugose, depressed dorsolateral areas; lateral areas strongly rugose; pores absent (fig. 116, A); hysterosomal setae L<sub>1-5</sub> similar to propodosomals, lanceolate or sublanceolate, subequal in length; L<sub>6</sub> shortest, 2/3 as long as other laterals; DC<sub>1-3</sub> slender, serrate, as long as L<sub>6</sub>; hysterosoma with areolate-rugose dorsocentral and

dorsolateral areas and strongly rugose lateral areas; dorsolateral depressions; pores present (fig. 116, A); lateral grooves indistinct; pregenital plate with sides uneven, subareolate-rugose; genital flap scutellate to rugose; genital setae stouter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> scutellate-areolate (fig. 116, B); intercoxal setal area punctate anteriorly, rugose or subareolate posteriorly; dorsal setae on femora I and II sublanceolate, serrate, more than 1/2 as long as width of segments; tarsus II with one solenidion. Length 281, width 210.

Variation.--Length 274-296, width 142-160.

Male.--Not known.

Deutonymph.--Rostrum extending to middle of femur I; dorsal setae Ve, Sci, Sce, and all hysterosomal laterals L<sub>1-6</sub> large, leaflike, oblanceolate or lanceolate, serrate, about 1/2 as long as distance between bases of Ve (fig. 116, C); dorso-centrals DC<sub>1-3</sub> slender, robust, serrate; DC<sub>1</sub> as long as L<sub>1</sub>, DC<sub>2-3</sub> shorter than DC<sub>1</sub>; dorsal setae on femora I and II similar to propodosomals, about as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (four females and four deutonymphs), ex Cordia eleagnoides DC., Tuxtla Gutierrez, Chiapas, January 10, 1957 (D. De Leon).

Discussion.--B. edax is one of the few species in the obovatus group that lacks dorsolateral furrows on the hysterosoma. In this respect, it is close to organum, from which edax is separated by the strongly rugose dorso-central area of the propodosoma and by the large propodosomal setae Ve. The deutonymph is very distinctive based on the large setae Ve, Sci, Sce, and hysterosomal laterals.

Brevipalpus edwinae Baker  
(Fig. 117, A, B)

Brevipalpus edwinae Baker, 1949: 356;  
Pritchard and Baker, 1958: 235.

Female.--Rostrum extending slightly beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical pointed median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce stout, serrate or pectinate, slightly shorter than distance between bases of Ve; propodosoma with areolate-rugose dorso-central area, nearly smooth dorsolateral areas, and strongly rugose lateral areas, with distinct lateral grooves; pores absent (fig. 117, A); hysterosomal setae L<sub>1-4</sub> similar to propodosomals; L<sub>5-6</sub> more slender and shorter than anterior laterals, sparsely serrate or barbed; DC<sub>1-3</sub> slender and weak, finely serrate, as long as L<sub>5-6</sub>; hysterosoma with smooth areas dorso-centrally between narrow longitudinal dorso-lateral furrows (fig. 117, A); lateral areas strongly rugose, with distinct grooves; pores present; pregenital plate with sides slightly pinched at middle, pebbly areolate; genital flap subscutellate; genital setae as long as pregenitals, barely paired laterally; pregenital setae inserted laterad; area posterior to IC<sub>4</sub> uniformly pebbly areolate; intercoxal setal area sparsely punctate, with sparse areolae near IC<sub>4</sub> (fig. 117, B); dorsal setae on femora I and II ensiform, stouter than propodosomals, serrate, about 2/3 as long as width of segments; tarsus II with one solenidion; spermatheca rounded or onion-shaped (fig. 117, A). Length 285, width 154.

Variation.--Length 274-293, width 120-154.

Male.--Similar to female except as follows: Dorsum of body completely areolate, pebbly, without dorsolateral lineate markings on hysterosoma; pores present as in female; tarsus II with



two solenidia. Length 241-256, width 119-120.

Specimens examined.--Holotype (female) and paratypes (nine females and two males), ex Eupatorium glabrum H.B.K., nr Cuernavaca, Morelos, January 27, 1941 (E. W. Baker).

Discussion.--The dorsal sculpturing of both propodosoma and hysterosoma and the punctate intercoxal setal area should serve to separate edwinae from pocillator. See remarks under pocillator.

Brevipalpus lupinus, new species  
(Fig. 118, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and dentate or conical ancillary lobes; propodosomal setae Ve, Sci, and Sce long and stout, pectinate or serrate; Ve slightly shorter than Sci and Sce, about 2/3 as long as distance between their bases; propodosoma areolate-rugose, with rugose lateral areas (fig. 118, A); pores absent; hysterosomal setae L<sub>1-4</sub> similar to propodosomals, almost as long as Ve, L<sub>4</sub> shortest of series; L<sub>5-6</sub> slender, shorter than L<sub>1-4</sub>, sparsely serrate; DC<sub>1-3</sub> similar to L<sub>5-6</sub> except nude; hysterosoma with rugose to areolate-rugose dorsocentral area between longitudinal dorsolateral furrows and strongly rugose toward lateral areas; pores present; distinct lateral grooves; pregenital plate with sides straight, crowded pebbly areolate; genital flap areolate-scutellate; genital setae stronger and slightly longer than pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> pebbly areolate; intercoxal setal area strigate-punctate, with few areolae between IC<sub>4</sub> (fig. 118, B); dorsal setae on femora I and II large, lanceolate, serrate, about as long as width of segments; tarsus II with one solenidium. Length 306, width 166.

Male.--Not known.

Holotype.--Female, ex Lupinus sp., 33.6 km east of Huajuapán, Oaxaca, July 11, 1974 (T.B.A.).

Discussion.--The unique type of lupinus is an easily recognized member of the obovatus group. The dorsal surface sculpturing is unusual and should not be confused with that of any of the species with dorsolateral furrows, large pores on the hysterosoma, and short hysterosomal setae L<sub>5-6</sub>.

Brevipalpus obovatus Donnadieu  
(Fig. 119, A-E)

Brevipalpus obovatus Donnadieu, 1875: 116; Pritchard and Baker, 1958: 231; De Leon, 1961a: 48; Baker, Tuttle, and Abbatiello, 1975: 18.

Brevipalpus pereger Donnadieu, 1875: 116.

Tenuipalpus inornatus Banks, 1912: 97.  
Tenuipalpus bioculatus McGregor, 1914: 354.

Tenuipalpus pseudocuneatus Blanchard, 1940: 11.

Brevipalpus inornatus, Pritchard and Baker, (1951) 1952: 36.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical and dentate or conical ancillary lobes; propodosomal setae Ve, Sci, Sce small, sublanceolate to lanceolate, serrate, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose, with embossed rugose dorsocentral area and lightly rugose dorsolateral areas (fig. 119, A); pores present; hysterosomal setae L<sub>1-6</sub> similar in size and form to propodosomals; DC<sub>1-3</sub> slender but robust, slightly shorter than laterals, finely serrate; hysterosoma with areolate-rugose dorsocentral area and with narrow longitudinal dorsolateral furrows (fig. 119, A); lateral areas rugose, with indistinct grooves; pores present; pregenital plate with sides

uneven, areolate-rugose; genital flap areolate-rugose; genital setae as long as and slightly stouter than pregenitals, equidistant from each other; spermatheca as figured (fig. 119, D); area posterior to IC<sub>4</sub> areolate to posterior 1/2 of intercoxal setal area; anterior intercoxal setal area punctate (fig. 119, B); dorsal setae on femora I and II leaflike, lanceolate, serrate, slightly larger than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 291, width 165.

Variation.--Length 256-339, width 131-177.

Male.--No specimens available for study. Genitalia after Pijnacker et al. (1981, fig. 119, E).

Deutonymph.--Rostrum barely extending to femur I; dorsal setae Sci, Sce, and L<sub>4-6</sub> large, leaflike, lanceolate to oblanceolate, serrate (fig. 119, C); Ve and L<sub>1-3</sub> much smaller than other leaflike setae, lanceolate or oblanceolate, serrate; dorsocentrals DC<sub>1-3</sub> very small, about two times as long as diameter of bases; dorsal setae on femora I and II lanceolate, serrate, slightly more than 1/2 as long as width of segments.

Specimens examined.--Seven females and 1 deutonymph, ex Anemopsis sp., Zacatecas, at El Paso, Texas quarantine station, November 2, 1972 (J. F. Kapart); ex Chrysanthemum sp., San Luis Potosí, San Luis Potosí, July 17, 1974 (T.B.A.); ex Datura stramonium L., Los Mochis, Sinaloa, July 24, 1970 (T.B.A.); ex Hibiscus cuttings, Mexico at Brownsville, Tex., March 29, 1955 (Allen); 3 females, type series of inornatus (Banks), ex goldenrod, Batesburg, S.C., March 26, 1910 (H.F.W.); 10 females, type series of bioculatus (McGregor), ex privet, Batesburg, S.C., November 21, 1914 (E. A. McGregor).

Discussion.--B. obovatus appears widely distributed as it has a wide range of host plants. It is distin-

guished by the dorsal sculpturing, by the same size and form of the propodosomal and hysterosomal lateral setae, and by the pores on the propodosoma. The form of the dorsal setae of the deutonymph will also help identify obovatus with certainty.

Brevipalpus origanum Baker, Tuttle, and Abbatiello  
(Fig. 120)

Brevipalpus origanum Baker, Tuttle, and Abbatiello, 1975: 18.

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with conical median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce slender or sublanceolate, finely serrate; Ve shorter than Sci and Sce, about 1/4 as long as distance between bases; propodosoma with punctate dorsocentral area, areolate dorso-lateral areas, and rugose lateral areas (fig. 120); pores absent; hysterosomal setae L<sub>1-6</sub> small, lanceolate, serrate, slightly shorter than Ve, subequal in length; DC<sub>1-3</sub> slender, weak, nude or finely serrate, as long as laterals; hysterosoma with areolate dorsocentral area between DC<sub>1</sub> and DC<sub>2</sub>, transversely or strigate-rugose posterior to DC<sub>2</sub>; dorsolateral areas areolate-rugose, depressed; lateral areas rugose, with indistinct grooves; pores present; ventral surface sculpturing and ventral setae not observed; dorsal setae on femora I and II as large as Ve, lanceolate, serrate, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 287, width 172.

Male.--Not known.

Specimens examined.--At present there are no specimens in the collection, and the type of origanum is not available for examination. The above description and figure of origanum are taken from Baker et al. (1975), with the following data: Ex Origanum sp.,

Mexico at San Antonio, Texas quarantine station, May 26, 1973 (D. Johnston).

Discussion.--B. origanum is an easily recognized member of the obovatus group because of its punctate dorsocentral area of propodosoma, similarly short hysterosomal setae L<sub>1</sub>-6, and lack of dorsolateral furrows on the hysterosoma.

Brevipalpus pocillator De Leon  
(Fig. 121, A, B)

Brevipalpus pocillator De Leon, 1961a: 47; Baker, Tuttle, and Abbatiello, 1975: 14.

Female.--Rostrum extending beyond femur to genu I; palpus four-segmented, with three setae on distal segment; rostral shield deeply cleft medially, with asymmetrical, fingerlike median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce long and leaf-like, ensiform to lanceolate, serrate or spiculate, longer than distance between bases of Ve; propodosoma with smooth dorsocentral area, rugose laterally and anteriorly (fig. 121, A); pores absent; hysterosomal setae L<sub>1</sub>-4 similar to propodosomals; L<sub>5</sub>-6 and DC<sub>1</sub>-3 slender, well differentiated from other setae (fig. 121, A); hysterosoma with smooth dorsocentral and much of dorsolateral areas; conspicuous dorsolateral furrows; rugose lateral areas and indistinct grooves; pores present (fig. 121, A); pregenital plate with sides expanded posteriorly, pebbly areolate with characteristically uniformly small areolae; genital flap areolate-rugose; genital setae stouter and longer than pregenitals, with inner posterior pair close to each other or paired medially (fig. 121, B); area posterior to IC<sub>4</sub> and intercoxal setal area completely areolate, with areolae similar to those of pregenital plate; dorsal setae on femora I and II similar to propodosomals except femur I seta more robust and larger than femur II seta, both setae longer than width of

segments; tarsus II with one solenidion. Length 277, width 150.

Variation.--Length 262-291, width 142-154.

Male.--Similar to female except as follows: Dorsum of body completely areolate, pebbly, without dorsolateral lineate markings on hysterosoma; pores absent; tarsus II with two solenidia. Length 231, width 110.

Specimens examined.--Holotype (female) and paratypes (6 females), ex Verbesina sp., Jacotepec, Jalisco, March 22, 1957 (D. De Leon); 2 females, ex Ficus sp., Chapala, Jalisco, March 22, 1957 (D. De Leon); 11 females and 1 male, ex Waltheria americana L. and Croton ciliato-glandulosus Ortega, 30 km south of Acatlan, Jalisco, June 30, 1974 (T.B.A.).

Discussion.--B. pocillator is another member of the obovatus group that is easily recognized by the long gnathosoma, by the distinctive dorsal and ventral surface sculpturing, as well as by the dorsal body setae. It appears close to edwinae but differs by having a completely areolate intercoxal setal area; this area in edwinae is punctate-areolate.

DESCRIPTION OF SPECIES IN BREVIPALPUS  
PHOENICIS GROUP

Brevipalpus phoenicis (Geijskes)  
(Fig. 122, A-C)

Tenuipalpus phoenicis Geijskes, 1939: 23.

Brevipalpus phoenicis, Sayed, 1946: 99; Pritchard and Baker, 1958: 233; De Leon, 1961a: 48; Gonzalez, 1975: 82; Baker, Tuttle, and Abbatiello, 1975: 18; Meyer, 1979: 87.

Brevipalpus yothersi Baker, 1949: 374.

Brevipalpus mcbridei Baker, 1949: 374.

Brevipalpus papayensis Baker, 1949: 379.

Female.--Rostrum extending near middle of femur I; palpus four-segmented,

with three setae on distal segment; rostral shield deeply cleft medially, with strongly conical median and very small ancillary lobes; propodosomal setae *Ve*, *Sci*, *Sce* very small, leaflike, lanceolate, finely serrate, about 1/5 as long as distance between bases of *Ve*; propodosoma fossulate-areolate, with rugose lateral margins (fig. 122, A) and smooth anterior dorsolateral areas; pores present; hysterosomal setae *L*<sub>1-6</sub> leaflike, as large as propodosomals; *DC*<sub>1-3</sub> slender, fairly weak, slightly shorter than laterals; hysterosoma rugose, with areolae confined to posterior dorsolateral areas as on propodosoma; rugose dorsocentral and lateral areas and narrow longitudinal dorsolateral furrows (fig. 122, A); pores present; lateral grooves indistinct; pregenital plate with sides uneven, slightly expanded at middle, strongly rugose; genital flap subscutellate-rugose; genital setae slightly stouter and longer than pregenitals, paired laterally; area posterior to *IC*<sub>4</sub> areolate; intercoxal setal area mostly punctate (fig. 122, B); dorsal setae on femora I and II leaflike, lanceolate, and slightly larger than propodosomals, about 1/2 as long as width of segments; tarsus II with two solenidia. Length 273, width 154.

Male.--No specimens available for study.

Deutonymph.--Rostrum extending to basal 1/3 of femur I; dorsal setae *Sci*, *Sce*, *L*<sub>1</sub>, and *L*<sub>4-6</sub> broadly leaflike, oblanceolate, serrate, subequal in length, slightly less than 1/2 as long as distance between *Ve*; *Ve*, *L*<sub>2-3</sub>, and *DC*<sub>1-3</sub> very small, two to three times as long as diameter of bases; dorsal setae on femora I and II leaflike, oblanceolate, slightly smaller than leaflike dorsal setae, about 1/2 as long as width of segments (fig. 122, C).

Specimens examined.--13 females and 3 deutonymphs, ex Cissus sisyooides L., Topolobampo, Sinaloa, July 24, 1970;

ex Citrus aurantifolia (Christm.) Swingle, Citrus reticulata Blanco, Citrus sp., and Ficus sp., Fortin, Vera Cruz, July 12, 1974 (T.B.A.); ex Heterotheca sp., 6 mi. north of Oaxaca, Oaxaca, July 10, 1974 (T.B.A.); ex Musa paradisiaca sapientum (L.) Kuntze, Tapachula, Mexico at El Paso, Texas quarantine station, November 12, 1977 (J. Virgil); ex Plumeria sp., Guaymas, Sonora at Nogales, Arizona quarantine station, May 17, 1951 (Callaghan); ex Verbena sp., Cd. Valle, San Luis Potosi, July 11, 1974 (T.B.A.).

In addition, De Leon (1961a) recorded phoenicis from Mexico as follows: Anthurium sp., San Blas, Nayarit; Brysonima sp. and Psidium sp., Tepic, Nayarit; Coffea sp., Cordoba, Vera Cruz; coconut and Curatella sp., Vera Cruz; Cordia sp. and Fraxinus sp., Tuxtla Gutierrez, Chiapas; Guazuma sp., Valles, San Luis Potosi.

Discussion.--B. phoenicis is one of the few Mexican species of Brevipalpus recorded from several host plants, including citrus and banana. It has the same basic type of dorsal surface sculpturing found in certain members of the obovatus and californicus groups, particularly the narrow longitudinal dorsolateral furrows on the hysterosoma and the fossulate dorsocentral area of the propodosoma. The six pairs of lateral setae on the hysterosoma and two solenidia on tarsus II will readily separate phoenicis.

#### DESCRIPTIONS OF SPECIES IN BREVIPALPUS PORTALIS GROUP

Brevipalpus artemisiae Baker and Tuttle  
(Fig. 123, A-C)

Brevipalpus artemisiae Baker and Tuttle, 1964: 65 (as artemesia); Baker, Tuttle, and Abbatiello, 1975: 19.

Female.--Rostrum extending to apex of

femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and ancillary lobes; propodosomal setae Ve, Sci, and Sce long and slender, almost narrow ensiform, finely serrate; Ve longer than Sci and Sce, about 2/3 as long as distance between bases; propodosoma strongly sculptured, areolate-rugose; strongly depressed dorsolateral areas and rounded hollows at pore sites; pores absent (fig. 123, A); hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> similar to propodosomals, with DC<sub>1-2</sub> longer than DC<sub>3</sub> and L<sub>1-7</sub>; hysterosoma as strongly sculptured as propodosoma, with strongly depressed dorsolateral areas and rounded hollows at pore sites; pores absent; distinct lateral grooves (fig. 123, A); pregenital plate with sides slightly expanded posteriorly, rugose; genital flap rugose to subimbricate; genital setae fairly weak, as long as pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> subareolate-rugose to rugose, resembling that of pregenital plate; intercoxal setal area with coarse punctation (fig. 123, B); dorsal setae on femora I and II similar to propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 308, width 176.

Variation.--Length 296-313, width 160-177.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia; much shorter hysterosomal setae L<sub>2-7</sub>; dorsal seta on femur I lanceolate, larger than that of femur II. Length 256, width 130. Not found in Mexico.

Deutonymph.--Rostrum extending to apex of femur I; all dorsal body setae long, ensiform to lanceolate, pectinate (fig. 123, C); Ve, Sci, Sce, L<sub>1-4</sub>, and DC<sub>1-3</sub> about as long as distance between bases of Ve, subequal in length; L<sub>5-7</sub> about 1/3 shorter than other setae; dorsal setae on femora I and II lanceolate, pectinate, as long as L<sub>5-7</sub> and width of segments.

Specimens examined.--Holotype (female) and paratypes (4 females, 2 males, and 4 deutonymphs), ex Artemisia carruthi Wood, Flagstaff, Ariz., September 6, 1961 (D. M. Tuttle); 12 females, ex Artemisia tridentata Nutt., El Sueco (Rancho Grande), Chihuahua, August 4, 1970 (T.B.A.).

Discussion.--The dorsal surface sculpturing of artemisiae is highly distinctive and should serve to distinguish this species. The strongly depressed dorsolateral areas with rounded hollows at the pore sites are also very characteristic. The deutonymph may be recognized by the long ensiform to lanceolate and pectinate dorsal body setae.

Brevipalpus coldeniae Baker, Tuttle, and Abbatiello (Fig. 124, A-C)

Brevipalpus coldeniae Baker, Tuttle, and Abbatiello, 1975: 21 (as coldenia).

Female.--Rostrum extending beyond femur to middle of genu I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with tapered median and very small ancillary lobes; propodosomal setae Ve, Sci, Sce long and slender, serrate; Ve and Sci slightly longer than Sce, about two times as long as distance between bases of Ve; propodosoma with strongly rugose lateral areas and areolate-rugose dorsocentral and depressed dorsolateral areas (fig. 124, A); areolae on dorsocentral area irregular or rugose; pores absent; hysterosomal setae L<sub>1-7</sub> much shorter than propodosomals, L<sub>1</sub> about 1/3 longer than L<sub>2-7</sub>; DC<sub>1</sub> nearly as long as propodosomals, DC<sub>2-3</sub> as long as laterals; hysterosoma with strongly rugose dorsocentral and lateral areas (fig. 124, A); areolate-rugose, depressed dorsolateral areas; pores absent; distinct lateral grooves; pregenital plate with sides gradually widening posteriorly, strongly rugose; genital flap scutellate; genital setae stout but slightly shorter than

pregenitals, paired laterally; area posterior to IC<sub>4</sub> rugose to subareolate-rugose; intercoxal setal area entirely strigate, with sparse punctation (fig. 124, B); dorsal setae on femora I and II long and slender, serrate, slightly longer than propodosomals, about two times as long as width of segments; tarsus II with one solenidion. Length 251, width 120.

Variation.--Length 205-256, width 91-125.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia.

Variation.--Length 199-228, width 91-97.

Deutonymph.--Rostrum extending beyond femur to apex of genu I; propodosomal setae Ve and Sci longest and stoutest of dorsal setae, about as long as distance between base of Ve; Sce slightly shorter than Sci, fairly weak; all setae sparsely serrate; hysterosomal setae L<sub>1-7</sub> considerably shorter than propodosomals, weak; DC<sub>1</sub> as long as Sce, longest of hysterosomal setae; DC<sub>2-3</sub> not much longer than laterals (fig. 124, C); dorsal setae on femora I and II as strong and as long as Ve and Sci, longer than width of segments.

Specimens examined.--Holotype (female) and paratypes (31 females, 16 males, and 1 deutonymph), ex Coldenia greggii (Torr.) Gray, Jimenez, Chihuahua, August 4, 1970 (T.B.A.).

Discussion.--The strongly rugose and areolate-rugose propodosoma and hysterosoma combined with the long and slender propodosomal and femoral setae will easily separate coldeniae from presently known Mexican species with the elongate gnathosoma and strigate-punctate intercoxal setal area. The deutonymph is similar to that of parthenium in having long dorsal setae Ve and Sci, except Ve in parthenium are unusually stout.

Brevipalpus combreti De Leon  
(Fig. 125, A-C)

Brevipalpus combreti De Leon, 1961a:  
47.

Female.--Rostrum extending beyond middle of femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with stout, fingerlike median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce broadly leaflike, oblanceolate, serrate, about 1/2 as long as distance between bases of Ve; propodosoma areolate-rugose; crowded areolate dorsocentral and most of depressed dorsolateral areas (fig. 125, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike as propodosomals except 1/3 smaller, with posterior setae slightly smaller than anterior laterals; DC<sub>1-3</sub> short and slender; hysterosoma with areolate rugose dorsocentral area and most of dorsolateral areas; dorsolateral furrows (fig. 125, A); pores absent; distinct lateral grooves; pregenital plate with sides uneven, poorly defined, substrigate-rugose, contiguous anteriorly with substrigate-rugose area posterior to IC<sub>4</sub> (fig. 125, B); genital flap unusually small, subimbricate-rugose; genital setae slender, as long as pregenitals, equidistant from each other; intercoxal setal area sparsely punctate (fig. 125, B); dorsal seta on femur I broadly leaflike, as large as propodosomals; that on femur II narrow ensiform, strong; both setae serrate and slightly shorter than width of segments; tarsus II with one solenidion. Length 281, width 154.

Variation.--Length 285-302, width 153-154.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 279, width 137.

Deutonymph.--Rostrum barely extending to middle of femur I; dorsal setae Ve, Sci, Sce, and all laterals L<sub>1-7</sub> unusually large, strong, and leaflike,

lanceolate to oblanceolate, serrate, about as long as distance between bases of Ve (fig. 125, C); dorso-centrals DC<sub>1-3</sub> very small to minute, about two times as long as diameter of bases; dorsocentral area of propodosoma subareolate; dorsal setae on femora I and II leaflike as body setae, lanceolate, about as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (one male and two deutonymphs), ex Combretum farinosum H.B.K., Cuitlahuac, Vera Cruz, February 5, 1957 (D. De Leon); two females, one male, and one deutonymph, ex C. farinosum, about 24 km north of Tehuantepec, Oaxaca, January 31, 1957 (D. De Leon).

Discussion.--This species is distinguished by the short, slender dorsal setae DC<sub>1-3</sub>, not leaflike as the propodosomal and lateral setae, by the presence of dorsolateral furrows on the hysterosoma, and by the strigate-rugose pregenital plate and area posterior to IC<sub>4</sub>. The deutonymph of combreti is recognized by the unusually large, leaflike dorsal setae Ve, Sci, Sce, and L<sub>1-7</sub> and minute DC<sub>1-3</sub>.

Brevipalpus enceliae Baker, Tuttle, and Abbatiello  
(Fig. 126, A-C)

Brevipalpus enceliae Baker, Tuttle, and Abbatiello, 1975: 21 (as encelia).

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus four-segmented, with setae on distal segment; rostral shield deeply notched medially, with fingerlike overlapping median and rounded ancillary lobes; propodosomal setae Ve, Sci, Sce long, ensiform, serrate; Ve longer than Sci and Sce, about 1/3 longer than distance between bases; Sci slightly longer than Sce; propodosoma areolate-rugose, with rugose lateral areas and depressed areolate-rugose dorsolateral areas (fig. 126, A); pores absent; hysterosomal setae

L<sub>1-7</sub> ensiform to lanceolate, serrate, 1/3 to 1/2 shorter than propodosomals; DC<sub>1-3</sub> ensiform, 1/3 longer than laterals, with DC<sub>1</sub> about as long as Sce, DC<sub>2-3</sub> slightly shorter than DC<sub>1</sub>; hysterosoma areolate-rugose, with strongly rugose lateral areas (fig. 126, A) and strigate-rugose dorsocentral area posterior to DC<sub>2</sub>; dorsolateral areas depressed, areolate; pores absent; distinct lateral grooves; pregenital plate with sides nearly straight, subareolate-rugose; genital flap subimbricate-rugose; genital setae stronger and shorter than pregenitals, paired laterally; area posterior to IC<sub>4</sub> areolate-rugose; intercoxal setal area strigate, with punctate median area (fig. 126, B); dorsal setae on femora I and II ensiform, serrate, longer than width of segments; tarsus II with one solenidion. Length 302, width 153.

Variation.--Length 285-314, width 148-165.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 262, width 125.

Deutonymph.--Rostrum extending beyond femur to middle of genu I; dorsal setae Ve, Sci, Sce, L<sub>1-5</sub>, and DC<sub>1-3</sub> long and slender, nearly ensiform, serrate, about two times as long as distance between bases of Ve; L<sub>6-7</sub> short, lanceolate, pectinate, about 1/2 as long as other setae (fig. 126, C); dorsal setae on femora I and II ensiform, serrate, longer than width of segments.

Protonymph.--Similar to deutonymph.

Specimens examined.--Holotype (female) and paratypes (one female and one male), ex Encelia farinosa Gray, Hermosillo, Sonora, July 18, 1970 (T.B.A.); six females, four protonymphs, and one deutonymph, ex Helianthus niveus (Benth.) Brand., Heterotheca sp., and Viquiera sp., Hermosillo, Sonora, July 19, 1970 (T.B.A.).

Discussion.--This species appears nearly identical to portalis (fig. 131, A-C). The main differences described here are in the greatly elongate rostrum and the subimbricate genital flap of enceliae. The deutonymph of enceliae has shorter dorsal body setae than the portalis deutonymph.

Brevipalpus erectus, new species  
(Fig. 127, A-C)

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with strongly tapered median and conical or dentate ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, ensiform, strongly serrate, about as long as distance between bases of Ve; propodosoma almost entirely areolate except for rugose lateral areas (fig. 127, A); depressed dorsolateral areas; pores absent; hysterosomal setae L<sub>1-3</sub> ensiform, nearly as long as propodosomals; L<sub>4-7</sub> short, 1/2 to 2/3 as long as anterior laterals, lanceolate, serrate; DC<sub>1-3</sub> similar to laterals, with DC<sub>3</sub> shorter than DC<sub>1-2</sub>; hysterosoma almost entirely areolate as on propodosoma, with rugose lateral areas and depressed dorsolateral areas (fig. 127, A); pores absent; distinct lateral grooves; pregenital plate with sides slightly uneven, rugose, with stout and strongly serrate setae; genital flap subimbricate; genital setae slender, finely serrate, slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose medially, areolate laterally; intercoxal setal area with sparse punctation (fig. 127, B); dorsal setae on femora I and II stout or rodlike, serrate, longer than width of segments; tarsus II with one solenidion. Length 331, width 182.

Variation.--Length 314-331, width 165-188.

Male.--Similar to female except for

sexual differences; tarsus II with two solenidia. Length 296-308, width 119-131.

Deutonymph.--Rostrum extending beyond femur to base of genu I; dorsal setae Ve, Sci, Sce, and all hysterosomal setae long, rodlike and stout, serrate except L<sub>6</sub> (fig. 127, C); L<sub>6</sub> very short, 1/3 to 1/2 as long as other setae; Ve and DC<sub>1-3</sub> subequal in length, longest of dorsal setae, about as long as distance between bases of Ve; dorsal setae on femora I and II similar to body setae, slightly shorter than width of segments.

Holotype.--Female, ex Hamelia erecta Jacq., south of Cucula, Jalisco, July 1, 1974 (T.B.A.).

Paratypes.--Seventeen females, 2 males, and 3 deutonymphs, with same data as holotype.

Discussion.--This is a rather distinctive species, although the type of dorsal setae and the sculpturing on the intercoxal setal area are those found in portalis and enceliae. The completely areolate dorsocentral area of the hysterosoma is distinctive and will help to identify erectus. The deutonymph is easily recognized by the long, rodlike dorsal setae except for very short L<sub>6</sub> (fig. 127, C).

Brevipalpus filifoliae Baker, Tuttle, and Abbatiello  
(Fig. 128, A-C)

Brevipalpus filifoliae Baker, Tuttle, and Abbatiello, 1975: 19 (as filifolia).

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with fingerlike median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce narrow leaflike, ensiform, serrate; Ve slightly longer than Sci and Sce, about as long as distance between bases; propodosoma with areaolate-rugose dorsocentral and



depressed dorsolateral areas and strongly rugose lateral areas (fig. 128, A); pores absent; hysterosomal setae L<sub>1-7</sub> leaflike, shorter than propodosomals, ensiform to lanceolate, serrate, with much shorter posterior setae; DC<sub>1-3</sub> ensiform, DC<sub>1</sub> nearly as long as propodosomals, DC<sub>2-3</sub> shorter than DC<sub>1</sub>, as long as laterals; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>2</sub> and strongly rugose lateral areas; depressed, areolate dorsolateral areas; pores absent; distinct lateral grooves; pregenital plate with sides straight, slightly widened posteriorly, rugose; genital flap subimbricate; genital setae stouter and longer than pregenitals, equidistant from each other; area posterior to IC<sub>4</sub> coarsely substrigate-rugose; intercoxal setal area mostly coarsely punctate (fig. 128, B); dorsal setae on femora I and II ensiform, serrate, slightly shorter than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 319, width 171.

Variation.--Length 314-325, width 165-171.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia.

Variation.--Length 257-274, width 127-131.

Deutonymph.--Rostrum extending to middle of femur I; propodosomal setae Ve, Sci, Sce, and all hysterosomal setae small, leaflike, spatulate or oblanceolate, serrate; Ve and DC<sub>1</sub> largest of dorsal setae, about 1/3 as long as distance between bases of Ve; L<sub>1-7</sub> and DC<sub>2-3</sub> noticeably much smaller than DC<sub>1</sub> (fig. 128, C); dorsal setae on femora I and II leaflike, as large as propodosomals, about 1/2 as long as width of segments.

Specimens examined.--Holotype (female) and paratypes (three females, two males, and two deutonymphs), ex Artemisia filifolia Torr., Aqua, S. Cd.

Juarez, Chihuahua, August 8, 1970 (T.B.A.).

Discussion.--This species resembles enceliae and portalis both in dorsal surface sculpturing and in the form of the dorsal body setae. B. filifoliae is recognized by the coarse punctation on the intercoxal setal area and by the relatively short propodosomal and dorsocentral setae. The dorsal setae of the deutonymph are small and leaflike, unlike the long, ensiform setae found in enceliae and portalis.

Brevipalpus parthenium Baker and Tuttle (Fig. 129, A-C)

Brevipalpus parthenium Baker and Tuttle, 1972: 29.

Female.--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with stubby, finger-like median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce narrow ensiform, finely serrate; Ve and Sci slightly longer than distance between bases of Ve and 1/3 longer than Sce; propodosoma areolate-rugose, with distinct horseshoe-shaped furrow (fig. 129, A), with strongly rugose dorsolateral and lateral areas, and with areolate-rugose dorsocentral area; pores absent; hysterosomal setae L<sub>1-7</sub> short and slender, 1/2 to 1/3 as long as Ve and Sci, nude; DC<sub>1</sub> narrow ensiform, finely serrate, as long as Sce; DC<sub>2-3</sub> 1/3 shorter than DC<sub>1</sub>, subequal in length, finely serrate; hysterosoma almost entirely rugose, with strongly rugose dorsocentral and lateral areas (fig. 129, A) and with areolate-rugose, depressed dorsolateral areas; pores absent; distinct lateral grooves; pregenital plate with sides slightly pinched posteriorly, rugose, with setae inserted laterad, narrow ensiform; genital flap scutellate; genital setae slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> subareolate-rugose; intercoxal setal area entirely finely strigate,

with sparse punctation (fig. 129, B); dorsal setae on femora I and II ensiform, as large as Ve, about as long as width of segments; tarsus II with one solenidion. Length 251, width 143.

Variation.--Length 234-262, width 114-148.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 213-227, width 92-103.

Deutonymph.--Rostrum extending to apex of femur I; dorsal setae Ve stout, serrate, conspicuously longest of dorsal setae, as long as distance between bases; Sci longer than Sce, slender, about 1/2 as long as Ve; all hysterosomal setae very small, fairly stout, not more than three times as long as diameter of bases (fig. 129, C); dorsal seta on femur I narrow ensiform, finely serrate, 2/3 as long as width of segment, longer than femur II dorsal seta.

Specimens examined.--Holotype (female) and paratypes (three females and one deutonymph), ex Parthenium incanum H.B.K., Portal, Ariz., August 23, 1968, and September 2, 1967 (D. M. Tuttle); six females, three males, and five deutonymphs, ex P. incanum, Chihuahua, Chihuahua, and 91 km north of Matehuala, San Luis Potosí, July 18-August 8, 1974 (T.B.A.).

Discussion.--B. parthenium is characterized by the areolate-rugose dorsum of the propodosoma, with a horseshoe-shaped furrow and areolate dorsocentral area, by the fairly finely strigate and punctate intercoxal setal area, and by the scutellate genital flap. The deutonymph is very distinctive in having long and stout propodosomal setae Ve, whereas other dorsal setae are very much reduced in size.

Brevipalpus physalis De Leon  
(Fig. 130, A-C)

Brevipalpus physalis De Leon, 1961a:  
47.

Female.--Rostrum extending near apex of femur I; palpus four-segmented, with two setae on distal segment (fig. 130, C); rostral shield deeply notched and widely parted medially, with strongly conical lobes, without ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender, nude, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with rugose lateral areas and areolate dorsocentral area, with slightly irregular or rugose areolae (fig. 130, A), and with depressed dorsolateral area; pores absent; hysterosomal setae L<sub>1-7</sub> similar to propodosomals, with slightly shorter posterior setae; DC<sub>1-3</sub> fairly weak, shorter than laterals; hysterosoma areolate-rugose as on propodosoma except for areolate-rugose to substrigate-rugose dorsocentral area (fig. 130, A) and with depressed, areolate-rugose dorsolateral areas; pores present; indistinct lateral grooves; pregenital plate with sides uneven, crowded pebbly areolate-rugose (fig. 130, B); genital flap imbricate-rugose; genital setae stouter and slightly longer than pregenitals, barely paired laterally; area posterior to IC<sub>4</sub> and most of intercoxal setal area pebbly areolate (fig. 130, B); dorsal setae on femora I and II very small, stout, and shorter than propodosomals, about 1/4 as long as width of segments; tarsus II with one solenidion. Length 313, width 154.

Male.--Not known.

Specimens examined.--Holotype (female), ex Tridax procumbens L., and paratype (one female), ex Physalis sp., Vera Cruz, Vera Cruz, December 28, 1956 (D. De Leon).

Discussion.--B. physalis is characterized by the short, nude dorsal body setae, strongly conical lobes of the

rostral shield that lacks ancillary lobes, by pores on the hysterosoma, and by the completely pebbly areolate area posterior to IC<sub>4</sub> and intercoxal setal area. The last character will readily separate physalis from its related species, verbenae. One palpus of the type is abnormal in that the second and third segments are fused, and one seta is missing (fig. 130, C).

Brevipalpus portalis Baker and Tuttle (Fig. 131, A-C)

Brevipalpus portalis Baker and Tuttle, 1972: 30; Baker, Tuttle, and Abbatiello, 1975: 19.

Brevipalpus incanum Baker, Tuttle, and Abbatiello, 1975: 19. NEW SYNONYMY.

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with slender, tapered median and conical ancillary lobes; propodosomal setae Ve, Sci, Sce very long, ensiform, serrate; Ve slightly longer than Sci and Sce, more than two times as long as distance between bases (fig. 131, A); propodosoma with areolate dorsocentral and dorsolateral areas and strongly rugose lateral areas (fig. 131, A); pores absent; hysterosomal setae L<sub>1-7</sub> narrow leaflike, considerably shorter than propodosomals, L<sub>1-3</sub> elongate lanceolate, 1/3 to 1/2 longer than lanceolate L<sub>4-7</sub>, all setae serrate; DC<sub>1-2</sub> ensiform, as long as propodosomals, DC<sub>3</sub> about 1/3 shorter than DC<sub>1-2</sub>, as long as L<sub>1-3</sub>; hysterosoma areolate-rugose, with strigate-rugose dorsocentral area posterior to DC<sub>2</sub>, with lateral areas strongly rugose, and with areolate, depressed dorsolateral areas (fig. 131, A); pores absent; distinct lateral grooves; pregenital plate with sides slightly widened posteriorly, subareolate-rugose, with fairly stout and serrate setae; genital flap scutellate; genital setae stout, serrate, longer than pregenitals, paired laterally; both pregenital and genital setae may vary from slender to stout or sublanceolate; area posteri-

or to IC<sub>4</sub> subareolate-rugose; intercoxal striae strigate-punctate or punctate medially with obscure transverse lines (fig. 131, B); dorsal setae on femora I and II strong ensiform or sublanceolate, serrate, shorter than propodosomals, about as long as width of segments; tarsus II with one solenidion. Length 291, width 177.

Variation.--Length 279-296, width 154-182.

Male.--Not known.

Deutonymph.--Rostrum extending beyond femur to middle of genu I; dorsal setae Ve, Sci, Sce, L<sub>1-5</sub>, and DC<sub>1-3</sub> very long, narrow ensiform, serrate or pectinate, about two times as long as distance between bases of Ve; L<sub>6-7</sub> short, ensiform, about 1/2 as long as other setae (fig. 131, C); dorsal setae on femora I and II ensiform or sublanceolate, pectinate or serrate, about 1/2 as long as propodosomals, longer than width of segments.

Specimens examined.--Holotype (female) and paratypes (12 females) of portalis, ex Parthenium incanum H.B.K., Portal, Ariz., August 23, 1968 (D. M. Tuttle); holotype (female) and paratypes (24 females and 2 deutonymphs) of incanum, ex P. incanum, Fresnillo, Zacatecas, and Chihuahua, Chihuahua, August 3 and 8, 1970 (T.B.A.).

Discussion.--The type of incanum has been examined and found to be conspecific with portalis. In spite of the degree of variability in the form of genital and pregenital setae and the sculpturing on the intercoxal setal area, portalis may be distinguished by the scutellate genital flap and by the long, ensiform dorsal setae Ve, Sci, Sce, and DC<sub>1-2</sub>. In the type series of incanum, one specimen lacks pregenital and one pair of genital setae; another lacks only pregenital setae. B. portalis is very close to enceliae, but the gnathosoma does not extend beyond femur I as in enceliae.

The deutonymph is recognized by the very long, ensiform dorsal body setae except L<sub>6-7</sub>.

**Brevipalpus ruelliae**, new species  
(Fig. 132, A-C)

**Female.**--Rostrum extending beyond femur to apex of genu I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially, with tapered median and very small, rounded ancillary lobes; propodosomal setae Ve and Sci ensiform, larger than Sce; Ve slightly longer than Sci and distance between bases; Sce slender, shortest of propodosomals; hysterosoma entirely rugose, with strongly rugose dorsocentral area and depressed dorsolateral areas (fig. 132, A); pores absent; hysterosomal setae L<sub>1-7</sub> short and slender, finely serrate, less than 1/2 as long as Ve; DC<sub>1</sub> longer and stouter than DC<sub>2-3</sub> and lateral setae; hysterosoma completely rugose as on propodosoma, with substrigate-rugose dorsocentral area and substrigate-rugose, depressed dorsolateral areas (fig. 132, A); pores absent; distinct lateral grooves; pregenital plate with sides straight, slightly narrowing posteriorly, substrigate-rugose, with setae inserted laterad; genital flap scutellate; genital setae stouter than pregenitals, subequal in length, paired laterally; area posterior to IC<sub>4</sub> substrigate-rugose; intercoxal setal area entirely strigate, with sparse punctation (fig. 132, B); dorsal setae on femora I and II long, nearly ensiform, finely serrate, as long as Ve, and longer than width of segments; tarsus II with one solenidium. Length 276, width 140.

**Male.**--Not known.

**Deutonymph.**--Rostrum extending beyond middle of femur I; dorsal setae Ve, Sci, Sce, and L<sub>1-3</sub> long and robust, ensiform, serrate, more than two times as long as distance between bases of Ve; L<sub>4-5</sub> shorter than L<sub>3</sub> and L<sub>6</sub>, shorter than L<sub>5</sub>, L<sub>7</sub> missing;

dorsocentrals DC<sub>1-2</sub> ensiform, more rugose and slightly shorter than laterals, DC<sub>3</sub> missing (fig. 132, C); dorsal setae on femora I and II ensiform or sublanceolate, robust, strongly serrate, about as long as width of segments.

**Holotype.**--Female, ex Ruellia nudiflora (A. Gray) Urb., Torreon, Coahuila, August 5, 1970 (T.B.A.).

**Paratypes.**--One female and one deutonymph, with same data as holotype. A female of B. allenrolfeae is on the same slide.

**Discussion.**--The form of dorsal body setae and the strigate-punctate intercoxal area place ruelliae near parthenium, but the strongly rugose dorsal surface sculpturing easily distinguishes ruelliae. The deutonymph has long, ensiform dorsal body setae found in enceliae and erectus.

**Brevipalpus spatulatus**, new species  
(Fig. 133, A-C)

**Female.**--Rostrum extending beyond femur to base of genu I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft and widely parted, with tapered or conical median and dentate or conical ancillary lobes (fig. 133, A); propodosomal setae Ve, Sci, Sce broadly leaflike, oblanceolate, with acute or rounded tips, serrate, slightly more than 1/2 as long as distance between bases of Ve; propodosoma almost entirely areolate except for rugose dorsocentral area (fig. 133, A); pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> leaflike as propodosomals, with slightly smaller posterior setae L<sub>5-7</sub> and DC<sub>3</sub>; hysterosoma areolate-rugose, with rugose dorsocentral area posterior to DC<sub>2</sub> and lateral areas (fig. 133, A), and dorsolateral areas depressed, areolate-rugose; pores absent; distinct lateral grooves; pregenital plate with sides straight, widened posteriorly, lightly rugose; genital flap subimbricate; genital

setae as stout and as long as pregenit-  
als, paired laterally; area posterior  
to IC<sub>4</sub> and intercoxal setal area  
smooth, with adjacent lateral areas  
lightly rugose (fig. 133, B); dorsal  
setae on femora I and II leaflike as  
propodosomals, oblanceolate with  
rounded tips on femur I, lanceolate on  
femur II; both setae about 2/3 as long  
as width of segments; tarsus II with  
one solenidion. Length 336, width 165.

Male.--Not known.

Protonymph.--Rostrum extending beyond  
femur to middle of genu I; dorsal  
setae Ve, Sci, Sce, and hysterosomals  
L<sub>1-7</sub> leaflike, serrate, oblanceolate  
or lanceolate; Ve largest of dorsal  
setae, about 2/3 as long as distance  
between bases; other setae except  
dorsocentrals DC<sub>1-3</sub> subequal in size;  
DC<sub>1-3</sub> lanceolate, smaller than later-  
als, DC<sub>3</sub> smallest; dorsal setae on  
femora I and II leaflike as body setae;  
femur I seta larger than femur II seta,  
setae slightly shorter than width of  
segments (fig. 133, C).

Holotype.--Female, ex Parthenium  
incanum H.B.K., 91 km north of  
Matehuala, San Luis Potosí, July 18,  
1974 (T.B.A.).

Paratypes.--One female and two  
protonymphs, with same data as  
holotype.

Discussion.--B. spatulatus is charac-  
terized by the broadly leaflike  
propodosomal and hysterosomal setae,  
by the smooth area posterior to IC<sub>4</sub>  
and intercoxal setal area, and by the  
lightly rugose pregenital plate. The  
areolate-rugose dorsal surface  
sculpturing is very distinctive in  
this species. The protonymph is  
recognized by having entirely leaflike  
dorsal body setae as well as dorsal  
setae on femora I and II.

Brevipalpus tagetinae, new name  
(Fig. 134, A-C)

Brevipalpus psilotrophe (sic) Baker,  
Tuttle, and Abbatiello, 1975: 14

(misspelling; as psilostrophe on p.  
15; not psilostropheae Baker and  
Tuttle, 1964). Preoccupied.

Female.--Rostrum extending to apex of  
femur I; palpus four-segmented, with  
two setae on distal segment; rostral  
shield deeply cleft, with strongly  
tapered, pointed median and very small  
ancillary lobes; propodosomal setae  
Ve, Sci, Sce slender, finely serrate  
or nude, slightly more than 1/2 as  
long as distance between bases of Ve;  
propodosoma areolate-rugose, with  
anterior dorsolateral furrows and  
rugose or irregular areolae on  
dorsocentral area (fig. 134, A, C);  
pores present; hysterosomal setae  
L<sub>1-7</sub> and DC<sub>1-3</sub> similar to  
propodosomals, with much shorter  
posterior setae; hysterosoma more  
rugose than on propodosoma, with  
rugose areolae on dorsocentral area  
between DC<sub>1</sub> and DC<sub>2</sub>, other areas  
strongly rugose (fig. 134, A); pores  
present; areolate-rugose, depressed  
dorsolateral areas; distinct lateral  
grooves; pregenital plate with sides  
nearly straight, rugose; genital flap  
substrigate-rugose or subscutellate-  
rugose; genital setae stouter and  
slightly longer than pregenitals,  
paired laterally; area posterior to  
IC<sub>4</sub> strigate-rugose; intercoxal  
setal area finely strigate, with  
sparse punctation (fig. 134, B);  
dorsal setae on femora I and II  
stouter than body setae, about 1/2 as  
long as width of segments; tarsus II  
with one solenidion. Length 268,  
width 165.

Male.--Similar to female except for  
sexual differences; tarsus II with one  
solenidion as in female. Length 242,  
width 120.

Specimens examined.--Holotype (female)  
of psilostrophe, ex Psilostrophe  
tagetina (Nutt.) Greene, Chihuahua,  
Chihuahua, August 8, 1970 (T.B.A.),  
and type series of psilostropheae, ex  
Psilostrophe cooperi (Gray) Greene,  
Sells, Ariz., February 21, 1963 (D. M.  
Tuttle).

Discussion.--The dorsal surface sculpturing of tagetinae closely resembles that of psilostropheae and artemisiae. B. tagetinae differs from artemisiae by having a strigate-rugose area posterior to IC<sub>4</sub> and a finely strigate intercoxal setal area; these areas in artemisiae are areolate-rugose and punctate, respectively. It is distinguished from psilostropheae by the irregular or rugose design of the areolae on the propodosoma and hysterosoma; the areolae in psilostropheae are distinctly polygonal. The name "psilotrophe or psilostrophe Baker, Tuttle, and Abbatiello, 1975" is preoccupied by psilostropheae Baker and Tuttle, 1964, and the name "tagetinae" is here proposed.

Brevipalpus verbenae, new species  
(Fig. 135, A-C)

Female.--Rostrum extending to middle of femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply cleft medially and widely parted, with strongly conical median lobes, without ancillary lobes; propodosomal setae Ve, Sci, Sce short and slender but fairly stout, nude, about 1/3 as long as distance between bases of Ve; propodosoma areolate-rugose, with strongly rugose lateral areas, and areolate dorsocentral area, with rugose or irregular areolae (fig. 135, A) and with depressed dorsolateral areas; pores absent; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> similar to propodosomals, except slightly shorter; hysterosoma areolate-rugose as on propodosoma, with substrigate-rugose dorsocentral area posterior to DC<sub>2</sub>, strongly rugose lateral areas (fig. 135, A), and areolate-rugose, depressed dorsolateral areas; pores absent; distinct lateral grooves; pregenital plate with sides straight, strongly rugose; genital flap scutellate-rugose; genital setae fairly slender, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and posterior 1/2 of intercoxal setal area subareolate-rugose (fig. 135, B); anterior intercoxal setal

area coarsely strigate; dorsal setae on femora I and II similar to body setae, about 1/2 as long as width of segments; tarsus II with one solenidion. Length 279, width 160.

Variation.--Length 279-302, width 165-171.

Male.--Similar to female except for sexual differences; tarsus II with two solenidia. Length 239, width 119.

Deutonymph.--Rostrum barely extending to middle of femur I; all dorsal setae very short, lanceolate, two to three times as long as diameter of their bases (fig. 135, C); dorsal setae on femora I and II similar to body setae, about 1/3 as long as width of segments.

Protonymph.--Similar to deutonymph.

Holotype.--Female, ex Verbena sp., Chihuahua, Chihuahua, August 8, 1970 (T.B.A.).

Paratypes.--Eighteen females, 1 male, 2 deutonymphs, and 1 protonymph, with same data as holotype.

Discussion.--B. verbenae greatly resembles physalis in appearance, and both species have short, nude dorsal setae, but the strongly rugose pregenital plate and the scutellate-rugose genital flap will separate verbenae. Also, the form of areolae on the area posterior to IC<sub>4</sub> and intercoxal setal area is different from that of physalis (fig. 130, B). The deutonymph is very much like the deutonymph of zinniae in having very short dorsal body setae, and these two species are distinct from presently known members of the group in this respect.

Brevipalpus zinniae, new species  
(Fig. 136, A-C)

Female.--Rostrum extending to apex of femur I; palpus four-segmented, with two setae on distal segment; rostral shield deeply notched medially, with conical median lobes, without ancillary

lobes; propodosomal setae Ve, Sci, Sce short and slender, nude, about 1/4 as long as distance between bases of Ve; propodosoma areolate-rugose, with subareolate-rugose dorsocentral area and depressed, areolate dorso-lateral areas (fig. 136, A); pores present; hysterosomal setae L<sub>1-7</sub> and DC<sub>1-3</sub> slender, slightly shorter than propodosomals, nude; hysterosoma areolate-rugose as on propodosoma, with rugose dorsocentral and lateral areas and areolate, depressed dorso-lateral areas; pores absent; distinct lateral grooves; pregenital plate with sides straight, strongly rugose; genital flap scutellate; genital setae as strong as and slightly longer than pregenitals, paired laterally; area posterior to IC<sub>4</sub> rugose; intercoxal setal area mostly coarsely punctate (fig. 136, B); dorsal setae on femora I and II slightly stronger than propodosomals, about 2/3 as long as width of segments; tarsus II with one solenidion. Length 274, width 143.

Variation.--Length 256-273, width 136-148.

Male.--Similar to female except for sexual differences; tarsus II with one solenidion as in female. Length 199-217, width 108-114.

Deutonymph.--Rostrum extending slightly beyond middle of femur I; all dorsal body setae very short, slender, two to three times as long as diameter of bases (fig. 136, C); dorsal setae on femora I and II similar to body setae, about 1/2 as long as width of segments.

Holotype.--Female, ex Zinnia acerosa (DC.) Gray, El Sueco (Rancho Grande), Chihuahua, August 4, 1970 (T.B.A.).

Paratypes.--Ten females, 3 males, and 4 deutonymphs, with same data as holotype; 15 females and 1 male, with same host as types, Fresnillo, Zacatecas, August 3, 1970 (T.B.A.).

Discussion.--B. zinniae is characterized by the short, nude dorsal body

setae, by the subareolate-rugose dorsocentral area of the propodosoma, and by the coarse punctation on the intercoxal setal area. The short and nude dorsal body setae and form of the propodosomal shield lacking ancillary lobes relate zinniae to verbenae and physalis, but the dorsal and ventral surface sculpturing and the presence of propodosomal pores will easily separate zinniae. The deutonymph of zinniae is very similar to that of verbenae in having very short dorsal setae.

#### Genus DOLICHOTETRANYCHUS Sayed

Dolichotetranychus Sayed, 1938: 606; Pritchard and Baker, (1951) 1952: 44; 1958: 250; Baker and Pritchard, 1956: 357; Mitrofanov, 1973b: 1317; Meyer, 1979: 99. Type-species: Stigmaeus floridanus Banks, by original designation.

Stenotetranychus Mitrofanov, 1973b: 1317; Meyer, 1979: 99 (syn.). Type-species: Siteroptes carnea Banks, by original designation.

Dolichotetranychus, subg. Dolichotetranychoides Mitrofanov, 1973b: 1317; Meyer, 1979: 9 (syn.). Type-species: Dolichotetranychus summersi Pritchard and Baker, by original designation.

Diagnosis.--Palpus three-segmented, with two or three setae on distal segment, seta on second segment may be present; without rostral shield; with three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with six pairs of lateral setae (L<sub>1-6</sub>), one pair of dorsolateral (DL<sub>1</sub>), and two pairs of dorsocentral setae (DC<sub>1-2</sub>); pregenital plate absent, and genital flap rudimentary; one pair of pregenital and one or two pairs of genital setae; one or two pairs of anal setae and intercoxal setae IC<sub>3</sub> and IC<sub>4</sub> on hysterosoma; tarsal claws uncinatate or padlike. Form elongate oval, with distinct sexual dimorphism.

Discussion.--Dolichotetranychus appears to be a widespread genus, with most of the known species occurring in

the United States and South Africa. At present, only one species, floridanus (Banks), has been recorded from Mexico. Many species are as yet undescribed, and many of the grass-inhabiting species known in the United States most certainly will be found in Mexico.

The single Mexican species, floridanus, belongs to the floridanus group of Meyer (1979), which is characterized by having two pairs each of anal and genital setae. Other species groups she proposed are (1) carnea group - species in this group have one pair of anal and two pairs of genital setae, and (2) summersi group - species in this group have two pairs of anal and one pair of genital setae.

#### DESCRIPTION OF SPECIES IN DOLICHOTETRANYCHUS FLORIDANUS GROUP

Dolichotetranychus floridanus (Banks) (Fig. 137, A-E)

Stigmaeus floridanus Banks, 1900: 77.  
Pseudoleptus floridanus, Oudemans, 1927: 179.

Dolichotetranychus floridanus, Sayed, 1938: 606; Pritchard and Baker, 1958: 252; Meyer, 1979: 99.

Trichadenus floridanus, McGregor, 1949: 30.

Female.--Rostrum extending slightly beyond middle of femur I; palpus three-segmented, with one seta on second segment and two setae on distal segment (fig. 137, C); propodosomal setae slender, finely serrate, about 1/3 as long as distance between bases of Ve; propodosoma finely striate posterior to setae, with lines becoming microtuberculate posteriorly; anterior area finely strigate, made of microtuberculate lines (fig. 137, A); all hysterosomal setae slender, not much different from propodosomals; L<sub>1</sub> as long as DL<sub>1</sub> and L<sub>6</sub>; L<sub>2-3</sub> slightly shorter than L<sub>4</sub>; DC<sub>1-2</sub> as long as L<sub>2-3</sub>; L<sub>5</sub> longest and strongest of hysterosomal setae;

hysterosoma finely striate as on propodosoma, with microtuberculate lines (fig. 137, A); ventral surface striate, made up of microtuberculate lines; pregenital and genital setae nearly hairlike, subequal in length; genital flap indistinct; genital setae paired laterally; two pairs of anal setae shorter than genital setae; intercoxal setae IC<sub>3</sub> about three times as long as IC<sub>4</sub> (fig. 137, B); spermatheca rounded, with convoluted, branched duct (fig. 137, D); dorsal seta on femur I very long, two times as long as width of segment; femur II seta shorter than width of segment; tarsi I and II each with one solenidion; tarsal claws uncinata. Length 308-353, width 103-120.

Male.--Similar to female except for sexual differences; palpus with three setae on distal segment; opisthosoma tapered, pointed posteriorly (fig. 137, E); tarsi I and II each with two solenidia. Length 302, width 108.

Specimens examined.--Eight females and one male, ex pineapple leaves, Mexico at Philadelphia, Pennsylvania quarantine station, June 14, 1934 (A. B. Wells).

Discussion.--This species is probably found wherever pineapple is grown. It was reported as a serious pest of pineapple in Mexico (pers. commun., A. Tovar, Facultad de Agronomia, Universidad Autonoma de Nuevo Leon, San Nicolas de Los Garza, Mexico). D. floridanus is distinguished by the presence of two pairs each of anal and genital setae and by the microtuberculate striae on the ventral surface.

#### Genus PENTAMERISMUS McGregor

Pentamerismus McGregor, 1949: 23;  
Pritchard and Baker, (1951) 1952: 8;  
1958: 186; Mitrofanov, 1973a: 508;  
Meyer, 1979: 128. Type-species:  
Tenuipalpus erythreus Ewing, by  
original designation.  
Oligomerismus Mitrofanov, 1973a: 508;



Meyer, 1979: 128 (syn.). Type-species: Tenuipalpus taxi Haller, by original designation.

Livshitzia Mitrofanov, 1973b: 1317;

Meyer, 1979: 128 (syn.). Type-species: Pentamerismus tauricus Livshitz and Mitrofanov, by original designation.

Diagnosis.--Palpus five-segmented, with or without seta on second segment, with three setae on distal segment; without rostral shield; with three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with seven to eight pairs of lateral setae (L<sub>1-7</sub> or L<sub>1-8</sub>), two pairs of dorsolaterals (DL<sub>1-2</sub>), and three pairs of dorsocentrals DC<sub>1-3</sub>; pregenital plate and genital flap well developed; one pair of pregenital and two pairs of genital setae; three pairs of anal setae; intercoxal setae IC<sub>3</sub> and IC<sub>4</sub> on hysterosoma; tarsal claws uncinata.

For number of leg setae, see under each species; all included Mexican species with same number of leg setae.

Discussion.--As in many genera of the Tenuipalpidae, Pentamerismus is not homogeneous. It shares many characters in common with Aegyptobia. Based on the number of lateral setae on the hysterosoma, two groups may be recognized as follows: (1) oregonensis group - the single Mexican species, oregonensis, in this group is well characterized by having seven pairs of lateral setae (L<sub>1-7</sub>), and (2) erythreus group - species in this group have eight pairs of lateral setae (L<sub>1-8</sub>) as in arbutusae, erythreus, and abnormis. Two previously described and two new species are included here in Pentamerismus, totaling four species from Mexico.

KEY TO MEXICAN SPECIES OF PENTAMERISMUS

1. Hysterosoma with seven pairs of lateral setae (L<sub>1-7</sub>) (oregonensis) group-----  
-----oregonensis McGregor (p. 114)
- Hysterosoma with eight pairs of lateral setae (L<sub>1-8</sub>) (erythreus group)----- 2
- 2 (1). Palpus with seta on second segment; propodosomal setae slender, not leaflike--arbutusae, n. sp. (p. 113)
- Palpus without seta on second segment; propodosomal setae broadly leaflike----- 3
- 3 (2). L<sub>1</sub> and dorsal seta on femur II broadly leaflike, similar to L<sub>2-8</sub>; DL<sub>1</sub> and DC<sub>1</sub> hairlike, similar to DL<sub>2</sub> and DC<sub>2-3</sub>; anal setae arranged in transverse row-----erythreus (Ewing) (p. 114)
- L<sub>1</sub> and dorsal seta on femur II slender, not broadly leaflike, similar to DL<sub>1</sub> and DC<sub>1</sub>; anal setae in longitudinal row-----abnormis, n. sp. (p. 112)

DESCRIPTIONS OF SPECIES IN PENTAMERISMUS ERYTHREUS GROUP

Pentamerismus abnormis, new species (Fig. 138, A, B)

Female.--Rostrum extending beyond middle of femur I; palpus five-segmented, with three setae on distal segment, without seta on second segment; anterior margin of propodosoma convex,

notched medially; propodosomal setae leaflike, oblanceolate, with acute or acuminate tips, serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose, forming U-pattern on dorsocentral area (fig. 138, A); hysterosomal setae L<sub>1</sub>, DL<sub>1</sub>, and DC<sub>1</sub> sublanceolate, serrate, subequal in length, much shorter and smaller than propodosomals and posterior laterals; L<sub>2-8</sub> broadly

leaflike as propodosomals, ovate with acuminate tips or obovate with acute or acuminate tips; DL<sub>2</sub> and DC<sub>2-3</sub> slender, much shorter than laterals, nude; hysterosoma mostly rugose to rugose-cancellate laterally and posteriorly (fig. 138, A); pregenital plate with sides pinched anterior to setae, strigate; genital flap smooth; genital setae stout, serrate, as long as pregenitals, paired laterally; anterior anal setae more slender and shorter than median and posterior pairs, nude; posterior anals sublanceolate, serrate; all anal setae shorter than genitals; area posterior to IC<sub>4</sub> and intercoxal setal area strigate (fig. 138, B); IC<sub>4</sub> as long as IC<sub>3</sub>, both setae very long, about 3-1/2 times as long as pregenitals; dorsal seta on femur I leaflike as propodosomals, spatulate, nearly as long as width of segments; femur II seta sublanceolate, about as long as width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 262, width 140.

Male.--Not known.

Holotype.--Female, ex Juniperus sp., Chihuahua at El Paso, Texas quarantine station, August 21, 1979 (Virgil).

Paratypes.--Five females, with same data as holotype. Length 273-285, width 131-165.

Discussion.--The similarity in form and size of dorsal setae L<sub>1</sub>, DL<sub>1</sub>, and the different forms of dorsal setae on femora I and II make abnormis easy to separate from erythreus. Both species, however, lack a seta on the second segment of the palpus. One paratype female has DL<sub>2</sub> seta missing as figured.

Pentamerismus arbutusae, new species (Fig. 139, A, B)

Female.--Rostrum extending beyond femur to genu I; palpus five-segmented, with seta on second segment and three setae

on distal segment; anterior margin of propodosoma convex, with shallow median notch; propodosomal setae slender, linear, serrate, about 1/2 as long as distance between bases of Ve; propodosoma finely striate, with lines forming V-pattern on dorsocentral area (fig. 139, A); hysterosomal setae L<sub>1</sub> lanceolate, well differentiated from broadly leaflike L<sub>2-8</sub>, these setae obovate or spatulate, serrate (fig. 139, A); DL<sub>1-2</sub> and DC<sub>1-3</sub> almost hairlike, shorter than laterals; hysterosoma rugose (fig. 139, A); pregenital plate with sides pinched posteriorly, finely strigate; genital flap smooth; genital setae stout, serrate, as long as pregenitals, paired laterally; pregenitals, anterior and median pairs of anal setae slender, nude; posterior anals sublanceolate, serrate, as long as genital setae; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area finely strigate; IC<sub>4</sub> as long as IC<sub>3</sub>, about five times as long as pregenitals (fig. 139, B); dorsal setae on femora I and II lanceolate, serrate, similar to L<sub>1</sub>, about as long as width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 291, width 149.

Male.--Not known.

Holotype.--Female, ex Arbutus sp., 10 km north of San Luis Potosi, July 18, 1974 (T.B.A.).

Paratypes.--Seven females, with same data as holotype. Length 262-291, width 120-148.

Discussion.--The almost hairlike hysterosomal setae DL<sub>1-2</sub> and DC<sub>1-3</sub> and rugose surface of the hysterosoma would place arbutusae near erythreus, but the slender, not broadly leaflike propodosomal setae will separate arbutusae. It also has a seta on the second segment of the palpus, which is lacking in erythreus.

Pentamerismus erythreus (Ewing)  
(Fig. 140, A, B)

Tenuipalpus erythreus Ewing, 1917: 152.  
Pentamerismus erythreus, McGregor,  
1949: 25; Pritchard and Baker, (1951)  
1952: 10; 1958: 188; Meyer, 1979:  
130.

Female.--Rostrum extending to apex of femur I; palpus five-segmented, without seta on second segment, with three setae on distal segment; anterior margin of propodosoma convex, deeply notched medially; propodosomal setae leaflike, oblanceolate, with acuminate or acute tips, serrate, slightly less than 1/2 as long as distance between bases of Ve; propodosoma rugose, becoming subareolate-rugose toward dorsolateral areas (fig. 140, A); hysterosomal setae L<sub>1-8</sub> broadly leaflike as propodosomals, mostly spatulate in form, serrate; DL<sub>1-2</sub> and DC<sub>1-3</sub> almost hairlike, nude, about 1/2 as long as laterals; hysterosoma anterior to DL<sub>2</sub> and DC<sub>2</sub> areolate-rugose, rugose-striate posteriorly and laterally (fig. 140, A); pregenital plate with sides pinched posteriorly, slightly rugose; genital flap mostly smooth; genital setae robust, serrate, about two times as long as pregenitals, paired laterally; anal setae arranged in transverse row, short and slender, about as long as genitals; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area smooth; IC<sub>4</sub> as long as IC<sub>3</sub>, both setae very long, about eight times as long as pregenitals (fig. 140, B); dorsal setae on femora I and II leaflike as propodosomals, as long as width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 268, width 171 (lectotype).

Variation.--Length 266-309, width 165-182.

Male.--Not known.

Specimens examined.--Lectotype (female), ex arborvitae, Corvallis, Oreg.,

November 11, 1911 (H. E. Ewing); one female, ex Juniperus sp., Monterrey, Tamaulipas at El Paso, Texas quarantine station, December 10, 1976 (C. Bejaran and R. Eads); six females, ex Juniperus sp., 9.6 km north of Oaxaca, Oaxaca, July 10, 1974 (T.B.A.).

Discussion.--P. erythreus is easily distinguished from abnormis by the uniformly leaflike setae L<sub>1-8</sub> and slender setae DL<sub>1-2</sub> and DC<sub>1-3</sub>, and from arbutusae by the leaflike propodosomal setae and by the absence of the seta on the second segment of the palpus. There are also distinct differences in the dorsal sculptured patterns of the propodosoma and hysterosoma.

DESCRIPTION OF SPECIES IN  
PENTAMERISMUS OREGONENSIS GROUP

Pentamerismus oregonensis McGregor  
(Fig. 141, A, B)

Pentamerismus oregonensis McGregor,  
1949: 27; Pritchard and Baker,  
(1951) 1952: 11; 1958: 187; Meyer,  
1979: 130.

Female.--Rostrum extending beyond middle of femur I; palpus five-segmented, with seta on second and three setae on distal segment; anterior margin of propodosoma strongly convex, pointed, deeply notched medially; propodosomal setae slender, linear, serrate, slightly less than 1/2 as long as distance between bases of Ve; propodosoma rugose, forming confused U-pattern on dorsocentral area (fig. 141, A); hysterosomal setae L<sub>1-7</sub> vary from linear to lanceolate, with L<sub>6-7</sub> mostly lanceolate; all setae as long as propodosomals and serrate; DC<sub>1-2</sub> and DC<sub>1-3</sub> almost hairlike, subequal in length, shorter than laterals; hysterosoma rugose as on propodosoma (fig. 141, A); pregenital plate with sides pinched posteriorly, surface smooth; genital flap rugose; genital setae slender, barbed, as long as pregenitals, barely paired laterally; anal setae nearly as long

as genitals; anterior and median pairs nude, posterior pair barbed; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area smooth; IC<sub>4</sub> as long as IC<sub>3</sub>, both setae very long, about six times as long as pregenitals (fig. 141, B); dorsal setae on femora I and II similar in form to propodosomals, slightly shorter than width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 269-291, width 171-177 (syntypes). Length 308-353, width 177-200 (Mexican specimens).

Male.--Not known.

Specimens examined.--Ten female syntypes, ex Libocedrus decurrens Torr. and Rhododendron sp., Oregon (no specific locality), October 19, 1944 (J. D. McGregor); 8 females, ex Chamaecyparis sp., Fortin, Vera Cruz, July 12, 1974 (T.B.A.).

Discussion.--The dorsal surface sculpturing of oregonensis is very much like that of erythreus, but oregonensis has seven pairs of slender hysterosomal laterals and a seta on the second segment of the palpus. It is the only Mexican species in the oregonensis group.

#### Genus PHYTOPTIPALPUS Tragardh

Phytoptipalpus Tragardh, 1904: 10; Sayed, 1942: 115; Pritchard and Baker, 1958: 189; Mitrofanov, 1973b: 1315; Meyer, 1979: 111. Type-species: Phytoptipalpus paradoxus Tragardh, by original designation.  
Neophytoptipalpus Mitrofanov, 1973b: 1315; Meyer, 1979: 111 (syn.). Type-species: Phytoptipalpus albizziae Pritchard and Baker, by original designation.  
Zaheria Mitrofanov, 1973b: 1316;

Meyer, 1979: 111 (syn.). Type-species: Phytoptipalpus aegyptetrapodus Zaher and Yousef, by original designation.

Diagnosis.--Palpus five-segmented, with or without seta on second segment, with three setae on distal segment; three pairs of propodosomal setae (Ve, Sci, Sce); without rostral shield; hysterosoma with five to six pairs of lateral setae (L<sub>1-5</sub>, L<sub>1-6</sub>), four pairs of dorsolateral setae (DL<sub>1-4</sub>), and three pairs of dorsocentral setae (DC<sub>1-3</sub>); pregenital plate absent; genital flap well defined posteriorly, with one pair of pregenital and two pairs of genital setae; intercoxal setae IC<sub>3</sub> and IC<sub>4</sub> on hysterosoma; two pairs of anal setae; tarsal claws uncinata; number of setae on genu and trochanter of all legs reduced. Body form ovate to obovate.

Discussion.--All known Phytoptipalpus have this combination of characters. Certain species are aberrant in that they possess three pairs of legs as in albizziae and paradoxus. It is certain what the significance of this character may be in defining the genus. Although Phytoptipalpus is a peculiar genus, it is not strikingly different from other tenuipalpine genera. Based primarily on the number of lateral setae on the hysterosoma, members of the genus may be grouped as follows: (1) cercidium group - species in this group have six pairs of lateral setae as in ceibae, conostegiae, and cercidium, and (2) paradoxus group - species in this group have five pairs of lateral setae (L<sub>1-5</sub>); not known in Mexico. After the transfer of two species from Aegyptobia to Phytoptipalpus and one new species described here, the Mexican Phytoptipalpus species now total three.

#### KEY TO MEXICAN SPECIES OF PHYTOPTIPALPUS

1. Hysterosoma with six pairs of lateral setae (L<sub>1-6</sub>) (cercidium group)----- 2
- Hysterosoma with five pairs of lateral setae (L<sub>1-5</sub>) (paradoxus group)-----Not found in Mexico

- 2 (1). Palpus without seta on second segment; dorsal setae broadly leaflike; L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> arranged in transverse row-----ceibae (De Leon) (p. 116)
- Palpus with seta on second segment; dorsal setae slender, not leaflike; L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> not in transverse row----- 3
- 3 (2). Propodosoma and hysterosoma rugose-striate, with dorsocentral lines forming confused, irregular pattern; anterior margin of propodosoma notched medially-----conostegiae, n. sp. (p. 117)
- Propodosoma with fossulate dorsocentral area, hysterosoma rugose-substrigate; anterior margin of propodosoma rounded, entire-----cercidium (B.T.A.) (p. 116)

DESCRIPTIONS OF SPECIES IN PHYTOPTI-PALPUS

Phytoptipalpus ceibae (De Leon), new combination  
(Fig. 142, A, B)

Aegyptobia ceibae De Leon, 1962: 203;  
Baker, Tuttle, and Abbatiello, 1975: 2.

Female.--Rostrum extending beyond femur to middle of genu I; palpus five-segmented, with three setae on distal segment, without seta on second segment; anterior margin of propodosoma rounded, entire; propodosomal setae broadly leaflike, varying from ovate to obovate, with acute or acuminate tips, serrate, more than 1/2 as long as distance between bases of Ve; propodosoma smooth, slightly rugose laterally; all hysterosomal setae L<sub>1-6</sub>, DL<sub>1-4</sub>, and DC<sub>1-3</sub> similar in size and form to propodosomals; L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> arranged in transverse row (fig. 142, A); hysterosoma divided into metapodosoma and opisthosoma; opisthosoma slightly rugose; pores absent; pregenital plate indistinct, outlined by biconcave lines and setae; genital flap with well-defined, rounded posterior margin; genital setae robust, serrate, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> broadly strigate; intercoxal setal area strigate; IC<sub>3</sub> as long as IC<sub>4</sub>, both setae longer than pregenitals; anterior pair of anal setae as robust as genitals, posterior pair clublike, serrate (fig. 142, B); dorsal setae on femora and

genua I and II leaflike but smaller than body setae, shorter than width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 0/0/2/0; femur - 3/3/2/1; genu - 2/2/0/0; tibia - 4/4/3/3. Length 279, width 171.

Variation.--Length 264-321, width 150-178.

Male.--Not known.

Specimens examined.--Holotype (female) and paratypes (four females), ex Ceiba sp., nr Guadalajara, Jalisco, March 15, 1957 (D. De Leon).

Discussion.--This species is easily recognized by the uniformly large, leaflike dorsal setae, divided hysterosoma, and lack of the seta on the second segment of the palpus. The hysterosomal setae in some specimens are larger than the propodosomals and vary from obovate to broadly fan-shaped.

Phytoptipalpus cercidium (Baker, Tuttle, and Abbatiello), new combination  
(Fig. 143, A, B)

Aegyptobia cercidium Baker, Tuttle, and Abbatiello, 1975: 2; Meyer, 1979: 118.

Female.--Rostrum extending beyond femur and genu to base of tarsus I; palpus five-segmented, with three setae on distal segment and one seta on second segment; anterior margin of propodosoma

rounded, entire; propodosomal setae stout, linear, serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose, with fossulate dorsocentral area (fig. 143, A); all hysterosomal setae similar to propodosomals except length; DC<sub>2-3</sub>, DL<sub>2</sub>, DL<sub>4</sub>, and L<sub>5-6</sub> tend to be shorter than other setae; L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> not in transverse line; hysterosoma not divided, surface rugose-substrigate anterior to DC<sub>2</sub> and DL<sub>2</sub>, slightly rugose posteriorly (fig. 143, A); pores absent; pregenital plate indistinct, merging into genital flap, outlined by biconcave lines; genital flap strigate; genital setae robust, serrate, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area finely strigate; IC<sub>4</sub> as long as IC<sub>3</sub>, both setae longer than pregenitals; anterior and posterior anal setae as long as but stouter than genital setae (fig. 143, B); dorsal setae on femora and genua I and II slender, finely serrate, may be slightly longer than width of segments; leg setal count as follows: Coxa - 1/2/1/1; trochanter - 0/0/1/0; femur - 3/3/2/1; genu - 1/1/0/0; tibia - 4/4/3/3. Length 285, width 176.

Variation.--Length 253-312, width 154-183.

Male.--Not known.

Specimens examined.--Holotype (female) and paratypes (eight females), ex Cercidium floridum Benth., Mazatlan, Sinaloa, July 26, 1970 (T.B.A.).

Discussion.--P. cercidium is distinguished by the slender, not leaflike, dorsal setae, by the fossulate dorsocentral area of the propodosoma, and by a seta on the second segment of the palpus.

Phytoptipalpus conostegiae, new species

(Fig. 144, A, B)

Female.--Rostrum extending beyond femur and genu to middle of tibia I; palpus five-segmented, with three setae on

distal segment and one seta on second segment; anterior margin of propodosoma strongly convex, widely notched medially; propodosomal setae slender, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose-striate, with lines forming irregular, confused pattern on dorsocentral area (fig. 144, A); all hysterosomal setae similar to propodosomals except length; DL<sub>3-4</sub> and DC<sub>2-3</sub> tend to be shorter than other setae; L<sub>2</sub>, DL<sub>2</sub>, and DC<sub>2</sub> not in straight line; hysterosoma rugose, broadly strigate between DC<sub>1</sub> and DC<sub>2</sub> (fig. 144, A); pores absent; pregenital plate indistinct, outlined by biconcave lines and setae; genital flap with well-defined, rounded posterior margin, strigate; genital setae robust, serrate, as long as pregenitals, paired laterally; area posterior to IC<sub>4</sub> and intercoxal setal area finely strigate; IC<sub>4</sub> as long as IC<sub>3</sub>, both setae very long, about four times as long as pregenitals; anterior anal setae much shorter than posterior pair and genital setae (fig. 144, B); dorsal setae on femora I and II slender, finely serrate, as long as width of segment; that on genu I smooth, longer than width of segment; genu II without dorsal seta; leg setal count as follows: Coxa - 1/2/1/1; trochanter - 0/0/1/0; femur - 3/3/2/1; genu - 1/0/0/0; tibia - 4/4/3/3. Length 287, width 153.

Male.--Not known.

Holotype.--Female, ex Conostegia talapensis (Bump.) D. Don., 9.6 km south of Iguala, Guerrero, July 7, 1974 (T.B.A.).

Paratypes.--Five females, with same data as holotype. Length 275-297, width 138-169.

Discussion.--This species is easily recognized by the confused rugose-striate pattern on the dorsocentral area of the propodosoma and by the lack of seta on genu II. The slender dorsal body setae and a seta on the second segment of the palpus relate conostegiae to cercidium.

Genus PRISCAPALPUS De Leon

Tuttle, and Abbatiello, 1975: 22;  
Meyer, 1979: 97.

Priscapalpus De Leon, 1961b: 93;  
Mitrofanov, 1973a: 510; Meyer, 1979:  
97. Type-species: Priscapalpus  
macropilis De Leon, by original  
designation.

Deleoniella Mitrofanov, 1973a: 508;  
Meyer, 1979: 79 (syn.). Type-  
species: Priscapalpus cherretti De  
Leon, by original designation.

Diagnosis.--Palpus two-segmented, with two distal and one dorsal setae on terminal segment; rostral shield and three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with five to six pairs of lateral setae (L<sub>1-5</sub>, L<sub>1-6</sub>) and three pairs of dorsocentral setae (DC<sub>1-2</sub>, DC<sub>1-3</sub>); pregenital plate absent; genital flap rudimentary with one pair of pregenital and two pairs of genital setae; two pairs of intercoxal setae, IC<sub>3</sub> and IC<sub>4</sub>, both pairs on hysterosoma; two pairs of anal setae; without postanal setae; tarsal claws uncinata; for number of leg setae, see included species. Body form ovate.

Discussion.--This genus is presently composed of two species, macropilis De Leon and cherretti De Leon. These species are uniform in appearance but markedly differ in the number of hysterosomal lateral and dorsocentral setae. Based on the number of hysterosomal setae, macropilis, the only Mexican species in this publication, is here placed in a separate group by itself. This single species in the macropilis group has six pairs of laterals (L<sub>1-6</sub>) and three pairs of dorsocentrals (DC<sub>1-3</sub>) on the hysterosoma. P. cherretti has five pairs of laterals (L<sub>1-5</sub>) and three pairs of dorsocentrals (DC<sub>1-3</sub>).

#### DESCRIPTION OF SPECIES IN PRISCAPALPUS MACROPILIS GROUP

Priscapalpus macropilis De Leon  
(Fig. 145, A-G)

Priscapalpus macropilis De Leon, 1961b:  
93; Mitrofanov, 1973a: 510; Baker,

Female.--Rostrum extending to middle of femur I; palpus two-segmented, with two terminal and one dorsal setae on distal segment (fig. 145, C); rostral shield deeply cleft medially, with tapered, pointed median lobes and large ancillary lobes; propodosomal setae Ve and Sci stout, massive, and long, extending to posterior margin of propodosoma; Sce shorter than and not as stout as Ve and Sci; propodosoma tuberculate-rugose, with strongly tuberculate dorsocentral area (fig. 145, A); hysterosomal setae L<sub>1-3</sub> similar to Sce except length, about 1/3 shorter than Sce; L<sub>4-6</sub> slender, not enlarged as other dorsal setae, serrate, about 1/2 as long as L<sub>1-3</sub>; DC<sub>1-3</sub> as stout as Ve and Sci; DC<sub>1-2</sub> subequal in length, shorter than DC<sub>3</sub>; hysterosoma tuberculate-rugose as on propodosoma, with strongly tuberculate dorsocentral area (fig. 145, A); ventral surface finely strigate between IC<sub>4</sub> and genital setae; intercoxal setal area smooth or nearly so; pregenital plate absent; genital flap rudimentary; genital setae short, as long as pregenitals, paired laterally, with inner pair inserted much posterior to outer pair; two pairs of anal setae on prominent tubercles (fig. 145, B); dorsal setae on femora I and II stout, nearly as long as width of segments, dorsal surface tuberculate-rugose; tarsal claws uncinata; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/0; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 4/4/3/3. Length 286-300, width 144-150.

Male.--Similar to female except for sexual differences; palpus with spur-like dorsal seta (fig. 145, D); hysterosomal DC<sub>1</sub> branched (fig. 145, E); genital and anal setae stout, with anals on much stronger and prominent tubercles than in female (fig. 145, F). Length 246-264, width 120-126.

Deutonymph.--Propodosomal setae Ve, Sci, and Sce whiplike, longer than

width of body; hysterosomal setae L<sub>1-3</sub> and L<sub>6</sub> rodlike, with pointed tips, subequal in length, slightly shorter than distance between bases of setae; L<sub>4</sub> whiplike, as long as propodosomals; L<sub>5</sub> slender, 1/2 as long as L<sub>6</sub>; DC<sub>1-3</sub> similar to L<sub>1-3</sub>; propodosoma and hysterosoma slightly rugose (fig. 145, G).

Specimens examined.--Holotype (female) and paratypes (four females, seven males, and one deutonymph), ex Achras zapota L. (sapodilla leaves), Puerto Vallarta, Jalisco, May 29, 1957 (D. De Leon).

Discussion.--P. macropilis is a distinctive species. The long, stout dorsal setae Ve, Sci, and DC<sub>1-3</sub>, the anal setae on prominent tubercles, as well as branched DC<sub>1</sub> of the male, immediately separate macropilis. The deutonymph is also highly distinctive in having whiplike dorsal setae Ve, Sci, Sce, and L<sub>4</sub>.

#### Genus PSEUDOLEPTUS Bruyant

Pseudoleptus Bruyant, 1911: 340; Pritchard and Baker, (1951) 1952: 6; 1958: 184; Baker and Pritchard, 1952: 112; Mitrofanov, 1973b: 1317; Meyer, 1979: 128. Type-species: Pseudoleptus arechavaletae Bruyant, by monotypy.

Diagnosis.--Palpus four- to five-segmented, with one seta on second segment and two to three setae on distal segment; rostral shield; three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with seven pairs of lateral setae (L<sub>1-7</sub>), two pairs of dorsolateral setae (DL<sub>1-2</sub>), and three pairs of dorsocentral setae (DC<sub>1-3</sub>); pregenital plate indistinct; genital flap well developed; one pair of pregenital and two pairs of genital setae; three pairs of anal setae and two pairs of intercoxal setae, IC<sub>3</sub> and IC<sub>4</sub>, both pairs on hysterosoma; tarsal claws padlike, with inner row of short tenent hairs and one long apical outer hair. Body form elongate oval.

Discussion.--Pseudoleptus palustria Pritchard and Baker is the only species in Mexico.

Pseudoleptus palustria Pritchard and Baker  
(Fig. 146, A-D)

Pseudoleptus palustria Pritchard and Baker, (1951) 1952: 7; 1958: 185; Baker and Tuttle, 1964: 30; Meyer, 1979: 128.

Female.--Rostrum extending beyond middle of femur I; palpus five-segmented, with three setae on distal segment (fig. 146, C); rostral shield bifurcate, with thin pointed prongs; propodosomal setae slender, finely serrate, about 1/2 as long as distance between bases of Ve; propodosoma rugose, with three-lobed sculptured areas posteriorly (fig. 146, A); hysterosomal setae L<sub>1-3</sub>, DL<sub>1-2</sub>, and DC<sub>1-3</sub> shorter and weaker than propodosomals and posterior laterals, nude; L<sub>4-7</sub> strong, similar to propodosomals except for length, with L<sub>6</sub> being longest of dorsal setae (fig. 146, A); DC<sub>3</sub> inserted far apart, not in line with DC<sub>1-2</sub>; hysterosoma mostly smooth (fig. 146, A); pregenital plate indistinct, rugose; genital flap smooth; genital setae slightly longer than pregenitals, paired laterally; area immediately posterior to IC<sub>4</sub> subareolate; intercoxal setal area corrugated or fluted (fig. 146, B); IC<sub>4</sub> as long as IC<sub>3</sub>, both setae short, not much longer than pregenitals; spermatheca ovoid (fig. 146, C); medial pair of anal setae nude, longer than serrate anterior and posterior pairs; dorsal setae on femora and genua I and II similar to propodosomals, about as long as width of segments; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/0/0; tibia - 4/4/3/3. Length 285, width 131.

Variation.--Length 284-363, width 143-176.

Male.--Similar to female except for



sexual differences; propodosoma striate-rugose, with smooth dorsocentral area; hysterosoma gradually tapering posteriorly, with microtuberculate striae between metapodosomal and opisthosomal regions (fig. 146, D). Length 237-267, width 112-132.

Specimens examined.--Holotype (female), ex Distichlis spicata (L.) Greene, Davis, Calif., September 26, 1950 (H. E. Cott and A. E. Pritchard); 12 females and 4 males, ex Distichlis stricta (Torr.) Rydb., Hermosillo, Sonora, July 18, 1970 (T.B.A.); 5 females, ex Sporobolus flexuosus (Thurb.) Rydb., Torreón, Coahuila, August 5, 1970 (T.B.A.).

Discussion.--P. palustria is characterized by having a five-segmented palpus, a bifurcate rostral shield, and the obovate spermatheca of the female. The male is distinguished by the very small rostral shield and microtuberculate striae between the metapodosoma and the opisthosoma (fig. 146, D).

#### SUBFAMILY TENUIPALPINAE

#### Genus TENUIPALPUS Donnadieu

Tenuipalpus Donnadieu, 1875: 111;  
Baker and Pritchard, 1953: 317;  
Pritchard and Baker, 1958: 235;  
Meyer, 1979: 3. Type-species:  
Tenuipalpus palmatus Donnadieu=  
Trombidium caudatus Duges, 1834, by  
subsequent designation of Vitzthum  
(1929).

Colopalpus Pritchard and Baker, 1958:  
258; Baker and Tuttle, 1972: 34;  
Collyer, 1973: 529; Meyer, 1979: 3  
(syn.). Type-species: Colopalpus  
matthyssei Pritchard and Baker, by  
original designation.

Diagnosis.--Palpus one- to three-segmented, with one or two setae on distal segment; rostral shield; three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with six to seven pairs of lateral setae ( $L_{1-5,6,7}$ ),

including one pair of whiplike setae and with one to three pairs of dorsocentral setae ( $DC_{1-3}$ ); without dorsolateral setae; pregenital plate absent; genital flap rudimentary, with distinct posterior margin, with one pair of pregenital and two pairs of genital setae; one to three pairs of intercoxal setae  $IC_3$  on posterior margin of propodosoma and one to six pairs of intercoxal setae  $IC_4$  on hysterosoma; two pairs of anal setae; without postanal setae; tarsal claws padlike; tarsi I and II blunt distally; number of leg setae variable. Body form ovate, with or without pinched hysterosoma; sexual dimorphism may be pronounced, with male opisthosoma considerably smaller and narrower than in female.

Discussion.--Tenuipalpus appears to be widely distributed, especially in the tropical areas of the world. It is composed of many heterogeneous species, which can be assigned to species groups. Based primarily on the number of lateral setae on the hysterosoma, the species are grouped as follows: (1) caudatus group - hysterosoma with seven pairs of lateral setae ( $L_{1-7}$ ), and (2) proteae group - hysterosoma with six pairs of lateral setae ( $L_{1-6}$ ). In this publication, the Mexican species in the caudatus group are assigned to three subgroups based on the number of intercoxal setae  $IC_3$  and  $IC_4$ ; These are (a) bakeri subgroup - with two pairs of  $IC_3$  and one pair of  $IC_4$ ; (b) annonae subgroup - with one pair of  $IC_3$  and two pairs of  $IC_4$ ; and (c) anoplus subgroup - with one pair each of  $IC_3$  and  $IC_4$ . Members of the proteae group are not found in Mexico. There are 18 previously described and 2 new species of Tenuipalpus from Mexico, totaling 20.

KEY TO MEXICAN SPECIES  
OF TENUIPALPUS

1. Hysterosoma with seven pairs of lateral setae  
(L<sub>1-7</sub>) (caudatus group)----- 2
- Hysterosoma with six pairs of lateral setae  
(L<sub>1-6</sub>) (proteae group)-----Not found in Mexico
- 2 (1). With one pair of IC<sub>3</sub>; one or two pairs of  
IC<sub>4</sub>----- 3
- With two pairs of IC<sub>3</sub>, inner pair shorter than  
outer part; one pair of IC<sub>4</sub> (bakeri subgroup)--- 18
- 3 (2). With two pairs of IC<sub>4</sub> (annonae subgroup)-----  
-----annonae De Leon (p. 122)
- With one pair of IC<sub>4</sub> (anoplus subgroup)----- 4
- 4 (3). Palpus one-segmented-----unimerus De Leon (p. 132)
- Palpus two- or three-segmented----- 5
- 5 (4). Palpus two-segmented----- 6
- Palpus three-segmented----- 7
- 6 (5). Genu III without seta; dorsum of propodosoma and  
hysterosoma smooth, not sculptured; opisthosoma  
broadly rounded posteriorly; L<sub>3-5</sub> and L<sub>7</sub>  
elliptic-----kapoki De Leon (p. 128)
- Genu III with one seta; dorsum of propodosoma and  
hysterosoma sculptured; opisthosoma tapered pos-  
teriorly; L<sub>3-5</sub> and L<sub>7</sub> elongate oblanceolate-----  
-----lucumae De Leon (p. 129)
- 7 (5). Femur IV without seta----- 8
- Femur IV with one seta----- 9
- 8 (7). Trochanter III with two setae; genua I and II  
setae leaflike, same form and size; hysterosoma  
with gradually narrowing opisthosoma-----  
-----dasples Baker and Pritchard (p. 128)
- Trochanter III with one seta; genua I and II setae  
unequal in form and size; hysterosoma with  
abruptly narrowed opisthosoma-----  
-----chamaedoreae, n. sp. (p. 125)
- 9 (7). Trochanter III with two setae----- 10
- Trochanter III with one seta----- 14
- 10 (9). Genua I and II each with two setae----- 11
- Genua I and II each with three setae----- 12
- 11 (10). Femur II with three setae; hysterosoma pinched  
at metapodosomal area, with abruptly narrowed  
opisthosoma; L<sub>3-5</sub> and L<sub>7</sub> leaflike, lanceo-  
late-----crescientiae De Leon (p. 127)
- Femur II with four setae; hysterosoma not pinched,  
barely narrowing posteriorly; L<sub>3-5</sub> and L<sub>7</sub>  
slender, almost hairlike--burserae De Leon (p. 124)
- 12 (10). Dorsum of propodosoma and hysterosoma lightly ru-  
gose; hysterosoma with abruptly narrowed opis-  
thosoma; Sci and Sce stout, rodlike-----  
-----uvae De Leon (p. 132)
- Dorsum of hysterosoma and propodosoma strongly  
rugose or corrugated; hysterosoma not narrowed;  
Sci and Sce slender or leaflike----- 13
- 13 (12). Ve, Sci, and most of hysterosomal setae spatulate;  
ventral setae except IC<sub>4</sub> pectinate-----  
-----tepicensis De Leon (p. 131)

- Ve, Sci, and all hysterosomal setae except L<sub>6</sub> short and slender, not leaflike; ventral setae nude-----sanblasensis De Leon (p. 129)
- 14 (9). Genua I and II each with two setae; with greatly enlarged dorsal body setae and abruptly narrowed opisthosoma-----coyacus De Leon (p. 126)
- Genua I and II each with one seta; dorsal setae and form of opisthosoma not as above----- 15
- 15 (14). Femur II with three setae-----  
-----tabebuiae De Leon (p. 130)
- Femur II with four setae----- 16
- 16 (15). Tarsi I and II each with seta overlying solenidion-----cedrelae De Leon (p. 125)
- Tarsi I and II each without seta overlying solenidion----- 17
- 17 (16). Sce small, leaflike, subequal in length to L<sub>4-5</sub> and L<sub>7</sub>, tibiae 5/5/2/2-----  
-----anoplus Baker and Pritchard (p. 123)
- Sce long and slender, 2-1/2 times as long as L<sub>4-5</sub> and L<sub>7</sub>, tibiae 5/5/3/3-----  
-----anoplomexus, n. sp. (p. 123)
- 18 (2). Palpus one-segmented; genua I and II each with one seta-----chiclorum De Leon (p. 134)
- Palpus two- or three-segmented; genua I and II each with three setae----- 19
- 19 (18). Palpus two-segmented; with one pair of eyes; DC<sub>1-3</sub> minute-----cocolobicolus De Leon (p. 134)
- Palpus three-segmented; with two pairs of eyes; DC<sub>1-3</sub> leaflike, greatly enlarged----- 20
- 20 (19). Dorsocentral area of propodosoma with distinct honeycomb pattern-----  
-----rhyssus Baker and Pritchard (p. 135)
- Dorsocentral area of propodosoma rugose, not honeycomb-----bakeri McGregor (p. 133)

DESCRIPTION OF SPECIES IN TENUIPALPUS  
CAUDATUS GROUP, T. ANNONAE SUBGROUP

Tenuipalpus annonae De Leon  
(Fig. 147, A-C)

Tenuipalpus annonae De Leon, 1957: 91.

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment (fig. 147, A); rostral shield pointed, deeply cleft, widely parted; propodosomal setae Ve almost hairlike, less than 1/2 as long as distance between bases; Sci and Sce stout, serrate, subequal in length, longer than Ve; propodosoma rugose, with convoluted rugose dorso-central area (fig. 147, A, B); hysterosomal setae L<sub>1-2</sub> shorter and weaker than preceding laterals; L<sub>3-5</sub> and

L<sub>7</sub> as stout as Sci and Sce, subequal in length; L<sub>6</sub> whiplike, slightly shorter than width of body; DC<sub>1</sub> and DC<sub>3</sub> hairlike, DC<sub>2</sub> absent (fig. 147, A); hysterosoma gradually narrowing posteriorly; dorsal surface sculpturing as on propodosoma; ventral surface with transverse lines forming U-pattern posterior to IC<sub>4</sub> and genital area; intercoxal setal area striate, with transverse lines immediately posterior to IC<sub>3</sub>; genital setae about as long as pregenitals, paired laterally, inner pair slightly anterior to outer pair; one pair of IC<sub>3</sub> and two pairs of IC<sub>4</sub>; IC<sub>4</sub> slightly more than two times as long as IC<sub>3</sub> (fig. 147, C); tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter -

1/2/3/1; femur - 4/4/2/1; genu - 2/2/0/0; tibia - 5/5/3/3. Length 289, width 153.

Variation.--Length 274-291, width 142-165.

Male.--Similar to female except for sexual differences. Length 245, width 142.

Specimens examined.--Holotype (female) and paratypes (three females), ex Annona sp., Matias Romero, Oaxaca, January 30, 1957 (D. De Leon); four females and one male, same host as types, Tuxtla Gutierrez, Chiapas and San Blas, Nayarit, January 20 and March 28, 1957 (D. De Leon). The specimens of nymphs collected by De Leon, presumably of this species, are in very poor condition.

Discussion.--T. annonae is distinguished by having one pair of intercoxal setae IC<sub>3</sub>, two pairs of IC<sub>4</sub>, and two pairs of dorsocentrals (DC<sub>1</sub> and DC<sub>3</sub>). No other species possesses this combination of characters.

#### DESCRIPTIONS OF SPECIES IN TENUIPALPUS CAUDATUS GROUP, T. ANOPLUS SUBGROUP

##### Tenuipalpus anoplomexus, new species (Fig. 148, A, B)

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment; rostral shield pointed, deeply cleft medially; propodosomal setae Ve and Sci minute, scarcely discernible, less than two times as long as diameter of bases; Sce long and slender, serrate, about as long as distance between bases of Ve; propodosoma with rounded anterolateral margin, slightly widened posteriorly; dorsal surface strongly rugose or corrugated, especially on dorsocentral area (fig. 148, A); hysterosomal setae L<sub>1-2</sub> similar to Ve and Sci; L<sub>3-5</sub> and L<sub>7</sub> heavier and slightly longer than L<sub>1-2</sub>; L<sub>6</sub> whiplike, about 2/3 as long as width

of body; DC<sub>1-3</sub> minute, scarcely discernible, DC<sub>3</sub> very close to each other; hysterosoma pinched at metapodosomal area, gradually narrowed posteriorly; dorsal surface strongly rugose as on propodosoma (fig. 148, A); ventral surface finely strigate; genital setae as long as pregenitals, about equidistant from each other, inner pair slightly anterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora and genua I and II slender; tarsi I and II each without seta overlying solenidion (fig. 148, B); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/1; genu - 1/1/0/0; tibia - 5/5/3/3. Length 300, width 166.

Male.--Not known.

Holotype.--Female, ex Swietenia macrophylla King, north of Tehuantepec, Oaxaca, January 31, 1957 (D. De Leon).

Paratypes.--Two females, with same data as holotype; six females, ex Swietenia humilis Zucc., Tuxtla Gutierrez, Chiapas, January 14, 1957 (D. De Leon). Length 262-291, width 160-171.

Discussion.--The dorsal surface sculpturing is similar to that of anoplus, and both species have the same number of leg setae, including lack of seta overlying the solenidion on tarsi I and II, and minute dorsal setae Ve, Sci, L<sub>1-2</sub>, and DC<sub>1-3</sub>. T. anoplomexus, however, is distinguished by the long and slender setae Sce; these setae are short, sublanceolate in anoplus. Also there are differences in the detailed sculpturing of the propodosoma.

##### Tenuipalpus anoplus Baker and Pritchard (Fig. 149, A, B)

Tenuipalpus anoplus Baker and Pritchard, 1953: 320; De Leon, 1957: 92; Pritchard and Baker, 1958: 239.

Female.--Rostrum extending to basal 1/3 of femur I; palpus three segmented,

with one seta on distal segment; rostral shield pointed, deeply cleft medially; propodosomal setae Ve and Sci minute, about two times as long as diameter of bases; Sce small, sublanceolate, serrate, about 1/3 as long as distance between bases of Ve; propodosoma with rounded anterolateral margin, slightly widened posteriorly; dorsal surface rugose, with longitudinal ridges on dorsolateral areas (fig. 149, A); hysterosomal setae L<sub>1-2</sub> and DC<sub>1-3</sub> minute, similar to Ve and Sci; L<sub>4-5</sub> and L<sub>7</sub> sublanceolate, as large as Sce; L<sub>3</sub> smaller than preceding setae; L<sub>6</sub> whiplike, about 1/2 as long as width of body; hysterosoma slightly pinched at metapodosomal area, gradually narrowing posteriorly; dorsal surface rugose as on propodosoma (fig. 149, A); ventral surface finely strigate; genital setae as long as pregenitals, equidistant from each other, inner pair slightly anterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; setae on femora I and II similar to Sce; those on genua I and II slender; tarsi I and II each without seta overlying solenidion (fig. 149, B); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/1; genu - 1/1/0/0; tibia - 5/5/2/2. Length 273, width 176.

Variation.--Length 262-291, width 171-182.

Male.--Not known.

Specimens examined.--Holotype (female), ex Swietenia mahogani (L.) Jacq., Coconut Grove, Fla., February 15, 1949 (O. D. Link); four females, ex Swietenia macrophylla King and S. humilis Zucc., Tuxtla Gutierrez, Chiapas, January 18 and 21, 1957 (D. De Leon).

Discussion.--T. anoplus is similar in appearance to anoplomexus. It is distinguished by the small, leaflike setae Sce, L<sub>4-5</sub>, and L<sub>7</sub>, by the distinctive dorsolateral ridges on the propodosoma, and by the absence of a seta overlying the solenidion on tarsi I and II.

Tenuipalpus burserae De Leon  
(Fig. 150, A-C)

Tenuipalpus burserae De Leon, 1957:  
90; Meyer, 1979: 7.

Female.--Rostrum extending near apex of femur I; palpus three-segmented, with one seta on distal segment (fig. 150, C); rostral shield deeply notched medially; propodosomal setae almost hairlike, Ve and Sci shorter than Sce, subequal in length, about 1/4 as long as distance between bases of Ve; Sce 1/3 longer than Ve and Sci; all setae nude; propodosoma with rounded anterolateral margin; dorsal surface entirely rugose (fig. 150, A); hysterosomal setae L<sub>1-2</sub> and DC<sub>1-3</sub> similarly developed, hairlike, about as long as Ve and Sci; L<sub>3-5</sub> and L<sub>7</sub> slightly heavier and longer than L<sub>1-2</sub>; L<sub>6</sub> whiplike, about 1/2 as long as width of body; DC<sub>3</sub> very close to each other; hysterosoma without lateral lobes, barely narrowing posteriorly; dorsal surface more rugose than on propodosoma (fig. 150, A), with transverse folds between DC<sub>2</sub> and DC<sub>3</sub>; ventral surface finely strigate on pregenital and genital area, striate at intercoxal setal area; genital setae as long as pregenitals, paired laterally, inner pair anterior to outer pair; one pair each of intercoxal setae IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora I and II similar to body setae; tarsi I and II each with seta overlying solenidion (fig. 150, B); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 2/2/0/0; tibia - 5/5/3/3. Length 276, width 143.

Variation.--Length 257-291, width 137-148.

Male.--Not known.

Protonymph.--Same dorsal setae as female.

Specimens examined.--Holotype (female) and paratypes (five females and one protonymph), ex Bursera sp., Ocozocoatla, Chiapas, January 28, 1957 (D. De Leon).

Discussion.--This species resembles sanblasensis most closely in body form, but the dorsal body setae and sculpturing are very different in the two species. T. burserae is recognized by having slender, almost hairlike body setae, as well as femora and genua I and II setae, and by having four setae on femur II and one on IV.

Tenuipalpus cedrelae De Leon  
(Fig. 151, A, B)

Tenuipalpus cedrelae De Leon, 1957:  
90; Meyer, 1979: 8.

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment; rostral shield conical, pointed, deeply cleft medially; propodosomal setae Ve and Sci short and slender, about 1/3 as long as distance between bases of Ve; Sce rodlike, with pointed tips, about four times as long as Ve, finely serrate; propodosoma with rounded anterolateral margin, scarcely widened posteriorly; dorsal surface entirely rugose, with narrow longitudinal ridges on dorsolateral areas (fig. 151, A); hysterosomal setae L<sub>1-5</sub> and L<sub>7</sub> similar to Ve and Sci; L<sub>6</sub> whiplike, about 1/2 as long as width of body; DC<sub>1-3</sub> smaller than laterals, with DC<sub>3</sub> very close to each other; hysterosoma barely narrowing posteriorly; dorsal surface entirely rugose as on propodosoma (fig. 151, A) except rugose area on metapodosoma separated from that of opisthosoma; ventral surface finely strigate; genital setae as long as pregenitals, equidistant from each other, inner pair anterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; dorsal setae on femora I and II more robust than genual setae; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/1; genu - 1/1/0/0; tibia - 5/5/3/3. Length 272, width 155.

Variation.--Length 257-285, width 143-165.

Male.--In poor condition. De Leon (1957) stated, "resembles female, but second dorsal propodosomals and dorsocentrals somewhat longer and coarser. Length 217, width 128."

Deutonymph.--Rostrum very small, covered by propodosomal shield; dorsal setae Ve very small, about 1/4 as long as distance between bases; Sci, L<sub>1</sub>, and DC<sub>1-2</sub> stout, ensiform, and serrate, 1/2 to 2/3 as long as Sce; Sce slender, rodlike, tapering to pointed tips, serrate, longer than distance between bases of Ve; L<sub>2-5</sub> and L<sub>7</sub> short, sublanceolate, serrate, 1/2 to 2/3 as long as L<sub>1</sub> and DC<sub>1-2</sub>; L<sub>6</sub> whiplike, about as long as width of opisthosoma; dorsocentrals DC<sub>3</sub> minute, barely seen (fig. 151, B); dorsal surface of body between legs II and III with subrugose propodosoma and hysterosoma posterior to DC<sub>2</sub>.

Protonymph and larva.--With dorsal setae similar to deutonymph.

Specimens examined.--Holotype (female) and paratypes (12 females, 8 deutonymphs, 2 protonymphs, and 2 larvae), ex Cedrela sp., San Blas, Nayarit, March 28 and April 19, 1957 (D. De Leon).

Discussion.--T. cedrelae is characterized by the rodlike propodosomal setae Sce, by equally small hysterosomal setae, and by the entirely rugose dorsal surface of propodosoma and hysterosoma. The number of setae on femur II and the presence of a seta overlying the solenidion on tarsi I and II should separate cedrelae from its close relatives. The stout dorsal setae Sci, L<sub>1</sub>, and DC<sub>1-2</sub> of the deutonymph are highly distinctive.

Tenuipalpus chamaedoreae, new species  
(Fig. 152, A-C)

Female.--Rostrum extending to base of femur I; palpus three-segmented, with one seta on distal segment (fig. 152, B); rostral shield deeply cleft, with ancillary lobes; propodosomal setae Ve very small or minute compared with

leaflike, greatly enlarged setae Sci and Sce--these setae elongate elliptic, with acuminate tips, serrate, as long as distance between bases of Sci (fig. 152, A); propodosoma with anterolateral lobes, widening posteriorly, with strongly rugose dorsocentral area (fig. 152, A); hysterosomal setae L<sub>1</sub>, L<sub>4-5</sub>, and L<sub>7</sub> leaflike, elliptic or obovate, about 1/3 smaller than Sci and Sce; L<sub>2-3</sub> very small, lanceolate, slightly larger than Ve; L<sub>6</sub> whiplike, about 2/3 as long as width of body; DC<sub>1-3</sub> leaflike, as large as L<sub>4-5</sub> and L<sub>7</sub>; hysterosoma with lateral lobes on metapodosomal area, abruptly narrowed opisthosoma; dorsal surface entirely rugose (fig. 152, A); ventral surface entirely strigate (fig. 152, C); genital setae as long as pregenitals, paired laterally, inner pair posterior to outer pair; one pair each of IC<sub>4</sub> and IC<sub>3</sub>; IC<sub>4</sub> three times as long as IC<sub>3</sub>; tarsi I and II each with seta overlying solenidion; both setae on femora I and II leaflike, spatulate, about as long as width of segments; genua I and II setae unequal in size and form, one slender and one leaflike; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/0; genu - 2/2/0/0; tibia - 5/5/3/3. Length 382, width 194.

Male.--Not known.

Holotype.--Female, ex Chamaedorea sp., Mexico intercepted at New York City quarantine station, March 10, 1975 (D. Walters).

Discussion.--This species is close to dasples and coyacus in having large, leaflike dorsal setae Sci and Sce, dorsocentrals DC<sub>1-3</sub>, and similar body form. T. chamaedoreae is distinguished by the different size and form of setae on genua I and II and by the number of setae on trochanter III and femur III. The dorsal surface sculpturing is also highly distinctive in chamaedoreae.

Tenuipalpus coyacus De Leon  
(Fig. 153, A-C)

Tenuipalpus coyacus De Leon, 1957: 83.

Female.--Rostrum extending to basal 1/4 of femur I; palpus three-segmented, with one seta on distal segment (fig. 153, B); rostral shield pointed, deeply cleft medially; propodosomal setae Ve very small, not more than three times as long as diameter of bases; Sci and Sce greatly enlarged, leaflike, elongate lanceolate or ensiform, serrate, as long as distance between bases of Sci (fig. 153, A); propodosoma with lobed anterolateral and posterolateral margins, gradually widened posteriorly; dorsal surface rugose, with strongly rugose or corrugated dorsocentral area (fig. 153, A); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> leaflike, obovate, much smaller than Sci and Sce; L<sub>1</sub> largest of leaflike laterals; L<sub>2</sub> very small, sublanceolate, not much larger than Ve; L<sub>6</sub> whiplike, about 2/3 as long as width of body; DC<sub>1-3</sub> leaflike, much larger than L<sub>3-5</sub> and L<sub>7</sub>; hysterosoma with lateral lobes pinched at metapodosomal area and greatly narrowed opisthosoma (fig. 153, A); dorsal surface strongly rugose as on propodosoma; ventral surface with short, transverse striae on pregenital and genital area, punctation at intercoxal setal area; genital setae slightly longer and stouter than pregenitals, equidistant from each other, arranged in transverse row; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora and genua I and II leaflike, various size and form; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/1; genu - 2/2/1/0; tibia - 5/5/3/3. Length 362, width 188.

Variation.--342-370, width 182-199.

Male.--Similar to female except for sexual differences; dorsal setae Sci more slender and nearly two times as long as Sce; L<sub>1</sub>, L<sub>3-5</sub>, L<sub>7</sub>, and

DC<sub>1-3</sub> much smaller than in female; opisthosoma greatly narrowed, with parallel sides (fig. 153, C). Length 296-313, width 153-154.

Protonymph.--Similar to female except dorsal setae Ve and dorsocentrals DC<sub>1-3</sub> minute and Sci expanded, slightly larger than Sce.

Specimens examined.--Holotype (female) and paratypes (one female, two males, and one protonymph), ex coconut palm, San Blas, Nayarit, March 28, 1957 (D. De Leon); one female, ex grass, San Blas, Nayarit, May 15, 1957 (D. De Leon).

Discussion.--T. coyacus is characterized by the greatly enlarged dorsal setae Sci, Sce, and DC<sub>1-3</sub> and by the greatly narrowed opisthosoma. It generally resembles chamaedoreae, from which coyacus differs by the number of setae on the femur and genu. See remarks under chamaedoreae.

Tenuipalpus crescentiae De Leon (Fig. 154, A, B)

Tenuipalpus crescentiae De Leon, 1957: 88.

Female.--Rostrum extending beyond middle of femur I; palpus three-segmented, with one seta on distal segment (fig. 154, B); rostral shield pointed, deeply cleft, and widely parted; propodosomal setae Ve and Sci minute, about two times as long as diameter of bases; Sce stout, ensiform or linear, serrate, as long as distance between bases of Ve; propodosoma with angular anterolateral margin, gradually widened posteriorly; dorsal surface strongly rugose on dorsocentral area (fig. 154, A); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> leaflike, lanceolate, serrate, subequal in length, about 2/3 as long as Sce; L<sub>6</sub> whiplike, about 1/2 as long as width of body; L<sub>2</sub> minute, similar to Ve and Sci; DC<sub>1-3</sub> larger than L<sub>1</sub>, sublanceolate, DC<sub>1</sub> slightly longer than DC<sub>2-3</sub>; DC<sub>2</sub> close to each other but DC<sub>1</sub> and DC<sub>3</sub> more widely separated from each

other; hysterosoma pinched at metapodosomal area, with narrow opisthosoma and rounded lateral lobes; dorsal surface rugose, with sculptured pattern as figured (fig. 154, A); ventral surface finely strigate; genital setae as long as pregenitals, paired laterally, inner pair anterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; dorsal setae on femora I and II stout, sublanceolate; genua I and II setae slender, subequal in length; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/3/2/1; genu - 2/2/1/0; tibia - 5/5/3/3. Length 275, width 161.

Variation.--Length 257-285, width 159-165.

Male.--Not known.

Deutonymph.--Similar to female except DC<sub>1</sub> very long, whiplike, about as long as width of body; or one seta may be minute; DC<sub>2-3</sub> minute as in female.

Protonymph.--Similar to deutonymph, also with variable DC<sub>1</sub>.

Larva.--Similar to protonymph, also with variable DC<sub>1</sub>.

Specimens examined.--Holotype (female) and paratypes (four females, one deutonymph, one protonymph, and two larvae), ex Parmentiera alata Miers., San Blas, Nayarit, April 8, 1959 (D. De Leon).

Discussion.--This species bears a strong resemblance to tabebuiae. T. crescentiae is distinguished by the number of setae on the trochanter and genu and by the close dorsocentrals DC<sub>2</sub> and widely separated DC<sub>1</sub> and DC<sub>3</sub>, as well as by the dorsal surface sculpturing. The very long DC<sub>1</sub> of the immatures, although variable in length, are highly characteristic of the species.



Tenuipalpus dasples Baker and Pritchard  
(Fig. 155, A-C)

Tenuipalpus dasples Baker and  
Pritchard, 1953: 324; De Leon, 1957:  
92; Pritchard and Baker, 1958: 246;  
Baker, Tuttle, and Abbatiello, 1975:  
4; Meyer, 1979: 8.

Female.--Rostrum very small, covered by propodosomal shield; palpus three-segmented, with one seta on distal segment (fig. 155, B); rostral shield deeply cleft, with ancillary lobes; propodosomal setae Ve very small or minute compared with Sci and Sce; these latter setae greatly enlarged, leaflike, ovate or elliptic, with acuminate or acute tips, serrate, about 2/3 as long as distance between bases of Sci; propodosoma with anterolateral lobes, widened posteriorly; dorsal surface rugose, with convoluted rugose dorsocentral area (fig. 155, A); hysterosomal setae L<sub>1</sub>, L<sub>4-5</sub>, and L<sub>7</sub> broadly leaflike, elliptic to broadly fan-shaped, slightly shorter than Sci and Sce; L<sub>2</sub> smaller than L<sub>3</sub>, both setae spatulate and considerably smaller than other laterals; L<sub>6</sub> whiplike, about 2/3 as long as width of body; DC<sub>1-3</sub> broadly leaflike, as large as L<sub>4-5</sub> and L<sub>7</sub>; hysterosoma with lateral lobes on metapodosomal area, opisthosoma gradually narrowing; dorsal surface rugose, with strongly rugose dorso-central area as on propodosoma (fig. 155, A); ventral surface entirely finely strigate; genital setae slightly longer than pregenitals, paired laterally, inner pair posterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; tarsi I and II each with seta overlying solenidion; all setae on femora and genua I and II leaflike; that on femora large and unequal in size, on genua subequal in size; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/1/0; genu - 2/2/0/0; tibia - 5/5/3/3. Length 333, width 220 (Baker and Pritchard, 1953).

Male and deutonymph.--Not seen.

Specimens examined.--Holotype (female), ex Sabal megacarpa Small, Oviedo, Fla., April 19, 1950 (O. D. Link). A series of female specimens, ex Sabal sp. and Chamaedorea sp., from Mexico, that were previously examined were lost.

Discussion.--This species is close to chamaedoreae, but dasples is distinguished by having two setae on trochanter III and equally leaflike setae on genua I and II. The dorsal surface sculpturing is also very distinctive in dasples.

Tenuipalpus kapoki De Leon  
(Fig. 156, A-C)

Tenuipalpus kapoki De Leon, 1957: 89;  
Meyer, 1979: 7.

Female.--Rostrum barely extending to middle of femur I; palpus two-segmented, with one seta on distal segment (fig. 156, B); rostral shield pointed, deeply cleft, with ancillary lobes; propodosomal setae Ve and Sci minute, about two times as long as diameter of bases; Sce leaflike, broadly lanceolate, serrate, as long as distance between bases of Ve; propodosoma with angular anterolateral margin, widened posteriorly; dorsal surface smooth (fig. 156, A); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> leaflike, of varying forms; L<sub>1</sub> broadly obovate to fan-shaped, shorter than L<sub>3-5</sub>; L<sub>1-5</sub> and L<sub>7</sub> elliptic, slightly shorter than Sce; L<sub>2</sub> and DC<sub>1-3</sub> minute; L<sub>6</sub> whiplike, about 1/2 as long as width of body; hysterosoma without pronounced lobes, pinched at metapodosomal area, with narrowing opisthosoma and broadly rounded posterior margin; ventral surface finely strigate; genital setae as long as pregenitals, equidistant from each other, inner pair anterior to outer pair or may be arranged in transverse row; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora and genua I and II leaflike, of varying size and form; tarsi I and II each with seta overlying solenidion (fig. 156, C); leg setal count as follows: Coxa -

2/2/1/1; trochanter - 1/1/2/1; femur - 3/3/2/0; genu - 2/2/0/0; tibia - 5/5/3/2. Length 285, width 154.

Male.--Not known.

Deutonymph.--Similar to female.

Specimens examined.--Holotype (female) and paratypes (one female and two deutonymphs), ex Ceiba pentandra (L.) Gaertn., Tuxtla Gutierrez, Chiapas, January 18, 1957 (D. De Leon); two females and one deutonymph, same host as types, nr Kingston, Jamaica, November 19, 1963 (D. De Leon).

Discussion.--This is one of the two Mexican species in the caudatus group with two-segmented palpus, resembling lucumae in this respect. The body form, nearly smooth dorsal surface of the propodosoma and hysterosoma, and the fewer number of setae on femur (3/3/2/0) distinguish kapoki from lucumae.

Tenuipalpus lucumae De Leon  
(Fig. 157, A, B)

Tenuipalpus lucumae De Leon, 1957: 84;  
Meyer, 1979: 5.

Female.--Rostrum extending to basal 1/4 of femur I; palpus two-segmented, with one seta on distal segment (fig. 157, B); rostral shield deeply cleft, with ancillary lobes; propodosomal setae Ve and Sci very small, not more than three times as long as diameter of bases; Sce greatly enlarged, leaflike, broadly lanceolate (fig. 157, A); propodosoma with anterolateral lobes, gradually widened posteriorly; dorsal surface lightly rugose but with distinct sculptured pattern (fig. 157, A); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> leaflike, enlarged but not as large as Sce; L<sub>1</sub> obovate or fan-shaped; L<sub>3-5</sub> oblanceolate, longer than L<sub>1</sub>; L<sub>7</sub> oblanceolate, with acuminate tips, smallest of leaflike laterals; L<sub>6</sub> whiplike, about 2/3 as long as width of body; DC<sub>1-3</sub> and L<sub>2</sub> very small or minute, not much larger than Ve and Sci;

hysterosoma with lateral lobes at metapodosomal area and gradually tapering opisthosoma; dorsal surface with sculptured pattern similar to that of propodosoma; ventral surface finely strigate; genital setae nearly as long as pregenitals, paired laterally, inner pair slightly posterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora and genua I and II leaflike; those on femora nearly as large as some laterals; genu I setae equal in size; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 328, width 258.

Variation.--Length 296-314, width 234-239.

Male.--Similar to female except for sexual differences. Length 257, width 177.

Deutonymph.--Propodosoma with pronounced anterolateral lobe and same type of setae as in female.

Specimens examined.--Holotype (female) and paratypes (five females and one male), ex Lucuma salisifolia H.B.K., Tuxtla Gutierrez, Chiapas, January 18, 1957 (D. De Leon); two females, one male, and one deutonymph, with same data as types.

Discussion.--The two-segmented palpus relates lucumae to kapoki, but the sculptured dorsal surface of the propodosoma and hysterosoma, the presence of one seta on genu III, and the tapered opisthosoma separate lucumae very easily.

Tenuipalpus sanblasensis De Leon  
(Fig. 158, A-C)

Tenuipalpus sanblasensis De Leon,  
1957: 89; Meyer, 1979: 6.

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment;

rostral shield pointed, deeply cleft medially; propodosomal setae Ve, Sci, and Sce short and slender, subequal in length, about 1/5 as long as distance between bases of Ve; propodosoma with rounded anterolateral margin; dorsal surface strongly rugose or corrugate, with longitudinal rugose median furrow (fig. 158, A); hysterosomal setae L<sub>1-5</sub>, L<sub>7</sub>, and DC<sub>1-3</sub> similar to propodosomals; L<sub>6</sub> whiplike, about 2/3 as long as width of body; hysterosoma gradually narrowing posteriorly; dorsal surface strongly rugose as on propodosoma, with prominent ridges on anterior dorsocentral area (fig. 158, A); ventral surface strigate on pre-genital and genital area, striate on intercoxal setal area; genital setae as long as pregenitals, paired laterally, with inner pair slightly anterior to outer pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; all setae on femora and genua I and II short and slender as propodosomals; tarsi I and II each with seta overlying solenidion (fig. 158, B); leg count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/0/0; tibia - 5/5/3/3. Length 270, width 154.

Male.--Not known.

Deutonymph.--As figured, with slender but longer setae than in female (fig. 158, C).

Larva.--With varying lengths of dorsal setae as in deutonymph; dorsal surface of propodosoma with punctate areas; punctation on dorsocentral area forming reticulate pattern.

Specimens examined.--Holotype (female) and paratypes (10 females, 1 deutonymph, and 3 larvae), ex naranjillo (small citrus tree), April 6, 1957 (D. De Leon).

Discussion.--The dorsal sculpturing of the propodosoma and hysterosoma, the similarly short propodosomals Ve, Sci, and Sce, and the two setae on the trochanter III characterize sanblasensis. There is considerable variation in the length of the dorsal

body setae in the deutonymph and larva to be of any taxonomic value.

Tenuipalpus tabebuiae De Leon  
(Fig. 159)

Tenuipalpus tabebuiae De Leon, 1957:  
85; Meyer, 1979: 6.

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment; rostral shield deeply notched medially, pointed; propodosomal setae Ve and Sci very small, not more than three times as long as diameter of bases; Sce stout, longest and strongest of dorsal setae, serrate, longer than distance between bases of Ve; propodosoma with rounded anterolateral margin, gradually widened posteriorly; dorsal surface sculptured, more rugose on dorsocentral area than in lateral areas (fig. 159); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> small but leaflike, lanceolate, serrate, about 1/2 as long as Sce; L<sub>2</sub> and DC<sub>1-3</sub> same size and form as Ve and Sci; DC<sub>3</sub> inserted close to each other; L<sub>6</sub> whiplike, slightly shorter than width of body; hysterosoma pinched at metapodosomal area, with gradually narrowing opisthosoma; dorsal surface rugose, with pattern on metapodosomal area separated from that of opisthosoma (fig. 159); ventral surface with short, transverse lines; genital setae slightly shorter than pregenitals, paired laterally, inner pair anterior to posterior pair; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; dorsal setae on femora I and II narrow leaflike, serrate, 1/2 as long as width of segments; genua I and II setae long and slender; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/3/2/1; genu - 1/1/0/0; tibia - 5/5/3/3. Length 266, width 160.

Variation.--Length 245-285, width 148-182.

Male.--Not known.

Deutonymph.--Similar to female except for more slender dorsal setae Sce, L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub>.

Protonymph.--Similar to deutonymph.

Specimens examined.--Holotype (female), ex Tabebuia pentaphylla (L.) Hemsley, and paratypes (15 females, 2 deutonymphs, and 1 protonymph), ex same host as holotype, Coatzacoala, Vera Cruz, January 8, 1957; Tuxtla Gutierrez, Chiapas, January 11, 1957; Vera Cruz, Vera Cruz, March 3, 1957; Tepic, Nayarit, March 18, 1957; (all by D. De Leon).

Discussion.--This species is characterized by the stout dorsal setae Sce, leaflike setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub>, and dorsal setae on femora I and II. It generally resembles crenatae, from which tabebuiae differs by having one seta on trochanter III and one seta each on genua I and II. The dorsocentral setae DC<sub>3</sub> are close to each other and DC<sub>2</sub> are wide apart in tabebuiae; in crenatae, DC<sub>2</sub> are close to each other, but DC<sub>3</sub> are widely separated. Also the deutonymph and protonymph of crenatae are entirely different from those of tabebuiae.

Tenuipalpus tepicensis De Leon  
(Fig. 160, A-D)

Tenuipalpus tepicensis De Leon, 1957: 85; Meyer, 1979: 8 (as tepicanus).

Female.--Rostrum extending to middle of femur I; palpus three-segmented, with one seta on distal segment; rostral shield conical, deeply cleft medially; propodosomal setae Ve and Sci leaflike, spatulate, serrate, about 1/2 as long as distance between bases of Ve; Sce rodlike or ensiform, about two times as long as Ve and Sci; propodosoma with narrow anterolateral margin; dorsal surface strongly transversely rugose or corrugated, with alternate ridges and furrows (fig. 160, A); hysterosomal setae L<sub>1-5</sub> and L<sub>7</sub> leaflike, subequal in length, nearly as long as Ve and Sci; L<sub>1-2</sub>

and L<sub>7</sub> spatulate, L<sub>3-5</sub> lanceolate; L<sub>6</sub> whiplike, about 2/3 as long as width of body; DC<sub>1-2</sub> spatulate, DC<sub>3</sub> lanceolate and smallest of dorso-centrals, DC<sub>1</sub> largest; hysterosoma gradually narrowing posteriorly; dorsal surface rugose, with pattern similar to that of propodosoma (fig. 160, A); ventral surface with striation pattern as figured (fig. 160, B); both genital and pregenital setae stout and pectinate, subequal in length; genital setae equidistant from each other, arranged in transverse row; one pair each of IC<sub>3</sub> and IC<sub>4</sub>, with IC<sub>3</sub> pectinate as pregenitals and genitals, IC<sub>4</sub> nude; dorsal setae on femora and genua I and II lanceolate or club-shaped; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/1; tibia - 5/5/3/3. Length 317, width 147.

Variation.--Length 296-314, width 148-160.

Male.--Similar to female except for sexual differences, with opisthosoma considerably smaller and narrower than rest of body (fig. 160, C, D); type of setae and dorsal surface sculpturing as in female. Length 274, width 125.

Deutonymph.--Similar to female.

Specimens examined.--Holotype (female) and paratypes (three females, one male, and one deutonymph), ex capulincillo (cherry), San Blas, Nayarit, March 28, 1957 (D. De Leon).

Discussion.--This species is closest to sanblasensis by the dorsal surface sculpturing and body form. Both species have the same number of leg setae except on genua - 3/3/0/0 in sanblasensis and 3/3/1/1 in tepicensis. The pectinate pregenital and genital setae, the transverse arrangement of the genital setae, as well as the form of the dorsal setae, will readily separate tepicensis from other members of the caudatus group.

Tenuipalpus unimerus De Leon  
(Fig. 161, A-C)

Tenuipalpus unimerus De Leon, 1957: 84;  
Meyer, 1979: 6.

Female.--Rostrum extending just before middle of femur I; palpus one-segmented, with one distal seta (fig. 161, B); rostral shield deeply cleft, widely parted, pointed; propodosomal setae Ve and Sci lanceolate, serrate, considerably smaller than Sce, less than 1/2 as long as distance between bases of Ve; Sce stout, linear, serrate, three times as long as Ve and Sci; propodosoma rugose, with strongly or confused rugose dorsocentral area (fig. 161, A); hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> small, leaflike, spatulate, serrate, slightly larger than Ve and Sci; L<sub>2</sub> very small, not more than three times as long as diameter of bases; L<sub>6</sub> very long, whiplike, about 2/3 as long as width of body; DC<sub>1</sub> larger than DC<sub>2-3</sub>; DC<sub>2-3</sub> minute, less than two times as long as diameter of bases; DC<sub>3</sub> very close to each other; hysterosoma gradually narrowing posteriorly; dorsal surface strongly rugose dorsocentrally, with longitudinal rugose median furrow (fig. 161, A); ventral surface between IC<sub>4</sub> and pregenital setae finely strigate, with lines forming circular pattern; pregenital and genital areas finely strigate; intercoxal setal area finely strigate, with striate lines medially; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; genital setae as long as pregenitals, paired laterally (fig. 161, C); only dorsal setae on femora I and II leaflike, spatulate, about 1/2 as long as width of segments; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/0; genu - 1/1/0/0; tibia - 5/5/3/3. Length 286, width 190.

Variation.--268-302, width 182-200.

Male.--Not known.

Specimens examined.--Holotype (female)

and paratypes (four females), ex Persea americana Mill., San Blas, Nayarit, March 31, 1957 (D. De Leon).

Discussion.--The one pair of intercoxal setae IC<sub>4</sub>, the one-segmented palpus, and the strongly rugose dorsocentral areas of both propodosoma and hysterosoma make unimerus unique in the anoplus subgroup.

Tenuipalpus uvae De Leon  
(Fig. 162, A, B)

Tenuipalpus uvae De Leon, 1962: 205;  
Baker, Tuttle, and Abbatiello, 1975:  
5; Meyer, 1979: 7.

Female.--Rostrum extending to basal 1/3 of femur I; palpus three-segmented, with one seta on distal segment (fig. 162, B); rostral shield conical, deeply cleft medially; propodosomal setae Ve minute, barely discernible; Sci and Sce stout, rodlike, serrate, slightly shorter than distance between bases of Ve; propodosoma with rounded anterolateral margin; dorsal surface rugose, with sculptured polygonal design on dorsocentral area (fig. 162, A); hysterosomal setae L<sub>1</sub> and L<sub>3</sub> short, sublanceolate, serrate; L<sub>2</sub> minute; L<sub>4-5</sub> and L<sub>7</sub> rodlike, variable in length, may be as long as Sci and Sce, with L<sub>7</sub> shorter than L<sub>5</sub>; L<sub>6</sub> whiplike, about 1/3 as long as width of body; DC<sub>1</sub> as long as DC<sub>2</sub>, nude; DC<sub>2</sub> serrate, both setae as long as L<sub>1</sub> and L<sub>3</sub>; DC<sub>3</sub> minute, forked distally; hysterosoma abruptly narrowed at opisthosoma; dorsal surface lightly rugose (fig. 162, A); ventral surface finely strigate; genital setae slightly shorter than pregenitals, paired laterally, with inner pair slightly anterior to outer pair or arranged in transverse row; one pair each of IC<sub>3</sub> and IC<sub>4</sub>; dorsal setae on femora I and II stout, rodlike, serrate; genua I and II setae slender and much shorter than femora I and II setae; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 251, width 154.

Variation.--Length 256-291, width 154-181.

Male.--Not known.

Deutonymph.--Similar to female except dorsal setae Sci and Sce longer and stouter, as long as distance between bases of Ve; L<sub>1</sub>, L<sub>3-5</sub>, L<sub>7</sub>, and dorsocentrals DC<sub>1-2</sub> rodlike, similar to Sci and Sce; L<sub>2</sub> and DC<sub>3</sub> minute as in female; dorsal setae on femora I and II rodlike, with pointed tips as in female, except longer than width of segments; those of female shorter than width of segments.

Protonymph.--Similar to deutonymph.

Specimens examined.--Holotype (female) and paratypes (seven females, four deutonymphs, and one protonymph), ex "a large tree (with pinnate leaves and small white flowers in racemes) called uva by the inhabitants," San Blas, Nayarit, May 21, 1957 (D. De Leon).

Discussion.--This species is very distinctive and should not be confused with any presently known species in the Mexican caudatus group. T. uvae is characterized by the rodlike dorsal setae Sci and Sce on the propodosoma, the L<sub>4-5</sub> and L<sub>7</sub> on the hysterosoma, the polygonal sculptured dorsocentral design on the propodosoma, as well as the number of setae on genu (3/3/1/0).

#### DESCRIPTIONS OF SPECIES IN TENUIPALPUS CAUDATUS GROUP, T. BAKERI SUBGROUP

Tenuipalpus bakeri McGregor  
(Fig. 163, A-C)

Tenuipalpus bakeri McGregor, 1949: 7;  
De Leon, 1957: 93; Pritchard and  
Baker, 1958: 248; Baker, Tuttle, and  
Abbatiello, 1975: 5; Meyer, 1979: 9.

Female.--Rostrum barely extending to base of femur I; palpus three-segmented, with two setae on distal segment (fig. 163, B); rostral shield pointed, deeply cleft medially; propodosomal

setae Ve and Sci very small, about 1/5 as long as distance between bases of Ve; Sce greatly enlarged, broadly lanceolate, longer than distance between bases of Ve; propodosoma with lobed anterolateral margin, widened posteriorly; dorsal surface rugose, with dorsocentral area more rugose than lateral areas (fig. 163, A); hysterosomal setae L<sub>1</sub> obovate or fan-shaped, smaller than L<sub>3-5</sub>; L<sub>2</sub> as small as Ve and Sci; L<sub>3-5</sub> and L<sub>7</sub> broadly oblanceolate, with acute tips, slightly shorter than Sce; L<sub>6</sub> whiplike, about 1/2 as long as width of body; DC<sub>1-3</sub> broadly leaflike, elliptic or obovate, slightly larger than L<sub>3-5</sub>; hysterosoma with large lateral lobes at level of L<sub>1</sub>, pinched at metapodosomal area, narrowing posteriorly; dorsal surface much more rugose than propodosoma; ventral surface (fig. 163, C) with strigate intercoxal setal area, becoming substriate posterior to IC<sub>4</sub> to pregenital area; genital setae longer and stouter than pregenitals, inner pair paired medially and much anterior to outer pair; two pairs of IC<sub>3</sub>, one pair of IC<sub>4</sub>; all setae on femora and genua I and II leaflike, varying in size and form; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 308, width 257.

Variation.--Length 279-323, width 251-268.

Male.--Similar to female except for sexual differences and minute dorsal setae DC<sub>1-3</sub>. Length 253, width 209.

Deutonymph.--Similar to female except for slender body setae.

Protonymph.--Similar to deutonymph.

Specimens examined.--Lectotype (female) and paratype (one male), ex Quercus sp., Cocoa Beach, Fla., December 11, 1942 (O. D. Link); one female, ex camellia leaf, Vera Cruz at Brownsville, Texas quarantine station,

January 23, 1950 (O. J. Smith); one female, ex orchid plant, Mexico at Miami, Florida quarantine station, February 16, 1970 (R. L. Haywood). De Leon (1957) tentatively identified specimens as bakeri from the following Mexican localities and hosts: Tamazunchale, San Luis Potosí, ex unknown plants; San Cristobal, Chiapas, ex Arbutus glandulosus Mart. & Gal.; Cordoba, Vera Cruz, ex coffee, Yucca sp., and Tillandsia sp.; San Blas, Nayarit, ex unknown plant. We have not seen these specimens.

Discussion.--This species is closest to rhysus, from which bakeri is easily separated by the rugose dorsocentral area on the propodosoma. This area in rhysus has a distinctly honeycomb design. According to De Leon (1957), the Mexican specimens listed here vary considerably; a female from Vera Cruz has very small inner setae on genua I and II and weaker, more delicate dorsal sculpturing.

Tenuipalpus chiclorum De Leon  
(Fig. 164, A-C)

Tenuipalpus chiclorum De Leon, 1957:  
91.

Female.--Rostrum extending to middle of femur I; palpus one-segmented, with one distal seta (fig. 164, B); rostral shield deeply and broadly notched medially; propodosomal setae Ve and Sci broadly leaflike, obovate, serrate, about as long as distance between bases of Ve; Sci smaller than Ve; Sce stout, ensiform, longer than Ve; propodosoma with anterolateral lobes, gradually widened posteriorly; dorsal surface rugose, with distinctive honeycomb design on dorsocentral area (fig. 164, A), strong ridges on dorsolateral areas; hysterosomal setae L<sub>1-5</sub> and L<sub>7</sub> all leaflike, of varying size and form; L<sub>1-2</sub> spatulate; L<sub>3</sub> slender, sublanceolate; L<sub>4-5</sub> slender spatulate, longer than L<sub>1-3</sub>; L<sub>7</sub> spatulate, as large as L<sub>1</sub>; L<sub>6</sub> whiplike, slightly shorter than width of body; DC<sub>1-3</sub> broadly leaflike, especially DC<sub>1-2</sub> and considerably larger than

laterals; DC<sub>2-3</sub> inserted close to one another (fig. 164, A); hysterosoma gradually narrowing posteriorly; dorsal surface strongly rugose, with small or minute tubercles on dorsocentral area between DC<sub>2</sub> and DC<sub>3</sub>; ventral surface with transverse striae on intercoxal setal area posteriorly to pregenital setae; genital setae slightly longer than pregenitals, inner pair paired medially, arranged in transverse row; two pairs of IC<sub>3</sub>, one pair of IC<sub>4</sub>; dorsal setae on femur I stout, ensiform, other setae and those on femur II rodlike; genua I and II setae slender; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/1/1; femur - 4/4/2/1; genu - 1/1/0/0; tibia - 3/3/1/1. Length 284, width 178.

Male.--Similar to female except for sexual differences and smaller body setae. Length 230, width 130.

Specimens examined.--Holotype (female) and paratypes (two females and one male), ex Achras zapota L., Tuxtla Gutierrez, Chiapas, January 21, 1957 (D. De Leon); one female, with same data as types except ex "limon."

Discussion.--The combination of one-segmented palpus, two pairs of intercoxal setae IC<sub>3</sub>, and sculptured honeycomb design on the propodosoma is a unique characteristic of chiclorum. One female specimen has an unpaired dorsal seta DC<sub>3</sub>, and this seta has migrated medially (fig. 164, C).

Tenuipalpus coccolobicolus De Leon  
(Fig. 165, A-D)

Tenuipalpus coccolobicolus De Leon,  
1956: 58; 1957: 92; Pritchard and  
Baker, 1958: 247; Meyer, 1979: 9.

Female.--Rostrum barely extending to basal 1/4 of femur I; palpus two-segmented, with one seta on distal segment (fig. 165, B); rostral shield pointed, deeply cleft medially, projecting over gnathosoma; propodosomal setae Ve and Sci very small, needlelike, about three

times as long as diameter of bases; Sce sublanceolate, serrate, 1/3 longer than distance between bases of Ve; propodosoma with anterolateral lobes, broadly widened posteriorly, with only one pair of eyes (fig. 165, A); dorsal surface lightly rugose; hysterosomal setae L<sub>1</sub>, L<sub>3-5</sub>, and L<sub>7</sub> leaflike, lanceolate, serrate, 1/2 to 2/3 as long as Sce, with L<sub>1</sub> and L<sub>7</sub> slightly smaller than L<sub>3-5</sub>; L<sub>2</sub> and DC<sub>1-3</sub> minute; L<sub>6</sub> whiplike, about 1/2 as long as width of body; hysterosoma with large lateral lobes at level of L<sub>1</sub>, pinched and abruptly narrowed at metapodosomal area; narrow opisthosoma; dorsal surface lightly rugose as on propodosoma, with sculptured areas on metapodosomal area (fig. 165, A); ventral surface (fig. 165, D) with fairly broadly strigate intercoxal setal area, finely strigate between IC<sub>4</sub> and genital setae and striate between genital and pregenital setae; genital setae as long as pregenitals, equidistant from each other and arranged in transverse row; two pairs of IC<sub>3</sub>, one pair of IC<sub>4</sub>; dorsal setae on femora I and II stout, ensiform; genua I and II setae slender but strong, unequal; tarsi I and II each with seta overlying solenidion (fig. 165, C); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 342, width 308.

Male and protonymph.--Previously described by De Leon (1956) from Florida; not found in Mexican collections.

Specimens examined.--Holotype (female), ex Coccolobis diversifolia Jacq., Coral Gables, Fla., July 27, 1955 (D. De Leon); six females, with same data as holotype but not type material; one female, ex Coccolobis sp., Alvarado, Vera Cruz, January 7, 1957 (D. De Leon).

Discussion.--Based on available specimens, the one pair of eyes would appear sufficient to identify coccolobicolus. In addition, this species has a two-segmented palpus, two pairs of

intercoxal setae IC<sub>3</sub>, and minute dorsal setae DC<sub>1-3</sub> and L<sub>2</sub>.

Tenuipalpus rhyssus Baker and Pritchard (Fig. 166, A, B)

Tenuipalpus rhyssus Baker and

Pritchard, 1953: 330; De Leon, 1957: 92; Pritchard and Baker, 1958: 247; Baker, Tuttle, and Abbatiello, 1975: 4; Meyer, 1979: 9.

Female.--Rostrum barely extending to base of femur I; palpus three-segmented, with two setae on distal segment; rostral shield pointed, deeply cleft medially; propodosomal setae Ve and Sci very small, with Ve stouter than Sci, both setae not more than three times as long as diameter of bases; Sce greatly enlarged, lanceolate or oblanceolate, serrate, longer than distance between bases of Ve; propodosoma with lobed anterolateral margin, gradually widening posteriorly; dorsal surface rugose, with framed honeycomb design on dorsocentral area (fig. 166, A); hysterosomal setae L<sub>1</sub> spatulate, slightly larger than L<sub>2</sub>; L<sub>3-5</sub> and L<sub>7</sub> broadly leaflike, obovate or elliptic, with acuminate tips, shorter than Sce; L<sub>6</sub> whiplike, about 1/2 as long as width of body; DC<sub>1-3</sub> broadly leaflike, obovate, as large as L<sub>3-5</sub>; hysterosoma with large lateral lobes at level of L<sub>1</sub>, pinched at metapodosomal area, gradually narrowing posteriorly; dorsal surface strongly rugose (fig. 166, A); ventral surface finely striate on pregenital and genital area and finely strigate between intercoxal setal area (fig. 166, B); genital setae slightly longer than pregenitals, inner pair slightly paired medially, anterior to outer pair; two pairs of IC<sub>3</sub>; one pair of IC<sub>4</sub>; all setae on femora and genua I and II leaflike, unequal in size; tarsi I and II each with seta overlying solenidion; leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 333, width 256.

Male, deutonymph, protonymph, and larva.--No specimens from Mexico.



Specimens examined.--Holotype (female) and paratypes (five females), ex Cyrilla racemiflora L., Glen St. Mary, Fla., December 31, 1951 (G. G. Norton); four females, ex Chamaedorea sp., Mexico at San Antonio, Texas quarantine station, July 6, November 11 and 29, 1966, November 26, 1971, and May 19, 1972 (D. Johnston); one female, ex Tillandsia sp., Vera Cruz at Miami, Florida quarantine station (no date) (J. M. van Valkenberg); one female, ex Tillandsia fasciculata Swartz, Vera Cruz at Brownsville, Texas quarantine station, September 8, 1980 (J. M. van Valkenberg).

Discussion.--T. rhyssus shares in varying degrees many characters common with bakeri, but the dorsal surface sculpturing is strikingly different. T. rhyssus has a framed honeycomb design on the dorsocentral area of the propodosoma, whereas that of bakeri is obscure rugose; also the hysterosomal setae  $L_1$  of rhyssus are considerably smaller than those of bakeri.

#### Genus ULTRATENUIPALPUS Mitrofanov

Ultratenuipalpus Mitrofanov, 1973b: 1318; Meyer, 1979: 2. Type-species: Tenuipalpus meekeri De Leon, by original designation.

Diagnosis.--Palpus four-segmented,

without seta on second, with one seta on distal segment; rostral shield; three pairs of propodosomal setae (Ve, Sci, Sce); hysterosoma with six to seven pairs of lateral setae ( $L_1-6$ ,  $L_1-7$ ) and three pairs of dorsocentral setae ( $DC_1-3$ ); pregenital plate absent; genital flap rudimentary; one pair of pregenital setae and two pairs of genital setae; one pair of anal and two pairs of postanal setae; two pairs of intercoxal setae,  $IC_3$  and  $IC_4$ ;  $IC_3$  situated on posterior margin of propodosoma,  $IC_4$  on anterior margin of hysterosoma; tarsi I-IV blunt or bilobed distally; number of leg setae varies according to species, but with uniform number of setae on coxae and trochanter. Body form obovate, with hysterosoma pinched at metapodosomal area.

Discussion.--Ultratenuipalpus is unique in having postanal setae. This genus now contains three species, one in South Africa and two from Mexico. They are placed here in two distinct groups as follows: (1) meekeri group - species in this group are characterized by having seven pairs of lateral setae ( $L_1-7$ ) on the hysterosoma and bilobed tarsi, as in meekeri, and (2) younguisti group - the single species in this group has six pairs of lateral setae ( $L_1-6$ ) on the hysterosoma and blunt tarsi.

#### KEY TO MEXICAN SPECIES OF ULTRATENUIPALPUS

1. Hysterosoma with seven pairs of lateral setae ( $L_1-7$ ); tarsi bilobed distally;  $DC_1-3$  broadly leaflike in female (reduced in male); postanal setae unequal in length (meekeri group)-----meekeri (De Leon) (p. 137)
- Hysterosoma with six pairs of lateral setae ( $L_1-6$ ); tarsi blunt distally;  $DC_1-3$  minute in female (male unknown); postanal setae equal in length (younguisti group)-----younguisti, n. sp. (p. 137)

DESCRIPTION OF SPECIES IN ULTRATENUI-  
PALPUS MEEKERI GROUP

Ultratenuipalpus meekeri (De Leon)  
(Fig. 167, A-F)

Tenuipalpus meekeri De Leon, 1957: 82.  
Ultratenuipalpus meekeri, Mitrofanov,  
1973b: 1318; Meyer, 1979: 2.

Female.--Rostrum extending to basal 1/4 of femur I; palpus four-segmented, with one distal seta (fig. 167, B); rostral shield notched medially, widened, exposing gnathosoma; propodosoma with anterolateral lobes, greatly widened posteriorly; propodosomal setae Ve and Sci very small, not more than three times as long as diameter of bases; Sce leaflike, greatly enlarged, oblong with acuminate tips, serrate, nearly as long as distance between Ve and Sce (fig. 167, A); propodosoma mostly smooth (fig. 167, A); hysterosomal setae L<sub>1</sub> and L<sub>3-7</sub> broadly leaflike, as large as propodosomals, varying from oblong to broadly fan-shaped; L<sub>2</sub> very small, as large as Ve; DC<sub>1-3</sub> similar in form to leaflike laterals; hysterosoma pinched at metapodosomal area; dorsal surface mostly smooth, with rugose dorsocentral area (fig. 167, A); genital and pregenital area finely striate; intercoxal setal areas and area immediately posterior to IC<sub>4</sub> finely strigate; pregenital and genital setae slender, subequal in length; genital setae paired laterally; IC<sub>4</sub> about three times as long as IC<sub>3</sub>; anal setae shorter than genitals; postanals unequal in length, with inner pair much longer than outer pair (fig. 167, C); all tarsi bilobed distally (fig. 167, D); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/0; genu - 3/3/1/0; tibia - 5/5/3/3. Length 410, width 290.

Variation.--Length 399-405, width 296-325.

Male.--Similar to female except for sexual differences; palpus with two

distal setae; hysterosomal setae DC<sub>1-3</sub> greatly reduced (fig. 167, E); without anal setae (fig. 167, F). Length 342, width 268.

Specimens examined.--Holotype (female) and paratypes (two females and one male), ex fern in mangrove swamp, San Blas, Nayarit, March 31, 1957 (D. De Leon); two females and one male, ex fern, Everglades, Fla., March 19, 1959 (D. De Leon).

Discussion.--The bilobed tarsi are highly characteristic of meekeri. It is further distinguished by the greatly enlarged hysterosomal setae DC<sub>1-3</sub> in the female (reduced in male) and by the unequal length of the postanal setae.

DESCRIPTION OF SPECIES IN ULTRATENUI-  
PALPUS YOUNGUISTI GROUP

Ultratenuipalpus younguisti, new  
species  
(Fig. 168, A-D)

Female.--Rostrum barely extending to base of femur I; palpus four-segmented, with two distal setae (fig. 168, B); rostral shield pointed, projecting over gnathosoma, deeply cleft medially; propodosoma with anterolateral lobes, gradually widened posteriorly; propodosomal setae Ve slender, about 1/4 as long as distance between bases; Sci minute, about two times as long as diameter of bases; Sce greatly enlarged, leaflike, subelliptic, serrate, longer than distance between bases of Ve and Sci; propodosoma with sculptured dorsocentral area, smooth lateral areas (fig. 168, A); hysterosomal setae L<sub>1</sub> and L<sub>3-6</sub> broadly leaflike, elliptic or obovate, with acuminate tips, serrate; L<sub>2</sub> minute, similar to Sci; DC<sub>1-3</sub> slightly longer than L<sub>2</sub>; hysterosoma slightly pinched at metapodosomal area, with sculptured, more rugose dorsocentral area than on propodosoma; lateral areas smooth (fig. 168, A); genital and pregenital area finely striate; intercoxal setal area and area

immediately posterior to IC<sub>4</sub> finely strigate; pregenital and genital setae slender, subequal in length; genital setae paired laterally; anal setae as long as genitals; postanal setae equal in length (fig. 168, D); IC<sub>4</sub> about two times as long as IC<sub>3</sub>; all tarsi blunt distally (fig. 168, C); leg setal count as follows: Coxa - 2/2/1/1; trochanter - 1/1/2/1; femur - 4/4/2/1; genu - 3/3/1/0; tibia - 5/5/3/3. Length 353, width 256.

Male.--Not known.

Holotype.--Female, ex unknown plant leaf, Mexico at San Pedro, California quarantine station, October 3, 1966 (G. R. Youngquist).

Discussion.--This species is unique in Ultratenuipalpus based on its six pairs of lateral setae on the hysterosoma and by the blunt apices of tarsi I-IV. The rugose dorsocentral area of the hysterosoma and the same length of postanal setae are also characteristic of younguisti.

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## APPENDIX

## Host Plant and Mite Names

- Abies religiosa (H.B.K.) Schlecht. & Cham.--Brevipalpus abiesae, n. sp.; B. amecensis, n. sp.; B. neoreligiosae, n. sp.; B. religiosae DL.; B. similis, n. sp.; B. zemposalensis, n. sp.
- Abronia maritima Nutt. & Wats.--Aegyptobia macswaini (P.&B.)
- Abutilon sp.--Brevipalpus crotoni DL.; B. lewisi McG.; B. tepicbutilonae, n. sp.
- A. incanum (Link) Sweet--Brevipalpus crotoni DL.; B. nodiflorae, n. sp.
- Acacia pennatula (Cham. & Schlecht.) Benth.--Aegyptobia pennatulae, n. sp.
- Achras zapota L.--Priscapalpus macropilis DL.; Tenuipalpus chichlorum DL.
- Acuba sp.--Brevipalpus essigi Baker
- agualama--Brevipalpus trinidadensis Baker
- ahuacatilla--Brevipalpus tuberellus DL.
- Allenrolfea occidentalis (Wats.) Kuntze--Brevipalpus allenrolfeae B.T.A.
- Allionia incarnata L.--Aegyptobia allioniae B.T.A.; A. incarnatae B.T.A.; Brevipalpus castillejae, n. sp.; B. incarnatae, n. sp.
- Alnus sp.--Brevipalpus alni DL.
- A. arguta (Schlecht.) Spach--Brevipalpus alni DL.
- Ambrosia sp.--Brevipalpus ambrosiae, n. sp.; B. lantanae, n. sp.
- A. confertiflora (DC.) Rydb.--Aegyptobia ambrosiae, n. sp.
- Amorpha fruticosa L.--Brevipalpus lewisi McG.
- Anemopsis sp.--Brevipalpus obovatus Donn.
- Annona sp.--Brevipalpus longisetosus Baker; Tenuipalpus annonae DL.
- Anthurium sp.--Brevipalpus phoenicis (Geijskes)
- arborvitae--Pentamerismus erythreus (Ewing)
- Arbutus sp.--Aegyptobia arbutusae, n. sp.; Pentamerismus arbutusae, n. sp.
- A. glandulosus Mart. & Gal.--Tenuipalpus bakeri McG.
- Ardisia revoluta H.B.K.--Brevipalpus ardisiae DL.
- Artemisia carruthi Wood--Brevipalpus artemisiae B.&T.
- A. filifolia Torr.--Brevipalpus filifoliae B.T.A.
- A. tridentata Nutt.--Brevipalpus artemisiae B.&T.
- Asclepias curassavica L.--Brevipalpus lewisi McG.
- Atamisquea emarginata Miers.--Brevipalpus emarginatae, n. sp.
- Atriplex sp.--Aegyptobia cactaceae, n. sp.; Brevipalpus ornatus, n. sp.; B. pseudopini, n. sp.
- A. acanthocarpus (Torr.) Wats.--Aegyptobia desertorum B.&T.
- A. canescens (Pursh) Nutt.--Aegyptobia desertorum B.&T.
- A. polycarpa (Torr.) Wats.--Aegyptobia desertorum B.&T.; Brevipalpus allenrolfeae B.T.A.
- Baccharis conferta H.B.K.--Brevipalpus ewpristori DL.
- B. heterophylla H.B.K.--Brevipalpus baccharis, n. sp.; B. castillejae, n. sp.; B. neoardisiae, n. sp.
- Bouchea prismatica (L.) Kuntze--Brevipalpus boucheae B.T.A.; B. lippiaae, n. sp.
- Bouvardia ternifolia (Cav.) Schlecht.--Brevipalpus castillejae, n. sp.
- Brickellia californicum (Torr. & Gray) Gray--Brevipalpus venutus, n. sp.
- B. lacinata Gray--Brevipalpus lantanae, n. sp.
- Brysonima sp.--Brevipalpus phoenicis (Geijskes)
- Bursera sp.--Tenuipalpus burserae DL.
- Cactaceae--Aegyptobia cactorum, n. sp.
- cactus--Aegyptobia cactorum, n. sp.; Brevipalpus spitzeri, n. sp.
- cactus debris--Aegyptobia cactaceae, n. sp.
- camellia--Tenuipalpus bakeri McG.
- capulincilla--Brevipalpus tuberellus DL.
- capulincillo (cherry)--Tenuipalpus tepicensis DL.
- Cassia covesii Gray--Aegyptobia cassiae B.&T.
- C. crotolarioides Kunth--Brevipalpus cassiae B.T.A.
- Castilleja sp.--Brevipalpus castillejae, n. sp.; B. pachucensis, n. sp.
- Cedrela sp.--Tenuipalpus cedrelae DL.

- Ceibia sp.--Phytoptipalpus ceiba (DL.),  
n. comb.
- C. acuminata (Wats.) Rose--Brevipalpus variolatus DL.
- C. pentandra (L.) Gaertn.--Tenuipalpus kapoki DL.
- Celtis pallida Torr.--Brevipalpus celtis B.T.A.
- C. reticulata Torr.--Brevipalpus piniceltis, n. sp.
- Cercidium floridum Benth.--Brevipalpus cercidium B.T.A.; Phytoptipalpus cercidium (B.T.A.)
- Chamaecyparis sp.--Brevipalpus californicus (Banks); Pentamerismus oregonensis McG.
- Chamaedorea sp.--Brevipalpus chamaedoreae B.T.A.; B. geranium, n. sp.; B. johnstoni, n. sp.; B. trinidadensis Baker; Tenuipalpus chamaedoreae, n. sp.; T. dasples B.&P.; T. rhyssus B.&P.
- cherry--Tenuipalpus tepicensis DL.
- Chlorophytum sp.--Brevipalpus essigi Baker
- Chrysanthemum sp.--Brevipalpus obovatus Donn.
- Cirsium wheeleri (Gray) Petrak--Brevipalpus crotoni DL.
- Cissus sisyoides L.--Brevipalpus phoenicis (Geijskes)
- Citrus spp.--Brevipalpus californicus (Banks); B. phoenicis (Geijskes); Tenuipalpus sanblasensis DL.
- C. aurantifolia (Christm.) Swingle--Brevipalpus phoenicis (Geijskes)
- C. reticulata Blanco--Brevipalpus phoenicis (Geijskes)
- Cnidoscolus sp.--Brevipalpus cnidoscolus, n. sp.
- Coccolobis sp.--Brevipalpus levis DL.; Tenuipalpus coccolobicolus DL.
- C. diversifolia Jacq.--Tenuipalpus coccolobicolus DL.
- Cochlospermum sp.--Brevipalpus cochlospermi DL.
- coconut--Brevipalpus phoenicis (Geijskes); Tenuipalpus coyacus DL.
- Coffea sp.--Brevipalpus phoenicis (Geijskes)
- coffee--Tenuipalpus bakeri McG.
- Coldenia greggii (Torr.) Gray--Brevipalpus coldeniae B.T.A.
- Combretum farinosum H.B.K.--Brevipalpus combreti DL.
- Conocarpus erecta L.--Brevipalpus alternatus DL.
- Conostegia talapensis (Bump.) D. Don--Phytoptipalpus conostegiae, n. sp.
- Cordia sp.--Brevipalpus phoenicis (Geijskes)
- C. alba (Jacq.) Roem. & Schultz--Brevipalpus dentatae, n. sp.
- C. boissieri DC.--Brevipalpus cordiae DL.
- C. eleagnoides DC.--Brevipalpus edax DL.
- C. glabra Cham.--Brevipalpus levis DL.
- Crataegus sp.--Brevipalpus crataegus, n. sp.
- Croton sp.--Brevipalpus californicus (Banks); B. castillejiae, n. sp.
- C. ciliato-glandulosus Ortega--Brevipalpus crotonellae, n. sp.; B. crotoni DL.; B. pocillator DL.
- C. corymbulosus Engelm.--Aegyptobia crotonae B.&T.
- Crusea sp.--Aegyptobia crotonae B.&T.
- Curatella sp.--Brevipalpus phoenicis (Geijskes)
- Cyrilla racemiflora L.--Tenuipalpus rhyssus B.&P.
- Datura stramonium L.--Brevipalpus obovatus Donn.
- Desmodium sp.--Brevipalpus desmodium, n. sp.
- Distichlis spicata (L.) Greene--Pseudo-leptus palustria P.&B.
- D. stricta (Torr.) Rydb.--Pseudoleptus palustria P.&B.
- Dodonaea viscosa Jacq.--Brevipalpus californicus (Banks); B. pseudo-leptoides DL.
- Echinicerinae--Aegyptobia cactorum, n. sp.
- Encelia farinosa Gray--Brevipalpus enceliae B.T.A.
- Eupatorium glabrum H.B.K.--Brevipalpus edwinae Baker
- E. hemiteropododum Rob.--Brevipalpus aepi DL.
- Euphorbia sp.--Brevipalpus crotoni DL.
- fern--Ultratenuipalpus meekeri (DL.)
- Ferocactus sp.--Aegyptobia glyptus P.&B.
- Ficus sp.--Brevipalpus phoenicis (Geijskes); B. pocillator DL.
- Frankenia palmeri S. Wats.--Brevipalpus frankeniae B.T.A.
- Fraxinus sp.--Brevipalpus phoenicis (Geijskes)

- Fuchsia sp.--Brevipalpus ewpristori DL.  
F. thymifoliae H.B.K.--Brevipalpus lantanae, n. sp.
- Gaillardia pulchella Fong.--Brevipalpus geranium, n. sp.  
Geranium sp.--Brevipalpus geranium, n. sp.  
Gliricidium sepium (Jacq.) Steud.--Brevipalpus gliricidiae DL.  
goldenrod--Brevipalpus obovatus Donn.  
grass--Tenuipalpus coyacus DL.  
Guazuma sp.--Brevipalpus phoenicis (Geijskes)  
Gutierrezia californica T.&G.--Aegyptobia macswaini (P.&B.)
- Hamelia erecta Jacq.--Brevipalpus erectus, n. sp.; B. hamelrectae, n. sp.  
Haplopappus tenuisectus (Greene) Blake--Aegyptobia baptus (P.&B.); Brevipalpus venutus, n. sp.  
H. venutus (H.B.K.) Blake--Brevipalpus pachucensis, n. sp.; B. venutus, n. sp.  
Hebe buxifolia (Benth.) Cockayne & Allan--Brevipalpus essigi Baker  
Helianthus niveus (Benth.) Brand.--Brevipalpus enceliae B.T.A.  
Heliocarpus tomentosus Trucz.--Brevipalpus aepi DL.  
Hemizonia virgata Gray--Aegyptobia baptus (P.&B.); A. macswaini (P.&B.)  
Heterotheca sp.--Brevipalpus enceliae B.T.A.; B. phoenicis (Geijskes)  
Hibiscus sp.--Brevipalpus obovatus Donn.  
Hymenoclea mongyra Torr. & Gray--Aegyptobia baptus (P.&B.)  
Hyptis sp.--Brevipalpus hypti DL.; B. neohyptis B.T.A.; B. tepicensis, n. sp.  
H. albida Kunth--Brevipalpus hypti DL.
- Juniperus sp.--Pentamerismus abnormis, n. sp.; P. erythreus (Ewing)  
J. mexicanus Spreng.--Brevipalpus juniperus, n. sp.; B. mexicanus, n. sp.; B. pseudopiniculus, n. sp.
- Lagascea angustifolia DC.--Brevipalpus lagasceae DL.  
Lantana sp.--Brevipalpus lantanae, n. sp.; B. pachucensis, n. sp.; B. trinidadensis Baker
- large tree--Tenuipalpus uvae DL.  
lauraceous tree--Brevipalpus tuberellus DL.  
lemon--Brevipalpus lewisi McG.; Tenuipalpus chiclorum DL.  
Leonotis sp.--Brevipalpus aepi DL.  
Lepidium sp.--Brevipalpus lepidium, n. sp.  
Liabum glabrum var. hypoleucum Greenm.--Brevipalpus proboscidius DL.  
Libocedrus decurrens Torr.--Pentamerismus oregonensis McG.  
Licaria sp.--Brevipalpus formosus DL.  
Ligustrum sp.--Brevipalpus lotus, n. sp.  
Lippia sp.--Brevipalpus lippiae, n. sp.  
L. hypoleia Broq.--Brevipalpus aepi DL.  
L. umbellata Cav.--Brevipalpus pseudoleptoides DL.  
Lotus sp.--Brevipalpus lotus, n. sp.  
Lucuma salisifolia H.B.K.--Tenuipalpus lucumae DL.  
Lupinus sp.--Brevipalpus lantanae, n. sp.; B. lupinus, n. sp.; B. neobicolpus, n. sp.; B. pachucensis, n. sp.  
Lythrum acinifolium Koehn--Brevipalpus castillejiae, n. sp.; B. lewisi McG.
- mango--Brevipalpus longisetosus Baker  
mata gusano--Brevipalpus striatus DL.  
Mentha sp.--Aegyptobia pennatulae, n. sp.  
Mimosa biuncifera Benth.--Aegyptobia pennatulae, n. sp.  
Monanthochloe littoralis Engelm.--Brevipalpus allenrolfeae B.T.A.  
Morus alba L.--Brevipalpus mori DL.  
Musa paradisiaca sapientum (L.) Kuntze--Brevipalpus phoenicis (Geijskes)  
Myrica mexicana Willd.--Brevipalpus rostratus DL.
- naranjillo--Tenuipalpus sanblasensis DL.  
Nectandra tabascensis Lundell--Brevipalpus tuberellus DL.
- Opuntia cylindrica (Lam.) DC.--Aegyptobia crotonae B.&T.  
orchid--Brevipalpus essigi Baker; Tenuipalpus bakeri McG.  
Oreopanax peltatum Lind.--Brevipalpus oreopanax DL.



- Origanum sp.--Brevipalpus origanum  
B.T.A.
- Oxalis sp.--Brevipalpus rubus, n. sp.
- Parmentiera alata Miers.--Tenuipalpus crescentiae DL.
- Parthenium incanum H.B.K.--Brevipalpus parthenium B.&T.; B. portalis B.&T.; B. spatulatus, n. sp.
- Parthenocissus quinquefolia (L.)  
Planch.--Brevipalpus lewisi McG.
- P. tricuspidata (Sieb. & Zucc.)  
Planch.--Brevipalpus lewisi McG.
- Pectis arenaria Benth.--Aegyptobia macswaini (P.&B.)
- Persea americana Mill.--Tenuipalpus unimerus DL.
- P. hintonii C. K. Allen--Brevipalpus perseae DL.
- P. schideana Nees--Brevipalpus filifer DL.
- Phalaris sp.--Brevipalpus pachucensis, n. sp.
- Phoebe mexicana Meissn.--Brevipalpus tuberellus DL.
- P. tampicensis Mwz.--Brevipalpus tuberellus DL.
- Phyla nodiflora (L.) Greene--Brevipalpus geranium, n. sp.; B. nodiflorae, n. sp.
- Physalis sp.--Brevipalpus physalis DL.  
pineapple--Dolichotetranychus floridanus (Banks)
- Pinus sp.--Brevipalpus albus DL.; B. tlaxcensis, n. sp.
- Pluchea odorata (L.) Cassini--Brevipalpus plucheeae B.T.A.; B. trinidadensis Baker
- Plumeria sp.--Brevipalpus phoenicis (Geijskes)  
privet--Brevipalpus obovatus Donn.
- Prosopis glandulosus Torr.--Aegyptobia vannus P.&B.
- Prunus persica (L.) Batsch.--Brevipalpus castillejae, n. sp.
- Psidium sp.--Brevipalpus phoenicis (Geijskes)
- Psilostrophe cooperi (Gray) Greene--Brevipalpus psilostropheae B.&T.; B. tagetinae, n. n.
- P. tagetina (Nutt.) Greene--Brevipalpus crotoni DL.; B. tagetinae, n. n.
- Quercus sp.--Brevipalpus albus DL.; B. alni DL.; B. encinarius DL.; B. insinuatus DL.; B. moreliensis, n. sp.; B. oaxacensis DL.; B. pseudopini, n. sp.; B. quercicolus DL.; B. querensis, n. sp.; Tenuipalpus bakeri McG.
- Q. aristata Hook. & Arn.--Brevipalpus albus DL.
- Q. arizonica Sarg.--Brevipalpus arizonicae, n. sp.
- Q. conzatii Trel.--Brevipalpus oaxacensis DL.
- Q. laurina DC.--Brevipalpus insinuatus DL.
- Q. magnoliaefolia Nees--Brevipalpus rugosus DL.
- Rhododendron sp.--Pentamerismus oregonensis McG.
- Rhynchelytrum repens (Willd.) C. E. Hubb.--Brevipalpus trinidadensis Baker
- Rubus cortifolius Liebm.--Brevipalpus rubus, n. sp.
- Ruellia nudiflora (A. Gray)  
Urb.--Brevipalpus ruelliae, n. sp.
- Sabal sp.--Tenuipalpus dasples B.&P.
- S. megacarpa Small--Tenuipalpus dasples B.&P.
- Salix sp.--Brevipalpus acatlanus, n. sp.; B. salix, n. sp.
- Salvia sp.--Aegyptobia curtipilis, n. sp.
- Senecio sp.--Aegyptobia baptus (P.&B.); Brevipalpus californicus (Banks); B. castillejae, n. sp.
- S. aschenborneanus Schauer--Brevipalpus ewpristori DL.
- Sida sp.--Brevipalpus crotoni DL.; B. pachucensis, n. sp.; B. pseudo-phoenicis B.T.A.; B. sidae B.T.A.
- S. diffusa H.B.K.--Aegyptobia crotonae B.&T.
- Solanum sp.--Brevipalpus aepi DL.
- S. elaeagnifolium Cav.--Aegyptobia crotonae B.&T.; A. solanum, n. sp.; Brevipalpus crotoni DL.; B. geranium, n. sp.
- S. umbellatum Mill.--Brevipalpus cordiae DL.; B. lantanae, n. sp.
- Solidago sparsifolia Gray--Brevipalpus crotoni DL.
- Sporobolus flexuosus (Thurb.) Rydb.--Pseudoleptus palustria P.&B.
- Stipa ichu (Ruiz & Pav.) Kunth--Brevipalpus pachucensis, n. sp.; B. stipae, n. sp.

Styrax argenteus Presl.--Brevipalpus chucamayi DL.  
Swietenia humilis Zucc.--Tenuipalpus anoplomexus, n. sp.; T. anoplus B.&P.  
S. macrophylla King--Tenuipalpus anoplomexus, n. sp.; T. anoplus B.&P.  
S. mahogani (L.) Jacq.--Tenuipalpus anoplus B.&P.

Tabebuia pentaphylla (L.) Hemsley--Tenuipalpus tabebuiae DL.  
tangerine--Brevipalpus lewisi McG.  
Tephrosia sp.--Brevipalpus crotoni DL.  
Thuja occidentalis L.--Brevipalpus trinidadensis Baker  
Tillandsia sp.--Tenuipalpus bakeri McG.; T. rhyssus B.&P.  
T. fasciculata Swartz--Tenuipalpus rhyssus B.&P.  
T. usneoides L.--Aegyptobia cassiae B.&T.

Tridens pulchellus (H.B.K.) Hitchc.--Aegyptobia crotonae B.&T.  
Tridax procumbens L.--Brevipalpus physalis DL.  
Trixis californicus Kellogg--Brevipalpus lewisi McG.

undetermined plant--Brevipalpus longisetosus Baker

unknown plant--Brevipalpus ewpristori DL.; Tenuipalpus bakeri McG.; Ultra-tenuipalpus younguisti, n. sp.  
unknown tree--Brevipalpus levis DL.; B. serratus DL.; B. testudinalis DL.  
uva--Tenuipalpus uvae DL.

Verbena sp.--Brevipalpus phoenicis (Geijskes); B. verbenae, n. sp.  
Verbesina sp.--Brevipalpus aepi DL.; B. pocillator DL.  
Viquiera sp.--Brevipalpus enceliae B.T.A.; B. geranium, n. sp.; B. viquierae B.T.A.  
V. stenoloba Blake--Brevipalpus stenolobae, n. sp.

Waltheria sp.--Brevipalpus pini-waltheriae, n. sp.  
W. americana L.--Brevipalpus pocillator DL.

Yucca sp.--Tenuipalpus bakeri McG.

Zinnia sp.--Brevipalpus aepi DL.  
Z. acerosa (DC.) Gray--Brevipalpus zinniae, n. sp.

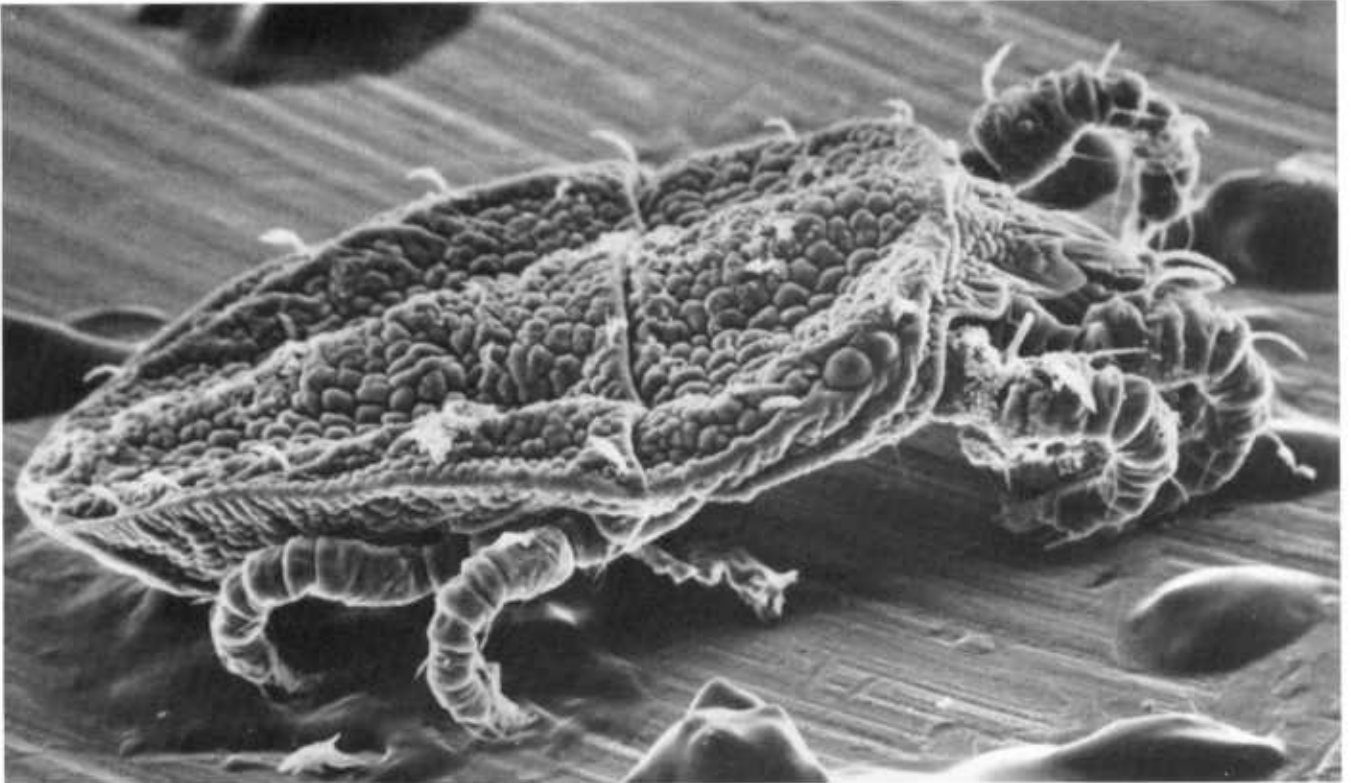


Figure 1.--Brevipalpus sp., female, showing dorsal sculpturing.

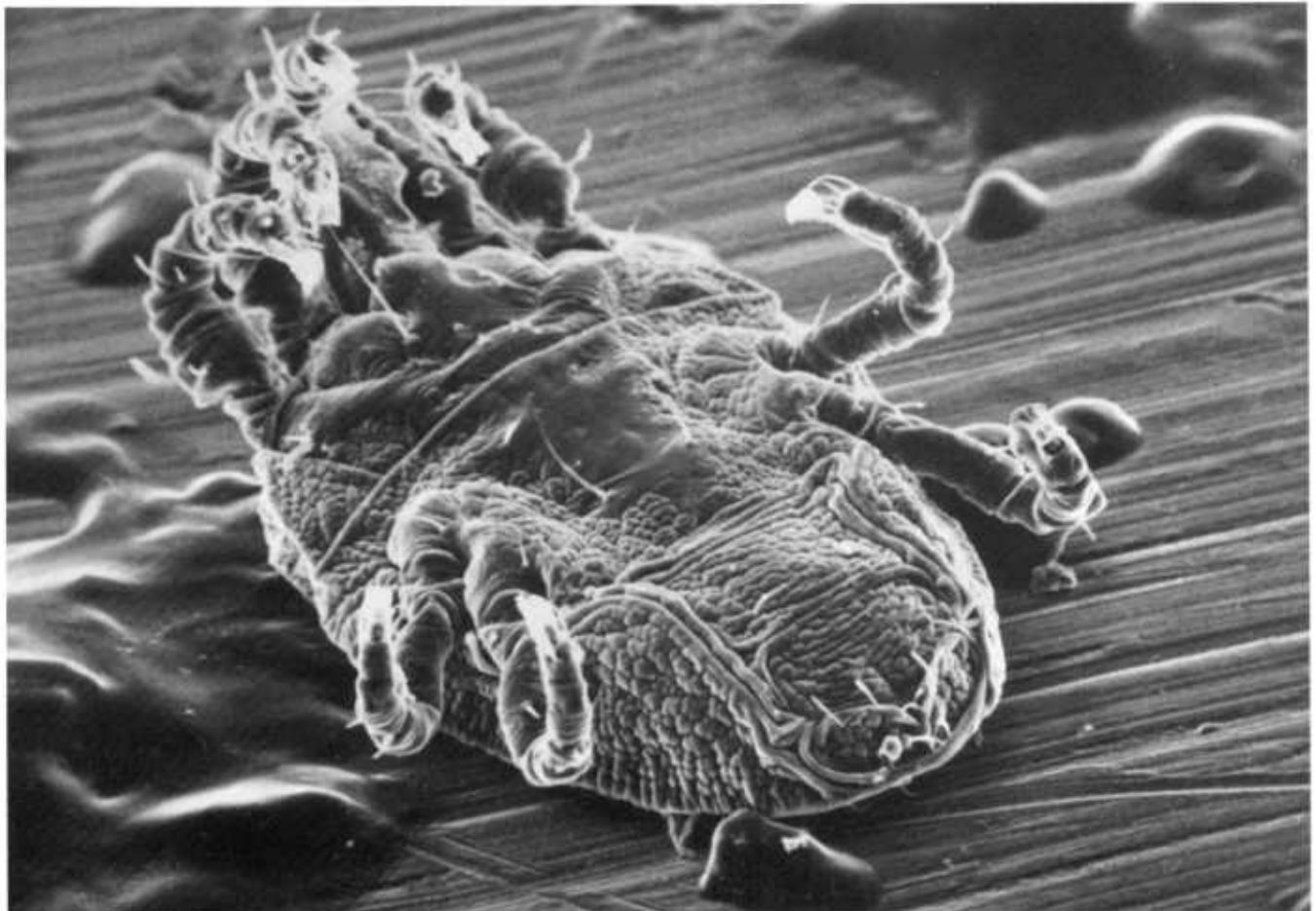


Figure 2.--Brevipalpus sp., female, showing ventral sculpturing.

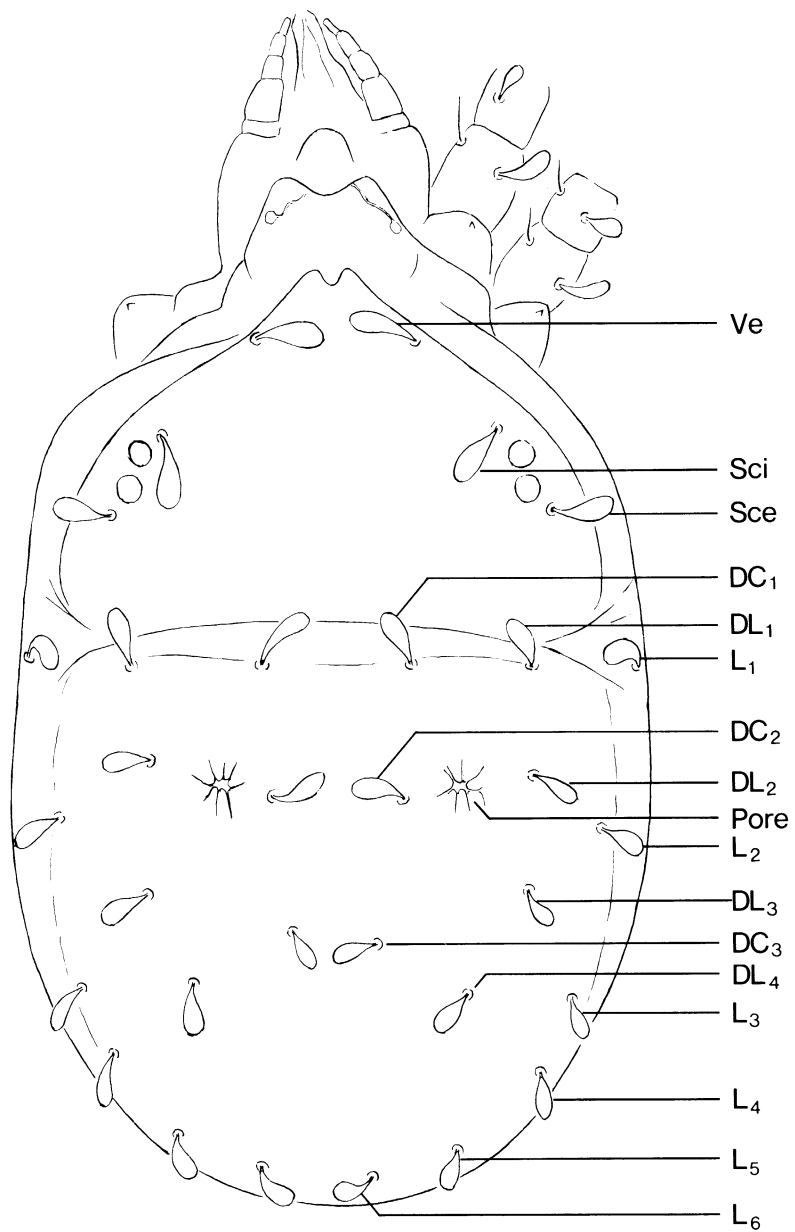


Figure 3.--Dorsal body of *Aegyptobia* sp., female, illustrating setal nomenclature used. (Ve, exterior vertical; Sci, interior scapular; Sce, exterior scapular; DC, dorsocentral; DL, dorso-lateral; L, lateral)

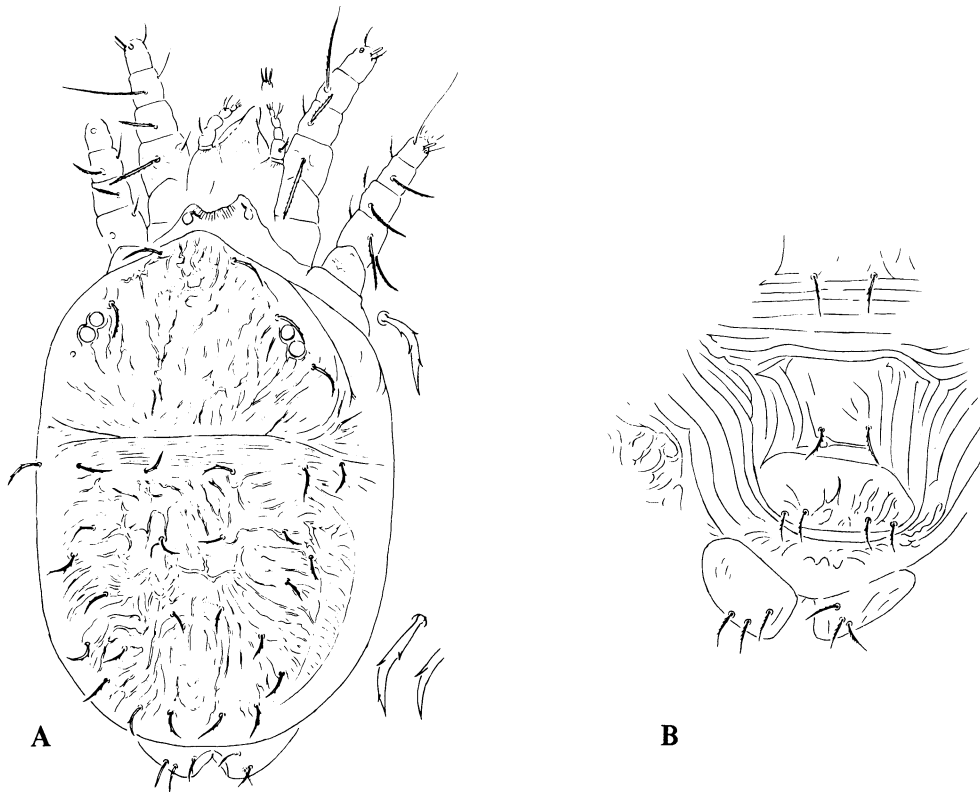


Figure 4.--Aegyptobia allioniae Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of opisthosoma.

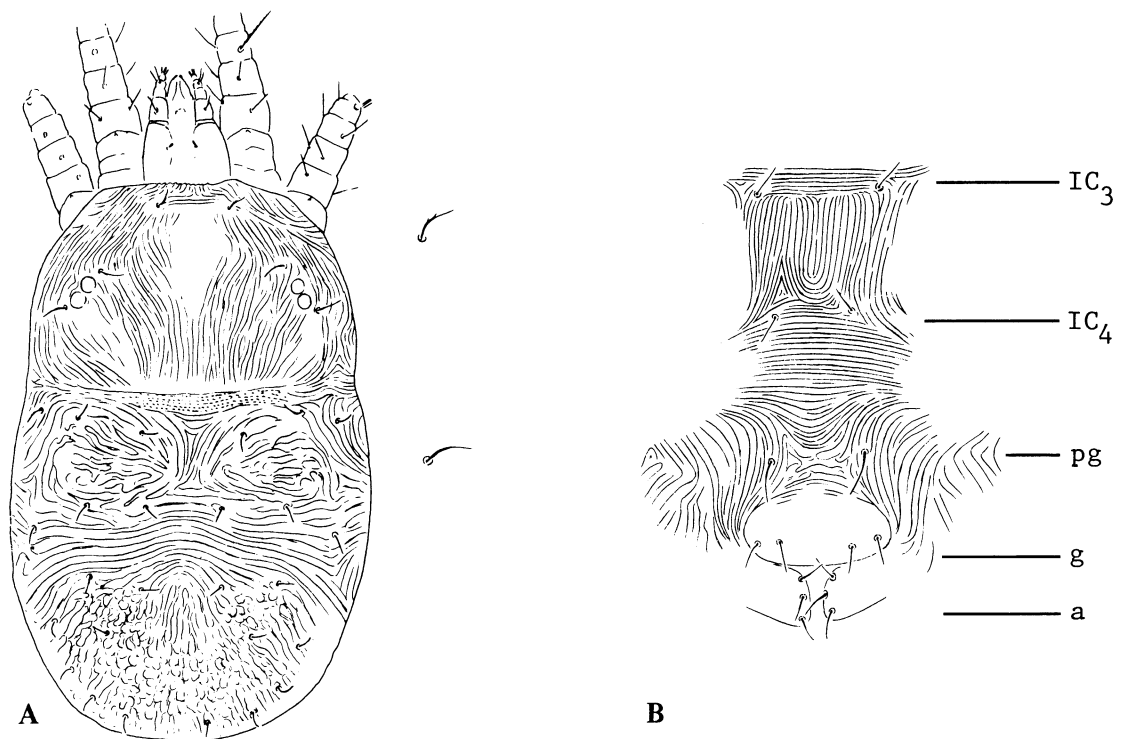


Figure 5.--Aegyptobia cactorum, n. sp., female: A, Dorsum; B, venter of hysterosoma, with intercoxal (IC<sub>3</sub>, IC<sub>4</sub>), pregenital (pg), genital (g), and anal (a) setae.

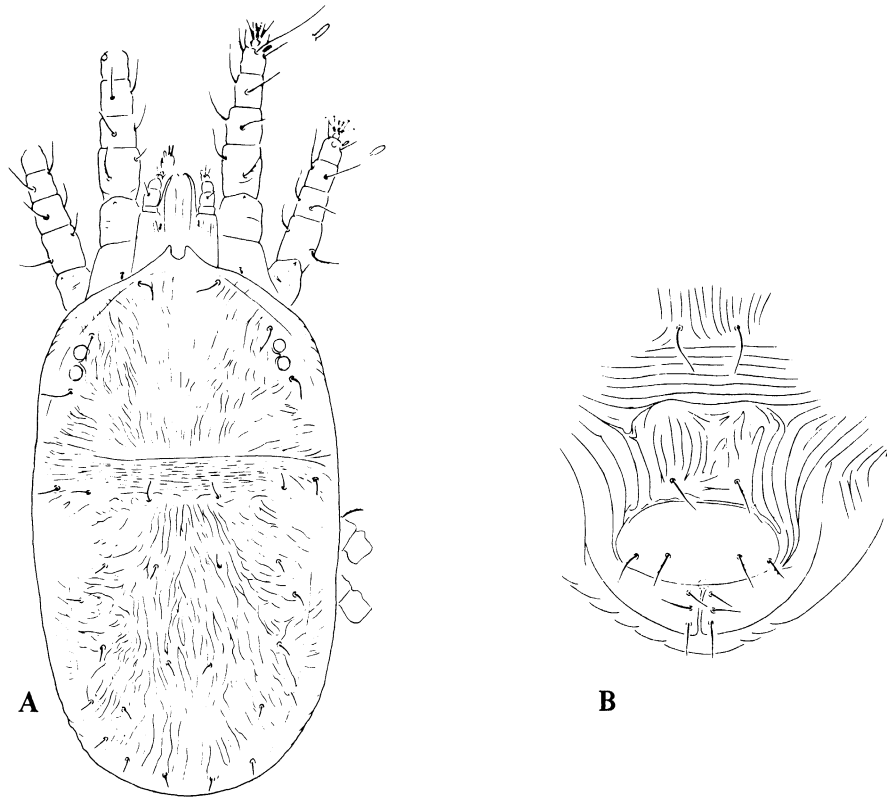


Figure 6.--Aegyptobia curtipilis, n. sp., female: A, Dorsum; B, venter of opisthosoma.

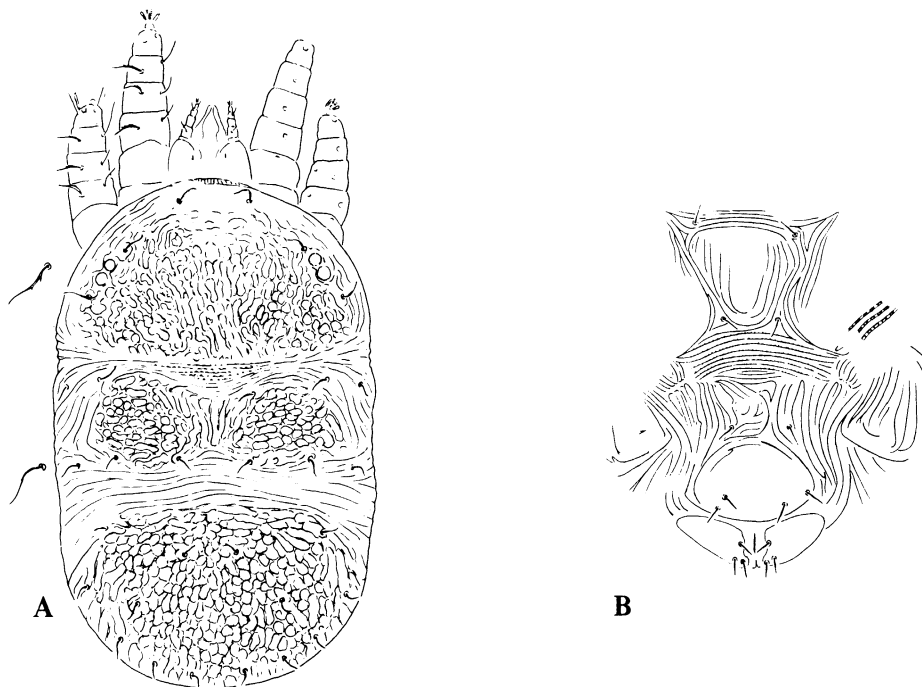


Figure 7.--Aegyptobia glyptus Pritchard and Baker, female: A, Dorsum; B, venter of hysterosoma.

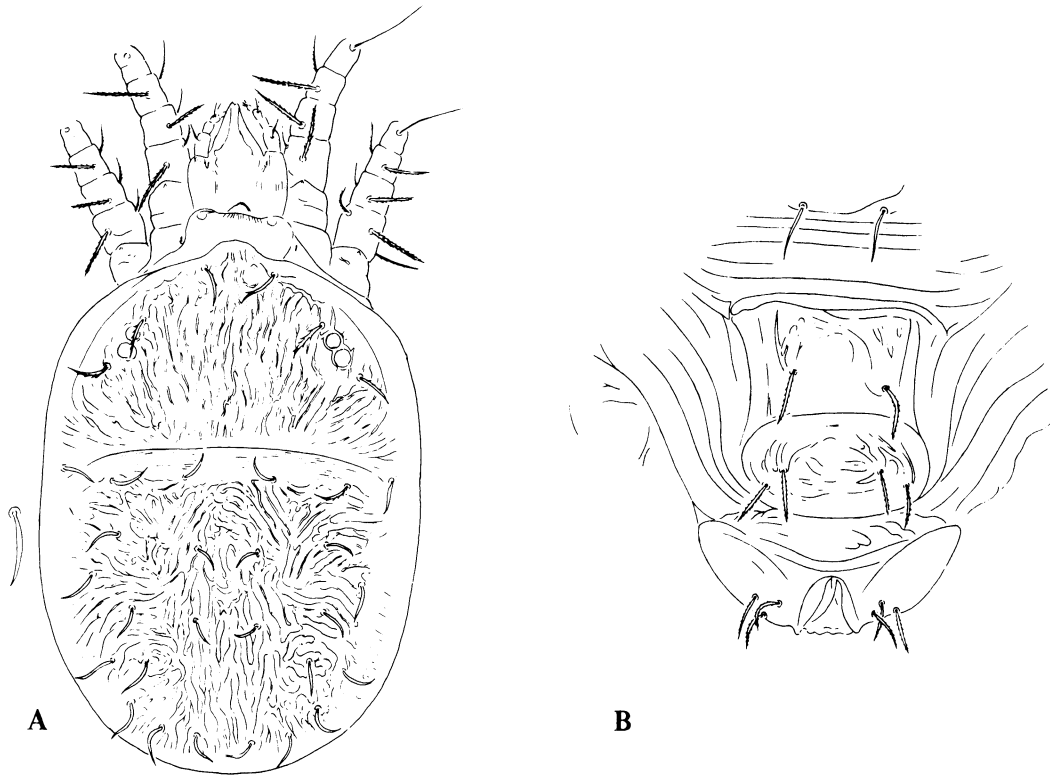


Figure 8.--Aegyptobia incarnatae Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma.

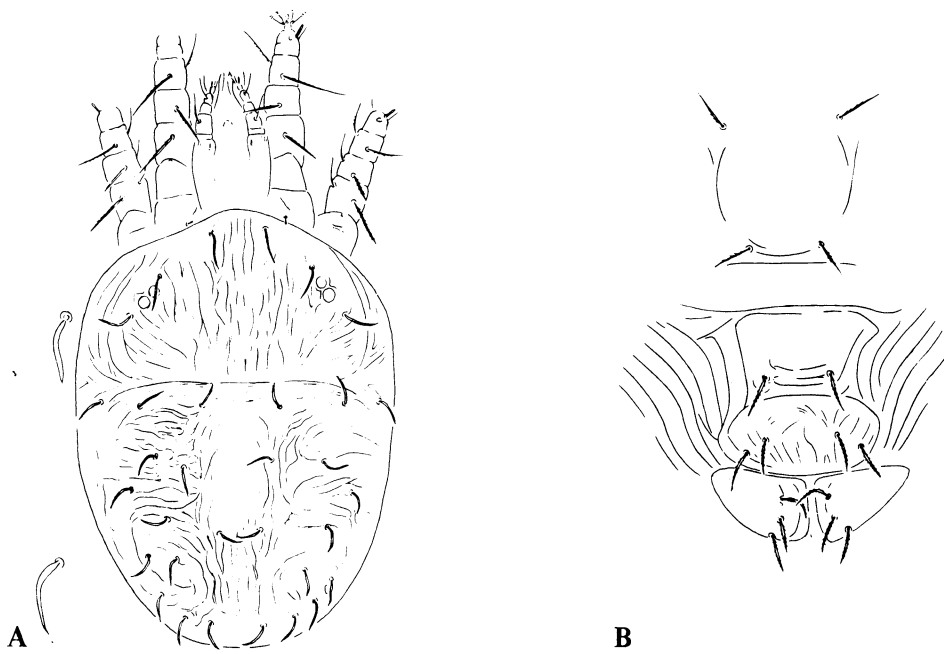


Figure 9.--Aegyptobia macswaini (Pritchard and Baker), female: A, Dorsum; B, venter of hysterosoma.

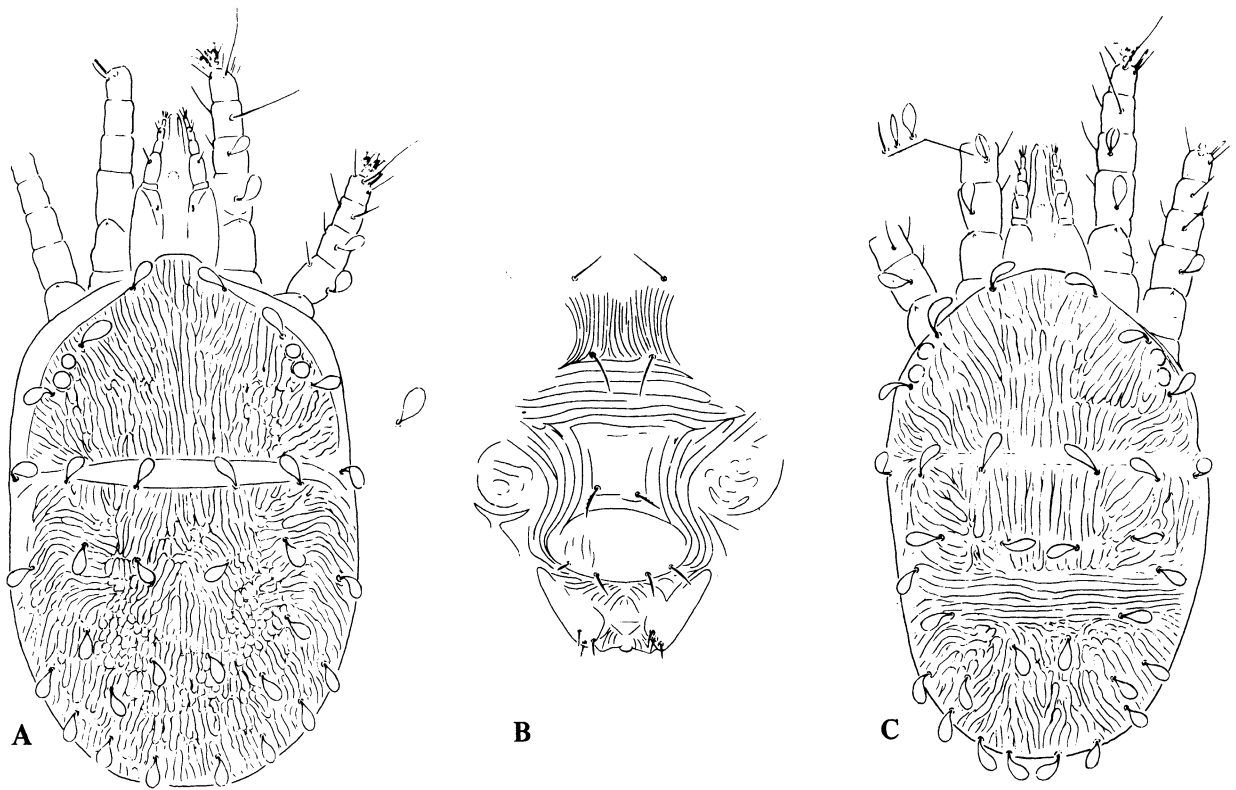


Figure 10.--*Aegyptobia ambrosiae*, n. sp. Female: A, Dorsum; B, venter of hysterosoma. Male: C, Dorsum.

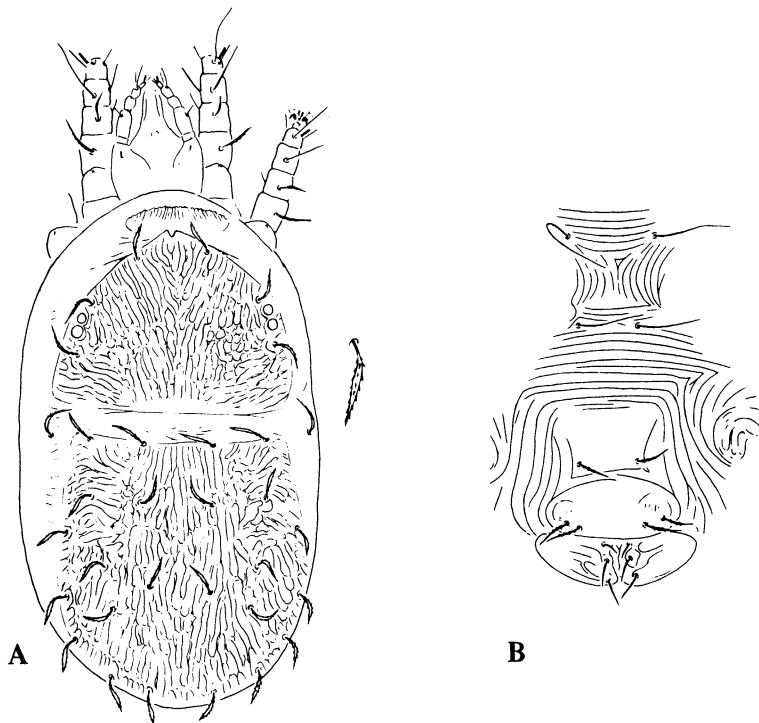


Figure 11.--*Aegyptobia arbutusae*, n. sp., female: A, Dorsum; B, venter of hysterosoma.



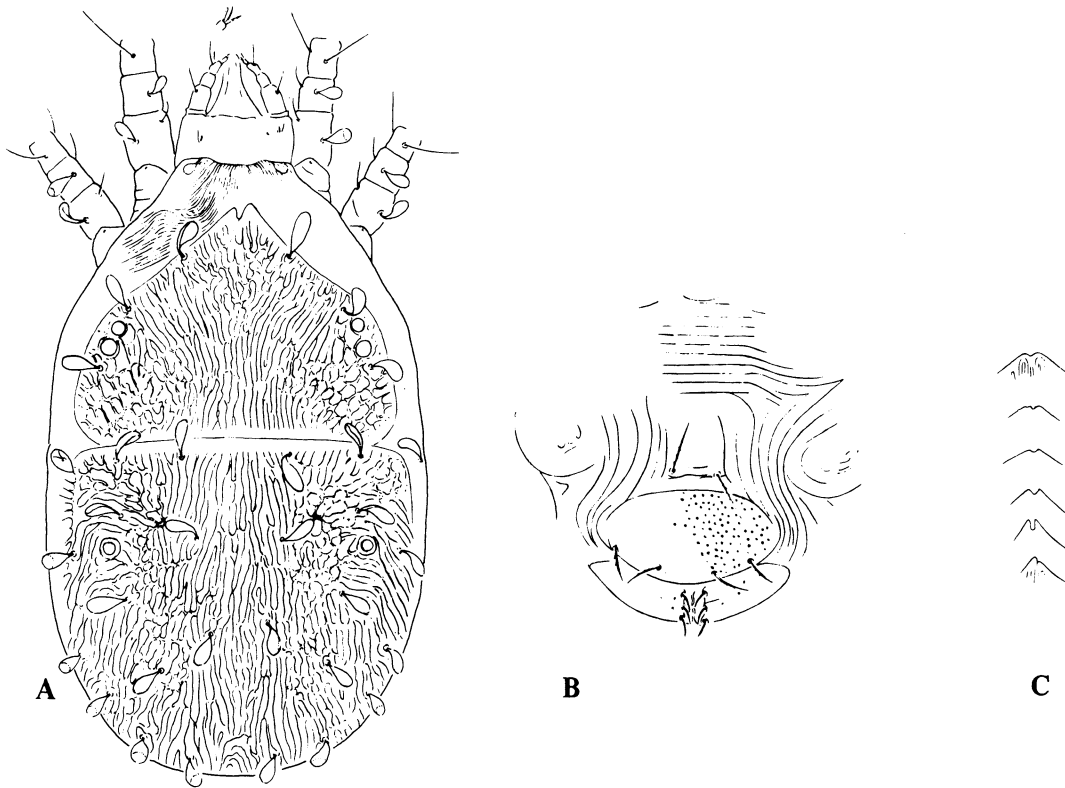


Figure 12.--*Aegyptobia bapetus* (Pritchard and Baker), female: A, Dorsum; B, venter of opisthosoma; C, variation in anterior margin of propodosoma.

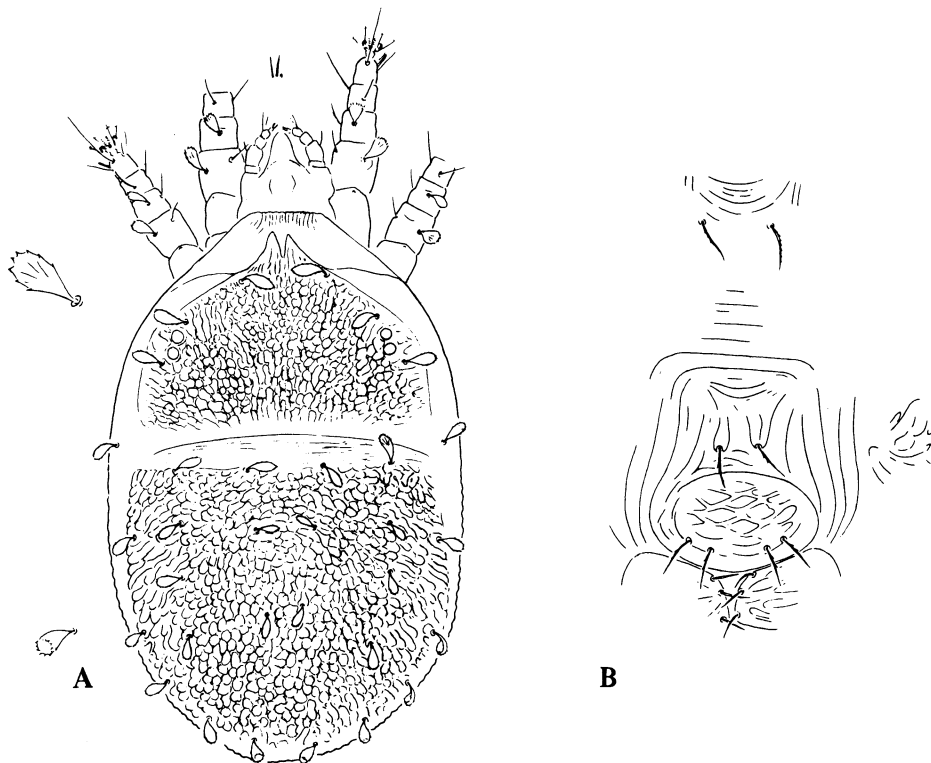


Figure 13.--*Aegyptobia cactaceae*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

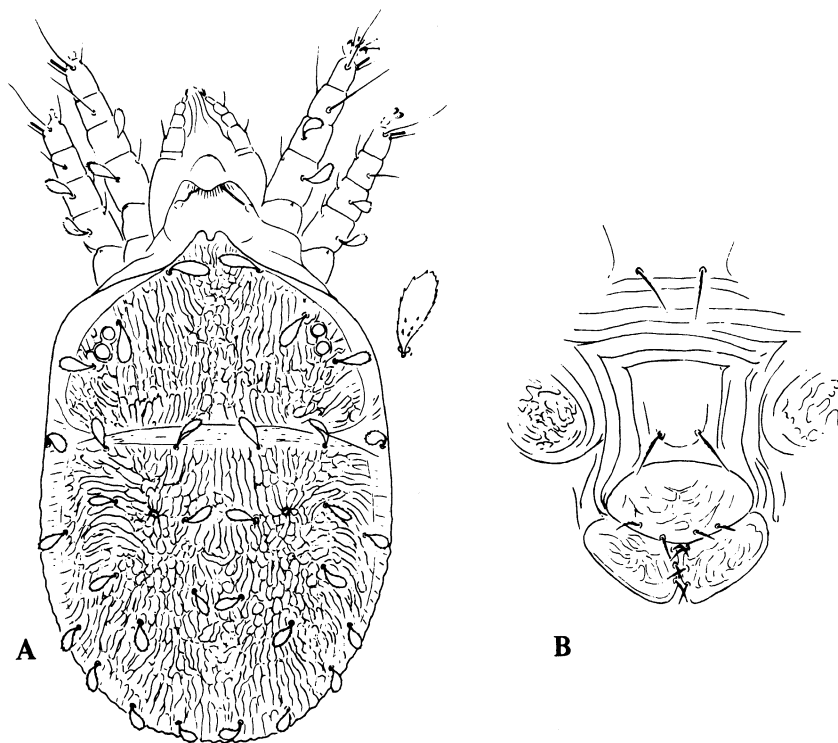


Figure 14.--Aegyptobia cassiae Baker and Tuttle, female: A, Dorsum; B, venter of opisthosoma.

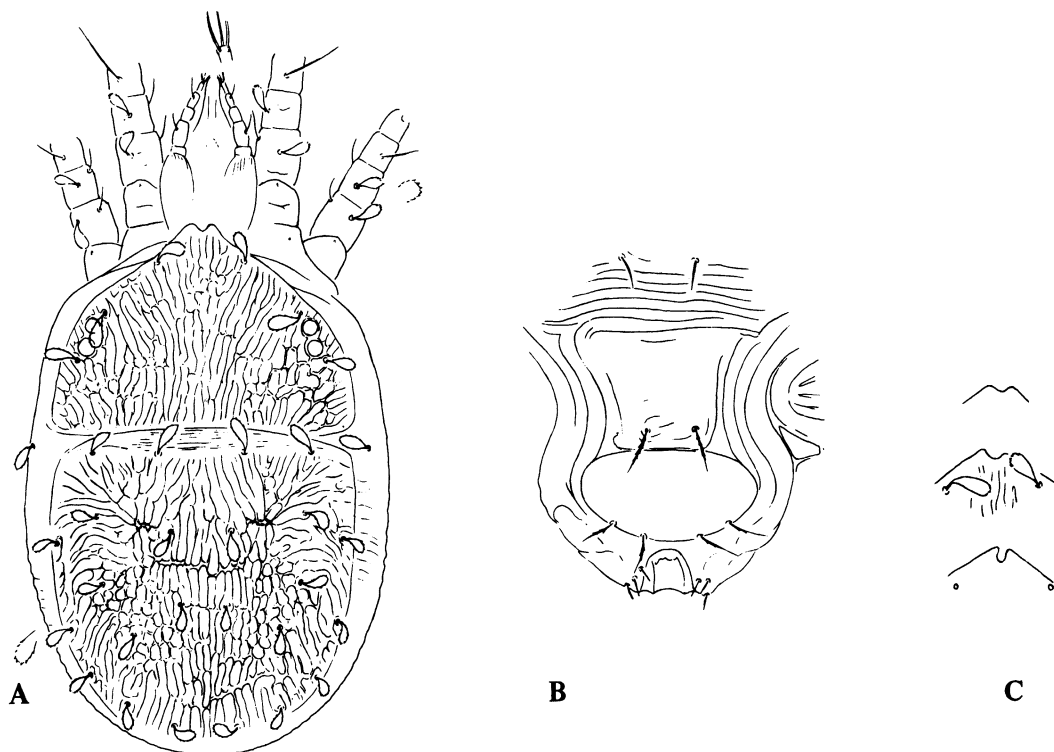


Figure 15.--Aegyptobia crotonae Baker and Tuttle. Female (ex Croton): A, Dorsum; B, venter of opisthosoma. Female (ex Tridens): C, Variation in anterior margin of propodosoma.

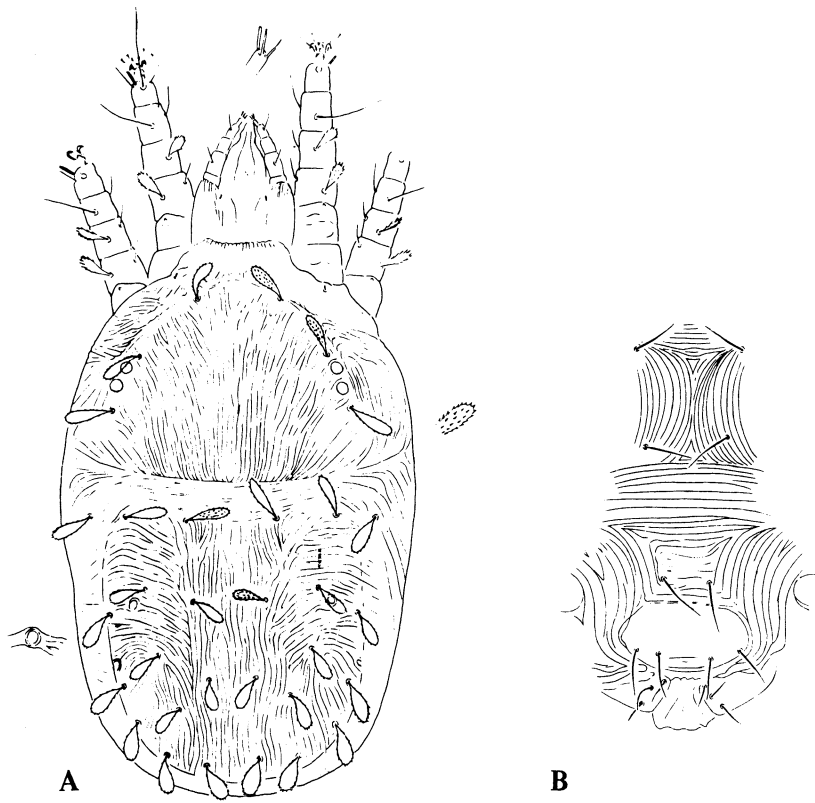


Figure 16.--Aegyptobia desertorum Baker and Tuttle, female: A, Dorsum; B, venter of hysterosoma.

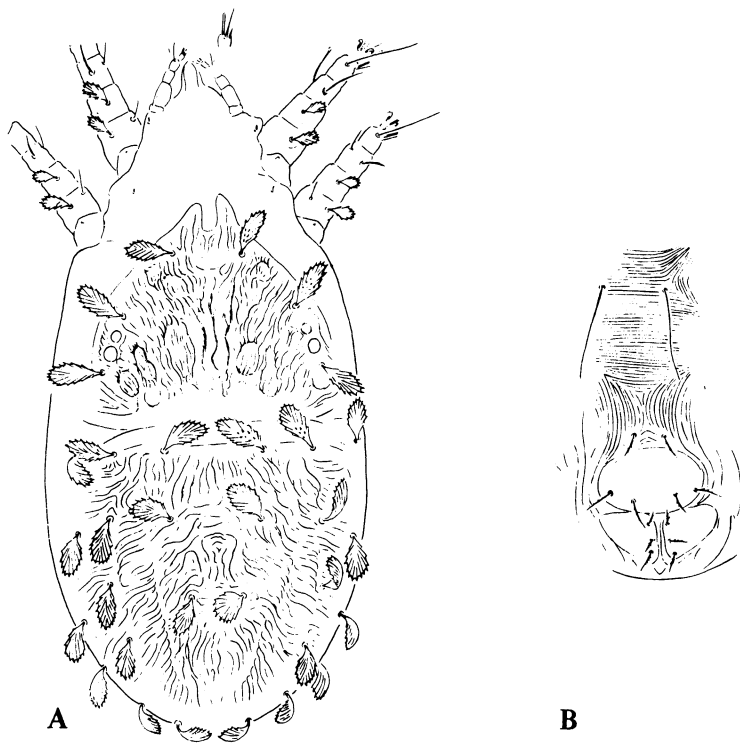


Figure 17.--Aegyptobia pennatulae, n. sp., female: A, Dorsum; B, venter of hysterosoma.

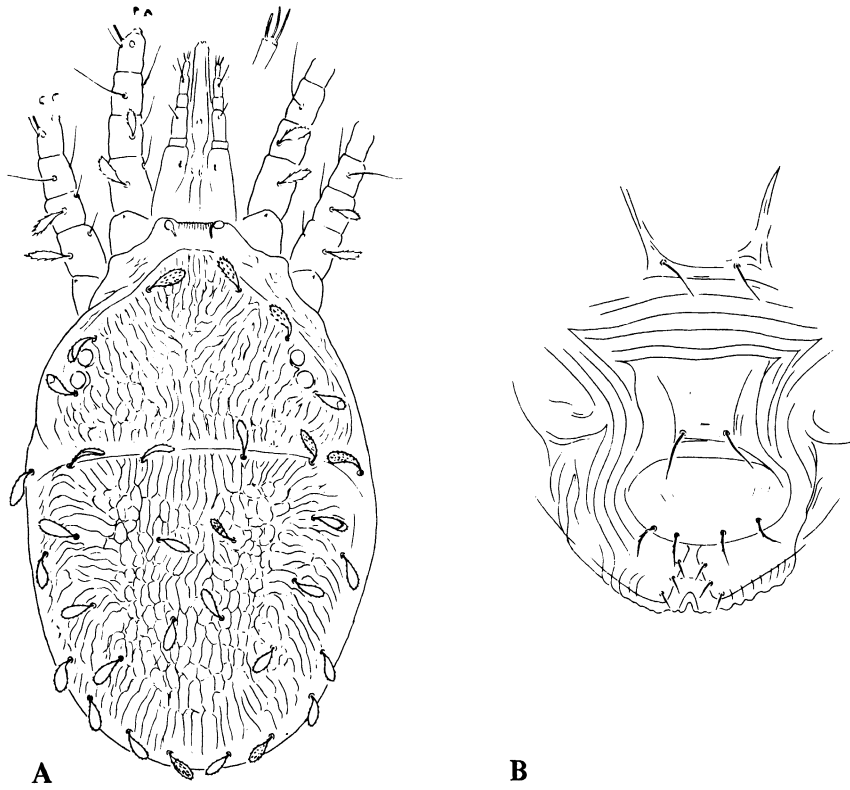


Figure 18.--Aegyptobia solanum, n. sp., female: A, Dorsum; B, venter of hysterosoma.

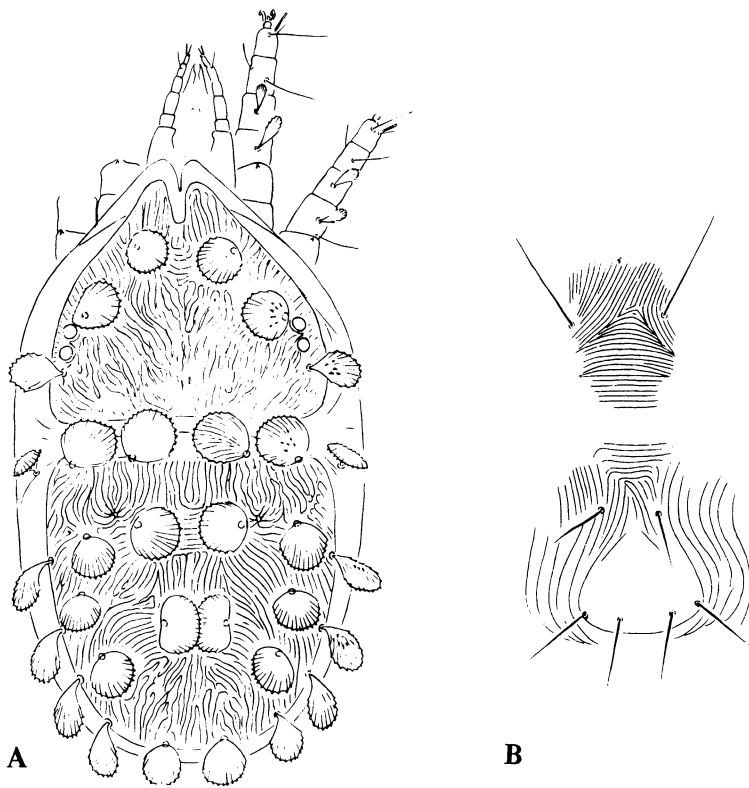


Figure 19.--Aegyptobia vannus Pritchard and Baker, female: A, Dorsum; B, venter of hysterosoma.

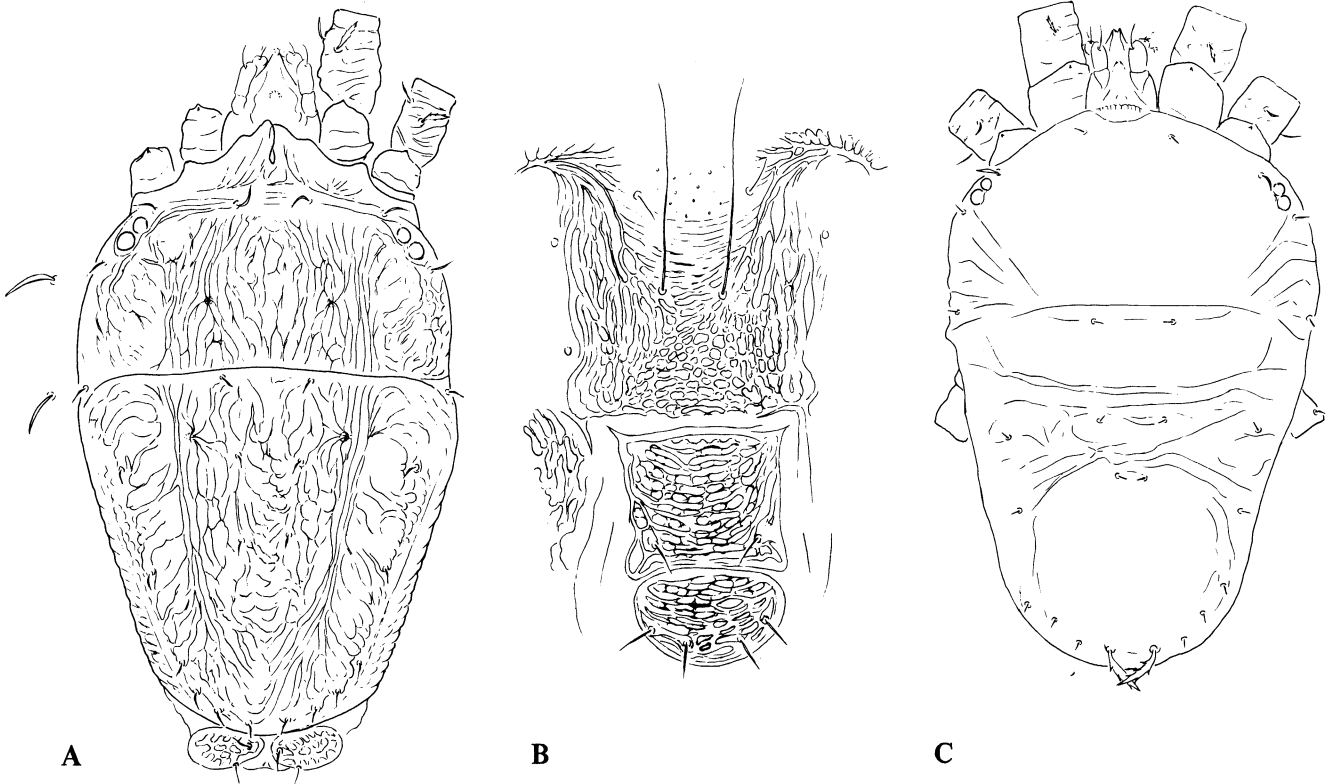


Figure 20.--*Brevipalpus aepi* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

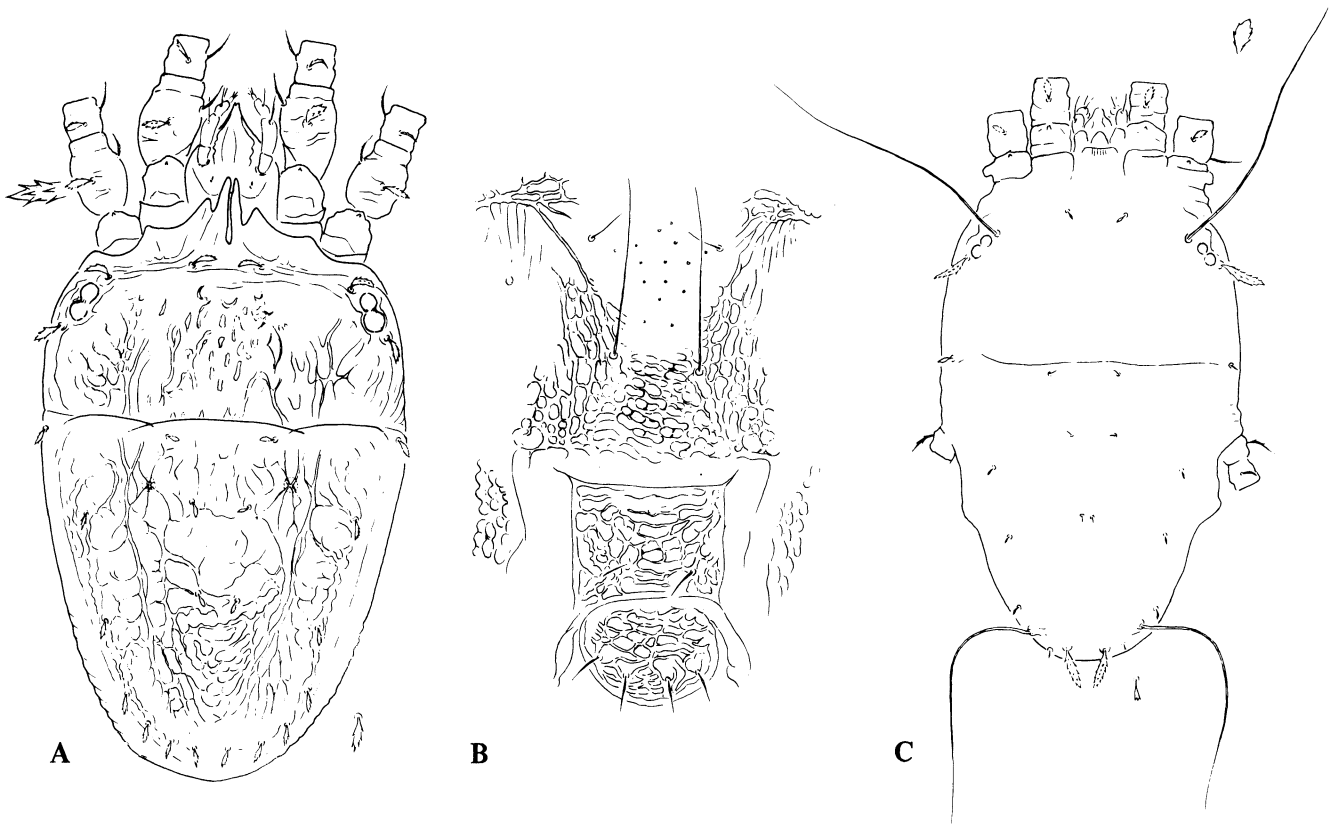


Figure 21.--*Brevipalpus alternatus* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

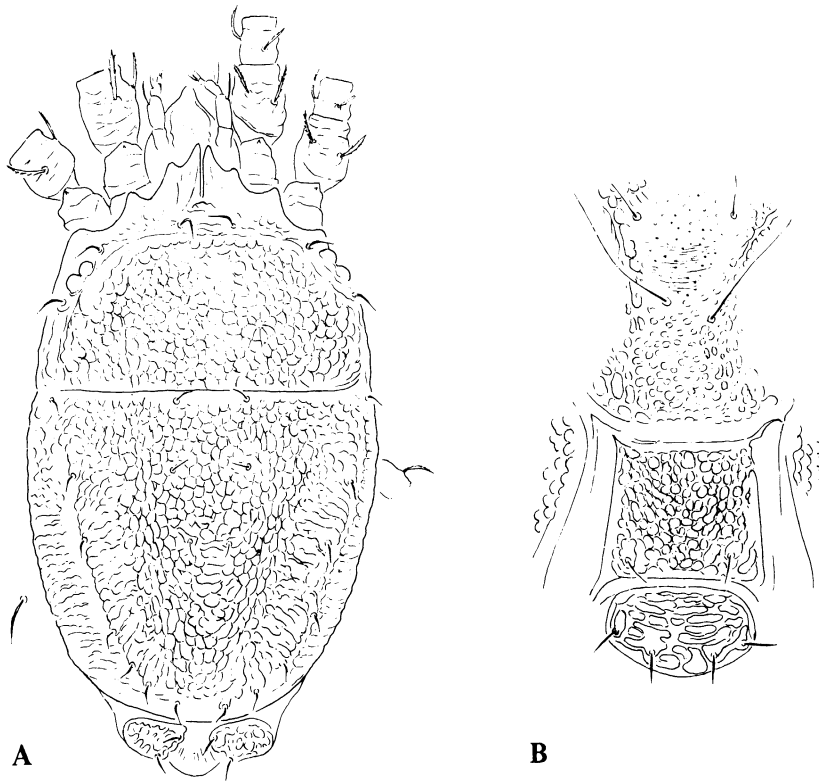


Figure 22.--Brevipalpus ambrosiae, n. sp., female: A, Dorsum; B, venter of hysterosoma.

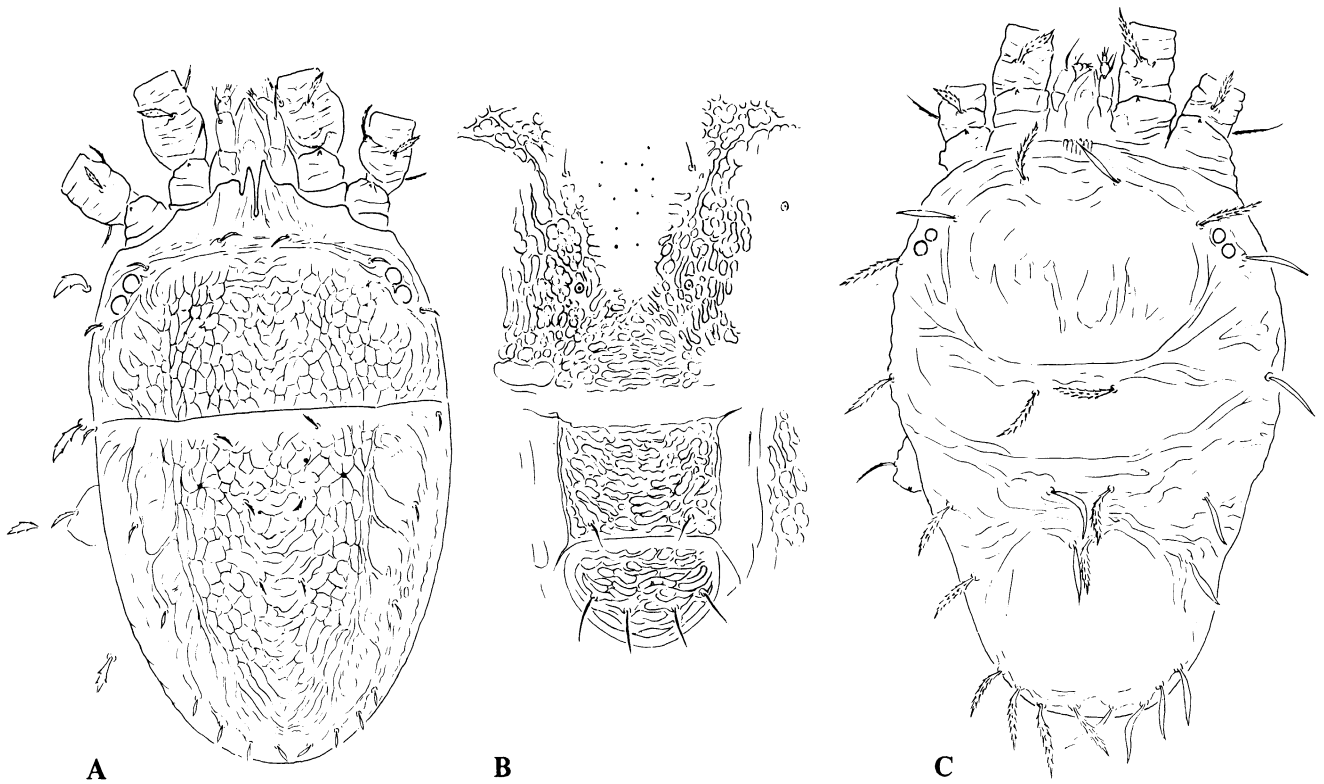


Figure 23.--Brevipalpus ardisiae De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

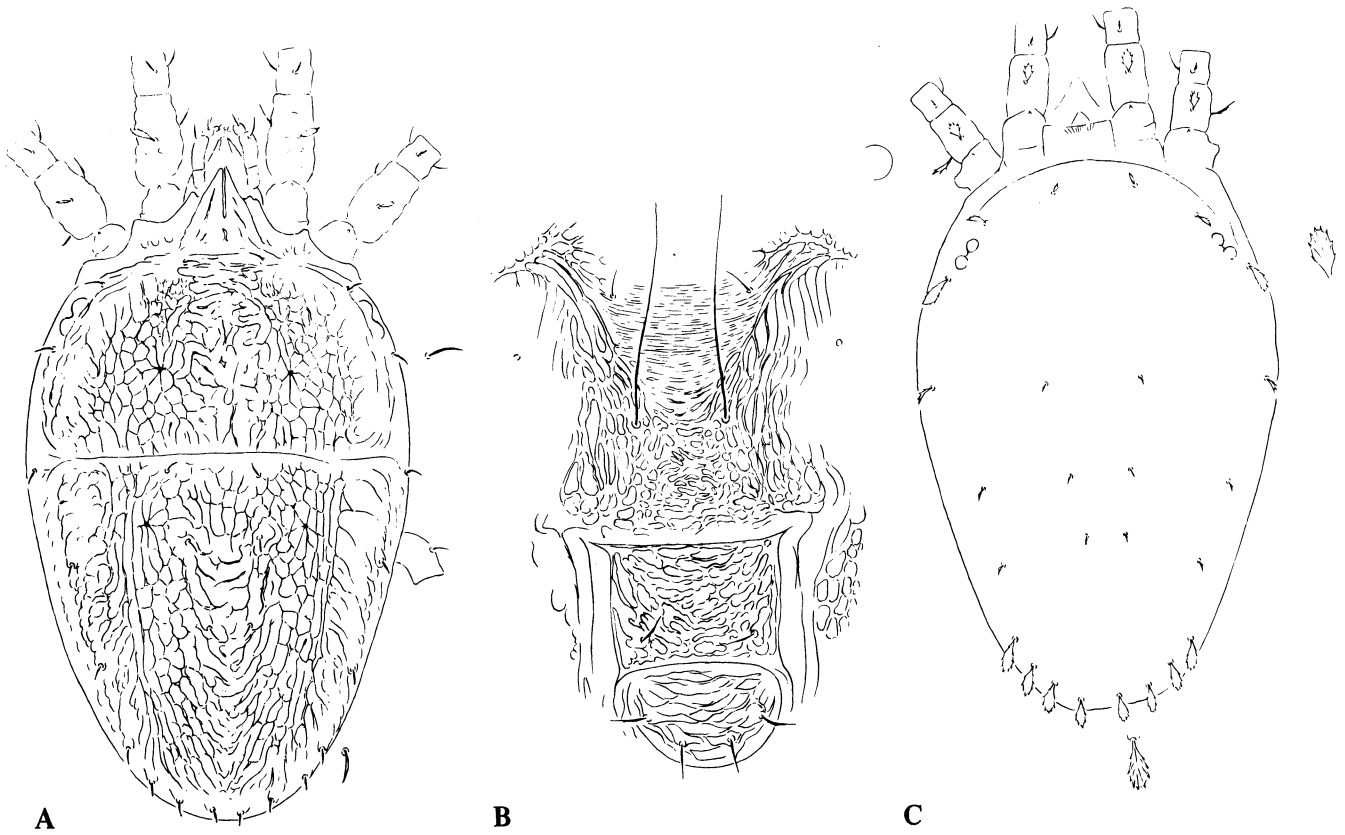


Figure 24.--Brevipalpus californicus (Banks), female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

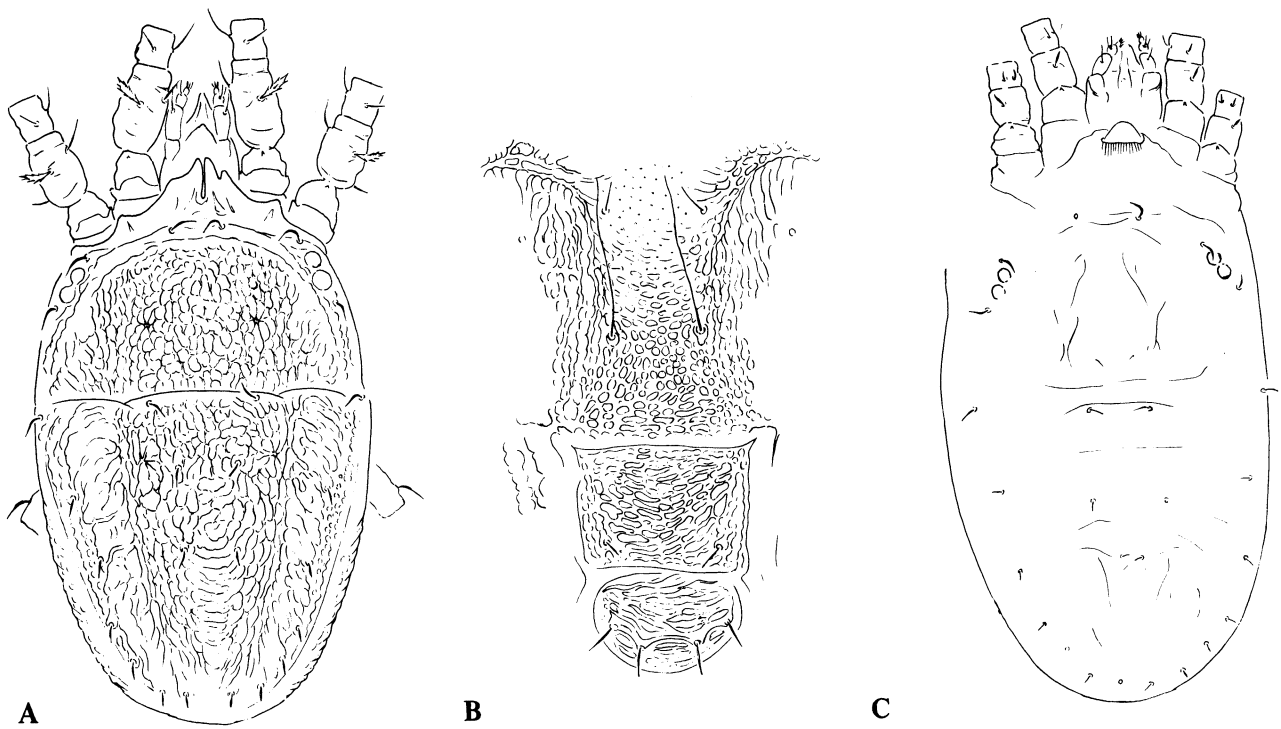


Figure 25.--Brevipalpus cercidium Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

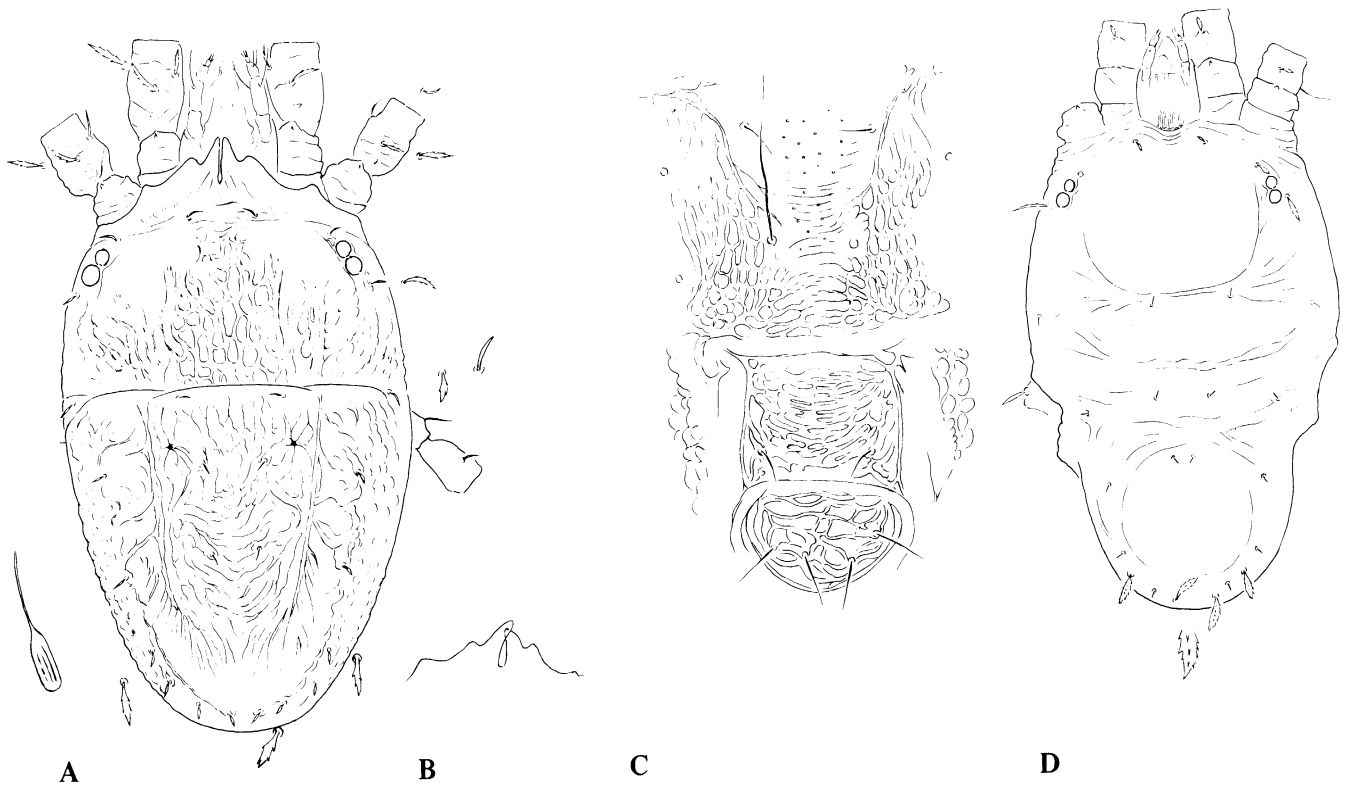


Figure 26.--Brevipalpus cochlospermi De Leon, female, with spermatheca: A, Dorsum; B, variation in rostral shield; C, venter of hysterosoma; D, deutonymph.

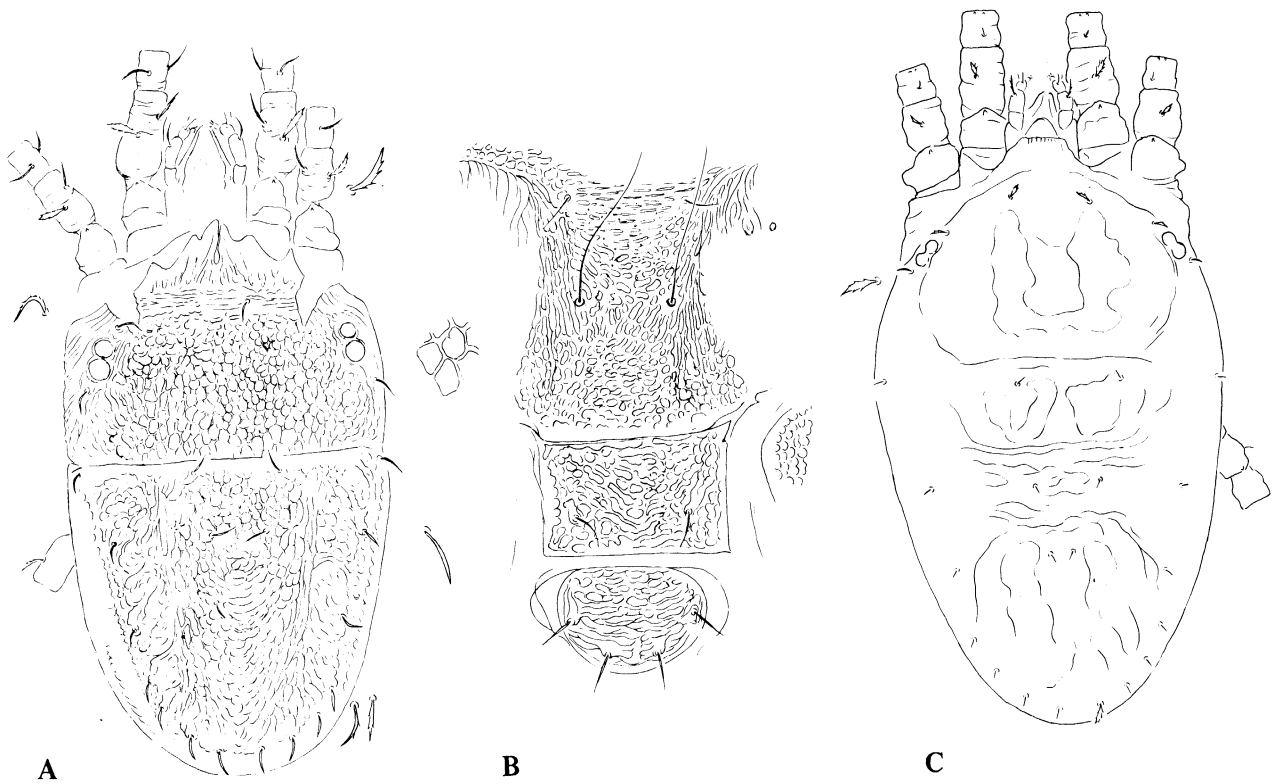
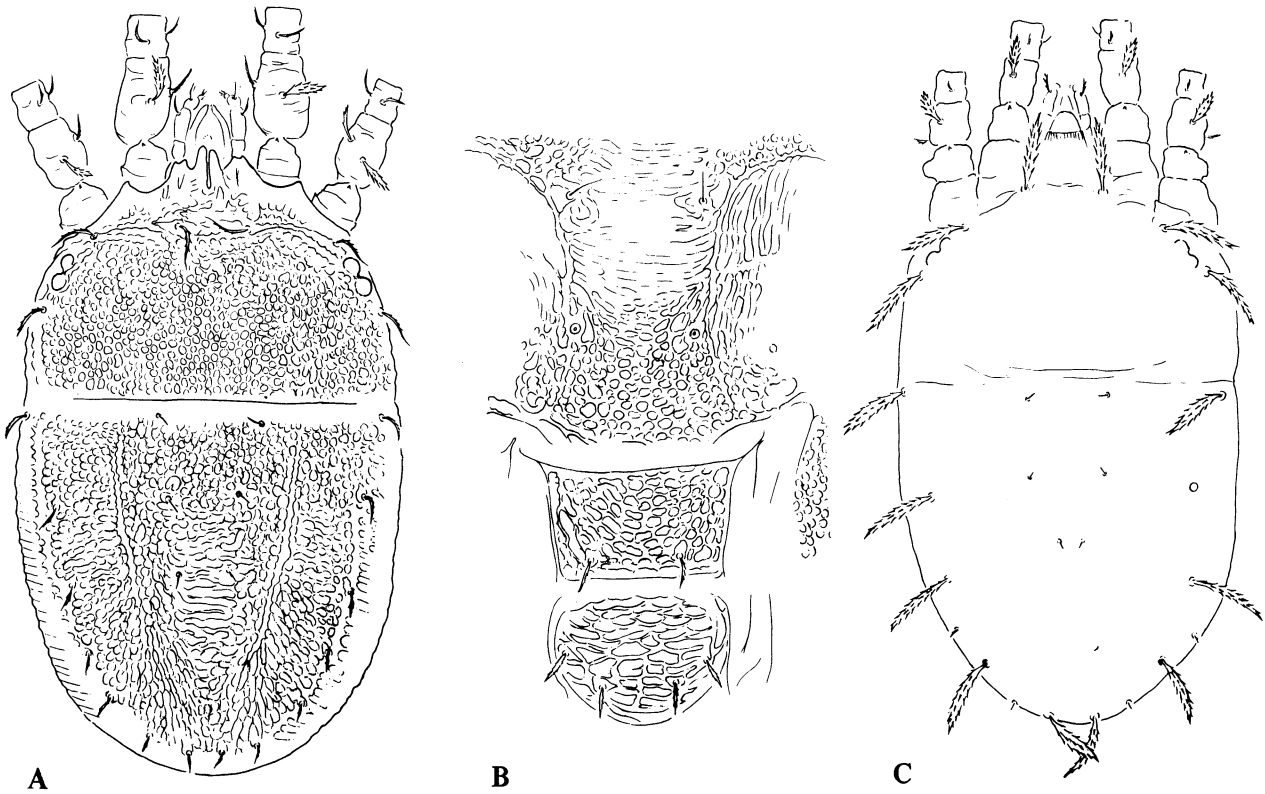
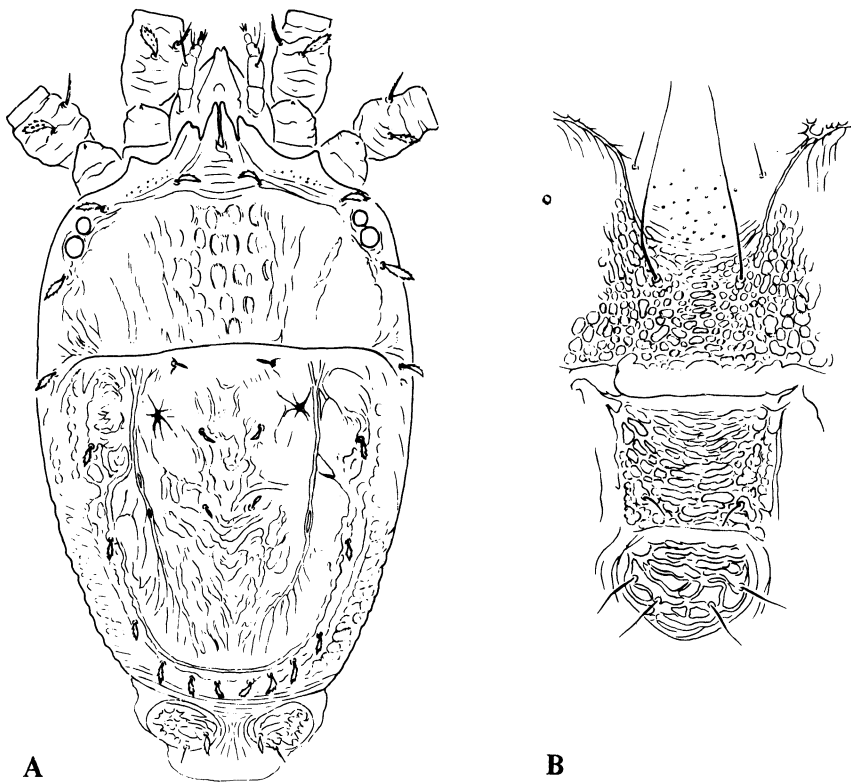


Figure 27.--Brevipalpus cordiae De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph (ex Solanum sp.).





**A** **B** **C**  
 Figure 28.--Brevipalpus crataegus, n. sp., female: A,  
 Dorsum; B, venter of hysterosoma; C, deutonymph.



**A** **B**  
 Figure 29.--Brevipalpus dentatae, n. sp., female: A,  
 Dorsum; B, venter of hysterosoma.

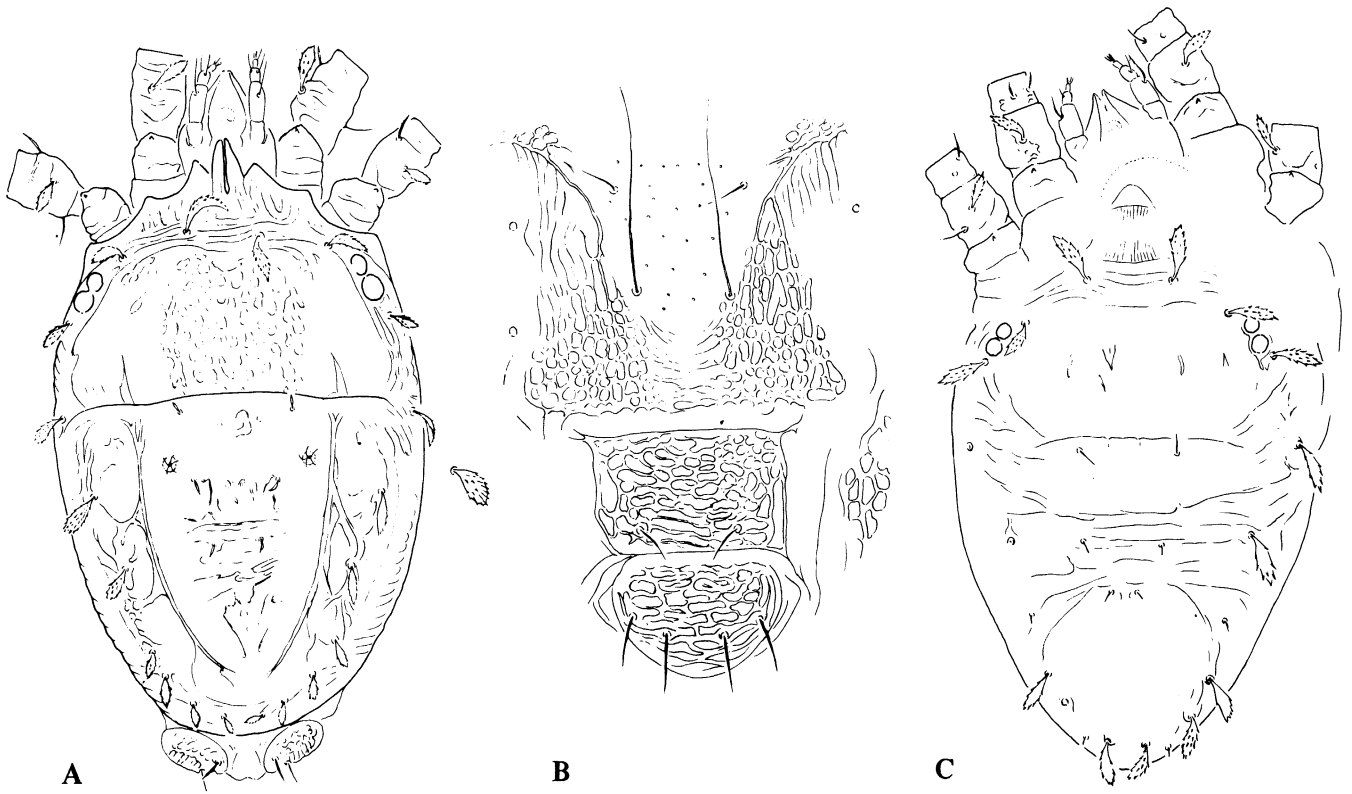


Figure 30.--Brevipalpus encinarius De Leon, female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph.

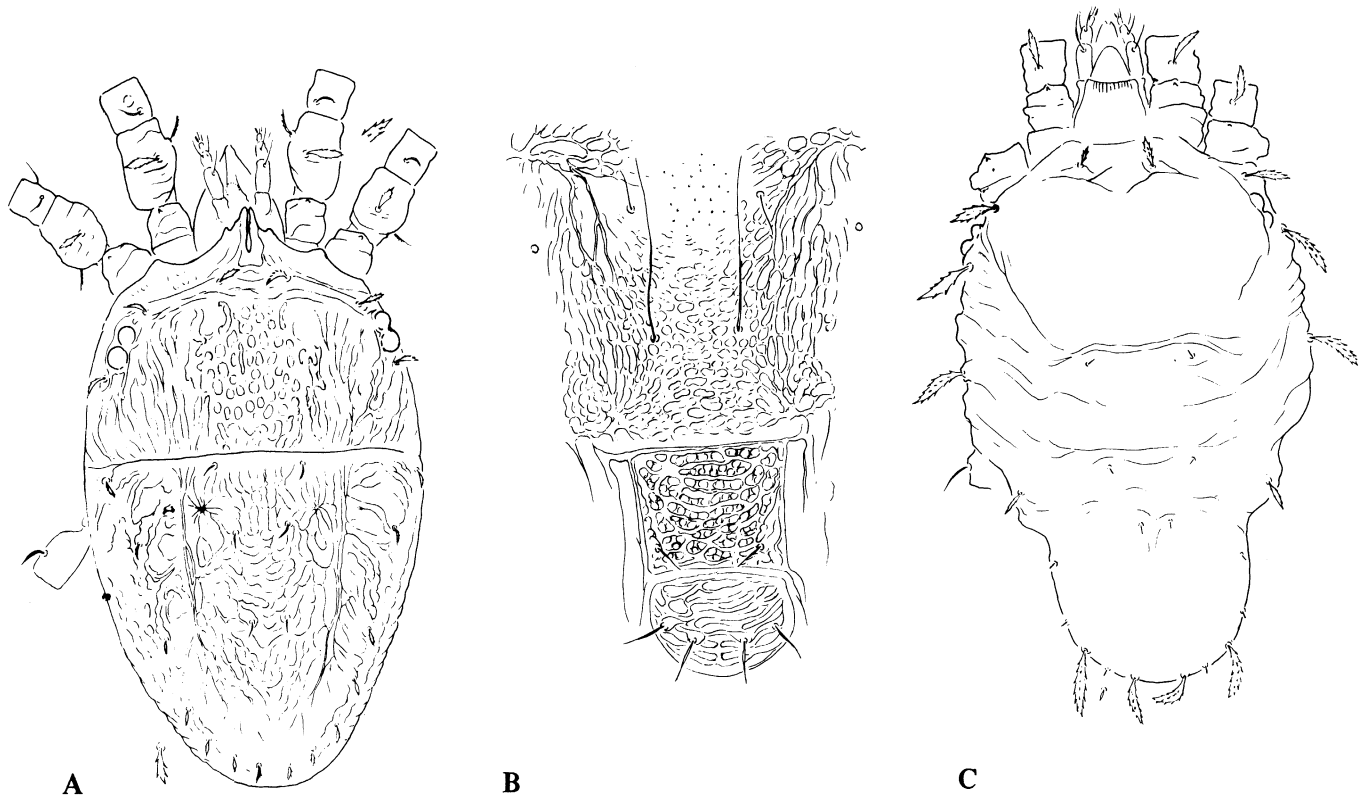
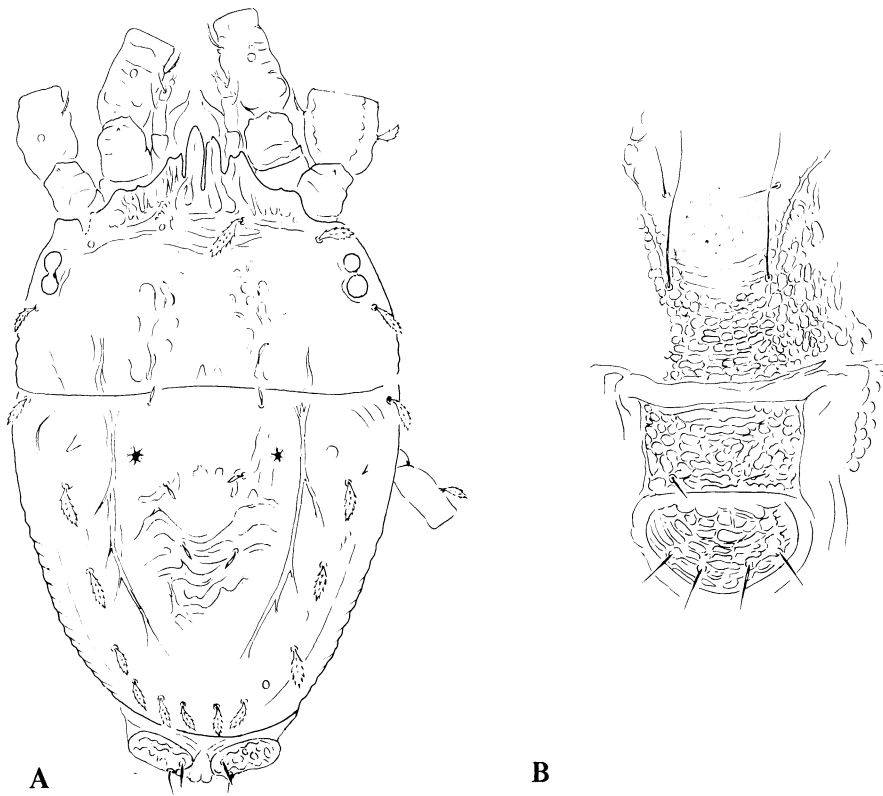


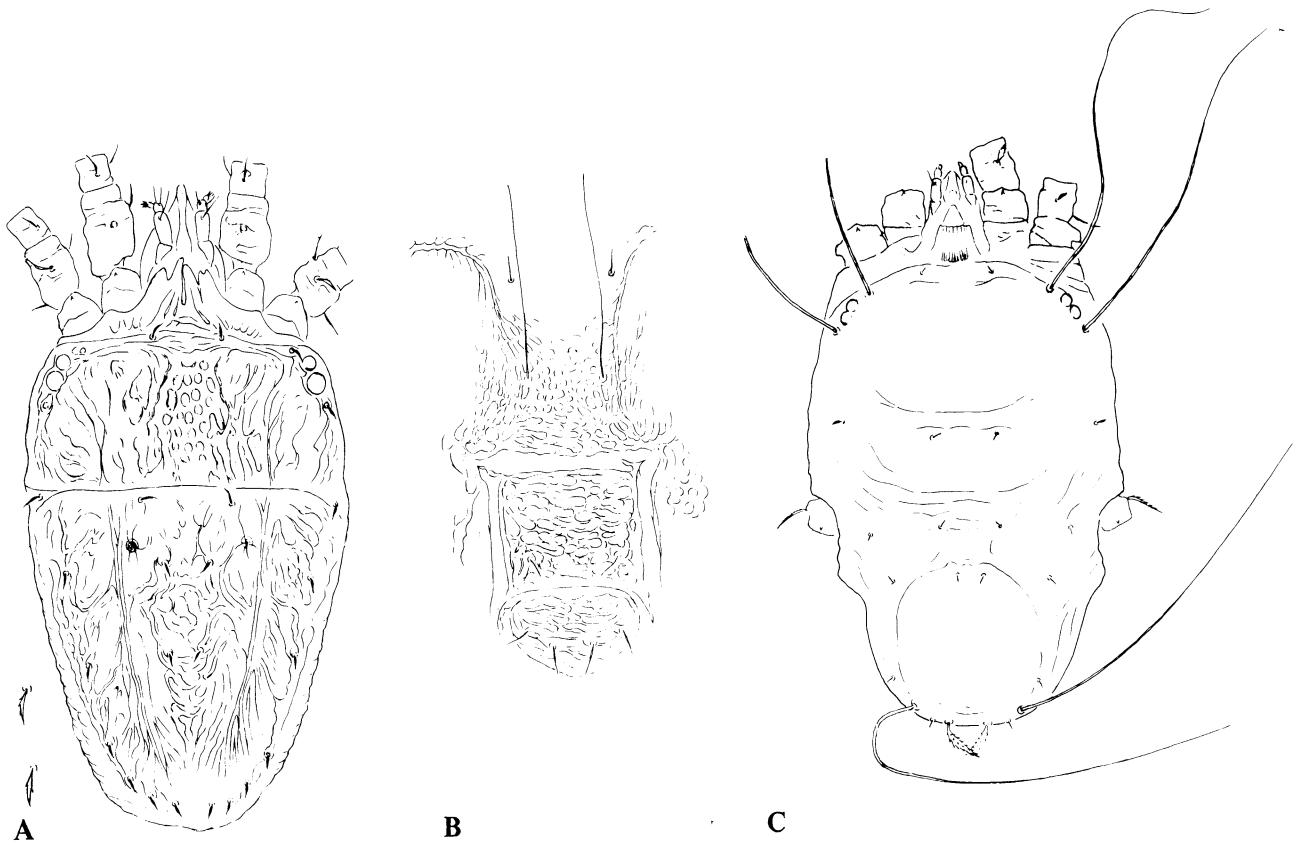
Figure 31.--Brevipalpus gliricidiae De Leon, female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph.



A

B

Figure 32.--Brevipalpus lepidium, n. sp., female: A, Dorsum; B, venter of hysterosoma.



A

B

C

Figure 33.--Brevipalpus longisetosus Baker, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

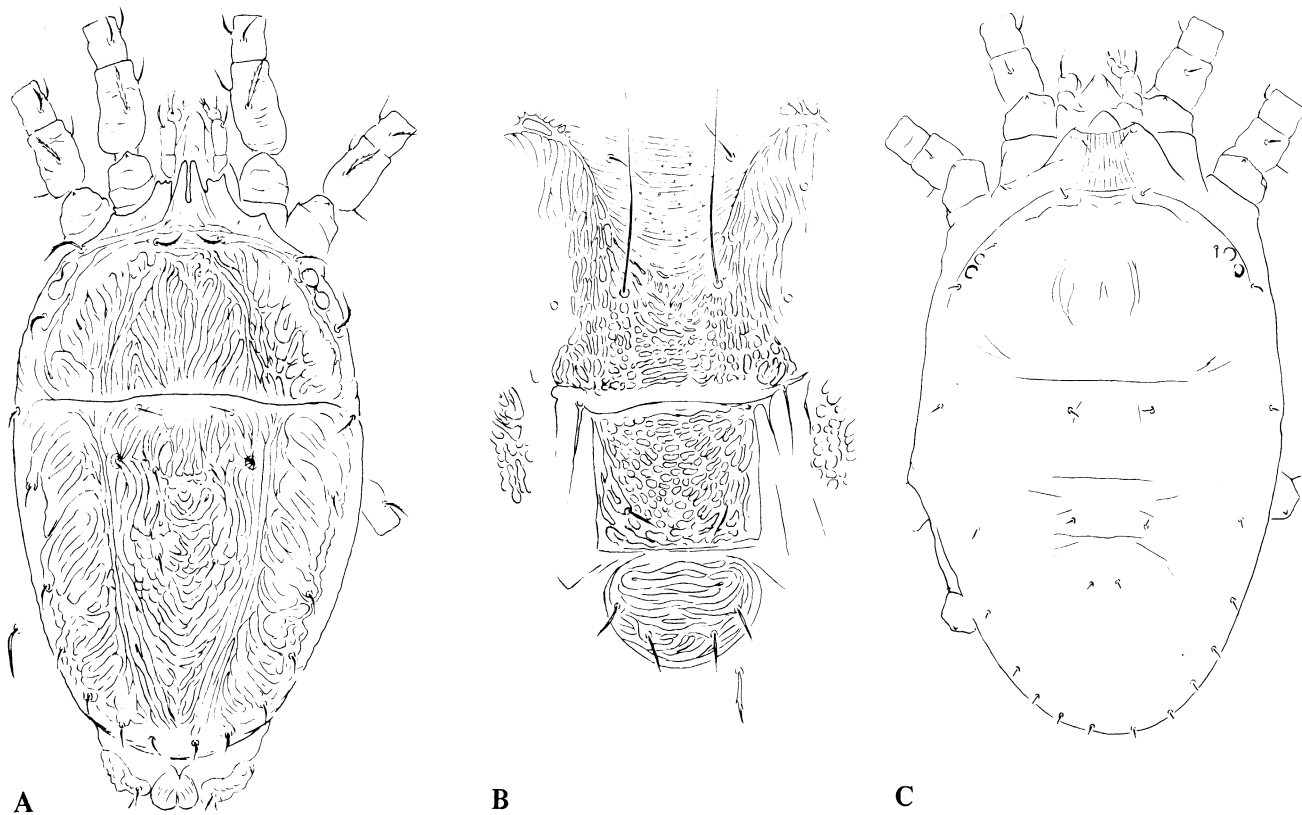


Figure 34.--*Brevipalpus lotus*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, protonymph.

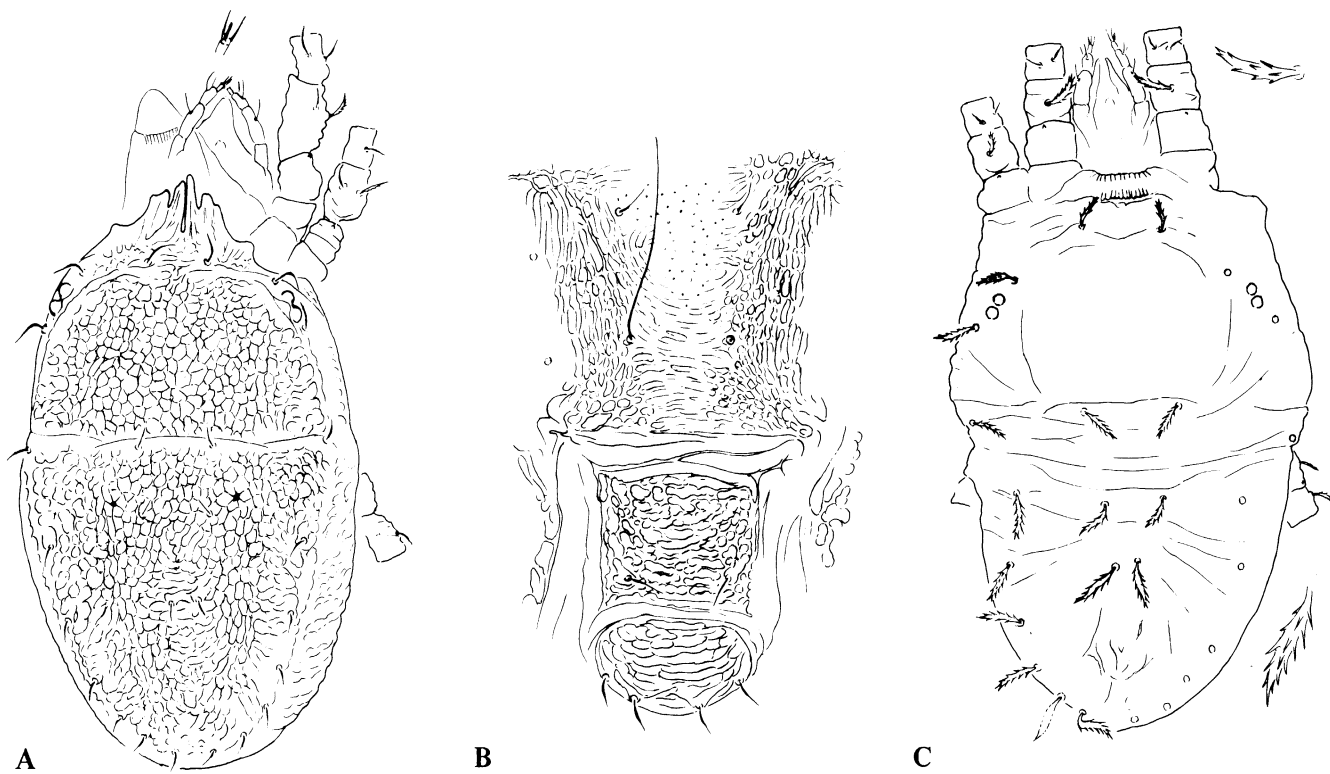


Figure 35.--*Brevipalpus neoardisiae*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

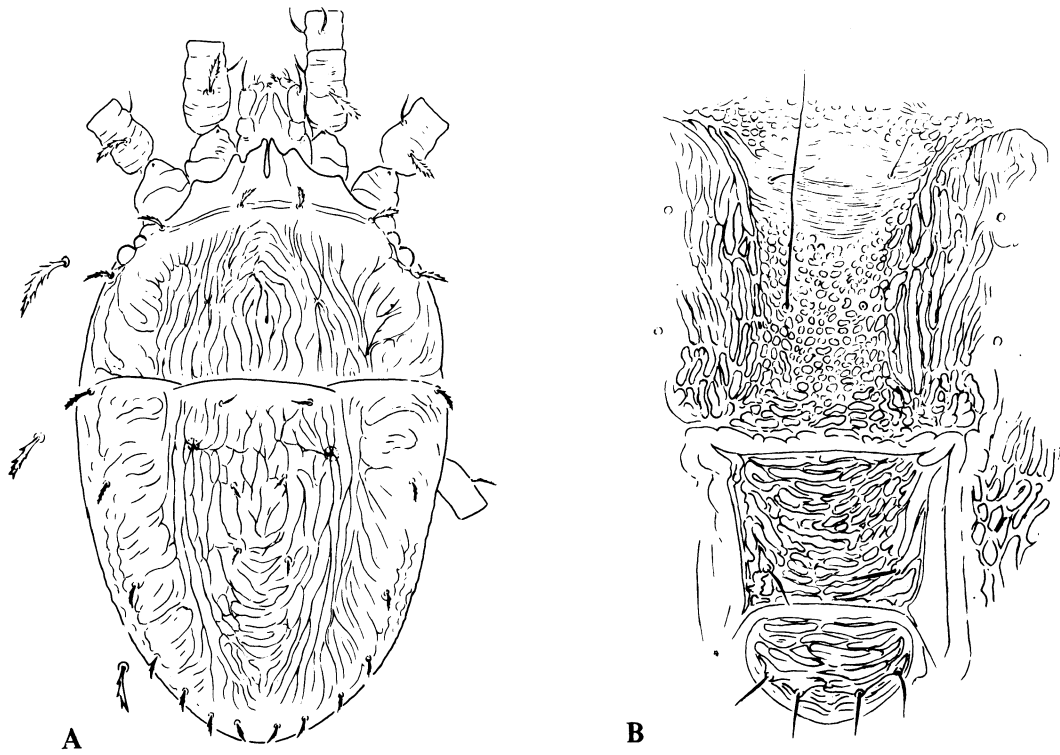


Figure 36.--Brevipalpus neobicolpus, n. sp., female: A, Dorsum; B, venter of hysterosoma.

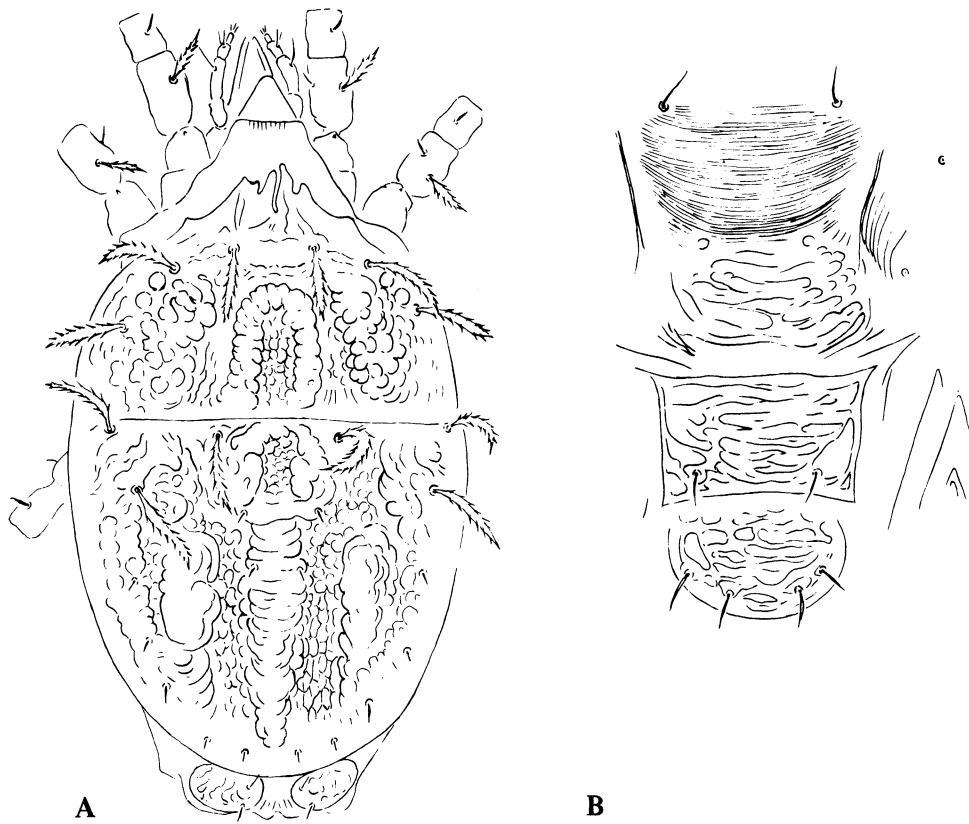


Figure 37.--Brevipalpus ornatus, n. sp., female: A, Dorsum; B, venter of hysterosoma.

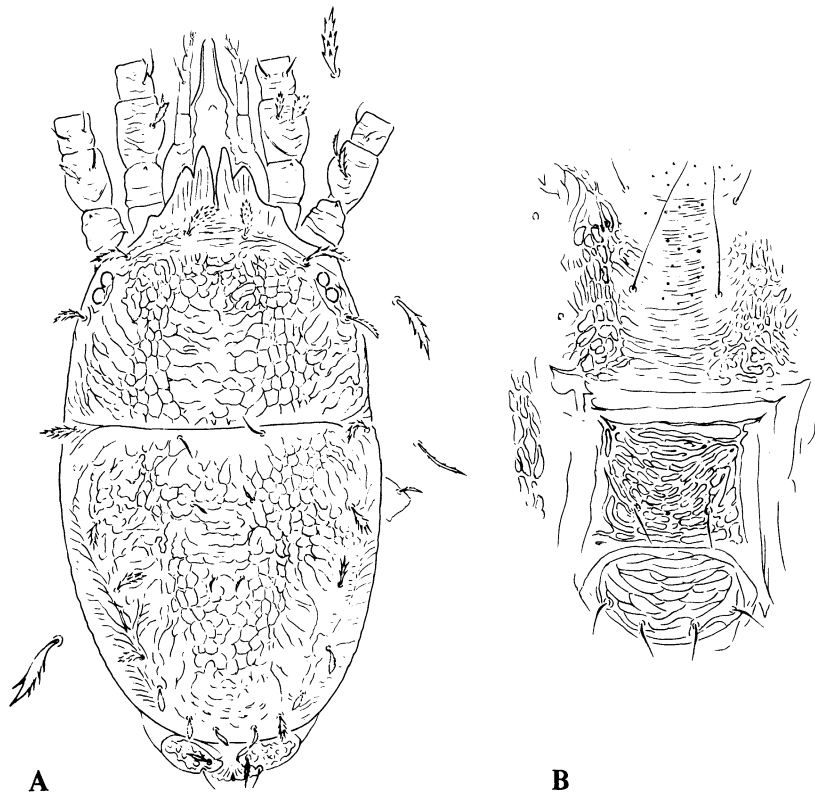


Figure 38.--Brevipalpus proboscidius De Leon, female:  
A, Dorsum; B, venter of hysterosoma.

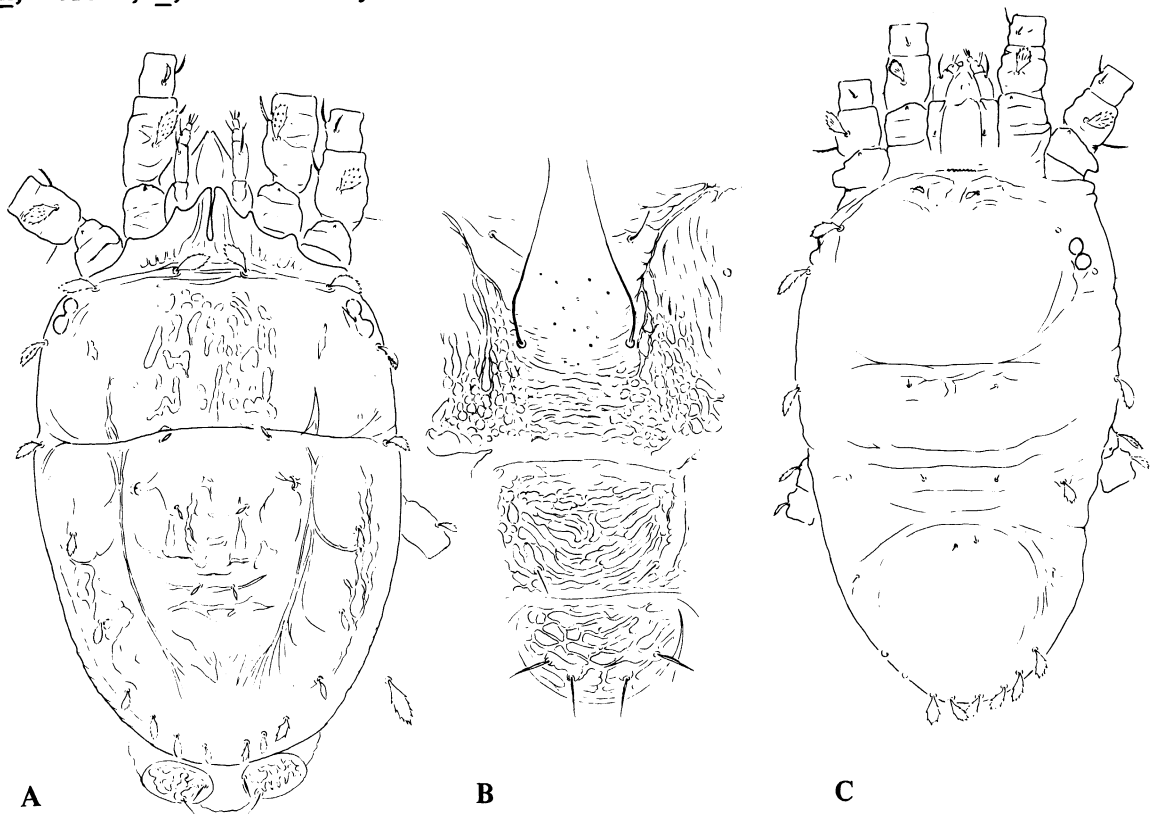


Figure 39.--Brevipalpus pseudopini, n. sp., female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph.

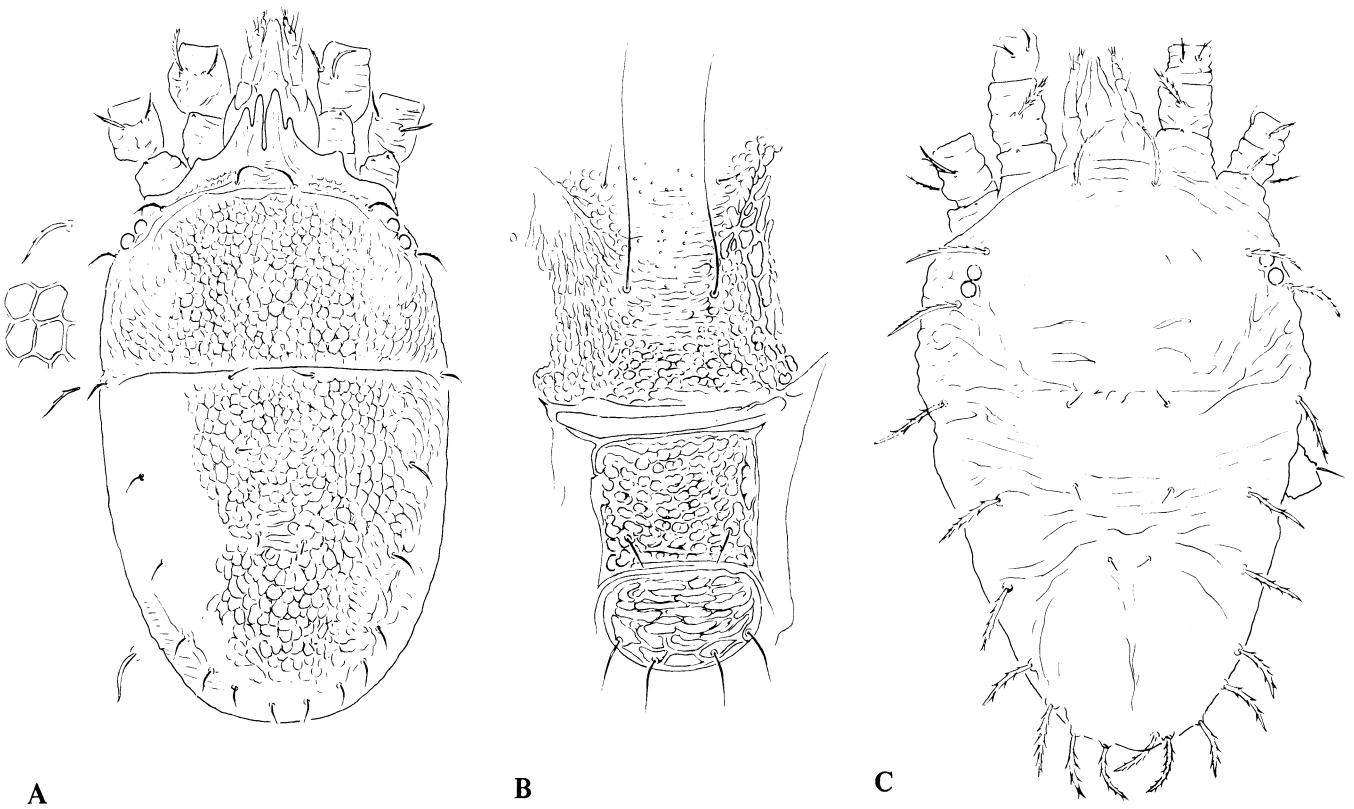


Figure 40.--Brevipalpus rostratus De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

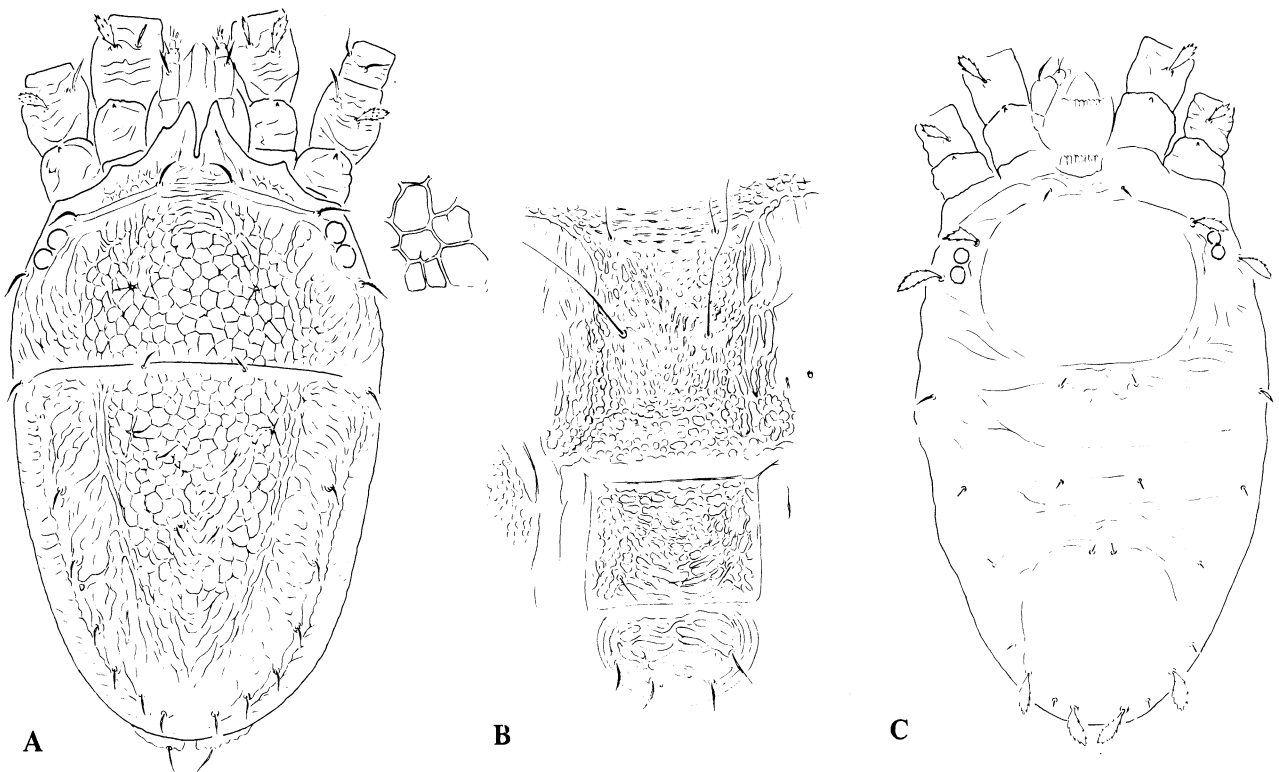


Figure 41.--Brevipalpus trinidadensis Baker, female: A, Dorsum, with closeup of dorsocentral areolae on propodosoma; B, venter of hysterosoma; C, deutonymph.

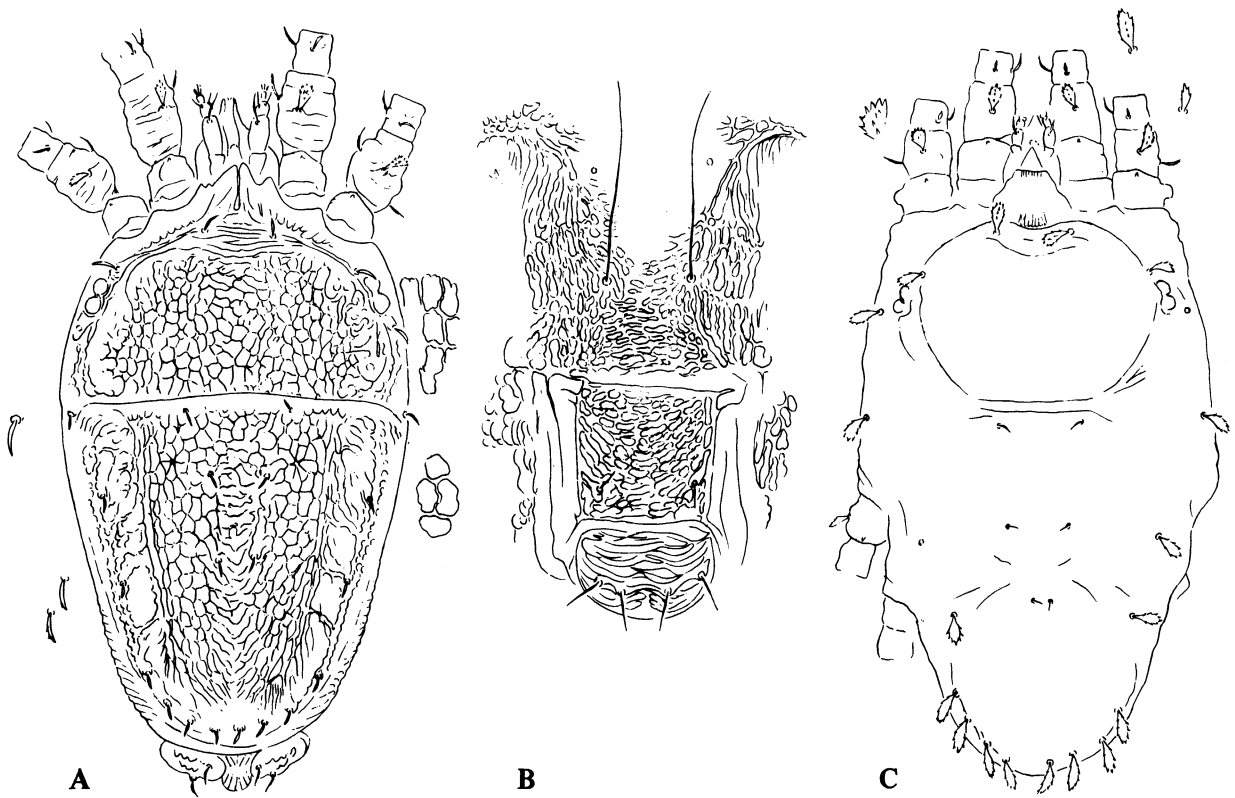


Figure 42.--*Brevipalpus viquierae* Baker, Tuttle, and Abbatiello, female: A, Dorsum, with closeup of areolae on propodosoma and hysterosoma; B, venter of hysterosoma; C, deutonymph.

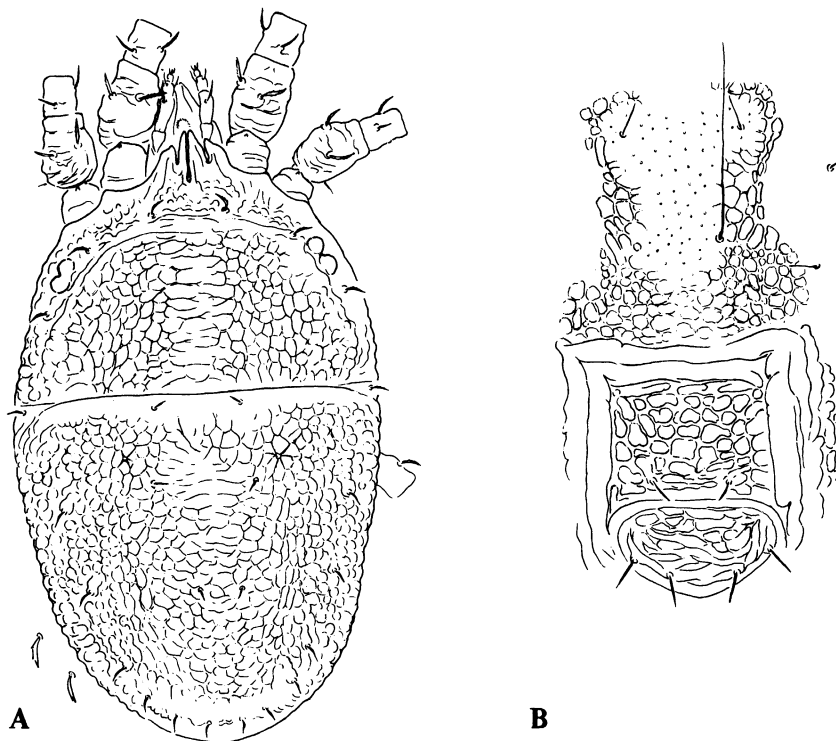


Figure 43.--*Brevipalpus abiesae*, n. sp., female: A, Dorsum; B, venter of hysterosoma.



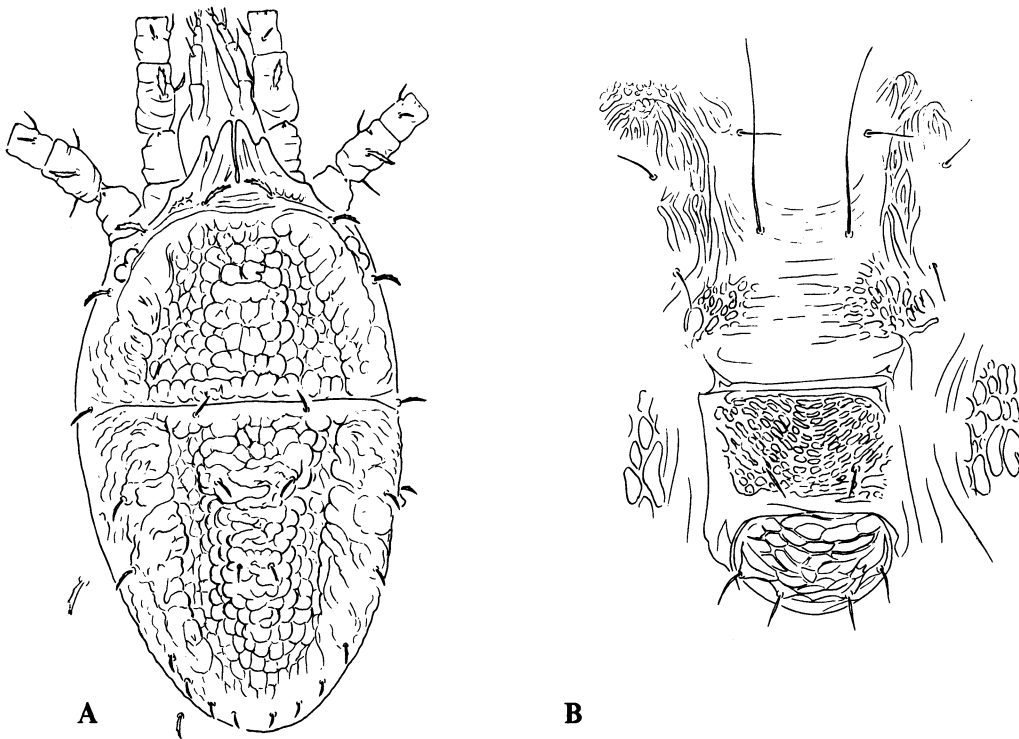


Figure 44.--Brevipalpus acatlanus, n. sp., female: A, Dorsum; B, venter of hysterosoma.

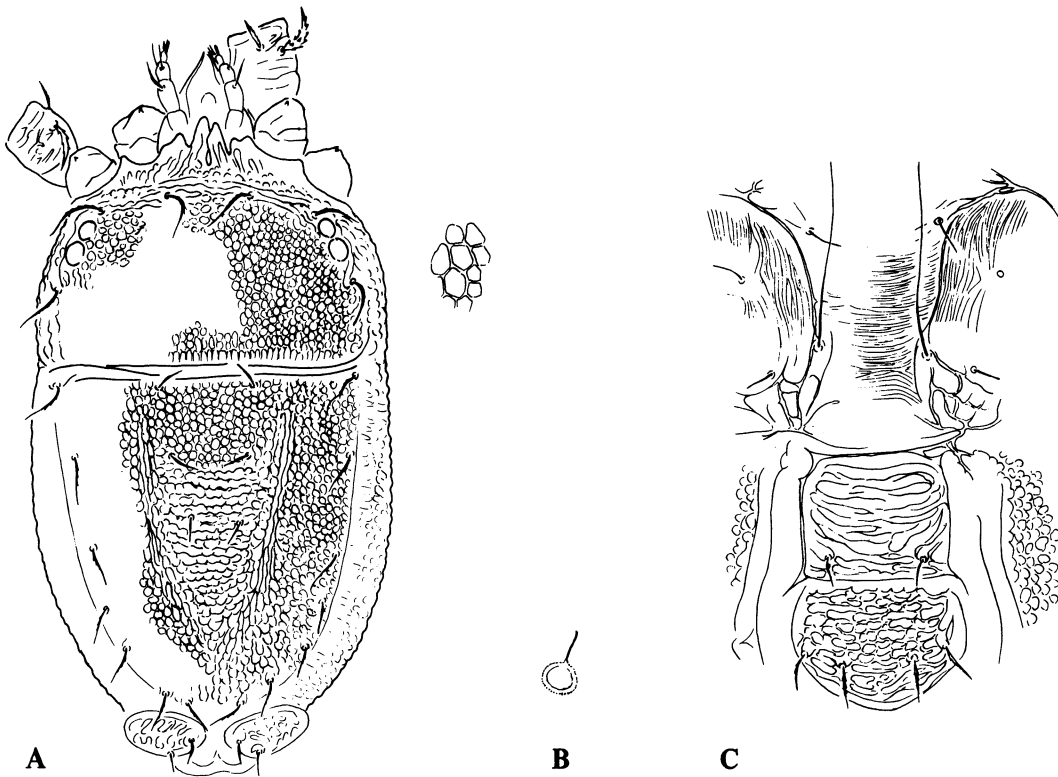


Figure 45.--Brevipalpus albus De Leon, female: A, Dorsum, with closeup of propodosomal areolae; B, spermatheca; C, venter of hysterosoma.

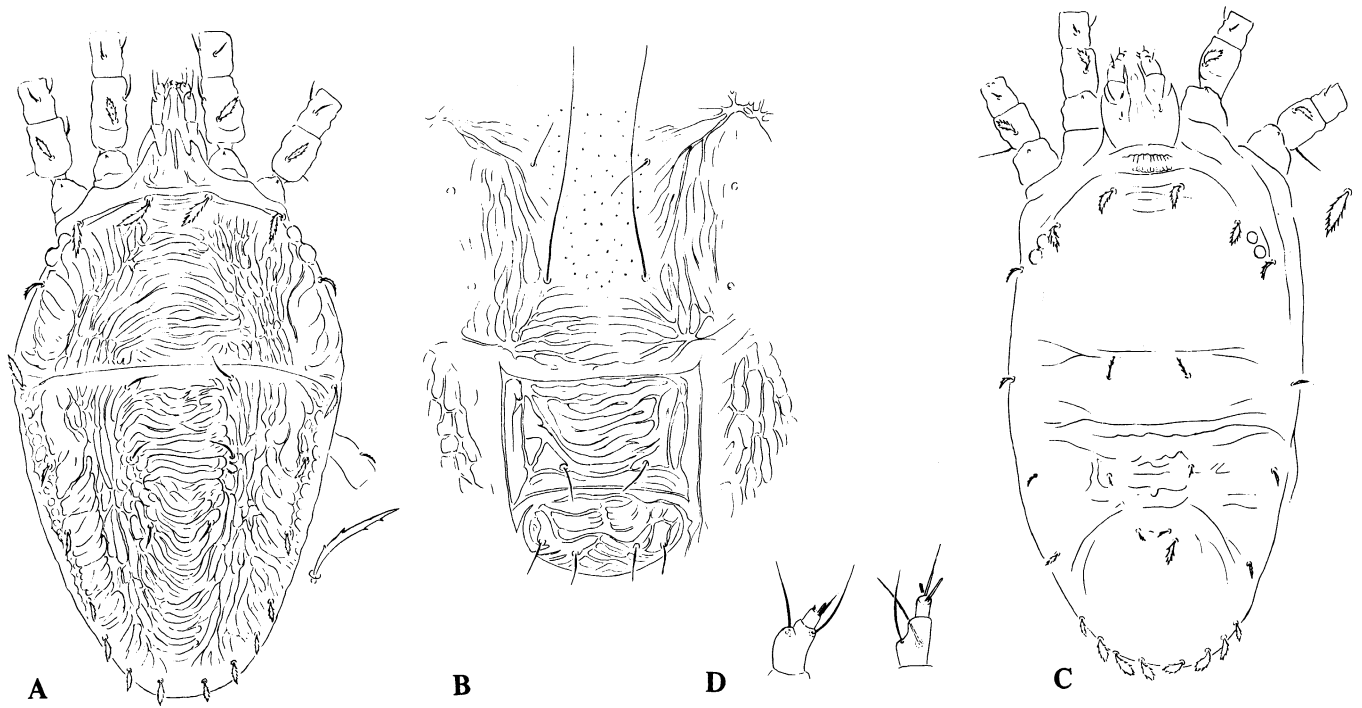


Figure 46.--Brevipalpus allenrolfeae Baker, Tuttle, and Abbatiello. Female: A, Dorsum; B, venter of hysterosoma; C, deutonymph. Female and male: D, Palpi.

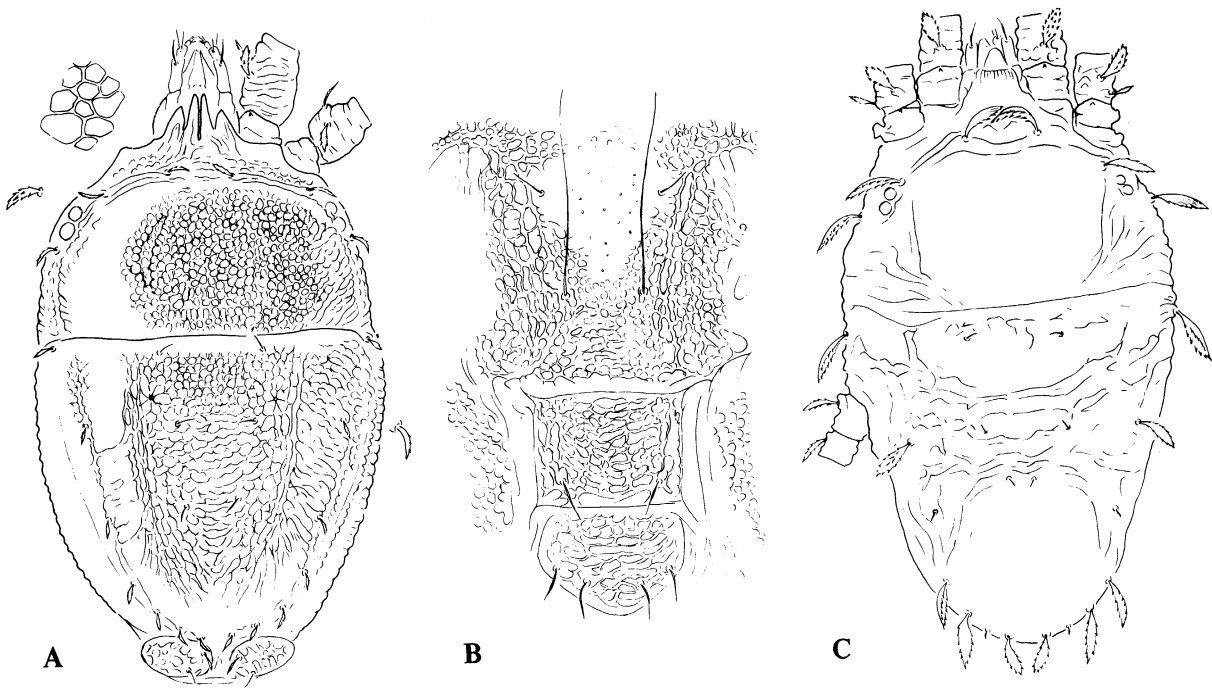


Figure 47.--Brevipalpus alni De Leon, female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

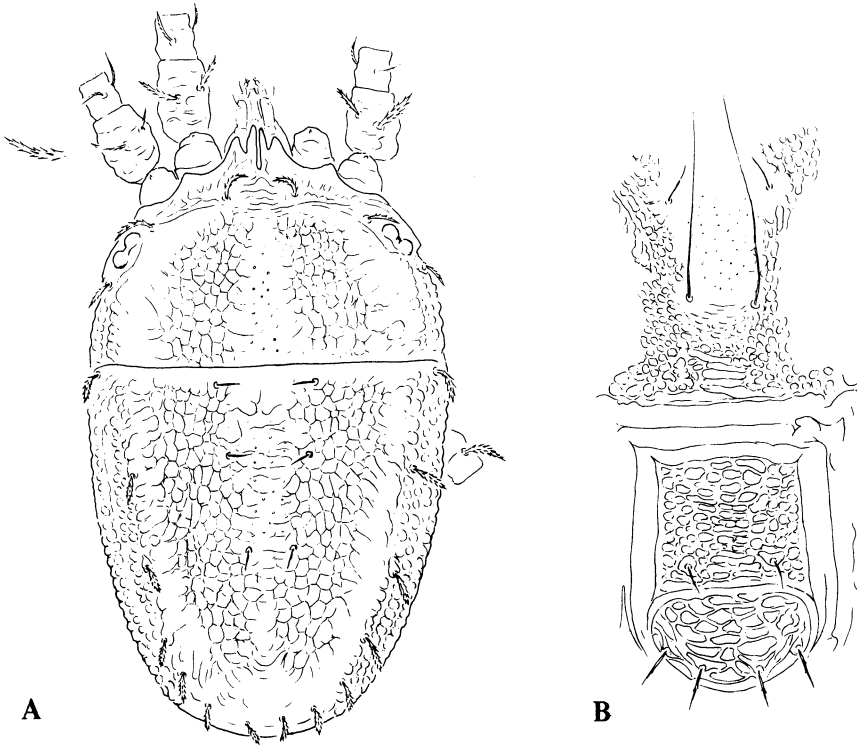


Figure 48.--*Brevipalpus amecensis*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

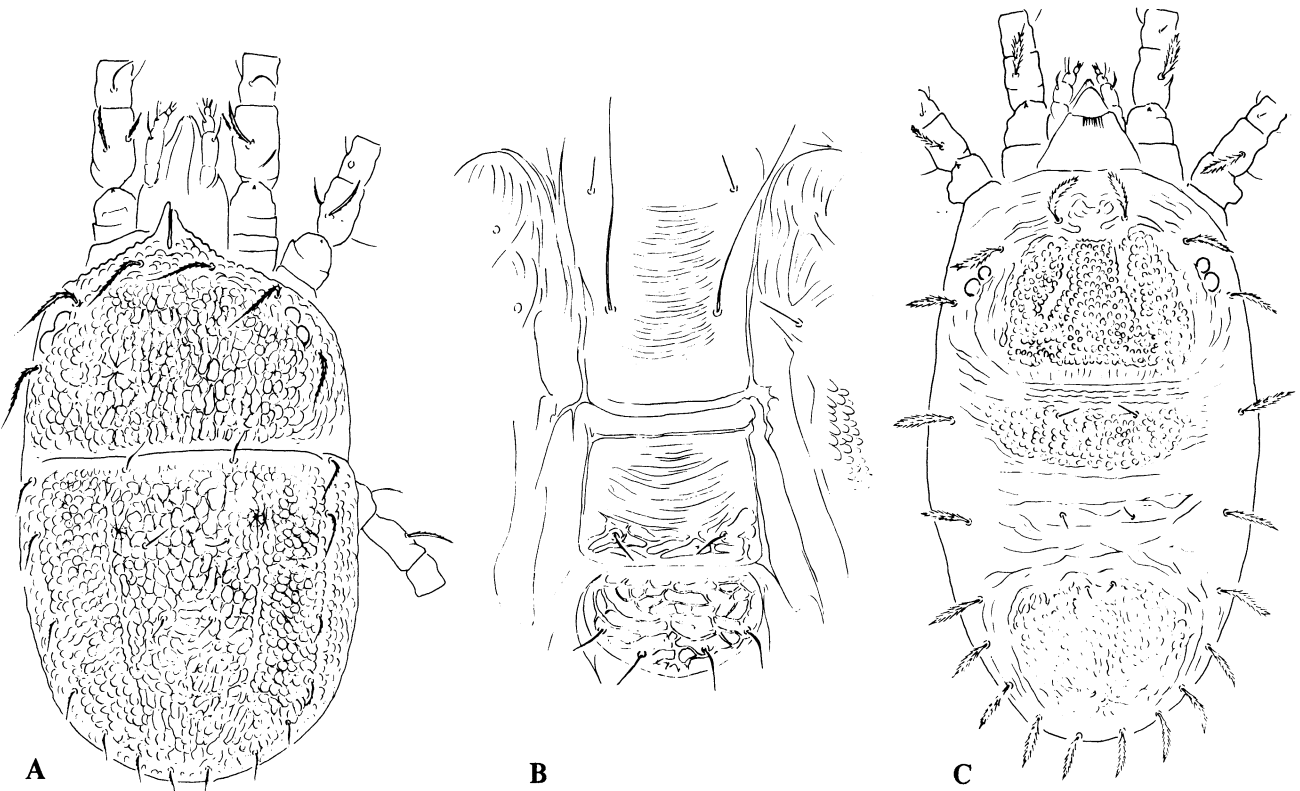


Figure 49.--*Brevipalpus arizonicae*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

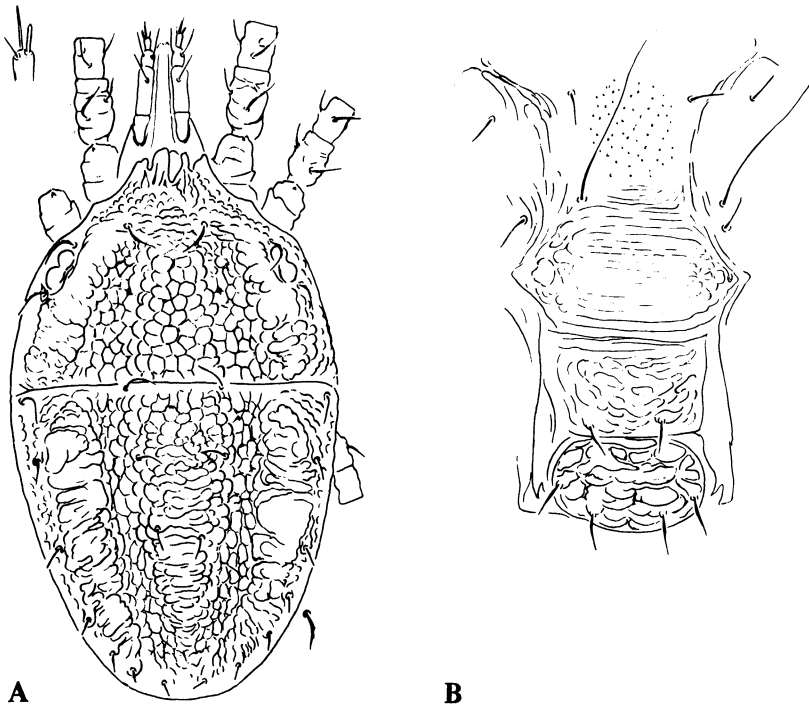


Figure 50.--*Brevipalpus baccharis*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

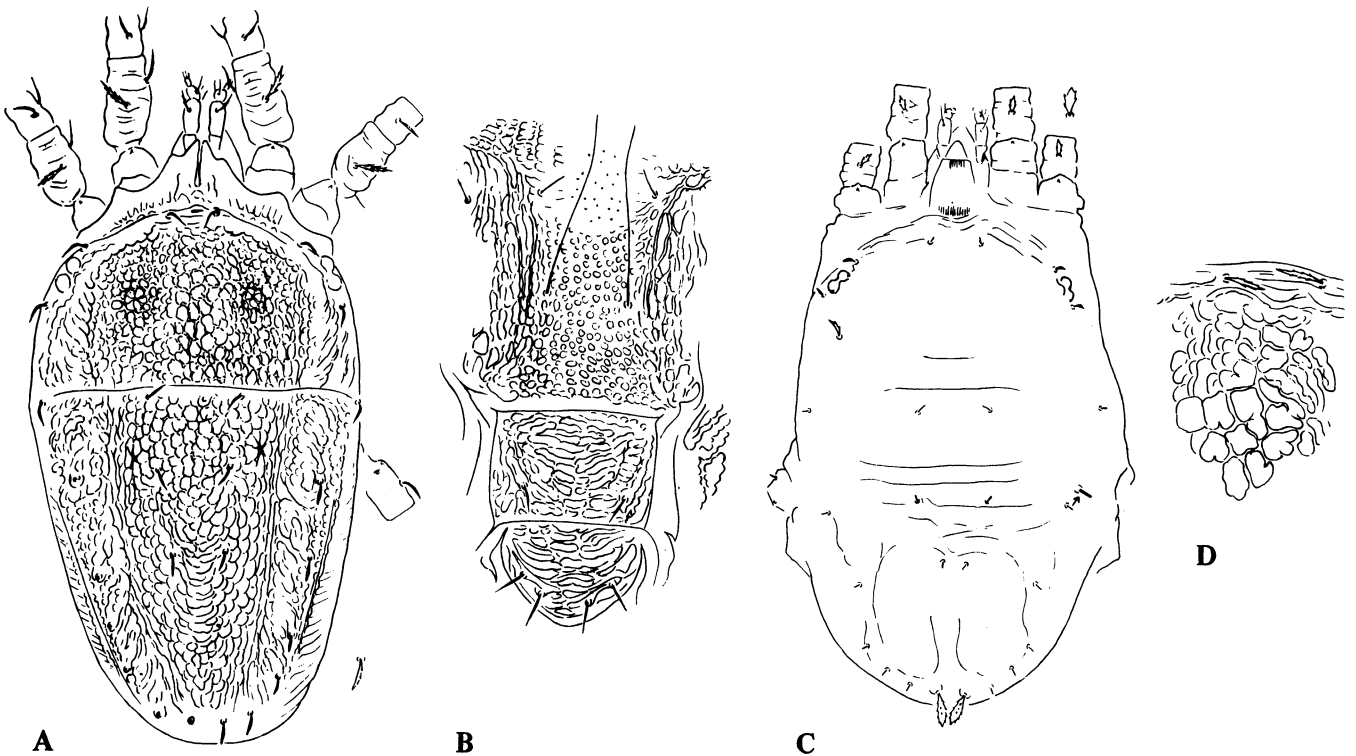


Figure 51.--*Brevipalpus boucheae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph; D, dorsocentral areolae pattern.

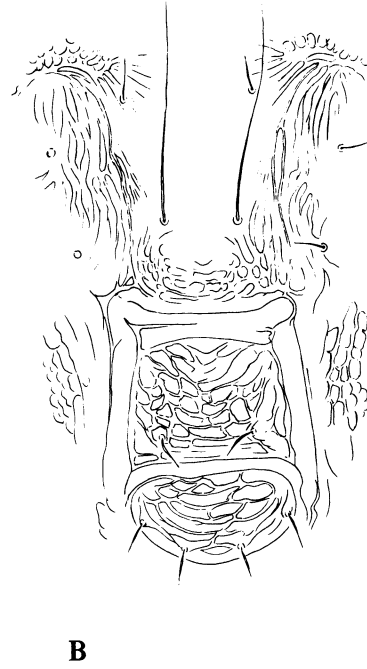
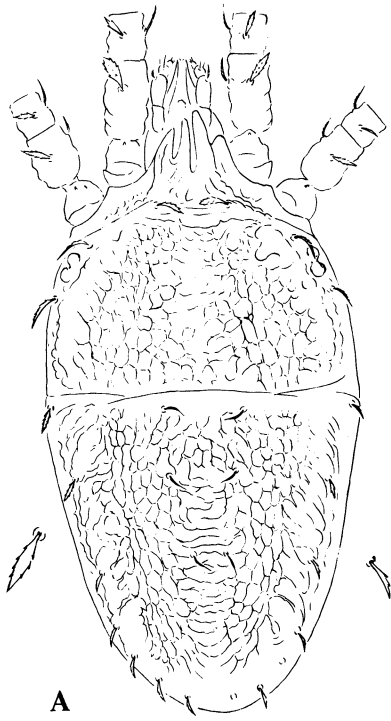


Figure 52.--*Brevipalpus cassiae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma.

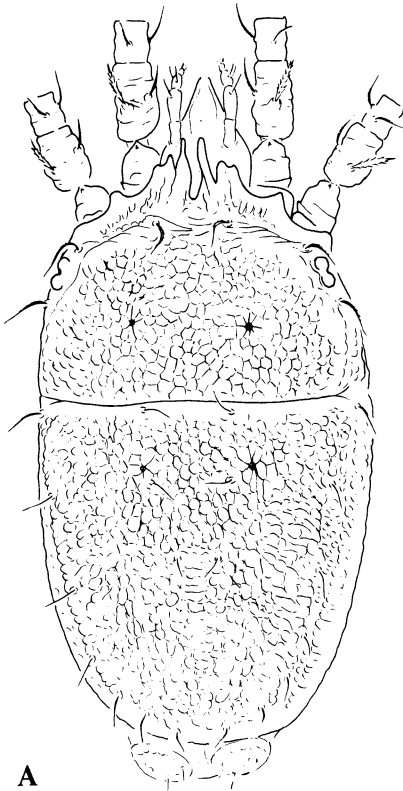
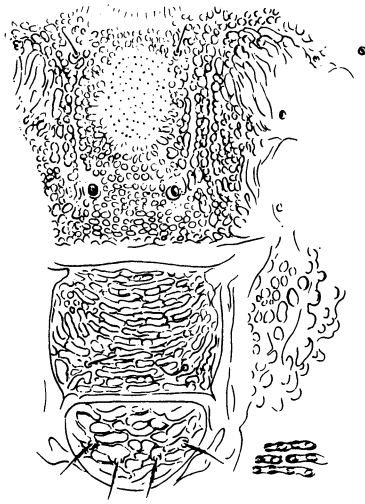
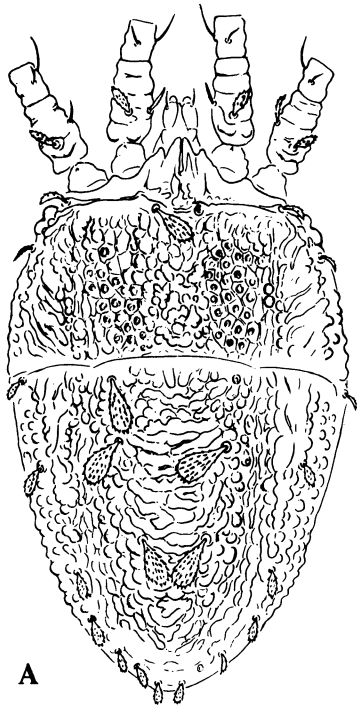


Figure 53.--*Brevipalpus castillejae*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

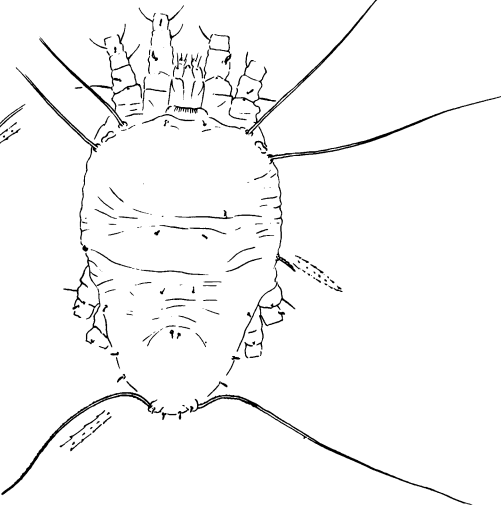
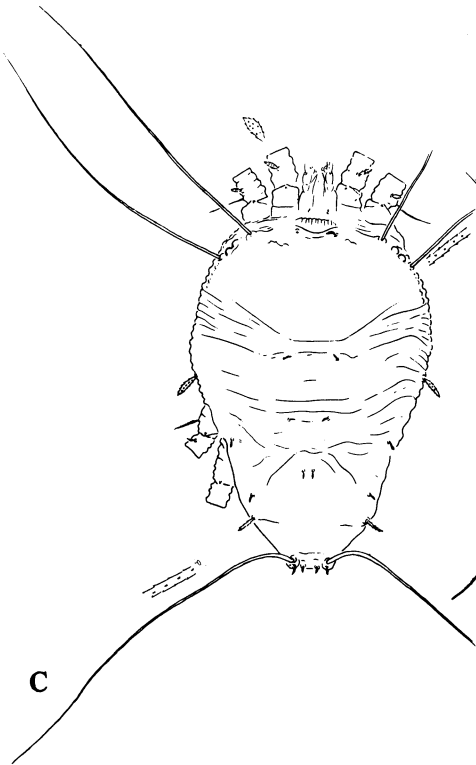


Figure 54.--*Brevipalpus celtis* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, closeup of propodosomal areolae; C, venter of hysterosoma.



A

B



C

D



E

Figure 55.--*Brevipalpus chamaedoreae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph; D, protonymph; E, larva.

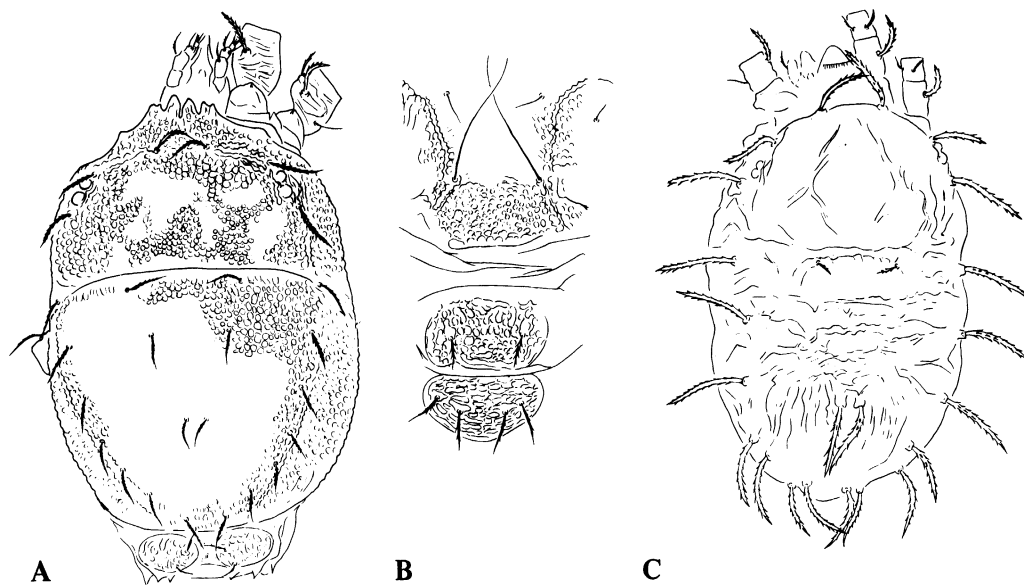


Figure 56.--Brevipalpus chucamayi De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph (note missing DC<sub>2</sub> setae).

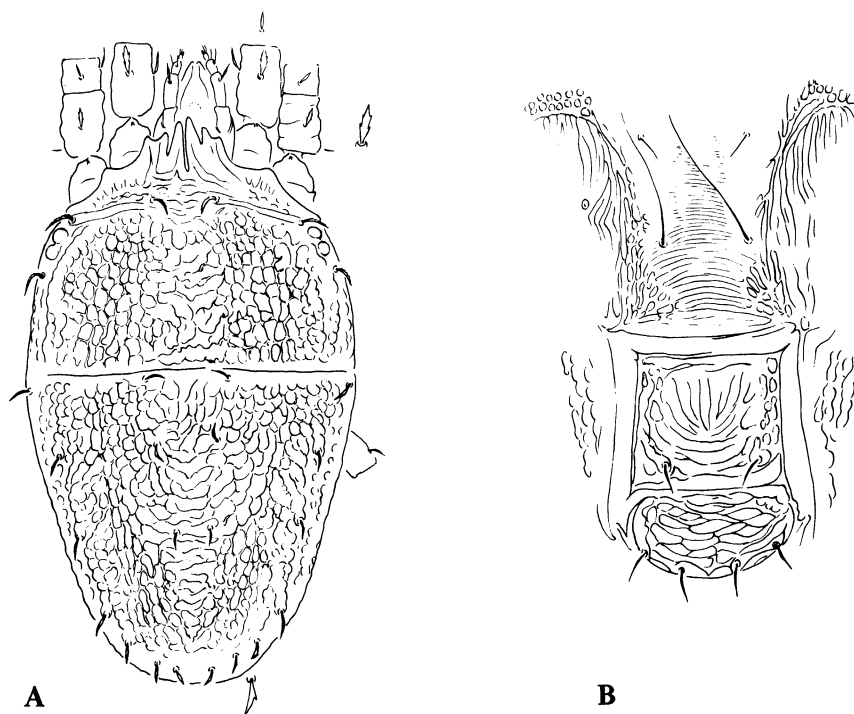


Figure 57.--Brevipalpus cnidosculus, n. sp., female: A, Dorsum; B, venter of hysterosoma.



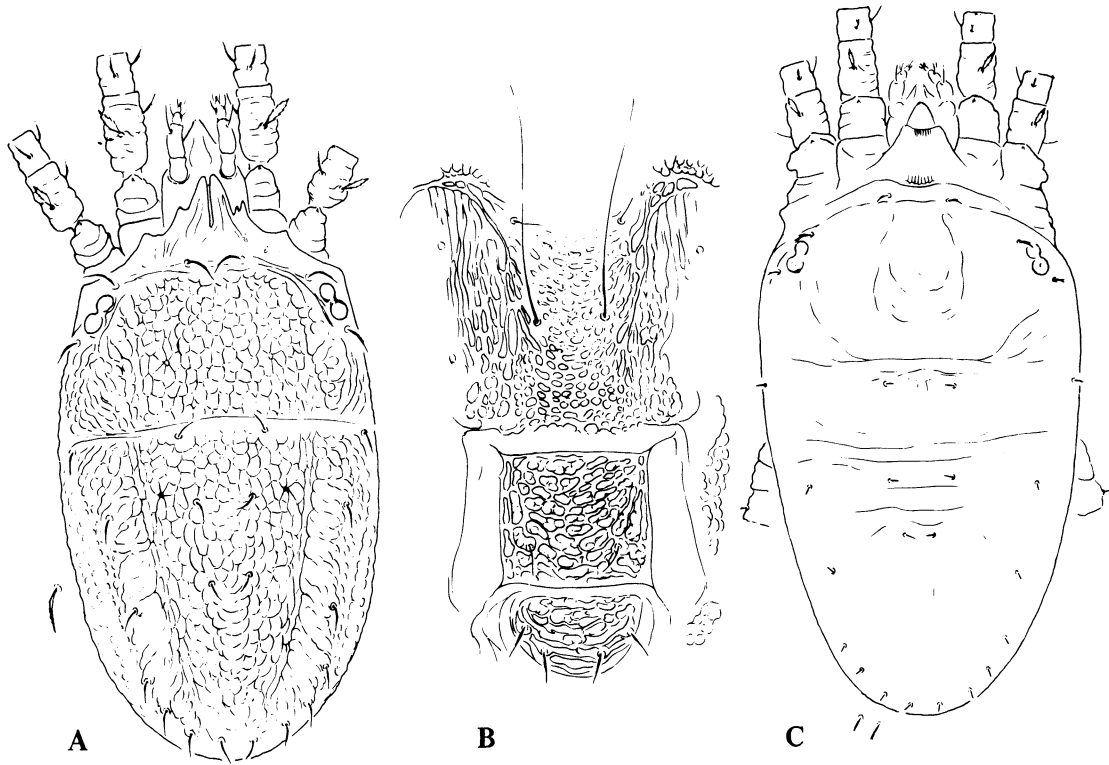


Figure 58.--Brevipalpus crotonellae, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

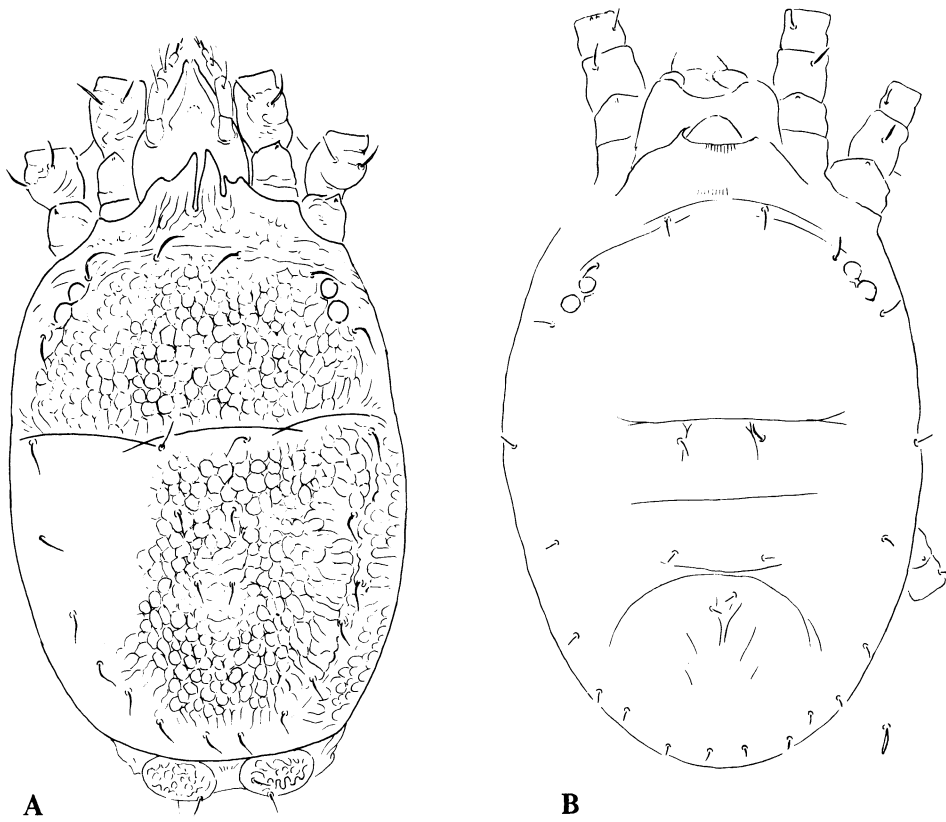


Figure 59.--Brevipalpus crotoni De Leon, female: A, Dorsum; B, deutonymph.

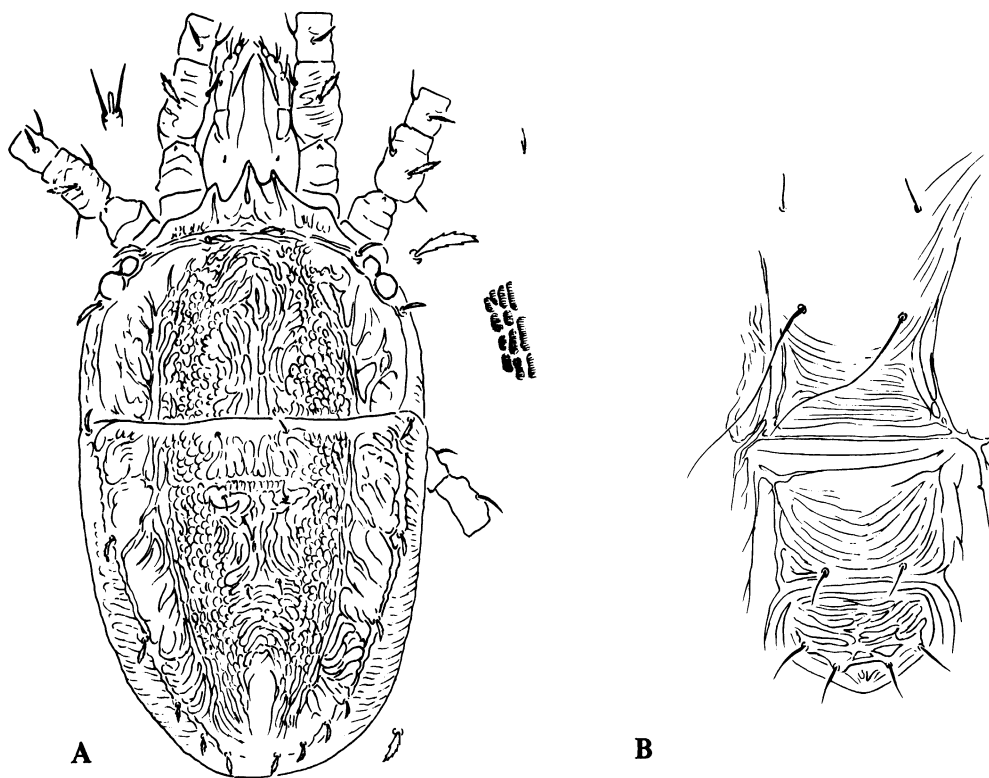


Figure 60.--Brevipalpus desmodium, n. sp., female: A, Dorsum, with closeup of dorsolateral sculpturing on propodosoma; B, venter of hysterosoma.

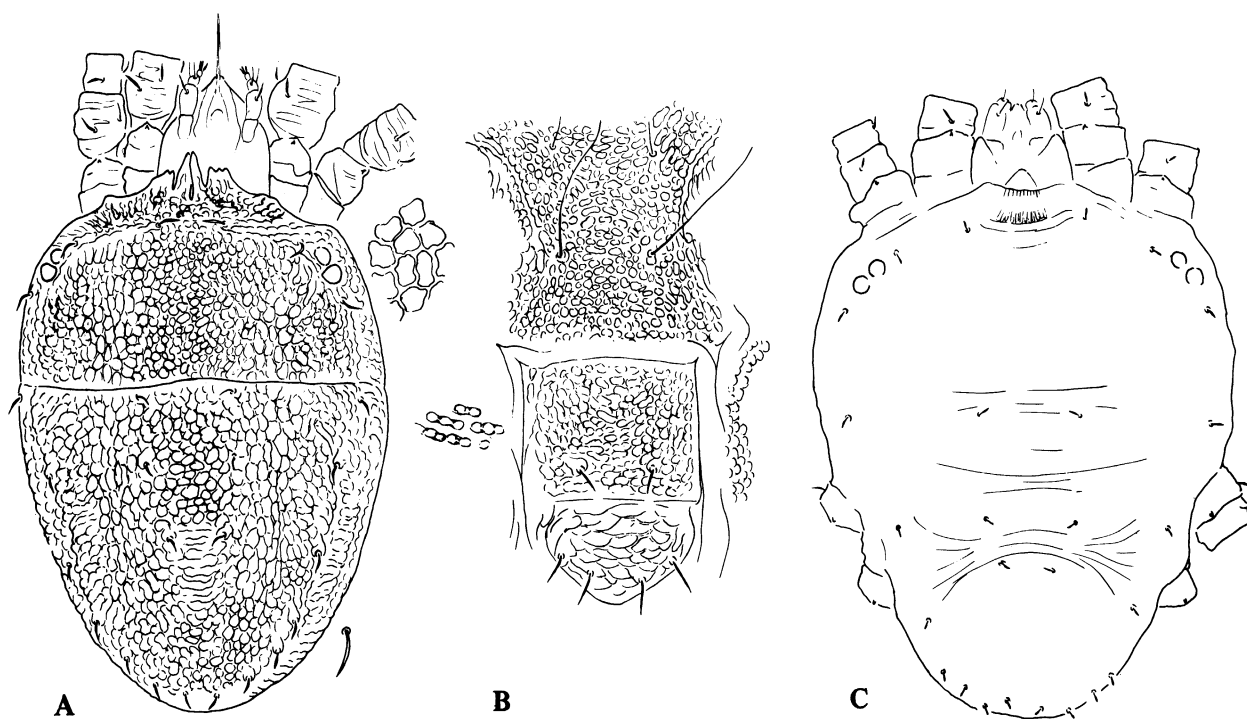


Figure 61.--Brevipalpus emarginatae, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, protonymph.

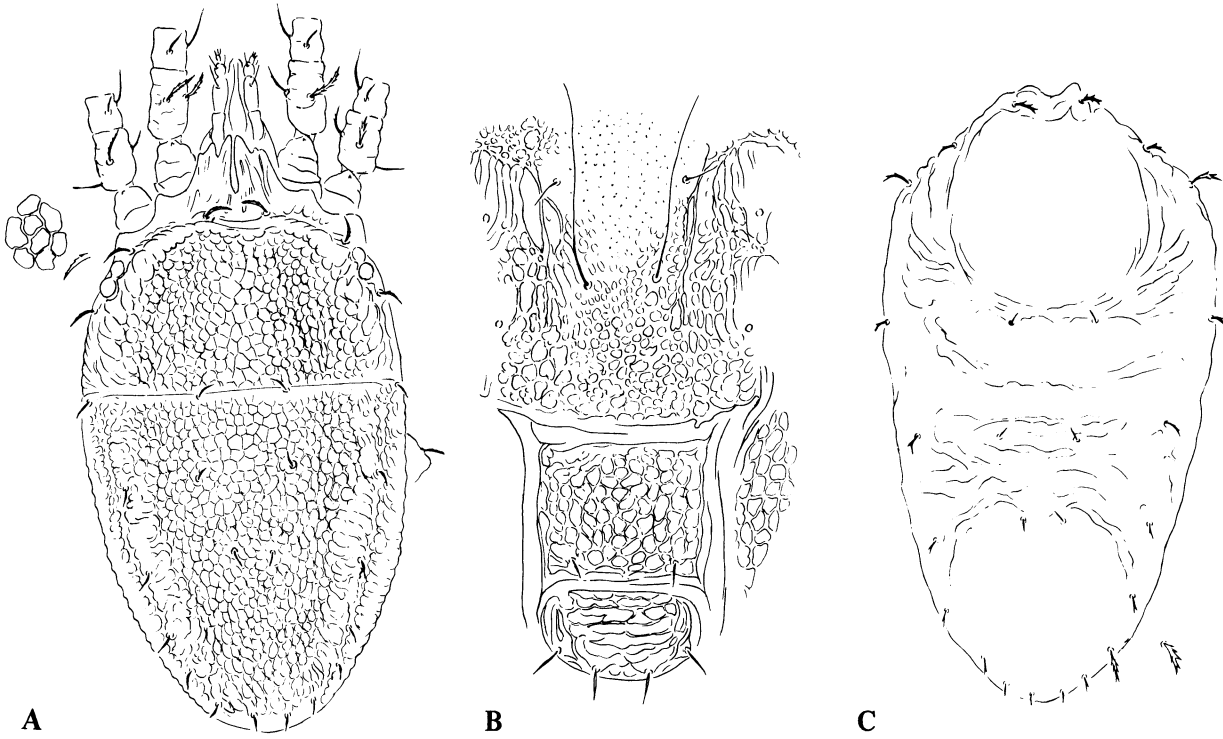


Figure 62.--Brevipalpus essigi Baker, female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

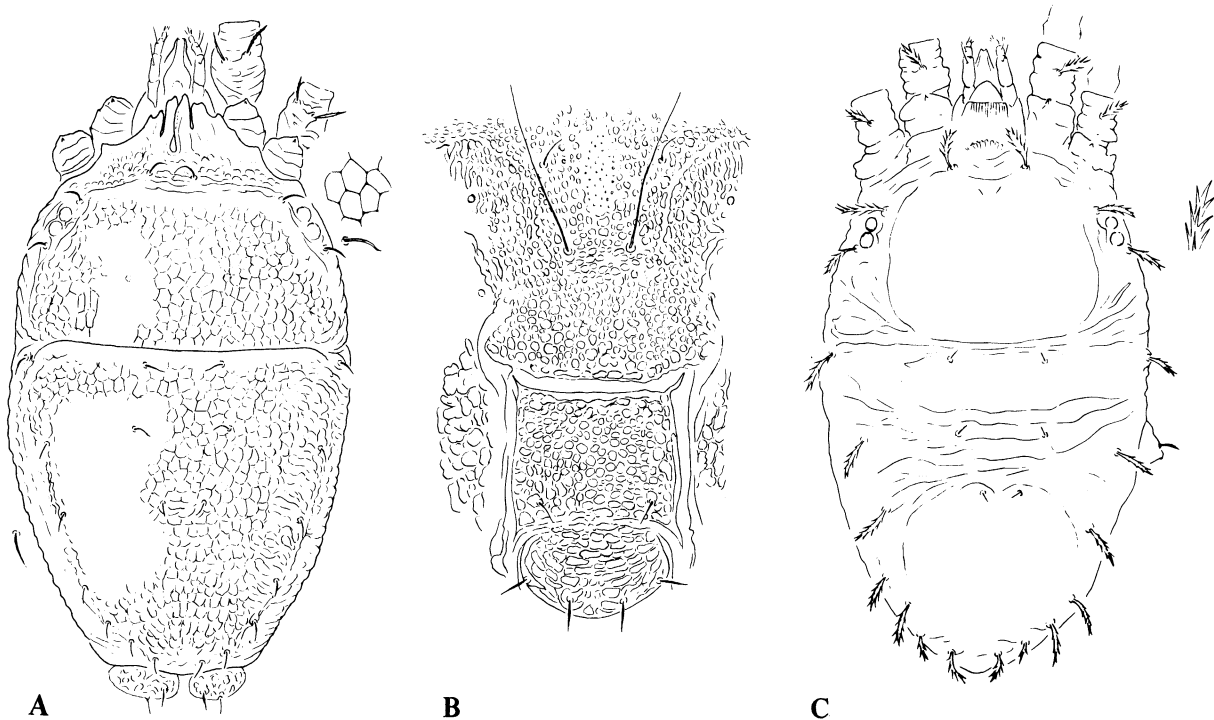


Figure 63.--Brevipalpus ewpristori De Leon, female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma, with closeup of areolae; C, deutonymph.

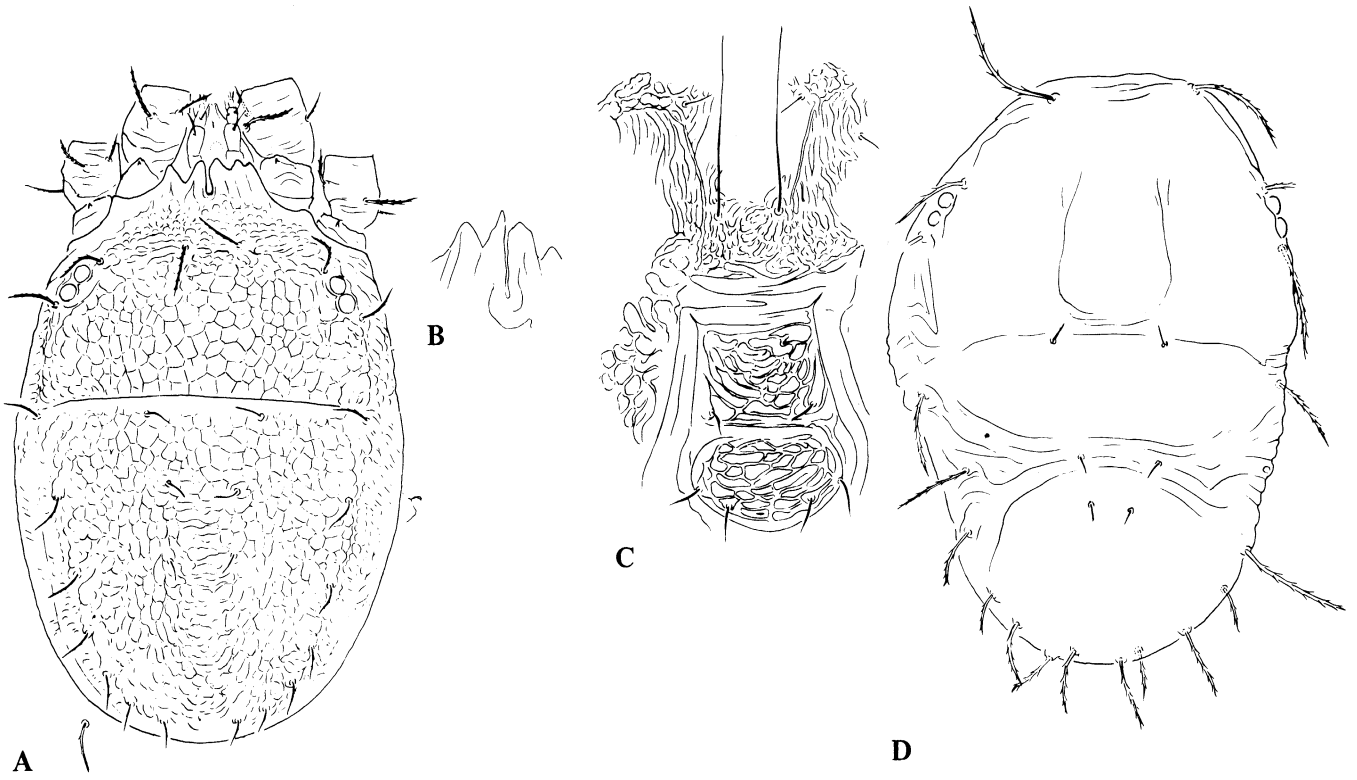


Figure 64.--Brevipalpus filifer De Leon, female: A, Dorsum; B, variation in rostral shield; C, venter of hysterosoma; D, larva.

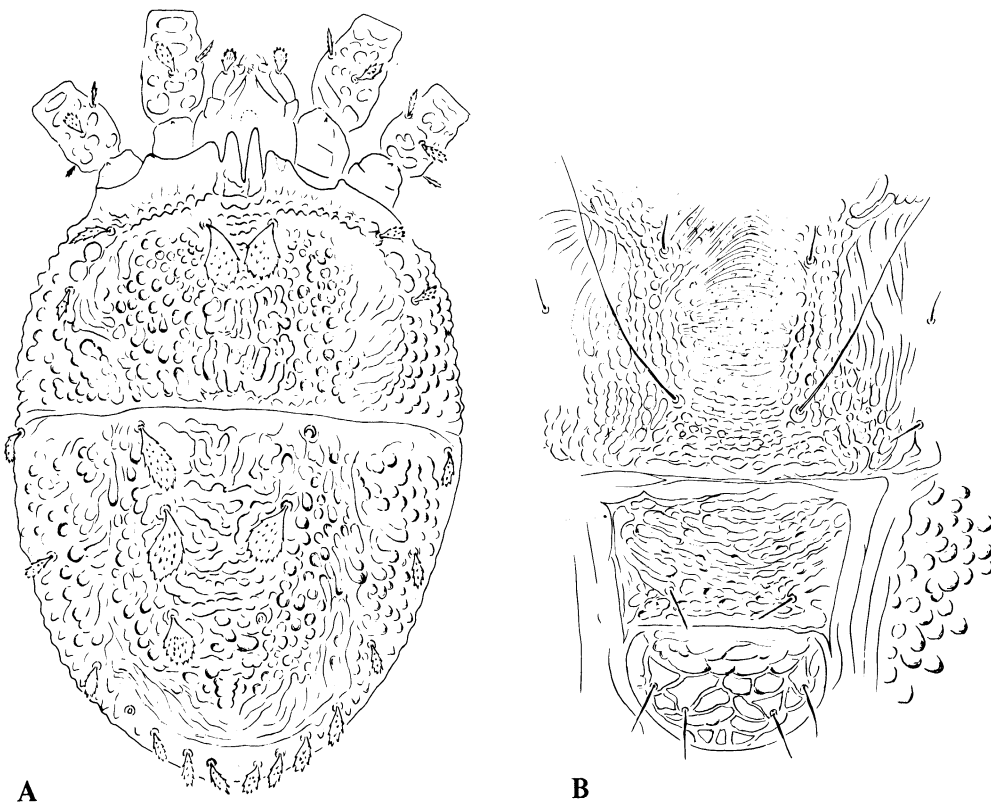


Figure 65.--Brevipalpus formosus De Leon, female: A, Dorsum; B, venter of hysterosoma.

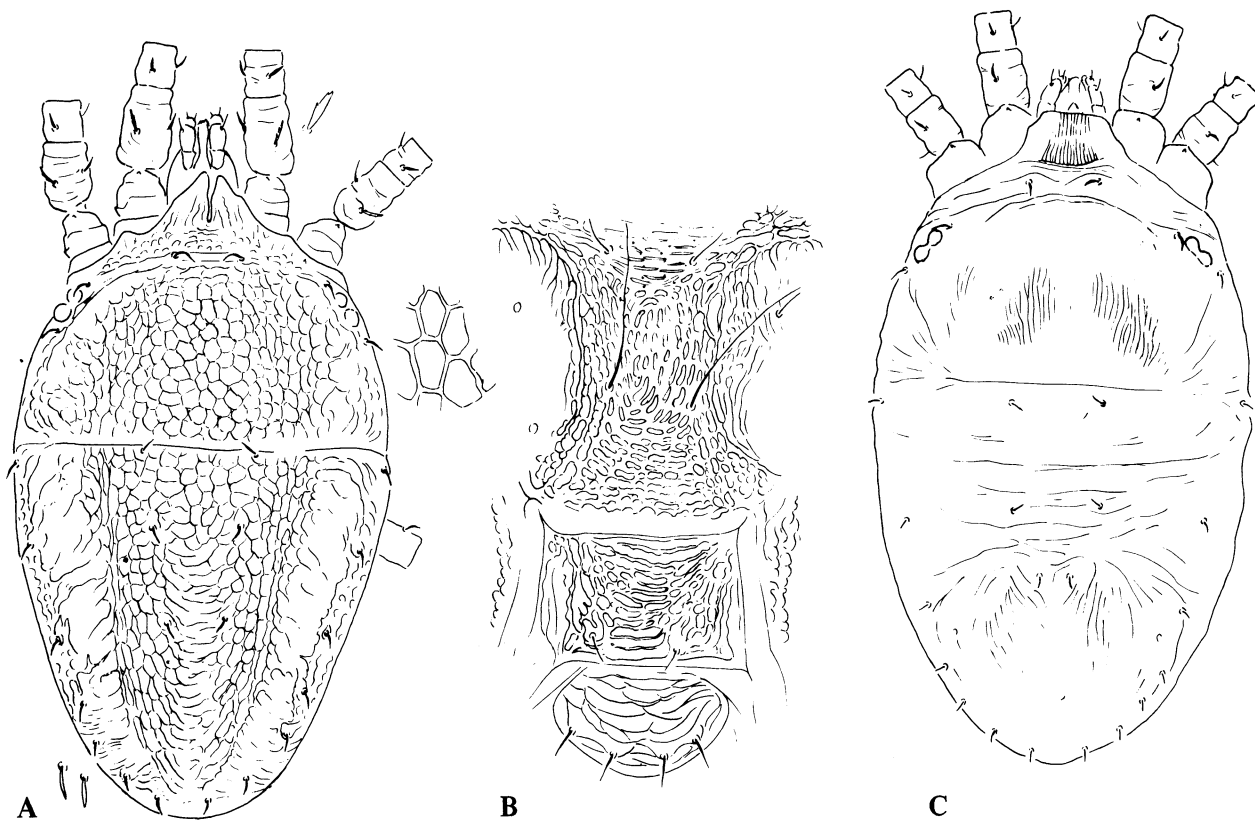


Figure 66.--*Brevipalpus geranium*, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

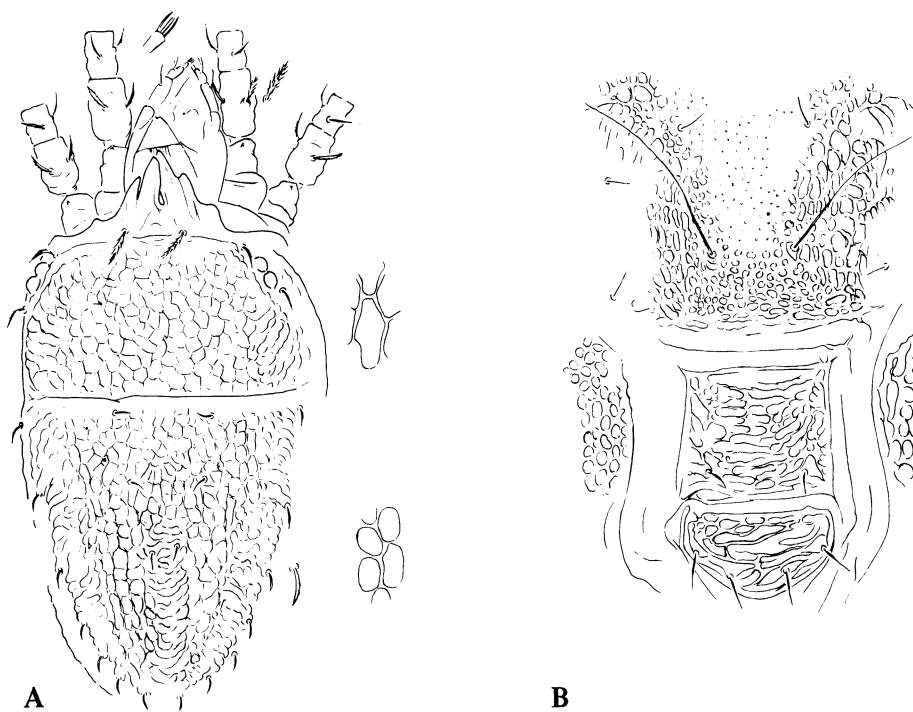


Figure 67.--*Brevipalpus hamelrectae*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

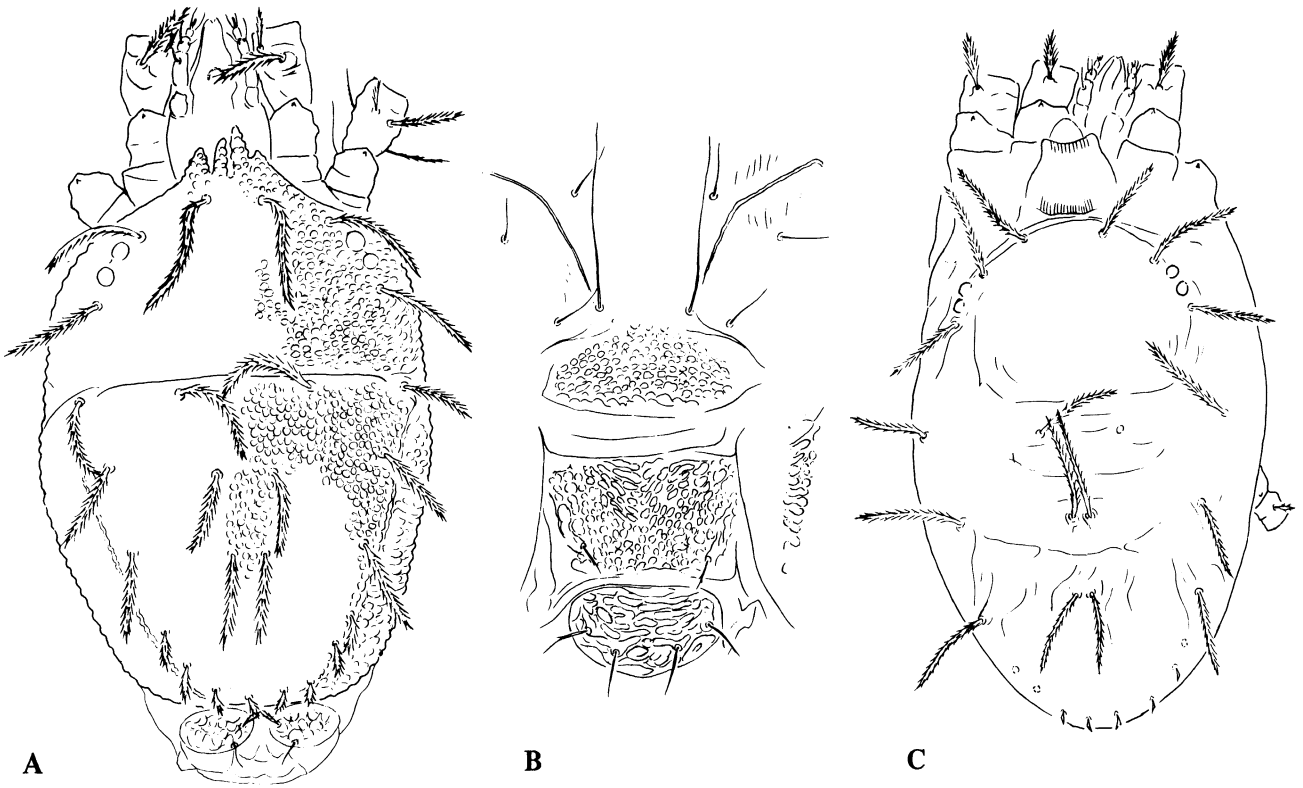


Figure 68.--*Brevipalpus hypti* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, protonymph.

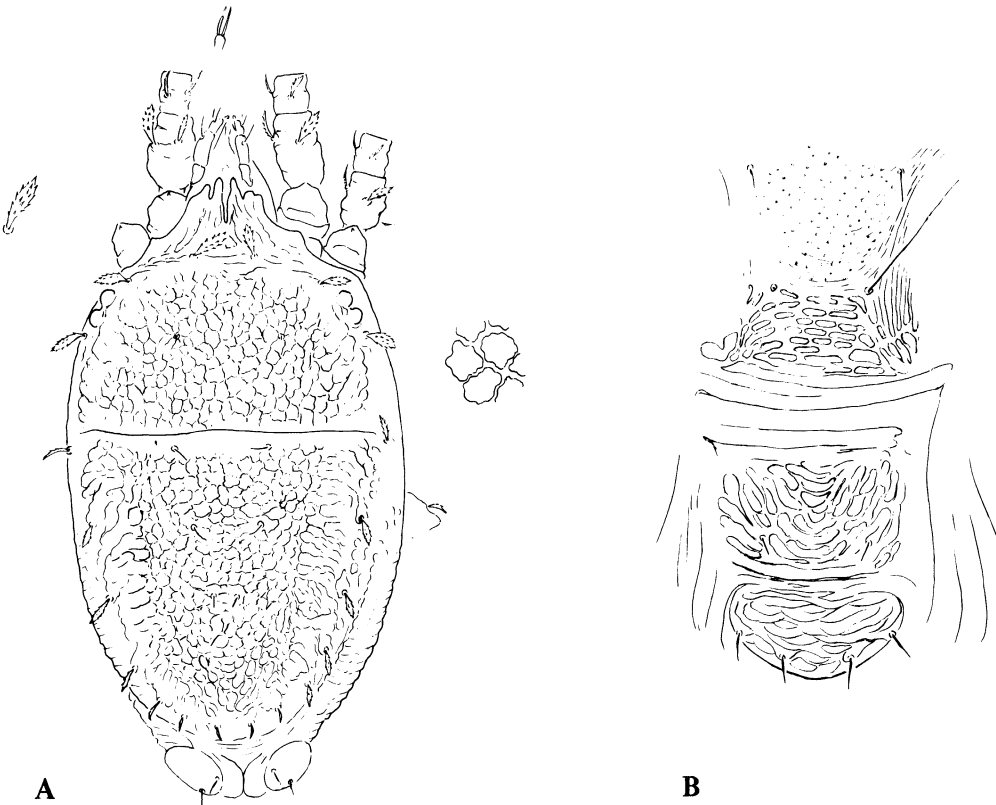


Figure 69.--*Brevipalpus incarnatae*, n. sp., female: A, Dorsum, with closeup of areolae; B, venter of hysterosoma.

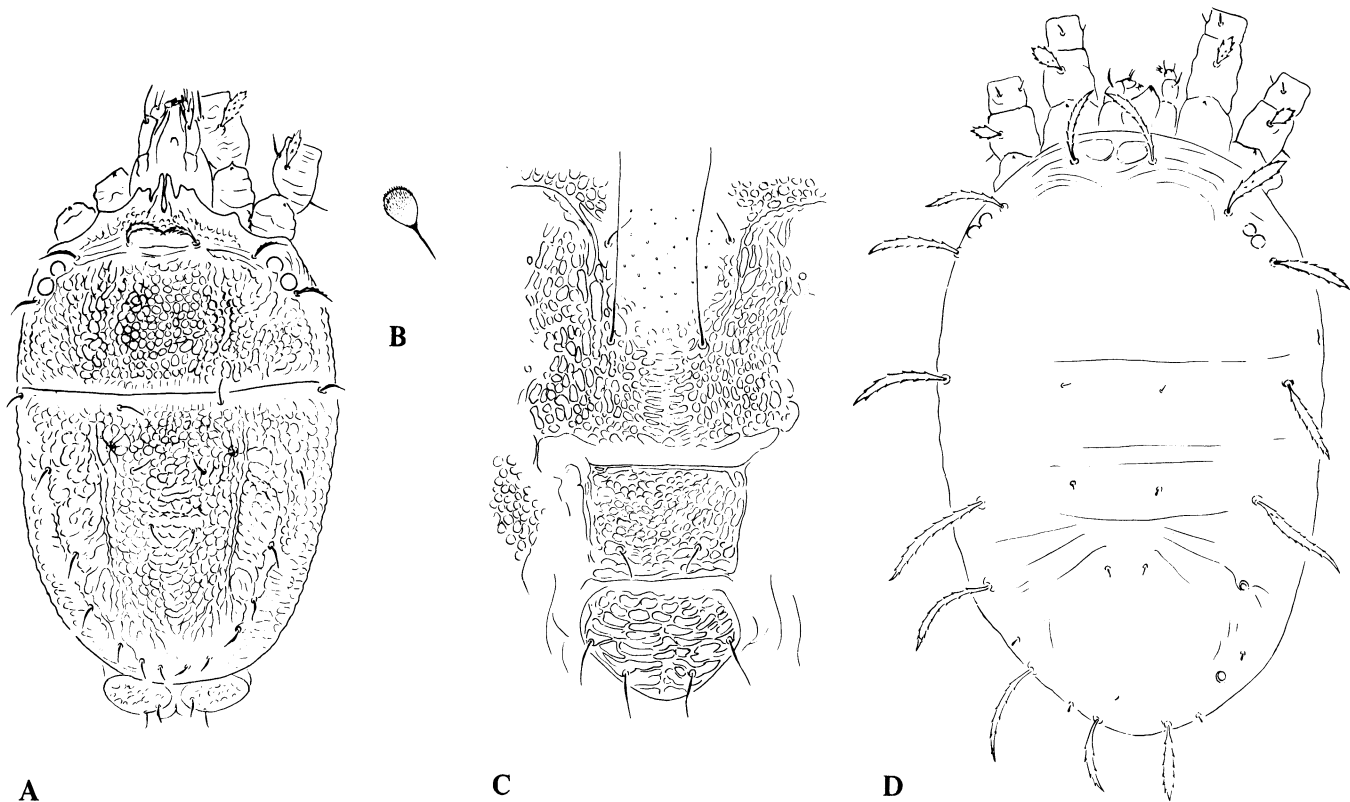


Figure 70.--*Brevipalpus insinuatus* De Leon, female:  
A, Dorsum; B, spermatheca; C, venter of hysterosoma;  
D, deutonymph.

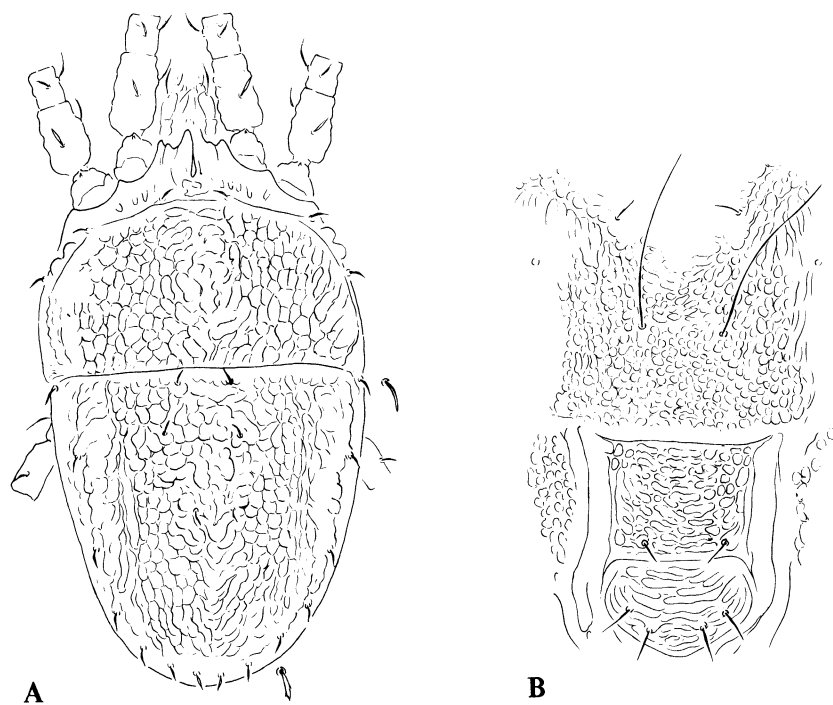


Figure 71.--*Brevipalpus johnstoni*, n. sp., female: A,  
Dorsum; B, venter of hysterosoma.

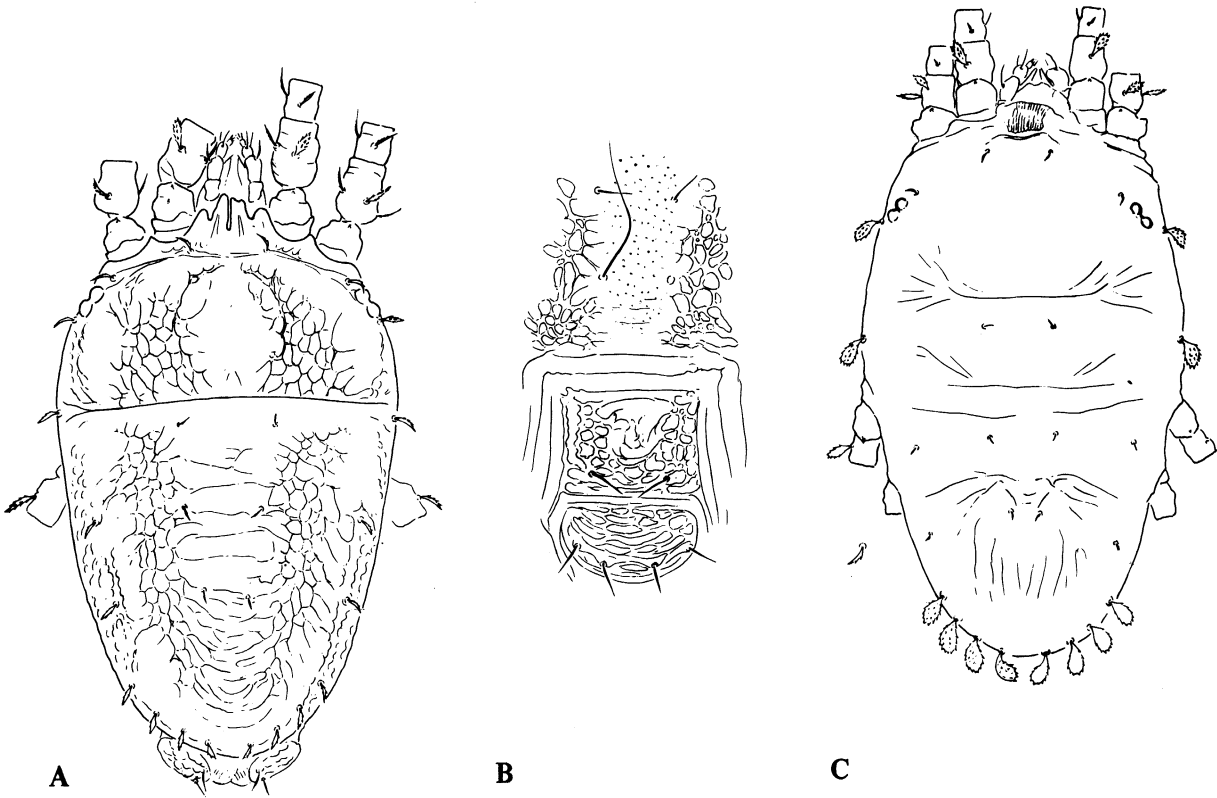


Figure 72.--*Brevipalpus juniperus*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

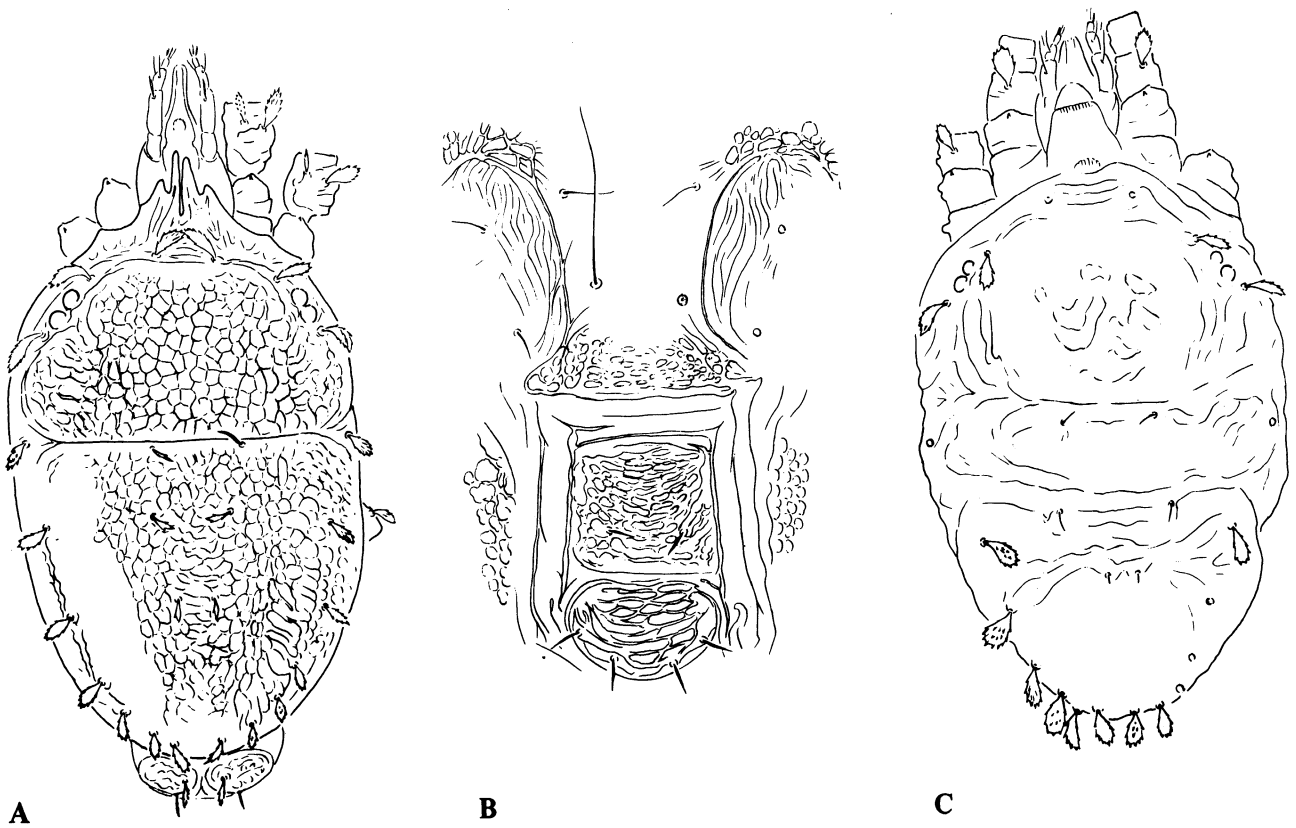


Figure 73.--*Brevipalpus lagasceae* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, protonymph.



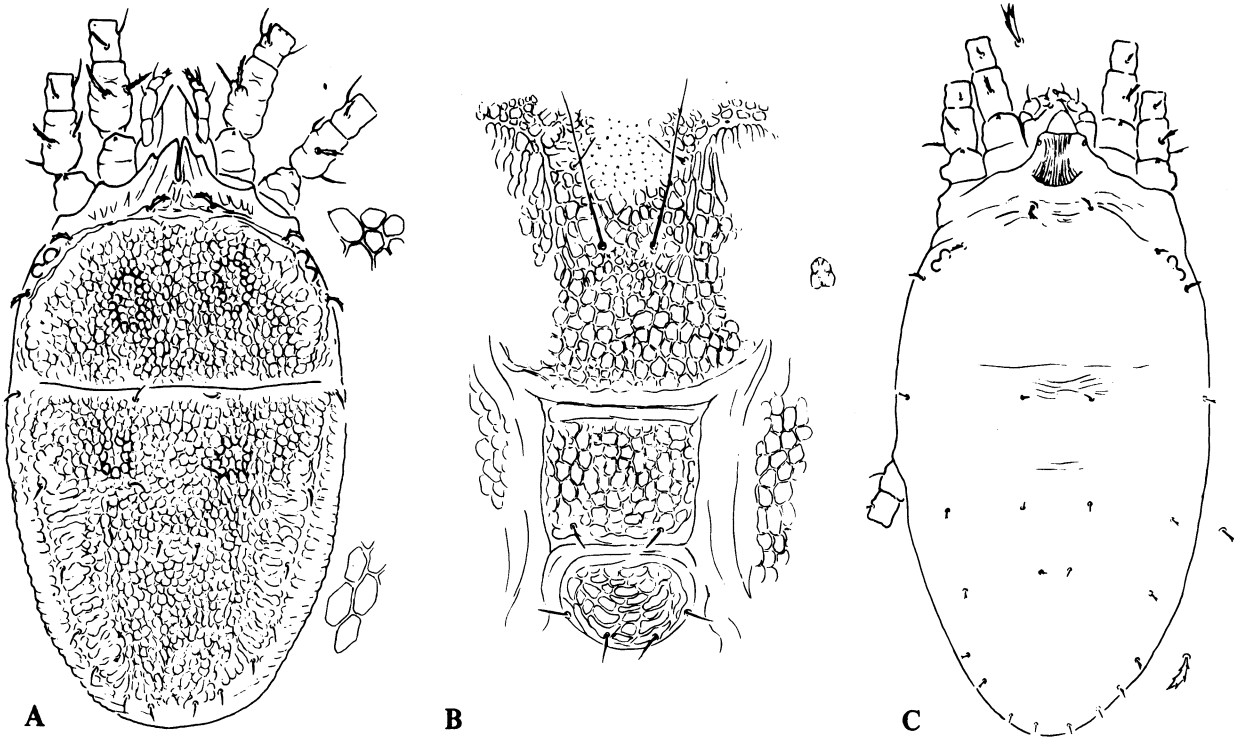


Figure 74.--*Brevipalpus lantanae*, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

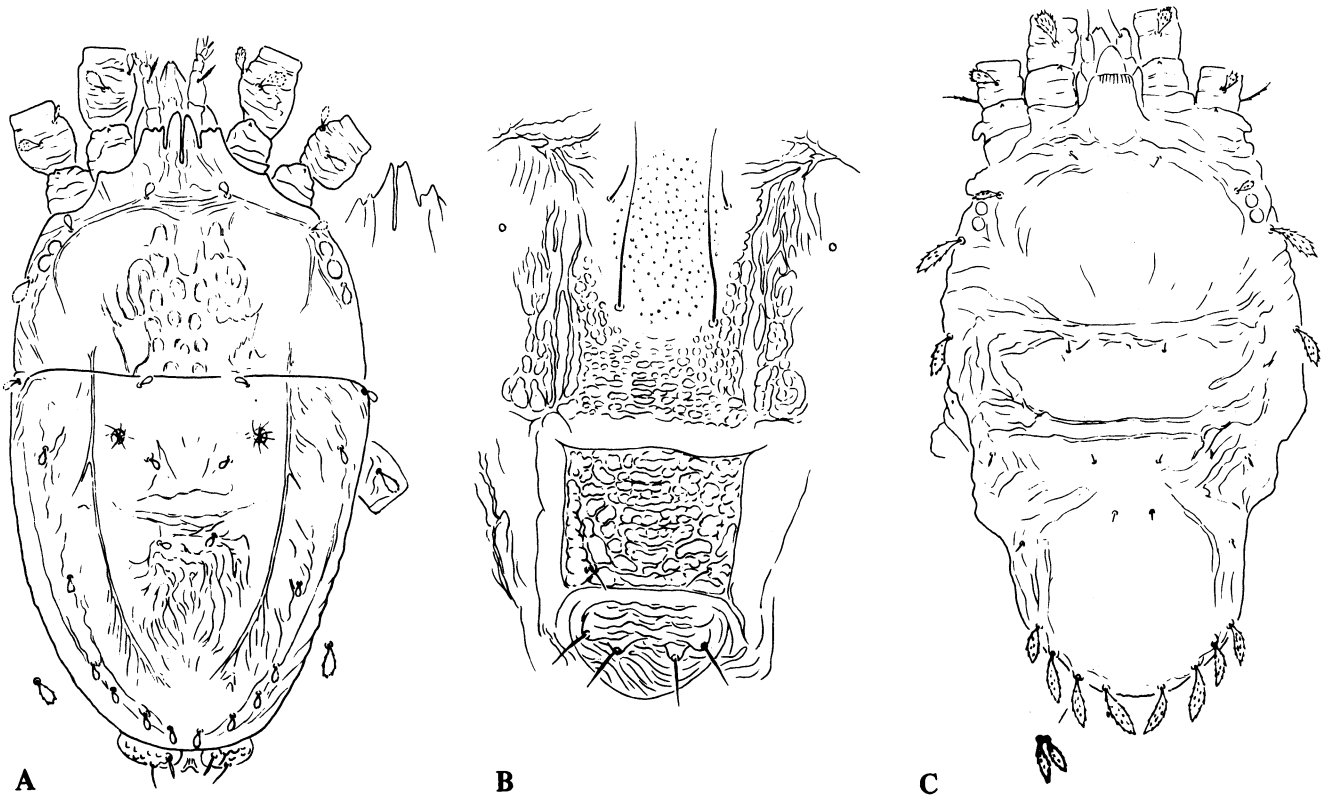


Figure 75.--*Brevipalpus levis* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph (note double  $L_6$  seta).

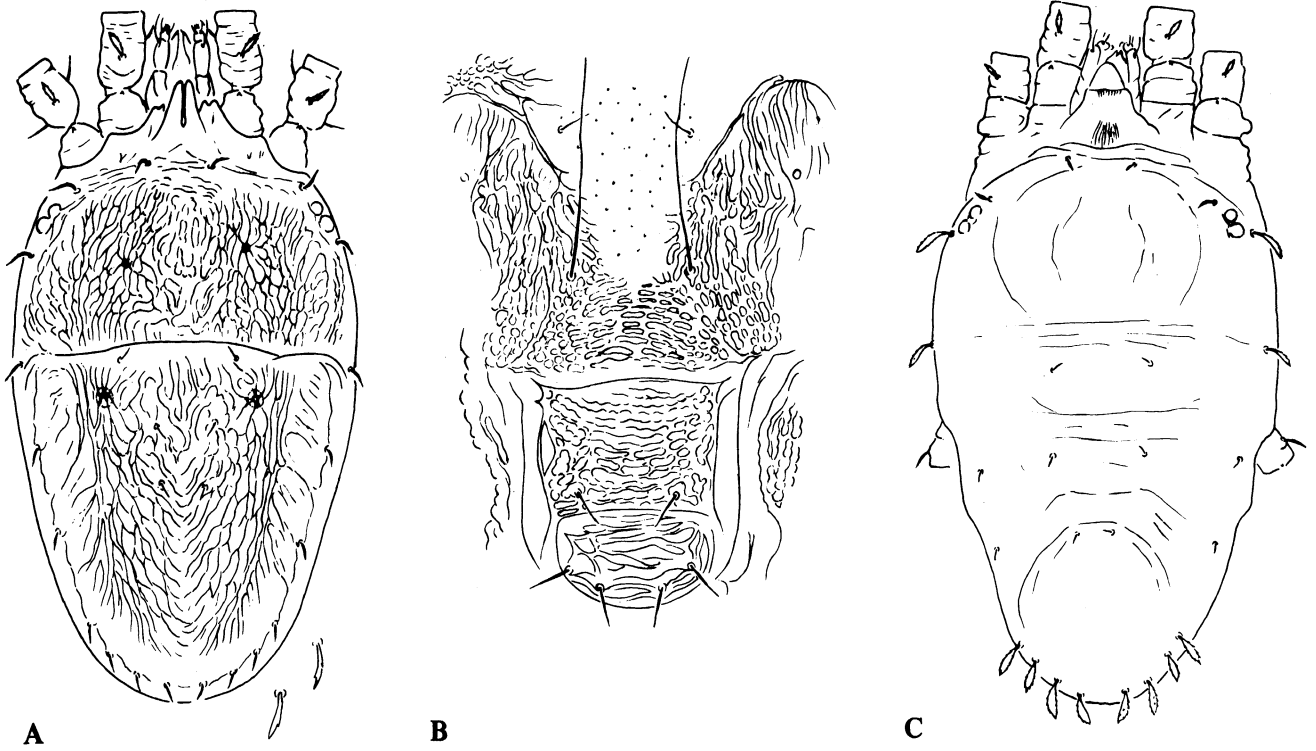


Figure 76.--Brevipalpus lewisi McGregor, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

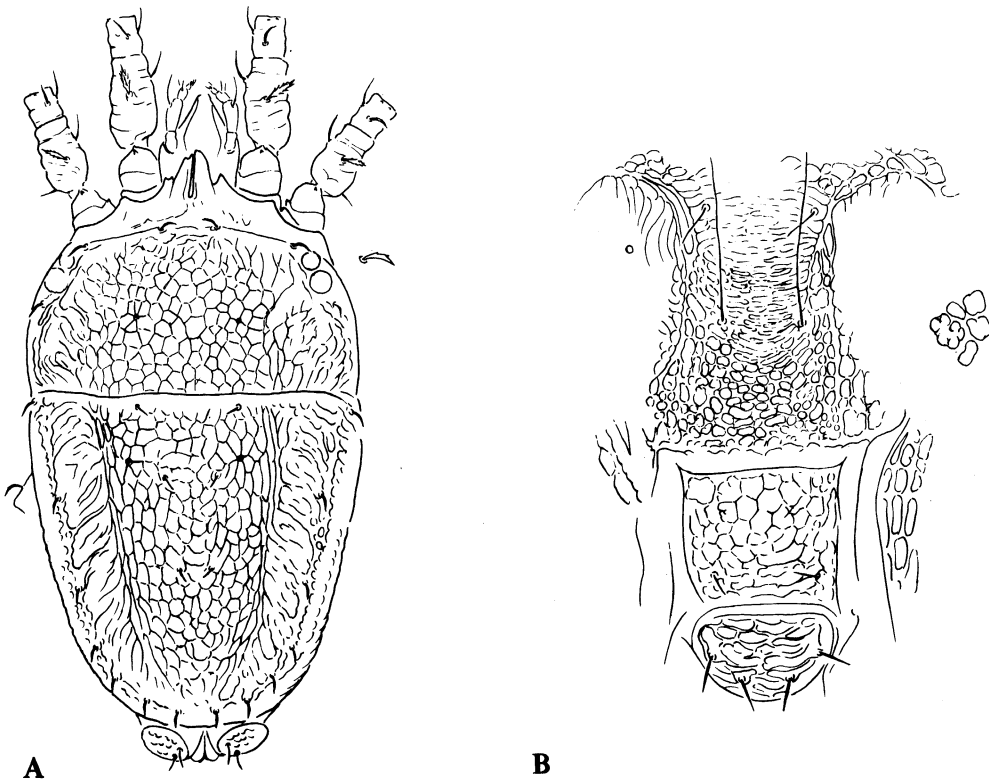


Figure 77.--Brevipalpus lippiae, n. sp., female: A, Dorsum; B, venter of hysterosoma.

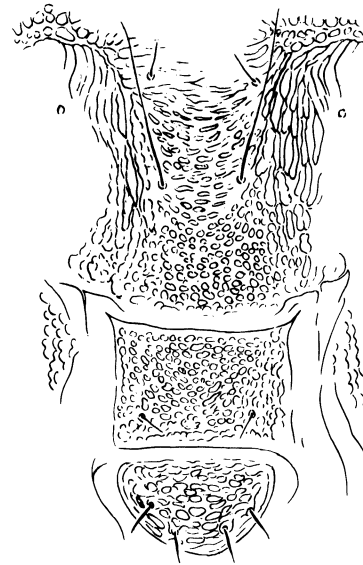
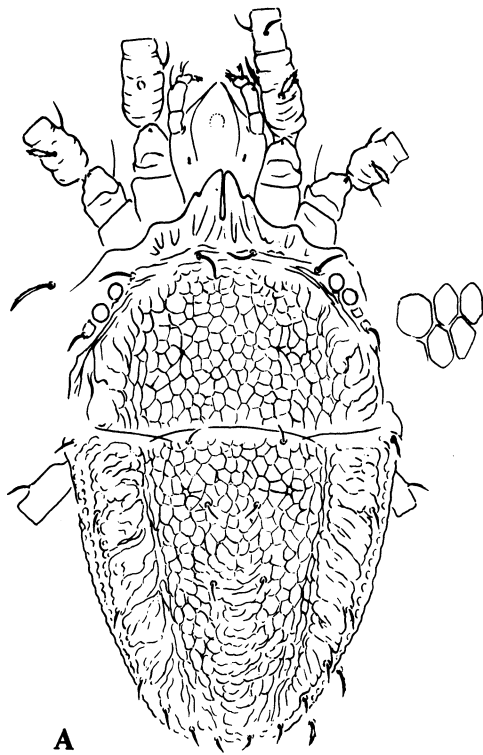


Figure 78.--*Brevipalpus mexicanus*, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma.

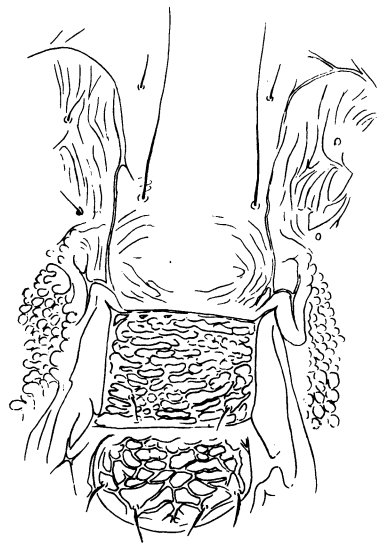
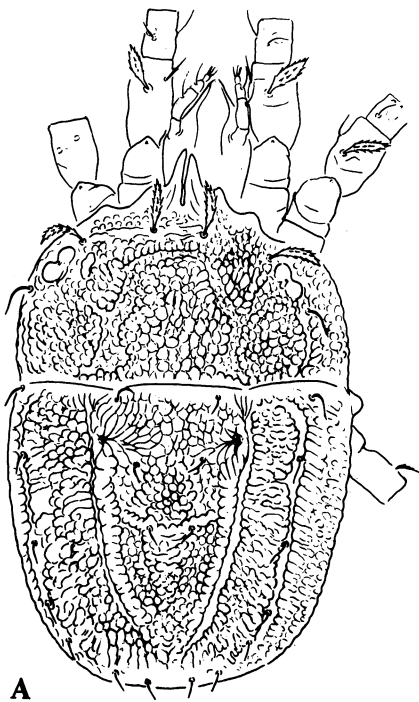


Figure 79.--*Brevipalpus moreliensis*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

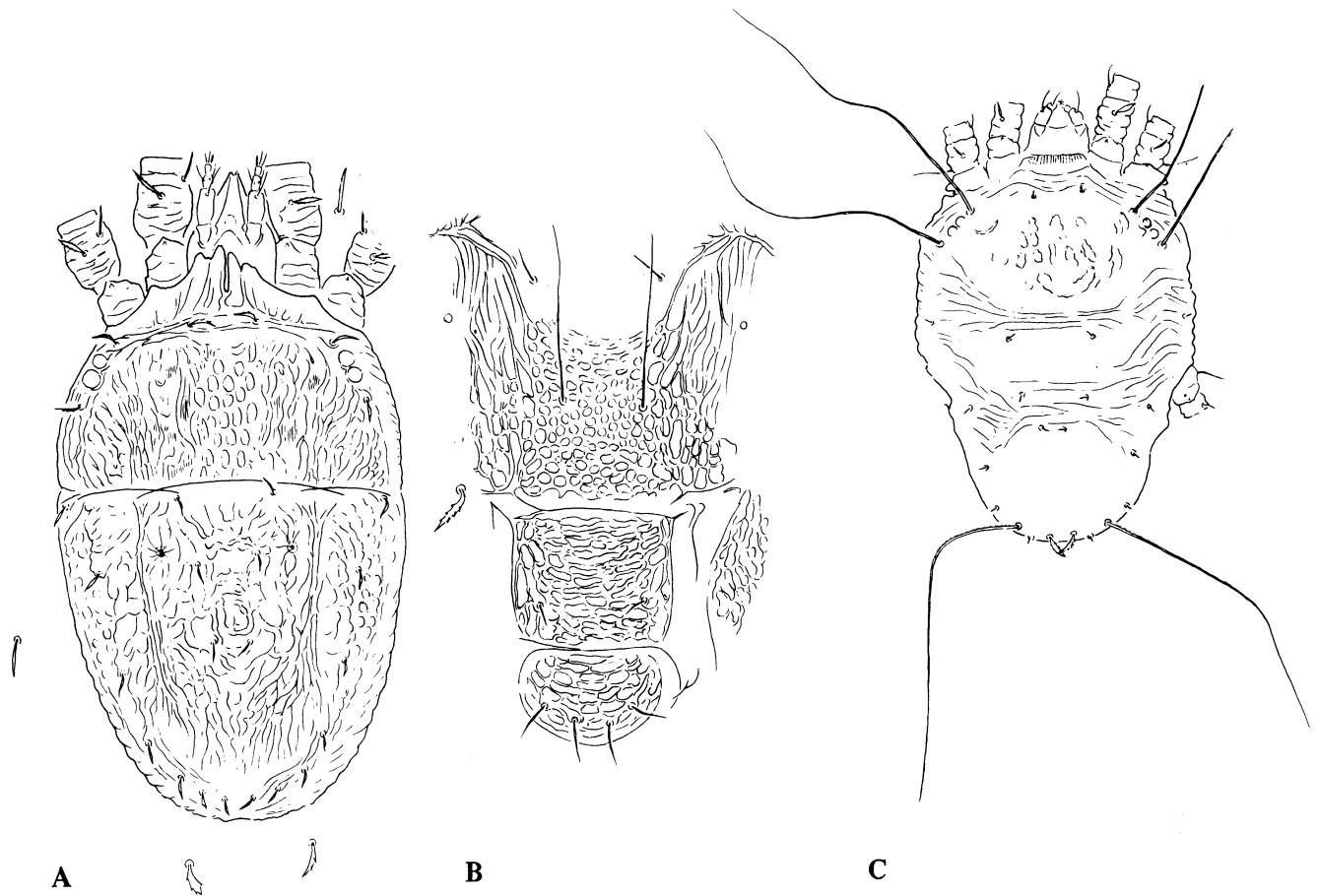


Figure 80.--*Brevipalpus mori* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, protonymph.

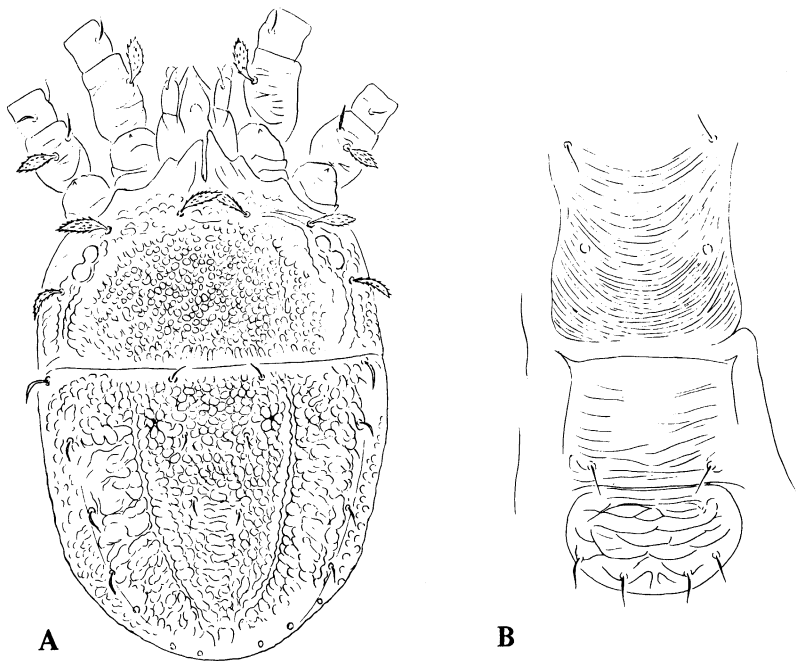


Figure 81.--*Brevipalpus neohyptis* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma.

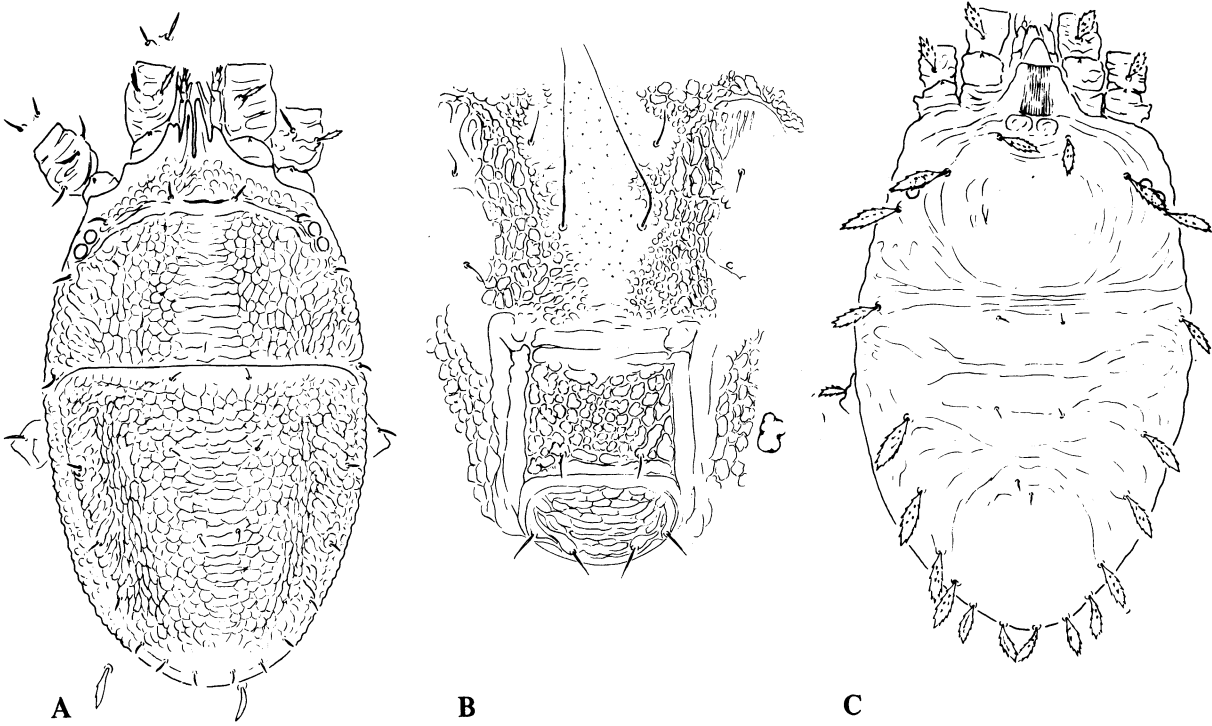


Figure 82.--Brevipalpus neoreligiosae, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

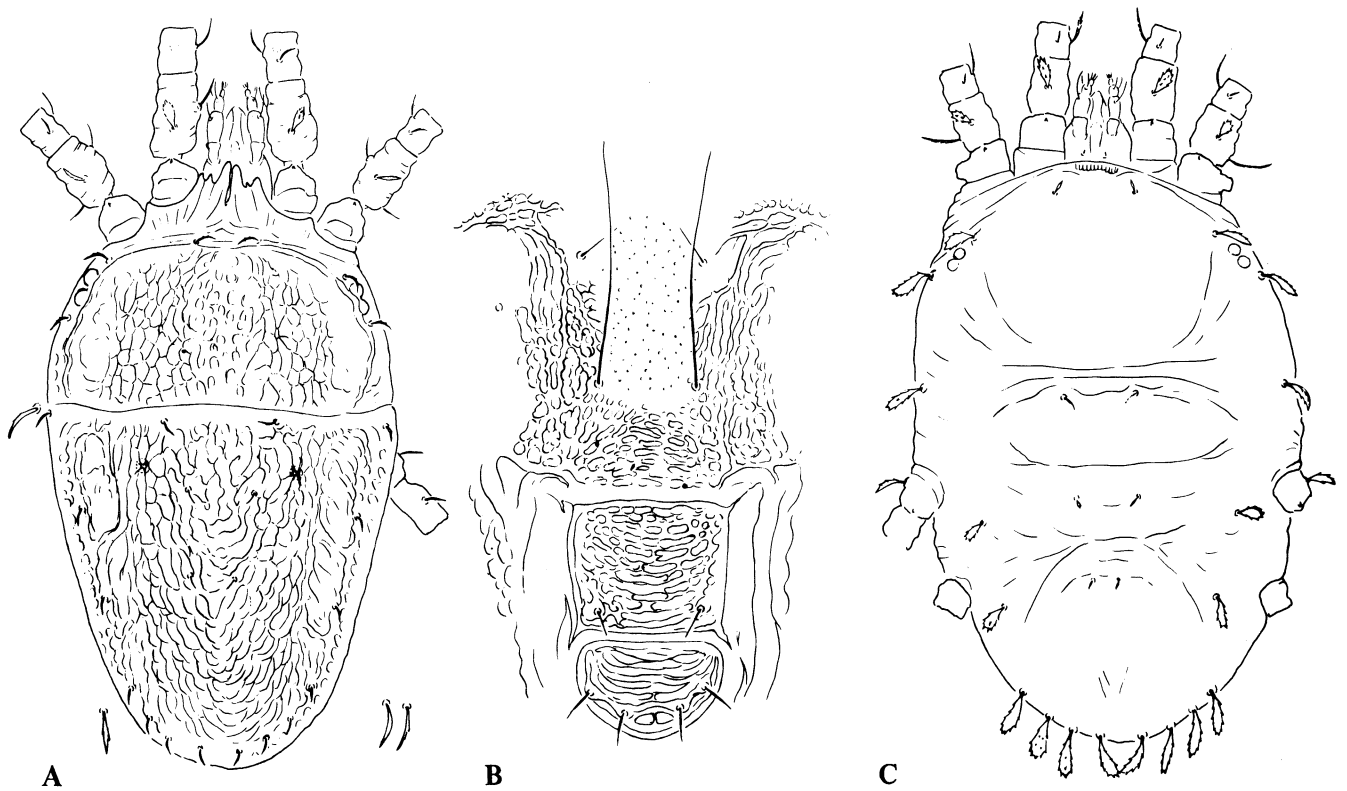


Figure 83.--Brevipalpus nodiflorae, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

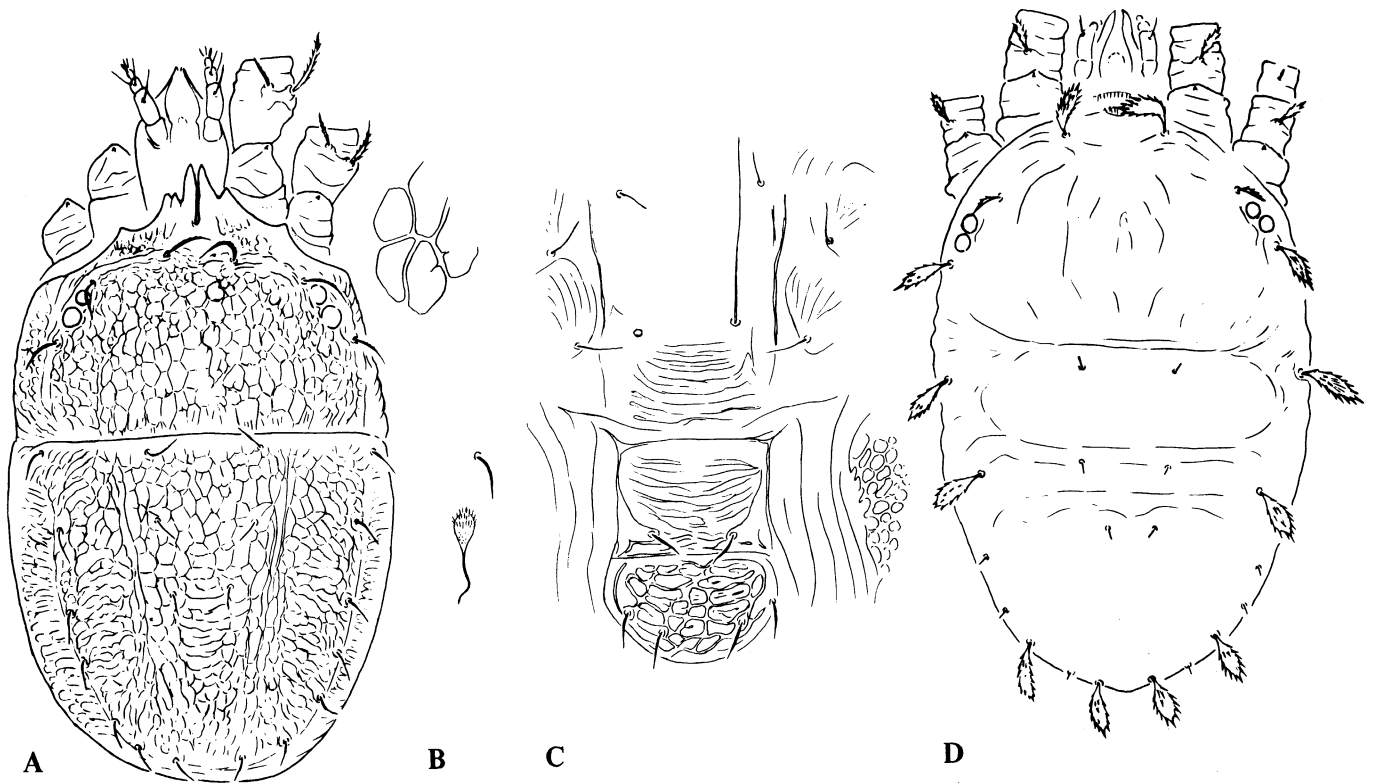


Figure 84.--*Brevipalpus oaxacensis* De Leon, female: A, Dorsum, with closeup of propodosomal areolae; B, spermatheca; C, venter of hysterosoma; D, deutonymph.

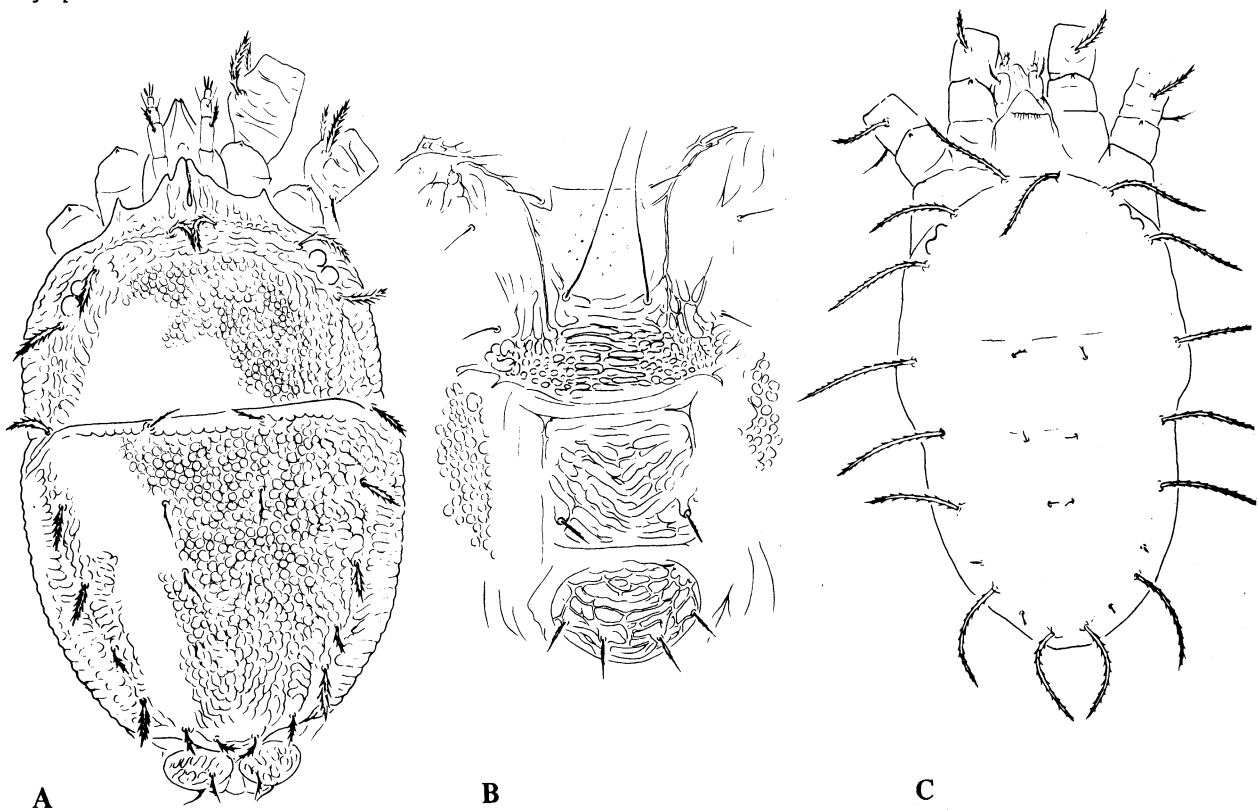


Figure 85.--*Brevipalpus oreopanacis* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

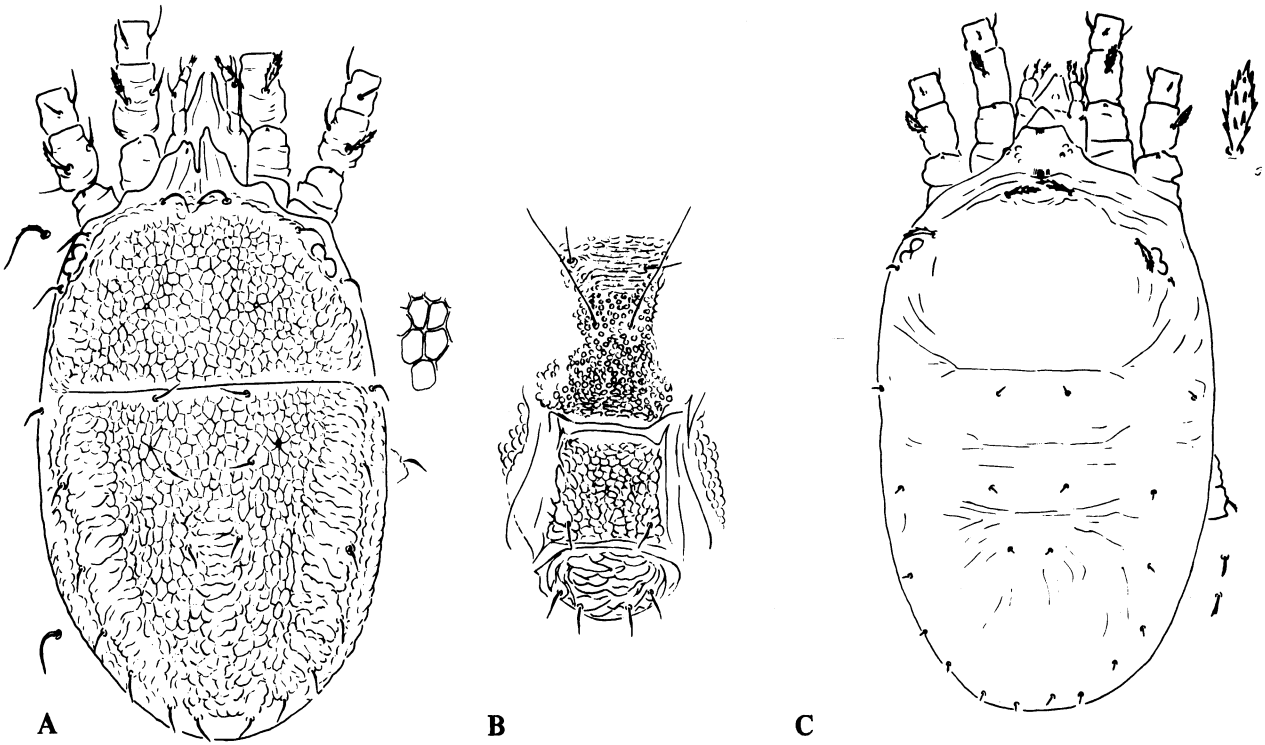


Figure 86.--Brevipalpus pachucensis, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

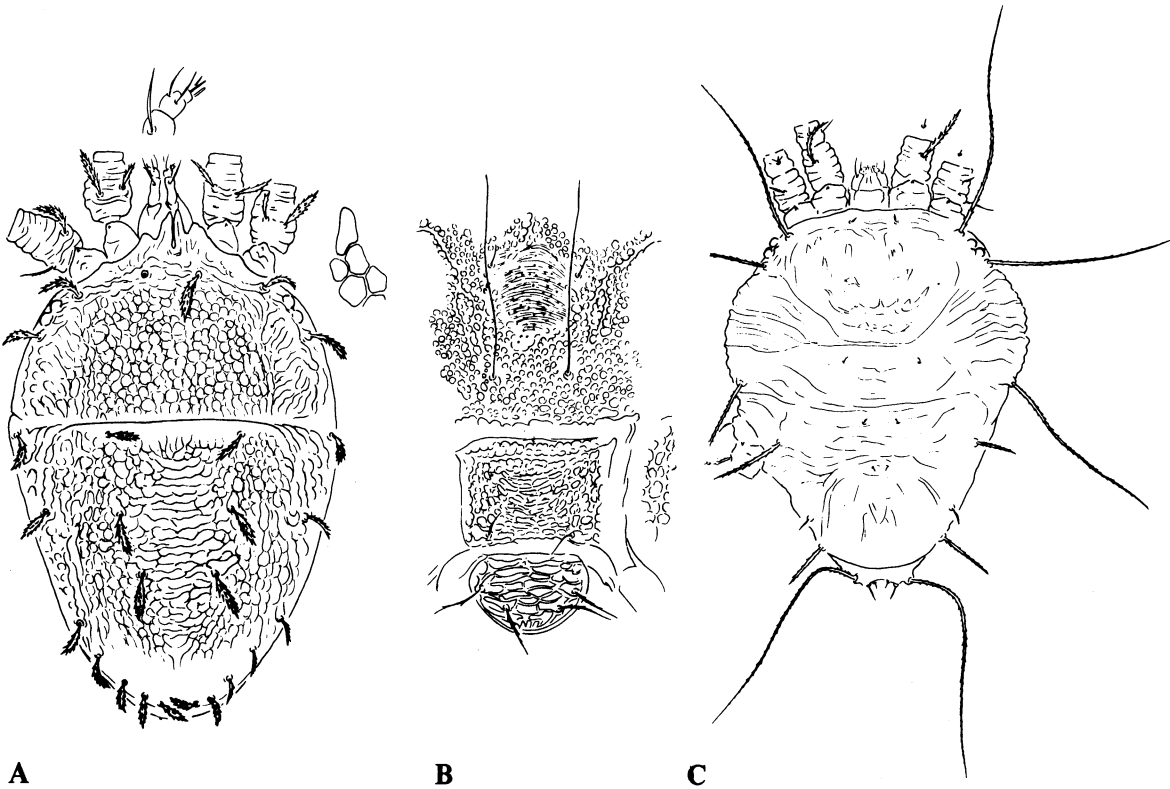


Figure 87.--Brevipalpus perseae De Leon, female: A, Dorsum, with closeup of propodosomal areolae and palpus; B, venter of hysterosoma; C, deutonymph.

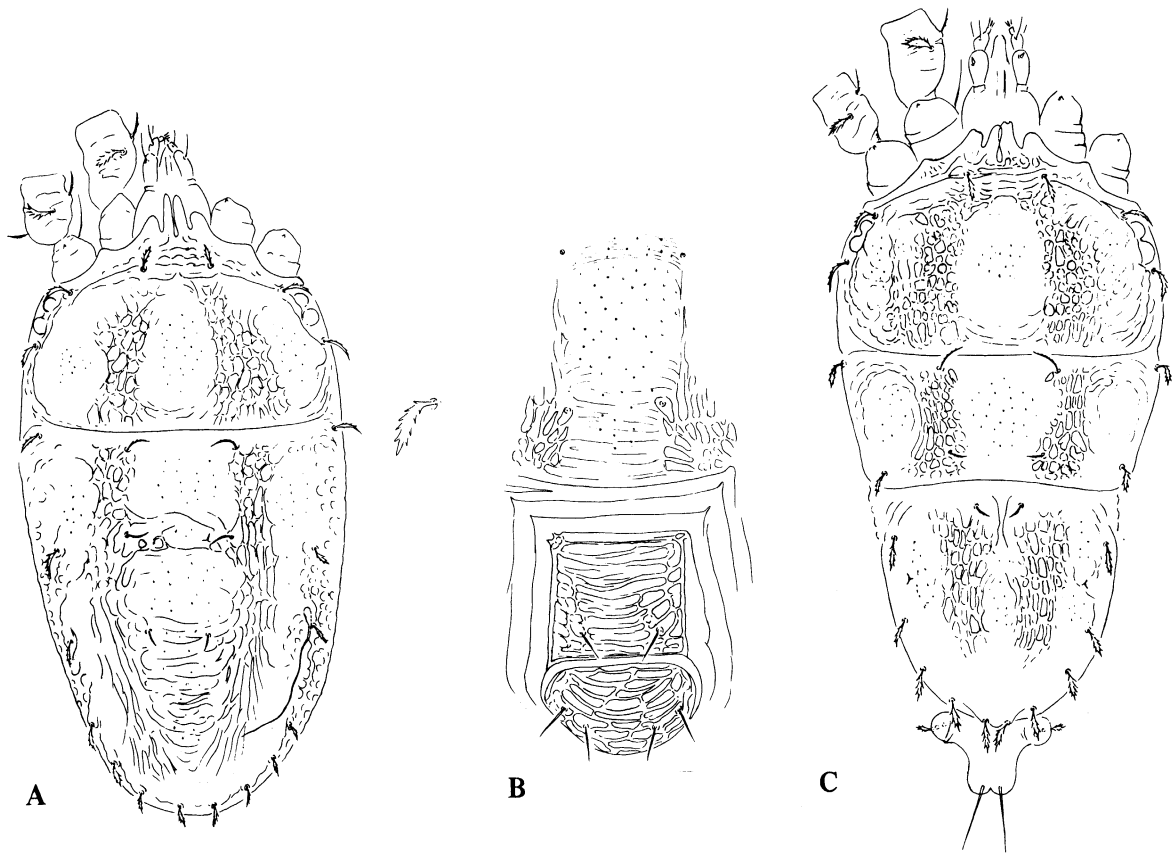


Figure 88.--Brevipalpus piniceltis, n. sp. Female: A, Dorsum; B, venter of hysterosoma. Male: C, Dorsum.

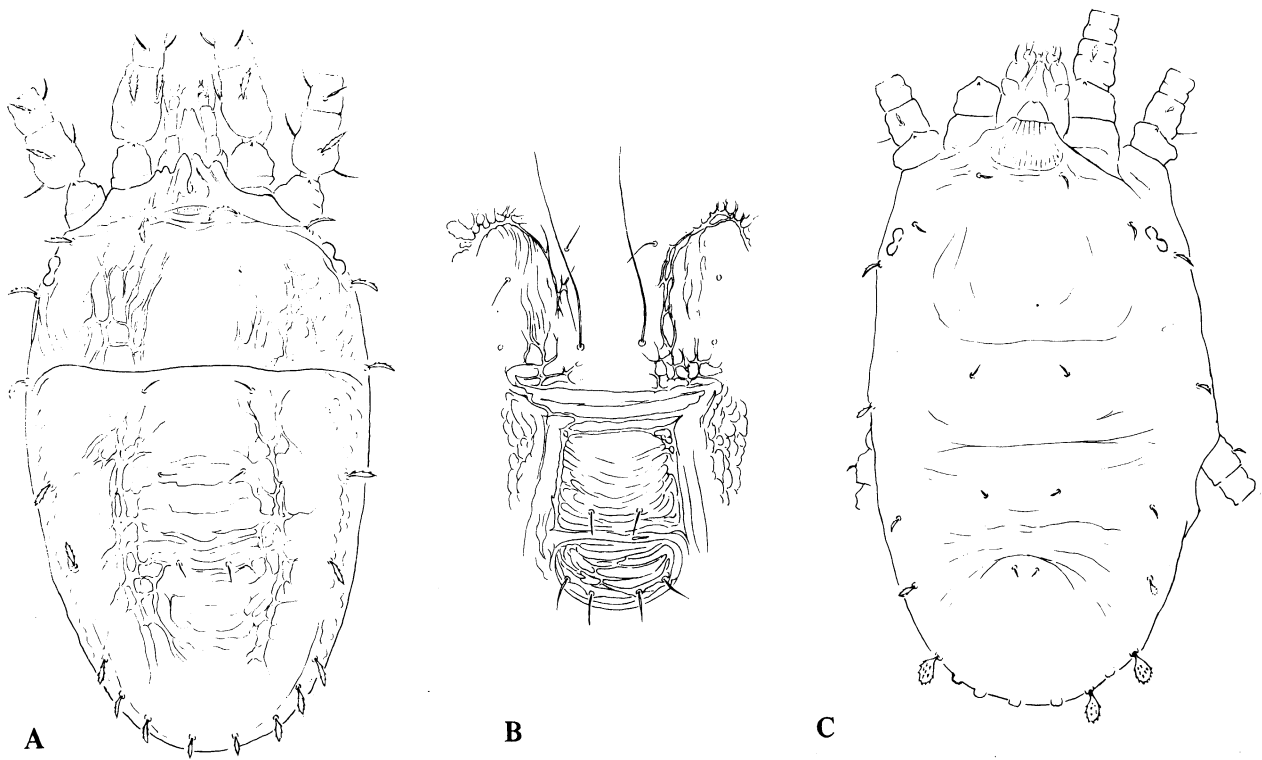
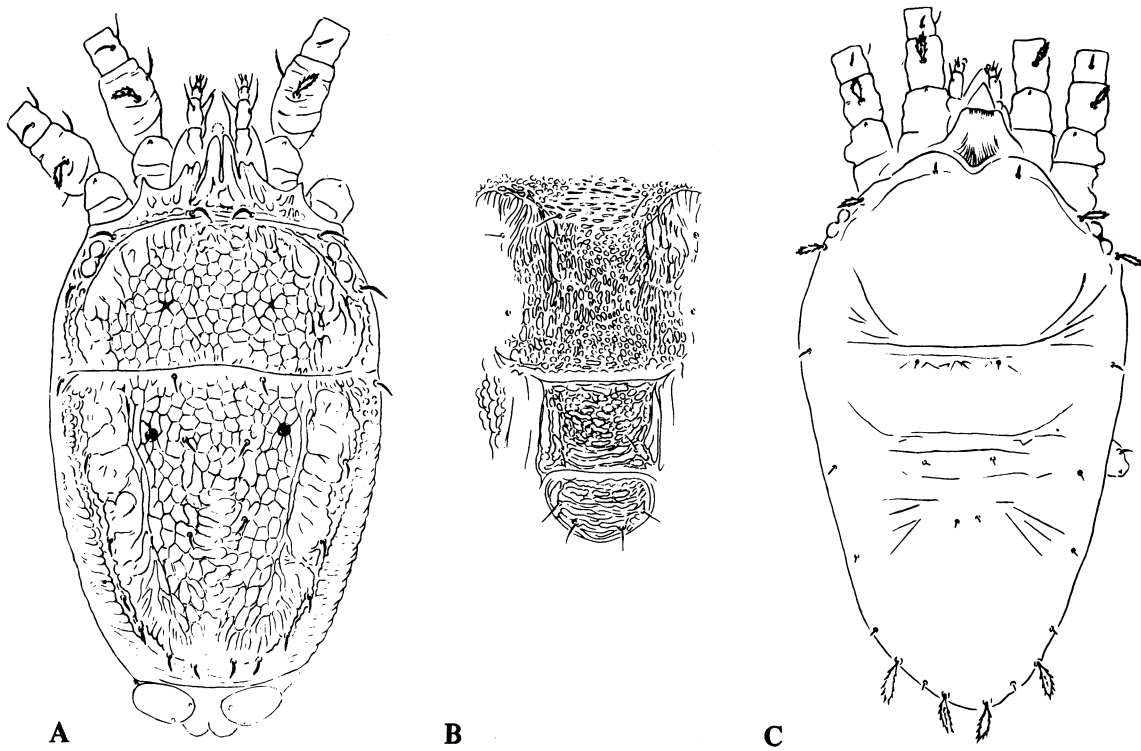


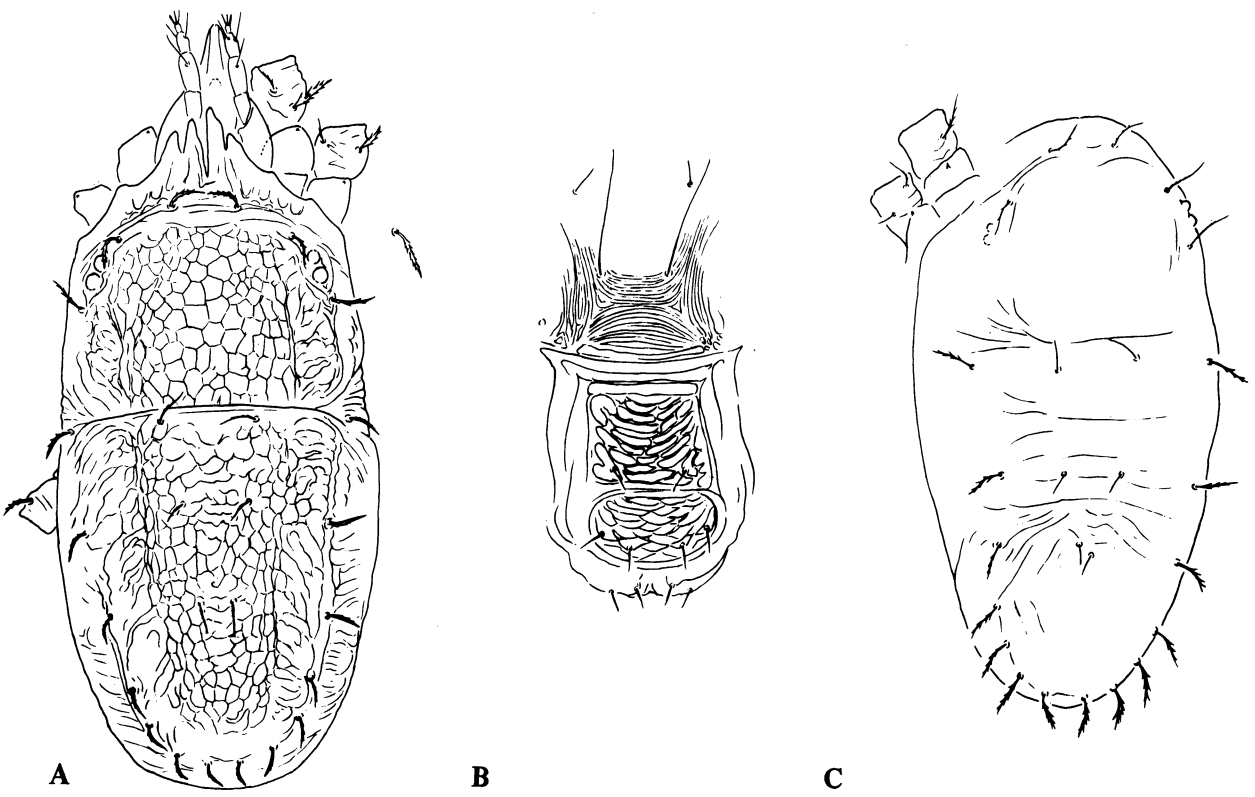
Figure 89.--Brevipalpus piniwaltheriae, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, protonymph.





A B C

Figure 90.--*Brevipalpus plucheae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.



A B C

Figure 91.--*Brevipalpus pseudoleptoides* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

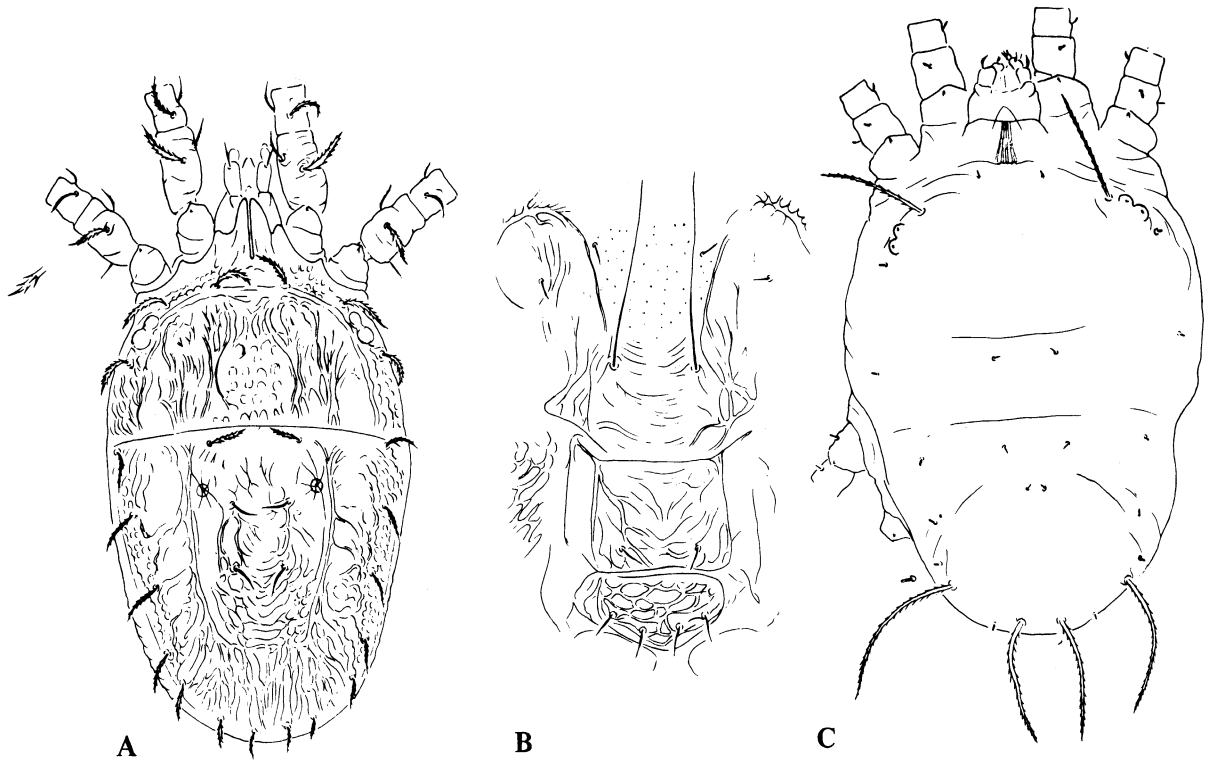


Figure 92.--Brevipalpus pseudophoenicis Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, protonymph.

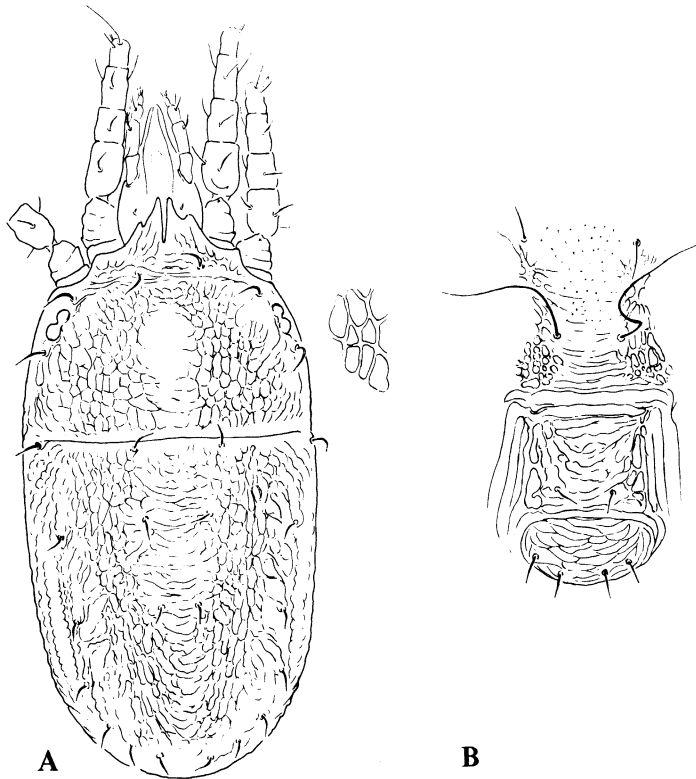


Figure 93.--Brevipalpus pseudopiniculus, n. sp., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma.

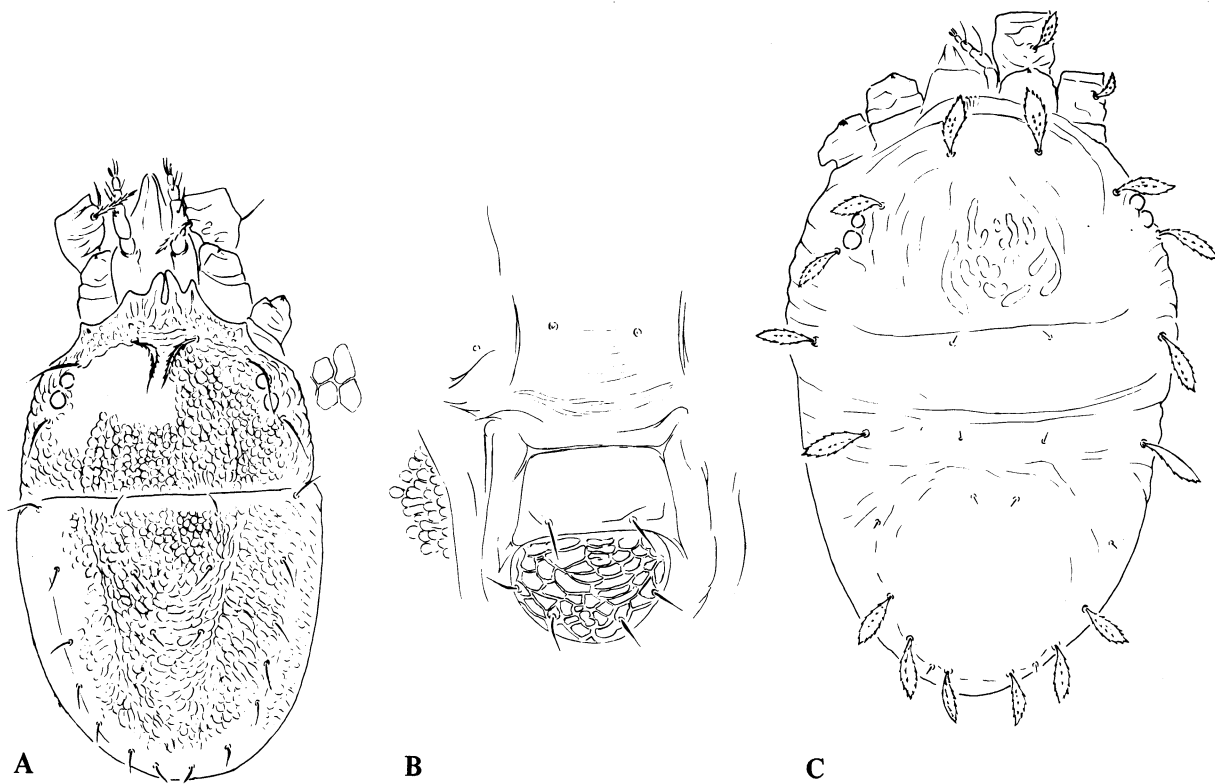


Figure 94.--Brevipalpus quercicolus De Leon, female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph.

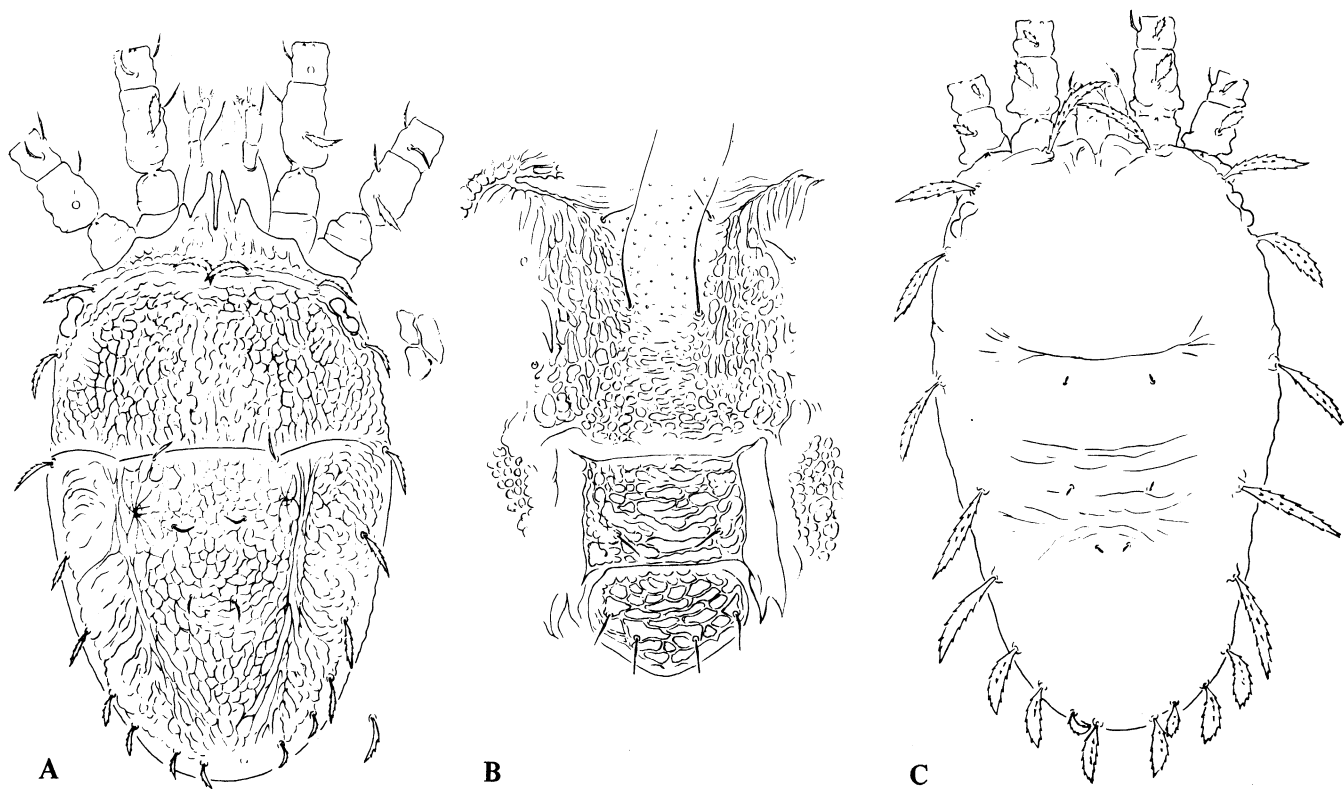


Figure 95.--Brevipalpus querensis, n. sp., female: A,  
Dorsum; B, venter of hysterosoma; C, deutonymph.

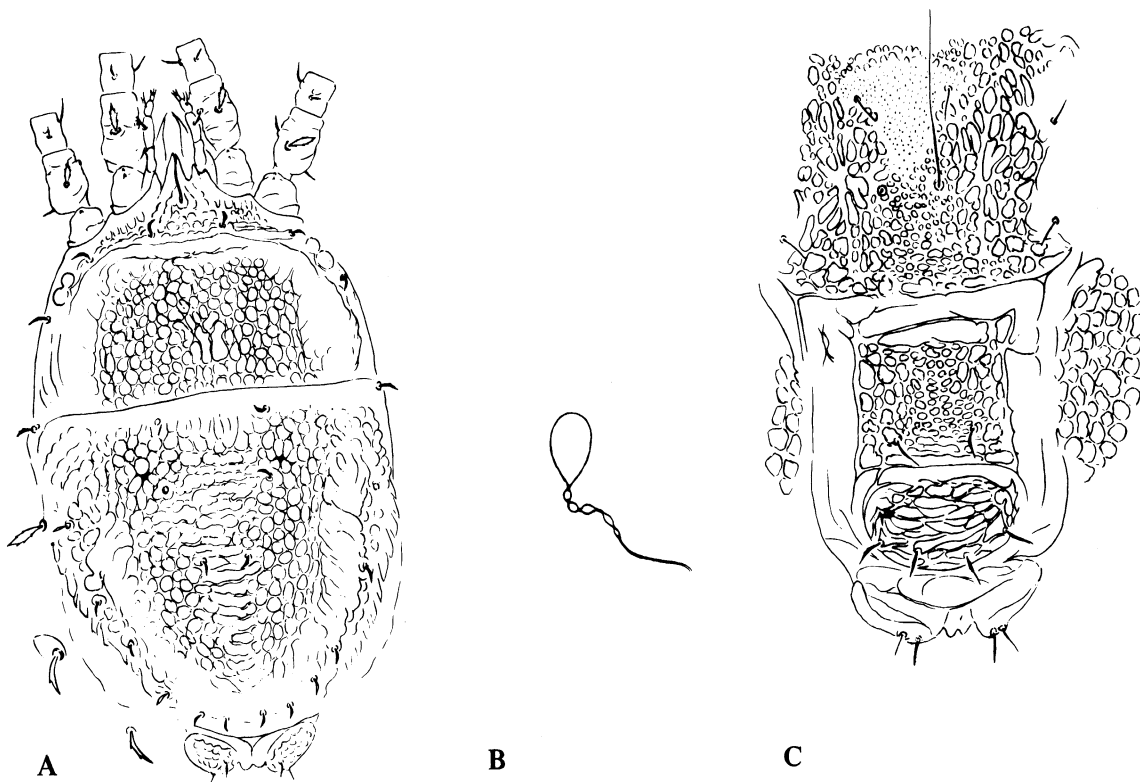


Figure 96.--Brevipalpus religiosae De Leon, female: A, Dorsum; B, spermatheca; C, venter of hysterosoma.

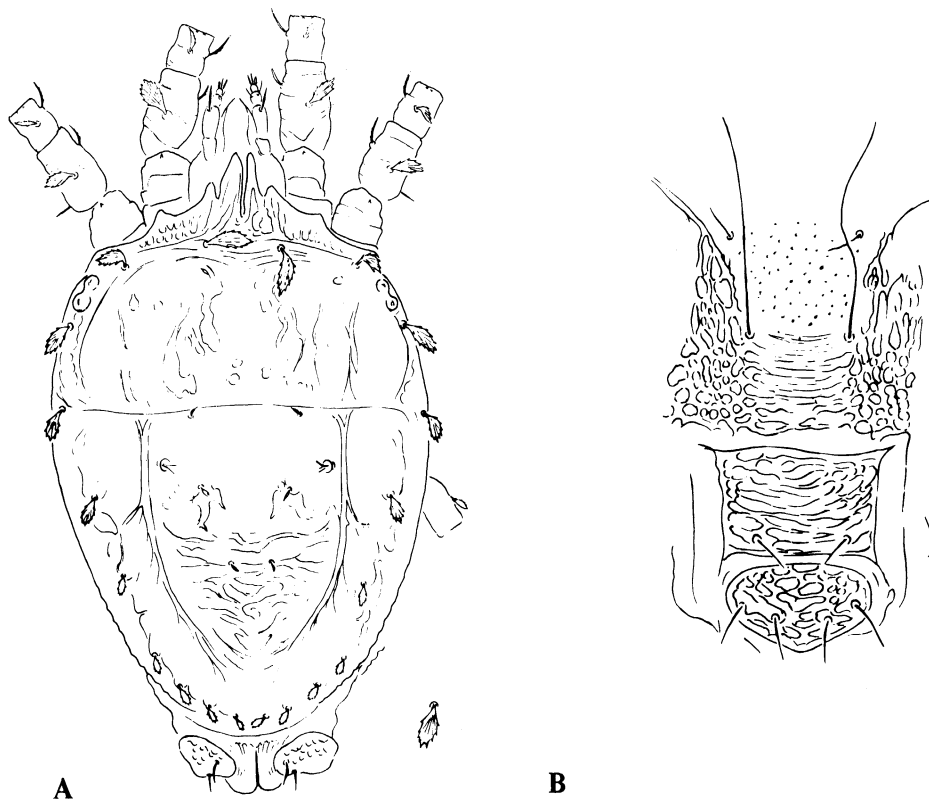


Figure 97.--Brevipalpus rubus, n. sp., female: A, Dorsum; B, venter of hysterosoma.

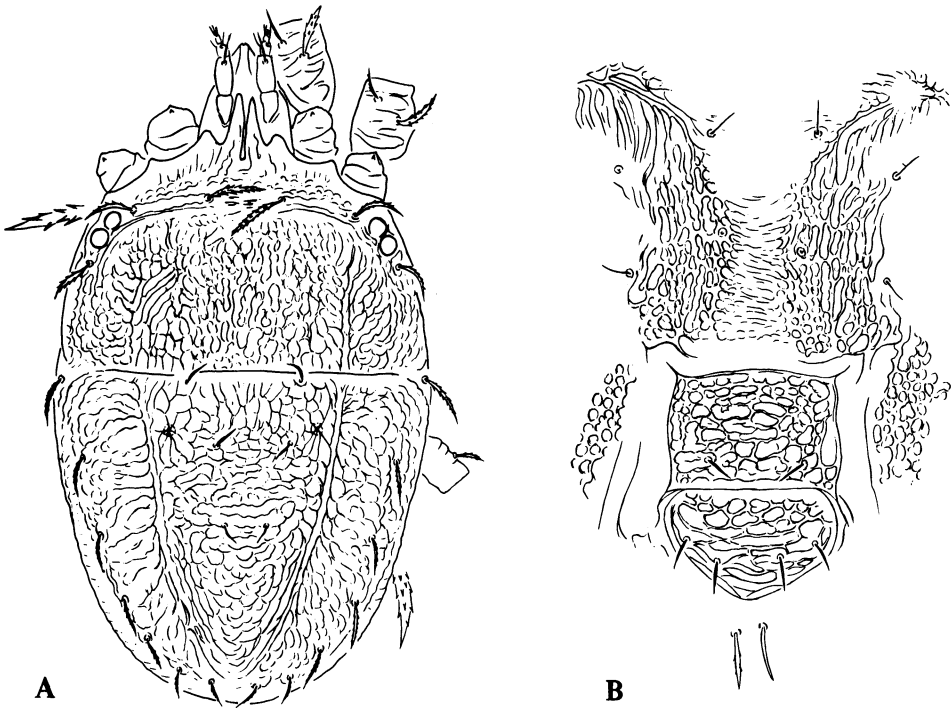


Figure 98.--Brevipalpus rugosus De Leon, female: A, Dorsum; B, venter of hysterosoma.

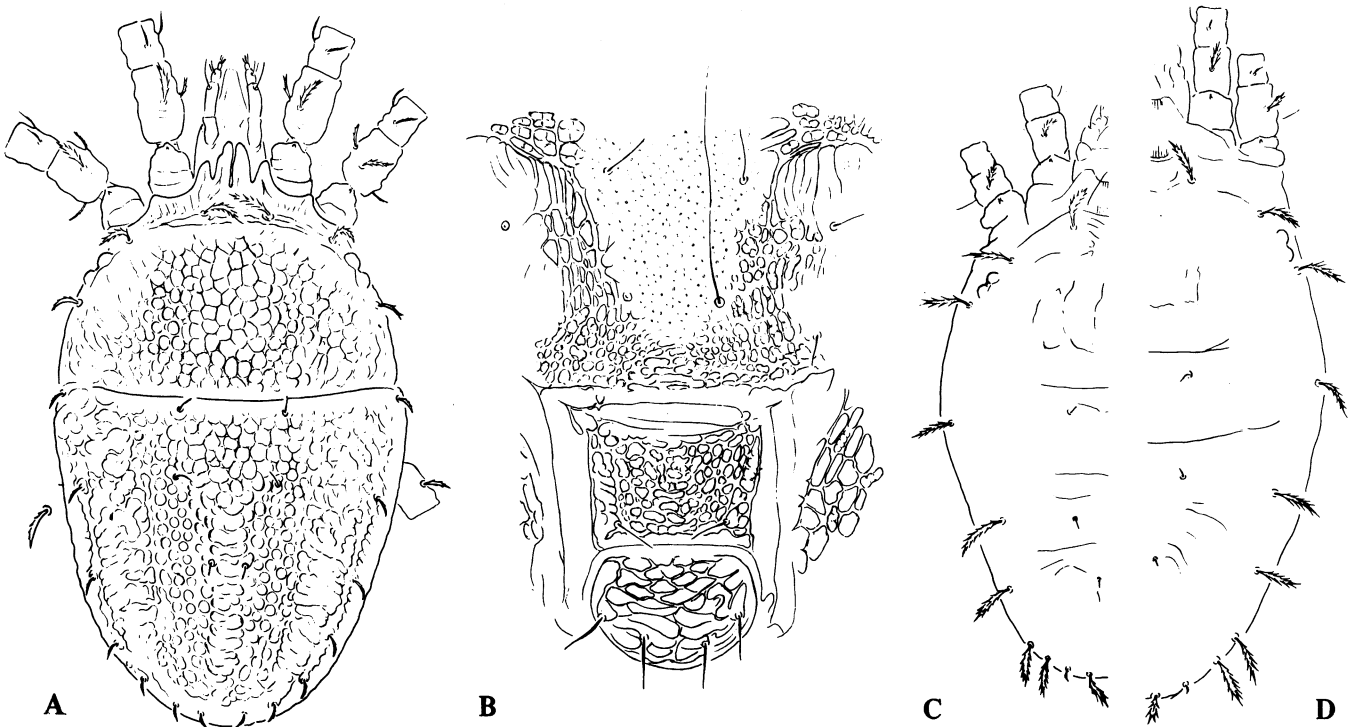


Figure 99.--Brevipalpus salix, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph; D, protonymph.

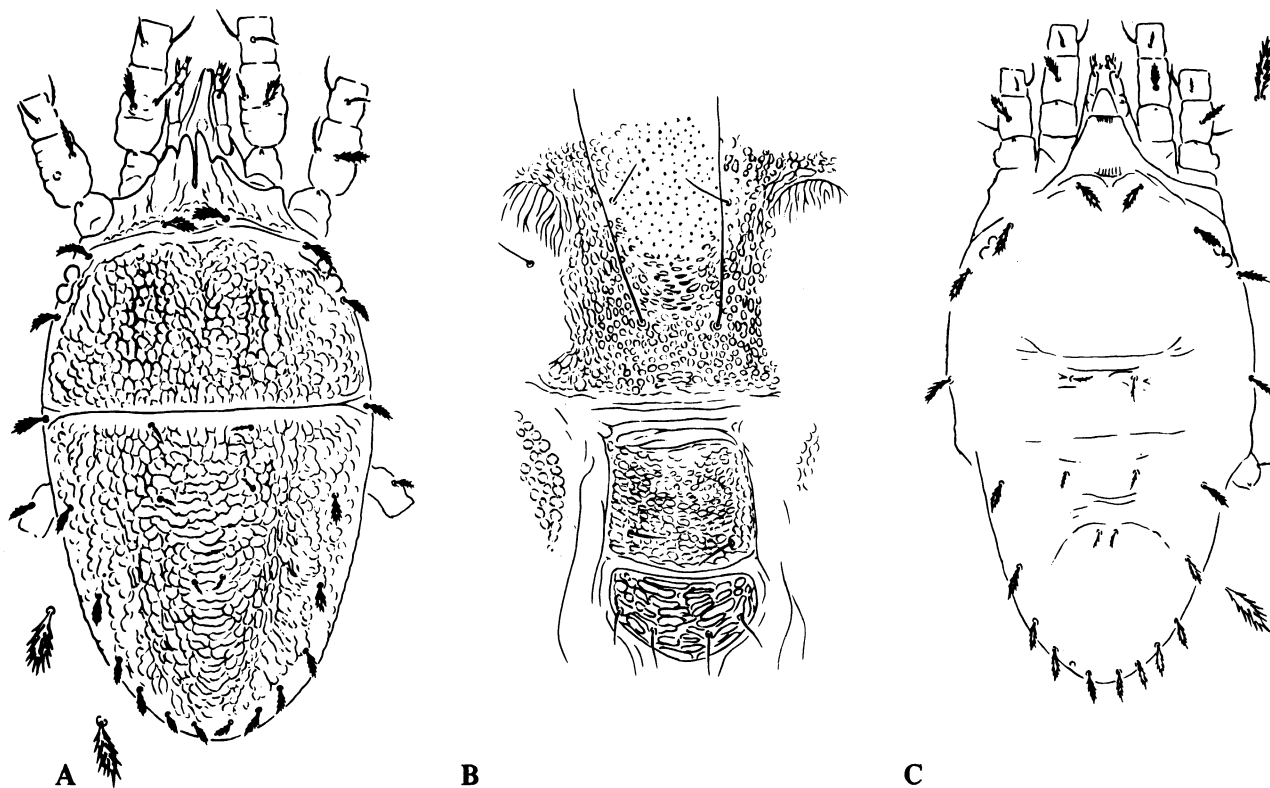


Figure 100.--*Brevipalpus serratus* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

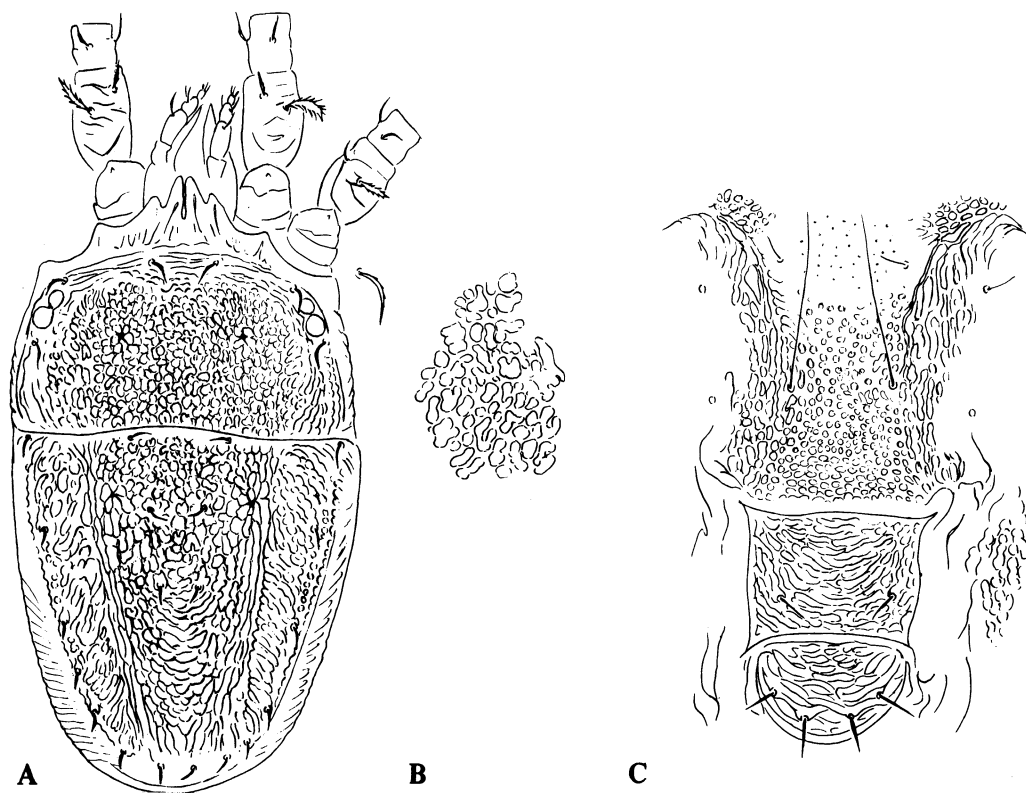


Figure 101.--*Brevipalpus sidae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, closeup of propodosomal areolae; C, venter of hysterosoma.

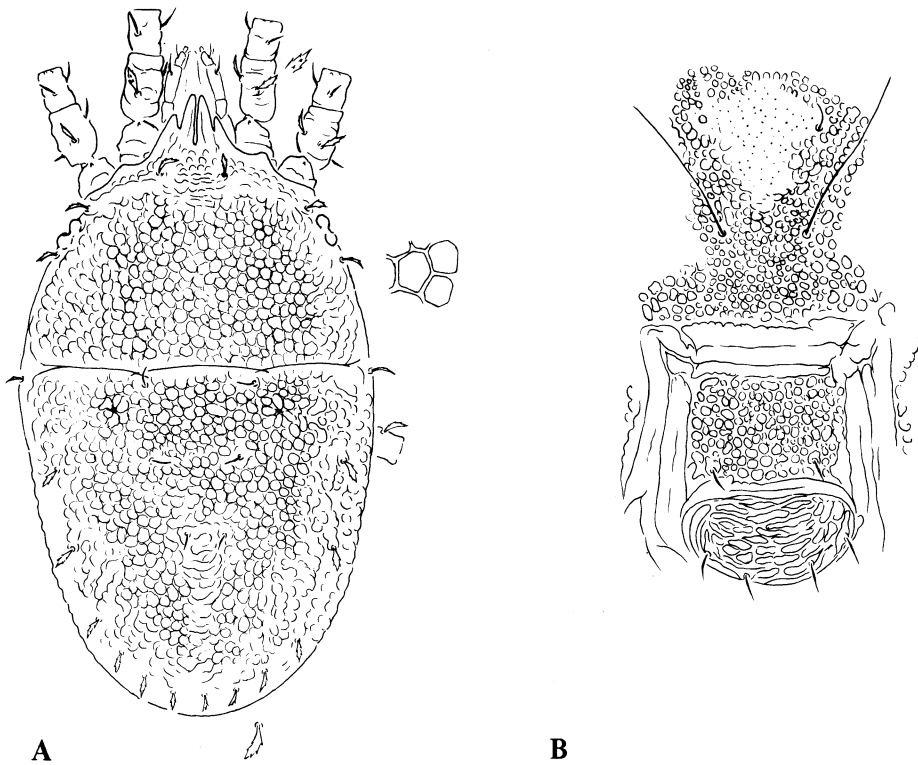


Figure 102.--*Brevipalpus similis*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

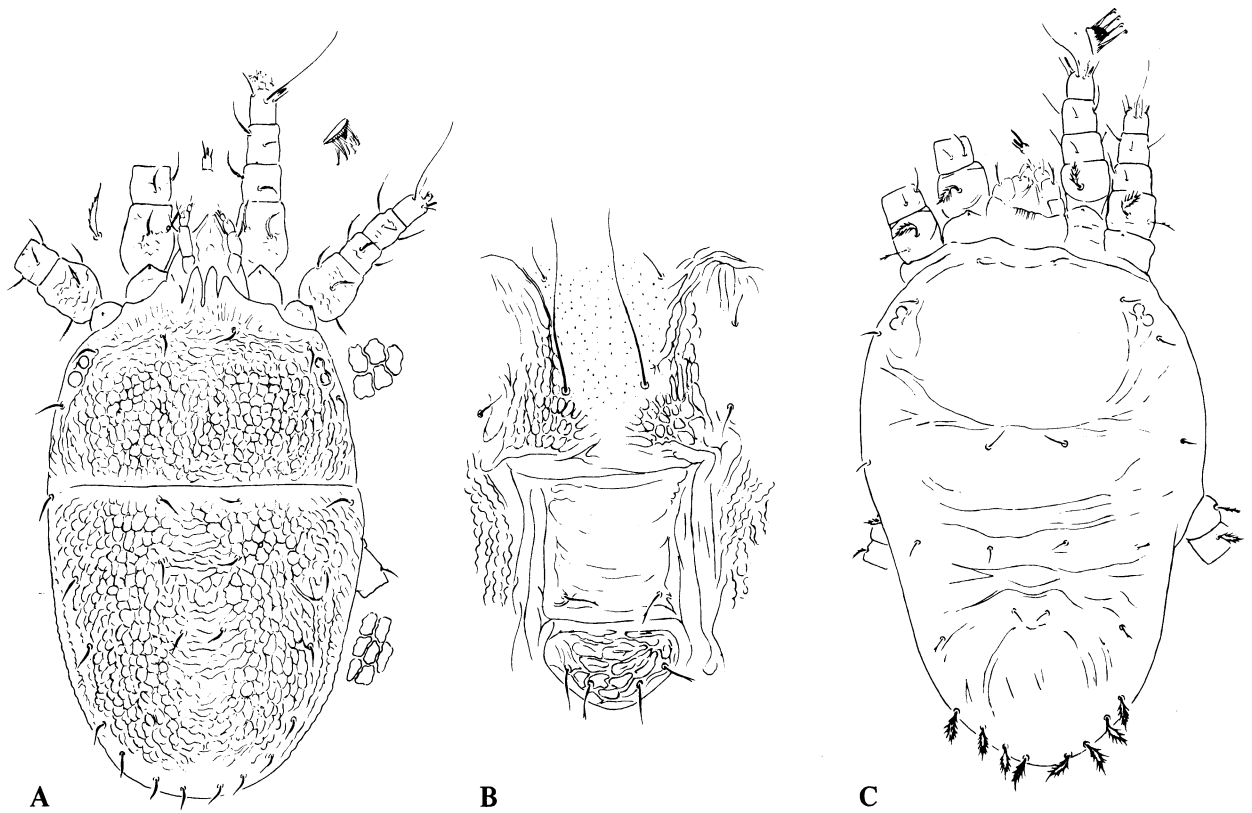


Figure 103.--*Brevipalpus spitzeri*, n. sp., female: A, Dorsum, with closeup of propodosomal and hysterosoma areolae; B, venter of hysterosoma; C, deutonymph.

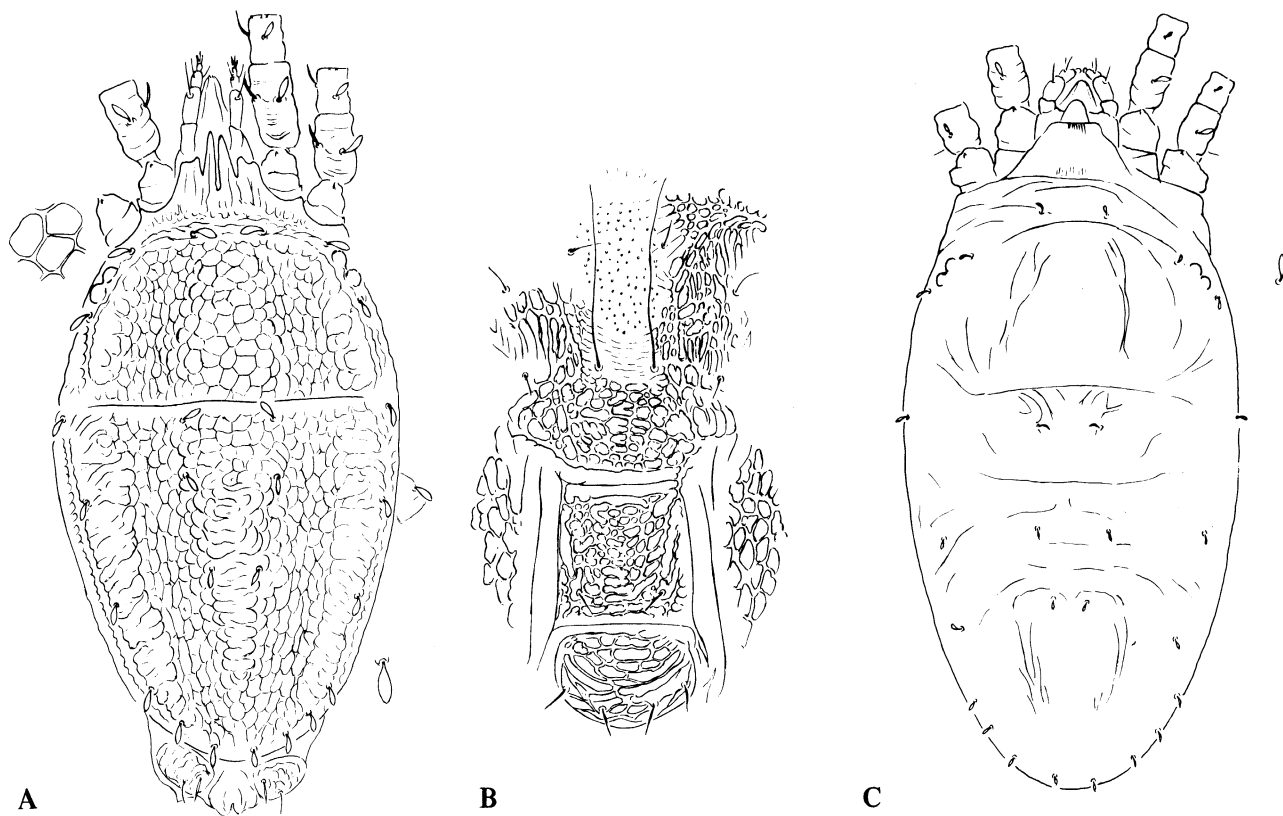


Figure 104.--*Brevipalpus stenolobae*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

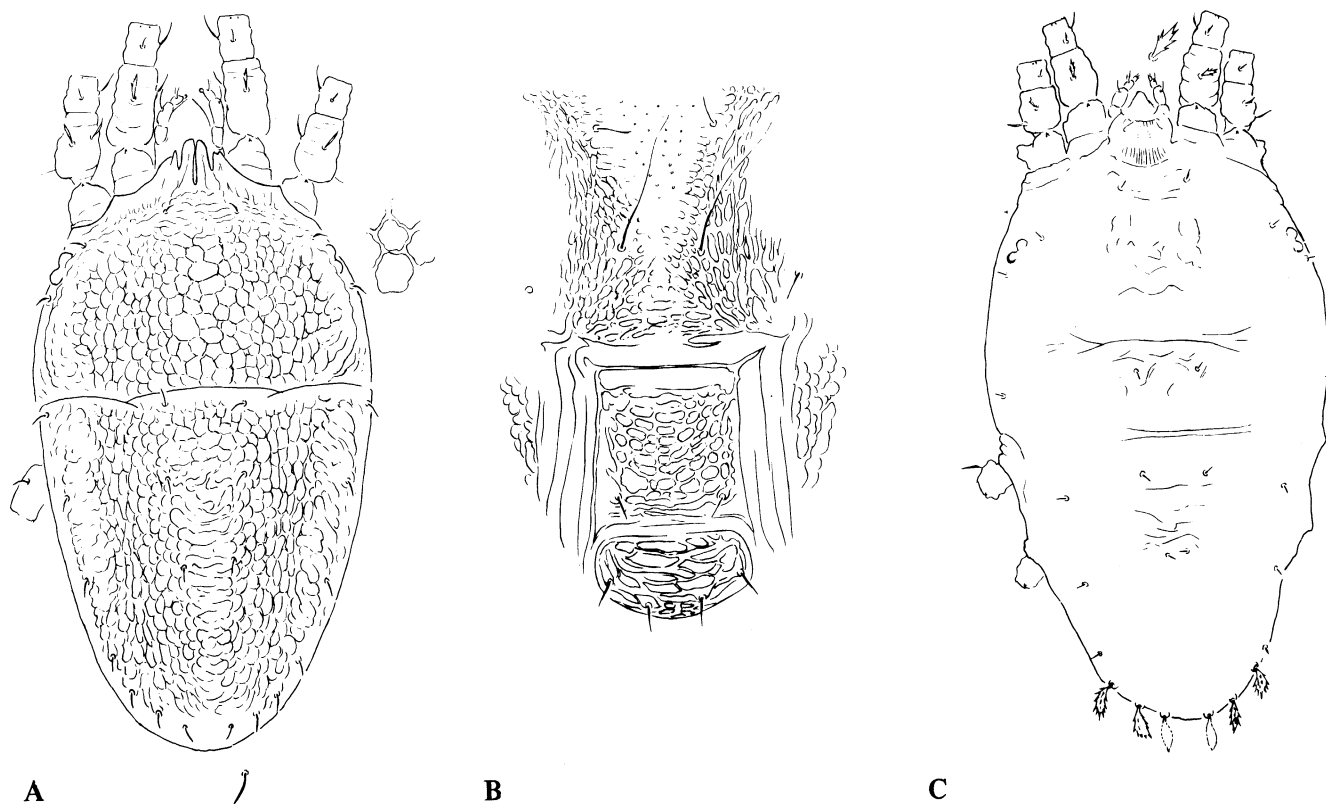


Figure 105.--*Brevipalpus stipae*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.



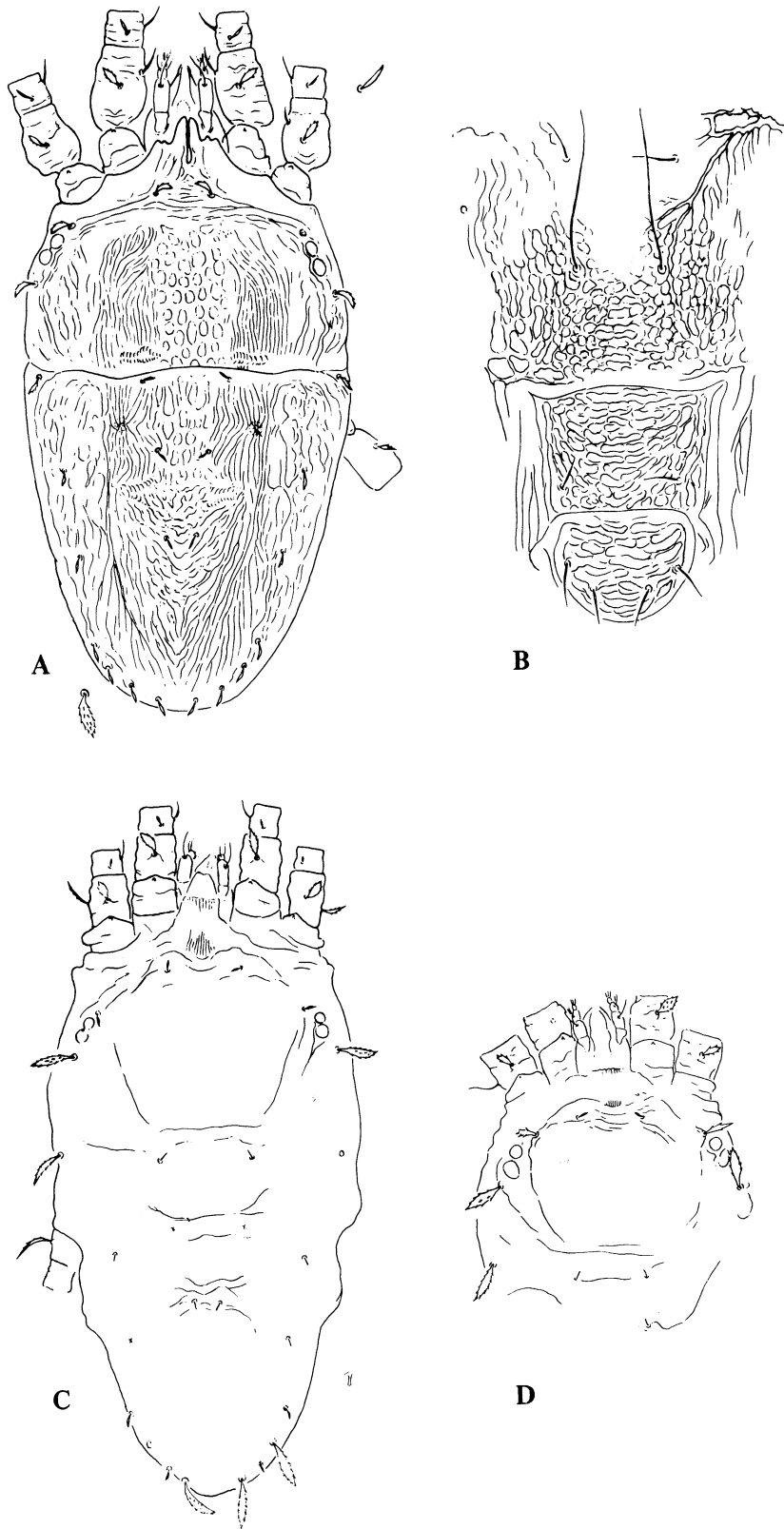


Figure 106.--*Brevipalpus striatus* De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph; D, protonymph, with propodosoma and anterior part of hysterosoma.

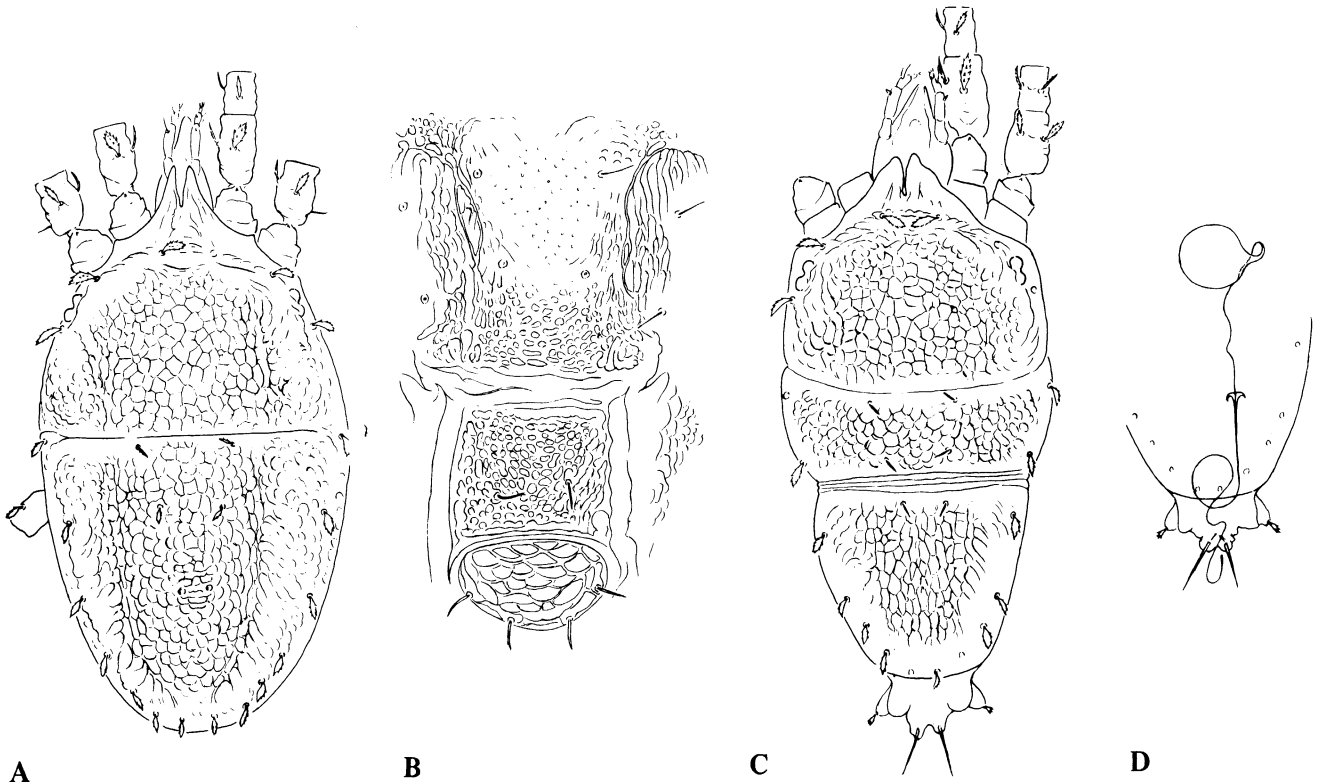


Figure 107.--*Brevipalpus tepicbutilonae*, n. sp.  
 Female: A, Dorsum; B, venter of hysterosoma. Male:  
C, Dorsum; D, genitalia ("intersex").

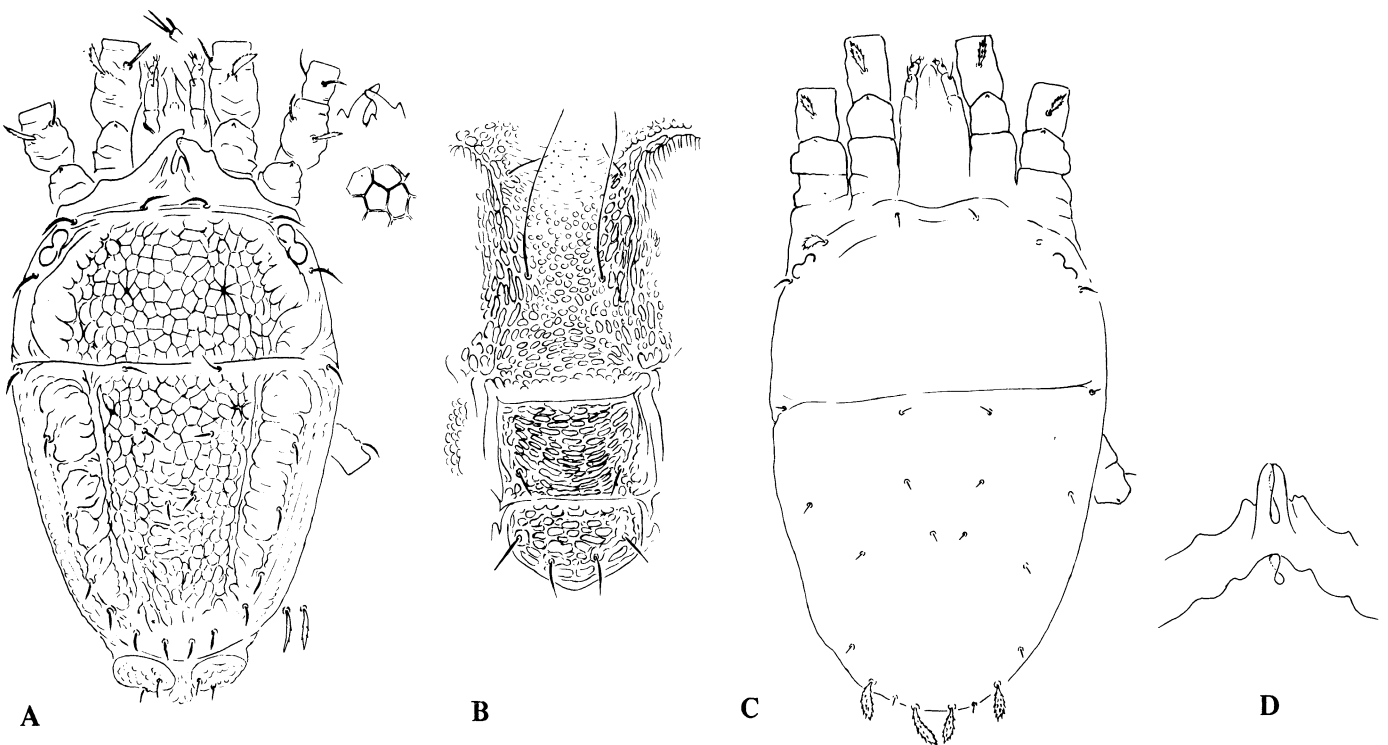


Figure 108.--*Brevipalpus tepicensis*, n. sp., female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph;  
D, variations in propodosomal shields.

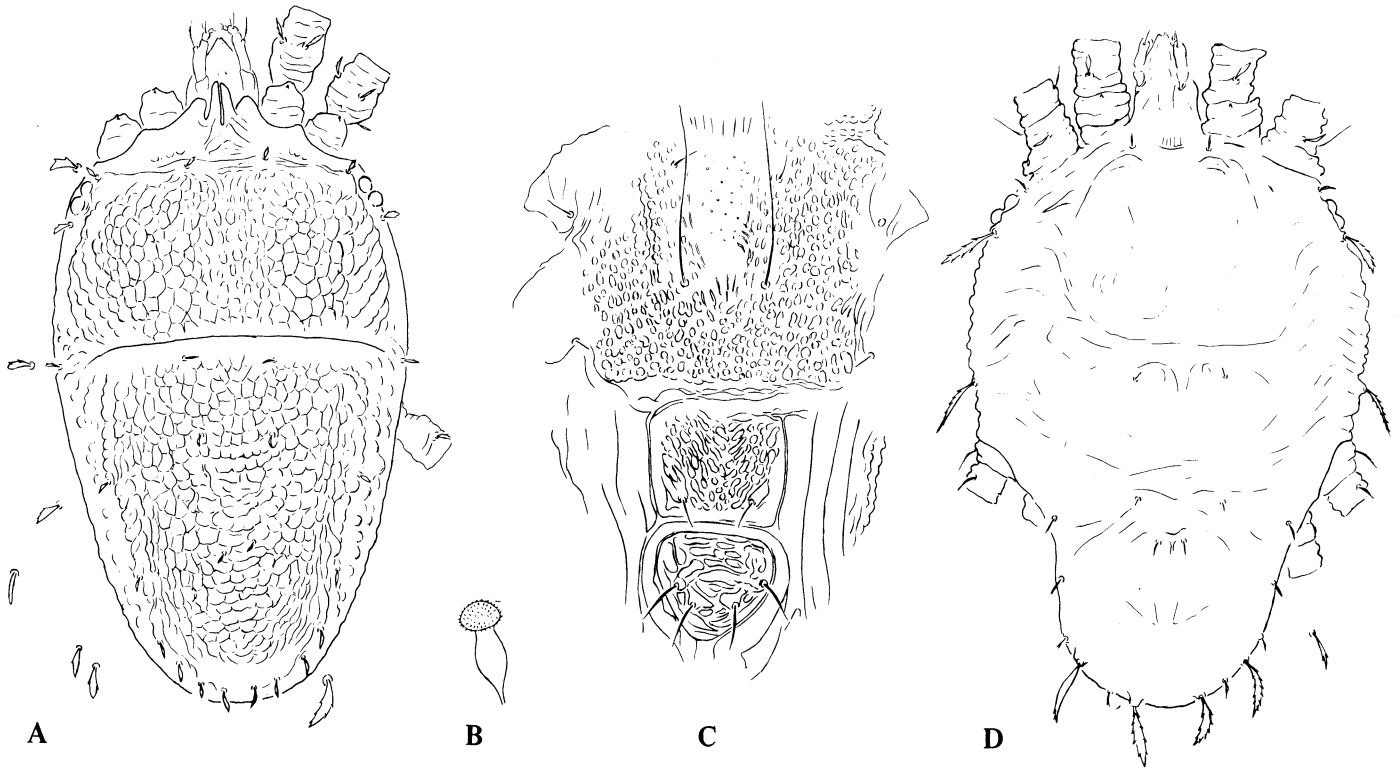


Figure 109.--*Brevipalpus testudinalis* De Leon, female: A, Dorsum; B, spermatheca; C, venter of hysterosoma; D, protonymph.

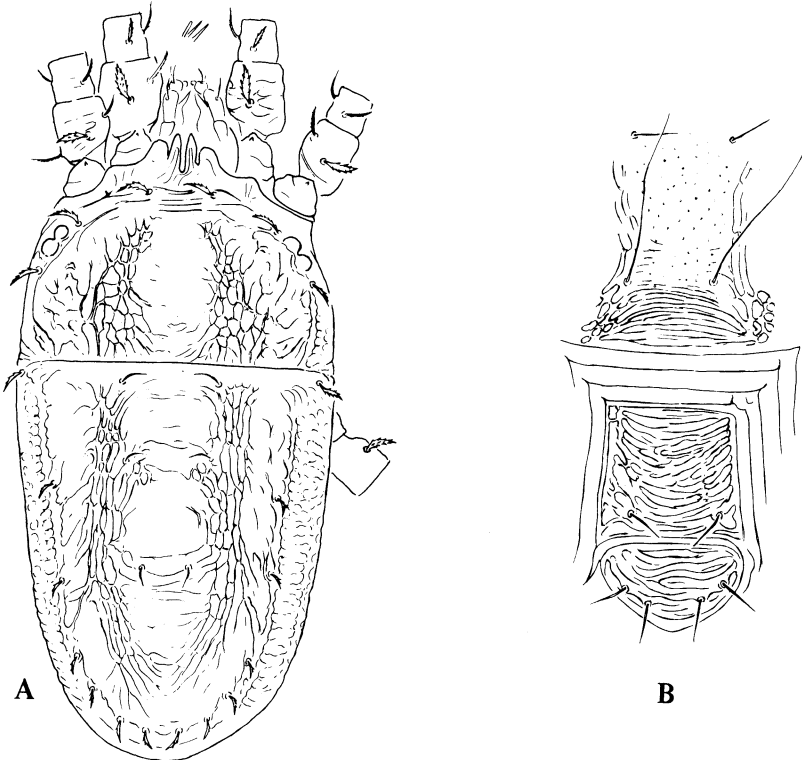


Figure 110.--*Brevipalpus tlaxcensis*, n. sp., female: A, Dorsum; B, venter of hysterosoma.

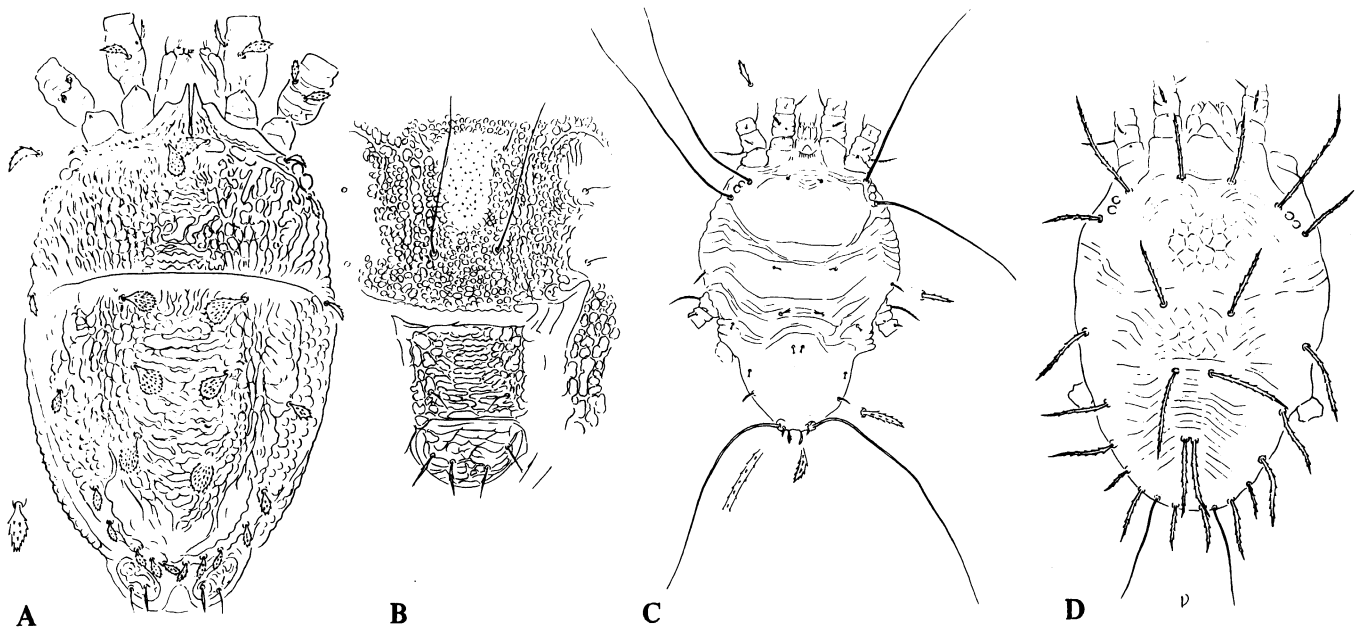


Figure 111.--Brevipalpus tuberellus De Leon, female:  
A, Dorsum; B, venter of hysterosoma; C, deutonymph;  
D, larva.

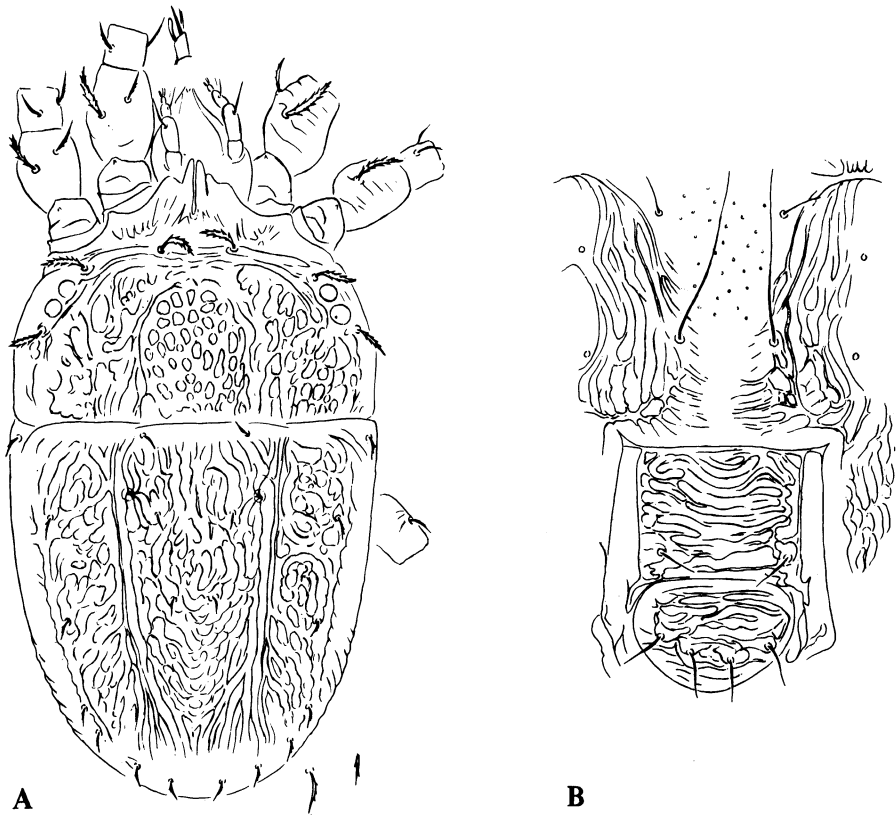


Figure 112.--Brevipalpus variolatus De Leon, female:  
A, Dorsum; B, venter of hysterosoma.

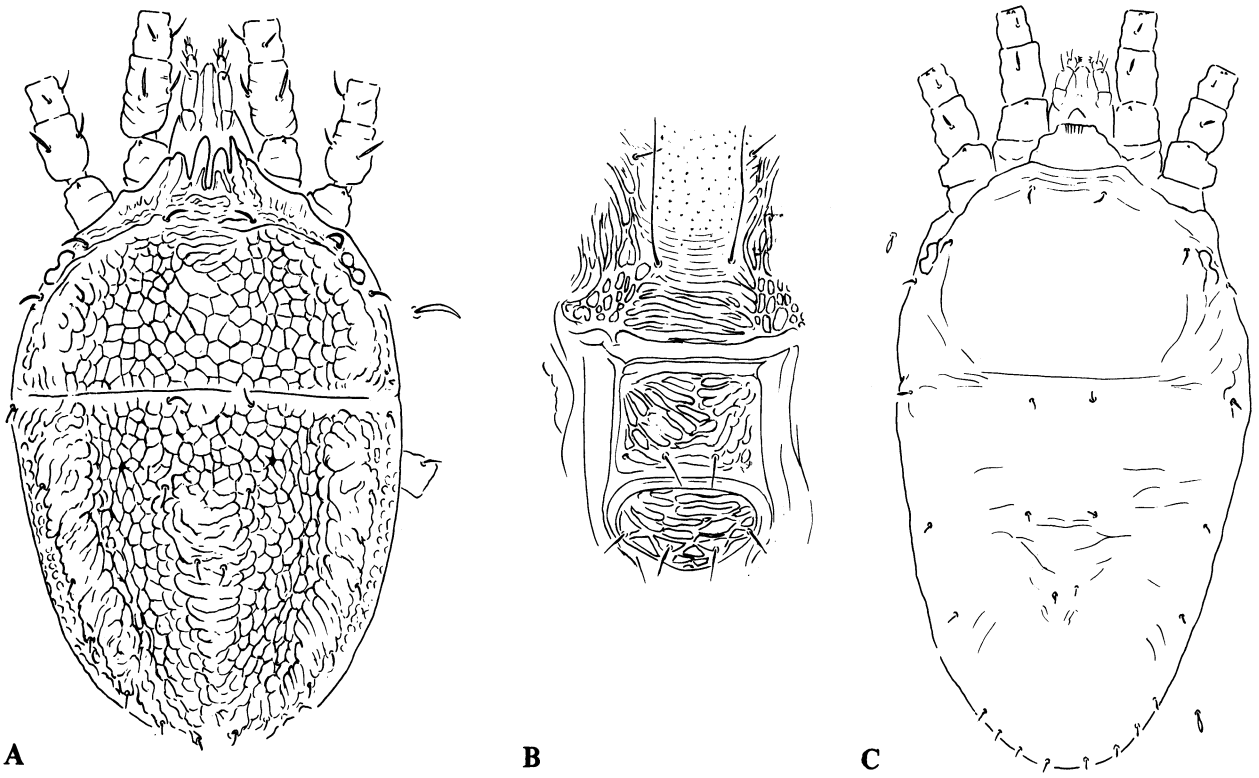


Figure 113.--Brevipalpus venetus, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

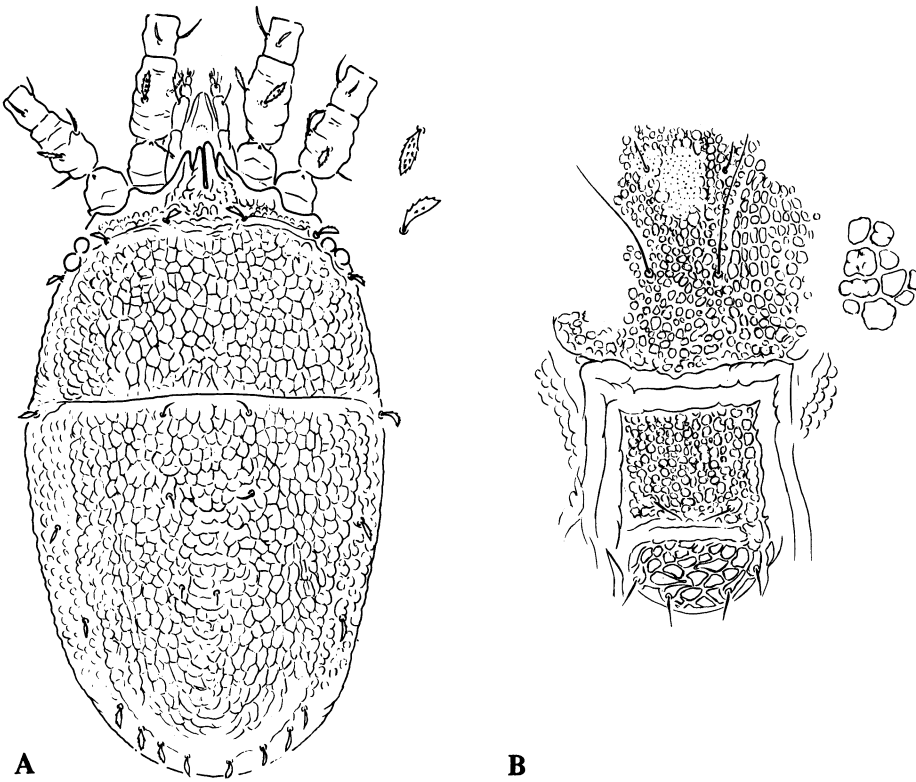


Figure 114.--Brevipalpus zempoalensis, n. sp., female: A, Dorsum; B, venter of hysterosoma.

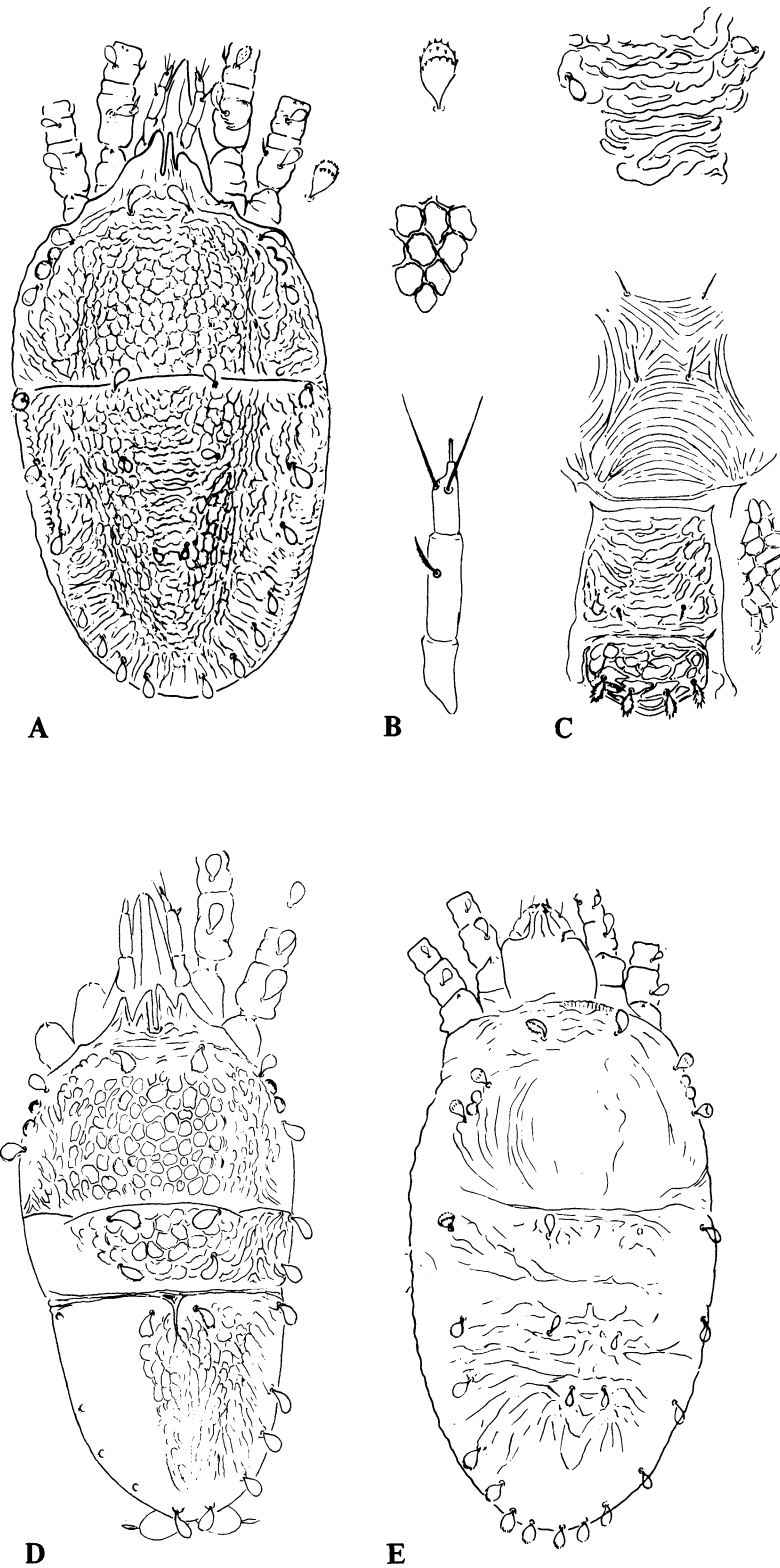


Figure 115.--Brevipalpus frankeniae Baker, Tuttle, and Abbatiello. Female: A, Dorsum, with closeup of areolae on propodosoma and hysterosoma; B, palpus; C, venter of hysterosoma. Male: D, Dorsum; E, deutonymph.

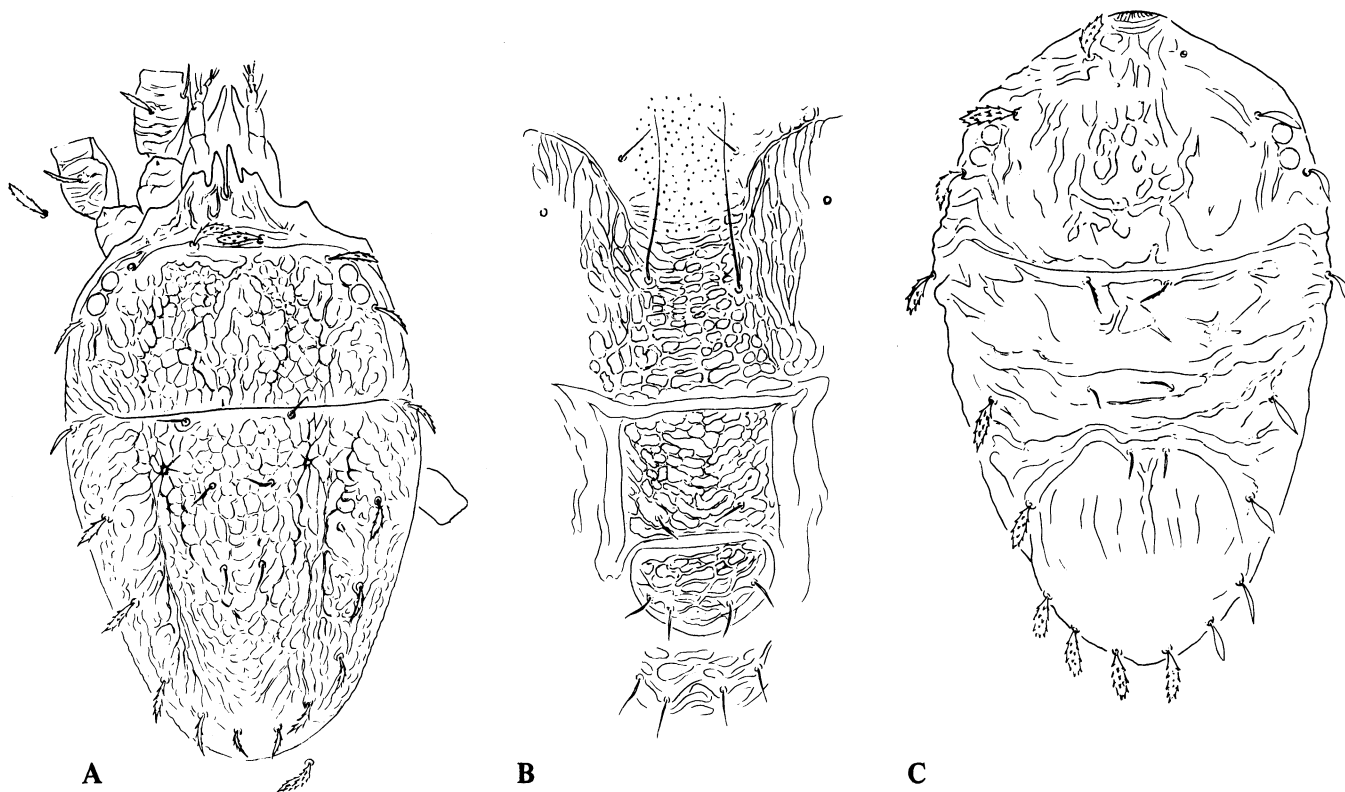


Figure 116.--Brevipalpus edax De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

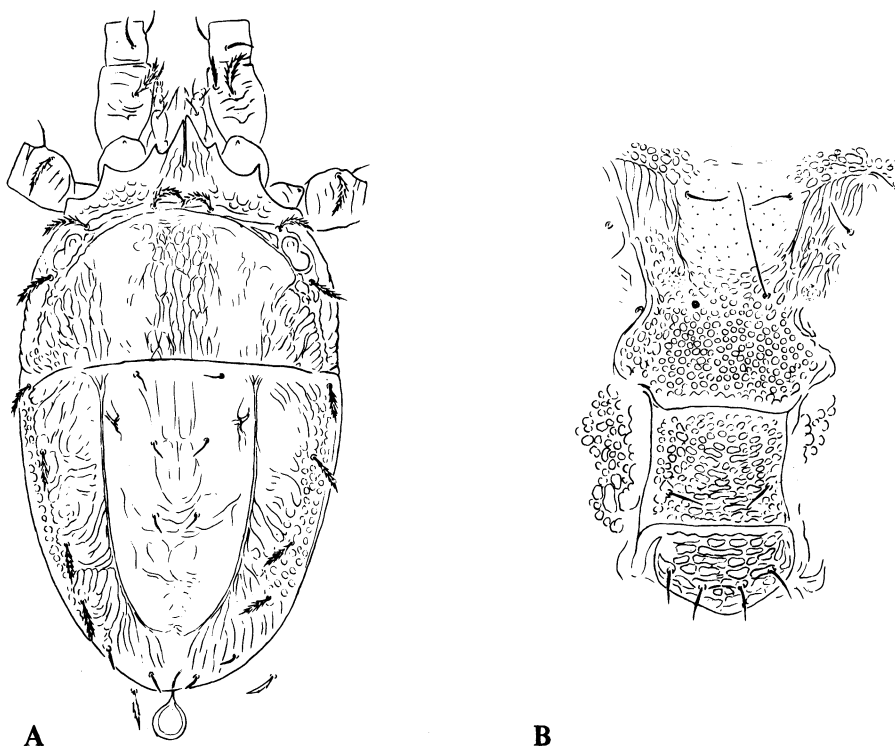
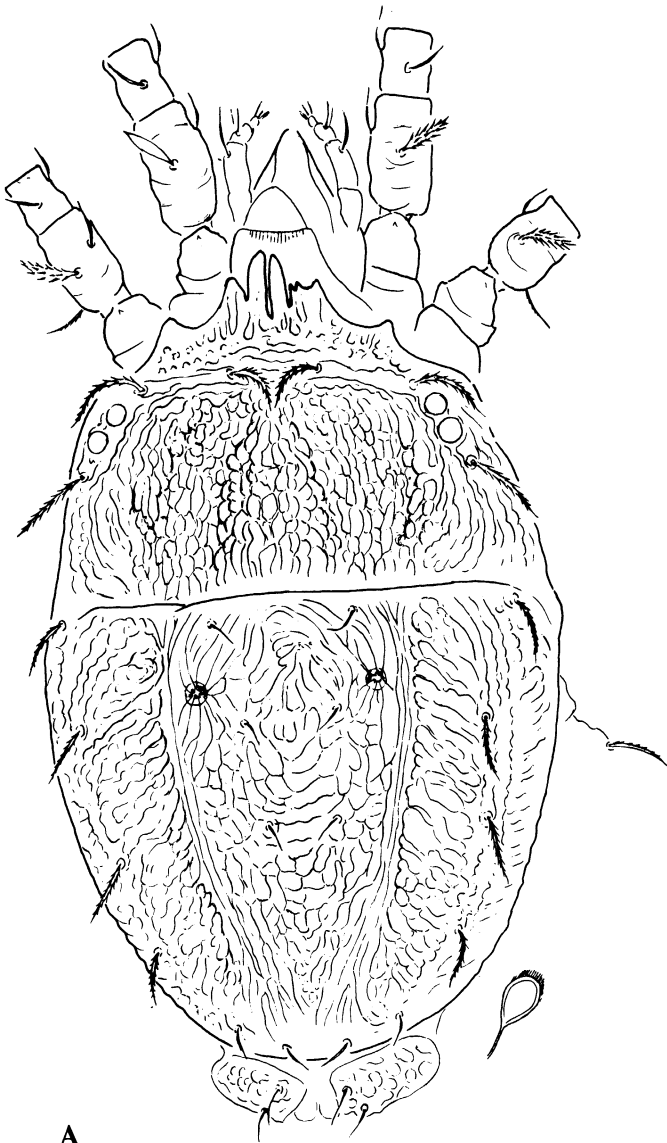
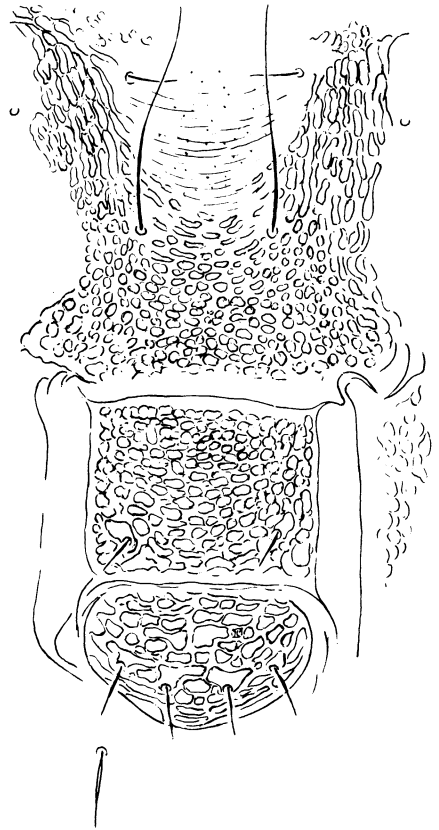


Figure 117.--Brevipalpus edwinae Baker, female: A, Dorsum (note extended spermatheca); B, venter of hysterosoma.



A



B

Figure 118.--*Brevipalpus lupinus*, n. sp., female: A, Dorsum (note spermatheca); B, venter of hysterosoma.



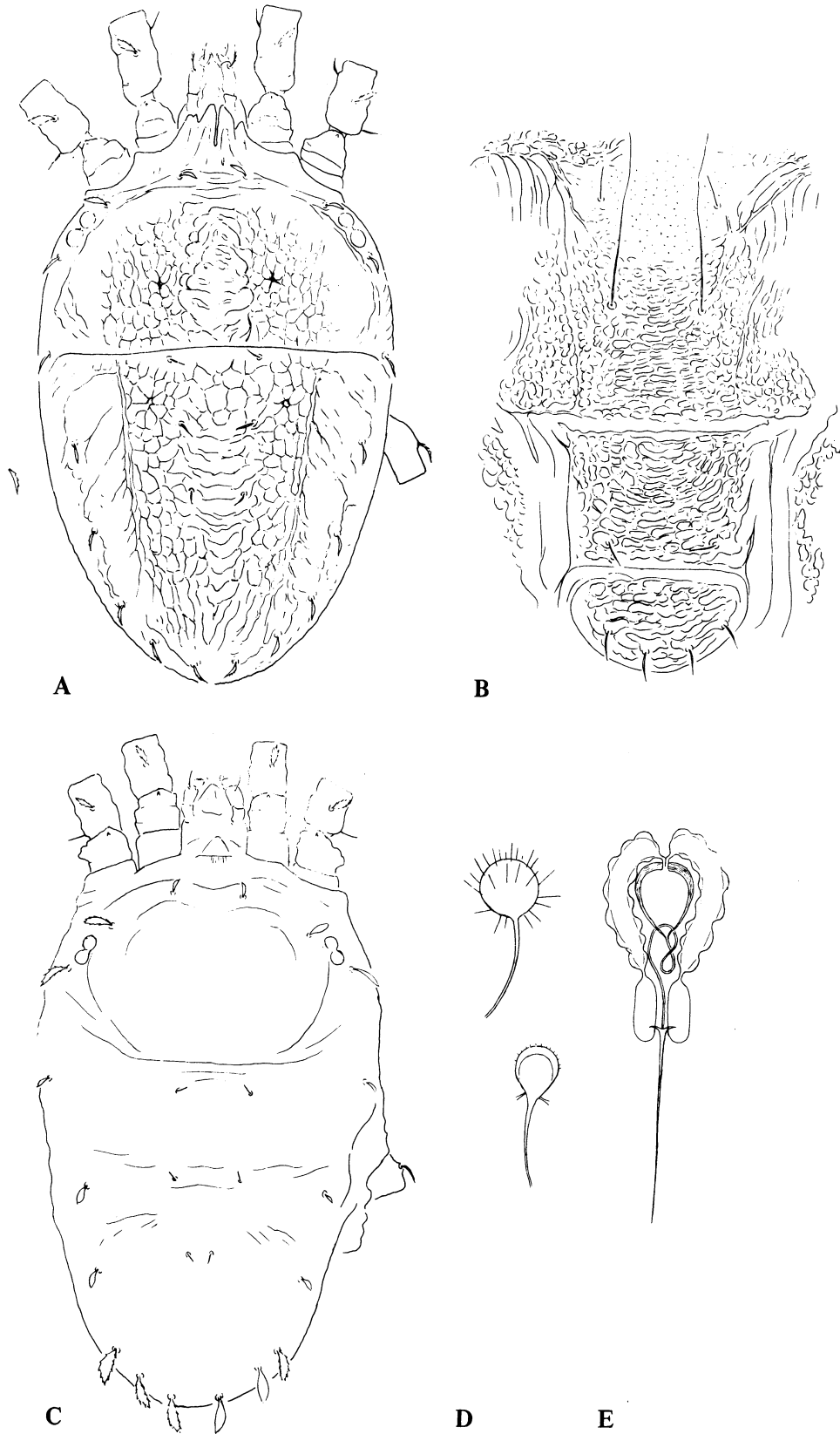


Figure 119.--Brevipalpus obovatus Donnadieu. Female: A, Dorsum; B, venter of hysterosoma; C, deutonymph; D, spermatheca. Male: E, Genitalia (after Pijnacker et al., 1981).

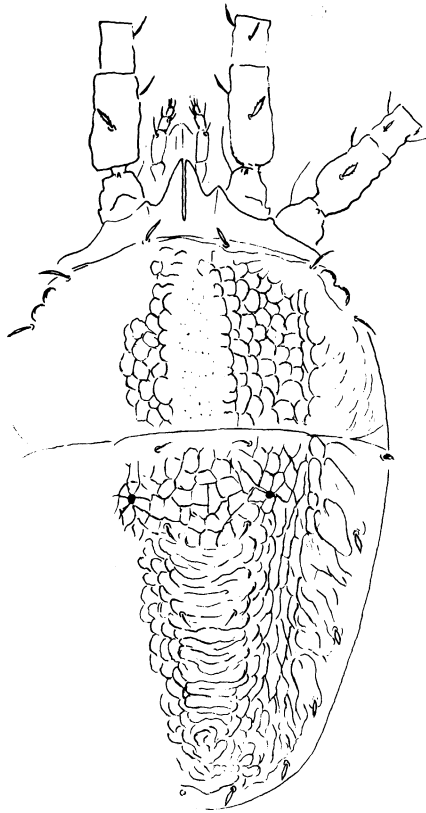
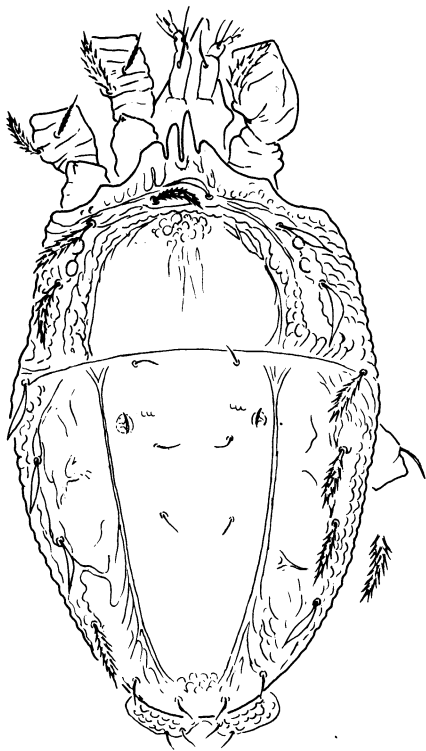
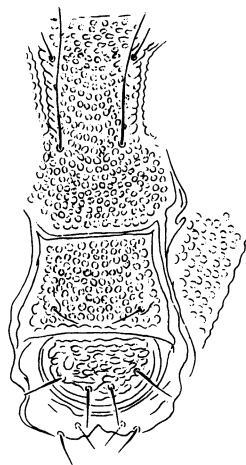


Figure 120.--Brevipalpus organum Baker, Tuttle, and Abbatiello, female, dorsum.



A



B

Figure 121.--Brevipalpus pocillator De Leon, female:  
A, Dorsum; B, venter of hysterosoma.

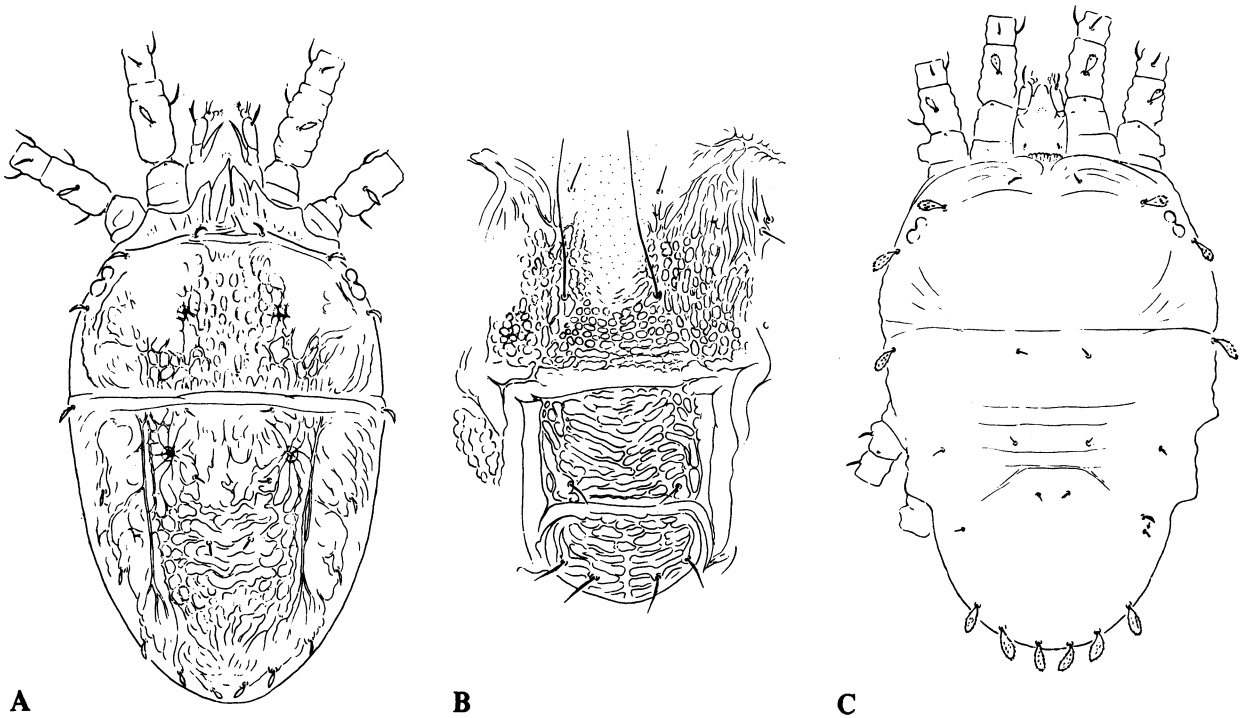


Figure 122.--Brevipalpus phoenicis (Geijskes), female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

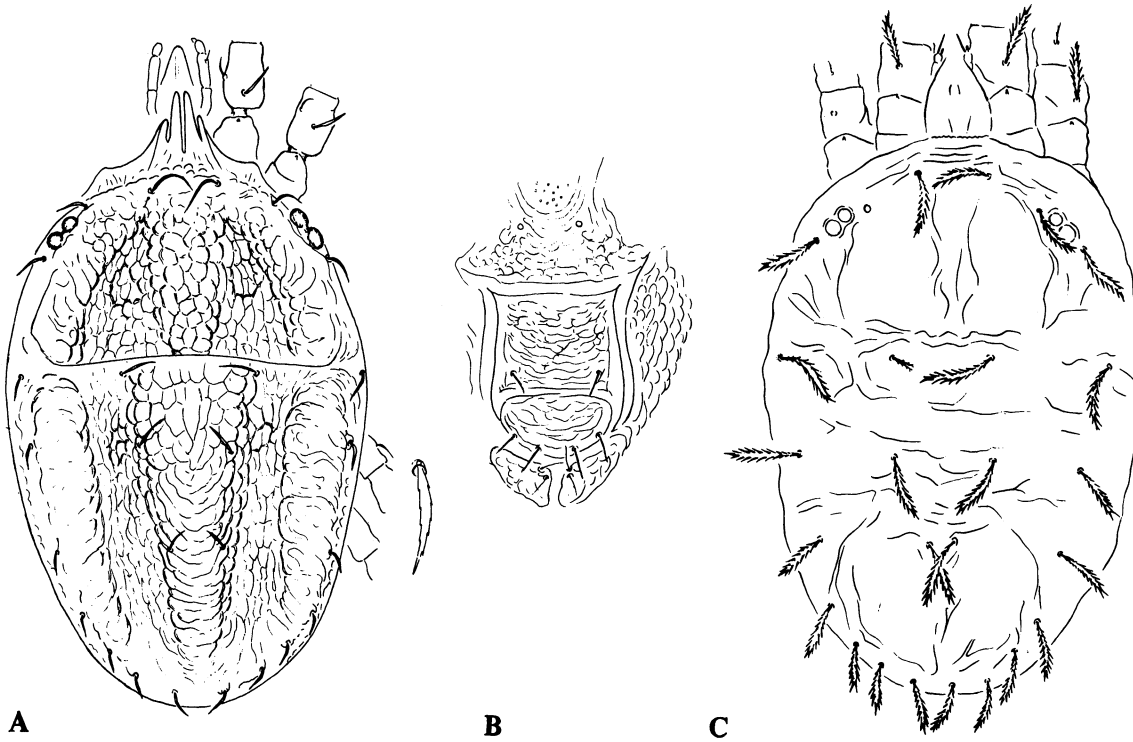
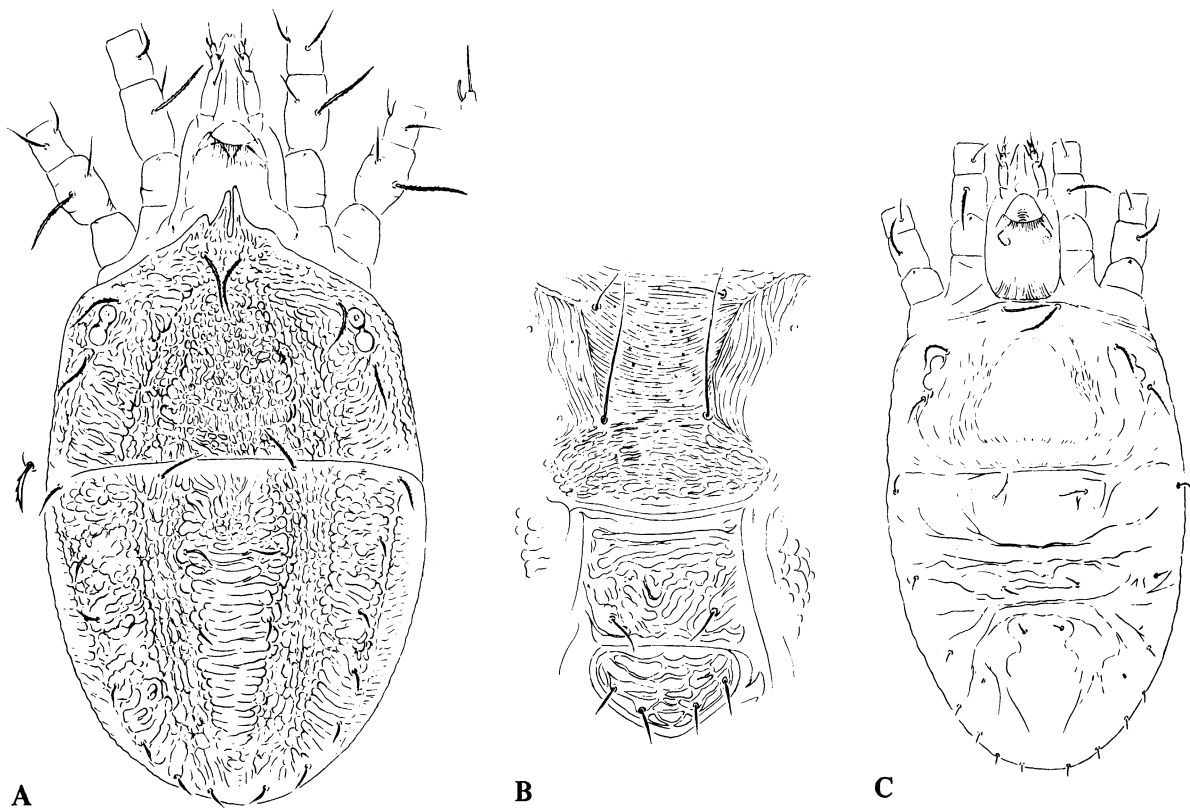


Figure 123.--Brevipalpus artemisiae Baker and Tuttle, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

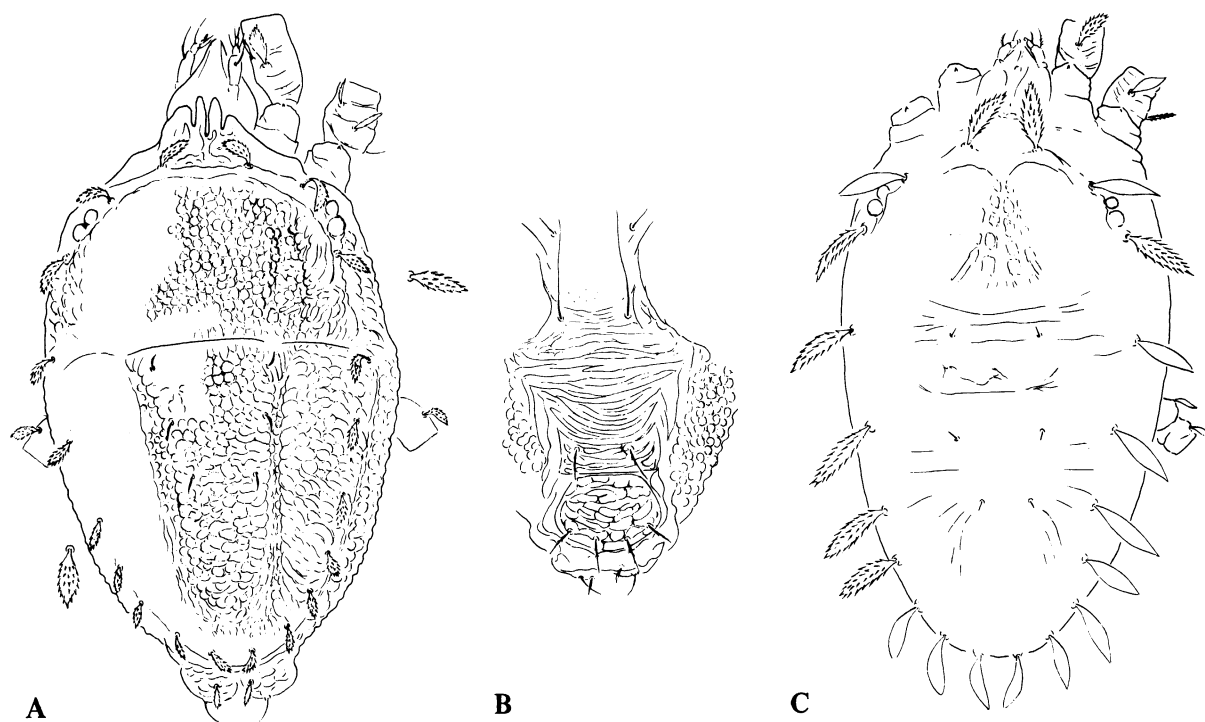


A

B

C

Figure 124.--Brevipalpus coldeniae Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.



A

B

C

Figure 125.--Brevipalpus combreti De Leon, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

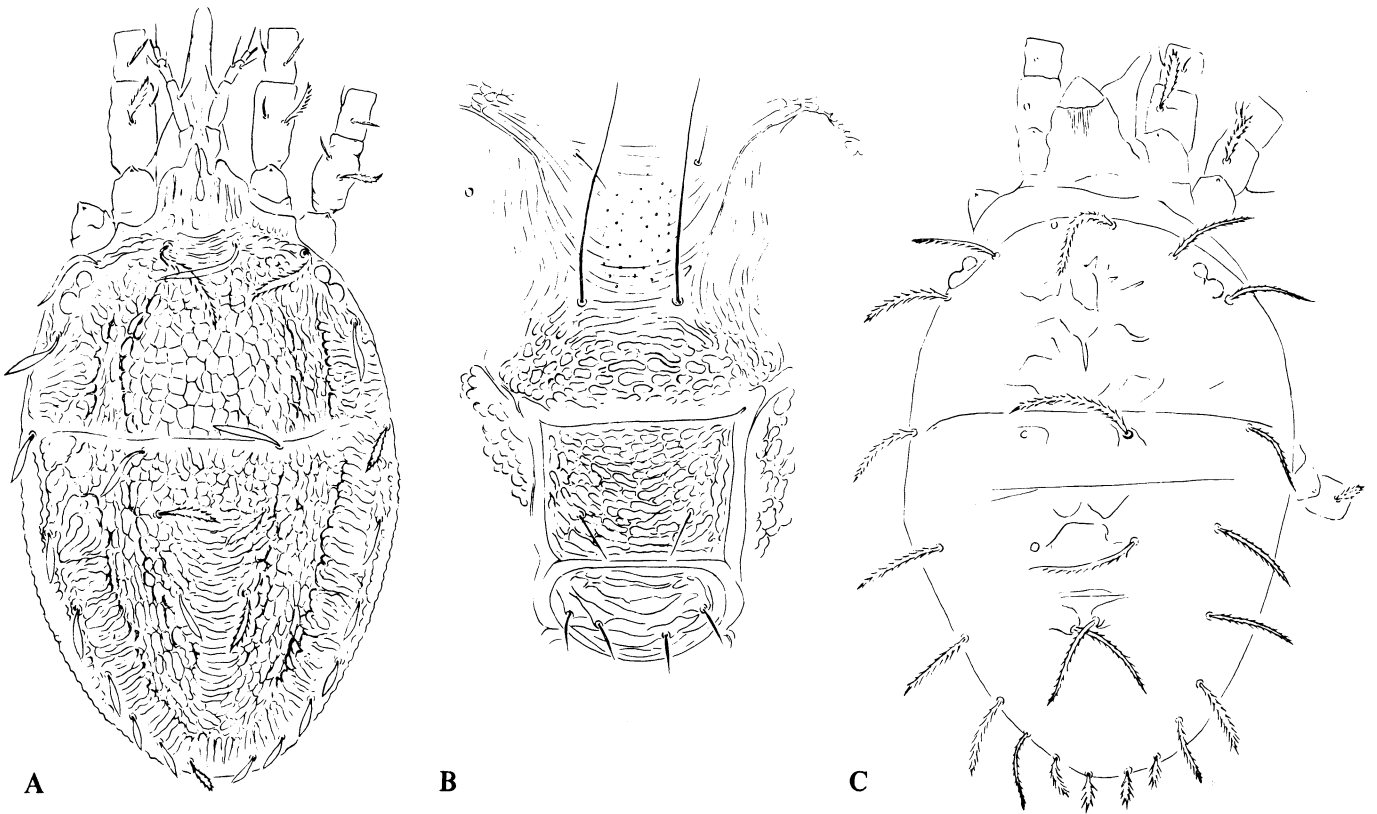


Figure 126.--*Brevipalpus enceliae* Baker, Tuttle, and Abbatiello, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

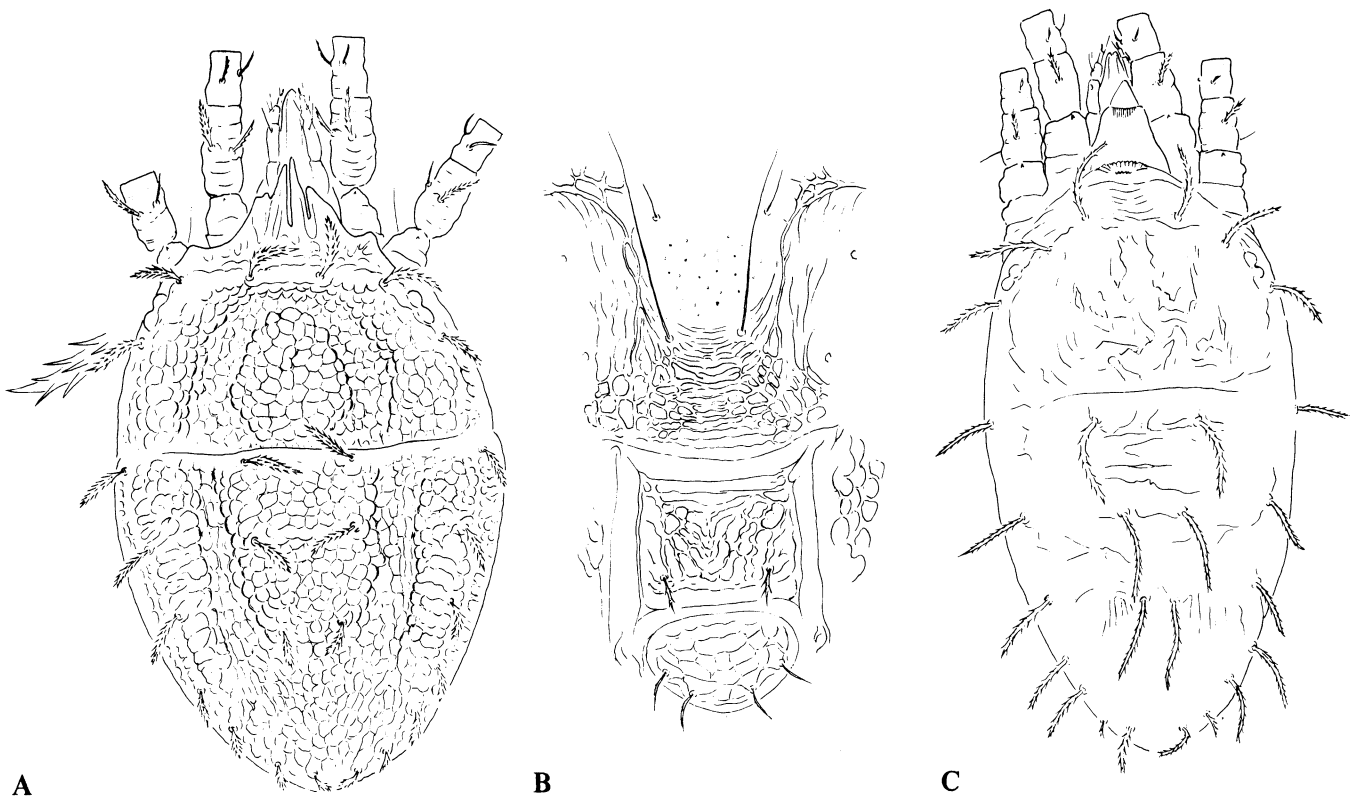


Figure 127.--*Brevipalpus erectus*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

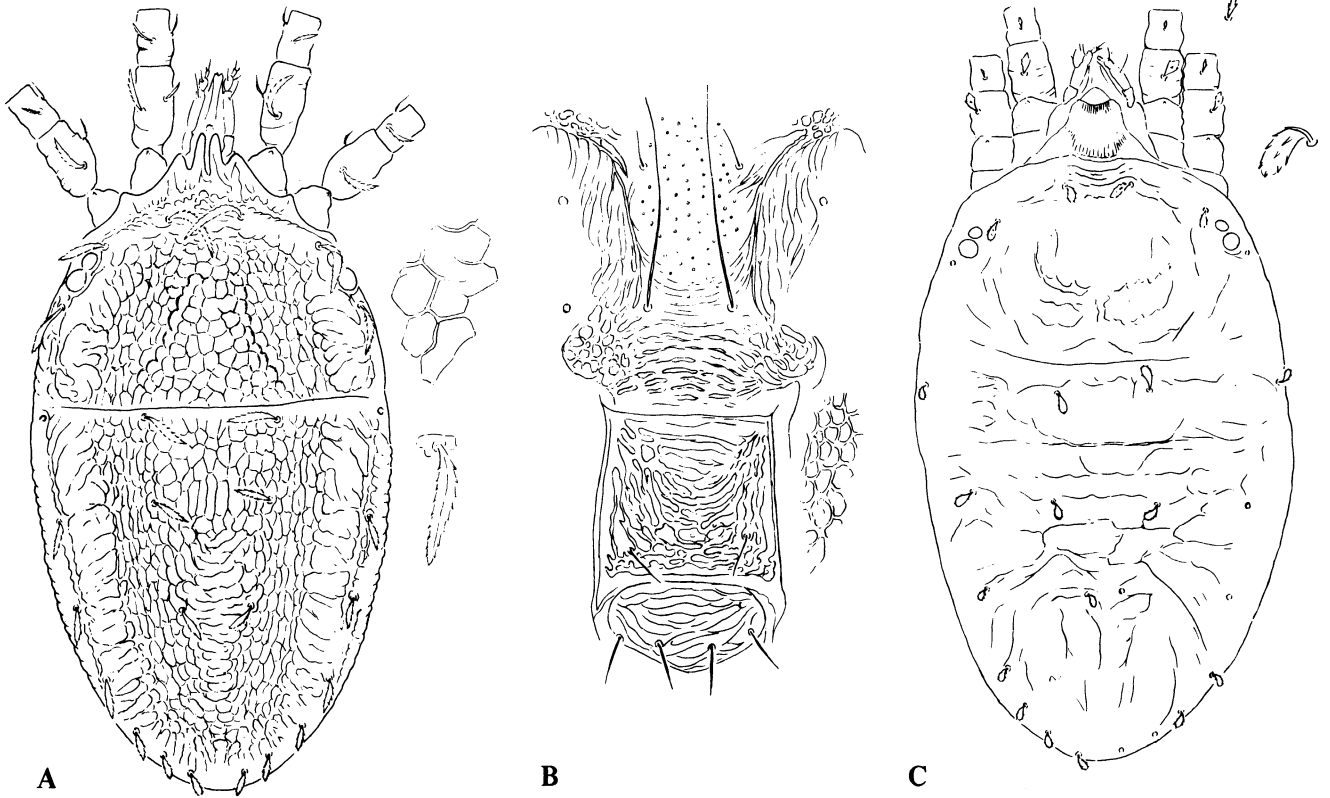


Figure 128.--*Brevipalpus filifoliae* Baker, Tuttle, and Abbatiello, female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, deutonymph.

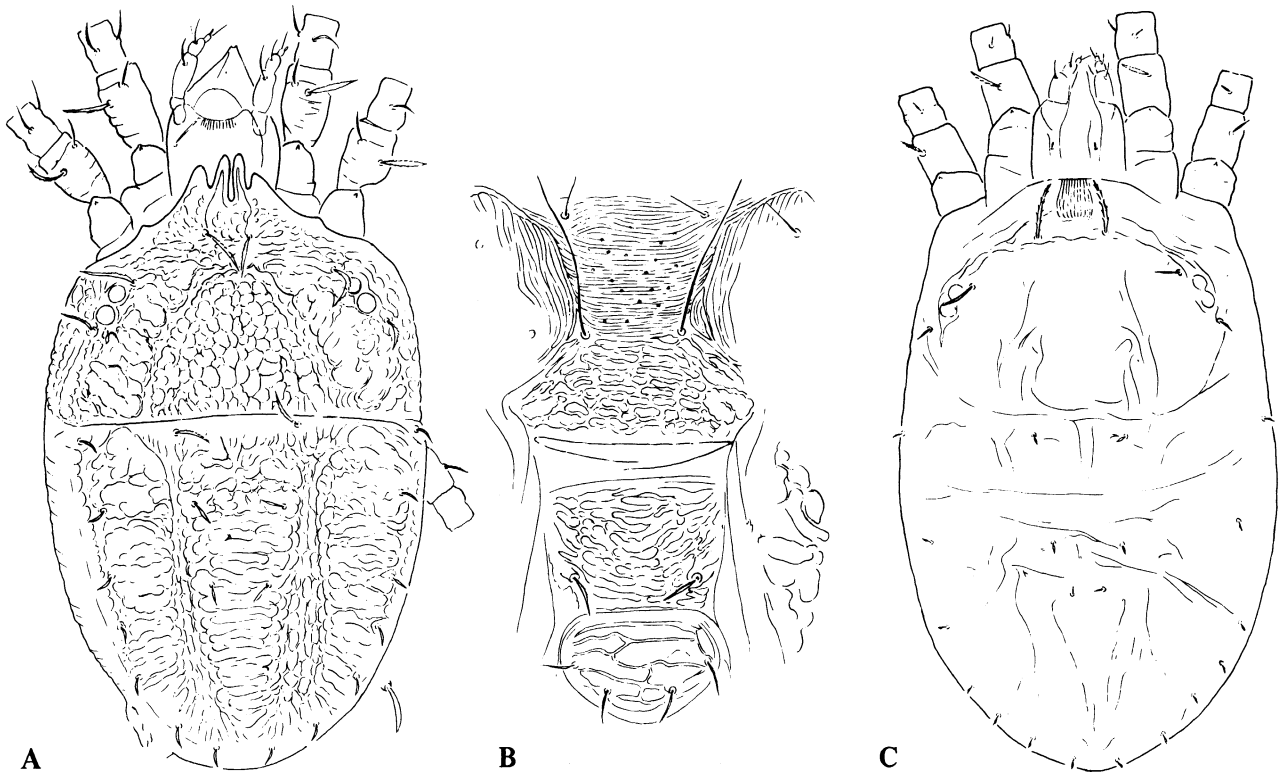


Figure 129.--*Brevipalpus parthenium* Baker and Tuttle, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

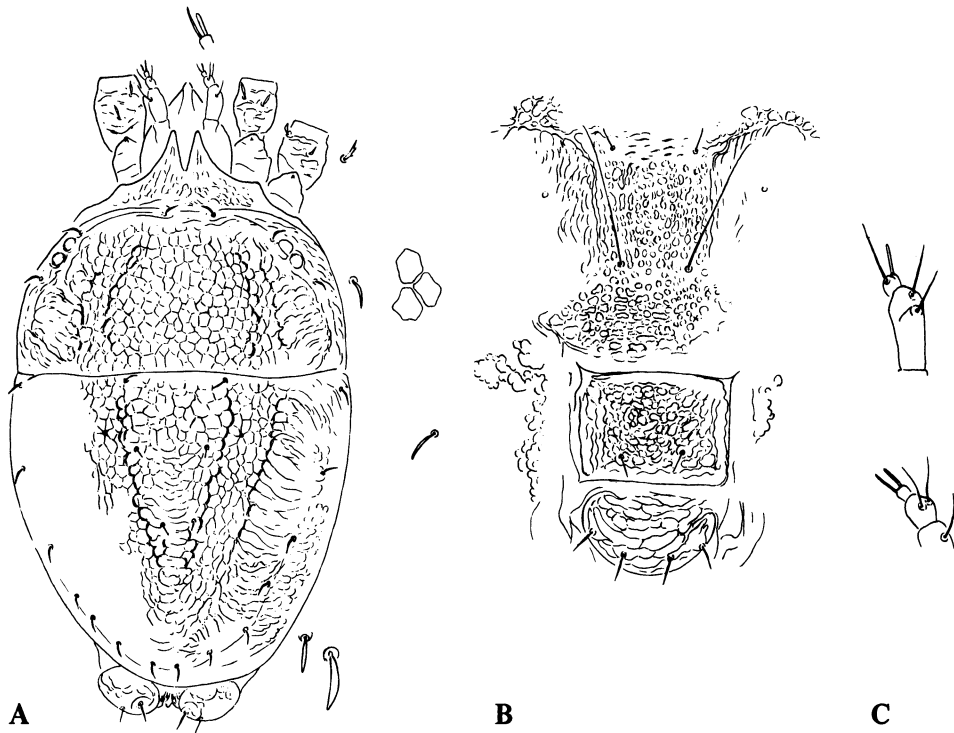


Figure 130.--Brevipalpus physalis De Leon, female: A, Dorsum; B, venter of hysterosoma; C, palpus (upper with coalesced segments; lower with normal segments).

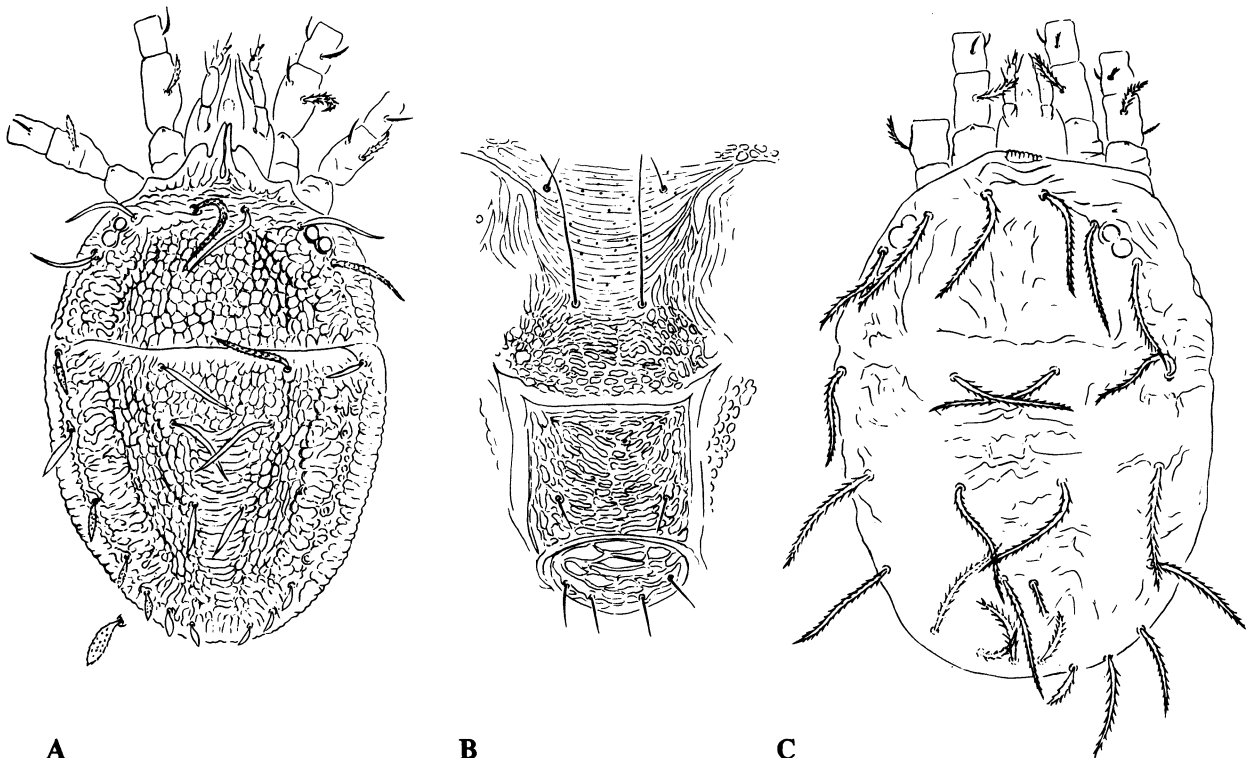
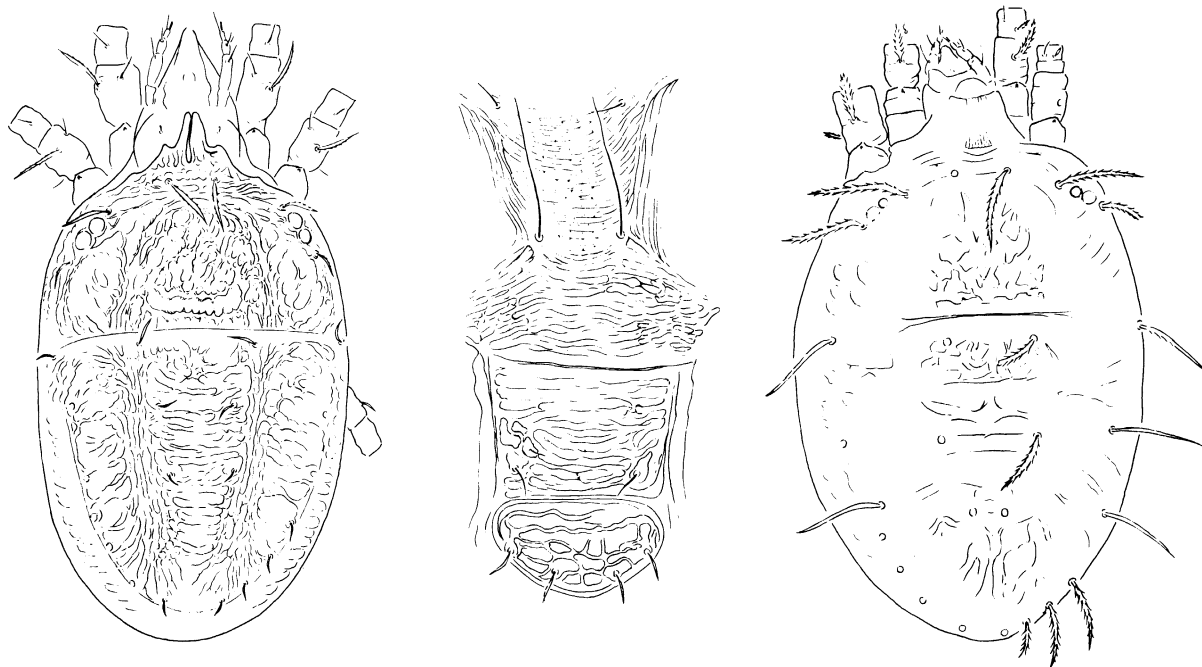
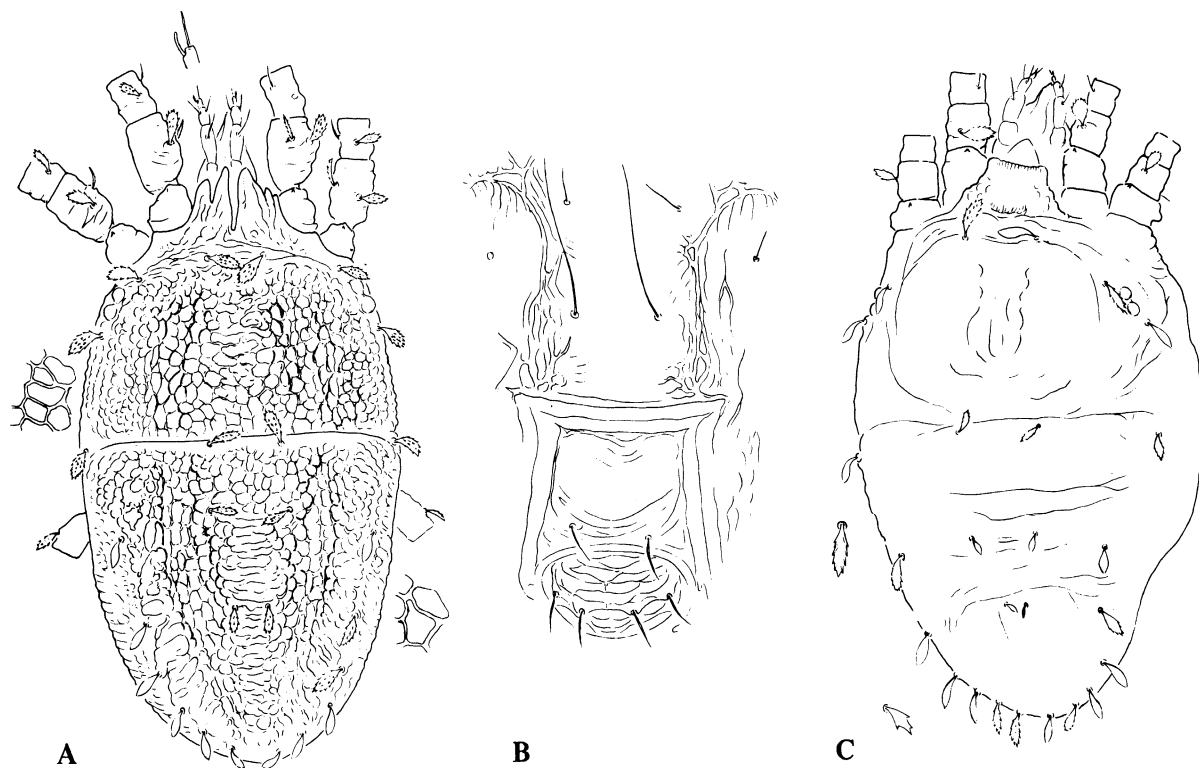


Figure 131.--Brevipalpus portalis Baker and Tuttle, female: A, Dorsum; B, venter of hysterosoma; C, deutonymph (note 6/7 laterals).



**A**                      **B**                      **C**  
 Figure 132.--Brevipalpus ruelliae, n. sp., female: A,  
 Dorsum; B, venter of hysterosoma; C, deutonymph.



**A**                      **B**                      **C**  
 Figure 133.--Brevipalpus spatulatus, n. sp., female:  
A, Dorsum, with closeup of areolae on propodosoma and  
 hysterosoma; B, venter of hysterosoma; C, proto-  
 nymph.



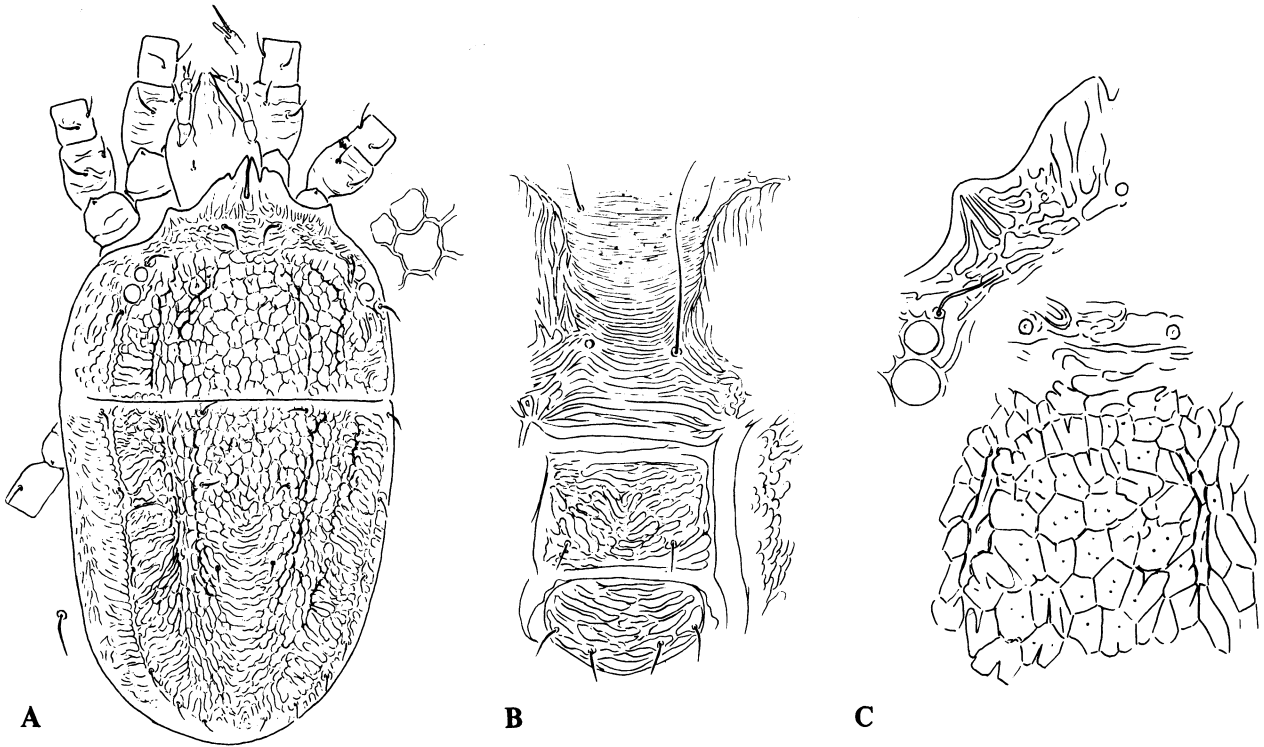


Figure 134.--*Brevipalpus tagetinae*, n. n., female: A, Dorsum, with closeup of propodosomal areolae; B, venter of hysterosoma; C, details of shield and dorsocentral area of propodosoma.

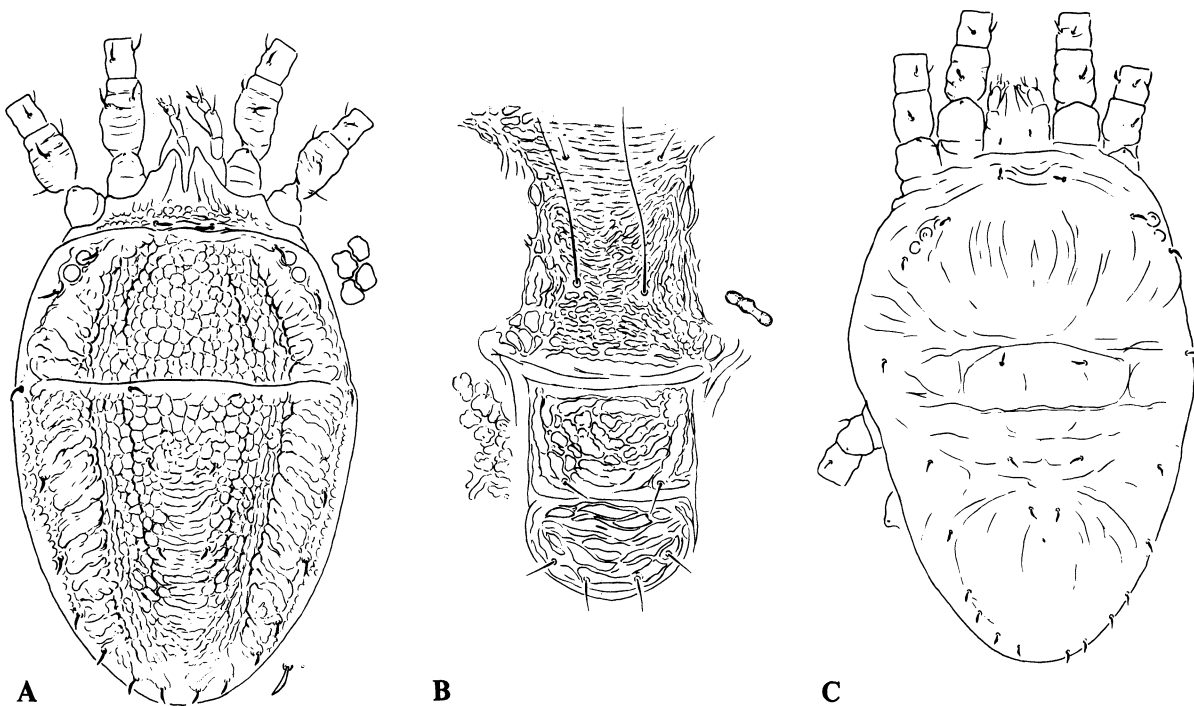


Figure 135.--*Brevipalpus verbenae*, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, protonymph.

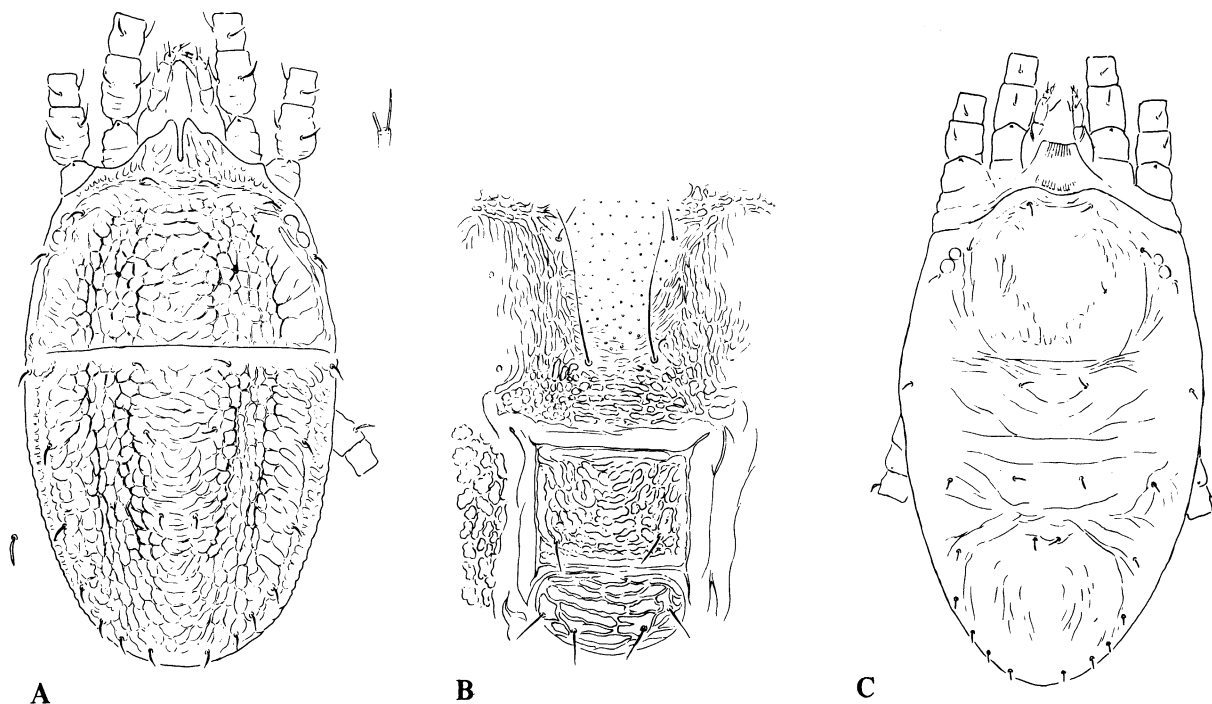


Figure 136.--Brevipalpus zinniae, n. sp., female: A, Dorsum; B, venter of hysterosoma; C, deutonymph.

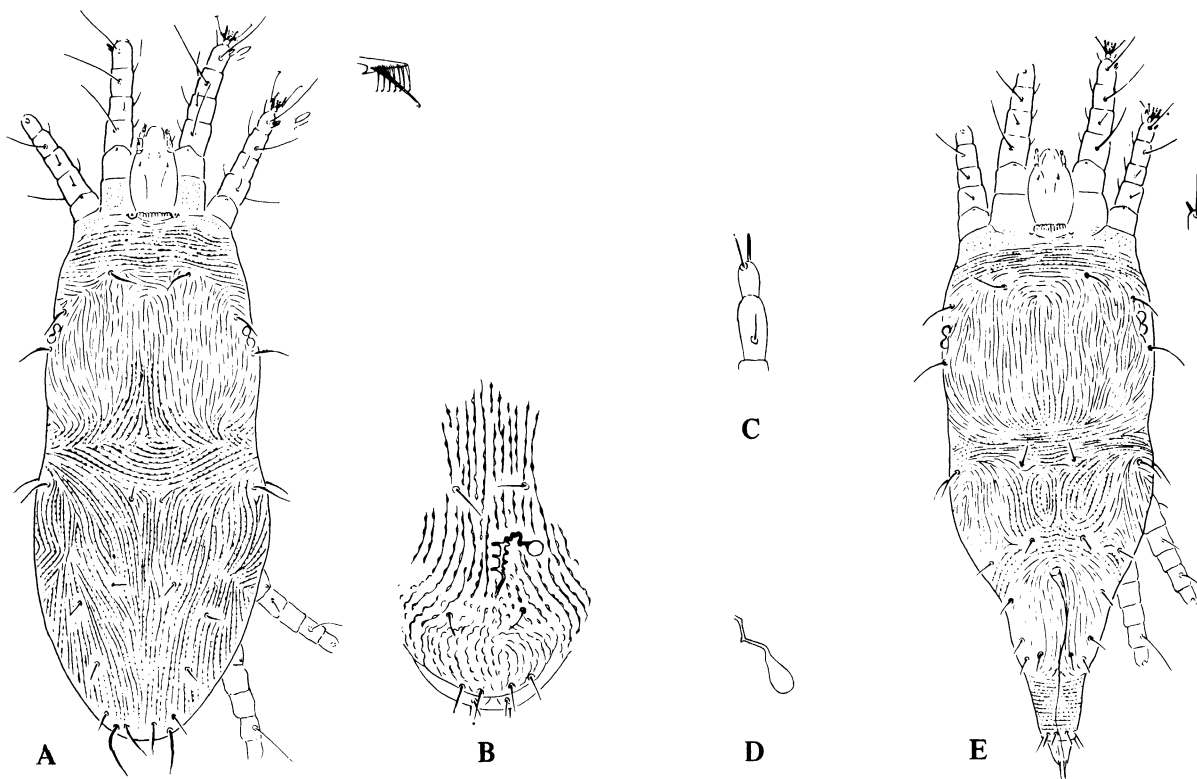


Figure 137.--Dolichotetranychus floridanus (Banks). Female: A, Dorsum; B, venter of hysterosoma; C, palpus. Male: D, Spermatheca; E, dorsum.

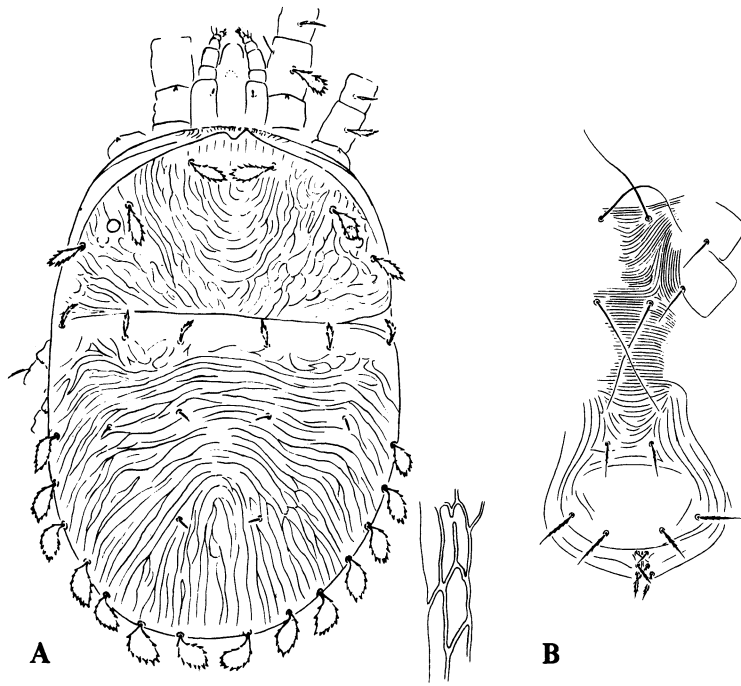


Figure 138.--Pentamerismus abnormalis, n. sp., female:  
A, Dorsum; B, venter of hysterosoma.

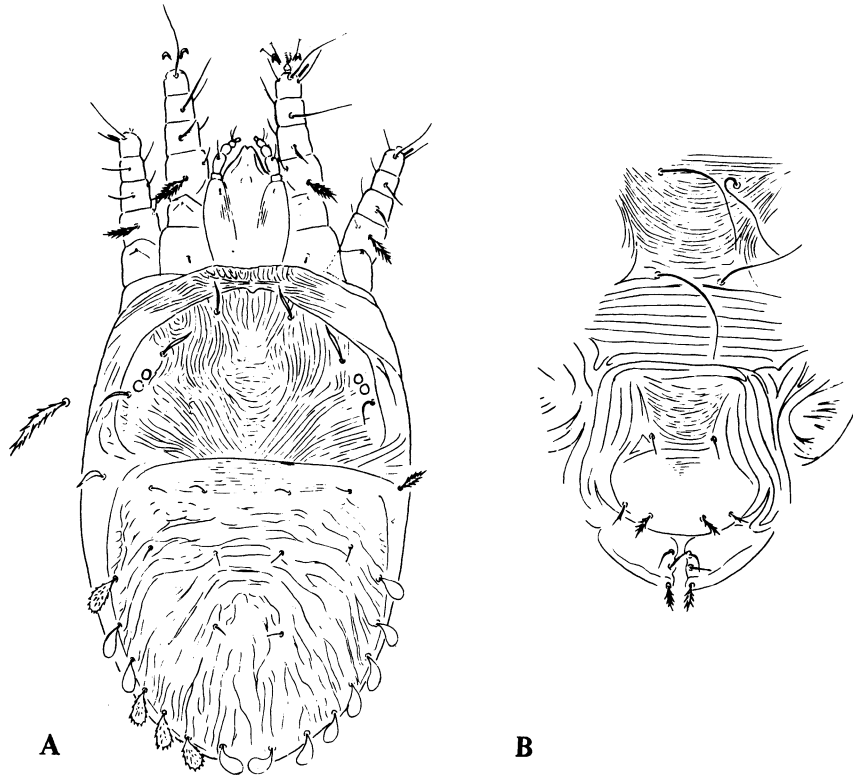


Figure 139.--Pentamerismus arbutusae, n. sp., female:  
A, Dorsum; B, venter of hysterosoma.

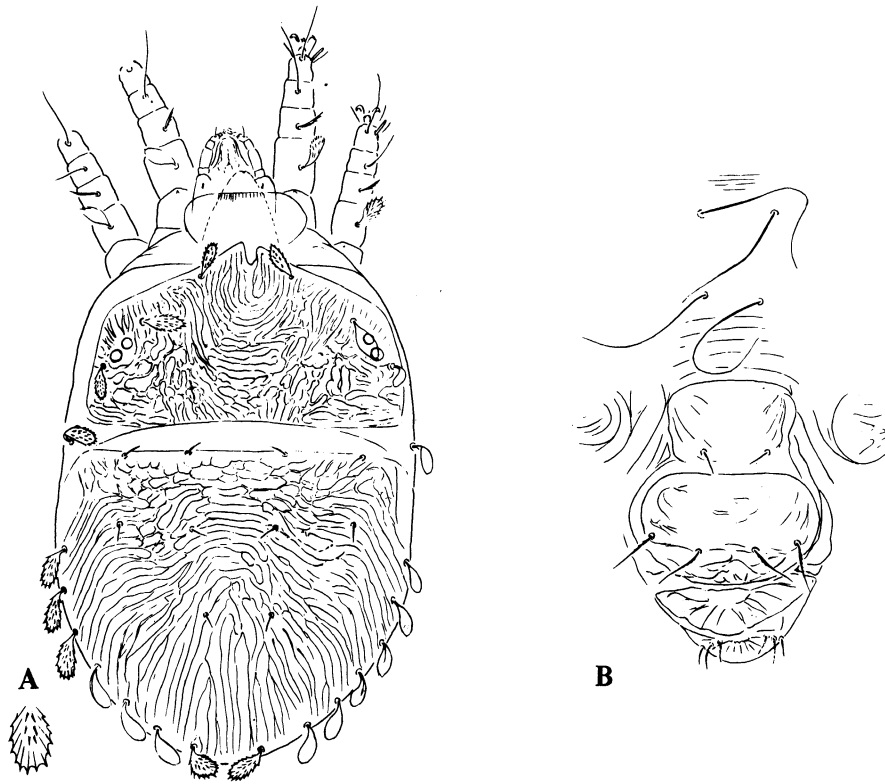


Figure 140.--Pentamerismus erythreus (Ewing), female:  
A, Dorsum; B, venter of hysterosoma.

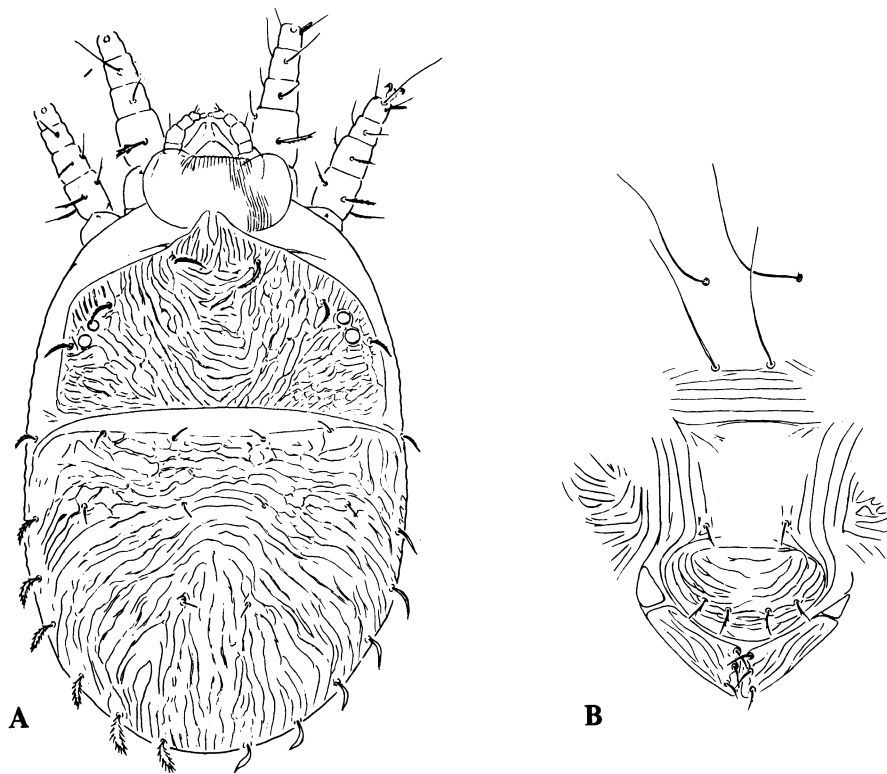


Figure 141.--Pentamerismus oregonensis McGregor,  
female: A, Dorsum; B, venter of hysterosoma.

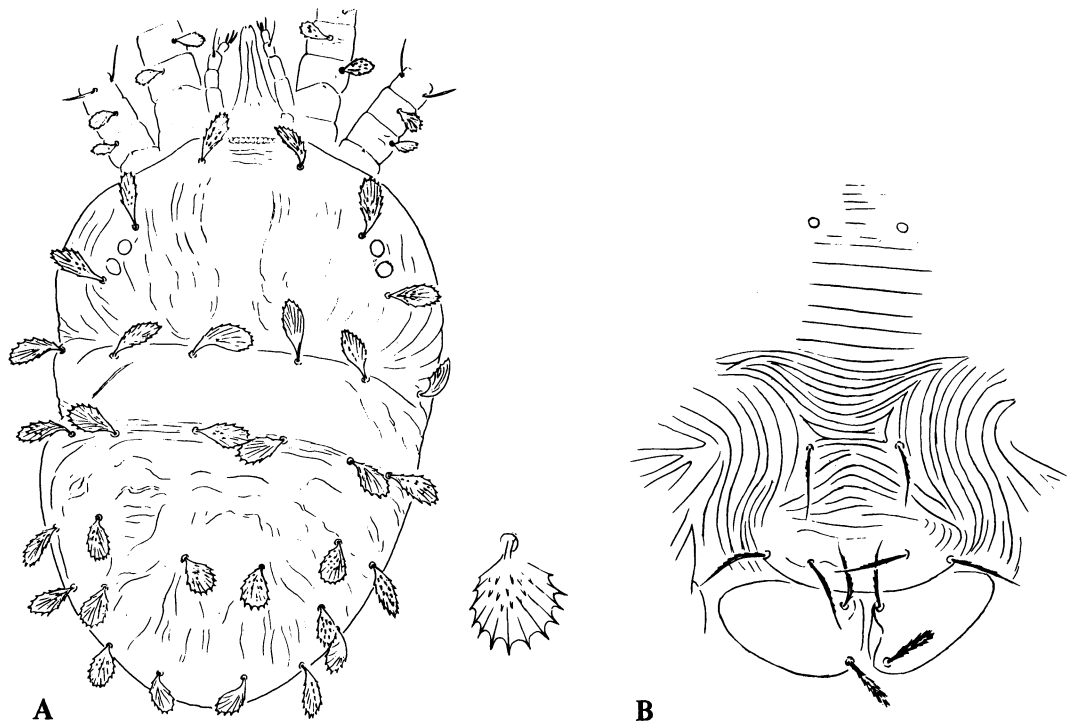


Figure 142.--Phytoptipalpus ceibae (De Leon), female:  
A, Dorsum; B, venter of hysterosoma.

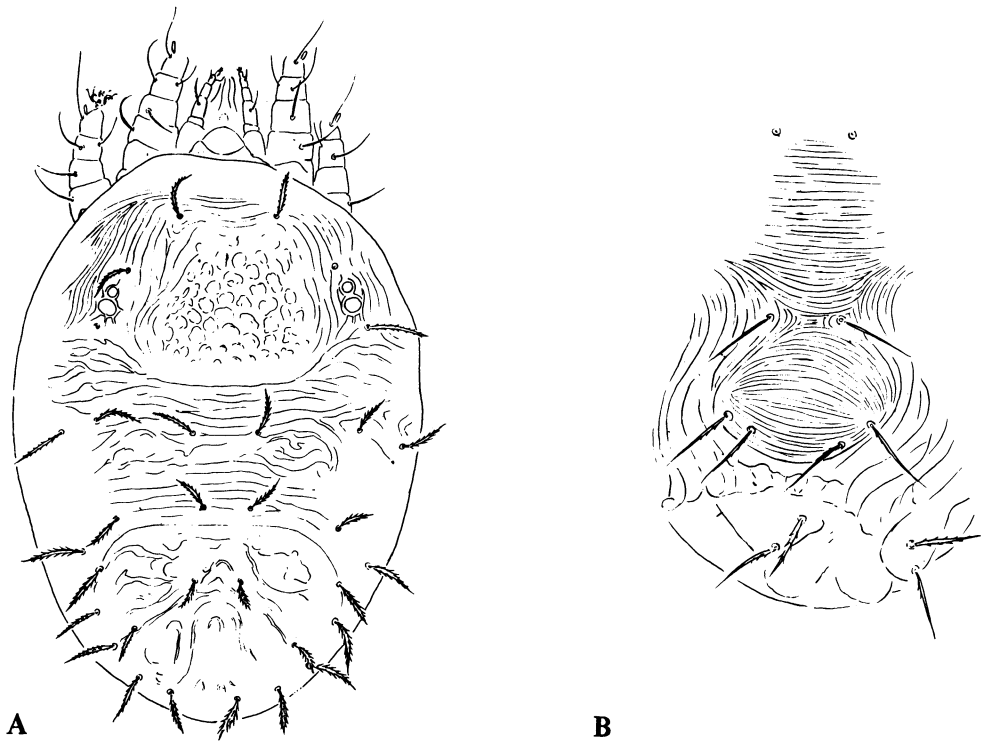


Figure 143.--Phytoptipalpus cercidium (Baker, Tuttle,  
 and Abbatiello), female: A, Dorsum; B, venter of  
 hysterosoma.

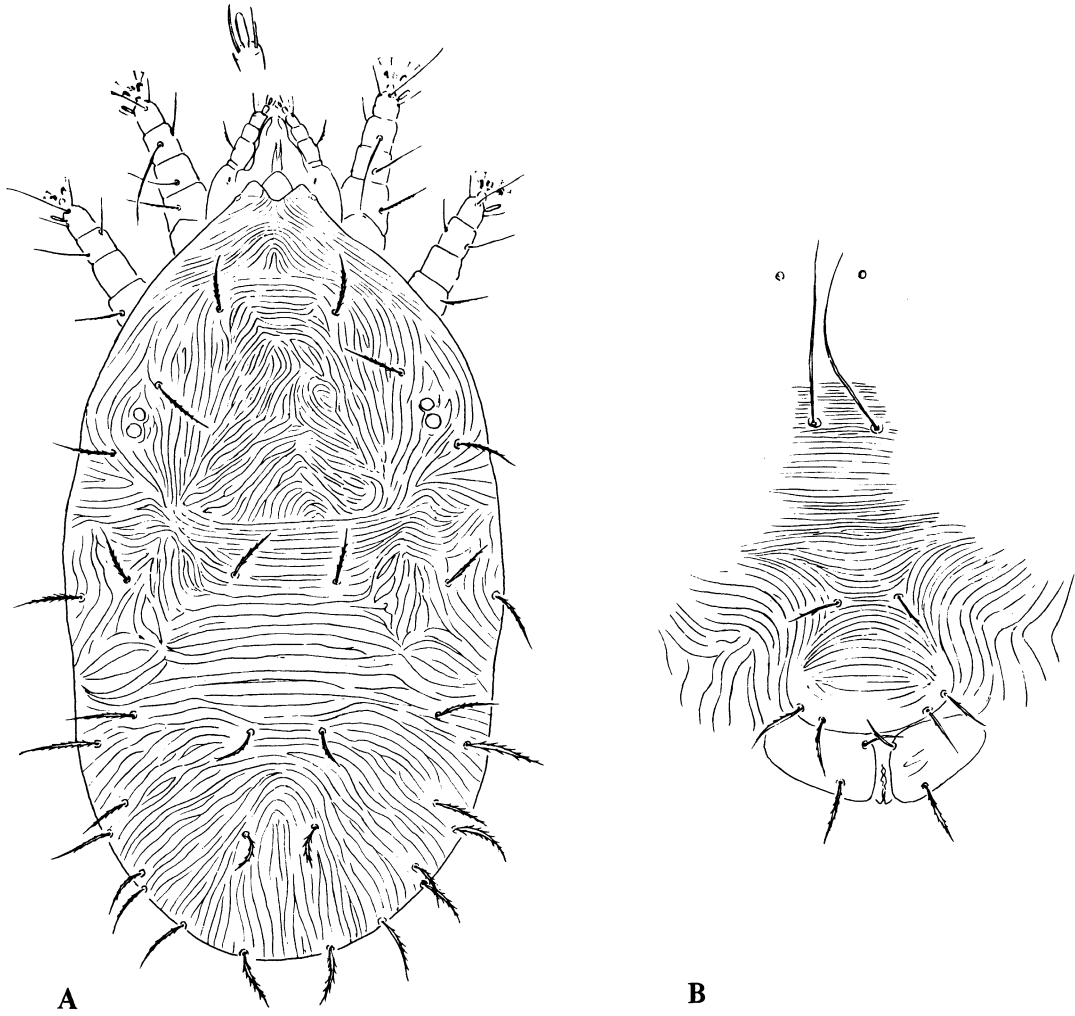


Figure 144.--Phytoptipalpus conostegiae, n. sp., female: A, Dorsum; B, venter of hysterosoma.

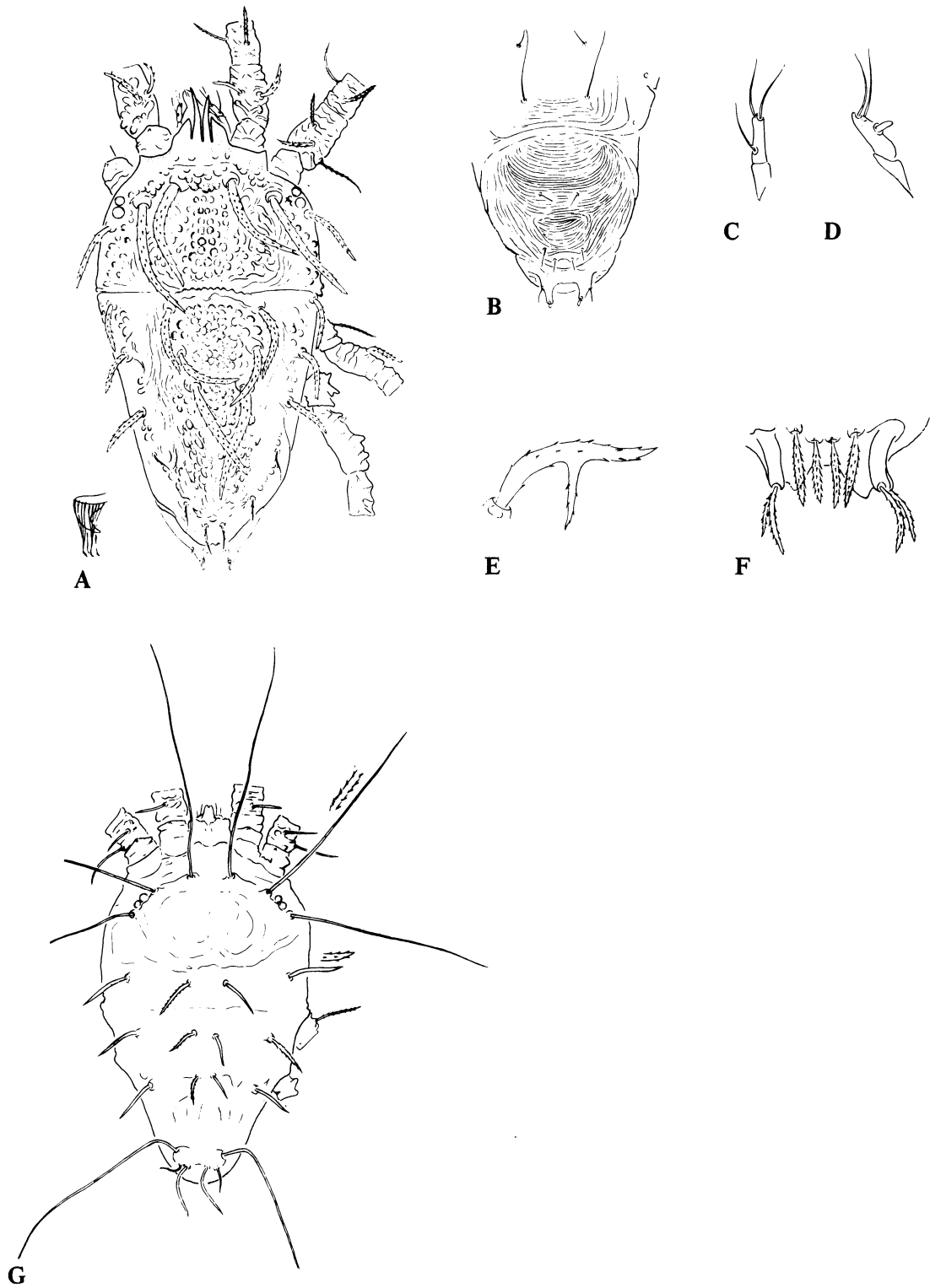


Figure 145.--*Priscapalpus macropilis* De Leon.  
 Female: A, Dorsum; B, venter of hysterosoma; C,  
 palpus. Male: D, Palpus; E, branched DC<sub>1</sub> seta; F,  
 ventral (caudal) setae; G, protonymph.

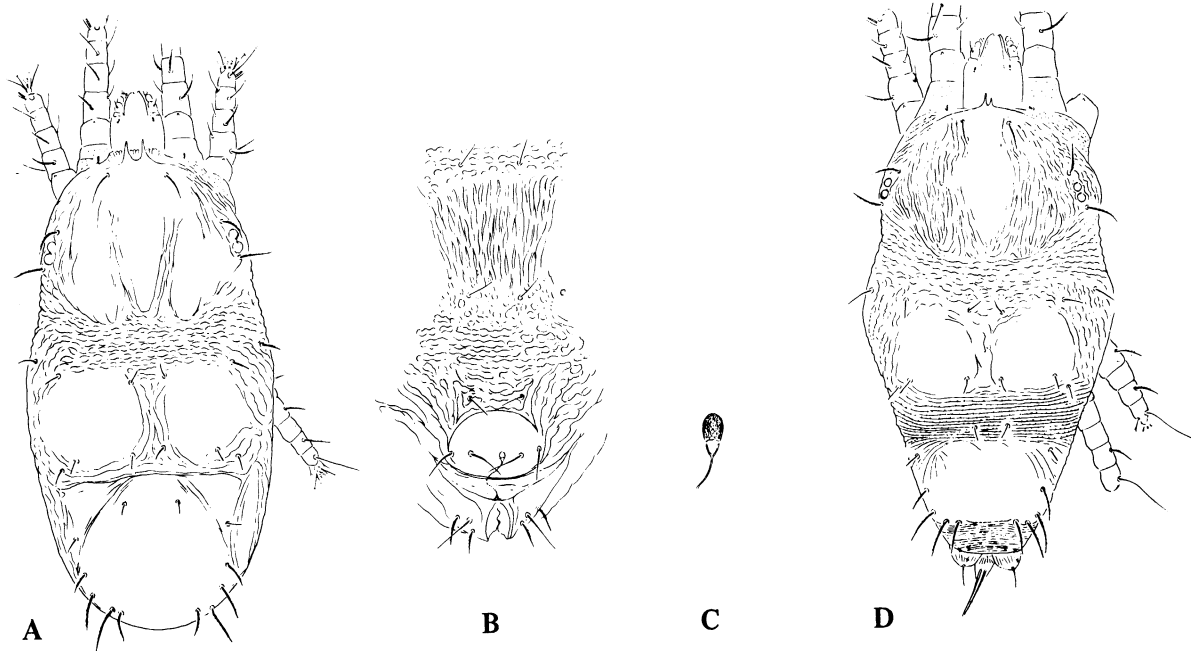


Figure 146.--Pseudoleptus palustria Pritchard and Baker. Female: A, Dorsum; B, venter of hysterosoma; C, spermatheca. Male: D, Dorsum.

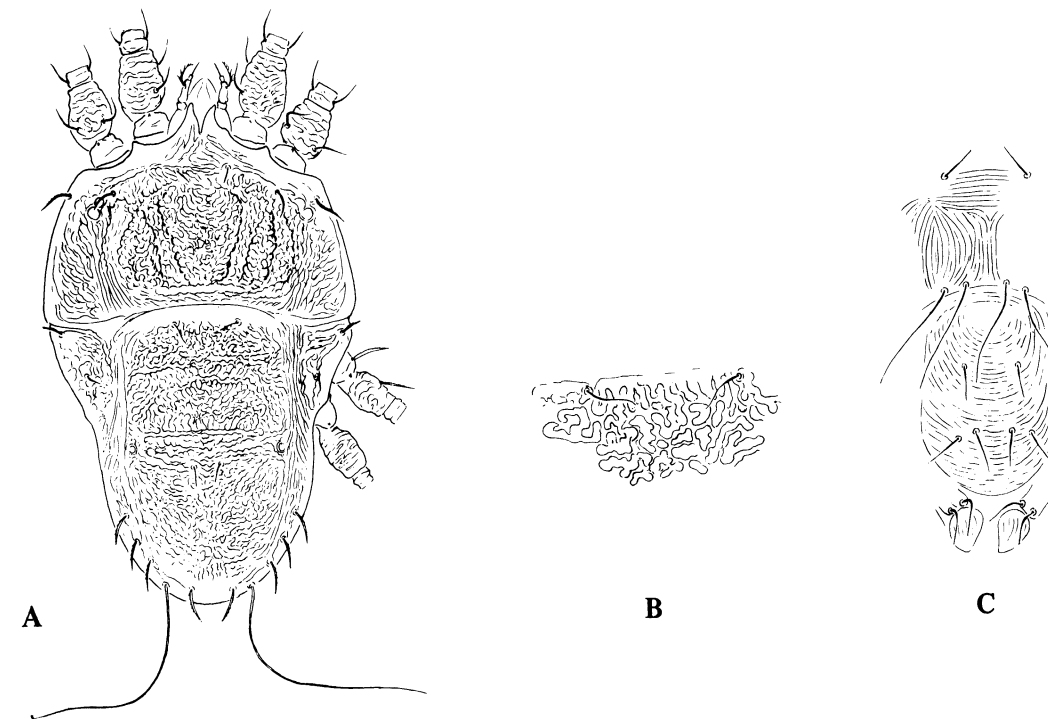


Figure 147.--Tenuipalpus annonae De Leon, female: A, Dorsum; B, closeup of dorsocentral area; C, venter of hysterosoma.



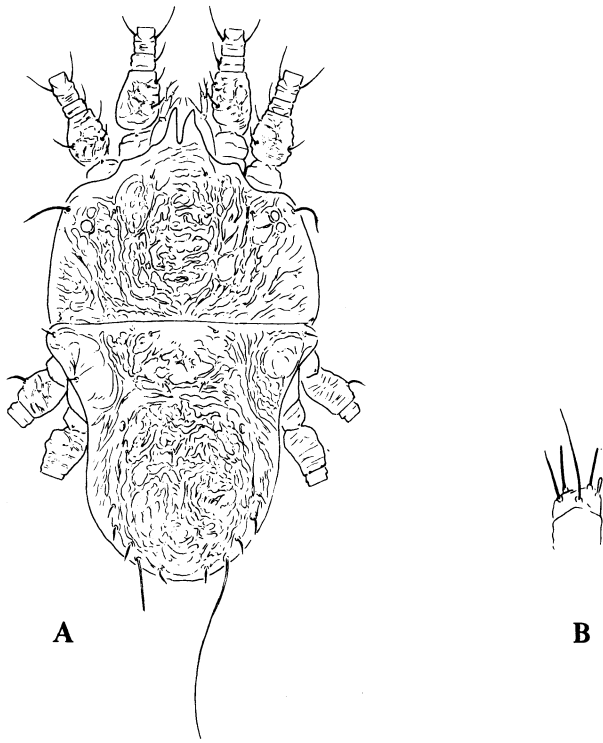


Figure 148.--Tenuipalpus anoplomexus, n. sp., female:  
A, Dorsum; B, closeup of tarsus I.

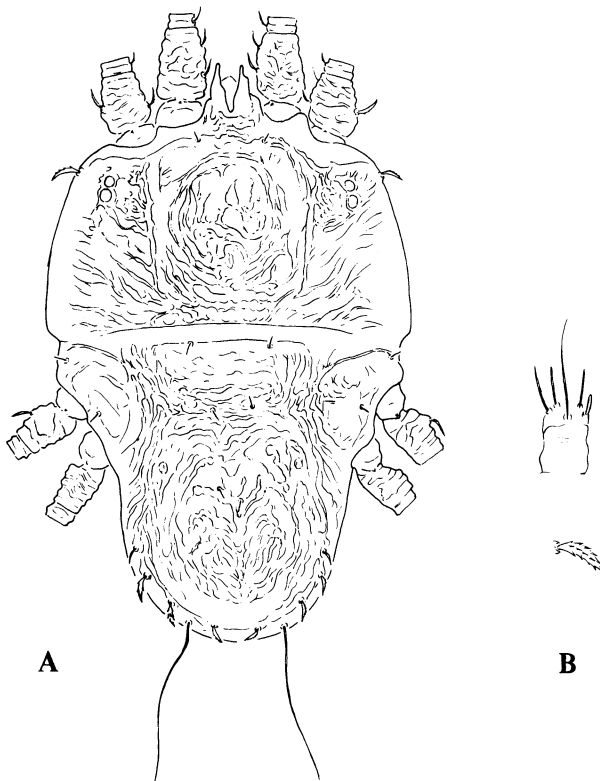


Figure 149.--Tenuipalpus anoplus Baker and Pritchard,  
 female: A, Dorsum; B, closeup of tarsus I.

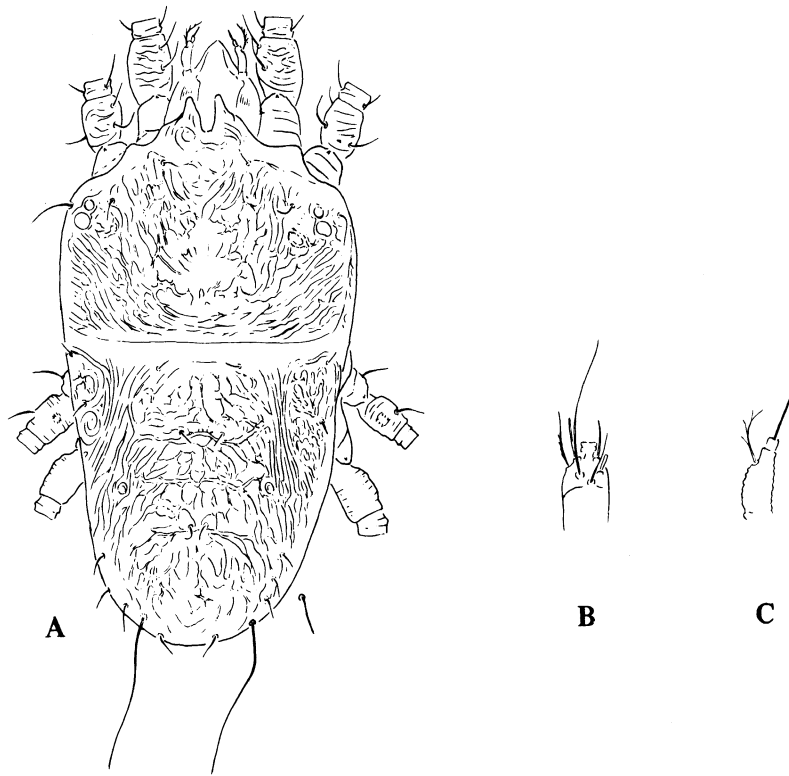


Figure 150.--Tenuipalpus burserae De Leon, female: A, Dorsum; B, closeup of tarsus I; C, palpus.

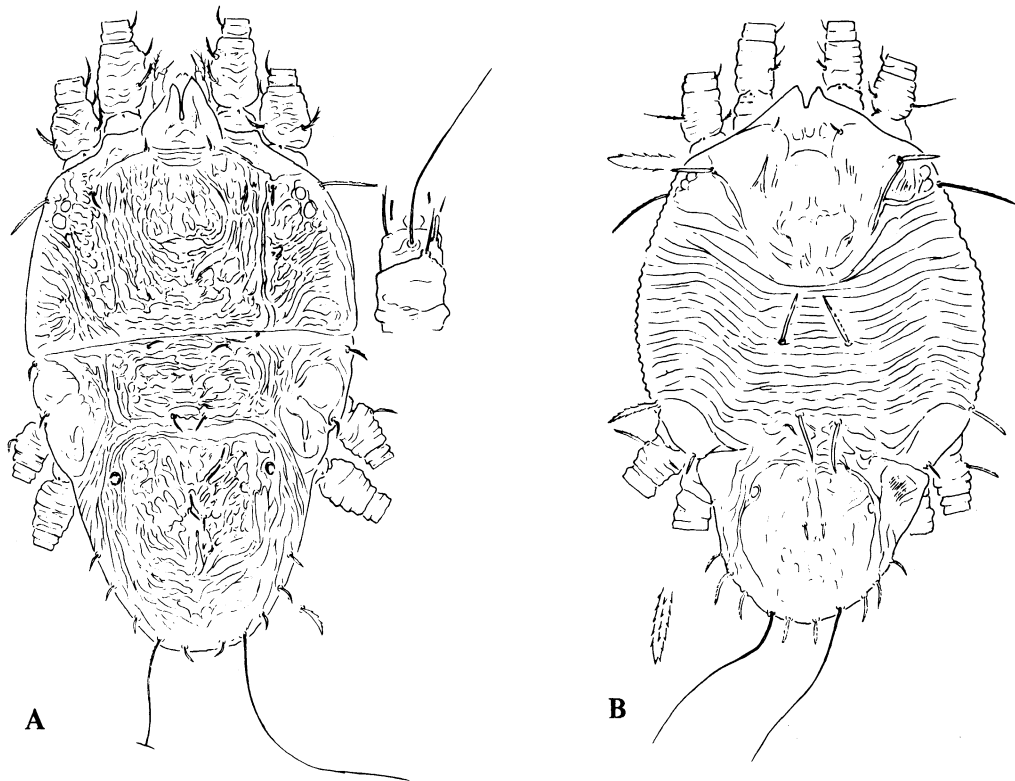


Figure 151.--Tenuipalpus cedrelae De Leon, female: A, Dorsum, with detail of tarsus I; B, deutonymph.

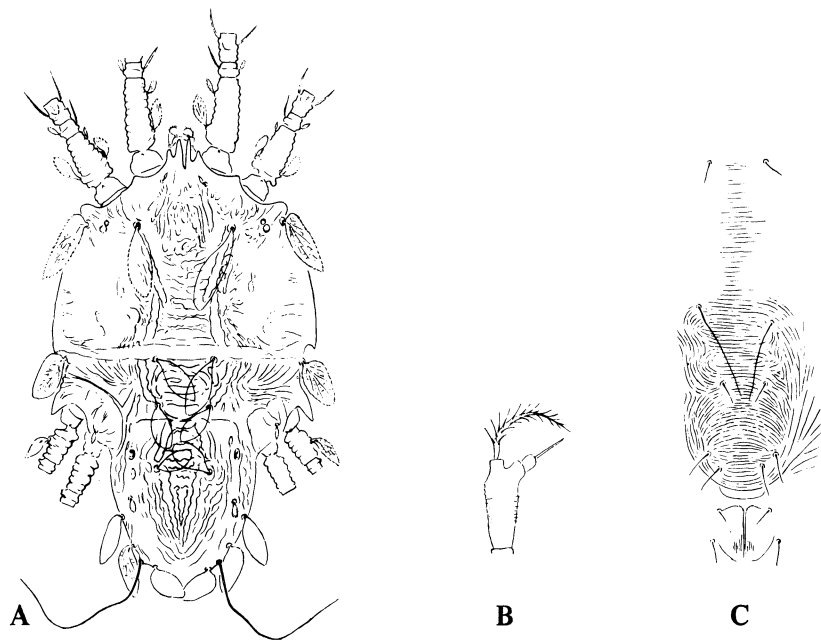


Figure 152.--Tenuipalpus chamaedoreae, n. sp., female: A, Dorsum; B, palpus; C, venter of hysterosoma.

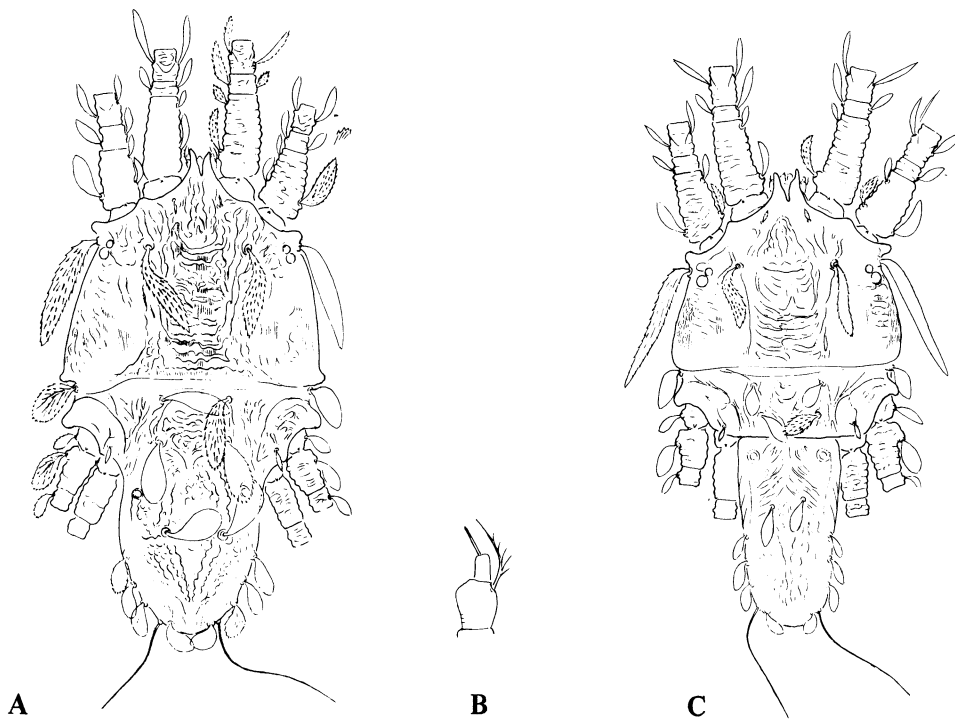


Figure 153.--Tenuipalpus coyacus De Leon. Female: A Dorsum; B, palpus. Male: C, Dorsum.

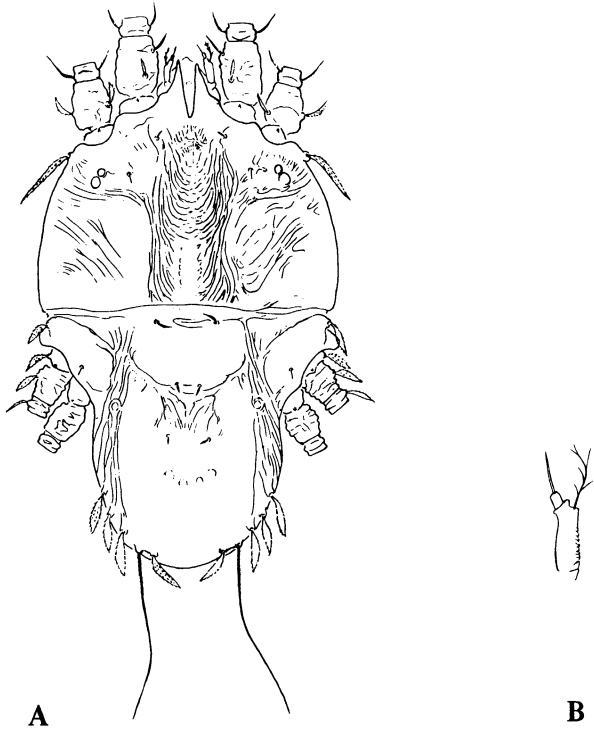


Figure 154.--Tenuipalpus crescentiae De Leon, female:  
A, Dorsum; B, palpus.

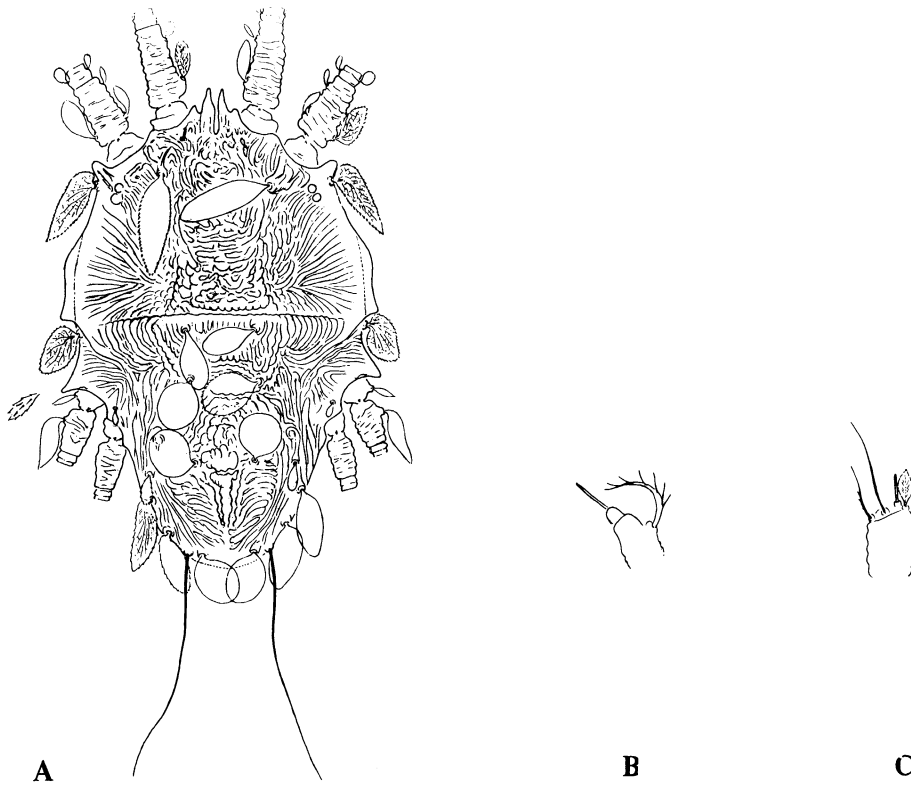


Figure 155.--Tenuipalpus dasples Baker and Pritchard,  
female: A, Dorsum; B, palpus; C, tarsus II distal.

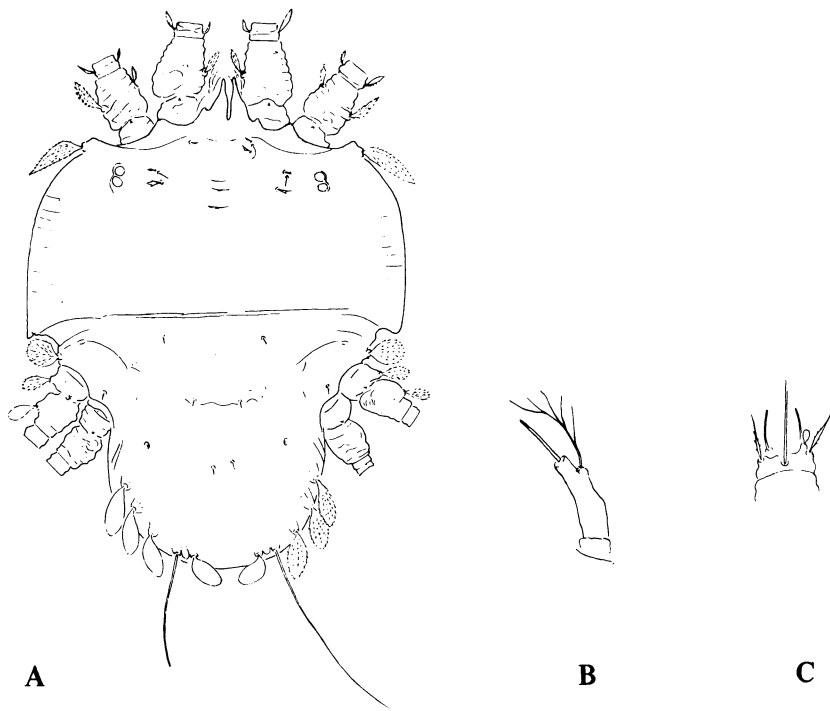


Figure 156.--Tenuipalpus kapoki De Leon, female: A, Dorsum; B, palpus; C, closeup of tarsus I.

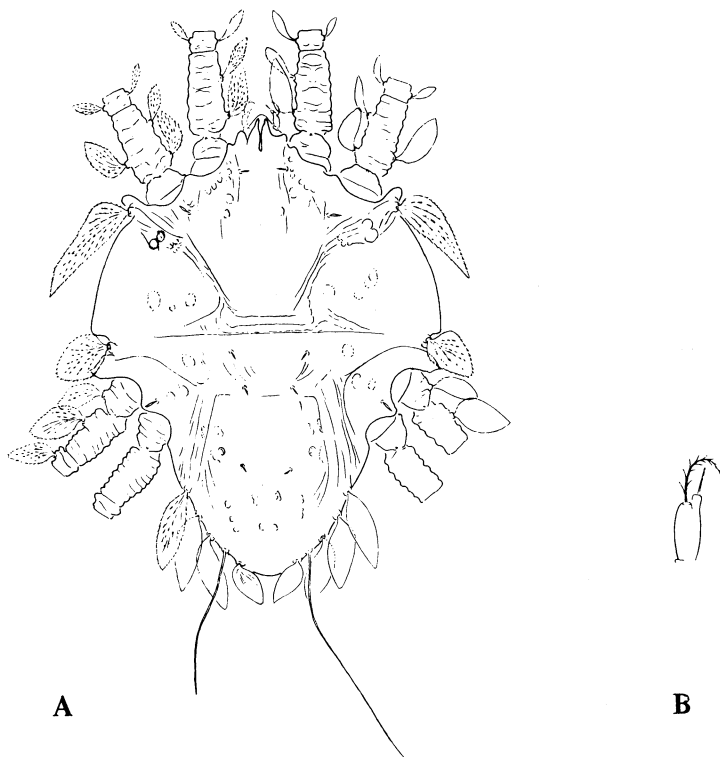


Figure 157.--Tenuipalpus lucumae De Leon, female: A, Dorsum; B, palpus.

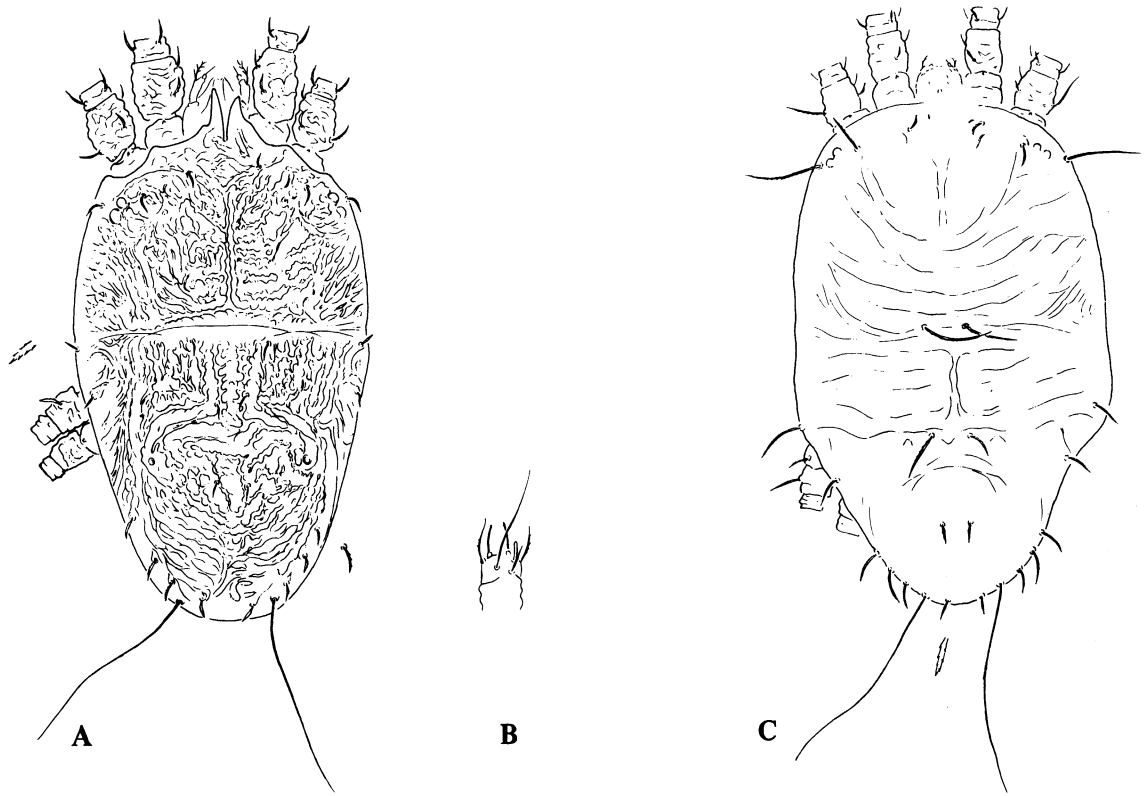


Figure 158.--Tenuipalpus sanblasensis De Leon, female: A, Dorsum; B, closeup of tarsus I; C, deutonymph.

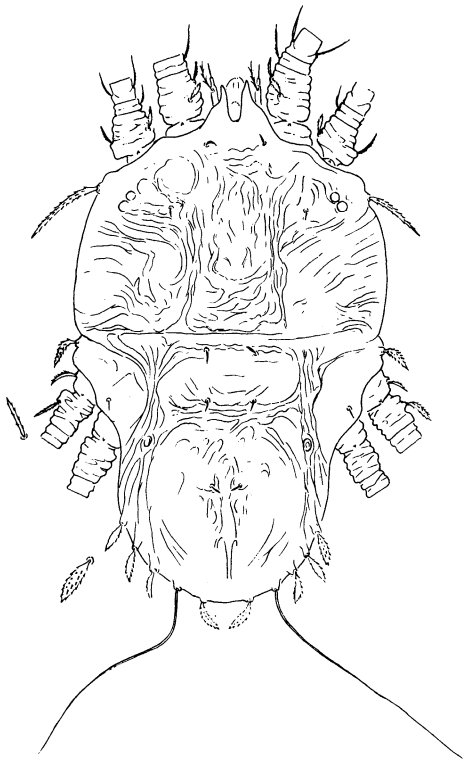


Figure 159.--Tenuipalpus tabebuiæ De Leon, female, dorsum.

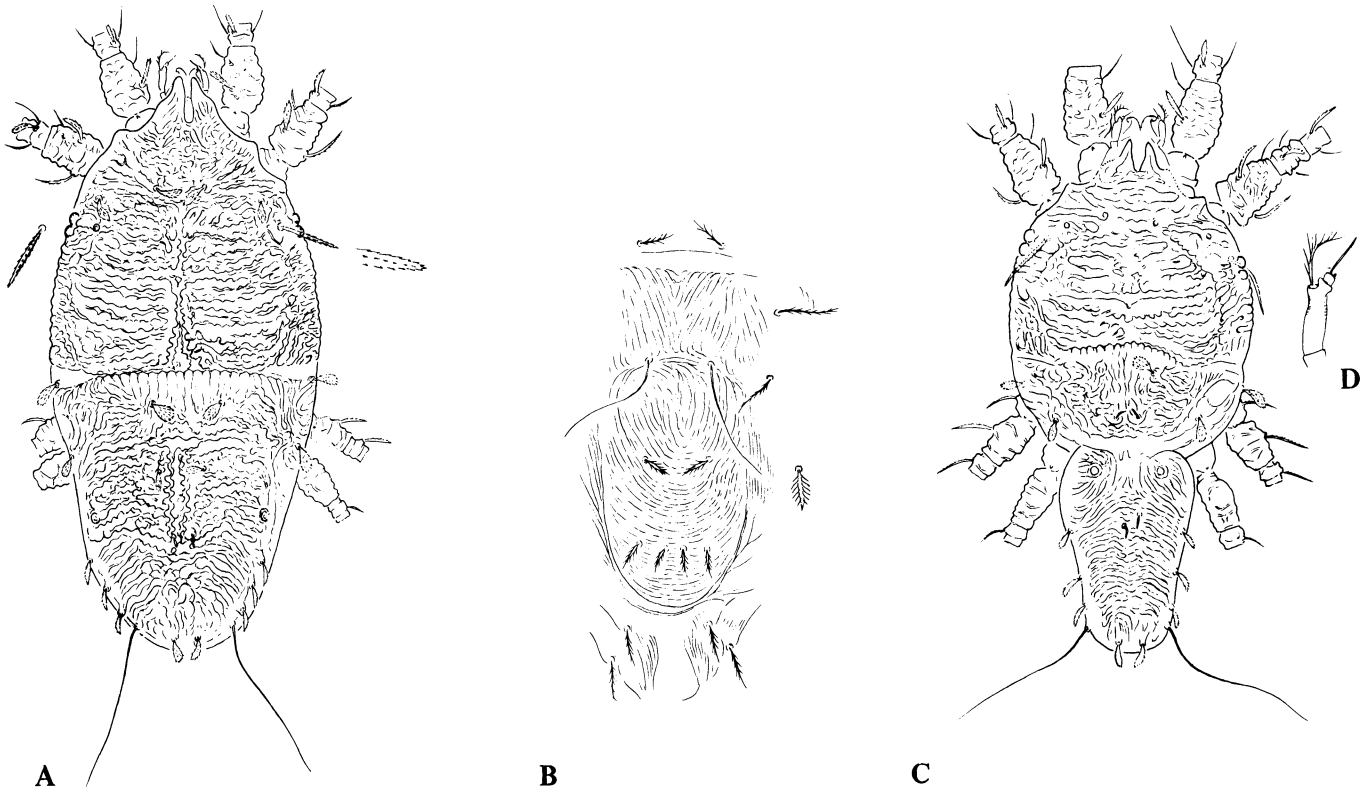


Figure 160.--*Tenuipalpus tepicensis* De Leon. Female: A, Dorsum; B, venter of hysterosoma. Male: C, Dorsum; D, palpus.

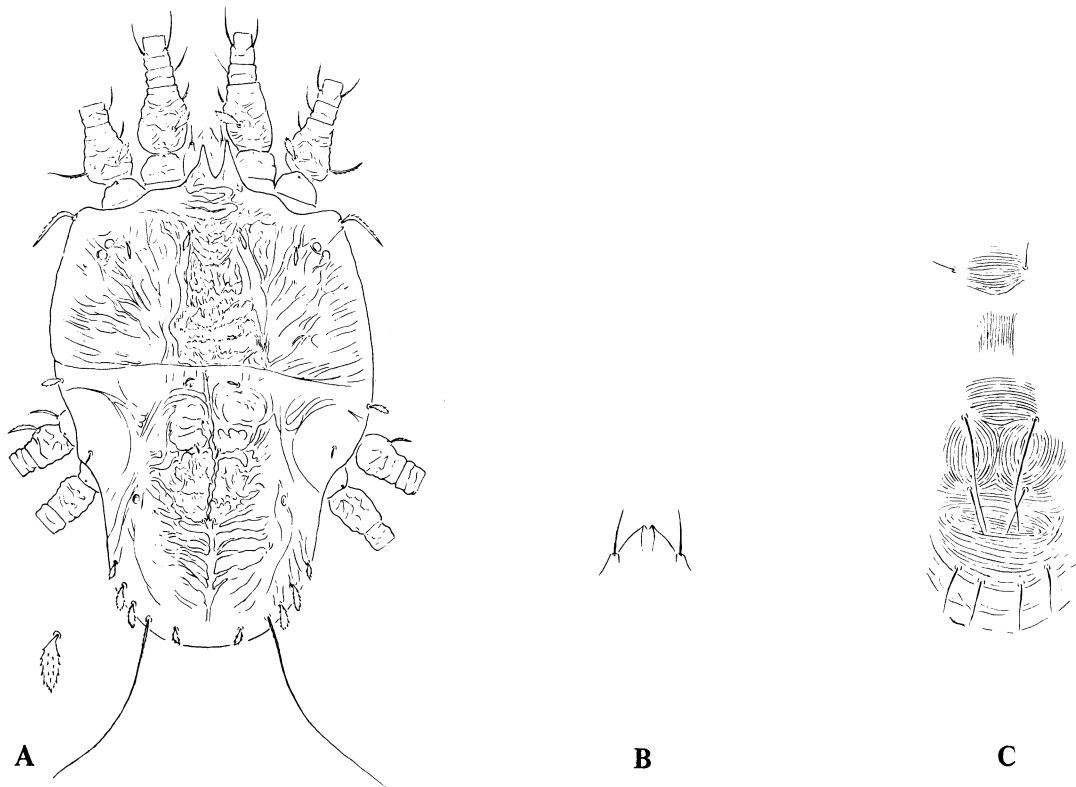


Figure 161.--*Tenuipalpus unimerus* De Leon, female: A, Dorsum; B, venter of gnathosoma; C, venter of hysterosoma.

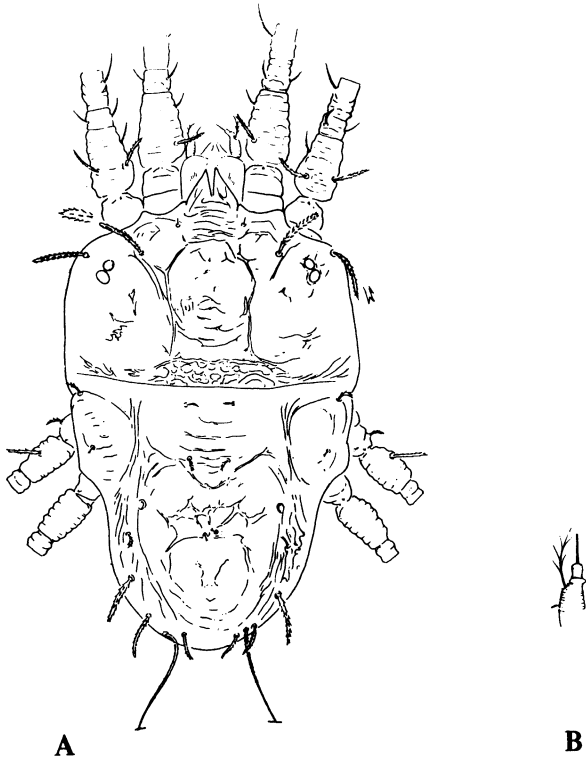


Figure 162.--Tenuipalpus uvae De Leon, female: A, Dorsum; B, palpus.

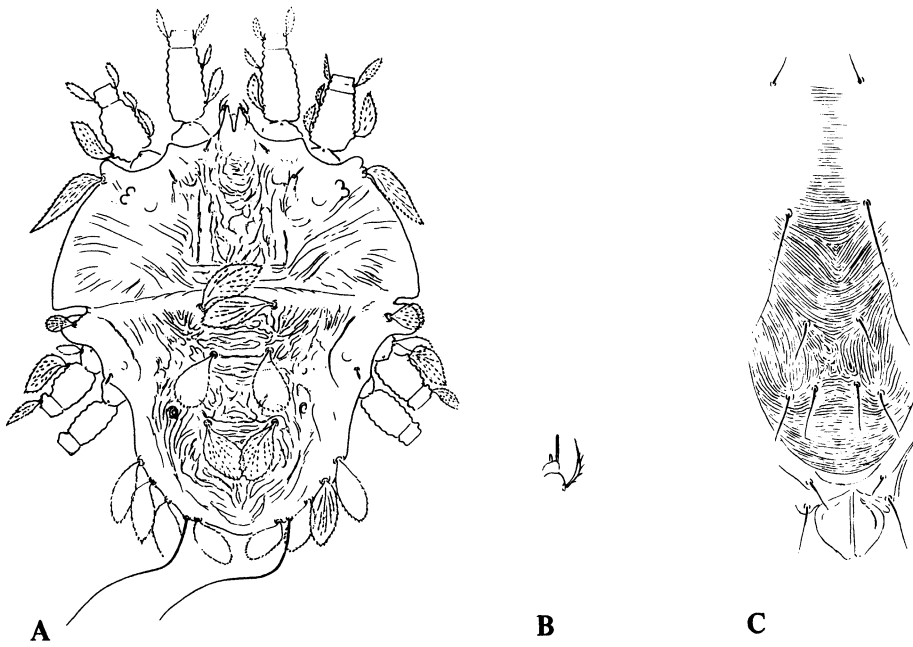


Figure 163.--Tenuipalpus bakeri McGregor, female: A, Dorsum; B, palpus; C, venter of hysterosoma.



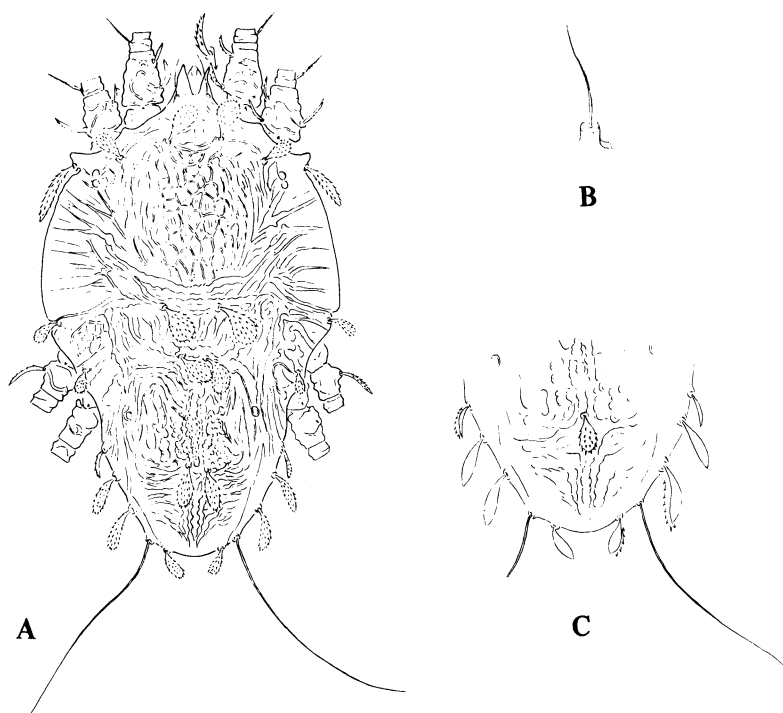


Figure 164.--Tenuipalpus chiclorum De Leon, female:  
A, Dorsum; B, palpus; C, dorsum with single DC<sub>3</sub>  
 seta.

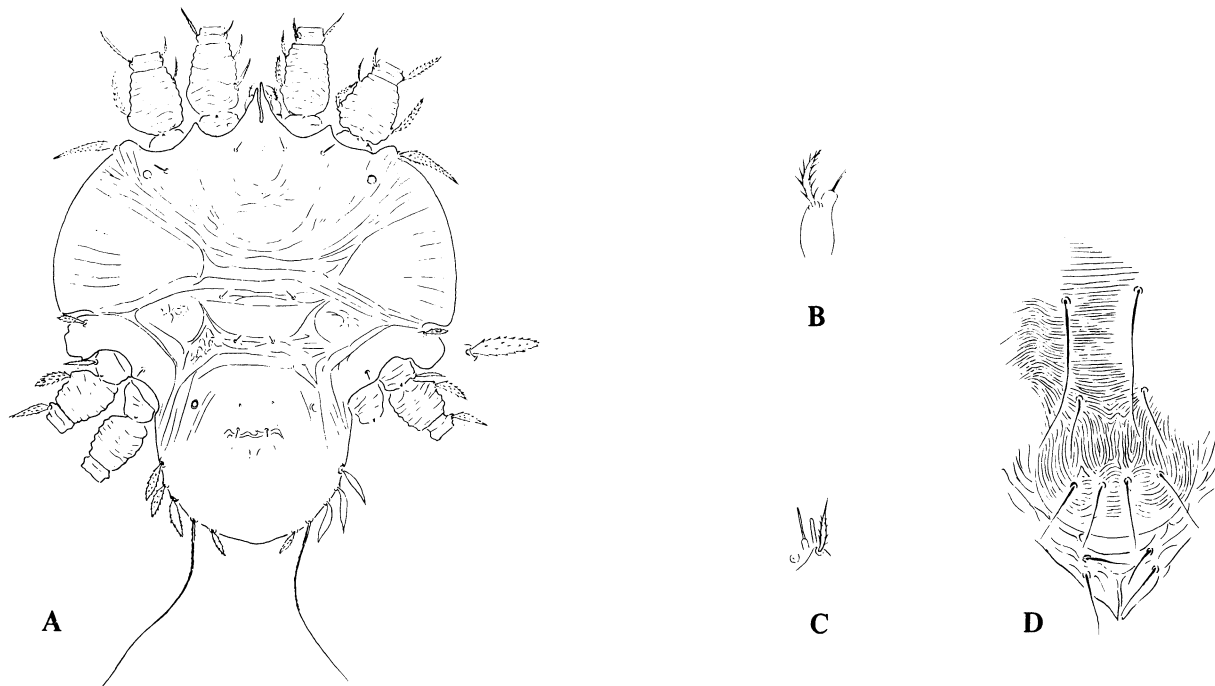
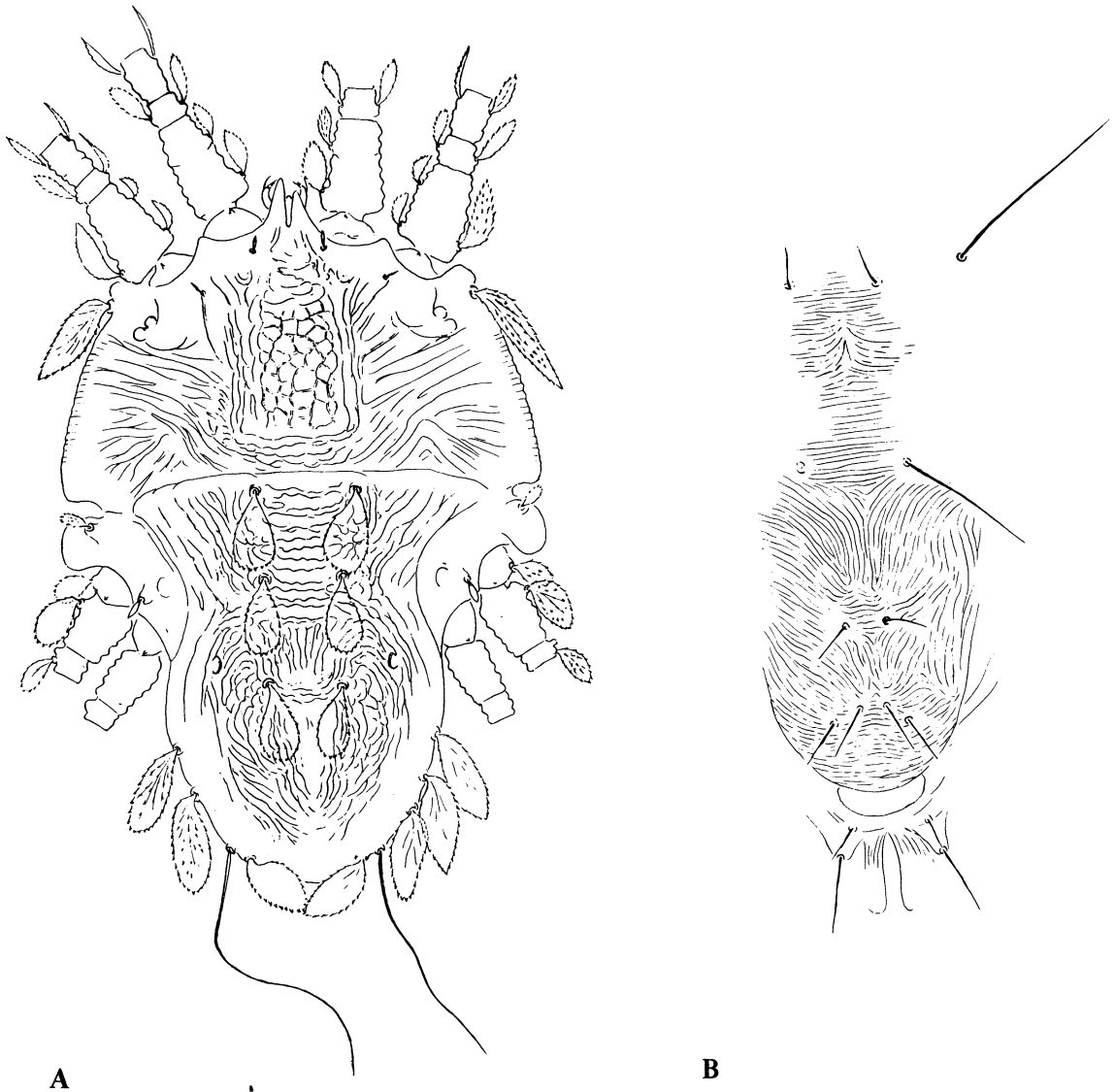


Figure 165.--Tenuipalpus coccolobicolus De Leon,  
 female: A, Dorsum; B, palpus; C, closeup of dorsal  
 tip of tarsus I; D, venter of hysterosoma.



A

B

Figure 166.--Tenuipalpus rhyssus Baker and Pritchard, female: A, Dorsum; B, venter of hysterosoma.

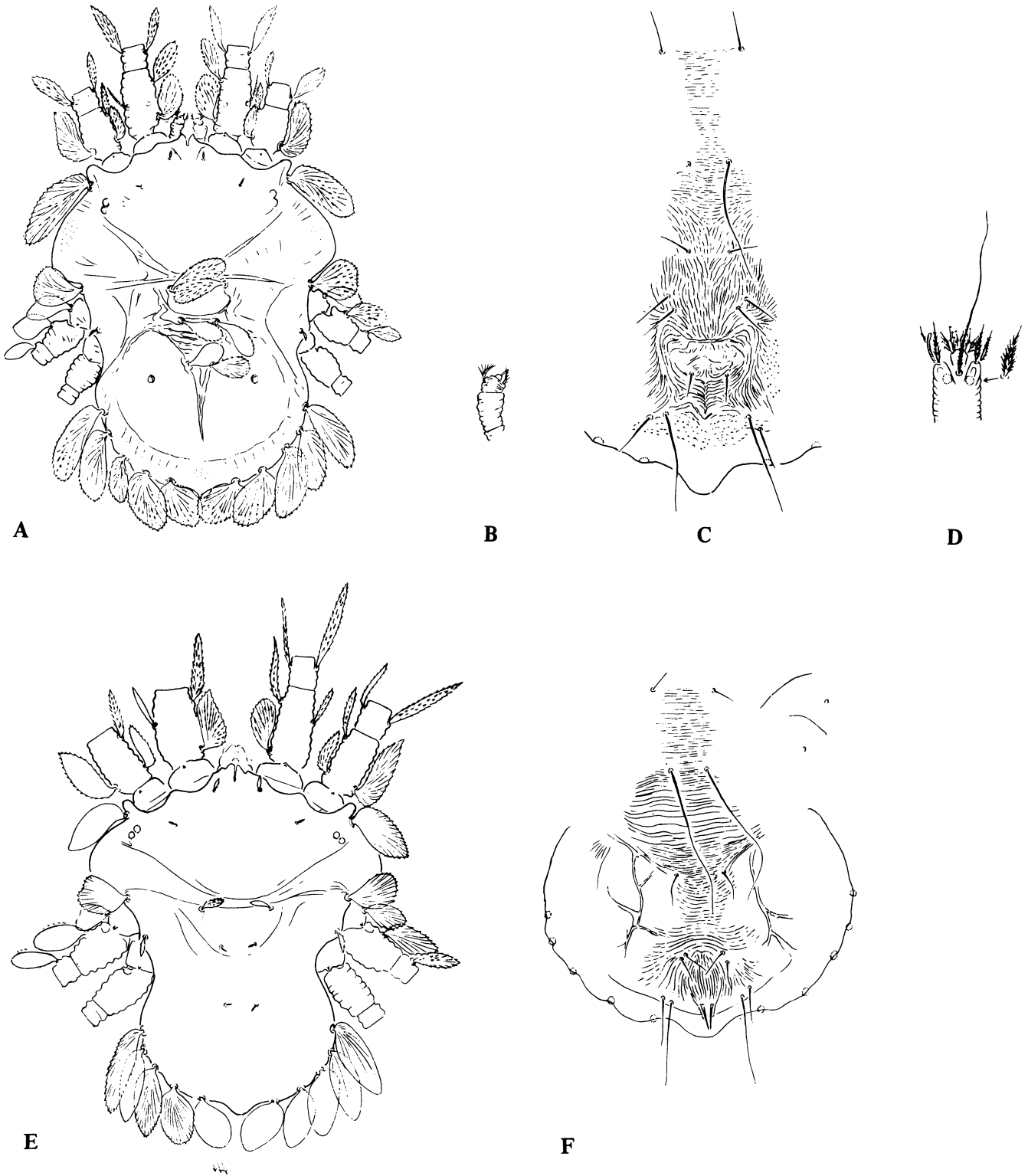


Figure 167.--*Ultratenuipalpus meekeri* (De Leon).  
 Female: **A**, Dorsum; **B**, palpus; **C**, venter of  
 hysterosoma; **D**, closeup of tarsus I. Male: **E**,  
 Dorsum; **F**, venter of hysterosoma.

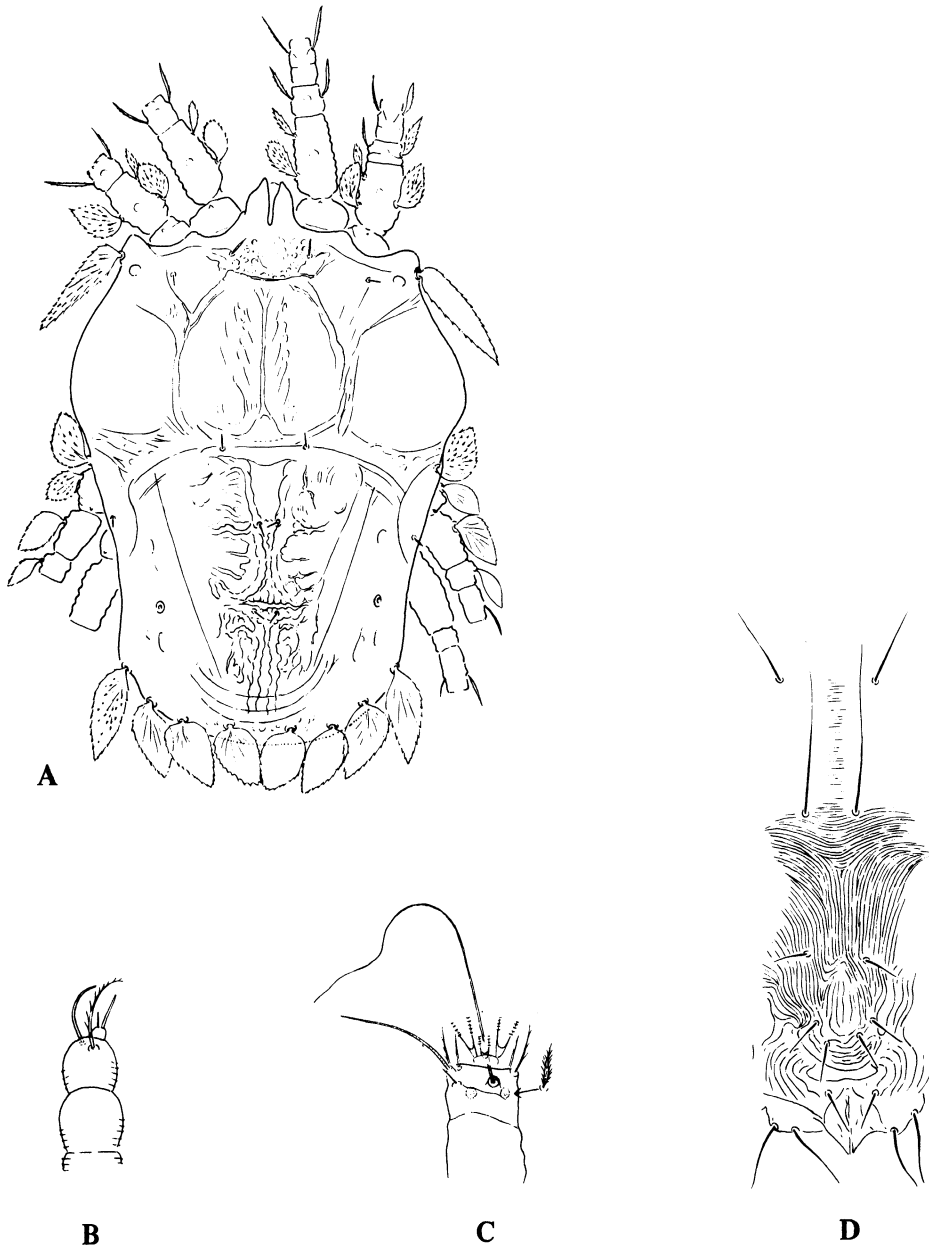


Figure 168.--Ultratenuipalpus younguisti, n. sp., female: A, Dorsum; B, palpus; C, closeup of tarsus I; D, venter of hysterosoma.

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