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NEW PHILIPPINE SPECIES OF PREDACEOUS COCCINELLIDAE (COLEOPTERA)[1]

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ABSTRACT

Three new Philippine species of coccinellidae, *Pseudoscymnus gabrieli*, *P. cadapani* and *Telsimia sanchezi* are described. All are important predators of the coconut scale, *Aspidiotus destructor* Signoret (Diaspididae, Homoptera).

Key words: *Pseudoscymnus gabrieli*, *Pseudoscymnus cadapani*, *Telsimia sanchezi*, *Aspidiotus destructor*, predators

INTRODUCTION

Despite the fact that more than 50 species of predaceous Coccinellidae have been recorded from the Phillippines (Korchefsky 1931, 1932), knowledge about them has remained largely fragmentary and inaccessible for local use. This poor state of taxonomic knowledge of the group is a major constraint to efforts toward the effective assessment of the biological control potential of indigenous natural enemies. As was the case, during a biological study of coccinellids preying on the coconut scale, *Aspidiotus destructor* Signoret (Diaspididae, Homoptera), three underscribed species were encountered (Palacio et al. 1984). They are described here as new to science. It is hoped that this small effort will encourage future workers to engage in comprehensive taxonomic studies on this very important group.

Genus PSEUDOSCYMNUS Chapin

Pseudoscymnus Chapin 1962: 50; 1965: 209.
Type-species: *Scymnus hareja* Weise, by original designation.

Key to Philippine Species of Pseudoscymnus

Elytral spot absent; anterolateral lobe of mentum broadly rounded; median lobe of tegmen elongate triangular; nodulus slightly longer than cornu ..... *P. gabrieli* Palacio, n. sp.

Elytra with a pair of large elliptical, pale reddish-brown spots; anterolateral lobe of mentum subtriangular; median lobe of tegmen short, cup-shaped; nodulus about twice as long as cornu . *P. cadapani* Palacio, n. sp.

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1. *Pseudoscymnus gabrieli* Palacio, n. sp. (Fig. 1a-j).

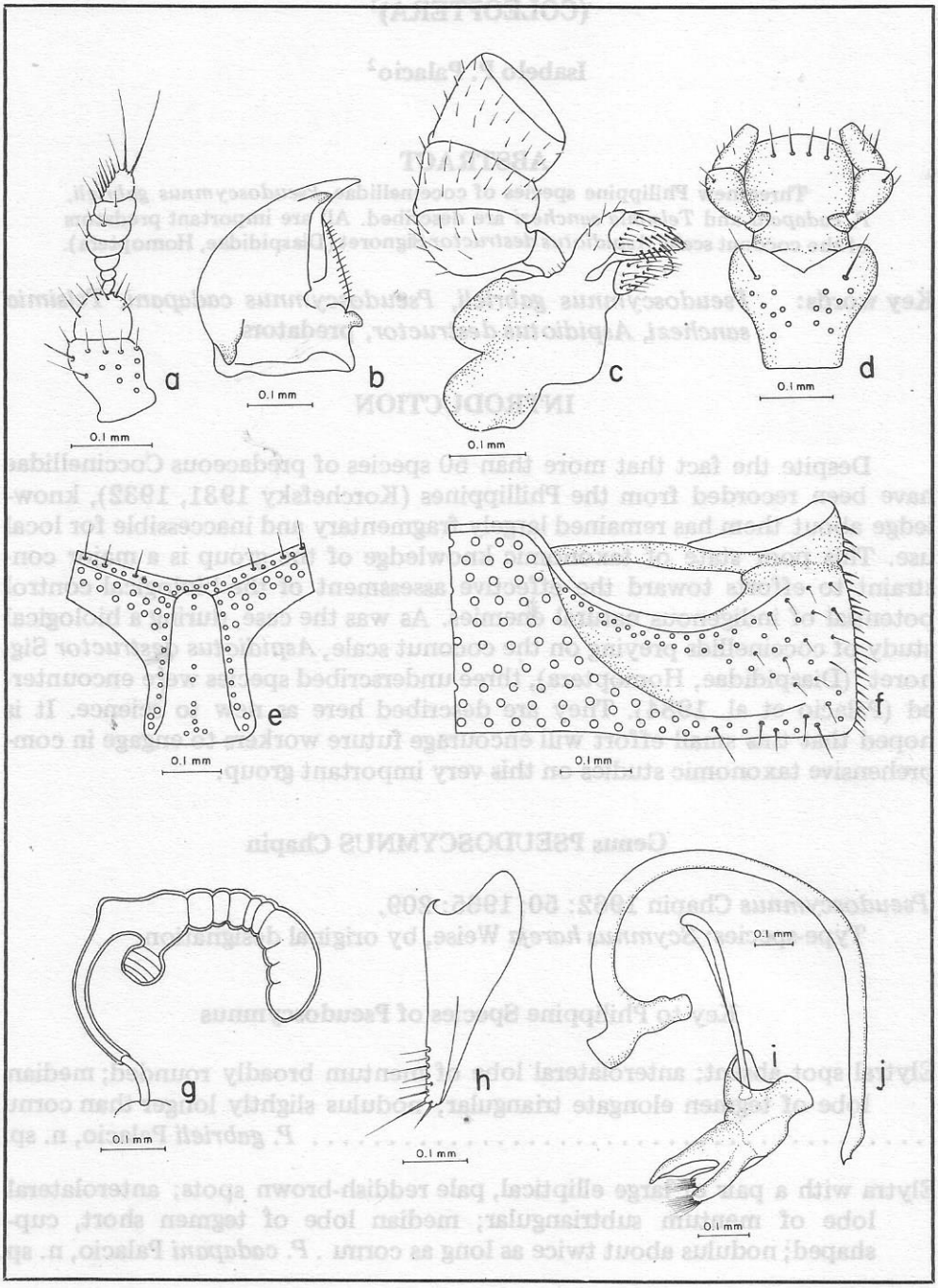

Figure 1. *Pseudoscymnus gabrieli* Palacio, n. sp. a, antenna. b, mandible. c, maxilla, d, labium. e, median prosternum, f. first abdominal stemite; g, receptaculum seminis. h, hemisternite. i, tegmen, j, sipho.

Length: 2.0-2.2 mm; width: 1.6-1.8 mm. Head and pronotum reddish-brown in females, yellowish-brown in males.

Head: Cranium broad between eyes, narrowest width slightly greater than long diameter of eye; punctation moderately coarse, separated by less than diameter, slightly finer and sparser anteriorly; pubescence silvery, depressed anteriorly for most part, apically swirled, especially in front of eyes. Clypeus emarginate anteriorly, extended in rounded lobes laterally; labrum transverse; both sclerites very finely punctured, pubescence same as of frons. Apical teeth of mandible subequal, inner smaller than outer; maxilla well developed, third segment of palp subcylindrical, broad nearly as great as long with obliquely truncate apex; mentum with anterolateral lobes broadly rounded, anterior corners subrectangularly angulate; prementum about twice as long as broad; terminal segment of labial palp almost thrice as long as basal breadth, cylindrical, distal third tapering more abruptly from inner side. Ninth antennal segment subrectangular with a pair of long apical and several shorter ventral setae.

Thorax: Pronotum narrowly margined at base, median posterior lobe sinuate in front of scutellum, anterior corners subrectangularly angulate, posterior corners obtusely angulate, lateral margins slightly rounded; punctation dense, twice finer than of cranium; pubescences on median portion depressed caudally, that on sides longer, directed postero-laterally for most part. Scutellum brownish-black, small, broadly triangular; punctation and pubescence as of clypeus. Elytra black except apical ninth which is light-brown, demarcation between light and black areas rather smooth, following contour of elytra; humeral callus conspicuously elevated at outer fourth of anterior margin; punctation as dense but slightly coarser, pubescence depressed caudally, longer than of pronotum; elytral epipleura widest between second and third femora, then narrowed apically, ending opposite posterior corners of first abdominal sternite. Sterna dark-brown to black, first and second generally lighter than third; prosternum transverse, anterior margin flat with a row of closely and regularly set fine hairy punctures, elsewhere punctures irregularly impressed; prosternal carinae weakly impressed, subparallel for most part, joining each other at anterior margin in a rounded arch, sometimes anterior fourth distorted in form; mesosternum more than twice as broad as long between coxae, punctation moderately coarse of slightly variable size, that of metasternum same except laterally where it is coarser and more deeply impressed; median longitudinal sulcus of latter not reaching anterior margin by eighth of its entire length. Legs light to dark brown.

Abdomen: Median two-thirds of first sternite brown to black, of second light brown to reddish black; the rest of sternites pale to dark brown, marginal third always lighter and pubescence thicker than of median; punctation of first and second sternites moderately coarse, separated by 2-3 diameters, surfaces above and lateral half below incomplete, weakly impressed metacoxal arcs with fine punctures, that of third through sixth very fine, shallowly impressed; extreme posterior margin of fifth, median third of sixth

with a row of fine closely set hairy punctures which appear comb-like; both sternites depressed medially and emarginate posteriorly in males, fifth straight and sixth convex in females.

Female genitalia: Receptaculum seminis heavy walled, cornu moderately curved with distal segment thicker than knob-like ramus; nodulus slightly longer than cornu, anterior fourth broad, at an angle with tubular posterior three-fourths which makes it appear elbowed; sperm duct one-third as long as nodulus.

Male genitalia: Median lobe of tegmen elongate triangular, gradually acuminate to a pointed, slightly up-turned apex; parameres stout, reaching three-fourths of median lobe, randomly impressed with fine punctures, apical pubescence rather dense, reaching tip of median lobe; trabes twice as long and basal piece obtusely angulate in relation to median lobe.Sipho moderately curved, stout, anterior basal half narrowed, remaining apical half straight, gradually tapering toward the somewhat club and sinuate apex; inner lobe of siphonal capsule longer but smaller than outer.

Holotype: Female, Bo. Tungtungin, Bay, Laguna, 25 June 1982 (Coll. AO27); Entomological Museum, Museum of Natural History, U.P. at Los Baños, Laguna.

Paratypes: Both sexes, 36, same locality as holotype, 25 June 1982, Nov. 1982; 25, Bo. Mainit, Bay, Laguna, May 1982; 12, Malinta, Los Baños, Laguna, 7 Mar. 1982; 24, Jamboree site, Mt. Makiling, Los Baños, Laguna, May 1980, 13 Feb. 1982.

Prey: *Aspidiotus destructor* Signoret on coconut. This coccinellid is also active against the scale insects in banana plantations in Davao. Its biological enemies and alternate prey had been reported by Palacio *et al.* (1984).

Distribution: Philippines (Luzon).

Pseudoscymnus gabrieli resembles *P. anomalus* Chapin (1965) from Micronesia in terms of size, color, dorsum, shape of cornu and siphonal capsule. However, in the former species, the punctation is moderately coarse, the nodulus is elbowed, the parameres are significantly shorter than the elongate triangular median lobe and the distal portion of the sipho is attenuate with more or less simple apex; the latter species is finely punctate, the nodulus is smoothly curved, the parameres are almost as long as the broadly oval median lobe, the distal portion of the sipho is somewhat parallelsided and abruptly ends in a complicated apex.

This species is named after Dr. Bernardo P. Gabriel, Professor of Entomology, Department of Entomology, University of the Philippines at Los Baños, College, Laguna.

2. *Pseudoscymnus cadapani* Palacio, n. sp. (Fig. 2a-j).

Length: 2.0-2.3 mm; width: 1.7-1.9 mm. Elytra with a pair of variably large, elliptical, pale reddish-brown spots. Pubescence, color of venter and rest of dorsum as of *P. gabrieli.*

Head: Transverse width of cranium between eyes slightly greater than

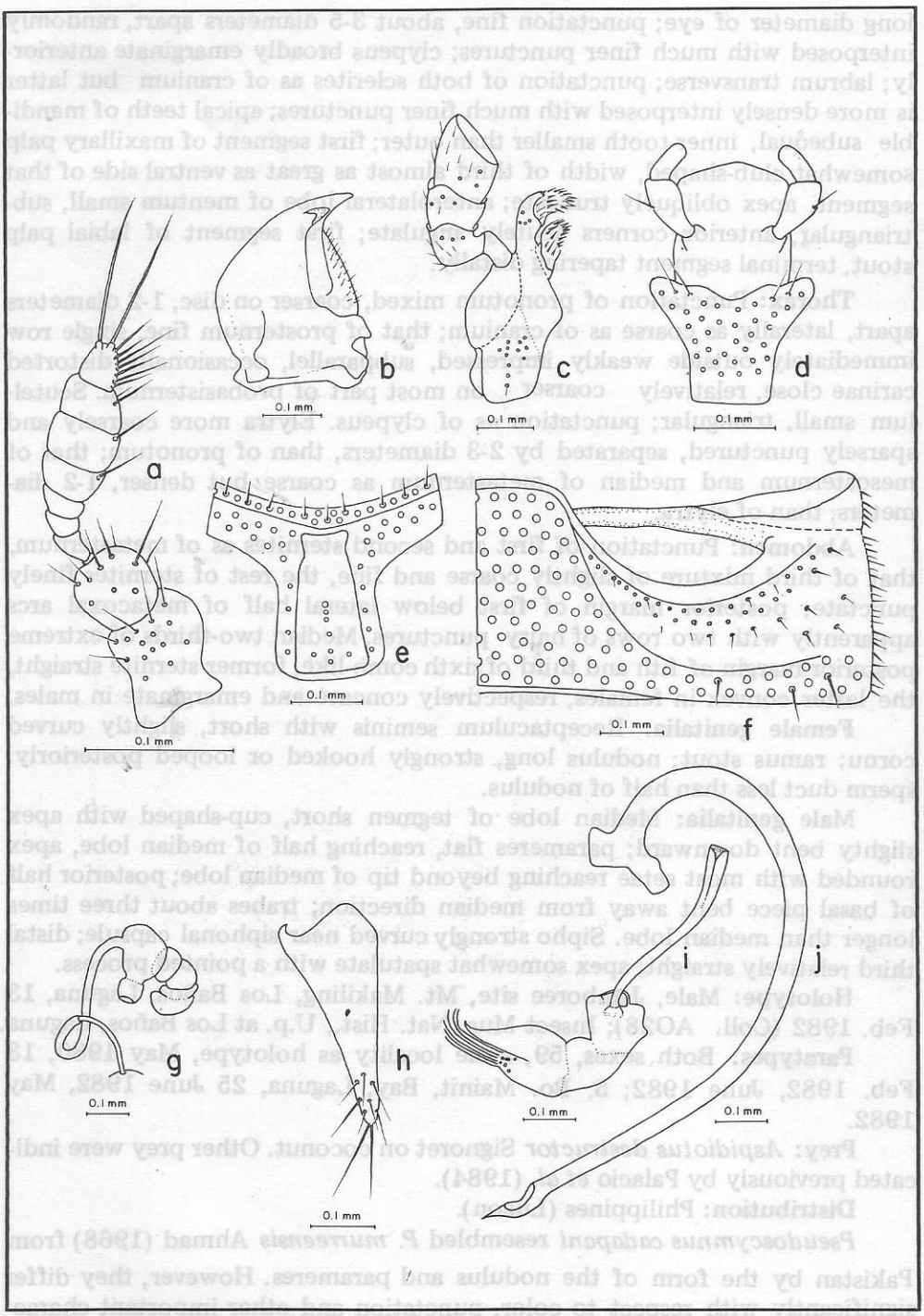

Figure 2. *Pseudoscymnus cadapani* Palacio, n. sp-a, antenna; b, mandible; c, maxille; d, labium; e, median prosternum; f, first abdominal sternite; g, receptaculum seminis; h, hemisternite; i, tegmen; j. sipho.

long diameter of eye; punctation fine, about 3-5 diameters apart, randomly interposed with much finer punctures; clypeus broadly emarginate anteriorly; labrum transverse; punctation of both sclerites as of cranium but latter is more densely interposed with much finer punctures; apical teeth of mandible subequal, inner tooth smaller than outer; first segment of maxillary palp somewhat club-shaped, width of third almost as great as ventral side of that segment, apex obliquely truncate; anterolateral lobe of mentum small, subtriangular, anterior corners acutely angulate; first segment of labial palp stout, terminal segment tapering distally.

Thorax: Punctation of pronotum mixed, coarser on disc, 1-2 diameters apart, laterally as coarse as of cranium; that of prosternum fine, single row immediately outside weakly impressed, subparallel, occasionally distorted carinae close, relatively coarser on most part of probasisternum. Scutellum small, triangular; punctation as of clypeus. Elytra more coarsely and sparsely punctured, separated by 2-3 diameters, than of pronotum; that of mesosternum and median of metasternum as coarse but denser, 1-2 diameters, than of elytra.

Abdomen: Punctation of first and second sternites as of metasternum, that of third mixture of slightly coarse and fine, the rest of sternites finely punctate; posterior margin of first below lateral half of metacoxal arcs apparently with two rows of hairy punctures. Median two-thirds of extreme posterior margin of fith and third of sixth comb-like; former sternite straight, the latter convex in females, respectively concave and emarginate in males.

Female genitalia: Receptaculum seminis with short, slightly curved cornu; ramus stout; nodulus long, strongly hooked or looped posteriorly; sperm duct less than half of nodulus.

Male genitalia: Median lobe of tegmen short, cup-shaped with apex slighty bent downward; parameres flat, reaching half of median lobe, apex rounded with most setae reaching beyond tip of median lobe; posterior half of basal piece bent away from median direction; trabes about three times longer than median lobe. Sipho strongly curved near siphonal capsule; distal third relatively straight; apex somewhat spatulate with a pointed process.

Holotype: Male, Jamboree site, Mt. Makiling, Los Baños, Laguna, 13 Feb. 1982 (Coll. AO28); Insect Mus. Nat. Hist., U.p. at Los Baños, Laguna.

Paratypes: Both sexes, 59, same locality as holotype, May 1980, 13 Feb. 1982, June 1982; 5, Bo. Mainit, Bay, Laguna, 25 June 1982, May 1982.

Prey: *Aspidiotus destructor* Signoret on coconut. Other prey were indicated previously by Palacio *et al.* (1984).

Distribution: Philippines (Luzon).

Pseudoscymnus cadapani resembled *P. murreensis* Ahmad (1968) from Pakistan by the form of the nodulus and parameres. However, they differ significantly with respect to color, punctation and other important characteristics of male and female genitalia.

This species is named after Dr. Eliseo P. Cadapan, Associate Professor of Entomology, Department of Entomology, College of Agriculture, U.P.

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Genus TELSIMIA Casey

Telsimia Casey, 1899, New York Ent. Jour. 7:109, 165; Chapin, 1926 (129-130); 1965 (241). Type species; *Telsimia tetrastica* Casey, type by subsequent designation of Chapin.

Lipernes Blackburn, 1889, Roy. Soc. S. Australia, Trans. 11:212 (not *Lipernes* Waterhouse).

Notolipernes Blackburn, 1900, loc. cit. 24:68 (new name for *Lipernes* Blackburn, unnecessary).

3. *Telsimia sanchezi* Palacio, n. sp. (Fig. 3a-l).

Length: 1.3-1.6 mm; width: 1.0-1.3 mm. Dorsum black except narrow reddish-black anterior and light brown lateral margins of pronotum, set with white, long, dense pubescence.

Head: Cranium wide between eyes, almost as great as long diameter of eye; punctation rather fine, dense, separated by 1-2 diameters; epistoma reddish-brown, long as great as abasal width of mandible, broadly but shallowly emarginate anteriorly, punctation coarser and sparser, separated by 1.5-2.5 diameters, pubescence about twice thicker and longer but sparser than of frons, anterior third and lateral portions impunctate. Underside of head reddish-black, labial and maxillary palpi and flagellum of antenna castaneous to reddish-brown.

Thorax: Pronotum convex, median posterior lobe broad, narrowly margined, sinuate in front of triangular, finely punctured scutellum; anterior corners acutely, posterior corners obtusely angulate, lateral margins rounded; punctation slightly finer and sparser, 1-3 diameters, and pubescence thicker than of frons; tip of elytra pointed, punctation uniform, as dense but coarser and pubescence thicker than of pronotum; elytral epipleura almost complete, distinctly faveolate for reception of second and third femoral tips, widest between them, then gradually narrowed apically; sterna piceous black, median of second and third slightly convex, punctation as coarse but twice sparser than of elytra except posterior fourth of metasternum which is more coarsely punctured; mesternum completely bisected by media longitudinal sulcus. Tibiae of prothoracic legs simple, that of meso and metathoracic legs wider than first, foveolate anterodistally for reception of at least the first tarsal segment.

Abdomen: Median two-thirds of sternites dark-brown, remaining lateral third light-brown and pubescence longer than elsewhere; metacoxal arc with lateral half more or less parallel with posterior margin of first sternite, extremities slightly turned posterad, enclosed median portion more coarsely and densely punctured than sterna, remaining posterior eighth impunctate; second through fifth sternites finely punctured; fifth semi-circular, convex in females, blunt posteriorly in males.

Male genitalia: Median lobe of tegmen elongate oval, gradually tapering

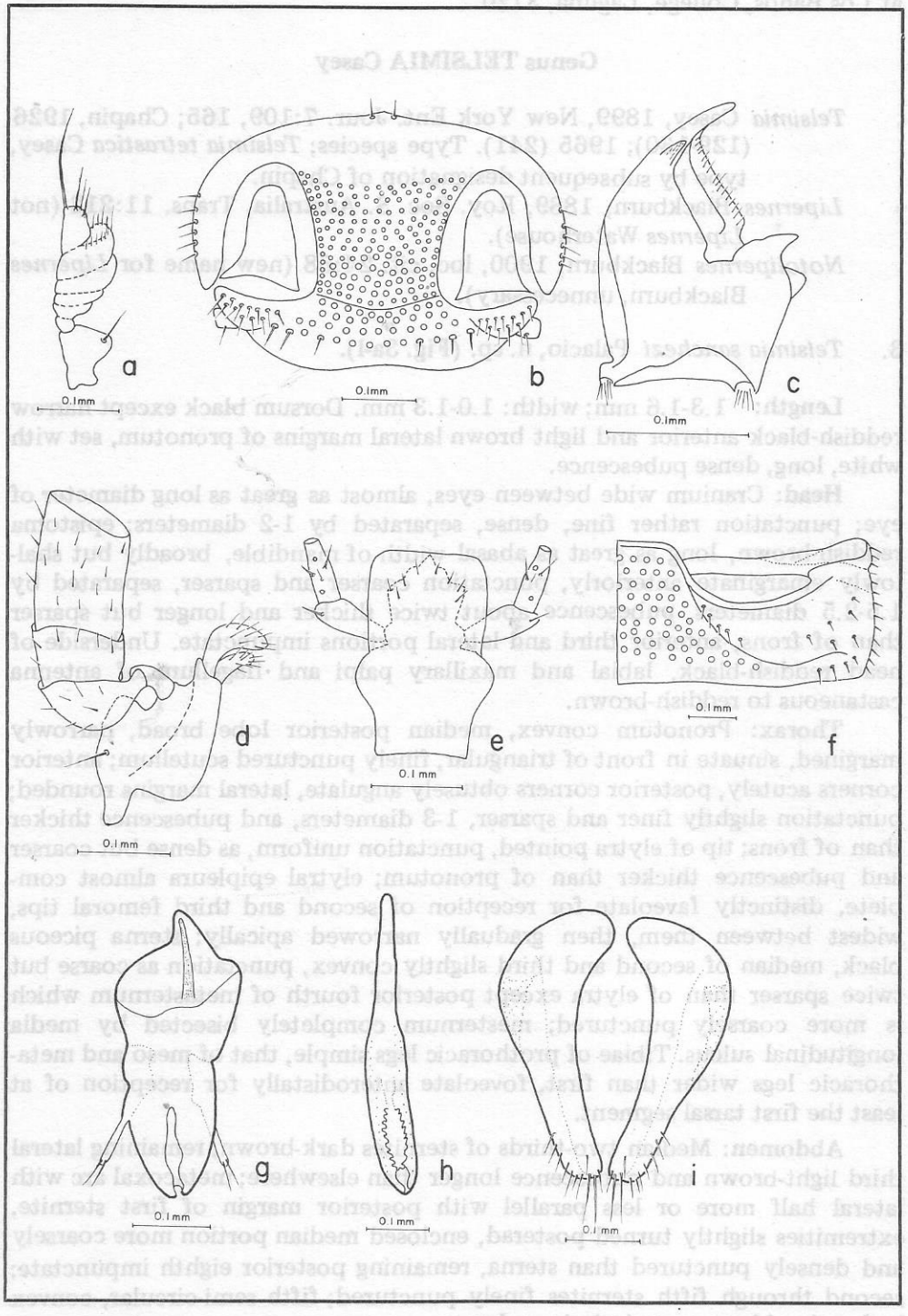

Figure 3. *Telsimia sanchezi* Palacio, n. sp. a, antenna; b, head, c, mandible; d, maxilla; e, labium; f, first abdominal sternite; g, tegmen; h, sipho; i, hemisternites.

distally to a sinuate apex; parameres slender, reaching apical fourth, setae sparse, reaching tip of median lobe; basal piece well developed. Sipho spindle-shaped; basal half cylindro-acuminate, distal half cylindrical with pointed apex.

Female genitalia: Hemisternites typical.

Holotype: Male, Jamboree Site, Mt. Makiling, Los Baños, Laguna, 13 Feb. 1982 (Coll. AO29); Insect Mus. Nat. Hist., U.P. at Los Baños, Laguna

Paratypes: Both sexes, 42, same locality as holotype, May 1980, 13 Feb. 1982; 30, Bo. Mainit, Bay, Laguna, May 1982. 8 June 1982, Nov. 1982; 25, Bo. Tungtungin, Bay, Laguna, 25 June 1982, May. 1982; 21, Malinta, Los Baños, Laguna, 7 Mar. 1982, May 1982.

Telsimia sanchezi resembles *T. nitida* Chapin (1962) from Guam by the form of the cranium and other characters. However, the former species differs in the presence of median longitudinal sulcus on metasternum which is absent in the latter. In *T. sanchezi*, the anterior corners of the pronotum are acutely angulate and the extremities of the metacoxal arcs are slightly turned posterad. In *T. nitida*, these structures are subrectangular and anterad, respectively.

This species is named after Dr. Fernando F. Sanchez, Professor of Entomology, Department of Entomology, and Director of the National Crop Protection Center U. P. at Los Baños, College, Laguna.

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