SOME PHYTOSEIIDAE OF COLOMBIA (ACARINA: PHYTOSEIIDAE)

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ABSTRACT

Eleven species of phytoseiid mites are reported from Colombia; 2 are new species: *Iphiseioides zuluagai*, and *Typhlodromips sinensis*.

Several collections of phytoseiid mites have been received recently from several localities in South America. The species involved in these collections are gradually being described and recorded to extend our knowledge of the South American fauna. Denmark and Muma (1970) included a summary of South American species in their introduction to the phytoseiids of Paraguay, and Denmark and Muma (1970a) redefined *Rico- seius loxocheles* (De Leon) from a Brazilian specimen.

Two new species from Colombia are described and new distribution records of 9 other phytoseiids are reported in this paper. To our knowledge this is the first report of phytoseiids from Colombia. Specimens were collected by Dr. Ivan Zuluaga who has requested that the new species be described and new distribution records be published. Other mite families received from Dr. Zuluaga are not included in this paper. Only the original description and latest revision are given in the synonymy.

Genus *Amblyseius* Berlese, 1914


Diagnosis: This large genus is world wide in distribution and is found commonly in the Caribbean area and South America. The distinguishing characters are 4 pairs of dorsal setae, 8 pairs of lateral setae (some elongate and weakly plumose), 3 pairs of median setae, 2 pairs of long sublateral setae on the interseptal membrane, 3 pairs of sternal setae, and 3 pairs of preanal setae. Peritreme long, extending forward to or between the vertical setae. Peritremal scutum without distinguishable ectal strip extending to leg IV exopodal scutum. Chelicerae normal, fixed finger with 8 or more denticules and movable finger with 1 to 4. Macrosetae on Sge I, Sge III, Sti III, Sge IV, Sti IV, St IV of which Sge IV is the longest. Males similar to but smaller than females. Spermatodactyl with heel terminal.

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Amblyseius deleoni Muma and Denmark

Amblyseius deleoni Muma and Denmark; Muma, Denmark, and De Leon, 1971:68.

Diagnosis: This species has a slender elongate fundibuliform spermathecal cervix with a greatly swollen atrium and an L-shaped spermatodactyl with a weakly bifurcate toe on the foot; Sge IV approximates L4. A. largoensis (Muma), a closely related species, has a parallel-sided spermathecal cervix and Sge IV is longer than L4.

Type: Female holotype from citrus leaves at Ft. Pierce, Florida, 20 March 1959 (Helen Louise Greene), in the U. S. National Museum, Washington, D. C. This species has been taken at the following locations in Colombia: 1 nymph and 1 female, Villa Carmelo, Valle, 2 April 1969 (Ivan Zuluaga), on Citrus sinensis; 1 female, Villa Carmelo, Valle, 5 June 1969 (Ivan Zuluaga), on Citrus sinensis.

Amblyseius anacardii De Leon, 1967:23

Diagnosis: This species closely resembles A. coffeae De Leon from Mexico; it is distinct in the shape of the spermatheca.

Type: Female, St. Augustine, Trinidad, 1 October 1963 (D. De Leon), on Vergneria madagascarensis. This species has been taken at Mariquita, Tolima, Colombia, July 1970 (Ivan Zuluaga), on Passiflora edulis var. flavicarpa.

Genus Euseius Wainstein, 1962


Diagnosis: The females have 4 pairs of dorsal setae, 3 pairs of median setae of which M1 and M2, 8 pairs of lateral setae with L1, usually weakly plumose, 2 pairs of sublateral setae on the interocular membrane, 3 pairs of sternal setae, and 3 pairs of preanal ventral setae. Chelicercae are small with fixed finger edentate or with 1 or 2 denticules usually distal to the medially located pilus dentilis. Peritremes short, extending forward at most to about L4. Peritremal scutum indistinguishably fused with etigmal scutum and leg IV exopodal scutum. Sternal scutum usually lobate posterior margin. All preanal ventral setae remote from anterior scutal margin. Macrosetae sometimes occur on the genu of leg II and III and on Sge. Sti. and St of leg IV always present. Males similar to and smaller than females. Spermatodactyl with foot terminal and heel distinct. This large genus of over 40 species is world wide in distribution.

Euseius flechtmanni Denmark and Muma, 1970:223

Diagnosis: This species is close to E. casearinae De Leon, but flechtmanni has L4 longer and macrosetae on Sge III is knobbed setaceous.
**Denmark:** Phytoseiidae of Colombia

TYPE: Female holotype from San Lorenzo, Paraguay, July 1968 (Brauilio Ramon Aranda Centurion), on Citrus sp., in the Florida State Collection of Arthropods, Gainesville, Florida. In addition to the many collections in Paraguay, it has been taken at the following location in Colombia: 3 nymphs, 2 males and 16 females Palmira, Colombia, 5 May 1969 (Ivan Zuluaga), on Ricinus communis.

*Euseius paraguayensis* Denmark and Muma, 1970:224

**DIAGNOSIS:** *E. paraguayensis* can be distinguished from all other species in the *sibilis* group by the comparative lengths of the dorsal scutal setae and the short distinct spermatheca.

**TYPE:** Female holotype from Cecilio Baez, Paraguay, 1 January 1969, on Citrus sp. The male allotype taken at San Lorenzo, Paraguay, July 1968, on Cynus revoluta Thunb. is in the FSCA, Gainesville, Florida, and a paratype female at Carandayty, Paraguay, 13 January 1969, on Citrus sp. All collections were made by Brauilio Ramon Aranda Centurion. This species has been taken in Colombia at the following locations: 1 female, Palmira, Colombia, 26 June 1969 (A. Angel S.), on Corchorus orinocensis.

*Euseius naindaimei* (Chant and Baker); NEW COMBINATION

**Amblysetus naindaimei** Chant and Baker, 1965:22

(Fig. 1 to 6)

**DIAGNOSIS:** This species is closely related to the *E. vivax* (Chant and Baker) complex and *E. multmicropilus* De Leon, but naindaimei has *L*_4 shorter and the spermatheca is vesicular. It is illustrated and redescribed here as Chant and Baker only gave a partial illustration and the male is now known.

**FEMALE:** Length 338 _μ_; width at *L*_4 244 _μ_. Dorsal scutum smooth with several pores and 17 pairs of setae. Measurements of setae: verticals 29 _μ_; *D*_1 and *D*_2 8 _μ_; *D*_3 and *D*_4 10 _μ_; clunals 4 _μ_; *L*_1 18 _μ_; *L*_2 12 _μ_; *L*_3 9 _μ_; *L*_4 17 _μ_; *L*_5 11 _μ_; *L*_6 15 _μ_; *L*_7 11 _μ_; *L*_8 53 _μ_; *M*_1 6 _μ_; *M*_2 10 _μ_; *M*_3 6 _μ_; anterior sublateral 12 _μ_; posterior sublateral 11 _μ_; Segments scutum lightly reticulated, wider than long and concave. This is unusual for this genus. Peritreme extends forward to between *L*_4 and *L*_5. Chelicerae small, fixed finger of chelicerae with 3 denticules and the movable finger with 2 small denticules. Leg formula 4132. **Macrosetae present on Sge I, II, III and IV.** Length of macrosetae on leg IV as follows: Sge IV 43 _μ_; StI IV 32 _μ_; St IV 61 _μ_. Genu II 2, 2, 2; genu III 1, 2. Spermatheca vesicular.

**TYPE:** Female holotype No. 3003 from La Lima, Honduras, 19 September 1958, J. G. Mattheyso, on a “tree”, in the U. S. National Museum, Washington, D. C. Other female specimens are from Naindaime, Nicaragua, 16 April 1959, E. W. Baker on cacao leaves. Specimens of the male and female have been collected at Palmira, Colombia, 5 May 1969 (Ivan Zuluaga), on Ricinus communis; female at Villa Carmelo, Valle, Colombia,
Fig. 1 to 6: Female *Euseius naindaimei* (Chant and Baker). 1) Dorsal and leg structure and setation. 2) Ventral scuta and setation. 3) Posterior peritremal and stigmatal development. 4) Spermathecal structures (two views). 5) Male spermatodactyl structure. 6) Male ventrianal scutum.

2 April 1969 (Ivan Zuluaga); female at Palmira, Valle, Colombia, 21 May 1969 (Ivan Zuluaga), on *Citrus sinenais*.

Genus *Iphiseioides* De Leon, 1966

*Iphiseioides* De Leon, 1966:84, Fig. 104-105. Type of the genus: *Seius quadrripilis* Banks, 1905, by subsequent designation of De Leon, 1966. *Iphiseioides* De Leon; Muma, Denmark, and De Leon, 1971:70.

**Diagnosis:** Females of this genus have 4 pairs of dorsal setae, 3 pairs of median setae, 8 pairs of lateral setae with $L_4$ and/or $L_5$ much longer than others, 2 pairs of sublateral setae on the interscutal membrane, 3 pairs of sternal setae, and 3 pairs of preanal ventrianal setae. Peritreme variable but extending forward to $L_1$. The peritremal scutum extends posteriorly to leg IV exopodal scutum. The chelicerae are small with 9 to 10 denticules on the fixed finger and 2 to 3 denticules on the movable finger. Sternal scutum much wider than long and with concave posterior margin. Ventrianal scutum wide shield-shaped. Macrosetae are usually present on the genu of all legs and also $Sti$ and $St$ of leg IV. The male spermatodactyls have the foot terminal, heel obscure, and lateral process distinct.


Fig. 7 to 13: Female *Iphiseiodes zuluagai* Denmark and Muma n. sp. 7) Dorsal and leg structure and setation. 8) Ventral scuta and setation. 9) Posterior peritremal and stigmatal development. 10) Spermathecal structures. 11) Chelicera. 12) Male spermatodactyl structure. 13) Male ventrianal scutum.

The genus has been reported from several localities in the southeastern United States, Mexico, Central America, South America and the Caribbean area. Three species are presently recognized in this genus: *I. quadripilis* (Banks), *I. nobilis* (Chant and Baker), and *I. kamahorae* De Leon.

*Iphiseiodes zuluagai* Denmark and Muma, n. sp.

**Fig. 7 to 13**

**Diagnosis:** This species can be separated from all other species of this genus by the long knobbed setaceous macrosetae on leg IV and leg III, and distinctly knobbed L. The parallel-sided spermathecal cervix with slightly enlarged atrium is distinct.

**Female:** Length 330μ; width at L 287μ. Dorsal scutum smooth with 8 to 10 small pores and 17 pairs of setae. Measurements of setae: verticallys 22μ; D₁, 2μ; D₂, 2μ; D₃, 2μ; D₄, 2μ; clunals 1μ; L₁, 26μ; L₂, 2μ; L₃, 2μ; L₄, 97μ. L₁, 2μ; L₂, 2μ; L₃, 2μ; L₄, 110μ. M₁, 2μ; M₂, 2μ; M₃, 2μ; anterior sublateral 2μ; posterior sublateral 2μ. Sternal scutum smooth with 2 pairs of pores. Ventrianal scutum reticulated. Peritreme extends forward to between L and L. Chelicerae small; movable chelical finger with 2
denticules and fixed cheliceral finger with 9 denticules. Leg formula 4123. Macrosetae present on Sge I, Sge II, Sge III. Length of macrosetae on leg IV as follows: Sge IV 95 μ, Sti IV 55 μ, St IV 35 μ. Genu II 2, 2, 0, 1; genu III 2, 2, 1, 1. Spermatheca tubular.

**Type:** Female holotype from Palmira, Colombia, 20 May 1969 (Ivan Zuluaga), on Citrus sinensis, in the FSCA, Gainesville, Florida. This species has been taken at the following locations: male allotype from El Bolo, Palmira, Colombia, 29 May 1969 on Citrus sinensis; paratypes: 2 females from El Bolo, Palmira, Colombia, 20 May 1969 on Citrus sinensis; 1 male and 5 nymphs from Palmira, Valle, Colombia, 21 March 1969 on Citrus sp.; 1 female from Valle del Cauca, Colombia, November 1968 on Citrus sp.; 1 female from Tolima, Colombia, July 1970 on Passiflora edulis var. flavicarpa; 4 females, 1 male and 1 nymph from Mariquita, Tolima, Colombia, June 1970, on Passiflora edulis; all collected by Ivan Zuluaga.

**Genus Typhlodromips De Leon, 1959**

*Typhlodromopsis De Leon, 1959:113 (in part, not typical species).


*Typhlodromips, Muma, Denmark, and De Leon, 1971:78.

**Diagnosis:** The females have 4 pairs of dorsal setae, 3 pairs of median setae with M₃ stout and serrate or plumose, 2 pairs of sublateral setae on the interscutal membrane, 3 pairs of sternal setae, and 3 pairs of preanal, ventrianal setae. Chelicerae normal size; fixed finger with 8 or more denticules, several of which lie proximal to the pilus dentilis. Peritreme long, extending forward to or between the vertical setae. Peritremal scutum almost indistinguishably or indistinguishably fused to stigmatal scutum and leg IV exopodal scutum. Sternal scutum as wide or wider than long with straight or concave posterior margin. Ventrianal scutum pentagonal. Macrosetae are usually present on the genu and occasionally on the tibia of legs I, II, and III; leg IV has macrosetae on Sge, Sti, and St with St usually the longest. Males are similar to and smaller than females. Spermatodactyl with foot terminal, a distinct heel, and lateral process distinct to obscure. This large genus is represented by at least 50 known species and is world wide. It can be separated from Neoseulus Hughes by proportions of the sternum, greater number of cheliceral denticules, and the presence of macrosetae on legs I, II, III, and IV. It differs from Typhlodromalus Muma in the form of sternal and ventrianal scuta and in the development of the spermatodactyl.

*Typhlodromips sinensis* Denmark and Muma, n. sp.

Fig. 14 to 18

**Diagnosis:** *Typhlodromips sinensis* can be separated from *T. aciculus* De Leon by shorter L₂ and L₃, and longer L₄ and L₅. The spermathecal cervix of *sinensis* is fundibuliform with a nodular atrium and *aciculus* has a fundibuliform spermathecal cervix but an indistinct atrium. *T. sinuatus*
Fig. 14 to 18: Female *Typhlodromips sinensis* Denmark and Muma n. sp. 14) Dorsal and leg structure and setation. 15) Ventral scuta and setation. 16) Posterior peritremal and stigmatal development. 17) Spermathecal structures. 18) Chelicera.

(De Leon) has a spermatheca similar to that of *sinensis* but the dorsal scutal setae are much longer.

**Female:** Length 299 μ; width at L 181 μ. Dorsal scutum smooth with a pore at L 4 and 17 pairs of dorsal setae. **Measurement of setae:** ventricular 27 μ; D 1 and D 2 11 μ, D 3 13 μ, D 4 22 μ; clunals 8 μ; L 1 41 μ, L 2 17 μ, L 3 19 μ, L 4 44 μ, L 5 26 μ, L 6 19 μ, L 7 19 μ, L 8 60 μ; M 1 8 μ, M 2 26 μ, M 3 45 μ; anterior sublateral 18 μ; posterior sublateral 20 μ. Sternal scutum smooth. Ventrianal scutum smooth. Peritreme extends to ventricals. Chelicerae normal in size; moveable cheliceral finger with 3 denticles and fixed cheliceral finger with 10 denticles. **Leg formula** 1423. **Macrosetae** present on Sge I, II, and III, and occasionally on tibia of Sti I, II, III, and IV. **Length of macrosetae on leg IV as follows:** Sge IV 38 μ, Sti 22 μ, St 47 μ. Genu II 2.2, 0.1; genu III 1.2, 0.1. Spermatheca fundibuliform, nodular.

**Male:** Unknown.

**Type:** Female holotype from Villa Carmelo, Valle, Colombia, 2 April 1969 (Ivan Zuluaga), on *Citrus sinensis*, in the FSCA, Gainesville, Florida.

*Typhlodromalus* Muma, 1961

Typhlodromalus Muma; Muma, Denmark, and De Leon, 1971:86.

Diagnosis: Females of this genus have 4 pairs of dorsal setae, 3 pairs of median setae, 8 pairs of lateral setae of which L₁, L₄, and L₈ are longer and stouter and L₉ is usually serrate, 2 pairs of sublateral setae on the intersegmental membrane, 3 pairs of sternal setae, and 3 pairs of preanal ventral anal setae. Peritremal scutum indistinguishably fused with stigmatic scutum and leg IV exopodal scutum. Chelicerae normal with fixed fingers with 8 or more denticules about half of which lie proximal to the pilus dentilis. Sternum longer than wide and with lobate posterior margin. Ventrional scutum v-shaped. Macrosetae are usually present on the genu and occasionally on the tibia of legs I, II and III, and leg IV has Sge, Sti, and St with the latter usually longest. Males are similar but smaller than females. Spermatodactyl with an elongate shank, a broad spatulate foot, and a small but distinct heel and lateral process. This genus is widely distributed and is reported to be an omnivorous predator (Muma 1961a.).

Typhlodromalus peregrinus (Muma)

Typhlodromus peregrinus Muma, 1955:270.
Amblyseius (Typhlodromalus) peregrinus (Muma), Muma, 1961:288.
Typhlodromalus peregrinus Muma; Muma, Denmark, and De Leon, 1971:88.

Diagnosis: This species is closely related to T. planetarius (De Leon) from Mexico and T. olombo (Pritchard and Baker) from Africa. Proportions of setae on the dorsal scutum and genitalic details separate it from these species.

Type: Female holotype from Minneola, Florida, 24 January 1952 (M. H. Muma), on Citrus sinensis in USNM, Washington, D. C.

Genus Neoseiulus Hughes, 1948

Neoseiulus Hughes, 1949:141. Type of the genus: Neoseiulus bankeri Hughes, 1948, by original designation.
Neoseiulus Hughes; De Leon, 1965:23.
Neoseiulus Hughes; Muma and Denmark, 1968:235.

Diagnosis: Females are characterized by 4 pairs of dorsal setae, 3 pairs of median setae, 8 pairs of lateral setae that are subequal in length or slightly longer posteriorly, 2 pairs of sublateral setae on intersegmental membrane, 3 pairs of sternal setae, and 3 pairs of preanal ventral anal setae. Peritremal scutum indistinguishably fused with stigmatic scutum but sometimes separated from the exopodal scutum by a faint suture. Sternum longer than wide and with straight or concave posterior margin. Ventrional scutum pentagonal to quadrate. There are no distinguishable macrosetae on leg I, II and III, but St IV is nearly always present and Sti IV
and Sge IV are present on some species. Males are smaller than females and have the spermatodactyl with terminal heel or foot, and distinct to obscure lateral process.

Neoseiulus anonymous (Chant and Baker)

Amblyseius anonymous Chant and Baker, 1965:21
Neoseiulus anonymous (Chant and Baker), Muma and Denmark, 1968:235.

Diagnosis: This species closely resembles Neoseiulus fallaciis (Garman), but anonymous has 3 macrosetae on leg IV, the pores on the ventrianal shield are elliptical, and the spermatheca is slender and more elongate saccular.

Type: Female holotype from Tacamiche, La Lima, Honduras, 28 October 1965, J. G. Matthysee on banana leaves; in the USNM, Washington, D. C. This species has been taken at the following locations in Colombia: Palmira, Valle, Colombia, 1 July 1969 (Cesar Bonilla), on Glycine soja; El Bolo, Palmira, Colombia, 26 June 1969 (A. Angel S.), on Vigna vexillata; Palmira, Valle, Colombia, 23 June 1969 (Ivan Zuluaga), on Gossypium hirsutum.

Genus Diadromus Athias-Henriot, 1960


Diagnosis: The females have 4 pairs of dorsal setae, 2 pairs of median setae, 8 pairs of lateral setae, 2 pairs of sublateral setae on the interscutal membrane, 3 pairs of sternal setae, and 4 pairs of preanal ventrianal setae. The chelicerae are normal with fixed finger multidentate with 5 or 6 denticles anterior to the pilus dentilis. Sternum flat or truncate posteriorly. Ventrianal scutum quadrate. Peritreme long, extending forward to L2. Peritremal scutum indistinguishably fused with stigmal scutum and leg IV exopodal scutum. Macrosetae on Sge, Sti, and St of legs I, II, III and IV. T. regularis (De Leon) is the only other species known to be in this genus.

Diadromus regularis (De Leon)

Typhloseiopsis regularis De Leon, 1965a:122. Diadromus regularis (De Leon); De Leon, 1966:100. Chanteius regularis (De Leon); De Leon, 1967:16.

Diagnosis: We do not think regularis is congeneric with the genus Diadromus, but it is being left in this genus until more specimens can be examined. This species has been reported from British Guyana, Puerto Rico,
and Trinidad. It was collected at Valle, Colombia, 1 August 1969 (Ivan Zuluaga), on Citrus sinensis.

**Genus Phytoseius Ribaga, 1904**

Phytoseius Ribaga, 1904:177.

Dahlinellus Wainstein, 1959:1365.


Phytoseius Ribaga; Muma and Denmark, 1968:229. Type of the genus: *Phytoseius plumifer* (C. and P.), 1876, by subsequent designation, Vitzthum (1914) based on Ribaga’s (1904) description.

**Diagnosis.** Females of the genus *Phytoseius* have the dorsal shield entire, smooth or rugose, 3 or 4 pairs of dorsal setae, 1 pair of median setae, 8 pairs of lateral setae, some thickened and serrate, 1 or 2 pairs of sub-lateral setae, with anterior on the dorsal shield, a pair of verticals and clunals. Ventral scutum with 1 to 3 pairs of preanal setae.

There are about 45 species in this genus and it is world wide in distribution. Two subgenera are recognized, *Phytoseius* Ribaga and *Pennaseius* Pritchard and Baker.

**Phytoseius (Pennaseius) pursiglovesi De Leon, 1965a:13**

**Diagnosis:** This species belongs to the nakautensis group and is similar to *P. orizaba* as both species have $D_4$ missing, but $L_6$ in *pursiglovesi* is about half as long as in *orizaba*.

**Type:** Female holotype from St. Augustine, Trinidad, 14 September 1968, D. De Leon, *in Cordia curassavica*; in the MCZ, Harvard University, Cambridge, Mass. This species has been taken at Valle del Cauca, March 1969 (A. Angel S.), on weeds in a cultivated field.

**Literature Cited**


Denmark: Phytoseiidae of Colombia


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