



Miscellanea Miridologica II. New combinations and new synonymies in the tribe Mirini (Hemiptera: Heteroptera: Miridae)

F. CHÉROT^{1,2}, L. COSTA³ & M. TOUCHET⁴

¹Département de l'Etude du Milieu naturel et agricole, DGO3 Agriculture, Ressources naturelles et Environnement, Service public de Wallonie, 23 avenue Maréchal Juin, B-5030 Gembloux. Belgique. U.E. E-mail: frederic.cherot@spw.wallonie.be

²Université Libre de Bruxelles, Département de Biologie des Organismes, 50 Av. F.D. Roosevelt, B-1050 Bruxelles. Belgique. U.E.

³Museu Nacional, Quinta da Boa Vista, Rio de Janeiro 20940-040, Rio de Janeiro, Brazil

⁴Systematic Entomology Laboratory, ARS, USDA, National Museum of Natural History, Smithsonian Institution, MRC-0168, P.O. Box 3712, Washington DC 20013-7012, United States of America

Abstract

Six new synonymies and four new combinations are proposed: *Guianella* Carvalho 1946 = *Boliviomiris* Carvalho, 1987 and *Pilosicerus* Carvalho, 1992 (new subjective junior synonyms). *Guianella pilosa* Maldonado & Carvalho, 1981 = *G. antennalis* (Carvalho, 1987) and *G. rondoniensis* (Carvalho, 1992) (new subjective junior synonyms). *Urucuiana* Carvalho & Rosas, 1965 = *Bahiamiris* Carvalho, 1975 (new subjective junior synonym). *Urucuiana tuberculata* Carvalho & Rosas, 1965 = *U. cajabiana* (Carvalho, 1977) (new subjective junior synonym). *Guianella antennalis*, *G. rondoniensis*, *U. cajabiana*, and *U. rubronata* (Carvalho, 1975) (new combinations). *Urucuiana tuberculata* is reported from French Guyana for the first time.

Key words: Heteroptera, Miridae, Mirini, new synonymies, new combinations, French Guyana, Brazil, Panama, Paramaribo

The study of type material and additional specimens of several poorly known species of the tribe Mirini (Hemiptera, Heteroptera, Miridae, Mirinae) from Central and South America, preserved in the collections of the National Museum of Natural History, Washington D.C. (USNM) and the Museu Nacional, Rio de Janeiro (MNRJ), revealed several new synonymies and corresponding new combinations.

Taxonomy

Guianella

Guianella Carvalho 1946: 4–5 (n. gen.). Type species: *Guianella marmorata* Carvalho, 1946: 5 (n. sp.) by original designation and monotypy.

Boliviomiris Carvalho 1987: 594 (n. gen.). Type species: *Boliviomiris antennalis* Carvalho, 1987: 594 (n. sp.) by original designation and monotypy. NEW SYNONYM.

Pilosicerus Carvalho 1992: 583 (n. gen.). Type species: *Pilosicerus rondoniensis* Carvalho, 1992: 583 (n. sp.) by original designation and monotypy. NEW SYNONYM.

Discussion. *Guianella* was described by Carvalho (1946) to accommodate his new species *G. marmorata*, the type species, based on the male holotype from Paramaribo, Brazil. Subsequently, six species were described in *Guianella*: *G. vicosensis* Carvalho, 1947, from Minas Gerais, Brazil, four species from Panama by Maldonado & Carvalho (1981)—*G. nematocera*, *G. pilosa*, *G. trimaculata* and *G. tuberculifrons*—and *G. paraibensis* Carvalho & Costa (1992) from Paraiba, Brazil. These species are easily separated by the dorsal and antennal pilosity, the shape of the three last antennal segments, frons, and humeral angles and the dorsal coloration.

Based on the female holotype, Carvalho (1987) described *Boliviomiris* for his new species, *B. antennalis*, the type species from Bolivia. The discussion accompanying the original description is truncated as the result of a makeup mistake. It did not include hypotheses on the relationships of the new genus within the tribe Mirini, similarly no explicit character information was provided to separate *Boliviomiris* from related genera. Subsequent to the original description (Carvalho, *op. cit.*), there are no citations to the genus or species, except in the most recent World catalog (Schuh, 1995: 702).

Pilosicerus was described by Carvalho (1992) to accommodate his new species *P. rondoniensis* from Ouro Preto, Brazil, the type species, based on the female holotype alone. The catalog citation in Schuh (1995) is the only subsequent citation since the original description (Carvalho, *op. cit.*) of *P. rondoniensis*. According to Carvalho's (*op. cit.*) short discussion, *Pilosicerus* is very close to *Guianella*, the two genera being separated by antennal pilosity only. On the basis of this minor character state, Carvalho (*op. cit.*: 583) suggested the transfer of *G. pilosa* to *Pilosicerus*, a new combination omitted by Schuh (1995: 916).

Based on our observations, *Guianella* can be diagnosed as follows: body elongate, slightly rounded laterally; head wider than long; vertex not marginate, sulcate medially, sulcus sometimes shallow, obscure; eyes slightly separated from pronotal collar; first antennal segment thick and relatively short, shorter than width of head across eyes, with slightly curved inner margin and very thin base; second antennal segment relatively long, 2.5 to 4 times segment I, and thick, always narrower than segment I, sometimes club-like apically; third and fourth antennal segments relatively thick, almost as thick as segment I, club-like to drop-like; pronotal collar relatively large, frequently with four black spots; lateral margins of pronotum concave; humeral angles prominent and frequently pointed; pronotal callosities large, with lateral margins adjacent to lateral margin of pronotal disk in dorsal view; mesoscutum uncovered, large; femora and tibiae with short black denticles; cuneus as long as wide basally; and short, recumbent dorsal pilosity. Some species, e.g. *G. vicosensis*, possesses a few thin, erect, and elongate setae. All antennal segments bear, at least, very short recumbent pubescence; sometimes, some segments bear also few erect setae.

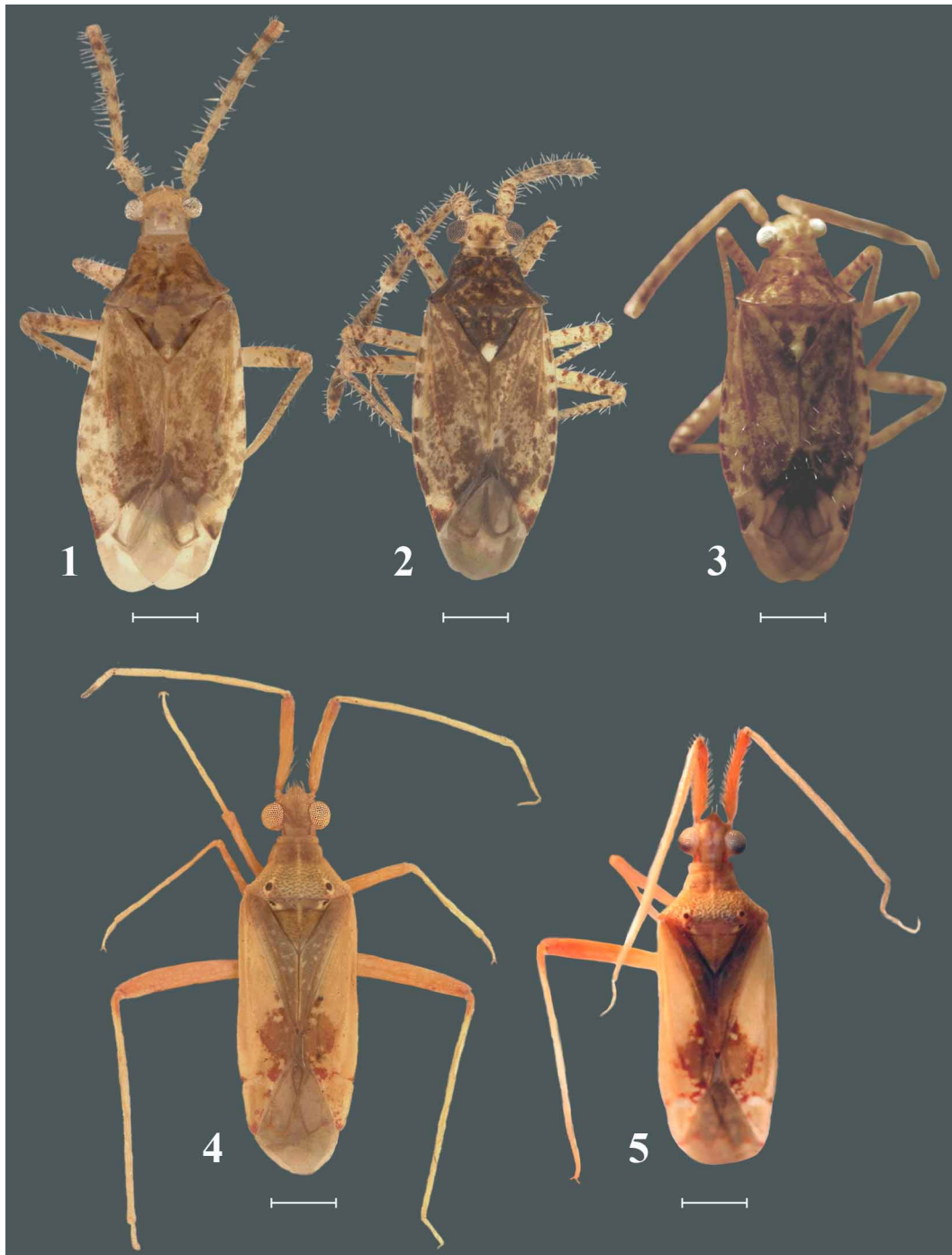
The three nominal species *Boliviomiris antennalis* (Fig. 1), *Pilosicerus pilosa* (Fig. 2) and *Pilosicerus rondoniensis* (Fig. 3) largely conform to our diagnosis of *Guianella*. They differ from the majority of *Guianella* species exclusively by the long, erect setae on the second antennal segment, the pronotal disk, and the hemelytra. The holotypes of these three species all have very similar setae of this type. Carvalho (1987, 1992) did not provide any other characters to separate *Boliviomiris* and *Pilosicerus* from *Guianella* and our examination did not reveal any diagnostic characters. The presence or absence of long setae on some body parts is not sufficient evidence to substantiate three separate Mirini genera. Consequently, we suggest the following synonymies: *Guianella* Carvalho, 1946 (valid name) = *Boliviomiris* Carvalho, 1987 (new junior subjective synonym) = *Pilosicerus* Carvalho, 1992 (new junior subjective synonym). This action provides for the two new combinations: *Guianella antennalis* (Carvalho, 1987) and *Guianella rondoniensis* (Carvalho, 1992).

In addition, the taxonomic validity of *G. antennalis* and *G. rondoniensis* seems doubtful. These nominal species are very similar and close to *G. pilosa*. They differ essentially by subtle shades of colour. *Guianella antennalis* is comparatively duller than the two other nominal species, some of its red exocorial patches verging on brown. *Guianella pilosa* and *G. rondoniensis* are brighter, *G. pilosa* being darker on the pronotum and scutellum than *G. rondoniensis*. The shape of the red patch on the vertex also differs between the latter two nominal species.

We interpret these minor differences as intraspecific color variations and, consequently, suggest the following synonymies: *Guianella pilosa* Maldonado & Carvalho, 1981 = *G. antennalis* (Carvalho, 1987) (new junior subjective synonym) = *G. rondoniensis* (Carvalho, 1992) (new junior subjective synonym).

Specimens examined. *Guianella nematocera*: Type: Holotype (♂): Panama: Canal Zone, Colón, Coco Solo Hospital, 15.ix.1972, D. Engleman leg. (USNM) [Coordinates: 09°21'N., 79°51'W.]. *Guianella pilosa*: Types: Holotype (♀): Panama: Canal Zone, Colón, Coco Solo Hospital, 12.ix.1972, D. Engleman leg. (USNM) [Coordinates: 09°21'N., 79°51'W.]. Holotype (♀) of *G. antennalis*: Bolivia: Sara, leg. S. Steibach (USNM) [Coordinates of Sara Province - unknown locality -: about 16°55'S., 63°37'W.]. Holotype (♀) of *G. rondoniensis*: Brazil: Rondonia, Preto, vii.1986, leg. Roppa (MNRJ) [Coordinates of Ouro Preto de Oeste: 10° 43'S., 62°15'W.]. *Guianella trimaculata*: Type: Holotype (♂): Panama: Canal Zone, Colón, Coco Solo Hospital, 07.ix.1972, D. Engleman leg. (USNM) [Coordinates: 09°21'N., 79°51'W.]. *Guianella tuberculifrons*: Type: Holotype (♂): Panama: La Cumbres, 14.vi.1974, light trap, H. Wolda leg. (USNM) [Coordinates: 09°06'N., 79°32'W.]. *Guianella vicosensis*: Type: Holotype (♂): Brazil: Minas Gerais, Viçosa, ix.1943, J. C. M. Carvalho leg. (MNRJ) [Coordinates: about 20°45'S.,

42°52'W.]. Other specimens: 2♀♀: Brazil: Minas Gerais, Rio Doce Park, iv.1978, collector unknown, compared with the type by J. C. M. Carvalho (MNRJ) [Coordinates: about 19°55'S., 43°58'W.].



FIGURES 1–5. Dorsal habitus of examined taxa. 1–3. Holotypes of *Guianella pilosa* and its junior synonyms. 1. Female holotype of *Boliviomiris antennalis*. 2. Female holotype of *Guianella pilosa*. 3. Female holotype of *Pilosicerus rondoniensis*. 4–5. *Urucuiana tuberculata*. 4. Male holotype. 5. Male specimen identified by Carvalho as *Bahiamiris cajabianus*. Scales = 1 mm.

Urucuiana

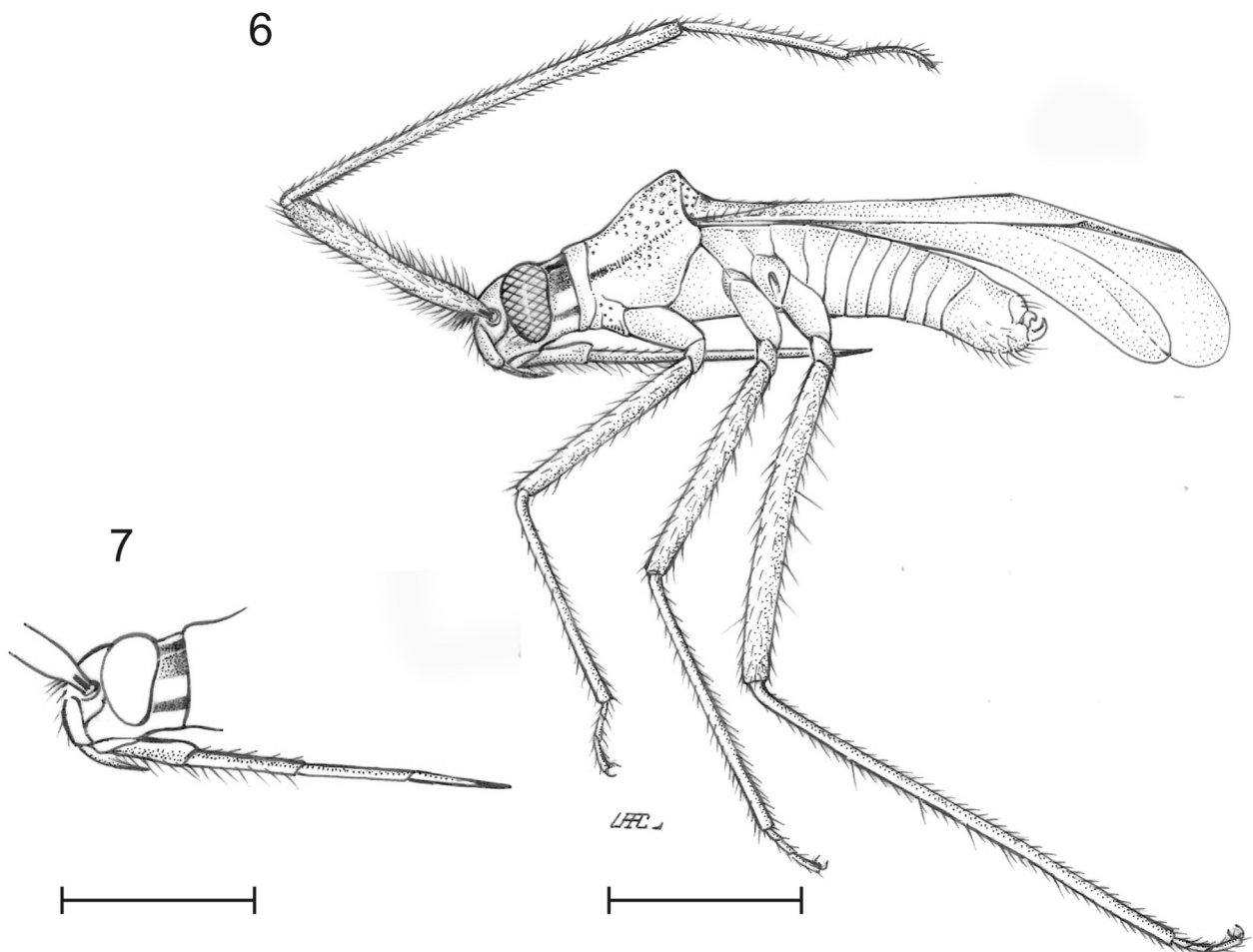
Urucuiana Carvalho and Rosas, 1965: 207–208 (n. gen.). Type species: *Urucuiana tuberculata* Carvalho and Rosas, 1965: 208 (n. sp.) by original designation and monotypy.

Bahiamiris Carvalho, 1975: 499 (n. gen.). Type species: *Bahiamiris rubroronatus* Carvalho, 1975: 500 (n. sp.) by original designation and monotypy. NEW SYNONYM.

Discussion. *Urucuiana* was described by Carvalho & Rosas (1965) to accommodate their new species *U. tuberculata* from Surinam, the type species, on the basis of the male holotype alone. The only subsequent mention of this species is in the current World catalog (Schuh, 1995: 971).

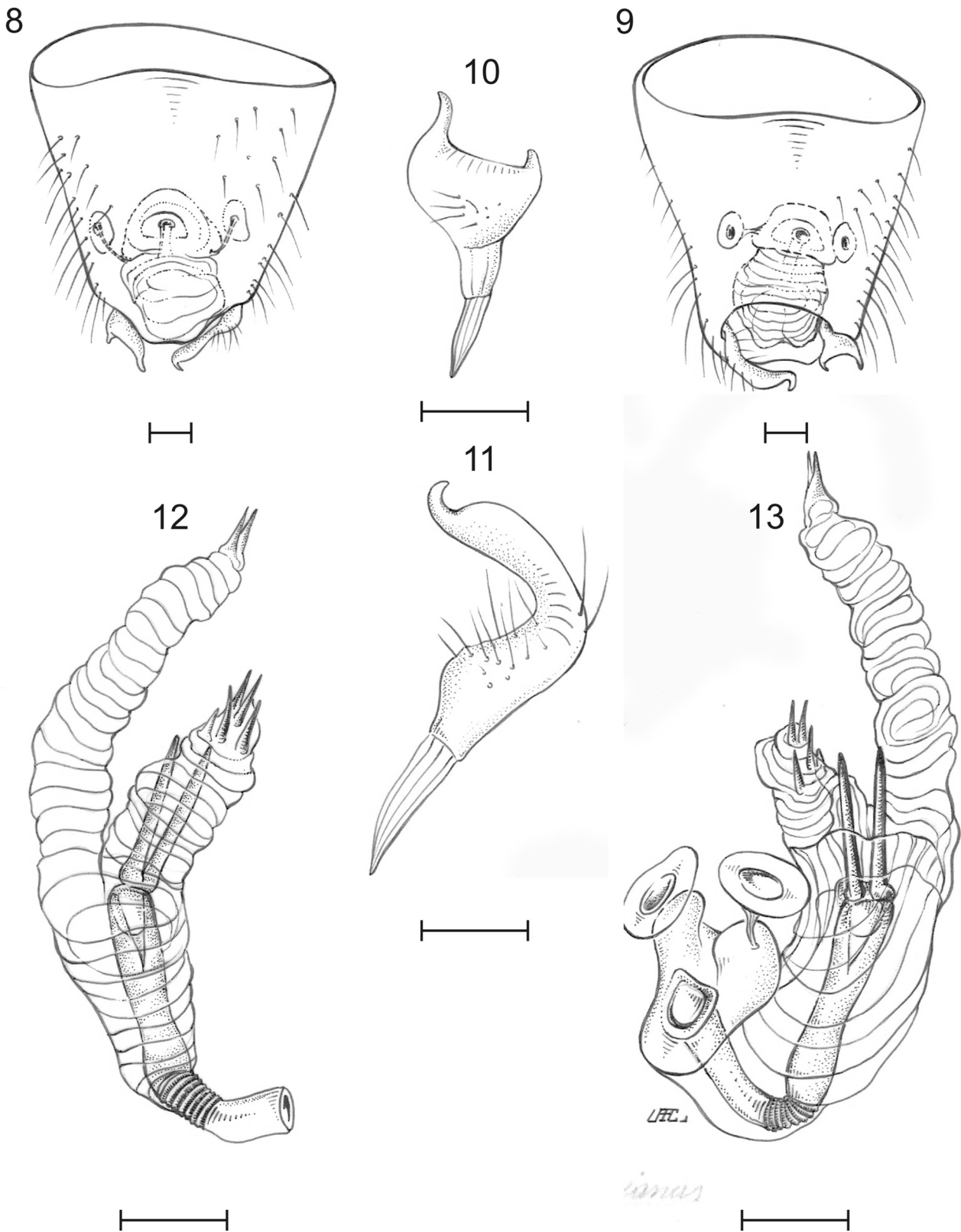
Bahiamiris was described by Carvalho (1975) to accommodate his new species *B. rubronatus* from Bahia, Brazil, the type species, on the basis of the female holotype. There was no subsequent mention of this species beyond the World catalog (Schuh, 1995: 701). Another species, *B. cajabianus*, was described two years later (Carvalho, 1977: 17–18) from Mato Grosso, Brazil, on the basis of the female holotype. It was also ignored in the subsequent literature, except for the World catalog (Schuh, 1995: 701). Nothing is known about the biology of these three nominal species and their known distribution is limited to the type localities.

Analysis of the three holotypes of these nominal species as well as analysis of one additional specimen from French Guyana identified as *Bahiamiris cajabianus* by Carvalho show the striking similarities of these plant bugs. Each of them largely conforms to the original descriptions of *Bahiamiris* and *Urucuiana*. The diagnostic features of both nominal genera are the following: elongated body, margins of hemelytra practically straight, slightly wider at apex of clavus; head horizontal, frons and first two antennal segments strongly pilose; lorae prominent; vertex lacking carina; eyes separated from the anterior margin of pronotum¹; first antennal segment elongated, thick, slightly curved and laterally flat, incrassate subbasally, after a short, cylindrical, narrow base; pronotal surface coarsely punctate; a pair of tubercular black spots in a shallow whitish concavity on the lateroposterior area of the disk; collar wide; callosities reduced; mesoscutum exposed, with lateral fossae; and pronotal disk and scutellum with a whitish median carinae.



FIGURES 6–7. Male of *Urucuiana tuberculata* (based on specimen from French Guyana identified as *Bahiamiris cajabianus* by Carvalho). 6. Body. 7. Head. Both in lateral view. Scales = 1 mm.

1. CARVALHO (1975: 499), in his description of the genus *Bahiamiris*, wrote «olhos (...) contíguos com a margem anterior do pronoto» (i.e., eyes contiguous with the anterior margin of pronotum). However, on his fig. 1, p. 500, of *B. rubronatus* holotype, the eyes are obviously separated.



FIGURES 8–13. Male genitalic structures of *Urucuiana tuberculata* (based on specimen from French Guyana identified as *Bahiamiris cajabianus* by Carvalho). 8–9. Pygophore. 10. Right paramere. 11. Left paramere. 12–13. Endophallus. Scales = 0,1 mm.

Consequently based on our observations we consider all the examined specimens as belonging to one same genus and suggest the following synonymy: *Urucuiana* Carvalho & Rosas, 1965 (valid name) = *Bahiamiris* Carvalho, 1975 (new subjective junior synonym). Two new combinations also result from our new synonymy: *Urucui-*

ana rubronata (Carvalho, 1975) (new combination) and *Urucuiana cajabiana* (Carvalho, 1977) (new combination).

Because external anatomy of the male holotype of *U. tuberculata* (Fig. 4), the female holotype of *Bahiamiris cajabianus*, and our additional specimens identified as *B. cajabianus* (Figs. 5–7) are practically identical, we recognize them as conspecific. The male genital structures of our additional specimen (Figs 9–13) confirm our conclusions; they are practically identical with Carvalho & Rosas' original drawings (1965, p. 4, figs 2–4) and very characteristic. We observe only a minor difference in the number of spicules at the apex of the small lobe of the endophallus. Our specimens have only two spicules. On Carvalho & Rosas' fig. 2 (*op. cit.*), there are four apical spicules, including two that are relatively small. We suspect these represent differences in phallic expansion and sclerotization, not the existence of two sister species. Therefore we suggest the following synonymy: *Urucuiana tuberculata* Carvalho & Rosas, 1965 (valid name) = *Urucuiana cajabiana* Carvalho, 1977 (new subjective junior synonym).

According to the list of Costa & *al.* (2008), French Guyana is a new country record for *U. tuberculata*. The species was described from Surinam and later reported from Mato Grosso, Brazil.

Examined specimens. *Urucuiana rubronata*: Type: Holotype (♀): Brazil, Bahia, Encruzilhada, Estrada Rio – Bahia, km 965, Motel da Divisa, xi.1972, leg. *Seabra & Roppa* (MNRJ) [Coordinates of Encruzilhada: about 40°, 54'W., 15°, 31' S.]. *Urucuiana tuberculata*: Types: Holotype (♂): Surinam, Kabeil, 19.v.1961, leg. *Van Doesburg, P. H. Jr* (USNM) [unidentified locality]. Holotype (♀) of *Bahiamiris cajabianus*: Brazil, Mato Grosso, Sinop, Rio Teles Pires, x.1975, *Alvarenga & Roppa* leg (MNRJ) [Coordinates: 55°29'W., 11°52'S.]. Other specimen: 1♂: French Guyana, highway number 2 to Regina, 67 km of Cayenne, 04.vi.1986, *Riley, E. G. & Rider, A.* (identified by Carvalho as *B. cajabianus*) (MNRJ) [Coordinates: 52°19'37"W., 04°25'48"N.].

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References

- Carvalho, J.C.M. (1946) Mirídeos Neotropicais, XXVI: Gênero *Herdonius* Stål e descrição de dois gêneros novos do Brasil e Guiana Holandesa. *Boletim do Museu Nacional, Zoologia*, 72, 1–14.
- Carvalho, J.C.M. (1947) Mirídeos Neotropicais, XXIX: *Itacoris* n. gen., e tres espécies novas do gêneros ja revistos. *Anais da Academia Brasileira de Ciencias*, 19 (1), 103–111.
- Carvalho, J.C.M. (1975) Mirídeos Neotropicais, CXCIV: Descrições de dois Gêneros e algumas Espécies novas (Hemiptera). *Revista Brasileira de Biologia*, 35 (3), 499–508.
- Carvalho, J.C.M. (1977) Mirídeos Neotropicais, CCIX: Descrições de quatro espécies novas e do macho de *Hadronemisca covadensis* Carvalho & Gomes. *Revista Brasileira de Biologia*, 37 (1), 17–22.
- Carvalho, J.C.M. (1987) Mirídeos Neotropicais, CCXXXI: Gêneros *Bolivomiris* novo genus e *Guaicurua* novo genus. (Hemiptera). *Revista Brasileira de Biologia*, 47 (4), 593–95.
- Carvalho, J.C.M. (1992) Mirídeos Neotropicais, CCCLI: Quatro Gênero e Espécies novos da América do Sul (Hemiptera). *Revista brasileira de Entomologia*, 36 (3), 581–588.
- Carvalho, J.C.M. & Costa, L.L.A. (1992) Mirídeos Neotropicais, CCCLXIX: Três Gêneros e Quatro Espécies Novos do Brasil. *Anais da Academia Brasileira de Ciencias*, 64 (2), 193–198.
- Carvalho, J.C.M. & Rosas, A.F. (1965) Mirídeos Neotropicais, XCV: Gênero e Espécies nova do Suriname, com uma lista de Espécies coligidas em Paramaribo. *Revista Brasileira de Biologia*, 25 (2), 207–210.
- Costa, L.A.A. Chérot, F. & Carpintero, D. (2008) Hétéroptères Miridae de Guyane française: liste préliminaire, descriptions de taxa nouveaux et données additionnelles. *Annales de la Société entomologique de France*, 44 (3), 345–371 (available online – free access – on Annals' website at <http://ann.sef.free.fr/>).
- Maldonado Capriles, J. & Carvalho, J.C.M. (1981) New species of *Guianella* Carvalho from Panama and a key to the species (Hemiptera, Miridae). *Revista Brasileira de Biologia*, 41 (2), 389–394.
- Schuh, R. T. (1995) *Plant bugs of the world* (Insecta: Heteroptera: Miridae). *Systematic Catalog, Distributions, Host List, and Bibliography*. Entomological Society of New York, New York. XII + 1329 pp.