



Monograph

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A taxonomic revision of *Habralictus* Moure, 1941 from Brazil, with description of four new species (Hymenoptera: Apidae)

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Abstract. *Habralictus* Moure, 1941 currently comprises 27 described species distributed across the Western Hemisphere, from Argentina to the Jalisco state in Mexico. The genus belongs to the Caenohalictini Michener, 1954 and has been divided into two subgenera in the past. This study aims to revise the species of *Habralictus* found in Brazil, providing redescriptions of known species, descriptions of new species, and identification keys for both sexes. A total of 1537 Brazilian specimens from different collections were examined. We identified eleven species in Brazil, four of which are newly described: *Habralictus acuminatus* sp. nov., *H. cyaneus* sp. nov., *H. nitidus* sp. nov., and *H. obscuratus* sp. nov. Furthermore, *Habralictus flavopictus* Moure, 1941, is considered a junior synonym of *Augochlora callichroma* Cockerell, 1901, and *Habralictus orites* Moure, 1941 a junior synonym of *Zikaniella crassiceps* Moure, 1941. We designate a lectotype for *Augochlora callichroma* Cockerell, 1901. Additionally, the new occurrence of *Habralictus ligeus* (Schrottky, 1911) in Brazil is reported, a species previously known only from Bolivia. Identification keys and occurrence maps are provided for all species.

Keywords. Bees, diversity, Halictinae, systematics.

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Introduction

Habralictus was described by Moure in 1941 based on the type species, *Habralictus flavopictus* Moure, 1941, and an additional 12 species. In the same work, Moure also described *Zikaniella* Moure, 1941, represented by a single species, *Zikaniella crassiceps* Moure, 1941. This species was known only from the male, characterized especially by the enlarged head. Michener (2000), as the first reviser, proposed *Zikaniella* as a subgenus of *Habralictus*, determining the precedence of *Habralictus* over *Zikaniella*. Later, Moure *et al.* (2007) considered *Habralictus* and *Zikaniella* as synonyms. Subsequently, Gonçalves & Melo (2010) recovered *Habralictus* s. str. as paraphyletic in relation to *Zikaniella*.

Habralictus was recovered as sister group to the remaining genera of the Caenohalictini Michener, 1954 in a morphological phylogeny (Gonçalves & Melo 2010). On the other hand, a molecular phylogeny recovered *Habralictus* as sister group to *Caenohalictus* Cameron, 1903 (Danforth *et al.* 2004). Its geographical distribution ranges from southern Brazil and northern Argentina to the state of Jalisco in Mexico (Michener 2007; Moure & Melo 2022). Distinctive characteristics include a small body size, glabrous compound eye or with short and sparse setae, labrum without basal elevation, a second submarginal cell with a short anterior margin, and a third submarginal cell that is nearly square, the hind femur possesses a scopa, and the posterior surface of the propodeum is not delimited by a carina, the metapostnotum is approximately twice the length of the metanotum, and yellow maculations are observed on the metasoma (Moure 1941; Michener 2007; Smith-Pardo 2009; Gonçalves & Melo 2010; Gibbs 2012). In males, the antenna is elongated, the scape is broad, and the metasoma is petiolate. Nests of *Habralictus canaliculatus* Moure, 1941 and *H. bimaculatus* Michener, 1979 are excavated in vertical earth banks (Michener *et al.* 1958, 1979). The only species studied in detail was *H. bimaculatus*. Some nests of *H. bimaculatus* are solitary but multifemale nests are common, and show signs of shared cell provisions, but no reproductive division of labour (Michener *et al.* 1979). No reproductive division or distinct castes were observed.

Roberts & Brooks (1987) indicated that the species are polylectic, as their scopa are not specialized. In Colombia, species of *Habralictus* have been recorded as floral visitors of *Croton magdalenensis* Müll.Arg., Euphorbiaceae Juss. (Gutiérrez-Chacón *et al.* 2022), Lauraceae Juss. (Muñoz *et al.* 2023), and Rubiaceae Juss. (Maldonado-Cepeda *et al.* 2024). In Brazil, species are frequently associated with Areaceae Bercht. & J.Presl (Paz *et al.* 2021). Ferreira (2022) highlighted the abundance of *Habralictus* collected using pan traps suspended 5 cm from the ground in tomato plantations located at the edge of the Serra do Rola-Moça State Park in Minas Gerais. Gibbs *et al.* (2022) commented on *Habralictus* from the Lesser Antilles predominantly collected with UV light traps, despite more frequent use of Malaise traps and daytime net collecting. In collections, males are often very abundant, generally in large series of collections, indicating gregarious behavior.

Recent species descriptions were isolated and centered on the Antilles (Smith-Pardo 2009; Gibbs 2012, 2016; Gibbs *et al.* 2022). Here, we provide a taxonomic review for the species of *Habralictus* occurring in Brazil. We describe four new species and provide redescriptions and identification keys for the Brazilian fauna.

Material and methods

A total of 1042 Brazilian specimens deposited in the Coleção Entomológica Pe. Jesus Santiago Moure at the Universidade Federal do Paraná, Curitiba (DZUP) were examined, along with 471 specimens deposited in the Coleção Entomológica Prof. J.M.F. Camargo, Universidade de São Paulo, Ribeirão Preto (RPSP), 17 specimens from the Coleção de Hymenoptera do Museu de Zoologia, Universidade de São Paulo, São Paulo (MZSP), and 7 specimens from the Coleção Entomológica do Centro de Coleções Taxonômicas at the Universidade Federal de Minas Gerais, Belo Horizonte (UFMG).

The holotypes of *Habralictus canaliculatus* Moure, 1941, *H. chlorobaptus* Moure, 1941, *Zikaniella crassiceps* Moure, 1941, *H. flavopictus* Moure, 1941, *H. macrospilophorus* Moure, 1941 and *H. orites* Moure, 1941 are deposited in the DZUP collection and were examined. The holotype of *Augochlora beatissima* (Cockerell, 1901) and a syntype of *Augochlora callichroma* (Cockerell, 1901) are deposited at the Carnegie Museum of Natural History (CM), Pittsburgh, USA. The lectotype of *Neocorynura ligea* Schrottky, 1911 is deposited in the Zoological Collection at the Museum für Naturkunde (ZMB) Berlin, Germany. Access to these specimens was made possible through photos provided by the museums.

In the material examined sections, double quotation marks (“”) are used to include an exact label transcription, simple slashes (/) are used to separate lines on the same label, and double slashes (//) to

Table 1. The sculpture and pilosity terminology, adapted from Harris (1979) and Gonçalves & Pereira (2022). Abbreviations: i = puncture interspace; pd = puncture diameter.

Class	Term	Description
microsculpture	polished	smooth, shiny, not microsculptured
	lineolate	longitudinally marked with very fine raised or depressed lines
	areolate	divided into a number of small, irregular spaces
	coriaceous	leather-like in texture, with minute cracks like human skin
	granulate	covered with or made up of very small grains or granules
microsculpture modifiers	strong(ly)	dense, perceptible giving a dull appearance
	weak(ly)	not dense, imperceptible, sometimes with a polished appearance
punctures	impunctate	not punctured
	punctate	set with fine, impressed points or punctures appearing as pin-pricks; ordinary, mean sized punctures
	punctulate	smaller punctures (less than 0.5 puncture diameter); finely punctate; with numerous minute and close set punctures
	puncticulate	sparsely punctate with very fine, widely spaced punctures
puncture modifiers	no modifier	i = pd
	densely	i < pd
	sparsely	i = 2–3 pd
	very sparsely	i several times larger than pd, i > 3 pd
	crowded	thickly clustered
pilosity	decumbent	setae lying along the surface, not erect
	plumose	setae with several branches
	tomentum	lying setae with a pulverulent aspect
	glabrous	smooth, devoid of pubescence

separate different labels of the same specimen. Descriptions and the identification keys were developed using the software DELTA (Descriptive Language for Taxonomy) (Dallwitz 1980; Dallwitz *et al.* 1999) following Dallwitz *et al.* (1993) and Coleman *et al.* (2010). The morphological terminology followed Eickwort (1969), Silveira *et al.* (2002), and Michener (2007). The nomenclature for integument sculpture was adapted from Harris (1979) and Gonçalves & Pereira (2022) (Table 1). The abbreviations used in the text are as follows: F (F1, F2, etc.) for flagellomeres; S (S1, S2, etc.) for the sterna of the metasoma; T (T1, T2, etc.) for the terga of the metasoma. When necessary, to describe more precisely the different sculpturing patterns found on mesepisternum regions, the area anterior to the episternal groove is referred to as the pre-episternum (sensu Eickwort 1969), while the region above the scrobal groove is referred to as the hypoepimeral area (sensu Eickwort 1969).

In the descriptions, 65 characteristics were used for females and 73 for males, organized by tagmata, body parts, specifically: structure, coloration, pilosity, punctations, and sculpturing, separated by semicolons (;). The descriptions of new species were based on characteristics of holotypes, and redescrptions were based

on located holotypes, lectotypes or identified vouchers. Variations were presented in a separate section, when pertinent. The identification keys are presented in the Results section.

The specimens were examined using the Zeiss Stemi DV4 stereo microscope, with a magnification of 51.2×. Mean measurements for ten individuals per species (when available) were taken for the following morphological features: total width and length of the head, clypeoantennal distance, distance between subantennal sutures, lower interocular distance, upper interocular distance, scape length, intertegular distance, T1, T2 and T3. These measurements were conducted using the same stereo microscope, adapted from Michener (2007).

Results

Class Insecta Linnaeus, 1758
Order Hymenoptera Linnaeus, 1758
Family Apidae Latreille, 1802
Subfamily Halictinae Thomson, 1869
Tribe Caenohalictini Michener, 1954

Genus *Habralictus* Moure, 1941
Figs 1–21

Habralictus Moure, 1941: 59. Type species: *Habralictus flavopictus* Moure, 1941.

Zikaniella Moure, 1941: 57. Type species: *Zikaniella crassiceps* Moure, 1941.

Diagnosis

Both females and males with small body size (~4–8 mm), generally with abundant metallic reflections on the head and mesosoma, compound eyes glabrous or with minute and sparse setae, labrum without basal elevation, posterior surface of propodeum not delimited by a carina, metapostnotum approximately twice the length of metanotum, and frequently with yellow maculations on the metasoma. Females with scopa on hind femur, paraocular fovea variable in length and shape but present, sterna covered with long plumose setae. Males with antenna elongated, metasoma petiolate (at least first two segments), and the inner spur of the hind tibia ciliated.

Distribution

Neotropical region.

Keys to *Habralictus* Moure, 1941 from Brazil

Females

1. Metasoma without yellow maculations; paraocular fovea apically detached from the eye margin near the inner orbit emargination (Fig. 1A–B); mesoscutum mostly lineolate, coriaceous posterior to median sulcus (Fig. 2A–C) 2
– Metasoma with yellow maculations; paraocular fovea attached to the eye throughout (Fig. 1C); mesoscutum variable (Fig. 2D–H): polished, lineolate, areolate 4
2. Tegula brown; mesepisternum strongly lineolate to coriaceous; mandible *usually* brown; clypeus *usually* areolate between the punctures; mesoscutum bright green, strongly lineolate
..... *H. canaliculatus* Moure, 1941 (Brazil: BA, ES, MA, MG, PR, PE, RJ, SC, SP)
– Tegula amber with a yellow maculation; mesepisternum punctulate and coriaceous, becoming polished ventrally; mandible *usually* yellow with darkened apex; clypeus polished between the punctures; mesoscutum bright green or with bluish or purple reflections, weakly lineolate 3

3. Metasoma dark brown without metallic reflections; mesoscutum mostly purple, *sometimes* with coppery reflections as well, sparsely punctulate (Fig. 2A)
 *H. beatissimus* (Cockerell, 1901) (Brazil: GO, MT, MG, SP)
- Metasoma with bluish reflections; mesoscutum bright blue-green, punctate to punctulate (Fig. 2C) *H. cyaneus* sp. nov. (Brazil: AP)
4. Pronotum dorsolateral surface forming an acute angle, *sometimes* with a projected tip (Fig. 2D–F) 5
- Pronotum dorsolateral surface forming an obtuse angle, or rounded, not forming an angle (Fig. 2G–H) 7
5. Mesoscutum bright green; metapostnotum lineolate anteriorly, becoming weakly coriaceous posteriorly; paraocular fovea extending from the base of eye to height of antennal socket; clypeus slightly depressed in the middle and polished between the punctures; supraclypeal area punctulate and polished between punctures; mandible amber; flagellum and pronotal lobe brown; metasoma maculations as follows: T2–T4 with very small lateral yellow maculations
 *H. crassiceps* (Moure, 1941) (Brazil: PR, RJ)
- Mesoscutum mostly dark; metapostnotum entirely areolate to coriaceous; paraocular fovea extending above beyond antennal socket, reaching the inner orbit emargination; clypeus not depressed in the middle and areolate between punctures; supraclypeal area punctulate and areolate between punctures; mandible yellow with darkened apex; flagellum mostly dark brown, ventrally light brown to yellow; pronotal lobe yellow; metasoma not as above 6
6. Mesoscutum dark olive green, *usually* with dark purple reflections forming stripes, apparently impunctate, strongly areolate (Fig. 2F); head covered with dense, decumbent setae, intermixed with erect setae; metapostnotum weakly depressed in the median posterior surface; metasoma maculations as follows: T2 with two lateral yellow maculations connected by a basal line (*sometimes* hidden by T1), T3 with two large yellow lateral basal maculations, occupying a third of the width of the tergum, T4 with two small yellow lateral maculations
 *H. macrospilophorus* Moure, 1941 (Brazil: GO, MG, PR, PE, RJ, SC, SP)
- Mesoscutum dark purple, punctulate, granulate-areolate (Fig. 2E); head covered with sparse, decumbent setae; metapostnotum not depressed; metasoma maculations as follows: T2–T4 with yellow lateral basal maculations *H. ligeus* (Schrottky, 1911) (Brazil: RO)
7. Fore coxa yellow; clypeus apical band yellow, projected upwards in the center 8
- Fore coxa brown; clypeus apical band brown 10
8. Clypeus polished between punctures; scape brown; metasoma maculations connected and forming bands on T2–T5 *H. nitidus* sp. nov. (Brazil: AC)
- Clypeus areolate between punctures; scape at least basally yellow; metasoma maculations not appearing connected 9
9. Mesoscutum with the anterior margin rounded (Fig. 2G); fore femur entirely yellow
 *H. callichroma* (Cockerell, 1901) (Brazil: AC, ES, GO, MT, MG, PR, RJ, SP)
- Mesoscutum with anterior margin acuminate-shaped (Fig. 2H); fore femur brown ventrally
 *H. acuminatus* sp. nov. (Brazil: SP)
10. Mesoscutum bright green, polished between punctures; mesepisternum punctulate and polished between punctures; paraocular fovea extending from base of eye beyond the antennal socket, reaching inner orbit emargination; clypeus and supraclypeal area polished between punctures; metapostnotum mostly polished, except for basal lineolation; T3–T5 with metallic reflections, T2–T4 with pairs of very small yellow lateral maculations; sternal scopa dense
 *H. chlorobaptus* (Cockerell, 1901) (Brazil: GO)

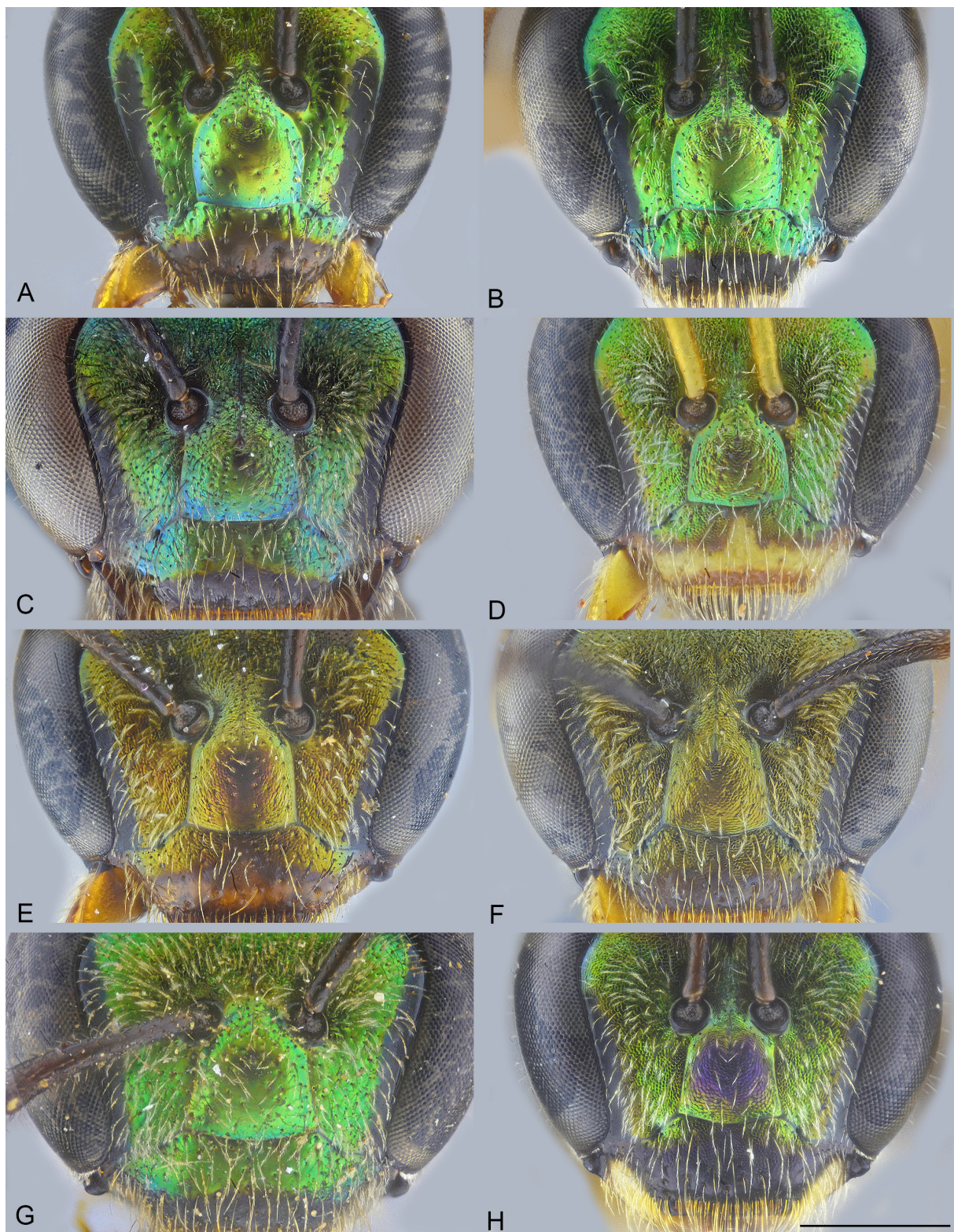


Fig. 1. Details of female head. **A.** *Habralictus beatissimus* (Cockerell, 1901). **B.** *H. canaliculatus* Moure, 1941. **C.** *H. crassiceps* (Moure, 1941). **D.** *H. callichroma* (Cockerell, 1901). **E.** *H. ligeus* (Schrottky, 1911). **F.** *H. macrospilophorus* Moure, 1941. **G.** *H. chlorobaptus* Moure, 1941. **H.** *H. obscuratus* sp. nov. DZUP. Scale bar = 0.5 mm.

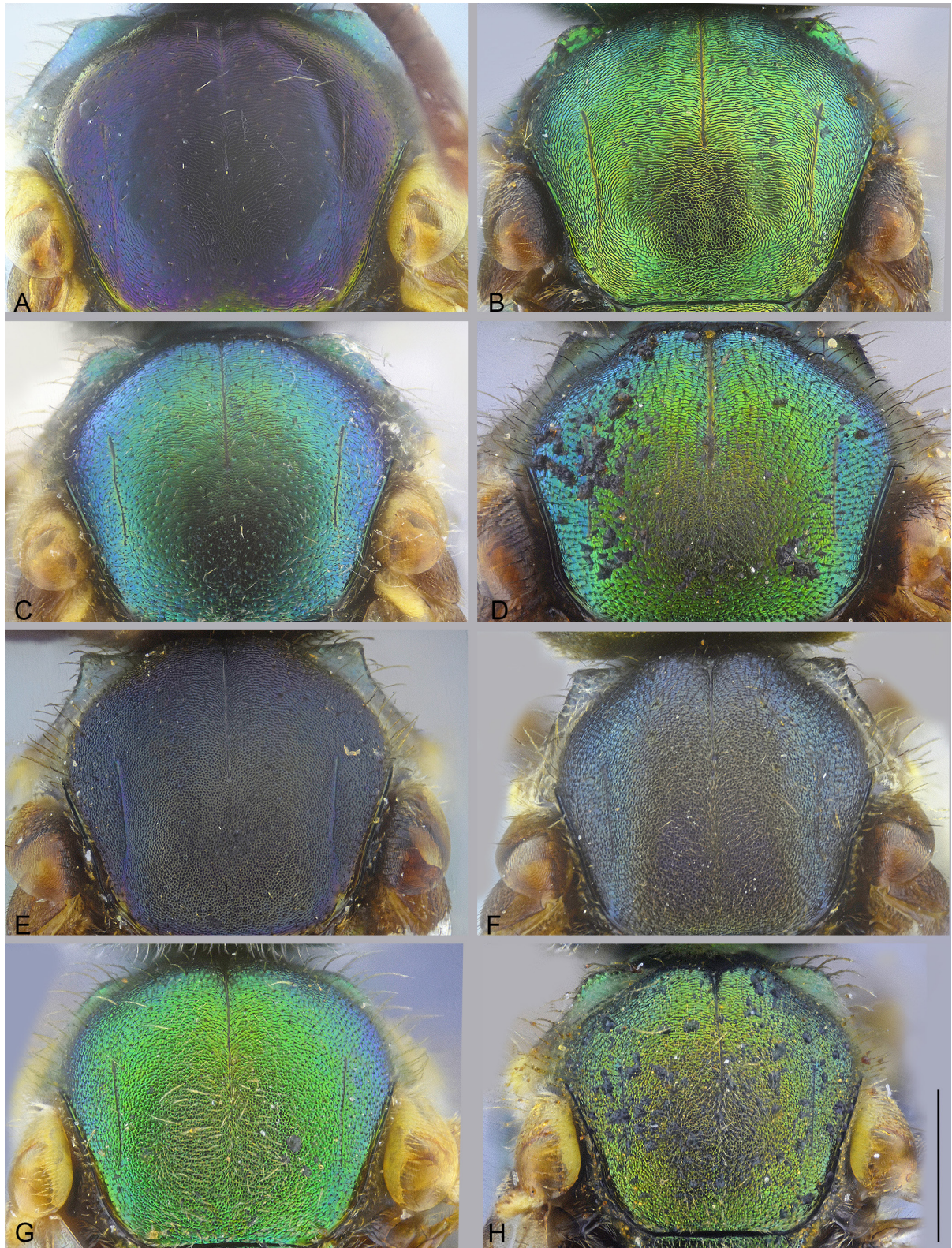


Fig. 2. Details of female mesoscutum. **A.** *Habralictus beatissimus* (Cockerell, 1901). **B.** *H. canaliculatus* Moure, 1941. **C.** *H. cyaneus* sp. nov. **D.** *H. crassiceps* (Moure, 1941). **E.** *H. ligeus* (Schrottky, 1911). **F.** *H. macrospilophorus* Moure, 1941. **G.** *H. callichroma* (Cockerell, 1901). **H.** *H. acuminatus* sp. nov. DZUP. Scale bar = 0.5 mm.

- Mesoscutum dark olive green with purple reflections, areolate between punctures; mesepisternum areolate; paraocular area fovea extending from base of eye to height of antennal socket; clypeus and supraclypeal area areolate between punctures; metapostnotum entirely areolate; terga without metallic reflections, maculations as follows: T2 with two small yellow lateral basal maculations, on remaining terga maculations progressively increasing in length, in T5 maculations occupying a little less than half of the width of the tergum; sternal scopa present but not dense *H. obscuratus* sp. nov. (Brazil: ES)

- Males** (males of *H. acuminatus* sp. nov., *H. nitidus* sp. nov., *H. chlorobaptus*, and *H. ligeus* are not known)
- 1. Metasoma without yellow maculations; F2–F11 mostly subequal in length and width 2
- Metasoma with yellow maculations; F2–F11 becoming more robust and slightly shorter apically ... 4

- 2. Mesoscutum with the anterior margin acuminate-shaped; pronotal lobe brown; mesoscutum punctulate *H. canaliculatus* Moure, 1941 (Brazil: BA, ES, MA, MG, PR, PE, RJ, SC, SP)
- Mesoscutum with the anterior margin rounded, not acuminate-shaped; pronotal lobe yellow; mesoscutum punctulate 3

- 3. Scutellum crowded lineolate; metapostnotum entirely lineolate to coriaceous; clypeus not flattened in the middle *H. cyaneus* sp. nov. (Brazil: AP)
- Scutellum bipunctate and polished between punctures; metapostnotum strongly lineolate in the center part of the anterior margin, the rest weakly lineolate (*sometimes* polished, resembling *H. callichroma*); clypeus slightly flattened in the middle *H. beatissimus* (Cockerell, 1901) (Brazil: GO, MT, MG, SP)

- 4. Paraocular fovea present; frons punctulate and polished between punctures, becoming more crowded toward median line; only first two segments of metasoma narrow and petiolate; S6 with an apical elevation; hind tibia inner spur pectinate *H. crassiceps* (Moure, 1941) (Brazil: PR, RJ)
- Paraocular fovea absent; frons strongly areolate (with a rough aspect); entire metasoma narrow and petiolate; E5 without apical elevation; hind tibia spur ciliated 5

- 5. Mesoscutum with anterior margin rounded, not acuminate-shaped; stipe at least basally yellow; scape at least basally yellow; tegula amber with a yellow band on the inner margin *H. callichroma* (Cockerell, 1901) (Brazil: AC, ES, GO, MT, MG, PR, RJ, SP)
- Mesoscutum with anterior margin acuminate-shaped; stipe and scape brown; tegula amber 6

- 6. Pronotal dorsolateral angle acute; metapostnotum surface raised in relation to the propodeum, especially posteriorly; metapostnotum and propodeum entirely areolate; clypeus slightly depressed in the middle *H. macrospilophorus* Moure, 1941 (Brazil: GO, MG, PR, PE, RJ, SC, SP)
- Pronotal dorsolateral angle obtuse; metapostnotum surface flat, at same level as propodeum; metapostnotum entirely lineolate to coriaceous; propodeum polished; clypeus not depressed in the middle *H. obscuratus* sp. nov. (Brazil: ES)

1. *Habralictus acuminatus* sp. nov.

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Figs 3, 21D

Diagnosis

Female with mesosoma bright green, pronotal dorsolateral angle obtuse, mesoscutum areolate, fore coxa yellow, terga with pairs of dorsolateral yellow maculations. Differs from *H. callichroma* by the acuminate-shaped anterior margin of mesoscutum, rounded in the latter, and the color of mid trochanter, yellow in the latter. The clypeus is areolate and the metasoma maculations are not connected as *H. nitidus* sp. nov. Male unknown.

Etymology

From the Latin '*acumen*', 'sharp point', and '*-atus*', 'having a condition', referring to the acuminate-shaped anterior margin of mesoscutum.

Type material

Holotype

BRAZIL – São Paulo • ♀; Cajuru, Fazenda Rio Grande; 21°12' S, 47°09' W; 29 Mar. 2003; Melo, Aguiar, Marchi and Gonçalves leg.; DZUP 522327.

Description

Female

HEAD. Head green with some coppery reflections; covered with sparse short white plumose setae. Labrum amber to light brown. Mandible yellow with darkened apex. Clypeus not depressed in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with dense short white decumbent setae, intermixed with longer erect setae; punctulate; areolate between punctures. Supraclypeal area puncticulate; areolate between the punctures. Paraocular fovea narrow and



Fig. 3. *Habralictus acuminatus* sp. nov., holotype, ♀ (DZUP 522327). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

extending from base of eye to the height of antennal socket, always contiguous to inner orbit. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape yellow ventrally. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe yellow. Tegula amber with a yellow band on the inner margin. Wing membrane hyaline. Mesoscutum anterior margin acuminate-shaped; surface green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; densely punctulate; strongly areolate between the punctures. Mesepisternum bright green; areolate. Metapostnotum not depressed in the median posterior surface; bright green; entirely areolate to coriaceous.

LEGS. Fore coxa and trochanter yellow, femur brown with a yellow tip or ventrally, tibia yellow, basitarsus amber. Mid coxa and trochanter brown, femur, tibia and basitarsus amber. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with yellow maculations, as follows: T2 with two small, yellow, basolateral maculations, progressively increasing in size towards T5 where the yellow maculations occupy a third of the width of the tergum; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; integumental surface lineolate. Sterna covered with long plumose setae.

MEASUREMENTS. Approximate body length 5.04 mm. Head width 1.36 mm; length 1.14 mm. Clypeoantennal distance 0.29 mm. Distance between subantennal sutures 0.34 mm. Lower interocular distance 0.76 mm. Upper interocular distance 0.78 mm. Scape length 0.64 mm. Intertegular distance 0.96 mm. T1 width 1.1 mm. T2 width 1.34 mm. T3 width 1.44 mm.

Male

Not known.

Distribution

Brazil: Cajuru, São Paulo, Brazil.

Comments

Habralictus acuminatus sp. nov. is described based only on a single female which is similar to that of *H. callichroma*; also, its type locality falls inside the distribution of the latter. However, the mesoscutum shape and the coloration of the mid trochanter are different between these species. These features do not vary among the several studied specimens of *H. callichroma*. We consider this as evidence enough to consider *H. acuminatus* as a separate species.

2. *Habralictus beatissimus* (Cockerell, 1901)

Figs 1A, 2A, 4–5, 20A, 21A

Augochlora beatissima Cockerell, 1901: 222.

Diagnosis

Females without yellow maculations on the metasoma and with paraocular fovea not contiguous to the eye margin near emargination. Easily differs from similar species by the dark mesoscutum, bright green in *H. canaliculatus* and blue green in *H. cyaneus* sp. nov. From the latter it is also distinguished by the absence of blue metallic reflections on the metasoma. From *H. obscuratus* sp. nov., it is distinguished by the yellow maculations on the terga and the areolate sculpturing of the head and mesoscutum of the latter.

Males without yellow maculations on the metasoma and with elongate flagellomeres. The anterior margin of the mesoscutum is rounded, not acuminate-shaped as *H. canaliculatus*. The scutellum is crowded lineolate, whereas in *H. cyaneus* sp. nov. it is polished between the punctures.

Type material

Holotype

BRAZIL – **Mato Grosso** • ♀; “Chapada// Jan// *Augochlora/beatissima*./Ckll. TYPE.// Type No./346/ Carn. Mus. Ent.// CMNH-IZ/724,553/ CMNH HOLOTYPE #346/*Augochlora/beatissima*/Cockerell”; CM, CMNH-IZ 724,553. Examined through photographs.

Other material examined

BRAZIL – **Goiás** • 2 ♂♂; Chapada dos Veadeiros, Fazenda Boa Vista; [14°10'44" S, 47°40'21" W]; 1190 m a.s.l.; 1 Apr. 2003; Melo, Aguiar, Marchi and Gonçalves leg.; Mata de Galeria; DZUP 522509, 522510 • 3 ♂♂; Santo Antônio do Descoberto; [15°43'24" S, 48°24'48" W]; 5–6 Jun. 2021; M.M. Carvalho leg.; RPS 22.4668, 22.4679, 22.4680. – **Mato Grosso** • 1 ♀; “DZUP/521328”//“Dec./CHAPADA/1957/C.W.T 346-Carnegie Museum”; DZUP 521328 • 2 ♀♀; Cáceres; [16°4'4.711" S, 57°40'42.226" W]; Dec. 1984; C. Elias leg.; POLONOROESTE; DZUP 521351, 522512 • 1 ♀; same data as for preceding; 9 Jan. 1985; DZUP 522513. – **Minas Gerais** • 4 ♂♂; Araxá; [19°35'5.858" S, 46°56'44.641" W]; 5 Apr. 1965; C. Elias leg.; DZUP 522499 to 522502 • 1 ♂; same data as for preceding; 22 Apr. 1965; DZUP 522503 • 3 ♀♀; Passos; [20°43'16.701" S, 46°36'30.538" W]; 8–10 Nov. 1951; C. Elias leg.; DZUP 521344 to 521346 • 1 ♂; same data as for preceding; DZUP 521348 • 3 ♀♀; Passos; [20°43'16.701" S, 46°36'30.538" W]; 5–10 Nov. 1961; C. Elias leg.; DZUP 522495 to 522497 • 1 ♂; Passos; [20°43'16.701" S, 46°36'30.538" W]; 20–25 Nov. 1961; C. Elias leg.; DZUP 522498 • 115 ♀♀; Patos de Minas; [18°35'51.931" S, 46°30'54.832" W]; 23 Nov. 1965; Claudionor Elias leg.; DZUP 521333 to 522489 • 6 ♂♂; same data as for preceding; DZUP 521343, 522490 to 522494 • 1 ♂; Perdizes; [19°20'31.774" S, 47°17'19.205" W]; 8 Apr. 1965; C. Elias leg.; DZUP 521350 • 2 ♂♂; Santa Juliana; [19°18'37.926" S, 47°30'51.440" W]; 4 Apr. 1965; C. Elias leg.; DZUP 522505, 522506 • 1 ♀; São Francisco; [15°57'2.111" S, 44°50'59.839" W]; Jul. 1985; C. Elias leg.; DZUP 522504 • 2 ♂♂; São Gotardo; [19°18'32.025" S, 46°3'20.432" W]; 11 Apr. 1965; C. Elias leg.; DZUP 522507, 522508 • 6 ♀♀; Paraopeba, Mannesmann Fazenda Itapoã; [19°17'45.228" S, 44°29'56.096" W]; 22 Dec. 1998; V. Silva leg.; Cerrado; UFMG 2651-7917 to 2651-7919, 2652-7-926, 2652-7928, 2652-7929. – **São Paulo** • 1 ♂; Ribeirão Preto; [21°10'8.650" S, 47°47'54.743" W]; 2 Dec. 1992; M. Mazucato leg.; C: 2349/ Pl: 199/ Hs: 12:19; RPS 5 ♂♂; same data as for preceding; 16 Dec. 1992; Pl:220/ Hs: 12:15 C: 3783-3787; RPS 1 ♂; same data as for preceding; 28 Dec. 1992; C: 4120/ Pl: 199/ Hs: 12:15; RPS 1 ♀; same data as for preceding; 4 Nov. 1992; C: 2676/ Pl: 199/ Hs: 12:15; RPS 1 ♂; same data as for preceding; 11 Nov. 1992; C: 2820/ Pl: 199/ Hs: 9:12; RPS 1 ♂; same data as for preceding; 18 Nov. 1992; C: 2939/ Pl: 010/ Hs: 12:15; RPS 2 ♂♂; same data as for preceding; 30 Nov. 1992; C: 3262/ Pl: 215/ Hs: 9:15 and C: 3264; RPS 4 ♂♂; same data as for preceding; 15 Oct. 1992; C: 2244/ Pl: 199/ Hs: 9:12, C: 2260, C: 2276 and C: 2253; RPS 4 ♂♂; same data as for preceding; 28 Oct. 1992; C: 2528/ Pl: 199/ Hs: 9:12 “C: 2529, C: 2530” and C: 2531; RPS 2 ♀♀; same data as for preceding; 16 Sep. 1992; C: 1419/ Pl: 199/ Hs: 9:12 and C: 1420; RPS; 3 ♂♂; same data as for preceding; C: 1425, C: 1426 and C: 1428; RPS 1 ♂; same data as for preceding; 30 Sep. 1992; C: 1842/ Pl: 199/ Hs: 9:12; RPS 7 ♂♂; same data as for preceding; 6 Apr. 1993; C: 6705/ Pl: 200/ Hs: 12:15 C: 6709, C: 6710, C: 6711, C: 6713, C: 6716 and C: 6720; RPS 1 ♀; same data as for preceding; 30 Apr. 1993; C: 7410/ Pl: 122/ Hs: 12:15; RPS 4 ♂♂; same data as for preceding; C: 7383, C: 7384, C: 7385 and C: 7386; RPS; 2 ♀♀; same data as for preceding; 17 Jan. 1993; C: 5216/ Pl: 142/ Hs: 9:12 and C: 5217; RPS 3 ♂♂; 24 Feb. 1993; C: 5398/ Pl: 142/ Hs: 12:15 C: 5452 and C: 5384; RPS 1 ♂; same data as for preceding; 26 Feb. 1993; C: 5500/ Pl: 142/ Hs: 9:12; RPS 9 ♂♂; same data as for preceding; 13 Jan. 1993; C: 4361/ Pl: 172/ Hs: 12:15 C: 4363, C: 4374, C: 4373, C: 4376, C: 4366,

C: 4369, C: 4371 and C: 4365; RPSP • 1 ♂; same data as for preceding; 27 Jan. 1993; C: 4701/ Pl: 199/ Hs: 12:15; RPSP • 1 ♂; same data as for preceding; 2 Jun. 1993; C: 8132/ Pl: 10/ Hs: 12:15; RPSP • 2 ♀♀; same data as for preceding; 14 Jun. 1993; C: 8368/ Pl: 215/ Hs: 9:12 and C: 8369; RPSP • 1 ♀; same data as for preceding; 16 Jun. 1993; C: 8379/ Pl: 10/ Hs: 12:15; RPSP • 1 ♂; same data as for preceding; C: 8368; RPSP • 3 ♂♂; same data as for preceding; 5 May 1993; C: 7510/ Pl: 122/ Hs: 12:15 C: 7512 and C: 7513; RPSP • 7 ♀♀; same data as for preceding; 7 May 1993; C: 7570/ Pl: 172/ Hs: 9:12, C: 7571, C: 7572, C: 7573, C: 7574, C: 7575 and C: 7576; RPSP • 9 ♂♂; same data as for preceding; C: 7553, C: 7581, C: 7554; RPSP • 2 ♂♂; same data as for preceding; 10 May 1993; C: 7680/ Pl: 173/ Hs: 12:15 and C: 7677; RPSP • 1 ♂; same data as for preceding; 14 May 1993; C: 7755/ Pl: 172/ Hs: 12:15; RPSP • 1 ♀; same data as for preceding; 10 May 199; C: 7778/ Pl: 10/ Hs: 9:12; RPSP • 5 ♂♂; same data as for preceding; C: 7770, C: 7772, C: 7795, C: 7796 and C: 7794; RPSP • 7 ♂♂; same data as for preceding; 24 May 1993; C: 7974/ Pl: 122/ Hs: 12:15, C: 7942, C: 7941, C: 7949, C: 7915, C: 7940 and C: 7948; RPSP • 2 ♂♂; same data as for preceding; 26 May 1993; C: 8008/ Pl: 122/ Hs: 9:12 and C: 8009; RPSP • 1 ♂; same data as for preceding; 28 May 1993; C: 8061/ Pl: 122/ Hs: 12:15 RPSP • 2 ♂♂; same data as for preceding; 1 Mar. 1993; C: 5582/ Pl: 142/ Hs: 12:15 and C: 5583; RPSP • 2 ♂♂; same data as for preceding; 3 Mar. 1993; C: 5658/ Pl: 142/ Hs: 9:12 and C: 5660; RPSP • 3 ♀♀; same data as for preceding; 3 Mar. 199; C: 5652/ Pl: 142/ Hs: 9:12, C: 5653 and C: 5651; RPSP • 1 ♀; same data as for preceding; 8 Mar. 1993; C: 5784/ Pl: 142/ Hs: 9:12; RPSP • 1 ♂; same data as for preceding; C: 5790; RPSP • 2 ♂♂; same data as for preceding; 10 Mar. 1993; C: 5832/ Pl: 110/ Hs: 12:15 and C: 5831; RPSP • 1 ♀; same data as for preceding; 22 Mar. 1993; C: 6220/ Pl: 110/ Hs: 9:12; RPSP • 2 ♂♂; same data as for preceding; C: 6227 and C: 6229; RPSP • 2 ♀♀; same data as for preceding; 24 Mar. 1993; C: 6170/ Pl: 142/ Hs: 12:15 and C: 6172; RPSP • 3 ♂♂; same data as for preceding; C: 6256, C: 6259 and C: 6264; RPSP.

Redescription

Female

HEAD. Head bright green; covered with very sparse short white plumose setae. Labrum amber to light brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; green, with an apical band brown; covered with sparse short white plumose setae and with a band of long apical decumbent setae; sparsely punctate intertwined with very fine punctures; polished between the punctures. Supraclypeal area with copper reflections; punctulate and polished between the punctures. Paraocular fovea extends from the base of the eye, not more than an ocellar distance beyond the antennal socket, not contiguous to the eye margin near emargination. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate, more crowded towards the frontal line giving a rough appearance and polished between the punctures. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or rounded. Pronotal lobe yellow. Tegula amber with a yellow band on the inner margin. Wing membrane hyaline. Mesoscutum anterior margin acuminate-shaped; surface mostly purple, sometimes with copper reflections; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; sparsely punctulate and lineolate to coriaceous between the punctures (with a lineolate appearance, but sometimes the lines connect forming a leather-like sculpture). Mesepisternum bright green. Pre-episternum crowded areolate. Hypoepimeral area coriaceous. Mesepisternum punctulate and coriaceous laterally, becoming polished ventrally. Metapostnotum not depressed in the median posterior surface; bright green; entirely lineolate.

LEGS. Fore coxa brown, trochanter amber, femur brown with a yellow tip or ventrally, tibia and basitarsus yellow. Mid coxa and trochanter brown, femur, tibia and basitarsus amber. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown without yellow maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; T1–T5 lineolate. Sterna covered with long plumose setae, denser and longer in S3 > S2 > S4 > S5 > S1.

MEASUREMENTS. Approximate body length 5.04 mm. Head mean width 1.39 mm, mean length 1.26 mm; Clypeoantennal mean distance 0.3 mm. Mean distance between subantennal sutures 0.37 mm. Lower interocular mean distance 0.71 mm. Upper interocular mean distance 0.79 mm. Scape mean length 0.59 mm. Intertegular mean distance 0.99 mm. T1 mean width 1.16 mm. T2 mean width 1.52 mm. T3 mean width 1.56 mm.

Male

HEAD. Head bright green, with copper reflections; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipes brown. Clypeus slightly flattened in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with very sparse short white decumbent setae and with a band of long apical setae; puncticulate; polished between the punctures. Supraclypeal area green; puncticulate, becoming more densely punctate towards upper part; polished between the punctures, but areolate closer to the antenna. Paraocular fovea absent. Paraocular area sculpturing

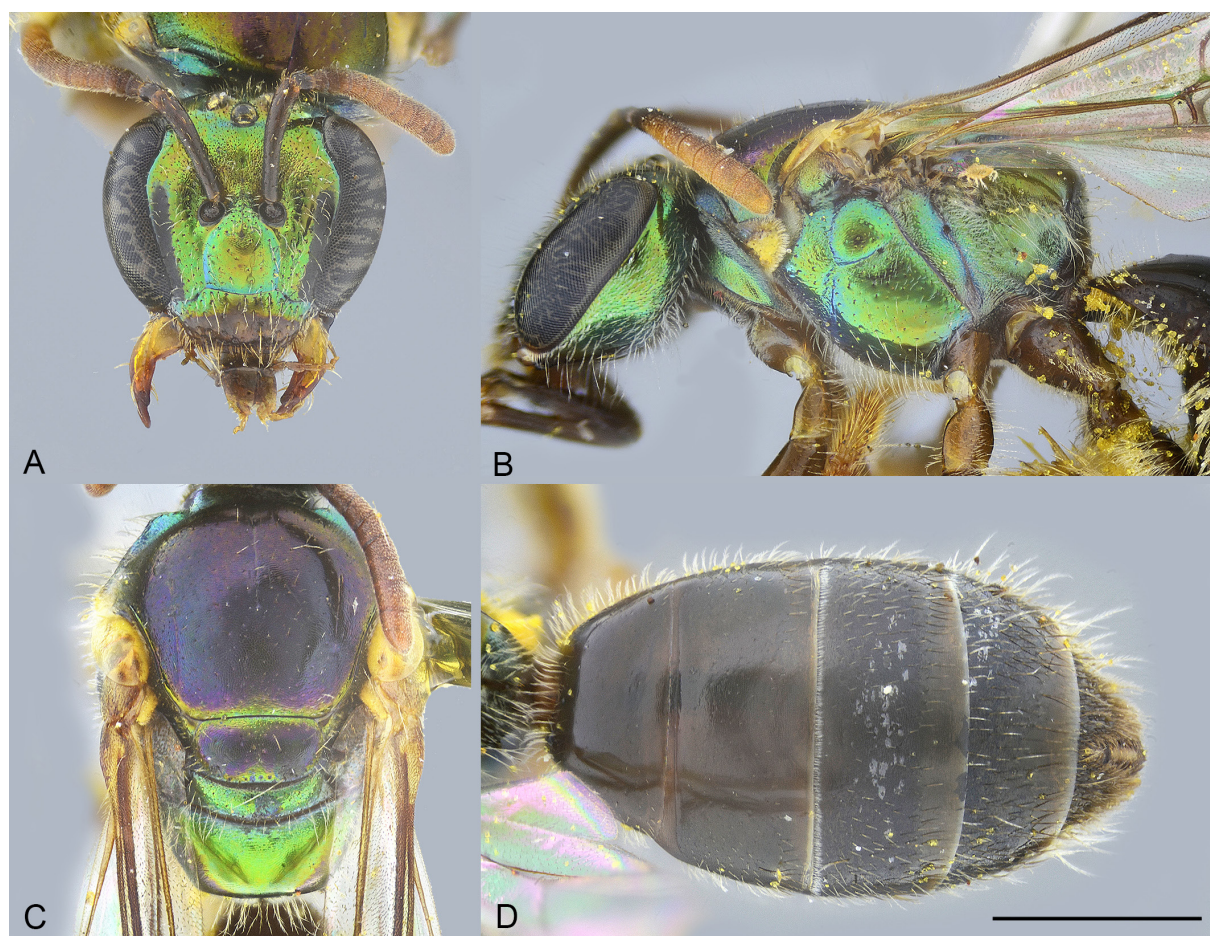


Fig. 4. *Habralictus beatissimus* (Cockerell, 1901), non-type, ♀ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

similar to that of the supraclypeal area. Frons densely punctulate; strongly areolate (with a rough aspect) between the punctures. Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 mostly subequal. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or with a rounded aspect. Pronotal lobe yellow. Tegula amber, sometimes with a yellow band on the inner margin. Wing membrane hyaline. Mesoscutum with the anterior margin rounded, not acuminate-shaped; surface bright green, may present some copper reflections; covered with very sparse and short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; with a polished aspect, weakly lineolate near the anterior median line. Scutellum bipunctulate and polished between the punctures. Mesepisternum bright green; punctulate and polished between the punctures. Metapostnotum surface flat/at the same level as the propodeum; bright green; very lineolate in the central portion of the anterior margin, the remaining surface more weakly lineolate.

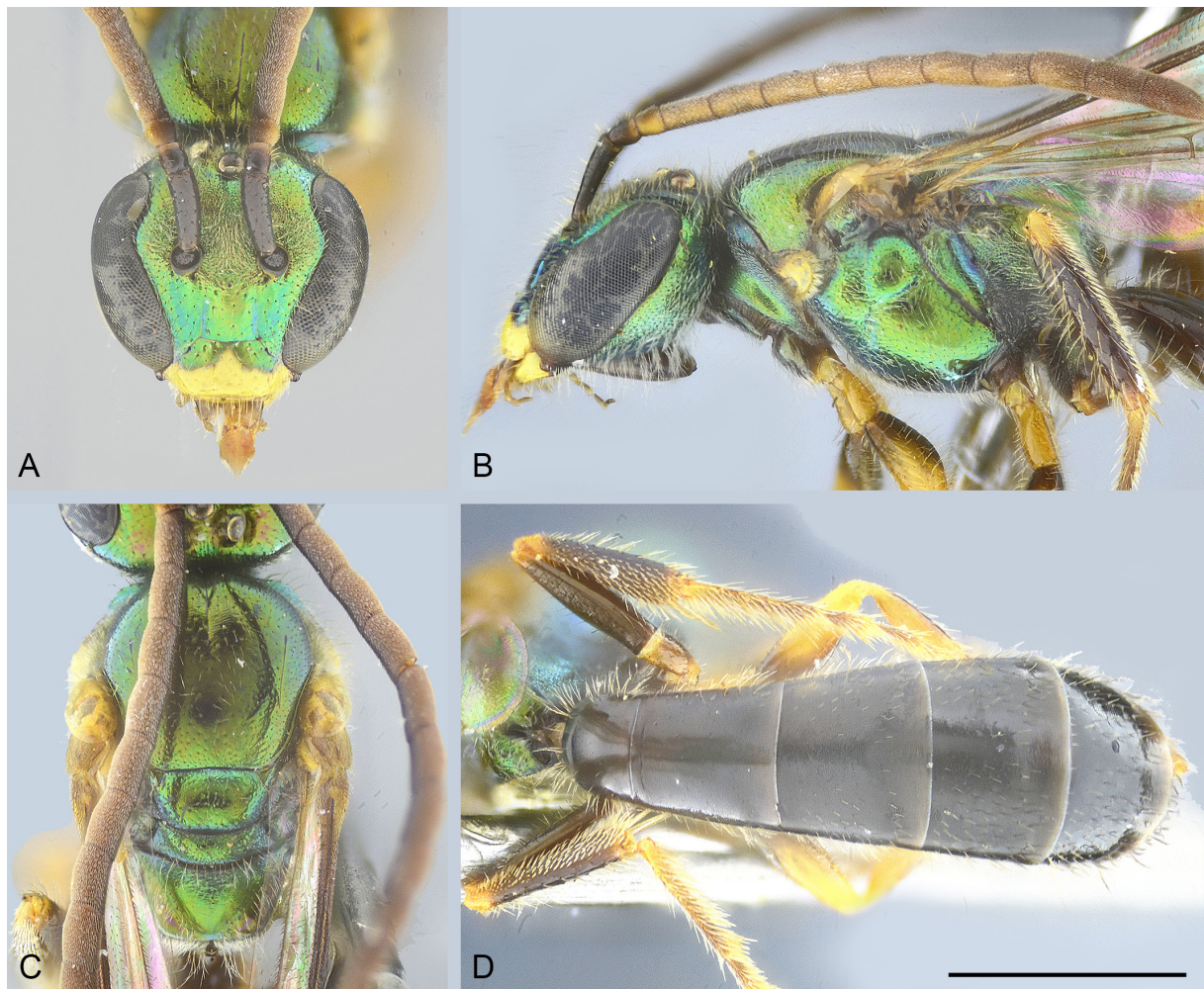


Fig. 5. *Habralictus beatissimus* (Cockerell, 1901), non-type, ♂ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

LEGS. Fore coxa brown, remaining segments yellow. Mid coxa brown, trochanter yellow, femur mostly yellow, with a brown apex or ventrally, tibia brown with a yellow apex, basitarsus yellow. Hind coxa and trochanter brown, femur brown with a yellow tip, tibia brown, basitarsus amber.

METASOMA. Terga about the same width, clavate; dark brown; without yellow maculations; with short decumbent setae very sparsely distributed in T1, which progressively becomes denser towards T6; T1–T6 lineolate. S5 without any projection.

GENITALIA. Gonobase expanded, about as long as gonocoxite, without basal projection. Gonocoxite short, basal portion of the dorsal inner margin forming a long digitiform projection, apical portion also developed, with gonapophysis median lateral projections occupying this space. Gonapophysis apex slender, dorsally with strong median lateral projections. Gonostylus basal lobe transverse, with short setae; ventral process slender, with small setae elsewhere and long setae apically, dorsal process membranous. Volsella short and rounded.

MEASUREMENTS. Approximate body length 5.08 mm. Head mean width 1.2 mm; mean length 1.14 mm. Clypeoantennal mean distance 0.29 mm. Mean distance between subantennal sutures 0.27 mm. Lower interocular mean distance 0.46 mm. Upper interocular mean distance 0.68 mm. Scape mean length 0.38 mm. Intertegular mean distance 0.78 mm. T1 mean width 0.45 mm. T2 mean width 0.58 mm. T3 mean width 0.75 mm.

Variation

Some female specimens have an apical yellow band on the clypeus, which is projected upwards in the center. Metapostnotum is usually areolate, but in some male specimens mostly polished, resembling *H. callichroma*.

Distribution

Brazil: Goiás, Mato Grosso, Minas Gerais, São Paulo.

3. *Habralictus callichroma* (Cockerell, 1901)

Figs 1D, 2G, 6–7, 20D, 21C

Augochlora callichroma Cockerell, 1901: 221.

Habralictus flavopictus Moure, 1941: 62, syn. nov.

Diagnosis

Females with mesosoma bright green, pronotal dorsolateral angle obtuse, mesoscutum areolate, fore coxa yellow, terga with pairs of dorsolateral yellow maculations. Differs from *H. acuminatus* sp. nov., by the rounded anterior margin of the mesoscutum. It can be distinguished from *H. nitidus* sp. nov. by the areolate clypeus.

Males, in addition to the characters mentioned in females, with flagellomeres F2–F11 becoming more robust and slightly shorter toward the apex, without paraocular fovea, and can be separated from the males of other species by the yellow stipe and scape.

Type material

Lectotype of *Augochlora callichroma* (designated here, see Taxonomic remarks)

BRAZIL – **Mato Grosso** • ♀ (labeled as holotype); “Chapada// Dec.// *Augochlora/callichroma*./Ckll TYPE// Type No./ 347/ Carn.Mus.Ent.// CMNH-IZ/724,554// CMNH HOLOTYPE #347/*Augochlora/callichroma*/ Cockerell”; CM, CMNH-IZ 724,554. Examined through photographs.

Holotype of *H. flavopictus*

BRAZIL – São Paulo • ♀; “DZUP/521301// Rio Claro (S.P.)/ V-1939// HOLOTIPO// ALOTIPO// *flavopictus*/ m./ Det. J.S.Moure 19”; DZUP 521301. A male paratype is pinned together with the holotype.

Paratypes of *H. flavopictus*

BRAZIL – São Paulo • 2 ♂♂; “DZUP/521302 // Rio Claro (S.P.) / V-1939// PARATYPUS *flavopictus*// *Habralictus/ flavopictus*/m./ Det. J.S.Moure 19”; DZUP 521302.

Other material examined

BRAZIL – Acre • 1 ♀; Mâncio Lima, Parque Nacional da Serra do Divisor; [07°33'24" S, 73°16'36" W]; 24 Oct. 1996; E.F. Morato leg.; “Rio Azul, Sítio 8/no. 971909”; RPSP • 1 ♂; Rio Branco, Parque Zoobotânico UFAC; [9°57'3.113" S, 67°52'7.541" W]; A.H. Machado and E.M. Santos leg.; “1322”; RPSP. – Espírito Santo • 1 ♂; Santa Teresa; [19°55'44.271" S, 40°35'55.976" W]; 27 Aug. 1967; C.T. and C. Elias leg.; DZUP 521380 • 1 ♂; same data as for preceding; 5 Apr. 1967; DZUP 522292 • 1 ♂; same data as for preceding; 11 Aug. 1966; DZUP 522293 • 1 ♂; same data as for preceding; 27 Feb. 1964; DZUP 522294. – Goiás • 18 ♂♂; Chapada dos Veadeiros, Fazenda Boa Vista; [14°10'44" S, 47°40'21" W]; 1190 m a.s.l.; 1 Apr. 2003; Mata de Galeria; Melo, Aguiar, Marchi and Gonçalves leg.; DZUP 521352, 522311 to 522326, 522509 • 1 ♀; same data as for preceding; DZUP 522310 • 1 ♂; Alvorada do Norte, “Faz. Mattos”; [14°28'58.766" S, 46°29'28.260" W]; 10 Jul. 1991; S.T.P. Amarante and C.F. Martins leg.; MZSP, MZSP HYM 0140637. – Mato Grosso • 1 ♀; “DZUP/521329// Jan./ Chapada/ *callichroma* Ckll. 1957”; DZUP 521329 • 1 ♀; “DZUP/521330// Chapada/ Brazil/ Acc. No. 2966”; DZUP 521330 • 1 ♀; Chapada dos Guimarães; 15°27'32.293" S, 55°44'41.971" W; 30 Jan. 1955; Sebastião Laroca leg.; DZUP 522290 • 1 ♀; “DZUP/522291// Chapada/Brazil/ Acc. No.2966”; DZUP 522291. – Minas Gerais • 14 ♀♀; Araxá; [19°35'5.858" S, 46°56'44.641" W]; 25 Dec. 1965; C. Elias leg.; DZUP 522202 to 522215 • 1 ♂; same data as for preceding; DZUP 522216 • 1 ♀; same data as for preceding; 22 Apr. 1965; DZUP 522217 • 7 ♂♂; same data as for preceding; DZUP 522218 to 522224 • 1 ♀; same data as for preceding; 20 Aug. 1965; C.T. and C. Elias leg.; DZUP 522225 • 6 ♂♂; same data as for preceding; 15 Apr. 1965; C. Elias leg.; DZUP 522226 to 522231 • 1 ♀; same data as for preceding; 17 Dec. 1965; C.T. and C. Elias leg.; DZUP 522232 • 1 ♀; same data as for preceding; 14 Nov. 1965; C. Elias leg.; DZUP 522233 • 1 ♀; Brazópolis; [22°28'26.143" S, 45°37'0.470" W]; Dec. 1961; Claudionor Elias leg.; DZUP 522284 • 1 ♂; same data as for preceding; DZUP 522285 • 1 ♂; Cambuquira; [21°50'59.030" S, 45°17'50.467" W]; Feb. 1941; Lopes and Gomes leg.; DZUP 522289 • 128 ♀♀; Ibiá; [19°29'20.080" S, 46°32'31.368" W]; 10 Dec. 1965; C. Elias leg.; DZUP 521929 to 521995 • 38 ♂♂; same data as for preceding; DZUP 522067 to 522102 • 79 ♀♀; same data as for preceding; 17 Dec. 1965; C. Elias leg.; DZUP 521349 to 521370, 521994 to 522066 • 23 ♂♂; same data as for preceding; DZUP 521371 to 521372, 522104 to 522124 • 1 ♀; same data as for preceding; 18 Jun. 1965; DZUP 521993 • 1 ♂; same data as for preceding; DZUP 522103 • 1 ♀; same data as for preceding; 20 Oct. 1992; DZUP 521992 • 1 ♂; Passos; [20°43'16.701" S, 46°36'30.538" W]; 8 Nov. 1951; C. Elias leg.; DZUP 521347 • 168 ♀♀; same data as for preceding; 5–10 Nov. 1961; DZUP 521668 to 521842 • 62 ♂♂; same data as for preceding; DZUP 521848 to 521910 • 2 ♀♀; same data as for preceding; 13–18 Nov. 1961; Claudionor Elias; DZUP 521832, 521846 • 4 ♀♀; same data as for preceding; 20–25 Nov. 1961; DZUP 521833 to 521834, 521843, 521844 • 3 ♂♂; same data as for preceding; DZUP 521909, 521921 to 521922 • 1 ♀; same data as for preceding; 5–10 Nov. 1961; DZUP 522532 • 2 ♀♀; same data as for preceding; 1–3 Nov. 1962; DZUP 521835, 521836 • 3 ♂♂; same data as for preceding; 1–7 Sep. 1962; DZUP 521918 to 521920 • 1 ♀; same data as for preceding; 28 Nov.–7 Dec. 1962; DZUP 521837 • 2 ♂♂; same data as for preceding; DZUP 521923, 521924 • 1 ♂♂; same data as for preceding; 12–17 Nov. 1962; DZUP 521925 • 1 ♀; same data as for preceding; 15–21 Aug. 1962; DZUP 521847 • 1 ♀; same data as for preceding; 22–31 Aug. 1962; DZUP 521845 • 4 ♂♂; same data as for preceding; DZUP 521914 to 521917 • 3 ♂♂; same data as for preceding; 9–15 Mar. 1962; DZUP 521911 to 521913 • 1 ♀; same data as for preceding; 1–3 Nov. 1962; DZUP 522533 • 1 ♀; same data as for preceding; 12–17

Aug. 1963; DZUP 521831 • 3 ♂♂; same data as for preceding; Aug. 1963; DZUP 521926 to 521928 • 1 ♀; same data as for preceding; 12–17 Aug. 1963; DZUP 522534 • 34 ♀♀; Patos de Minas; [18°35'51.931" S, 46°30'54.832" W]; 23 Nov. 1965; Claudionor Elias leg.; DZUP 521373, 521374, 522125 to 522156 • 50 ♂♂; same data as for preceding; DZUP 522157 to 522201 • 7 ♂♂; Perdizes; [19°20'31.774" S, 47°17'19.205" W]; 8 Apr. 1965; C. Elias leg.; DZUP 521381, 522272 to 522275, 522535, 522536 • 15 ♂♂; Santa Juliana; [19°18'37.926" S, 47°30'51.440" W]; 4 Apr. 1965; C. Elias leg.; DZUP 522234 to 522248 • 15 ♂♂; São Gotarbo; [19°18'32.025" S, 46°3'20.432" W]; 11 Jun. 1965; C. Elias leg.; DZUP 522249 to 522263 • 1 ♀; São Roque, P.N. Serra da Canastra; 20.2549° S, 46.4197° W; 1310 m a.s.l.; 14–19 Dec. 2013; Melo and Rosa; Malaise; DZUP 52258 • 3 ♂♂; Tapira; [19°55'15.233" S, 46°49'26.463" W]; 27 May 1965; C. Elias leg.; DZUP 522286 to 522288 • 1 ♀; Viçosa; [20°45'19.790" S, 42°52'45.043" W]; 5 Oct. 1992; G.A.R. Melo; DZUP 522264 • 3 ♂♂; same data as for preceding; DZUP 522265 to 522267 • 2 ♀♀; same data as for preceding; 7 Oct. 1992; DZUP 522268, 522269 • 3 ♂♂; same data as for preceding; DZUP 522265 to 522267 • 2 ♀♀; same data as for preceding; 7 Oct. 1992; DZUP 522268, 522269 • 2 ♂♂; same data as for preceding; DZUP 522270, 522271 • 8 ♂♂; Viçosa, UFV, mata da caixa da água; [20°45'42.378" S, 42°52'0.625" W]; 1 Jul. 1992; G. Melo; em flor de *Guapira* sp.; DZUP 522276 to 522283 • 1 ♂; Paraopeba, Mannesmann Fazenda Itapoã; 19°17'45.228" S, 44°29'56.096" W; 22 Oct. 1998; V. Silva leg.; “Cerrado”; UFMG 2655-7946 • 1 ♂; São José do Barreiro, Serra da Canastra; [20°18'49.605" S, 46°28'40.004" W]; 3–4 Jul. 1988; Camargo Aily leg.; “98533”; RPSP • 1 ♂; same data as for preceding; “98534”; RPSP • 1 ♀; São José de Barreiro; [20°20'39.784" S, 46°29'2.58" W]; 1600 m a.s.l.; 8–9 Mar. 1992; Camargo leg.; “920101”; RPSP • 1 ♀; Cônego Marinho; 15°18' S, 44°25' W; 13–15 Mar. 1988; M. Mazucato leg.; “880531”//“880553”; RPSP • 1 ♀; same data as for preceding; “880547”; RPSP • 1 ♂; “880549”; RPSP • 1 ♂; “880548”; RPSP • 1 ♂; same data as for preceding; “880546”; RPSP • 1 ♀; same data as for preceding; “880551”; RPSP • 1 ♀; Passos; [20°43'16.701" S, 46°36'30.538" W]; 6–10 Nov. 1951; C. Elias leg.; RPSP • 1 ♂; Ritópolis; [21°01'34.1" S, 44°19'09.3" W]; 19 Jan. 1974; M. Mazucato, Velthius and J.M.F. Camargo leg.; “SF-23,44-21d”; RPSP. – **Paraná** • 1 ♀; Londrina, Campus UEL; [23°19'29.988" S, 51°11'59.233" W]; 15 Apr. 1992; S.H. Sofia leg.; DZUP 521303 • 1 ♀; same data as for preceding; 31 Mar. 1992; DZUP 521331 • 1 ♀; Ponta Grossa, Parque Estadual de Vila Velha, Área 1; 25°18'53" S, 49°59'35" W; 1 Nov. 2023; Gonçalves, Graf and Pundek leg.; DZUP 605199 • 1 ♂; same data as for preceding; DZUP 605158 • 4 ♂; same data as for preceding; 9 Jan. 2024; DZUP 606120 to 606123 • 1 ♂; same data as for preceding; 1 May 2024; DZUP 606934. – **Rio de Janeiro** • 1 ♀; Itatiaia, Faz. Penedo; [22°26'18.960" S, 44°31'30" W]; 2 Nov. 1942; Wygodzinsky leg.; DZUP 522300. – **São Paulo** • 1 ♂; Lençóis [Lençóis Paulista]; [22°36'1.632" S, 48°47'52.99" W]; Dec. 1939; Pe. Pereira leg.; DZUP 521312 • 1 ♂; Rio Claro; [22°24'44" S, 47°33'35.736" W]; Dec. 1939; Pe. Pereira leg.; DZUP 521311 • 1 ♂; Rifaina; [20°4'46.824" S, 47°25'31.913" W]; 28 Oct. 1965; C. Elias leg.; DZUP 522299 • 1 ♀; São Paulo, IBUSP; [23°33'56.727" S, 46°43'45.996" W]; 1 Jun. 1982; F. Knoll leg.; 10:45 Hs./ Planta 122 Área A; DZUP 521304 • 2 ♂♂; same data as for preceding; 16 Apr. 1982; 15:15 Hs./ Planta 15 Área A; DZUP 521305, 521307 • 1 ♂; same data as for preceding; 1 Jun. 1982; 15:45 Hs./ Planta 15 Área A; DZUP 521306 • 1 ♀; same data as for preceding; 2 Mar. 1982; 10:35 Hs.; DZUP 521332 • 3 ♂♂; Ubatuba; [23°26'10.414" S, 45°5'1.524" W]; Jan. 1984; I.A. Camp./Palmito; DZUP 521308 to 521310 • 1 ♀; Campinas, Bosque dos Jequitibás; 22°54'31.0" S, 47°02'52.5" W; 6–21 May 1986; Alexandre Ruzsczyk leg.; Malaise trap; DZUP 522301 • 1 ♂; Campinas, Bairro Cidade Universitária; [22°49'11.222" S, 47°4'8.246" W]; 10–24 Nov. 1986; Alexandre Ruzsczyk leg.; Malaise; DZUP 522305 • 1 ♂; same data as for preceding; 24 Nov.–11 Dec. 1986; DZUP 522306 • 2 ♂♂; same data as for preceding; 7–22 Apr. 1986; DZUP 522307, 522308 • 2 ♂♂; same data as for preceding; 3–17 Mar. 1987; DZUP 522302, 522303 • 1 ♂; same data as for preceding; 4–6 Feb. 1987; DZUP 522304 • 1 ♂; same data as for preceding; 19 Jan.–4 Feb. 1987; DZUP 522309 • 3 ♀♀; Ribeirão Preto, Campus USP; [21°9'35.764" S, 47°49'11.493" W]; 9 Oct. 1999; Melo leg.; DZUP 522295 to 522297 • 1 ♀; Teodoro Sampaio, P.E. Morro do Diabo; [22°30'5.221" S, 52°19'28.969" W]; 14 Feb. 1999; G.A.R. Melo leg.; DZUP 522298 • 2 ♀♀; Nova Europa, Faz. Itaquerê; [21°46'42.950" S, 48°33'41.501" S]; 24–21 Aug. 1965; Lenko and Pereira leg.;

MZSP, MZSP HYM 0131382, 0140626 • 2 ♂♂; Salesópolis, Est. Biol. Boracéia; [23°31'45.049" S, 45°50'40.480" W]; 2 Oct. 1992; W. Wilms leg.; *Habralictus/flavopictus*/Moure, 1941/ det W Wilms, 1994; MZSP, MZSP HYM 0140627, 0140629 • 1 ♂; same data as for preceding; 22 Apr. 1992; MZSP, MZSP HYM 0140628 • 1 ♀; “063//F190354 Faz. Sta. Carlota/ Cajuru-SP-Brasil/ hs 10-12/03-VI-1988// Cerrado-063/ *Didymopanax/ vinosum*(C85) March/ Araliaceae”; RPS • 1 ♂; “073// F190625/ Faz. Sta. Carlota/ Cajuru-SP-Brasil/ hs 14-16/28-VII-1988// Cerrado-Fl 073/ *Gochnatia barrosii*/ Cabrera COMPOSITAE”; RPS • 1 ♂; “073// F190624/ Faz. Sta. Carlota/ Cajuru-SP-Brasil/ hs 14-16/28-VII-1988// Cerrado-Fl 073/ *Gochnatia barrosii*/ Cabrera COMPOSITAE”; RPS • 1 ♂; “073// F190623/ Faz. Sta. Carlota/ Cajuru-SP-Brasil/ hs 14-16/28-VII-1988// Cerrado-Fl 073/ *Gochnatia barrosii*/ Cabrera COMPOSITAE”; RPS • 1 ♂; “Faz. Sta. Carlota/ Cajuru 27-I-1992 / SP-Brasil 910193/ M. Mazucato leg.”; RPS • 1 ♂; “900119/ Faz. Sta. Carlota/ Cajuru-SP-Brasil/ 02-IV-1990/ Camargo leg”; RPS • 1 ♂; Cajuru; [21°16'31.797" S, 47°18'2.504" W]; 29 Jan. 1988; M. Mazucato; “880305”; RPS • 1 ♂; same data as for preceding; “880306”; RPS • 1 ♂; same data as for preceding; “880307”; RPS • 1 ♂; Corumbataí, Cerrado do Corumbataí; [22°13'20.586" S, 47°37'10.11" W]; 5 Aug. 2000; S.R Andena leg.”; RPS • 3 ♂♂; Ribeirão Preto; [21°10'8.650" S, 47°47'54.743" W]; 3 Nov. 1977; M. Mazucato leg.; “SF-23,48-21d”; RPS • 1 ♀; same data as for preceding; 20 Nov. 1991; “910857”; RPS • 23 ♂♂; same data as for preceding; RPS • 89 ♂♂; same data as for preceding; 4 Dec. 1991; “910888”-“910932”; RPS • 30 ♀♀; same data as for preceding; 17 Dec. 1991; “910983”-“910997”; RPS • 1 ♂; same data as for preceding; 10 Jul. 1992; C: 0314/ Pl: 104/ Hs: 12:15; RPS • 1 ♂; same data as for preceding; 9 Sep. 1992; C: 1251/ Pl: 064/ Hs: 12:15; RPS • 4 ♀♀; same data as for preceding; 16 Sep. 1992; C: 1421/ Pl: 199/ Hs: 9:12 1421–1443; RPS • 16 ♂♂; same data as for preceding; 16 Dec. 1992; C: 1427/ Pl: 199/ Hs: 9:12 1427–1443; RPS • 1 ♂; same data as for preceding; 23 Oct. 1992; C: 1625/ Pl: 199/ Hs: 12:12; RPS • 1 ♂; Ribeirão Preto; [21°10'8.650" S, 47°47'54.743" W]; 29 Sep. 1992; Tavares leg./M. Mazucato leg; C: 1711/ Pl: 83/ Hs: 12:15; RPS • 3 ♂♂; Ribeirão Preto; [21°10'8.650" S, 47°47'54.743" W]; 30 Sep. 1992; M. Mazucato leg.; C: 1843/ Pl: 199/ Hs: 9:12 1843–1845; RPS • 1 ♂; same data as for preceding; 9 Oct. 1992; M. Mazucato leg.; C: 2091/ Pl: 010/ Hs: 9:12; RPS • 34 ♂♂; same data as for preceding; 15 Oct. 1992; C: 2248/ Pl: 199/ Hs: 9:12//2248–2335; RPS • 1 ♂; same data as for preceding; 26 Oct. 1992; C: 2463/ Pl: 142/ Hs: 12:15; RPS • 8 ♀♀; same data as for preceding; 28 Oct. 1992; C: 2520/ Pl: 199/ Hs: 9:12 2520-2527; RPS • 27 ♂♂; same data as for preceding; 28 Oct. 1992; C: 2532/ Pl: 199/ Hs: 9:12 2532-2558; RPS • 4 ♀♀; same data as for preceding; 4 Nov. 1992; C: 2675/ Pl: 199/ Hs: 12:15 2675-2679; RPS • 32 ♂♂; same data as for preceding; C: 2680/ Pl: 199/ Hs: 12:15 2680–2709; RPS • 4 ♂♂; same data as for preceding; RPS • 22 ♂♂; same data as for preceding; 18 Nov. 1992; C: 2938/ Pl: 010/ Hs: 9:12 2938–2986; RPS • 9 ♀♀; same data as for preceding; 23 Nov. 1992; C: 3076/ Pl: 215/ Hs: 12:15 3076–3084; RPS • 8 ♂♂; same data as for preceding; 18 Nov. 1992; C: 3075/ Pl: 215/ Hs: 12:15 3075; 3085–3092; RPS • 1 ♂; same data as for preceding; 16 Dec. 1992; C: 3788/ Pl: 220/ Hs: 12:15; RPS • 1 ♂; same data as for preceding; 28 Dec. 1992; C: 4121/ Pl: 219/ Hs: 12:18; RPS • 1 ♂; same data as for preceding; 11 Mar. 1993; C: 5917/ Pl: 142/ Hs: 9:12; RPS • 1 ♂; same data as for preceding; 10 May 1993; C: 7682/ Pl: 173/ Hs: 12:15; RPS • 1 ♂; same data as for preceding; 11 Nov. 1992; C: 2817/ Pl: 199/ Hs: 9:12 2817-2821; RPS.

Redescription

Female

HEAD. Head bright green with some copper reflections; covered with sparse short white plumose setae. Labrum amber to light brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with very sparse short white plumose setae and with a band of long apical decumbent setae; sparsely punctate intertwined with very fine punctures; areolate between the punctures. Supraclypeal area green with copper reflections; punctulate and areolate between the punctures. Paraocular fovea extends from the base of the eye to the antennal socket, always contiguous to the eye margin. Paraocular area sculpturing

similar to that of the supraclypeal area. Frons puncticulate; strongly areolate (with a rough aspect). Gena covered with short decumbent white setae. Scape at least basally yellow. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or rounded. Pronotal lobe yellow. Tegula amber with yellow band on inner margin. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface bright green; covered with very short tomentum and few sparse darker erect setae, more visible from oblique view; sparsely puncticulate; strongly areolate to areolate. Mesepisternum bright green; crowded areolate. Metapostnotum not depressed posteromedially; bright green; entirely areolate to coriaceous.

LEGS. Fore leg yellow. Mid leg yellow. Hind leg mostly yellow. Hind femur with dense, long, plumose setae.

METASOMA. Terga dark brown with yellow maculations, as follows: T2 with two small, yellow basolateral maculations triangular-shaped, progressively increasing in width towards T5 where the maculations

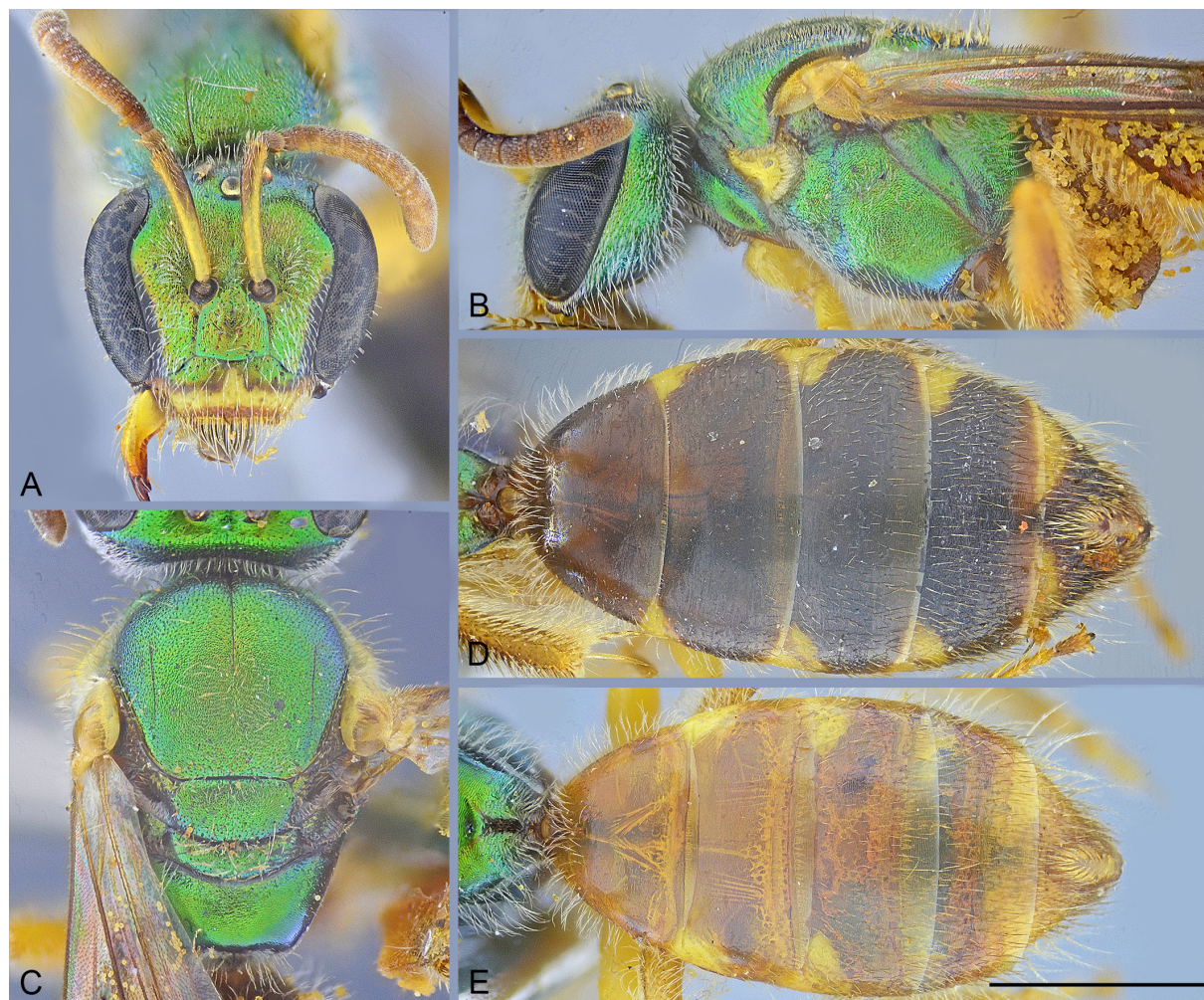


Fig. 6. *Habralictus callichroma* (Cockerell, 1901), non-type, ♀ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. **E.** Amber metasoma in dorsal view. Scale bar = 0.5 mm.

narrowly separated, and are not connected; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in S3>S2>S4>S5>S1.

MEASUREMENTS. Approximate body length 5.2 mm. Head mean width 1.39 mm, mean length 1.2 mm. Clypeoantennal mean distance 0.26 mm. Mean distance between subantennal sutures 0.31 mm. Lower interocular mean distance 0.75 mm. Upper interocular mean distance 0.79 mm. Scape mean length 0.64 mm. Intertegular mean distance 0.96 mm. T1 mean width 1.16 mm. T2 mean width 1.48 mm. T3 mean width 1.56 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipe at least basally yellow. Clypeus slightly flattened in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse short white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, becoming more densely punctate towards the upper part; polished between the punctures, but areolate closer to the antenna. Paraocular area fovea absent. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; strongly areolate (with a rough aspect) between the punctures. Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape at least basally yellow; with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 becoming shorter and more robust to the apex. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or with a rounded aspect. Pronotal lobe yellow. Tegula amber with a yellow band on the inner margin. Wing membrane hyaline. Mesoscutum with the anterior margin rounded, not acuminate-shaped; surface bright green; covered with very sparse and short tomentum and few sparse darker erect setae, more visible from an oblique view; more densely punctulate; polished between the punctures. Scutellum punctulate and polished between the punctures. Mesepisternum bright green; punctulate and polished between the punctures, more impunctate towards the posterior margin. Metapostnotum surface flat/at the same level as the propodeum; bluish green; crowded coriaceous in the central portion of the anterior margin, the remaining surface polished.

LEGS. Fore leg yellow. Mid leg mostly yellow. Hind leg mostly yellow.

METASOMA. Terga clavate form (about the same width, apex more dilated); dark brown with yellow maculations, as follows: T2–T4 with yellow basal bands, sometimes hidden by the terga looking like separate maculations; with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S5 without any projection.

GENITALIA. Gonobase at least three times shorter than the gonocoxite, with basal projection. Gonocoxite elongate, basal portion of the dorsal inner margin forming a sinuose flange. Gonapophysis slender, apex weakly rounded, longer than the gonostylus, curved ventrally. Gonostylus basal lobe very small, with short setae; ventral process slender, with small setae elsewhere and long setae apically, dorsal process expanded. Volsella short and rounded.

MEASUREMENTS. Approximate body length 5.2 mm. Head mean width 1.24 mm; mean length 1.13 mm. Clypeoantennal mean distance 0.26 mm. Mean distance between subantennal sutures 0.27 mm. Lower interocular mean distance 0.48 mm. Upper interocular mean distance 0.71 mm. Scape mean length 0.3 mm. Intertegular mean distance 0.81 mm. T1 mean width 0.54 mm. T2 mean width 0.68 mm. T3 mean width 0.85 mm.

Variation

Some female specimens with stipe yellow only basally; metasoma varying from black to ferruginous, always with yellow maculations. A female from Vila Velha, Ponta Grossa, Paraná has the metapostnotum ferruginous and not green. Some male specimens have the posterior portion of the metapostnotum very weakly coriaceous. Some specimens have their hind leg entirely brown.

Distribution

Brazil: Acre, Espírito Santo, Goiás, Mato Grosso, Minas Gérias, Paraná, Rio de Janeiro, São Paulo.

Taxonomic remarks

The only morphological difference that could justify the names *H. callichroma* and *H. flavopictus* for separate species would be the coloration of the metasoma. *Augochlora callichroma* was originally described as having a ferruginous metasoma with small dark brown spots on T1 and T2, extending to the rest of the terga. This may have led Moure to describe *H. flavopictus* as a separate species based on the brown metasoma. However, we found evidence for one species with specimens showing variation in metasomal coloration, ranging from entirely brown to entirely ferruginous. This led us to synonymize both names with *Augochlora callichroma* as subjective senior synonyms.

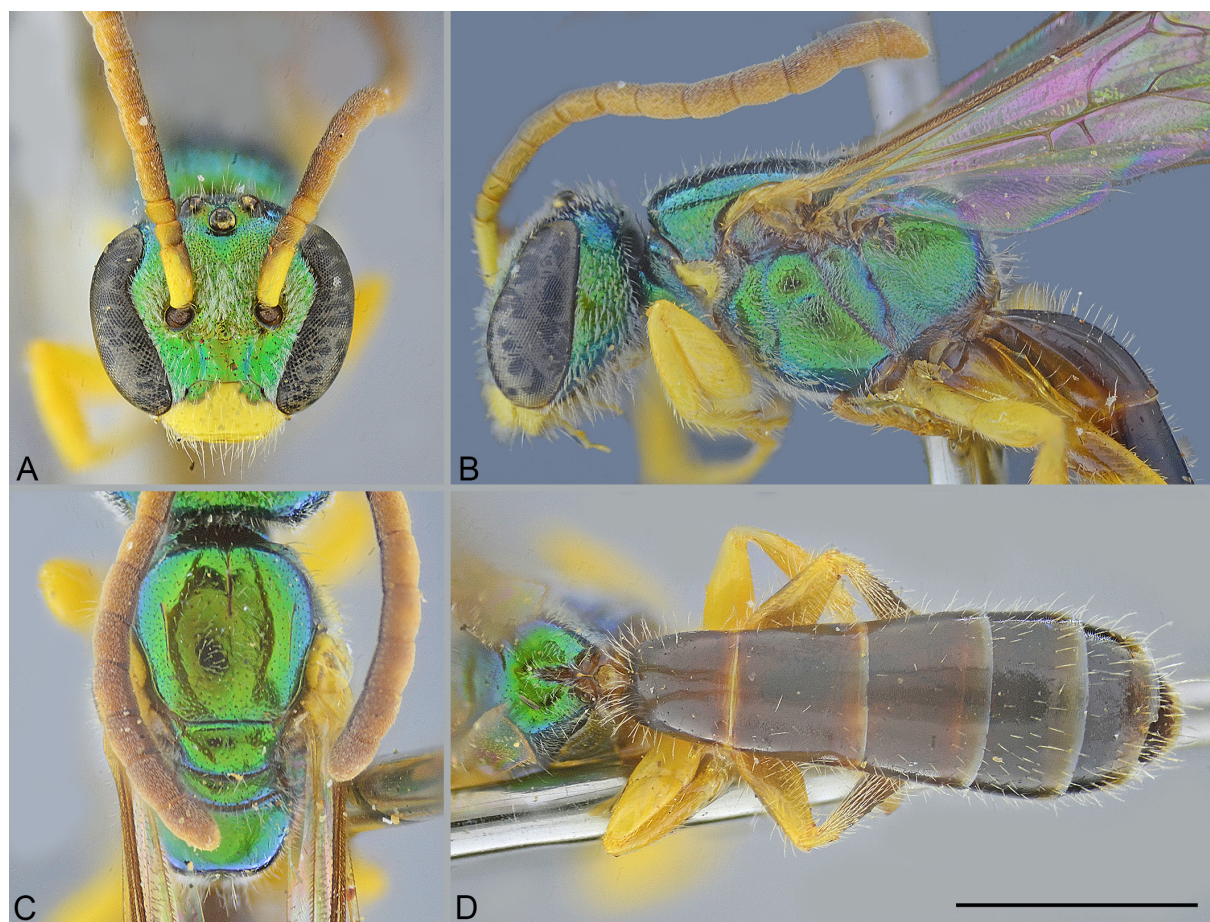


Fig. 7. *Habralictus callichroma* (Cockerell, 1901), non-type, ♂ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

Cockerell (1901) described *A. callichroma* from five specimens, all from Chapada, in Brazil, collected in December and January. Although the CM specimen is labeled as a holotype, Moure *et al.* (2007) correctly considered it as a syntype. This specimen (“CMNH-IZ/724,554”) is here designated lectotype to stabilize the nomenclature.

4. *Habralictus canaliculatus* Moure, 1941
Figs 1B, 2B, 8–9, 20F, 21A

Habralictus canaliculatus Moure, 1941: 64.

Diagnosis

Females without yellow maculations and metallic reflections on the metasoma and with paraocular fovea not contiguous to the eye margin near emargination. Easily differs from similar species by the bright green mesoscutum, dark colored in *H. beatissimus* and blue green in *H. cyaneus* sp. nov. It can be also distinguished by the strong lineolate mesoscutum, more weak in the other species.

Males without yellow maculations on the metasoma and with elongate flagellomeres. The anterior margin of the mesoscutum is acuminate-shaped, not rounded as *H. beatissimus* and *H. cyaneus* sp. nov. From the latter it is also distinguished by the more punctured and lineolate mesoscutum and by mesepisternum not polished between the punctures, but weakly lineolate.

Type material

Holotype

BRAZIL – **Rio de Janeiro** • ♀; Itatiaia; [22°29'17.3" S, 44°33'49.873" W]; 5 Jan. 1931; “*Habralictus canaliculatus*/m./ P. Moure 1941”; DZUP 521286.

Paratype

BRAZIL – **Rio de Janeiro** • 1 ♂; same data as for holotype; DZUP 521287.

Other material examined

BRAZIL – **Bahia** • 1 ♀; Ilhéus; [14°47'55.480" S, 39°2'2.387" W]; May 2023; Pupim and Adriana leg.; DZUP 522516. – **Espírito Santo** • 1 ♂; Santa Teresa; [19°55'44.271" S, 40°35'55.976" W]; 27 Aug. 1967; C.T and C. Elias leg.; DZUP 521434 • 5 ♂♂; same data as for preceding; 27 Sep. 1967; DZUP 521435 to 521438, 522379. – **Maranhão** • 2 ♂♂; São Luís; [2°31'48.4" S, 44°17'36.7" W]; 21 Nov. 1984; Camargo, Moure and Mazucato leg; DZUP 522515, 522539. – **Minas Gerais** • 1 ♀; Brazópolis; [22°28'26.143" S, 45°37'0.470" W]; Dec. 1961; Claudionor Elias leg.; DZUP 522375 • 2 ♂♂; Barbacena; [21°13'15.6" S, 43°46'10.0" W]; 6 Apr. 1963; Alvarenga and Seabra leg.; DZUP 522376, 522377 • 1 ♂; Patos de Minas; [18°35'51.931" S, 46°30'54.832" W]; 23 Nov. 1965; Claudionor Elias; DZUP 522378 • 1 ♀; “MZSP HYM/0140633 Serra Caraça-1380m/ MG-Brasil-XI-961/Kloss, Lenko./ Martins & Silva col.”; MZSP. – **Paraná** • 1 ♀; Almirante Tamandaré; [25°18'50.137" S, 49°17'53.168" W]; 25 Mar. 2007; G.A.R de Paula and G.A.R. Melo; “2C1”; DZUP 522594 • 7 ♂♂; same data as for preceding; “2F2, 2G2, 2B2, 2E2, 2C3, 2B3 and 2C4”; DZUP 522595 to 522601 • 1 ♀; “DZUP/521420// Curitiba/27-9-55”; DZUP 521420 • 2 ♂; Morretes, Rio Sagrado de Cima; 25°33'37" S, 48°48'57" W; 125 m a.s.l.; 29 Mar. 2002; G. Melo and A. Aguiar; DZUP 522380, 522381 • 1 ♀; São Mateus do Sul, Fazenda Durgo; [25°52'04.6" S, 50°23'04.0" W]; 26 Feb. 2009; Rafael Kamke leg.; “Ponto amostral/ Fazenda Durgo/ 14:00-15:00//CJS 6883”; DZUP 522542 • 1 ♂; same data as for preceding; DZUP 522556 • 2 ♂♂; same data as for preceding; “Ponto amostral/ Fazenda Durgo/15:00-16:00 CJS 6924 and CJS 6914”; DZUP 522552, 522558 • 3 ♂♂; same data as for preceding; 3 Mar. 2009; “Ponto amostral/ Fazenda Durgo/ 10:00-11:00 CJS 7018, CJS 7059 and CJS 7020”; DZUP 522555, 522557, 522559 • 2 ♀♀; São Mateus do Sul, UN-SIX, Petrobras; [25°52'04.6" S, 50°23'04.0" W]; 14 Apr. 2009; “Ponto amostral/

Vacódromo/ 12:00-13:00 CJS 7845 and CJS 7823”; DZUP 522543, 522544 • 1 ♀; same data as for preceding; 24 Jan. 2011; “Ponto amostral/ CAB (antigo MDI) CJS 10112”; DZUP 522547 • 1 ♂; same data as for preceding; “Ponto amostral/ CAB (antigo MDI) CJS 9886”; DZUP 522548 • 1 ♂; same data as for preceding; “Ponto amostral/ JAGUATIRICA CJS 9794”; DZUP 522549 • 2 ♂♂; same data as for preceding; 17 Apr. 2011; “Ponto amostral/ CAB CJS 10600 and CJS10601”; DZUP 522550, 522561 • 1 ♂; same data as for preceding; 20 Mar. 2012; “Ponto amostral/ MATA DO TÚNEL CJS 11711”; DZUP 522560 • 1 ♀; same data as for preceding; 18 Jan. 2011; “Ponto amostral/ JAGUATIRICA CJS 9456”; DZUP 522545 • 1 ♀; same data as for preceding; 24 Jan. 2011; “Ponto amostral/ JAGUATIRICA CJS 10028”; DZUP 522546 • 3 ♀♀; Piraquara, Reserva Piraquara II; 20 Mar. 2024; A.A. Pinto, L. Polizeli and R. Varela leg.; “347”; DZUP 522517 to 522519 • 3 ♂; same data as for preceding; DZUP 522520 to DZUP 522522 • 1 ♀; Curitiba, Cemit. Parque Iguaçu; 25°25'9.653" S, 49°18'36.734" W; 6 Feb. 2018; L. Graf leg.; DZUP 546812 • 1 ♀; Curitiba, Parque Atuba; 25°22'46.5" S, 49°12'25.9" W; 15 Sep. 2017; L. Graf leg.; DZUP 543626 • 1 ♀; Curitiba, Quartel General; 25°31'28.6" S, 49°18'43.0" W; 14 Mar. 2018; L. Graf leg.; DZUP 547844 • 1 ♂; same data as for preceding; DZUP 547854 • 2 ♀♀; Curitiba, Parque Tingui; 25°23'46.7" S, 49°18'20.0" W; 23 Mar. 2018; L. Graf leg.; DZUP 548006, 548007 • 1 ♂; Curitiba, Parque Tanguá; 25°22'42.4" S, 49°16'57.9" W; 14 May 2018; L. Graf leg.; DZUP 566826 • 1 ♀; Curitiba, Parque Barigui; 25°25'23.2" S, 49°18'28.1" W; 12 Feb. 2019; F.W. Pereira leg.; DZUP 572434 • 1 ♀; Curitiba, Parque Barigui; 25°25'23.2" S, 49°18'28.1" W; 5 Dec. 2018; F.W. Pereira; DZUP 411693. – **Pernambuco** • 1 ♀; Recife, Parque Estadual de Dois Irmãos; 8°00'42.4" S, 34°56'39.2" W; 21 Sep.–7 Oct. 2022; E. Galdino and P. Costa leg.; Malaise; UFRPE/DZUP 522602 • 1 ♀; Paulista, Granja do Delegado; 7°55'24.7" S, 35°00'56.0" W; E. Galdino and P. Costa leg.; Malaise; UFRPE/DZUP 522603. – **Rio de Janeiro** • 1 ♀; “DZUP/521288// Itatiaya-/12.V.1932// *Habralictus* ♀/ *canaliculatus*/ Pe J S Moure 1941”; DZUP 521288 • 1 ♀; “DZUP/521289// Itatiaya, 700/ 11.VI.1941/E. Rio-Brasil// *canaliculatus*/m/Det. J.S.Moure 19”; DZUP 521289 • 10 ♂♂; “COLEÇÃO/CAMPOS SEABRA// Estr. SUMARÉ/ D. Federal BRASIL/ IV-1954/ C.A.C.Seabra Coll.”; DZUP 521290 to 521299 • 1 ♀; “DZUP/522537 // COLEÇÃO/CAMPOS SEABRA// Floresta da Tijuca/ D. Federal BRASIL/ III-1955/ C.A.C. Seabra Coll”; DZUP 522537 • 1 ♀; “DZUP/521421//COLEÇÃO/CAMPOS SEABRA//P.N. Itatiaia/Est. Rio BRASIL/ Mar. 1955 800m/ H. Gouveia”; DZUP 521421 • 2 ♂♂; “DZUP/522368” and “DZUP/522369” with the following label “COLEÇÃO/CAMPOS SEABRA//Estr. SUMARÉ/D. Federal BRASIL/ 29.I.1955/C.A.C. Seabra Coll.”; DZUP 522368, 522369 • 1 ♀; “DZUP/522366// COLEÇÃO/CAMPOS SEABRA// Vista Chinesa/Distrito Federal BRASIL/ 23.Fev.1956/C.A.C. Seabra”; DZUP 522366 • 1 ♀; “DZUP/522367 //COLEÇÃO/ CAMPOS SEABRA Floresta da Tijuca/D. Federal BRASIL/ 23.Fev.1955/C.A.C. Seabra”; DZUP 522367 • 7 ♀♀; “Rep. RIO GRANDE/GUANABARA 3/65/BRASIL/F.M. Oliveira I”; DZUP 522355 to 522361 • 4 ♂♂; same data as for preceding; DZUP 522362 to 522365 • 1 ♀; Nova Friburgo, B. Sans Souci; 22°16' S, 42°30' W; 1000 m a.s.l.; 13–15 Nov. 2005; P. Grossi leg.; DZUP 522538 • 1 ♂; “DZUP/522582// “SILVESTRE/ Guanabara Brasil/ 4-IV-1960/ M. Alvarenga leg.”; DZUP 522582. – **Santa Catarina** • 1 ♂; “DZUP/522370// N.Teutônia, S.C./ II/V-1948/Fritz Plaumann” DZUP 522370 • 3 ♂♂; Pomerode, Testa Alto; [26°40'01.7" S, 49°11'08.8" W]; 5 Apr. 2008; Rafael Kamke leg.; “*Baccharis dracunculifolia*/Asteraceae/Daniel Falkenberg det.” // “CJS 3843”, “CJS 3838” and “CJS3837”; DZUP 522551, 522553, 522554 • 1 ♂; Florianópolis, Bairro Ratoles; [27°30'32.1" S, 48°29'16.1" W]; 19 Feb. 2009; L. Dornelles leg.; DZUP 522562 • 1 ♂; Pomerode, Testa Alto; [26°40'01.7" S, 49°11'08.8" W]; 5 Apr. 2009; Rafael Kamke leg.; *Baccharis dracunculifolia*/Asteraceae/Daniel Falkenberg det. // CJS 3842; MZSP, [MZSP HYM/0140635]. – **São Paulo** • 1 ♂; “DZUP/522371// S. Paulo/ XII-68”; DZUP 522371 • 3 ♂♂; “São Paulo/SP/12-261266h”; DZUP 522372 to 522374 • 1 ♀; Salesópolis, Est. Biol. Boracéia; [23°31'45.049" S, 45°50'40.480" W]; 26 Oct. 1992; W. Wilms leg.; MZSP, MZSP HYM/0140630 • 1 ♀; same data as for preceding; 12 Oct. 1992; MZSP, MZSP HYM/0140631 • 1 ♂; same data as for preceding; 15 Jun. 1992; MZSP, MZSP HYM/0140634 • 1 ♂; same data as for preceding; 13 Jun. 1992; MZSP, MZSP HYM/0140632 • 1 ♂; same data as for preceding; 29 Mar. 1992; MZSP, MZSP HYM/0140636.

Redescription

Female

HEAD. Head bright green; covered with very sparse short white plumose setae. Labrum dark brown. Mandible usually brown. Clypeus slightly depressed in the middle; green, with an apical band brown; covered with sparse short white plumose setae and with a band of long apical setae; punctate; areolate. Supraclypeal area punctulate; weakly areolate between the punctures but close to the antennal socket areolate. Paraocular fovea extends from the base of the eye, not more than an OD, beyond the antennal socket; not contiguous to the eye margin near emargination. Paraocular area sculpturing similar to that of the supraclypeal area. Frons puncticulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe yellow. Tegula brown. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface bright green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; sparsely puncticulate; lineolate to coriaceous (with a lineolate appearance, but sometimes the lines connect forming a leather-like sculpture). Mesepisternum bright green. Pre-episternum crowded areolate. Hypoepimeral area areolate. Mesepisternum lineolate to coriaceous. Metapostnotum not depressed in the median posterior surface; bright green; entirely lineolate.

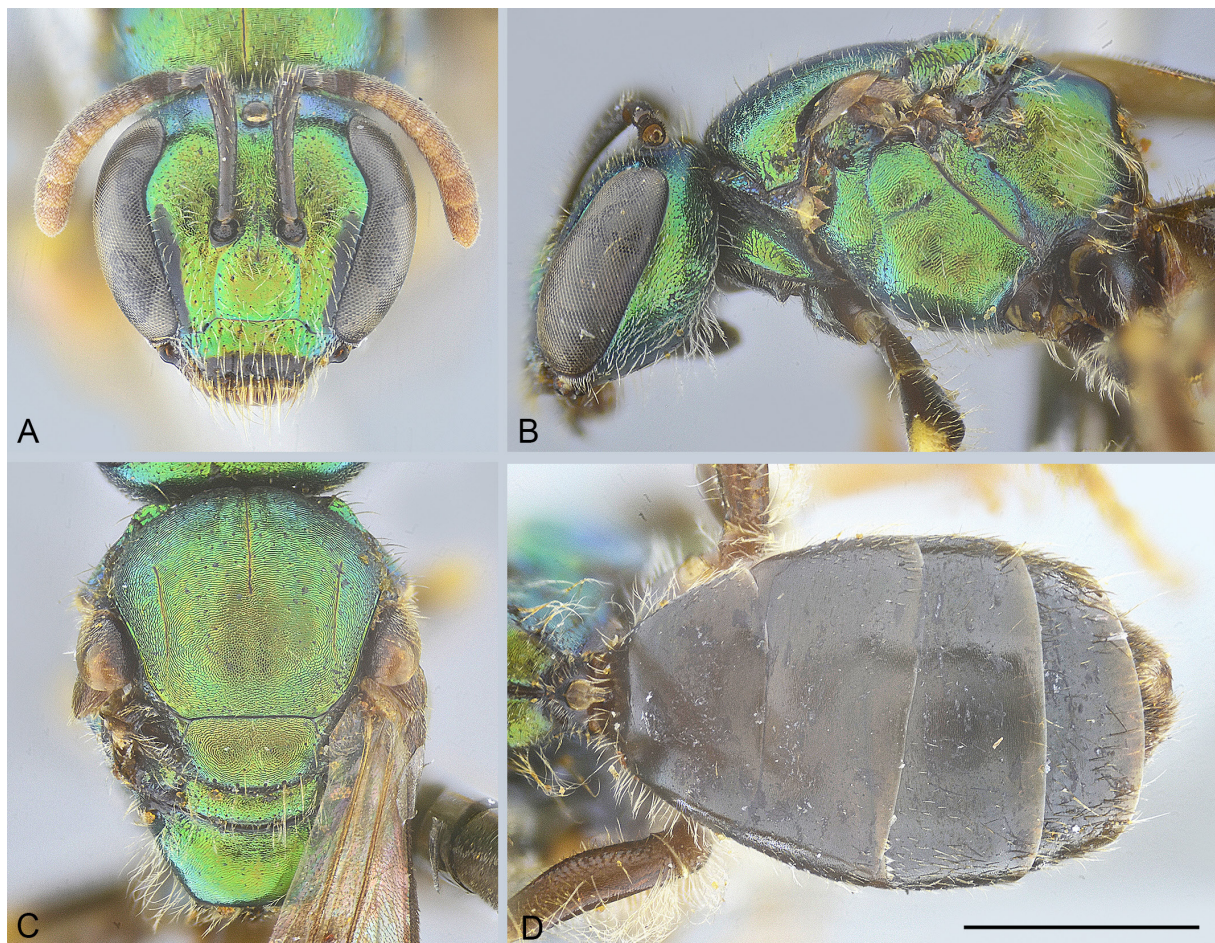


Fig. 8. *Habralictus canaliculatus* Moure, 1941, non-type, ♀ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

LEGS. Fore coxa and femur brown, remaining segments amber. Mid leg brown. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown without yellow maculations; with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in S3 > S2 > S4 > S5 > S1.

MEASUREMENTS. Approximate body length 5.28 mm. Head mean width 1.43 mm; mean length 1.32 mm. Clypeoantennal mean distance 0.3 mm. Mean distance between subantennal sutures 0.38 mm. Lower interocular mean distance 0.68 mm. Upper interocular mean distance 0.82 mm. Scape mean length 0.55 mm. Intertegular mean distance 1.06 mm. T1 mean width 1.21 mm. T2 mean width 1.57 mm. T3 mean width 1.65 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipe brown. Clypeus slightly flattened in the middle; green, with an apical band yellow, which is projected



Fig. 9. *Habralictus canaliculatus* Moure, 1941, non-type, ♂ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in lateral view. Scale bar = 0.5 mm.

upwards in the center; covered with sparse short white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, more densely punctate towards the upper portion; polished between the punctures, but areolate closer to the antenna. Paraocular area fovea absent. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate. Frons strongly areolate (with a rough aspect). Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 mostly subequal. Flagellum dark brown, or mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or with a rounded aspect. Pronotal lobe brown. Tegula amber. Wing membrane hyaline. Mesoscutum with the anterior margin acuminate-shaped; surface bright green, may present some copper reflections; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; more densely punctulate; strongly lineolate to coriaceous. Scutellum crowded lineolate. Mesepisternum bright green. Pre-episternum crowded punctate. Hypoepimeral area punctulate and weakly lineolate. Mesepisternum punctulate and weakly lineolate, more polished towards the posterior margin. Metapostnotum surface flat/at the same level as the propodeum; bright green; entirely lineolate to coriaceous.

LEGS. Fore coxa and trochanter brown, femur brown with a yellow apex or ventrally, tibia and basitarsus yellow. Mid coxa and trochanter brown, femur mostly brown with a yellow apex or ventrally, tibia and basitarsus amber. Hind coxa and trochanter brown, femur brown with a yellow tip, tibia brown, basitarsus amber.

METASOMA. Terga clavate form (about the same width, apex more dilated); dark brown without yellow maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S5 without any projection.

GENITALIA. Gonobase about one half of the gonocoxite, without basal projection. Gonocoxite dorsal inner margin forming a continuous flange, apical portion weakly developed. Gonapophysis, apex weakly rounded, with short median projections. Gonostylus basal lobe transverse, with short setae; ventral process slender, with setae elsewhere and long setae apically, dorsal process expanded. Volsella short and rounded.

MEASUREMENTS. Approximate body length 5.92 mm. Head mean width 1.24 mm; mean length 1.43 mm. Clypeoantennal mean distance 0.3 mm. Mean distance between subantennal sutures 0.28 mm. Lower interocular mean distance 0.47 mm. Upper interocular mean distance 0.69 mm. Scape mean length 0.39 mm. Intertegular mean distance 0.83 mm. T1 mean width 0.43 mm. T2 mean width 0.54 mm. T3 mean width 0.72 mm.

Variation

Some specimens with clypeus and supraclypeal area more polished. We did not observe a geographic pattern for this variation.

Distribution

Brazil: Bahia, Espírito Santo, Maranhão, Minas Gerais, Paraná, Pernambuco, Rio de Janeiro, Santa Catarina, São Paulo.

5. *Habralictus chlorobaptus* Moure, 1941
Figs 1G, 10, 21C

Habralictus chlorobaptus Moure, 1941: 65.

Diagnosis

This species is easily distinguished by the bright green and polished mesoscutum and metapostnotum (except for few minute sculpturing: widely spaced fine punctures and basal lineolation, respectively). As in *H. crassiceps*, it has pairs of small yellow maculations on the terga, but can be distinguished from the latter by the green metallic reflections on the metasoma, the obtuse dorsolateral angle of the pronotum and the extent of the paraocular fovea. Male not known.

Type material

Holotype

BRAZIL – Goiás • ♀; “DZUP/521300// Goyaz/ leop. bulhões/ XII-1933/ Spitz// HOLOTYPE// Holotype/*chlorobaptus*/ Det. J.S. Moure 19”; DZUP 521300.

Redescription

Female

HEAD. Head bright green; covered with short white plumose setae. Labrum dark brown. Mandible usually brown. Clypeus slightly depressed in the middle; green, with an apical band brown; covered

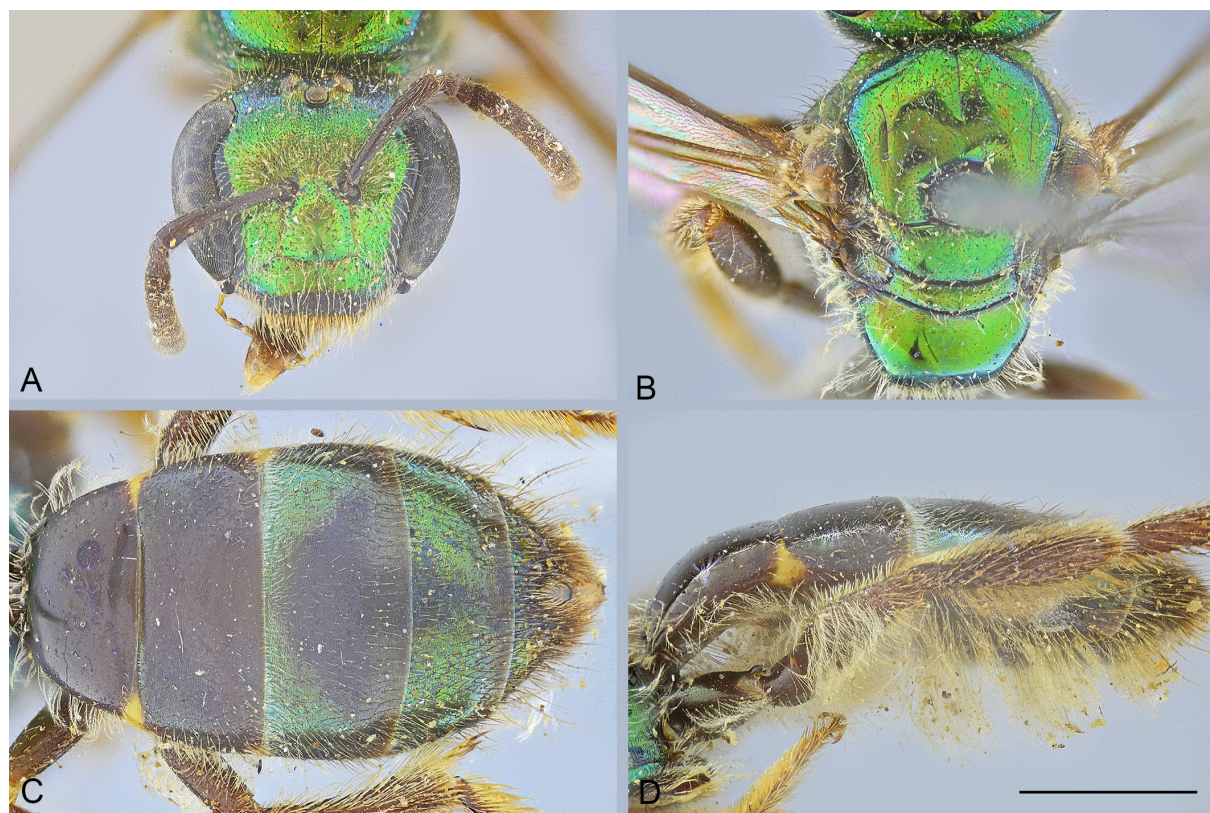


Fig. 10. *Habralictus chlorobaptus* Moure, 1941, holotype, ♀ (DZUP 521300). **A.** Head in frontal view. **B.** Mesosoma in dorsal view. **C.** Metasoma in dorsal view. **D.** Metasoma in lateral view. Scale bar = 0.5 mm.

with sparse short white decumbent setae and with a band of long apical setae; punctate; polished between the punctures. Supraclypeal area punctulate; polished between the punctures. Paraocular fovea extends from the base of the eye beyond the antennal socket, reaching inner orbit emargination; always attached to the eyes. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; polished between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum dark brown.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe brown. Tegula brown. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface bright green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; polished between the punctures. Mesepisternum bright green; punctulate and polished between the punctures. Metapostnotum not depressed in the median posterior surface; bright green; mostly polished, except for basal lineolation.

LEGS. Fore coxa, trochanter and femur brown, tibia and basitarsus yellow. Mid leg brown. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with green metallic reflections and with yellow maculations, as follows: T2–T4 with pairs of very small yellow lateral maculations; lineolate; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5. Sterna covered with long plumose setae, much denser and longer than the other species.

MEASUREMENTS. Approximate body length 6.48 mm. Head width 1.7 mm; length 1.4 mm. Clypeoantennal distance 0.26 mm. Distance between subantennal sutures 0.4 mm. Lower interocular distance 0.96 mm. Upper interocular distance 1 mm. Scape length 0.76 mm. Intertegular distance 1.2 mm. T1 width 1.4 mm. T2 width 1.74 mm. T3 width 1.8 mm.

Male

Not known.

Distribution

Brazil: Leopoldo de Bulhões, Goiás, Brazil. A specimen from Argentina, Misiones, Parque Nacional Iguazú was determined as *H. chlorobaptus* by Alvarez *et al.* (2024).

6. *Habralictus crassiceps* (Moure, 1941)

Figs 1C, 2D, 11–12, 20G, 21C

Zikaniella crassiceps Moure, 1941: 57.

Habralictus orites Moure, 1941: 68, syn. nov.

Diagnosis

Females with bright green areolate mesoscutum, with small basolateral pairs of yellow maculations on the terga. It can be distinguished from those of *H. callichroma* by the large terga maculations on the latter and by the slightly depressed clypeus in the former. The pronotal dorsolateral angle is acute, different from those of *H. chlorobaptus* and *H. nitidus* sp. nov., which are obtuse.

Males are very easily distinguished from the those of other species by the oval-shaped metasoma (with T3 and T4 almost twice as wide as T1 and T2). Other characteristics are S5 with an apical elevation; frons, mesoscutum and metapostnotum polished; presence of paraocular fovea; hind tibia inner spur pectinate.

Type material

Holotype of *Zikaniella crassiceps*

BRAZIL – **Rio de Janeiro** • ♂; “DZUP/521319// Itatiaya -/ 2.V.1929// HOLOTYPUS// ♂// *Zikaniella crassiceps*/m./ P. Moure 1941”; DZUP 521319.

Holotype of *Habralictus orites*

BRAZIL – **Rio de Janeiro** • ♀; “Itatiaya-700/E.Rio-Brasil/ 12.V.1932// DZUP/521316// HOLOTYPUS// orites// *Habralictus/ orites*/m./ P. Moure 1941”; DZUP 521316.

Paratypes

BRAZIL – **Rio de Janeiro** • 1 ♂; “DZUP/521323 // Itatiaya/2.VI.1929// PARATYPUS/*Zikaniella crassiceps*/♂/ Pe. J.S. Moure, 1941”; DZUP 521323 • 1 ♀; “DZUP/521317// Itatiaya, 700/ 21.Vi.1941/ E.Rio-Brasil // PARATIPO // Paratypus/ *orites* m./ Det. J.S. Moure 19”; DZUP 521317 • 1 ♂; “DZUP/521315// Itatiaya, 816m/ 20-VI-1941/ E.Rio-Brasil// ALOTIPO// *orites*// PARATYPUS/ *Habralictus/ orites* ♂/ Pe. J.S. Moure 1941”; DZUP/521315 • 2 ♂♂; “DZUP/521318// Itatiaya-700/ 12.V.1932// PARATIPO// Paratype/ *orites* m./ Det. J.S.Moure 19”; DZUP 521315, 521318.

Other material examined

BRAZIL – **Paraná** • 1 ♀; Estrada dos Castelhanos; 25°49' S, 48°53' W; 260 m a.s.l.; 7 Feb. 2004; Aguiar, Gonçalves and Melo leg.; DZUP 522540 • 1 ♀; Antonina, Reserva Cachoeira, SPVS; 25°24' S, 48°64' W; 25 Feb. 2007; C. Maia leg.; DZUP 161156 • 1 ♂; same data as for preceding; 23 Jun. 2007; DZUP 161556, – **Rio de Janeiro** • 1 ♂; “DZUP/521322// Itatiaya-/22.Vi-1932// *crassiceps*/m./Det. J.S. Moure 19”; DZUP 521322 • 1 ♀; “DZUP/521321// Itatiaya, 700/ I-VI-1940/E. Rio-Brasil”; DZUP 521321 • 1 ♀; “DZUP/521320// Itatiaya, 700/ 8-VI-1941/E. Rio-Brasil// *crassiceps*/m./Det. J.S.Moure, 19”; DZUP 521320 • 1 ♀; “DZUP/522352// Itatiaya, 700/ II-VI-1941/E. Rio-Brasil”; DZUP 522352.

Redescription

Female

HEAD. Head bright green with some bluish reflections; covered with dense short white plumose setae, intermixed with black erect setae. Labrum dark brown. Mandible usually brown. Clypeus slightly depressed in the middle; green, with an apical band brown; covered with sparse short white decumbent setae and with a band of long apical setae; sparsely punctate intertwined with very fine punctures; polished between the punctures. Supraclypeal area densely punctulate; polished between the punctures. Paraocular fovea extends from the base of the eye to the antennal socket; always contiguous to the eye margin. Paraocular area sculpturing similar to that of the supraclypeal area. Frons punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum dark brown.

MESOSOMA. Pronotal dorsolateral angle acute, sometimes with a projected tip. Pronotal lobe brown. Tegula brown. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface bright green; covered with sparse decumbent setae; densely punctulate; areolate between the punctures. Mesepisternum bright green. Pre-episternum crowded areolate. Hypoepimeral area lineolate. Mesepisternum areolate. Metapostnotum not depressed in the median posterior surface; bright green; lineolate anteriorly, becoming weakly coriaceous posteriorly.

LEGS. Fore coxa brown, trochanter amber, femur brown with a yellow tip or ventrally, tibia and basitarsus yellow. Mid leg brown. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with yellow maculations, as follows: T2–T4 with pairs of very small yellow lateral maculations; covered with short decumbent setae very sparsely distributed in T1, which

progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in $S3 > S2 = S4 > S5 > S1$.

MEASUREMENTS. Approximate body length 6.4 mm. Head mean width 1.69 mm; mean length 1.42 mm. Clypeoantennal mean distance 0.32 mm. Mean distance between subantennal sutures 0.42 mm. Lower interocular mean distance 0.93 mm. Upper interocular mean distance 0.96 mm. Scape mean length 0.81 mm. Intertegular mean distance 1.16 mm. T1 mean width 1.28 mm. T2 mean width 1.76 mm. T3 mean width 1.94 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipe brown. Clypeus slightly flattened in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse long white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, more densely punctate towards upper portion; polished between the punctures, but areolate closer to the antenna. Paraocular area fovea present. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; punctulate and polished between the punctures, becoming more crowded toward the median line. Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; covered with sparse long erect setae (0.1 mm). F1 about the same size as the pedicel (0.1 mm). F2–F11 becoming shorter and more robust to the apex. Flagellum dark brown.

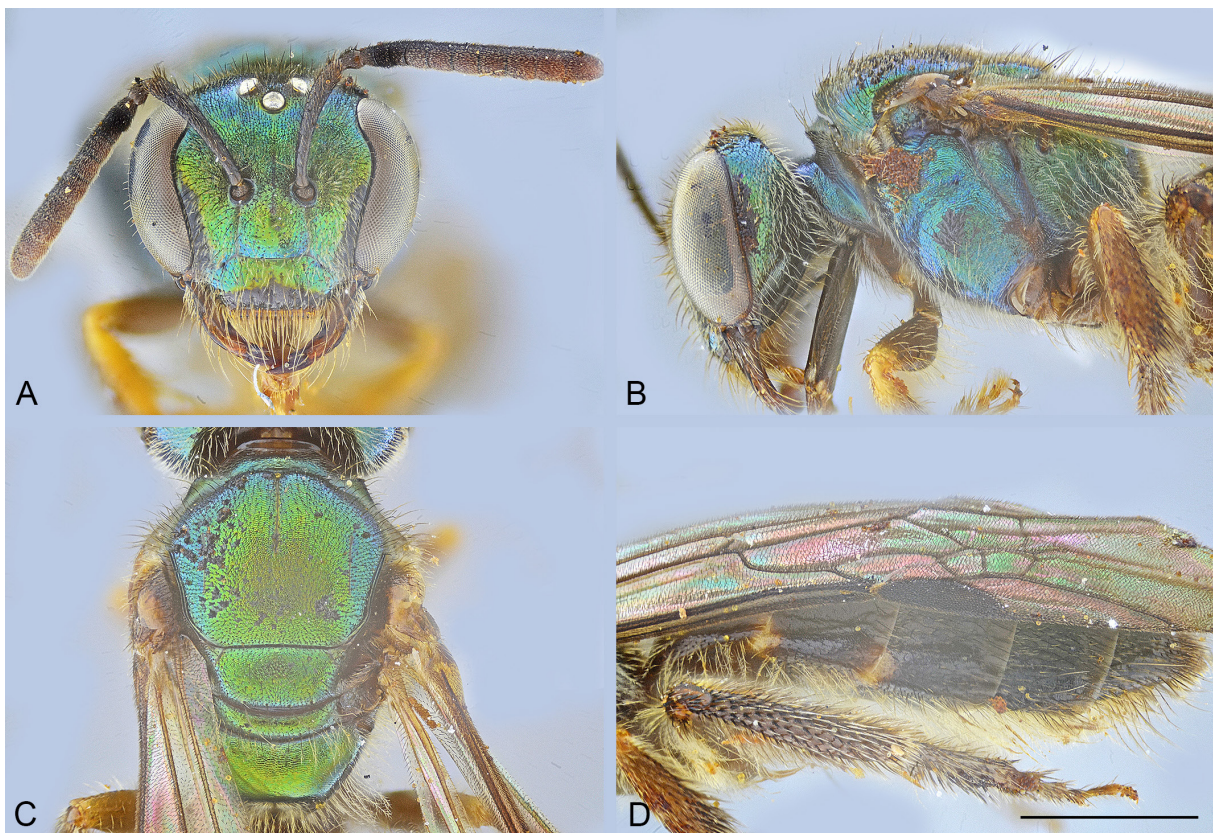


Fig. 11. *Habralictus crassiceps* (Moure, 1941), non-type, ♀ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in lateral view. Scale bar = 0.5 mm.

MESOSOMA. Pronotal dorsolateral angle acute. Pronotal lobe brown. Tegula amber. Wing membrane hyaline. Mesoscutum with the anterior margin acuminate-shaped; surface bright green; covered with very sparse and short tomentum and few sparse darker erect setae, more visible from an oblique view; puncticulate; polished between the punctures. Scutellum puncticulate and polished between the punctures. Mesepisternum bright green; puncticulate and polished between the punctures. Metapostnotum surface flat/at the same level as the propodeum; bright green; polished, sometimes with some lineolation close to the anterior margin.

LEGS. Fore coxa brown, trochanter and femur amber, tibia and basitarsus yellow. Mid coxa brown, remaining segments amber. Hind leg light brown.

METASOMA. Metasoma oval-shaped, T3 and T4, mainly, almost twice the width of T1 and T2; dark brown with yellow maculations, as follows: T3–T4 with two small yellow lateral maculations covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S6 with an apical projection/elevation.

GENITALIA. Gonobase about one third of the gonocoxite, without basal projection, without ventral bridge. Gonocoxite dorsal inner margin forming a flange triangular-shaped, apical portion weakly developed. Gonapophysis apex enlarged and bearing several long setae subapically, with short median projections. Gonostylus basal lobe inconspicuous, with short setae; ventral process slender, with setae elsewhere and long setae apically, dorsal process short, larger apically. Volsella short and rounded.

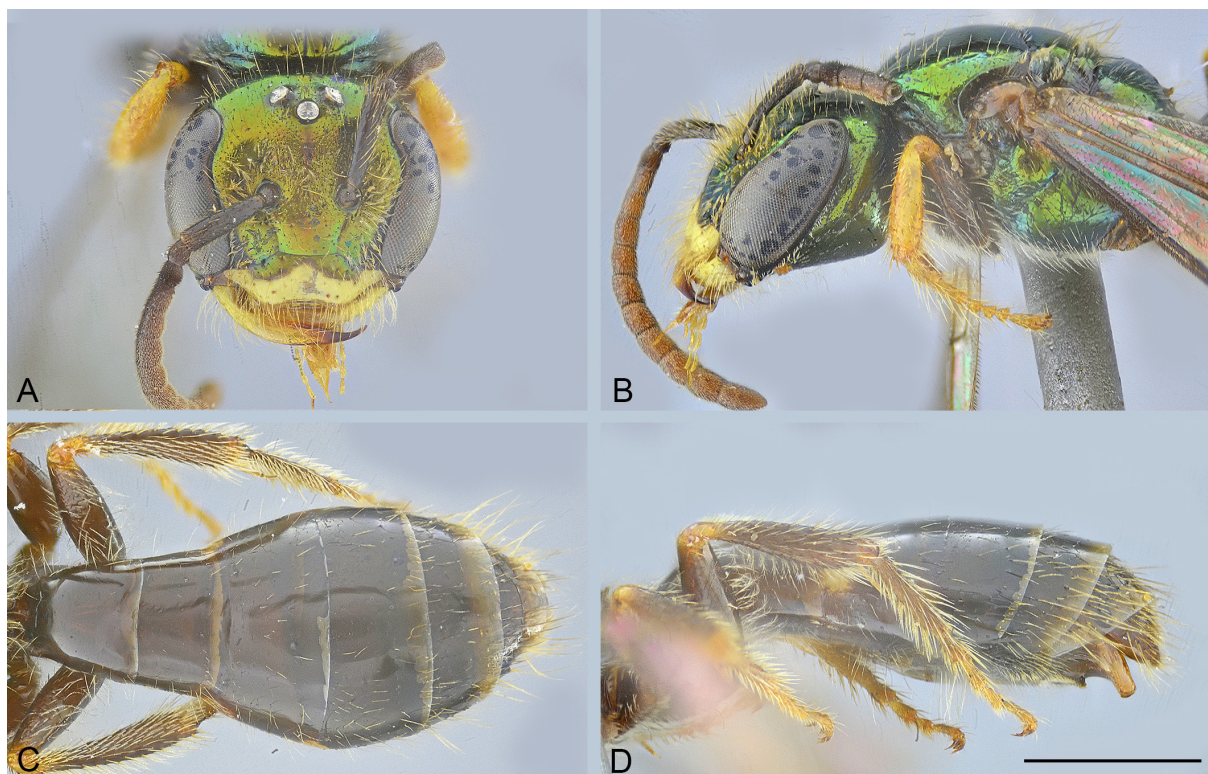


Fig. 12. *Habralictus crassiceps* (Moure, 1941), non-type, ♂ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Metasoma in dorsal view. **D.** Metasoma in lateral view. Scale bar = 0.5 mm.

MEASUREMENTS. Approximate body length 5.6 mm. Head mean width 1.66 mm. Head mean length 1.43 mm. Clypeoantennal mean distance 0.26 mm. Mean distance between subantennal sutures 0.44 mm. Lower interocular mean distance 0.94 mm. Upper interocular mean distance 1.04 mm. Scape mean length 0.56 mm. Intertegular mean distance 0.98 mm. T1 mean width 0.78 mm. T2 mean width 0.85 mm. T3 mean width 1.44 mm.

Distribution

Brazil: Paraná, Rio de Janeiro.

Taxonomic remarks

Moure (1941) originally described *Z. crassiceps* for a male, and *H. orites* for a female. The male is remarkable for its enlarged head and oval metasoma, features without a counterpart in the female. The type specimens of these two taxa have the same type locality, Itatiaia, in Rio de Janeiro, and were collected before 1941. Moure further examined additional material from Itatiaia, collected after 1941, associating as females of *Z. crassiceps* specimens that are clearly conspecific with the holotype of *H. orites*. Also, males of *H. macrospilophorus* were found associated with *H. orites* in his collection. This indicates to us that Moure's concepts of *Z. crassipes* and *H. orites* was not settled. Additional recent material for *H. crassiceps* is known for Antonina, Paraná. We consider both names as synonyms based on their distribution and some morphological indications. The shape of the subantennal sutures of the female of *H. crassipes* is mostly parallel and joins the antennal socket in their middle, while in most females of *Habralictus* the sutures are convergent and join the antennal socket closer to their inner margin. The males of *H. crassiceps* have the sutures mostly divergent, different from those of remaining *Habralictus*. The female also has a wider head compared to those of the remaining species, except for *H. chlorobaptus*. This latter species is only known for the female, but the distribution, polished integument and metallic terga discard the association with the male of *Z. crassipes*. The distinctiveness of the males of *H. crassiceps* is considered an extreme sexual dimorphism and the female could be considered a typical *Habralictus*. The phylogenetic hypothesis for the paraphyly of *Habralictus* s. str. (Gonçalves & Melo 2010) reinforces this view. As *Zikaniella crassiceps* and *Habralictus orites* were described together by Moure (1941) and are considered subjective synonyms, as first revisers, we also determine the precedence to the name *Zikaniella crassipes*, this name was described first in the same paper, and is the type species of *Zikaniella*, an available genus name.

7. *Habralictus cyaneus* sp. nov.

[urn:lsid:zoobank.org:act:1A765968-C889-47CE-BF9B-A675CDDE338B](https://zoobank.org/urn:lsid:zoobank.org:act:1A765968-C889-47CE-BF9B-A675CDDE338B)

Figs 2C, 13–14, 21D

Diagnosis

Female without yellow maculations on the metasoma and with paraocular fovea not contiguous to the eye margin near emargination. Differs from that of similar species by the bluish bright green mesoscutum, purple in *H. beatissimus*, and the blue metallic reflections on the metasoma, absent in both *H. beatissimus* and *H. canaliculatus*.

Male without yellow maculations on the metasoma and with elongate flagellomeres. The anterior margin of the mesoscutum is rounded, not acuminate-shaped as in that of *H. canaliculatus*. The scutellum is polished between the punctures, whereas in *H. beatissimus* it is crowded lineolate.

Etymology

Latin borrowed from Ancient Greek ‘*kuáneos*’, ‘dark blue’, referring to the blue metallic reflections on the metasoma.

Type material

Holotype

BRAZIL – Amapá • ♀; Macapá, APA da Fazendinha, Fragmento Florestal; [0°2'59.440" S, 51°7'28.119" W]; 15 Nov. 2018; I. Souza and A. Jordão leg.; Visitante açazeiro; DZUP 522383.

Paratypes

BRAZIL – Amapá • 1 ♂; same data as for holotype; DZUP 522514. • 1 ♀, only mesosoma preserved; same data as for holotype; 29 Mar. 2019, 08:50am–10am; Visitante açazeiro; DZUP 522384.

Description

Female

HEAD. Head bluish green; covered with sparse short white plumose setae. Labrum dark brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; bluish green, with an apical band brown; covered with sparse short white decumbent setae; punctate intertwined with very smaller punctures; polished between the punctures. Supraclypeal area punctulate; polished between the punctures. Paraocular fovea extends from the base of the eye not more than an ocellar distance beyond the antennal socket, not contiguous to the eye margin near emargination. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe yellow. Tegula amber with a yellow band on the inner margin. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface bluish green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate to punctulate; lineolate to coriaceous (with a lineolate appearance, but sometimes the lines connect forming a leather-like sculpture). Mesepisternum bright green. Pre-episternum crowded areolate. Hypoepimeral area coriaceous. Mesepisternum punctulate and coriaceous laterally, becoming polished ventrally. Metapostnotum not depressed in the median posterior surface; bluish green; entirely areolate to coriaceous.

LEGS. Fore coxa, trochanter and femur brown, tibia and basitarsus yellow. Mid coxa and trochanter brown, femur, tibia and basitarsus amber. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with bluish reflections; without yellow maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in S3 > S2 > S4 > S5 > S1.

MEASUREMENTS. Approximate body length 4.88 mm. Head width 1.58 mm length 1.2 mm. Clypeoantennal distance 0.3 mm. Distance between subantennal sutures 0.34 mm. Lower interocular distance 0.66 mm. Upper interocular distance 0.8 mm. Scape length 0.56 mm. Intertegular distance 1 mm. T1 width 1.24 mm. T2 width 1.56 mm. T3 width 1.7 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipe brown. Clypeus not depressed in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse short white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, more densely punctate towards the upper portion; polished between the punctures, but areolate closer to the antenna. Paraocular area fovea absent. Paraocular area sculpturing similar to that of the supraclypeal

area. Frons densely punctulate; strongly areolate (with a rough aspect). Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; covered with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 mostly subequal. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or with a rounded aspect. Pronotal lobe yellow. Tegula amber. Wing membrane hyaline. Mesoscutum with the anterior margin rounded, not acuminate-shaped; surface bright green; covered with very sparse and short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; weakly lineolate. Scutellum crowded lineolate. Mesepisternum bright green; punctulate and polished between the punctures. Metapostnotum surface flat/at the same level as the propodeum; bright green; entirely lineolate to coriaceous.

LEGS. Fore coxa brown, remaining segments yellow. Mid coxa brown, trochanter yellow, femur mostly yellow, with a brown apex or ventrally, tibia brown with a yellow apex, basitarsus yellow. Hind coxa and trochanter brown, femur brown with a yellow tip, tibia brown, basitarsus amber.

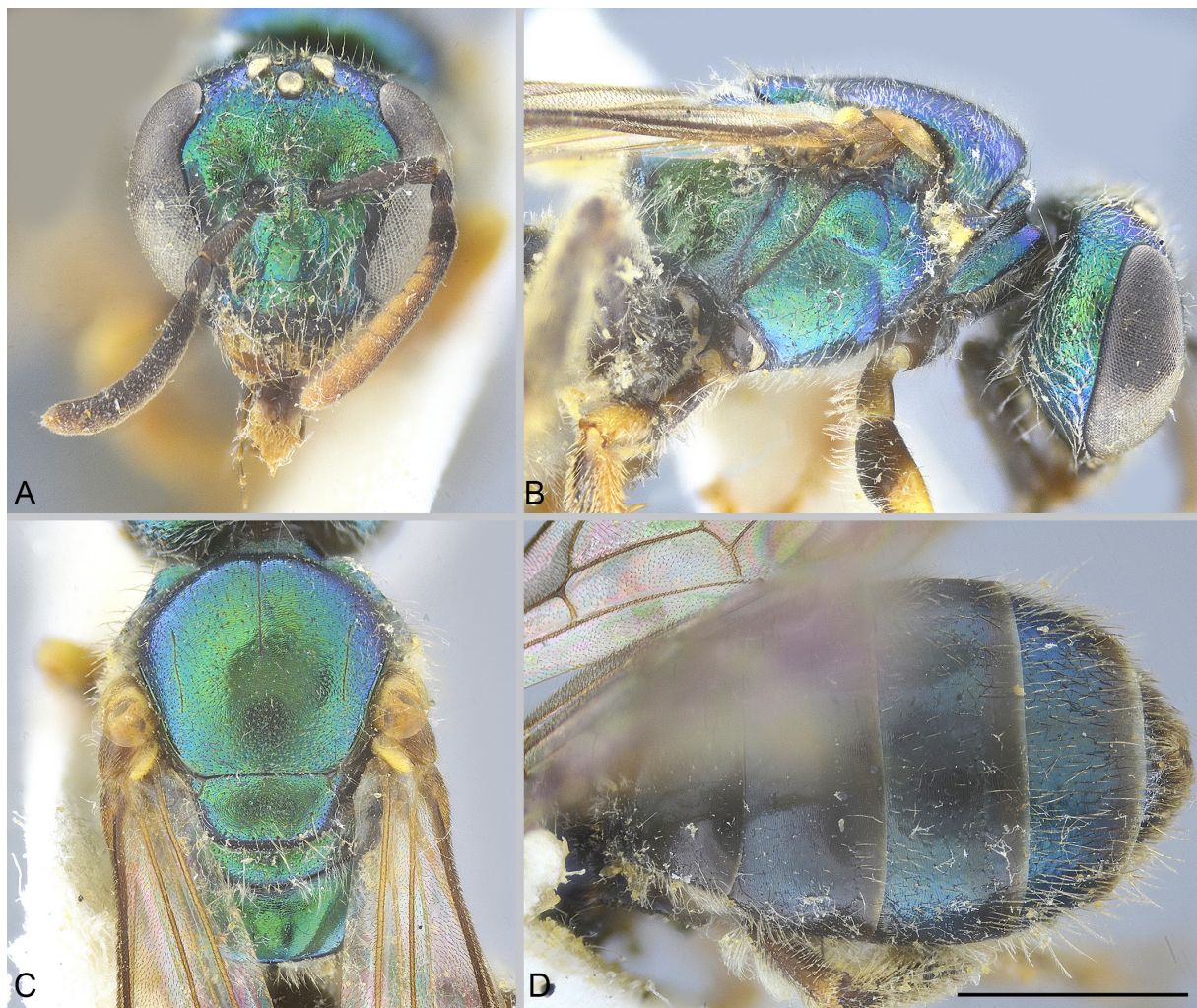


Fig. 13. *Habralictus cyaneus* sp. nov., holotype, ♀ (DZUP 522383). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

METASOMA. Terga clavate form (about the same width, apex more dilated); dark brown without yellow maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S5 without any projection.

GENITALIA. Gonobase expanded, about as long as gonocoxite, without basal projection. Gonocoxite short, basal portion of the dorsal inner margin forming a long digitiform projection, apical portion also developed, with gonapophysis median lateral projections occupying this space. Gonapophysis apex slender, dorsally with median lateral projections. Gonostylus basal lobe transverse, with short setae; ventral process slender, with small setae elsewhere and long setae apically, dorsal process membranous. Volsella short and rounded.

MEASUREMENTS. Approximate body length 5.6 mm. Head mean width 1.12 mm. Head mean length 1.04 mm. Clypeoantennal mean distance 0.4 mm. Mean distance between subantennal sutures 0.28 mm. Lower interocular mean distance 0.4 mm. Upper interocular mean distance 0.66 mm. Scape mean length 0.32 mm. Intertegular mean distance 0.5 mm. T1 mean width 0.48 mm. T2 mean width 0.52 mm. T3 mean width 0.68 mm.

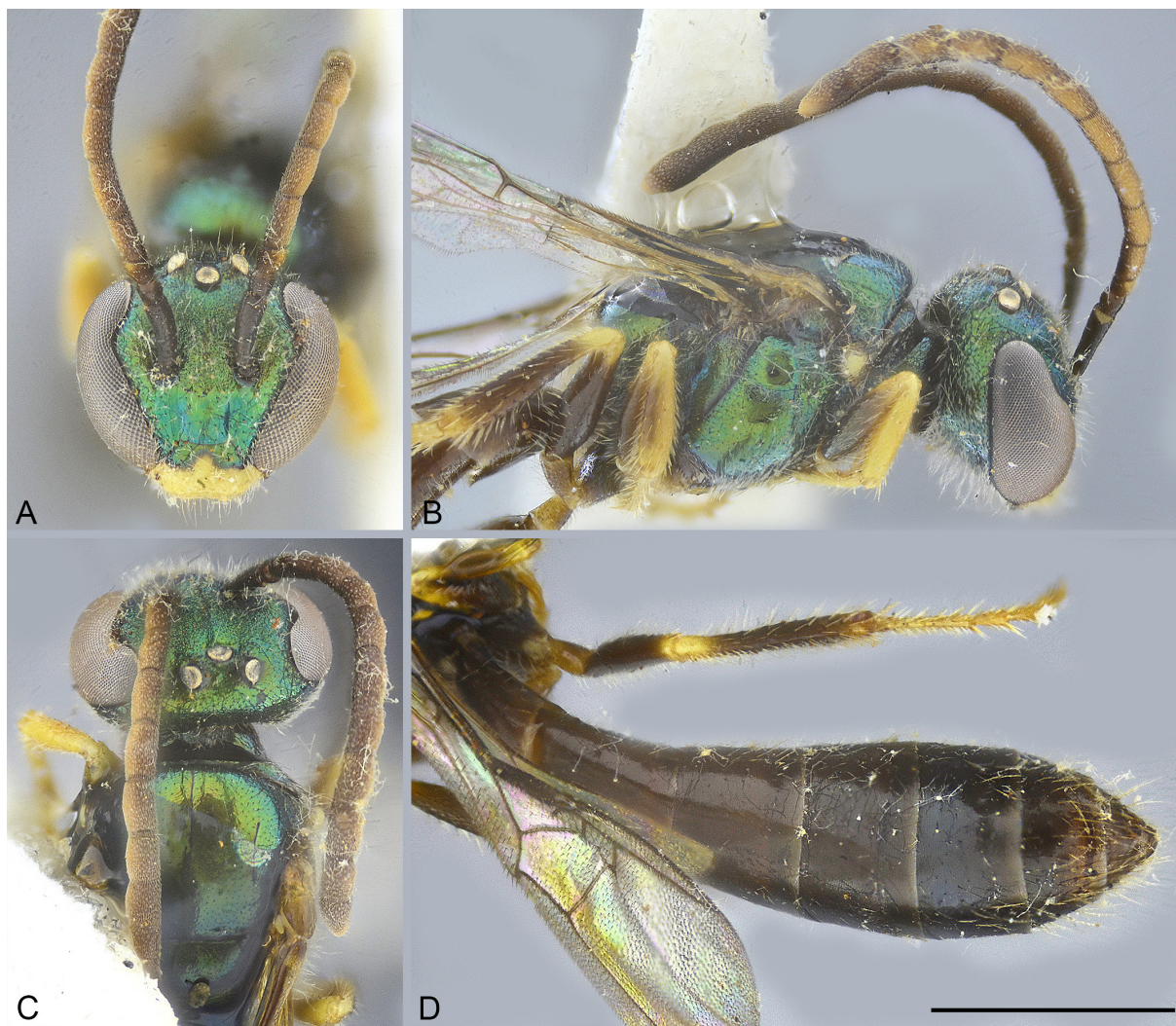


Fig. 14. *Habralictus cyaneus* sp. nov., paratype, ♂ (DZUP 522514). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

Distribution

Brazil: Amapá.

Remarks

Both female and male specimens are glued to a triangular paper in a way that hinders the visualization of certain body parts.

8. *Habralictus ligeus* (Schrottky, 1911)

Figs 1E, 2E, 21B

Neocorynura ligea Schrottky, 1911: 38.

Diagnosis

Females with pairs of yellow dorsolateral maculations on the terga and dark mesoscutum. Differs from similar darkened species by the metasomal maculations, absent in *H. beatissimus*, and by the mesoscutum disc with homogeneous granulate-areolate sculpturing, not forming concentric patterns as in *H. macrospilophorus*. Male not known.

Type material

Lectotype

BOLIVIA • 1 ♀; “Bolivia// *Neocorynura/ ligea* m ♀/ C. Schrottky det. 1910// Typus// Coll./ Friese”; ZMB. Examined through photographs.

Other material examined

BRAZIL – **Rondônia** • 1 ♀; Ouro Preto do Oeste; [10°43'12.3" S, 62°15'37.6" W]; 26 Aug. 1987; C. Elias leg.; DZUP 521418 • 2 ♀♀; same data as for preceding; 13 Nov. 1987; Projeto POLONOROESTE; DZUP 522353, 522354.

Redescription

Female

HEAD. Head medium olive green, with some copper reflections; covered with sparse short white plumose setae. Labrum amber to light brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; olive green, with an apical band brown; covered with sparse short white decumbent setae and with a band of long apical setae; sparsely punctate intertwined with very fine punctures; areolate between the punctures. Supraclypeal area olive green with purplish reflections; punctulate; areolate between the punctures. Paraocular fovea extends from the base of the eye beyond the antennal socket, reaching inner orbit emargination, always attached to the eyes. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle acute, sometimes with a projected tip. Pronotal lobe yellow. Tegula brown. Wing membrane hyaline. Mesoscutum anterior margin acuminate-shaped; surface with olive green edges, as if beneath the abundant purplish black; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; granulate-areolate between the punctures. Mesepisternum olive green; granulate to areolate. Metapostnotum not depressed in the median posterior surface; olive green; entirely areolate to coriaceous.

LEGS. Fore coxa, trochanter and femur brown, tibia and basitarsus yellow. Mid leg brown. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with yellow maculations, as follows: T2–T4 with yellow lateral basal maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in S3 > S2 > S4 > S5 > S1.

MEASUREMENTS. Approximate body length 5.88 mm. Head mean width 1.54 mm; mean length 1.32 mm. Clypeoantennal mean distance 0.31 mm. Mean distance between subantennal sutures 0.34 mm. Lower interocular mean distance 0.83 mm. Upper interocular mean distance 0.87 mm. Scape mean length 0.7 mm. Intertegular mean distance 0.99 mm. T1 mean width 1.19 mm. T2 mean width 1.56 mm. T3 mean width 1.63 mm.

Male

Not known.

Variation

Some specimens from Bolivia have the mesoscutum not entirely black, being more olive green. Also, some specimens from Bolivia have a yellow maculation projected upwards in the central portion of the clypeus.

Distribution

Bolivia. Brazil: Ouro Preto do Oeste, Rondônia, Brazil.

Taxonomic remarks

Schrottky (1911) described *Neocorynura ligea* based on the female sex, and a type specimen deposited in the ZMB collection was recently studied by Melo & Liz (2025). In the same study Schrottky described another taxon from Bolivia, *Neocorynura manto* (Schrottky, 1911), whose type location remains unknown. According to the original description, this is an entirely dark-colored *Habralictus*, including the head, differing from that of *H. ligeus*, which has a golden green head.

9. *Habralictus macrospilophorus* Moure, 1941

Figs 1F, 2F, 15–16, 20C, 21B

Habralictus macrospilophorus Moure, 1941: 66.

Diagnosis

Females with dark mesoscutum and pairs of dorsolateral yellow maculations on the terga, connected by a basal line in T2. Differs from those of similar species by the metasomal maculations, absent in *H. beatissimus*, and by the areolate mesoscutum disc, not granular as in *H. ligeus*.

Males with metapostnotum surface elevated in relation to the propodeum, especially posteriorly, and with yellow maculations on the metasoma. The mesoscutum anterior margin is acuminate-shaped, not rounded as *H. callichroma*. Pronotal dorsolateral angle acute, not obtuse as *H. obscuratus* sp. nov. The anterior portion of the median line of the mesoscutum is more strongly lineolate than *H. beatissimus*.

Type material

Holotype

BRAZIL—Rio de Janeiro • ♀; “DZUP/521313//Itatiaya-700/E.Rio-Brazil/12.Vi.1932//HOLOTYPUS//*Habralictus/ macrospilophorus/ m./ P. Moure 1941*”; DZUP 521313.

Other material examined

BRAZIL – **Goiás** • 1 ♀; Jataí, Faz. Nova Orlandia; Jan. 1964; Martins, Morgante and Silva; MZSP, MZSP HYM/0140638. – **Minas Gerais** • 2 ♂♂; São Gotardo; [19°18'32.025" S, 46°3'20.432" W]; 11 Jun. 1965; C. Elias leg.; DZUP 522340, 522341 • 1 ♀; Viçosa; [20°45'19.790" S, 42°52'45.043" W]; 24 Sep. 1988; G.A.R. Melo; DZUP 522334 • 3 ♀♀; same data as for preceding; 5 Oct. 1992; DZUP 522331 to 522333 • 5 ♂♂; Viçosa, UFV, Mata da Caixa D'água; [20°45'19.790" S, 42°52'45.043" W]; 2 Jul. 1992; G. Melo; “em flor de *Guapira* sp.”; DZUP 522335 to 522339. – **Paraná** • 11 ♂; Almirante Tamandaré; [25°18'50.137" S, 49°17'53.168" W]; 25 Mar. 2007; G.A.R. de Paula and G.A.R. Melo; “2B4”, “2D3”, “2E3” “2G3” “2H3” “2C2” “2H2” “2D2” “2F3” “2A4” and “2G1”; DZUP 522583 to 522593 • 1 ♀; Morretes, IAPAR; [25°27'59.6" S, 48°50'46.7" W]; 13–20 Jul. 1984; C.I.I.F.; Malaise; DZUP 522541 • 1 ♂; Morretes, Rio Sagrado de Cima; 25°33'37" S, 48°48'57" W; 125 m a.s.l.; 29 Mar. 2002; G. Melo and A. Aguiar; DZUP 522342 • 6 ♀♀; Curitiba, Cemit. Parque Iguacu; 25°25'9.653" S, 49°18'36.734" W; 6 Feb. 2018; L. Graf leg.; DZUP 547669, 547670, 547673, 546820 to 548822 • 3 ♂♂; same data as for preceding; DZUP 547676, 546818, 546819 • 2 ♀♀; Curitiba, Quartel PQ Reg. Man. 5; 25°23'45.2" S, 49°13'38.1" W; 26 Jan. 2018; L. Graf leg.; DZUP 547418 • 5 ♂♂; same data as for preceding; DZUP 547406 to 547409, DZUP 547414 • 1 ♀; Curitiba, Parque Tingui; 25°23'46.7" S, 49°18'20.0" W; 23 Mar. 2018; L. Graf leg.; DZUP 548002 • 1 ♀; same data as for preceding; 28 Mar. 2018; DZUP 547520 • 1 ♂; Curitiba, Parque Tanguá; 25°22'42.4" S, 49°16'57.9" W; 14 May 2018; L. Graf leg.; DZUP 566811 • 1 ♀; Curitiba, Parque Barigui; 25°25'23.2" S, 49°18'28.1" W; 5 Dec. 2018; F.W. Pereira; DZUP 544062 • 6 ♀♀; Piraquara, Reserva Piraquara II; 20 Mar. 2024; A.A. Pinto, L. Polizel and R. Varela leg.; DZUP 522523 to 522528 • 3 ♂♂; same data as for preceding; DZUP 522529 to 522531. – **Pernambuco** • 1 ♀; Caruaru; [8°16'27.9" S, 35°57'32.7" W]; 900 m a.s.l.; May 1972; J.M. Lima leg.; DZUP 522351. – **Rio de Janeiro** • 1 ♀; “DZUP/521314// Itatiaya, 700/ I-VI-1941/E. Rio Brasil// *macrospilophorus*/moom./Det. J.S.Moure 19”; DZUP 521314. – **Santa Catarina** • 1 ♂; Rio dos Cedros; [26°44'31.8" S, 49°16'30.6" W]; 12 May 2007; Rafael Kamke leg.; “*Baccharis dracunculifolia*/Asteraceae/D. Falkenberg det. CJS 3047”; DZUP 522565 • 1 ♀; Pomerode; [26°44'05.4" S, 49°10'16.3" W]; 24 Aug. 2008; Rafael Kamke leg.; “*Allophylus edulis* / Sapindaceae/ Daniel Falkenberg det.//CJS 3848”; DZUP 522563 • 1 ♂; same data as for preceding; 25 Aug. 2008; “*Allophylus edulis* / Sapindaceae/ Daniel Falkenberg det.//CJS 3845”; DZUP 522580 • 1 ♂; Rio dos Cedros; [26°44'31.8" S, 49°16'30.6" W]; 10 Sep. 2008; “*Baccharis semierrata*/Asteraceae/Daniel Falkenberg det.//CJS 5429”; DZUP 522564 • 14 ♂♂; Pomerode; [26°44'05.4" S, 49°10'16.3" W]; 9 Sep. 2008; Rafael Kamke leg.; “*Baccharis semierrata*/Asteraceae/ Daniel Falkenberg det. CSJ 5397, CSJ 5399, CSJ 5400, CSJ 5401, CSJ 5402, CSJ 5403, CSJ 5419, CSJ 5418, CSJ 5423, CSJ 5404, CSJ 5407, CSJ 5408, CSJ 5409, CSJ 5410”; DZUP 522566 to 522579. – **São Paulo** • 1 ♀; São Paulo, IBUSP; [23°33'56.727" S, 46°43'45.996" W]; 21 Sep. 1981; F. Knoll leg.; “9:45 Hs./ Planta 266 Área A”; DZUP 521422 • 1 ♀; same data as for preceding; 21 Sep. 1982; “9:45 Hs./ Planta 266 Área A”; DZUP 521423 • 3 ♂♂; same data as for preceding; 1 Jun. 1982; “13:40 Hs./ Planta 15 Área A”; DZUP 521424 to 521426 • 7 ♀♀; Cajuru; [21°16'31.797" S, 47°18'2.504" W]; 30 Dec. 85; Moure and Camargo leg.; DZUP 522343 to 522349 • 1 ♀; same data as for preceding; 2 Jan. 1986; DZUP 522350 • 1 ♂; Barueri; [23°30'12.1" S, 46°52'31.7" W]; 6 Dec. 1965; K. Lenko leg.; NZSP, MZSP HYM 0140625 • 1 ♂; Salesópolis, Est. Biol. Boracéia; [23°31'45.049" S, 45°50'40.480" W]; 29 Mar. 1992; W. Wilms leg.; MZSP, MZSP HYM 0140623 • 1 ♂; same data as for preceding; 20 Jul. 1992; MZSP, MZSP HYM/0140624.

Redescription

Female

HEAD. Head dark olive green; covered with dense short white plumose setae, intermixed with black erect setae. Labrum amber to light brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; olive green, with an apical band brown; covered with dense short white decumbent setae, intermixed with longer erect setae; sparsely punctate intertwined with very fine punctures; areolate between the punctures. Supraclypeal area with some purplish reflections; punctulate; areolate between the punctures. Paraocular fovea extends from the base of the eye beyond the antennal socket, reaching

inner orbit emargination, always contiguous to the eye margin. Paraocular area sculpturing similar to that of the supraclypeal area. Frons punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle acute, sometimes with a projected tip. Pronotal lobe yellow. Tegula brown. Wing membrane hyaline. Mesoscutum anterior margin acuminate-shaped; surface dark olive green, often with dark purple reflections; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; apparently impunctate; strongly areolate. Mesepisternum dark olive green with some purple reflections; areolate. Metapostnotum weakly depressed in the median posterior surface; olive green; entirely areolate to coriaceous.

LEGS. Fore coxa brown, trochanter amber, femur brown with a yellow tip or ventrally, tibia and basitarsus amber. Mid coxa brown, trochanter amber, femur brown with a yellow tip, tibia and basitarsus amber. Hind leg brown. Hind femur with dense long plumose setae.

METASOMA. Terga dark brown with very weak purplish reflections, with yellow maculations, as follows: T2 with two lateral yellow maculations connected by a basal line (sometimes hidden by T1); T3 with two big yellow lateral basal maculations, occupying a third of the width of the tergo; T4 with two small yellow lateral maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in $S3 > S2 > S4 > S5 > S1$.



Fig. 15. *Habralictus macrospilophorus* Moure, 1941, non-type, ♀ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

MEASUREMENTS. Approximate body length 5.44 mm. Head mean width 1.54 mm; mean length 1.35 mm. Clypeoantennal mean distance 0.31 mm. Mean distance between subantennal sutures 0.36 mm. Lower interocular mean distance 0.85 mm. Upper interocular mean distance 0.88 mm. Scape mean length 0.69 mm. Intertegular mean distance 1.04 mm. T1 mean width 1.13 mm. T2 mean width 1.53 mm. T3 mean width 1.63 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened apex. Stipe brown. Clypeus slightly flattened in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse short white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, more densely punctate towards upper portion; polished between the punctures, but areolate closer to the

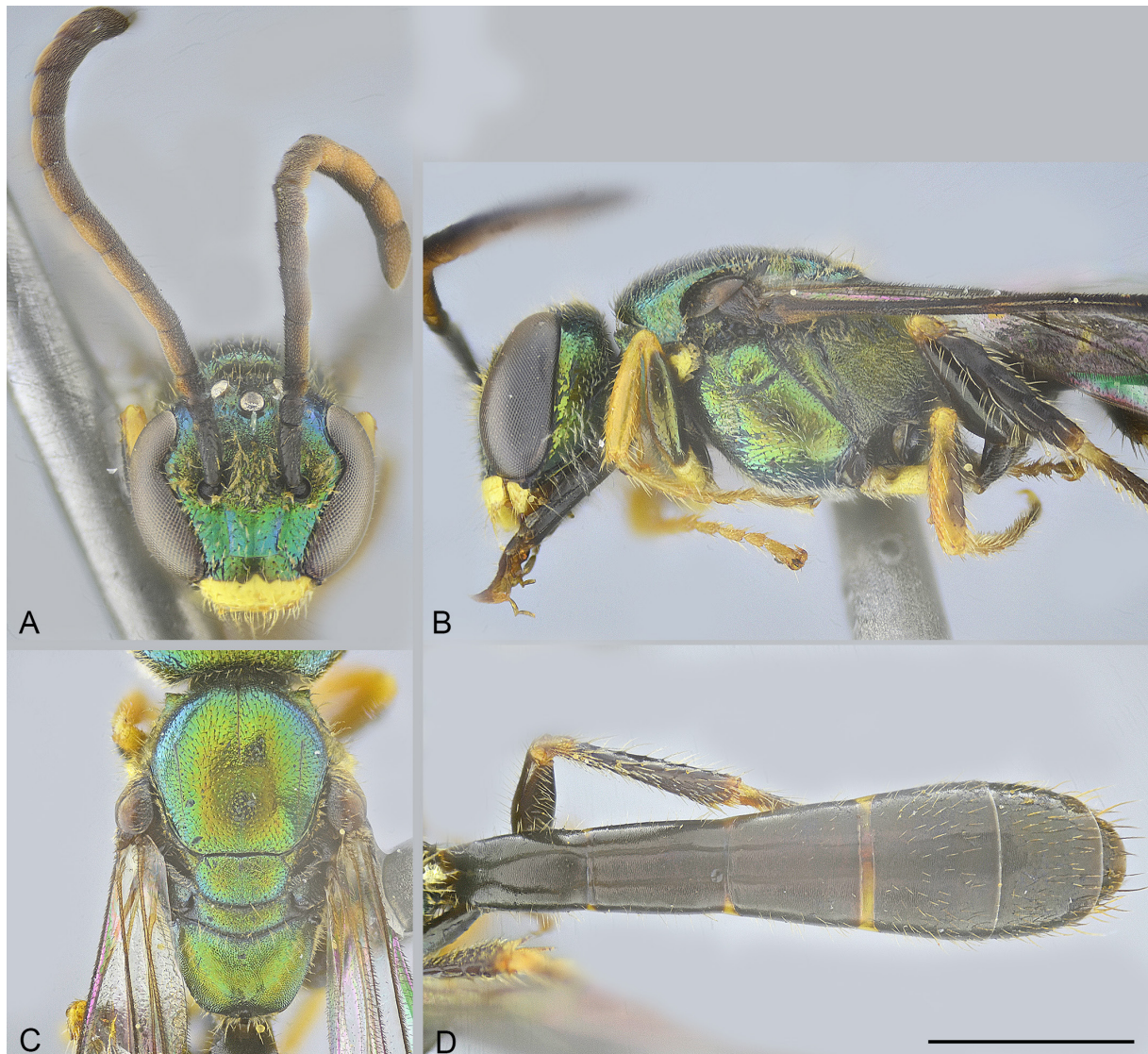


Fig. 16. *Habralictus macrospilophorus* Moure, 1941, non-type, ♂ (DZUP). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

antenna. Paraocular area fovea absent. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; strongly areolate (with a rough aspect). Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; covered with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 becoming shorter and more robust to the apex. Flagellum dark brown.

MESOSOMA. Pronotal dorsolateral angle acute. Pronotal lobe yellow. Tegula amber. Wing membrane hyaline. Mesoscutum with the anterior margin acuminate-shaped; surface bright green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; with a polished aspect, strongly lineolate on the anterior portion of median line. Scutellum bipunctulate and polished between the punctures. Mesepisternum bright green. Pre-episternum punctulate and polished between the punctures. Hypoepimeral area punctulate and polished between the punctures. Mesepisternum punctulate and polished between the punctures. Metapostnotum surface raised/elevated in relation to the propodeum, especially posteriorly; bright green; entirely areolate.

LEGS. Fore coxa brown, remaining segments yellow. Mid coxa brown, trochanter yellow, femur mostly yellow, with a brown apex or ventrally, tibia brown with a yellow apex, basitarsus yellow. Hind coxa and trochanter brown, femur brown with a yellow tip, tibia brown, basitarsus amber.

METASOMA. Terga clavate form (about the same width, apex more dilated); dark brown with yellow maculations, as follows: T2–T4 with yellow basal bands, sometimes hidden by the terga looking like separate maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S5 without any projection.

GENITALIA. Gonobase at least three times shorter than the gonocoxite, with basal projection. Gonocoxite elongate, basal portion of the dorsal inner margin forming a sinuose flange. Gonapophysis slender, apex weakly rounded, longer than the gonostylus, curved ventrally. Gonostylus basal lobe elongated, with short setae; ventral process C-shaped, with small setae elsewhere and long setae apically, dorsal process expanded apically. Volsella developed.

MEASUREMENTS. Approximate body length 5.92 mm. Head mean width 1.25 mm. Head mean length 1.16 mm. Clypeoantennal mean distance 0.27 mm. Mean distance between subantennal sutures 0.3 mm. Lower interocular mean distance 0.49 mm. Upper interocular mean distance 0.73 mm. Scape mean length 0.35 mm. Intertegular mean distance 0.83 mm. T1 mean width 0.45 mm. T2 mean width 0.54 mm. T3 mean width 0.73 mm.

Variation

Some specimens with a yellow maculation projected upwards in the central portion of the clypeus.

Distribution

Brazil: Goiás, Minas Gerais, Paraná, Pernambuco, Rio de Janeiro, Santa Catarina, São Paulo.

10. *Habralictus nitidus* sp. nov.

[urn:lsid:zoobank.org:act:7813BDFB-2314-4931-834D-C6E430962B66](https://zoobank.org/act:7813BDFB-2314-4931-834D-C6E430962B66)

Figs 17, 21D

Diagnosis

Female with mesosoma bright green, pronotal dorsolateral angle obtuse, mesoscutum areolate, fore coxa yellow, terga with pairs of yellow dorsolateral maculations. Differs from those of *H. callichroma* and *H. acuminatus* sp. nov. by the polished clypeus and the metasomal yellow maculations forming bands. Male not known.

Etymology

From Latin ‘*niteō*’, ‘to shine/clean, and ‘*-idus*’, ‘to place’, referring to the polished clypeus.

Type material

Holotype

BRAZIL – Acre • ♀; Mancio Lima, P.N. Serra do Divisor; [8°02'39" S, 73°33'55" W]; 15–17 Nov. 2016; R.S.M. Feitosa, A.C. Ferreira and T.S.R. Silva leg.; DZUP 522328.

Description

Female

HEAD. Head bright green; covered with sparse short white plumose setae. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse short white decumbent setae, intermixed with longer erect setae; punctulate; polished between the punctures. Supraclypeal area punctulate; areolate between the punctures. Paraocular fovea extends from the base of the eye to the antennal socket, always contiguous to the eye margin. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; coriaceous between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum dark brown.

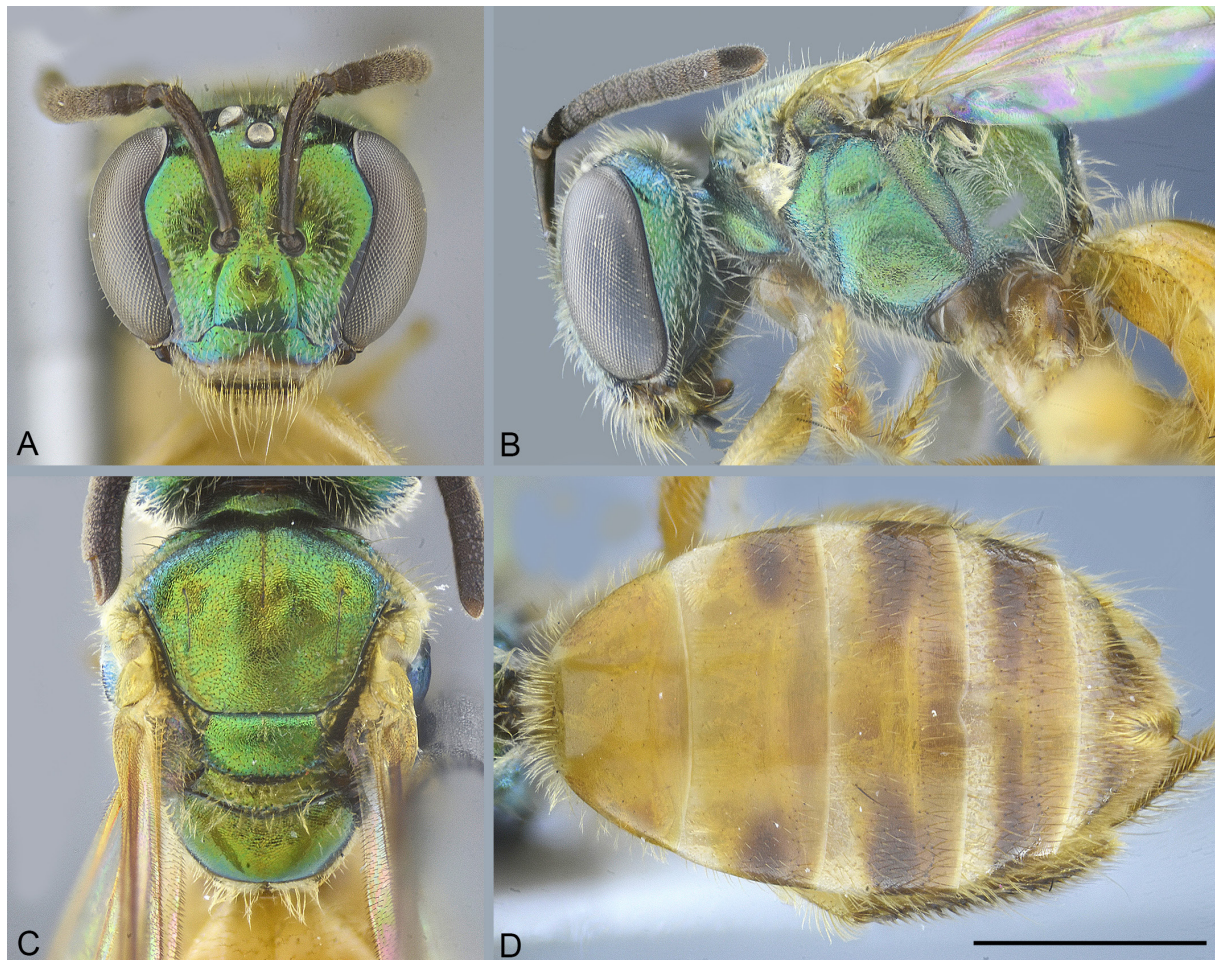


Fig. 17. *Habralictus nitidus* sp. nov., holotype, ♀ (DZUP 522328). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe yellow. Tegula yellow. Wing membrane hyaline. Mesoscutum anterior margin a little acuminate-shaped; surface bright green; covered with sparse decumbent setae; densely punctulate; areolate between the punctures. Mesepisternum bright green; areolate. Metapostnotum not depressed in the median posterior surface; bright green; entirely areolate to coriaceous.

LEGS. Fore leg yellow. Mid leg yellow. Hind coxa, trochanter and femur amber, tibia and basitarsus brown. Hind femur with dense long plumose setae.

METASOMA. Terga orange with yellow maculations, as follows: T2–T5 with yellow dorsal basal bands; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna covered with long plumose setae, denser and longer in S3 > S2 > S4 > S5 > S1.

MEASUREMENTS. Approximate body length 5.04 mm. Head width 1.5 mm; length 1.26 mm. Clypeoantennal distance 0.35 mm. Distance between subantennal sutures 0.3 mm. Lower interocular distance 0.74 mm. Upper interocular distance 0.8 mm. Scape length 0.7 mm. Intertegular distance 0.96 mm. T1 width 1.2 mm. T2 width 1.6 mm. T3 width 1.7 mm.

Male

Not known.

Distribution

Brazil: Mâncio Lima, Acre, Brazil.

11. *Habralictus obscuratus* sp. nov.

[urn:lsid:zoobank.org:act:2A2E1240-7DB8-4C83-A6F5-BFBC57B5C807](https://doi.org/10.21203/rs.3.rs-1240-7DB8-4C83-A6F5-BFBC57B5C807)

Figs 18–19, 21D

Diagnosis

Female with pairs of dorsolateral yellow maculations on the terga and dark mesoscutum. Differs from those of similar darkened species by the maculations on the metasoma, absent in *H. beatissimus*, and by the obtuse pronotal dorsolateral angle, acute in *H. ligeus* and *H. macrospilophorus*.

Male with yellow maculations on the terga and without paraocular fovea. Differs from that of *H. callichroma* by the acuminate-shaped anterior margin of the mesoscutum and brown stipe. Differs from that of *H. macrospilophorus* by the obtuse pronotal dorsolateral angle.

Etymology

From Latin ‘*obscurus*’, ‘dark’, and ‘*-atus*’, ‘having a’, referring to the dark colored mesoscutum.

Type material

Holotype

BRAZIL – **Espírito Santo** • ♀; BR 262 Km 125, 25 km NW of Conceição do Castelo; [20°19'4.661" S, 41°13'33.574" W]; 1000 m a.s.l.; 9 Jan. 1996; G.A.R. Melo leg.; DZUP 522330.

Paratype

BRAZIL – **Espírito Santo** • 1 ♂; Santa Teresa; [19°55'44.271" S, 40°35'55.976" W]; 21 Jul. 1966; C.T. and C. Elias leg.; DZUP 522511.

Description

Female

HEAD. Head bright green; covered with sparse short white plumose setae. Labrum dark brown. Mandible usually yellow with darkened apex. Clypeus not depressed in the middle; green, with an apical band brown; covered with sparse short white decumbent setae and with a band of long apical setae; punctulate; areolate between the punctures. Supraclypeal area with purple reflections; punctulate; areolate between the punctures. Paraoicular fovea extends from the base of the eye to the antennal socket, always attached to the eyes. Paraoicular area sculpturing similar to that of the supraclypeal area. Frons punctulate; areolate between the punctures. Gena covered with decumbent white setae. Scape dark brown. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse, or with a rounded aspect. Pronotal lobe yellow. Tegula amber. Wing membrane hyaline. Mesoscutum anterior margin rounded, not acuminate-shaped; surface dark olive green intermixed with purple reflections; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; areolate between the punctures. Mesepisternum bluish green; areolate. Metapostnotum not depressed in the median posterior surface; purplish green; entirely areolate to coriaceous.

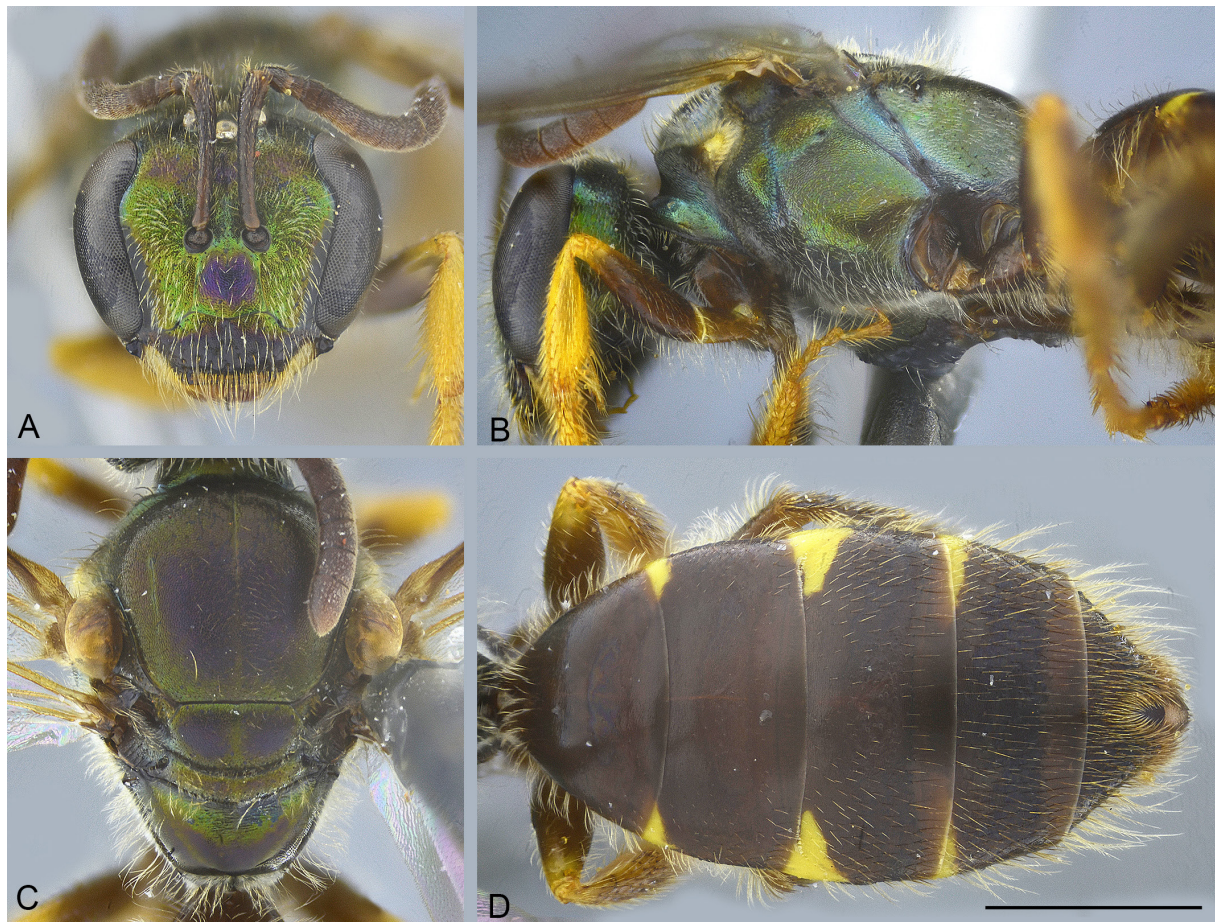


Fig. 18. *Habralictus obscuratus* sp. nov., holotype, ♀ (DZUP 522330). **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

LEGS. Fore coxa light brown, trochanter light brown to yellow, femur brown with a yellow tip, tibia and basitarsus yellow. Mid coxa brown, trochanter amber, femur brown with a yellow tip, tibia amber and ventrally yellow, basitarsus amber. Hind leg brown.

METASOMA. Terga dark brown with yellow maculations, as follows: T2 with two small yellow lateral basal maculations triangular-shaped, progressively increasing in length towards T5 where the yellow maculations occupy a little less than half of the width of the tergum, and are not connected; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T5; lineolate. Sterna very sparsely covered with shorter plumose setae.

MEASUREMENTS. Approximate body length 5.92 mm. Head width 1.5 mm; length 1.3 mm. Clypeoantennal distance 0.3 mm. Distance between subantennal sutures 0.36 mm. Lower interocular distance 0.82 mm. Upper interocular distance 0.84 mm. Scape length 0.64 mm. Intertergular distance 1.04 mm. T1 width 1.24 mm. T3 width 1.66 mm.

Male

HEAD. Head bright green; covered with sparse decumbent setae below the antennal socket and with dense short white decumbent setae above. Labrum yellow. Mandible usually yellow with darkened

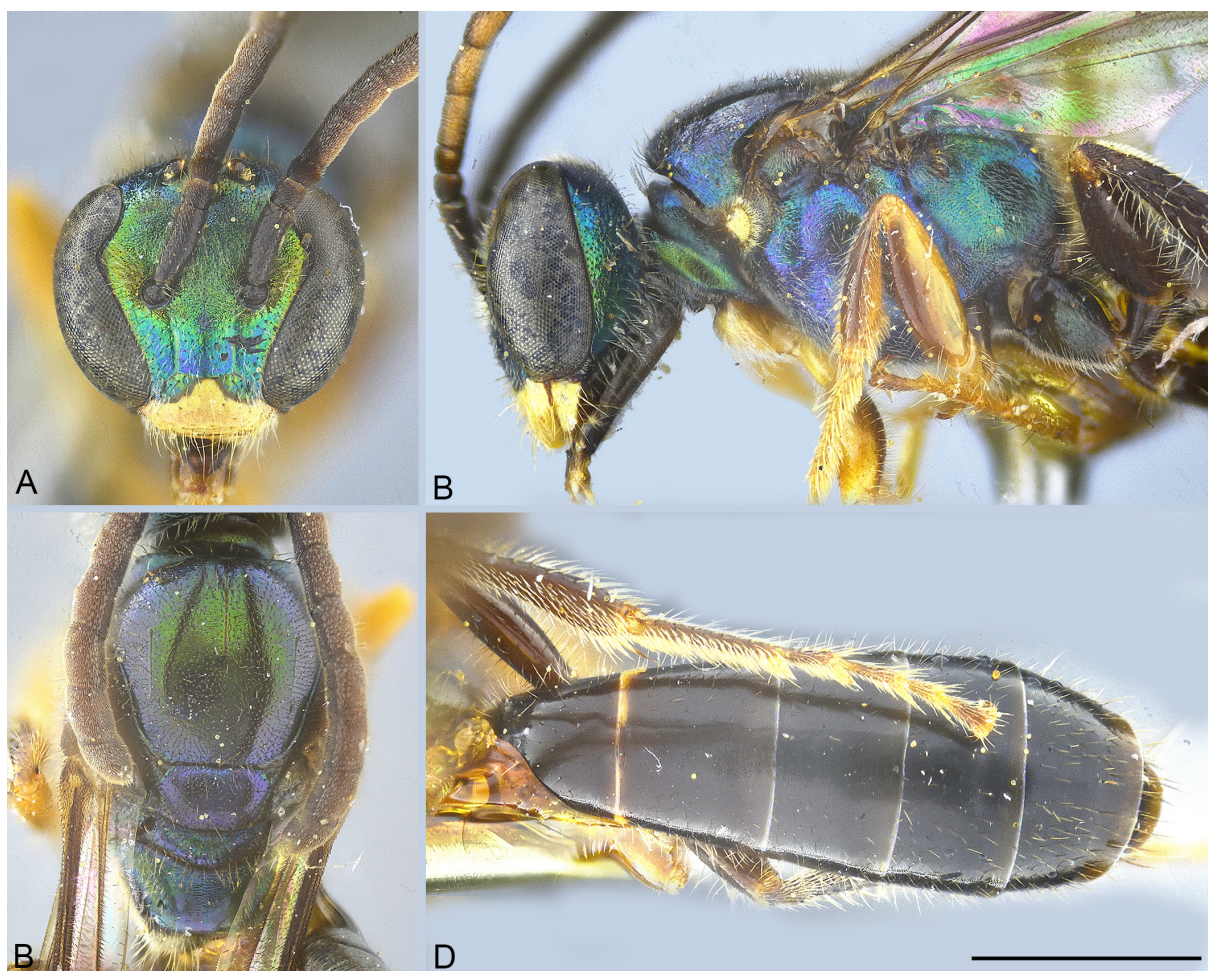


Fig. 19. *Habralictus obscuratus* sp. nov., paratype, ♂ (DZUP 522511) **A.** Head in frontal view. **B.** Mesosoma in lateral view. **C.** Mesosoma in dorsal view. **D.** Metasoma in dorsal view. Scale bar = 0.5 mm.

apex. Stipe brown. Clypeus not depressed in the middle; green, with an apical band yellow, which is projected upwards in the center; covered with sparse long white decumbent setae and with a band of long apical setae; punctulate; polished between the punctures. Supraclypeal area punctulate, more densely punctate towards the upper portion; lineolate. Paraocular area fovea absent. Paraocular area sculpturing similar to that of the supraclypeal area. Frons densely punctulate; strongly areolate (with a rough aspect). Gena covered with decumbent white setae and post-gena with longer plumose setae; polished. Scape dark brown; covered with sparse short erect setae (<0.1 mm). F1 about the same size as the pedicel (0.1 mm). Flagellomeres F2–F11 becoming shorter and more robust to the apex. Flagellum mostly dark brown, ventrally light brown to yellow.

MESOSOMA. Pronotal dorsolateral angle obtuse or with a rounded aspect. Pronotal lobe yellow. Tegula amber. Wing membrane hyaline. Mesoscutum with the anterior margin acuminate-shaped; surface bluish green; covered with very short tomentum and few sparse darker erect setae, more visible from an oblique view; punctulate; weakly lineolate between the punctures. Scutellum punctulate and polished between the punctures. Mesepisternum bluish. Pre-episternum punctulate and lineolate between the punctures. Hypoepimeral area punctulate and weakly lineolate. Mesepisternum punctulate and polished between the punctures. Metapostnotum surface flat/at the same level as the propodeum; bluish green; entirely lineolate to coriaceous.

LEGS. Fore leg yellow. Mid coxa brown, trochanter yellow, femur mostly yellow, with a brown apex or ventrally, tibia brown with a yellow apex, basitarsus yellow. Hind leg brown.

METASOMA. Terga clavate form (about the same width, apex more dilated); dark brown with yellow maculations, as follows: T2–T4 with yellow basal bands, sometimes hidden by the terga looking like separate maculations; covered with short decumbent setae very sparsely distributed in T1, which progressively become denser towards T6; lineolate. S5 without any projection.

GENITALIA. Gonobase almost one half of the gonocoxite, with basal projection developed. Gonocoxite short, dorsal inner margin forming a flange triangular-shaped, apical portion weakly developed. Gonapophysis slender, apex rounded, longer than the gonostylus, curved ventrally. Gonostylus basal lobe elongated, with short setae; ventral process curved, with small setae elsewhere and long setae apically, dorsal process expanded medially. Volsella developed.

MEASUREMENTS. Approximate body length 6 mm. Head mean width 1.44 mm. Head mean length 1.28 mm. Clypeoantennal mean distance 0.36 mm. Mean distance between subantennal sutures 0.3 mm. Lower interocular mean distance 0.5 mm. Upper interocular mean distance 0.76 mm. Scape mean length 0.4 mm. Intertegular mean distance 0.9 mm. T1 mean width 0.64 mm. T2 mean width 0.8 mm. T3 mean width 1.06 mm.

Distribution

Brazil: Espírito Santo.

Discussion

In this study we present a taxonomic revision for the species of *Habralictus* found in Brazil. We have examined 1537 specimens from the country and recognized eleven species, four of which are newly described: *Habralictus acuminatus* sp. nov., *H. cyaneus* sp. nov., *H. nitidus* sp. nov., and *H. obscuratus* sp. nov. Additionally, *Habralictus flavopictus* is considered a junior synonym of *Augochlora callichroma*, and *Habralictus orites* a junior synonym of *Zikaniella crassiceps*. We also reported a new occurrence of *Habralictus ligeus* in Brazil, previously recorded only in Bolivia.

The Brazilian species of *Habralictus* can be separated into two major groups based on the presence of metasoma yellow maculations, shape of female paraocular fovea, and length of male flagellomeres. One species group does not have maculations on the metasoma, the paraocular fovea is not contiguous to the eye margin near the inner orbit emargination, and the male F2–F11 are mostly subequal in length (*H. canaliculatus*, *H. beatissimus* and *H. cyaneus* sp. nov.). The other group has maculations on the metasoma, the paraocular fovea is contiguous to the eye margin, and the male flagellomeres become more robust and slightly shorter towards the apex (all the remaining species treated here). Although color-based characters play a secondary role in delimiting species of halictine bees, for *Habralictus* they revealed important taxonomic information also for species delimitation, if the coloration is consistent with other structural patterns, particularly the presence of yellow maculations in body parts such as the metasoma, clypeal apex, scape, and fore coxa, and the different colorations on the mesoscutum surface. Other sources of information are the sculpturing pattern, especially on the mesoscutum, mesepisternum, and metapostnotum.

The original description of *Augochlora callichroma* (Cockerell 1901), based on a specimen with a ferruginous metasoma, may have led Moure (1941) to describe *H. flavopictus* as a separate species, based on specimens with a brown metasoma. In addition to evidence indicating a single species with specimens exhibiting variation in metasomal coloration, literature examples also demonstrate that color variation has been used as a basis for separating morphotypes of single species in halictines. Specimens of *Augochlora* (*Augochlora*) *daphnis* Smith, 1853 with different body colors were used to propose three different species names (see Lepeco & Gonçalves 2018). Another known case came from *Agapostemon chapadensis* (Cockerell, 1900) and *Agapostemon semimelleus* (Cockerell, 1900). Roberts (1972) discussed that a distinction between both species, based primarily on the coloration of the metasoma, is not reliable taxonomic evidence, as he observed specimens with intermediate features. In both species, dark and amber metasoma can be found. Another example of metasomal color variation can be observed in specimens of *Paroxystoglossa jocasta* (Schrottky, 1910) (Moure 1940).

The distinctiveness of males of *H. crassiceps* is considered an extreme sexual dimorphism, and the female can be regarded as a typical *Habralictus*. The male features, such as the width of the head and the oval-shaped metasoma, led Moure to describe a separate genus to accommodate this species. On the other hand, features such as body size and coloration, the overall structure and sculpturing of the head and mesosoma, compound eyes with short and sparse setae, the clypeus apical band, elongated antenna, the posterior surface of the propodeum not delimited by a carina, and a petiolate metasoma, as well as other features mentioned throughout the text, conform to the expected pattern found in other *Habralictus* males. We found a male specimen from Bolivia with modifications on head and metasoma that suggests an undescribed species allied to *H. crassiceps*.

The genitalia of the known males (Fig. 20) exhibited differences in the gonocoxite, specifically in terms of relative size, and projections on the dorsal inner margin. The gonapophyses showed variations in thickness and apex shape, while the gonostyl showed variation on size and shape of the basal lobe, as well as the dorsal and ventral processes. We found strong similarities in the genitalia of *H. beatissimus* and *H. cyaneus* sp. nov., similar species also on external morphology as discussed above. In a lesser degree *H. canaliculatus* genitalia also is like these other species. On the other hand, the genitalia of *H. crassiceps* is the most distinct, in accordance with the external features described above. These characteristics reinforce the importance of the genitalia as source of information to the phylogeny of the group, as already demonstrated by previous authors (Roberts & Brooks 1987; Janjic & Packer 2003; Gonçalves & Melo 2010).

Habralictus has been recorded from the state of Jalisco, in Mexico, through the center of Costa Rica to the south of Panama, including some islands in the Lesser Antilles (Vachal 1904; Friese 1916; Cockerell

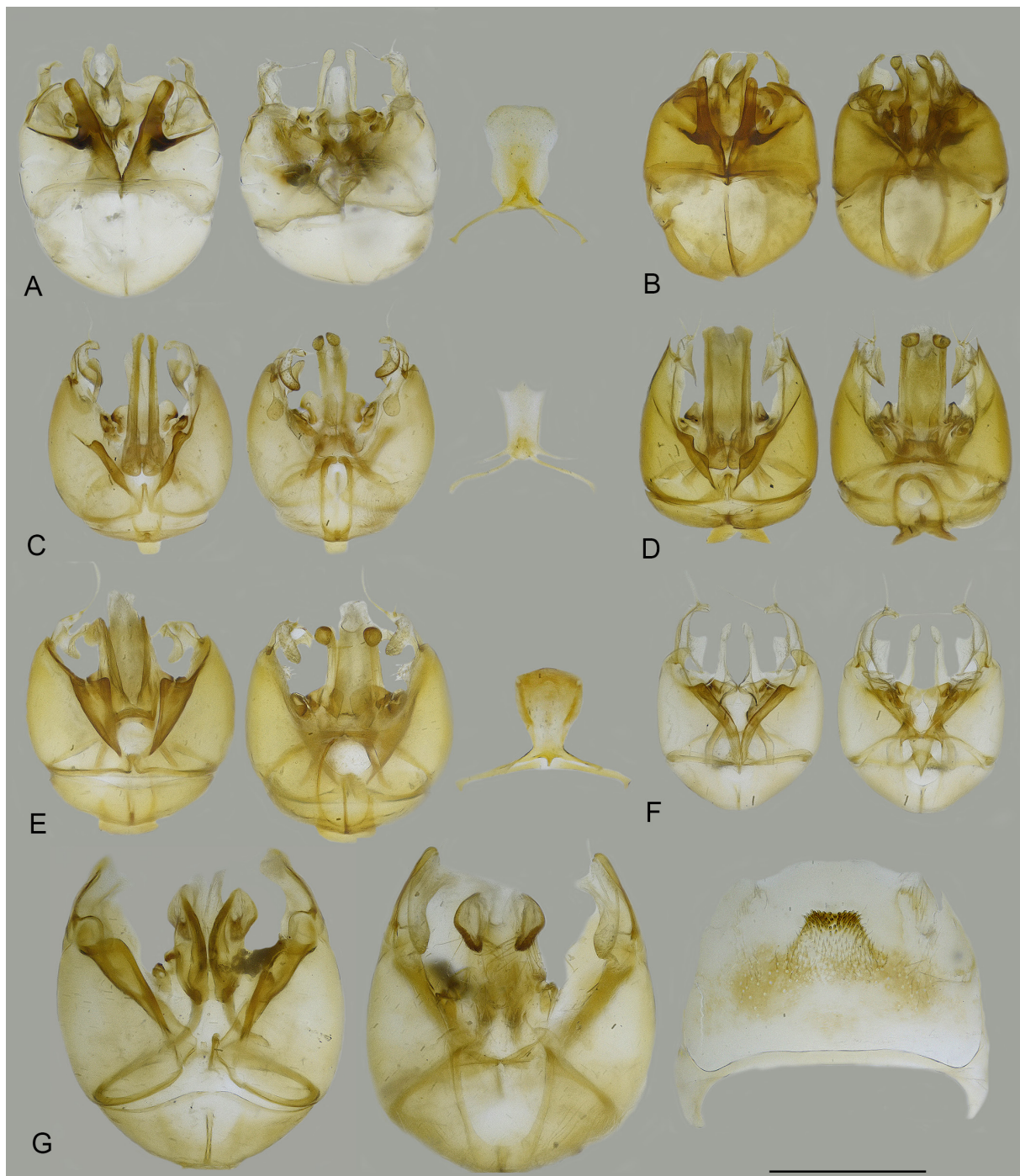


Fig. 20. Male terminalia of *Habralictus* Moure, 1941 from Brazil. **A.** Dorsal and ventral view of the genitalia, S7 and S8 of *Habralictus beatissimus* (Cockerell, 1901) (DZUP 522510). **B.** Dorsal and ventral view of the genitalia of *H. cyaneus* sp. nov., paratype (DZUP 522514). **C.** Dorsal and ventral view of the genitalia, S7 and S8 of *H. macrospilophorus* Moure, 1941 (DZUP 5522529). **D.** Dorsal and ventral view of the genitalia of *H. callichroma* (Cockerell, 1901) (DZUP 522326). **E.** Dorsal and ventral view of the genitalia, S7 and S8 of *H. oscuratus* sp. nov., paratype (DZUP 522511). **F.** Dorsal and ventral view of the genitalia of *H. canaliculatus* Moure, 1941 (DZUP 522520). **G.** Dorsal and ventral view of the genitalia and S6 of *H. crassiceps* Moure, 1941 (DZUP 521323). Scale bar = 1 mm.

1918; Smith-Pardo 2009; Gibbs 2012, 2016; Gibbs *et al.* 2022). In South America, the occurrences cover Colombia, Peru, Bolivia (including *H. ligeus*) (Moure & Melo 2022) and recently Argentina (including *H. chlorobaptus* and *H. callichroma*) (Alvarez *et al.* 2024). We also have examined specimens deposited in DZUP from Bolivia, Colombia, Costa Rica, Granada, Guiana, Panama, and Peru, suggesting that additional new species are likely to be found in these countries, as we observed far more morphospecies than available names.

Among Brazilian *Habralictus*, *H. callichroma* exhibits a relatively wide distribution range, extending from northern Paraná, in the south, across all southwestern states, to Goiás and Mato Grosso in the midwest region, reaching the state of Acre in the north (Fig. 21C). This species appears to be the most common one, occurring in at least three different biomes, as well reaching high altitude localities, around 1190 to over 1300 meters above sea level. *Habralictus canaliculatus* and *H. macrospilophorus* show a distribution pattern closely associated with the Atlantic Forest, with almost all recorded occurrences within this biome (Fig. 21A–B, respectively). Exceptions include two males of *H. canaliculatus* from Maranhão, which is still located along the coastline, and a female of *H. macrospilophorus* from Goiás, likely in the gallery forests of the Cerrado. *Habralictus crassiceps* is also known from the Atlantic Forest, with records from Paraná and Rio de Janeiro. *Habralictus beatissimus* is abundant in Minas Gerais and has also been recorded in Goiás and Mato Grosso, extending further into the Cerrado biome than the other species (Fig. 21A). In contrast, the remaining species have more restricted distributions, as most

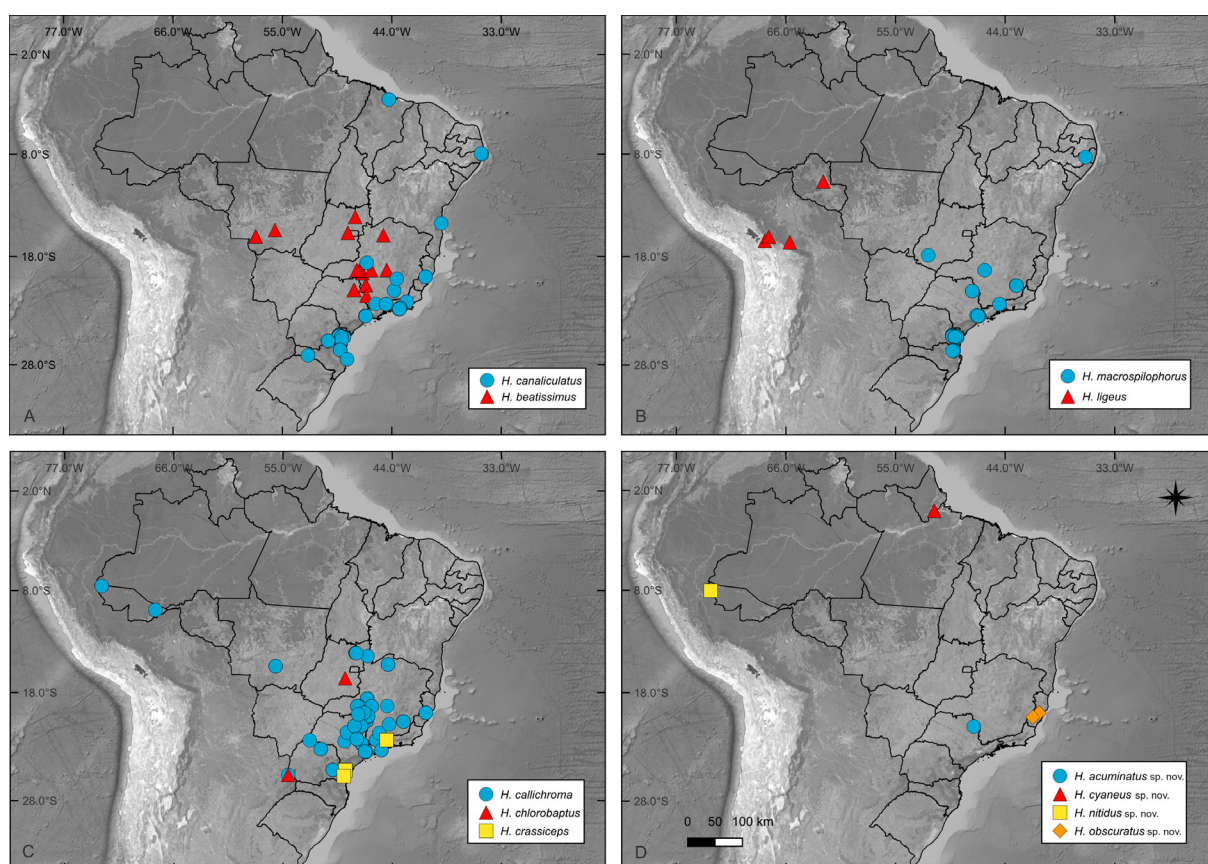


Fig. 21. Distribution maps for *Habralictus* Moure, 1941 from Brazil. **A.** *H. canaliculatus* Moure, 1941 and *H. beatissimus* (Cockerell, 1901). **B.** *H. macrospilophorus* Moure, 1941 and *H. ligeus* (Schrottky, 1911). **C.** *H. callichroma* (Cockerell, 1901), *H. chlorobaptus* Moure, 1941 and *H. crassiceps* Moure, 1941. **D.** *H. acuminatus* sp. nov., *H. cyaneus* sp. nov., *H. nitidus* sp. nov. and *H. obscuratus* sp. nov.

are known only from their type localities, indicating that further field collecting and investigation in museums are necessary. *Habralictus ligeus*, *H. cyaneus* sp. nov., and *H. nitidus* sp. nov. are known from the Amazon forest (Fig. 21B, D) while *H. acuminatus* sp. nov. and *H. obscuratus* sp. nov. are found in the Atlantic Forest (Fig. 21D). Finally, *H. chlorobaptus* was for a long time known only from a single record in Goiás but has recently been found in Argentina (Alvarez *et al.* 2024) (Fig. 21C).

To conclude, this study has contributed to the improvement of *Habralictus* taxonomy in Brazil. The information provided, including photographs, taxonomic descriptions, diagnoses, and identification keys for both sexes, are expected to support future studies. A taxonomic review on a larger scale should be conducted, due to the remaining unexplored diversity in South America and the expectation to find additional species in the Brazilian Amazon. Also, future studies should focus on the phylogeny and ecology of the group, which remains largely unexplored.

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References

- Alvarez L.J., Ramello P.J., Avalos A.A., Almada V., Aguirre M.S., Torretta J.P. & Lucia M. 2024. Contributions to the wild bee fauna in Argentina (Hymenoptera: Anthophila). *Papéis Avulsos de Zoologia* 64: 1–13. <https://doi.org/10.11606/1807-0205/2024.64.006>
- Cameron P. 1903. Descriptions of new species of Hymenoptera taken by Mr. Edward Whymper on the “Higher Andes of the Equator”. *Transactions of the American Entomological Society* 29: 225–238. Available from <https://www.biodiversitylibrary.org/page/10445175> [accessed 5 Mar. 2024].
- Cockerell T.D.A. 1900. Descriptions of new bees collected by Mr. H.H. Smith in Brazil. I. *Proceedings of the Academy of Natural Sciences of Philadelphia* 52: 356–377. Available from <https://www.biodiversitylibrary.org/page/24694236> [accessed 5 Mar. 2024].
- Cockerell T.D.A. 1901. Descriptions of new bees collected by Mr. H.H. Smith in Brazil. II. *Proceedings of the Academy of Natural Sciences of Philadelphia* 53: 216–222. Available from <https://www.biodiversitylibrary.org/page/10089225> [accessed 5 Mar. 2024].
- Cockerell T.D.A. 1918. A group of American halictine bees simulating the Old-World genus *Nomioides*. *The Canadian Entomologist* 50: 348–350. Available from https://digitalcommons.usu.edu/bee_lab_co/598 [accessed 5 Mar. 2024].
- Coleman C.O., Lowry J. & Macfarlane T. 2010. DELTA for beginners. An introduction into the taxonomy software package DELTA. *ZooKeys* 45: 1–75. <https://doi.org/10.3897/zookeys.45.263>
- Dallwitz M.J. 1980. A general system for coding taxonomic descriptions. *Taxon* 29: 41–46. <https://doi.org/10.2307/1219595>
- Dallwitz M.J., Paine T.A. & Zurcher E.J. 1993 onwards. User’s guide to the DELTA System: A general system for processing taxonomic descriptions. Available from <https://www.delta-intkey.com/www/uguide.pdf> [accessed 5 Mar. 2024].

- Dallwitz M.J., Paine T.A. & Zurcher E.J. 1999 onwards. User's guide to the DELTA Editor. Available from <https://www.delta-intkey.com/> [accessed 5 Mar. 2024].
- Danforth B.N., Brady S.G., Sipes S.D. & Pearson A. 2004. Single-copy nuclear genes recover Cretaceous-age divergences in bees. *Systematic Biology* 53 (2): 309–326. <https://doi.org/10.1080/10635150490423737>
- Eickwort G.C. 1969. A comparative morphological study and generic revision of the augochlorine bees. *The University of Kansas Science Bulletin* 48 (13): 325–524. Available from <https://www.biodiversitylibrary.org/page/3279444> [accessed 5 Mar. 2024].
- Ferreira M.C.C.S. 2022. *The Importance of Ecosystem Services Provided by Bees in Organic Tomato Crops: Production and Increase of Pollinators*. PhD thesis, Universidade Federal de Uberlândia, Uberlândia. <https://doi.org/10.14393/ufu.te.2022.503>
- Friese H. 1916. Zur Bienenfauna von Costa Rica (Hym.). *Stettiner Entomologische Zeitung* 77: 287–350. Available from <https://www.biodiversitylibrary.org/page/8826443> [accessed 5 Mar. 2024].
- Gibbs J. 2012. A new species of *Habralictus* Moure from Dominica, Lesser Antilles (Hymenoptera, Halictidae). *ZooKeys* 168: 1–12. <https://doi.org/10.3897/zookeys.168.2524>
- Gibbs J. 2016. Bees of the family Halictidae Thomson, 1869 from Dominica, Lesser Antilles (Hymenoptera: Apoidea). *European Journal of Taxonomy* 180: 1–50. <https://doi.org/10.5852/ejt.2016.180>
- Gibbs J., Bass A. & Morgan K. 2022. *Habralictus* and *Lasioglossum* of Saint Lucia and Saint Vincent and the Grenadines, Lesser Antilles (Hymenoptera, Apoidea, Halictidae). *ZooKeys* 1089: 125–167. <https://doi.org/10.3897/zookeys.1089.72645>
- Gonçalves R.B. & Melo G.A.R. 2010. Phylogeny of the bee subtribe Caenohalictina Michener (Hymenoptera, Apidae s.l., Halictinae s.l.). *Zoologica Scripta* 39: 187–197. <https://doi.org/10.1111/j.1463-6409.2009.00414.x>
- Gonçalves R.B. & Pereira F.W. 2022. New species of the cuckoo bee genus *Austrosphcodes* Michener, 1978 (Hymenoptera: Apoidea: Sphecodini) and a key for Brazilian species. *European Journal of Taxonomy* 819 (1): 55–89. <https://doi.org/10.5852/ejt.2022.819.1777>
- Gutiérrez-Chacón C., Vélez D. & González V.H. 2022. *Abejas de la Subcuenca del Río Meléndez, Valle del Cauca, Colombia*. Guía de campo. Wildlife Conservation Society, Colombia.
- Harris R. 1979. A glossary of surface sculpturing. *Occasional Papers in Entomology* 28: 1–31.
- Janjic J. & Packer L. 2003. Phylogeny of the bee genus *Agapostemon* (Hymenoptera: Halictidae). *Systematic Entomology* 28: 101–124. <https://doi.org/10.1046/j.1365-3113.2003.00204.x>
- Lepeco A. & Gonçalves R.B. 2018. The colour and the shape: Morphological variation on a facultatively eusocial bee *Augochlora* (*Augochlora*) *amphitrite* (Schrottky). *Sociobiology* 65 (4): 662–670. <https://doi.org/10.13102/sociobiology.v65i4.3388>
- Maldonado-Cepeda J.D., Gómez J.H., Benavides P., Jaramillo J. & Gil Z.N. 2024. Taxonomic and functional diversity of flower-visiting insects in coffee crops. *Insects* 15 (3): 143. <https://doi.org/10.3390/insects15030143>
- Melo G.A. & Liz J.A.D. 2025. The type material of the Neotropical bee genus *Habralictus* Moure (Apidae, Halictinae) in the Museum für Naturkunde, Berlin, Germany. *Papéis Avulsos de Zoologia* 65: e202565005. <https://doi.org/10.11606/1807-0205/2025.65.005>
- Michener C.D. 1954. Bees of Panama. *Bulletin of the American Museum of Natural History* 104: 1–175. Available from <http://hdl.handle.net/2246/1183> [accessed 19 Mar. 2024].

- Michener C.D. 2000. *The Bees of the World*. 1st ed. Johns Hopkins University Press, Baltimore.
- Michener C.D. 2007. *The Bees of the World*. 2nd ed. Johns Hopkins University Press, Baltimore.
- Michener C.D., Lange R.B., Bigarella J.J. & Salamuni R. 1958. Factors influencing the distribution of bees' nests in earth banks. *Ecology* 39 (2): 207–217. <https://doi.org/10.2307/1931865>
- Michener C.D., Breed M.D. & Bell W.J. 1979. Seasonal cycles, nests, and social behavior of some Colombian halictine bees (Hymenoptera; Apoidea). *Revista de Biología Tropical* 27 (1): 13–34. Available from <https://revistas.ucr.ac.cr/index.php/rbt/article/view/25687>
- Moure J.S. & Melo G.A.R. 2022. Halictini Thomson, 1869. In: Moure J.S., Urban D. & Melo G.A.R. (Orgs) *Catalogue of Bees (Hymenoptera, Apoidea) in the Neotropical Region – online version*. Available from <http://www.moure.cria.org.br/catalogue> [accessed 19 Mar. 2024].
- Moure J.S., Urban D. & Melo G.A.R. 2007. *Catalogue of Bees (Hymenoptera, Apoidea) in the Neotropical Region*. Sociedade Brasileira de Entomologia, Curitiba.
- Moure P.J. 1940. I – Apoidea Neotropica. *Arquivos de Zoologia* 2: 39–64. <https://doi.org/10.11606/issn.2176-7793.1941239-64>
- Moure P.J. 1941. Apoidea Neotropica – III. *Arquivos do Museu Paranaense* 1: 41–99.
- Muñoz C., Palacios A.C., Prado C.M.M., Nasamues M.C., Murillo D.E.R. & Alejandro R. 2023. *Polinización del Aguacate (Persea americana Mill): Diversidad de Abejas y Flora Local*. Corporación colombiana de Investigación agropecuaria – AGROSAVIA, Colombia. Available from <http://hdl.handle.net/20.500.12324/38745> [accessed 19 Mar. 2024].
- Paz F.S., Pinto C.E., Brito R.M., Imperatriz-Fonseca V.L. & Giannini T.C. 2021. Edible fruit plant species in the Amazon forest rely mostly on bees and beetles as pollinators. *Journal of Economic Entomology* 114 (2): 710–722. <https://doi.org/10.1093/jee/toaa284>
- Roberts R.B. 1972. Revision of the bee genus *Agapostemon* (Hymenoptera: Halictidae). *The University of Kansas Science Bulletin* 49 (9): 437–590. <https://www.biodiversitylibrary.org/part/147652>
- Roberts R.B. & Brooks R.W. 1987. Agapostemonine bees of Mesoamerica (Hymenoptera: Halictidae). *The University of Kansas Science Bulletin* 53: 357–392.
- Schrottky C. 1910. Descrição de abelhas novas do Brazil e de regiões vizinhas. *Revista do Museu Paulista* 8: 71–88. Available from <https://www.biodiversitylibrary.org/page/10798589> [accessed 19 Mar. 2024].
- Schrottky C. 1911. Neue südamerikan. Hymenoptera. 5. Fortsetzung. *Entomologische Rundschau* 28: 38–39. Available from <https://www.biodiversitylibrary.org/page/43670057> [accessed 19 Mar. 2024].
- Silveira F.A., Melo G.A.R. & Almeida E.A.B. 2022. *Abelhas Brasileiras: Sistemática e Identificação*. Authors' edition, Belo Horizonte.
- Smith F. 1853. *Catalogue of Hymenopterous Insects in the Collection of the British Museum. Part I. Andrenidae and Apidae*. British Museum, London. <https://doi.org/10.5962/bhl.title.20858>
- Smith-Pardo A.H. 2009. A new species of *Habralictus* (Hymenoptera, Halictidae) from the Island of Grenada (Lesser Antilles) with comments on the insular species of the genus. *ZooKeys* 27: 51–58. <https://doi.org/10.3897/zookeys.27.265>
- Vachal J. 1904. Étude sur les *Halictus* d'Amérique (Hym.). *Miscellaneous Entomology* 12: 137–144.

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