Revista Brasileira de Entomologia 62 (2018) 83–86

SOCIEDADE BRASILEIRA DE ENTOMOLOGIA
FUNDADA EM 1937

REVISTA BRASILEIRA DE
Entomologia
A Journal on Insect Diversity and Evolution

www.rbentomologia.com

Short Communication

Metapolybia araujoi, a new species of swarming social wasp from the Brazilian Amazon rainforest (Vespidae: Polistinae)

Alexandre Somavilla[a,*], Sérgio Ricardo Andena[b]

[a] *Instituto Nacional de Pesquisas da Amazônia, Coordenação de Biodiversidade, Av. André Araújo, Manaus, AM, Brazil*
[b] *Universidade Estadual de Feira de Santana, Museu Zoologia, Divisão de Entomologia, Av. Transnordestina, Feira de Santana, BA, Brazil*

ARTICLE INFO

Article history:
Received 11 December 2017
Accepted 16 February 2018
Available online 1 March 2018
Associate Editor: Marcel Hermes

Keywords:
Adolph Ducke
Epiponini
Metapolybia
Pará State, Brazil

ABSTRACT

A new species of *Metapolybia*, collected in Pará State, Brazil, by Adolph Ducke, in 1902, is described and comparative remarks are given.

Metapolybia Ducke, 1905, is a Neotropical social wasp genus originally based on a single species, *Polybia pediculata* Saussure, 1854 (=*Eumenes cingulata* Fabricius, 1804). The first revision of the genus added four species (Araujo, 1945). Later, Richards (1978) described another six species and, since then, five more species were described by Smethurst and Carpenter (1998), Cooper (1999) and Andena and Carpenter (2011), to a total of sixteen species currently recognized in the genus from Mexico to Paraguay.

Richards (1978: 183) cited that "Although superficially very different, this genus is quite close to *Synoeca* in important structural features. There is no pronotal keel or fovea but in front of where the latter would be is an elongate prominence. The entrance to the spiracular chamber is high and very narrow and the occiput is somewhat marginate with the head produced behind the eyes. The gena is not margined. The gastral petiole is long and narrow but widened and convex at its posterior end; the remainder of the gaster is suddenly expanded, cordiform and not at all coadapted to the petiole". The close relationship of *Metapolybia* to *Synoeca* was, later, phylogenetically corroborated by Carpenter (1991), Wenzel (1993), and Noll et al. (2004).

The nests are arboreal, with sessile initiation on broad surface and single comb expanded suddenly in blocks on substrate adjacent to earlier comb and or any side of it when nest is on horizontal surface. Envelope from substrate (lacking in *M. bromelicola*) or from fully elongated cell walls (*M. docilis)*, single sheet, with secretions often forming clear windows and margin partly removed and expanded to cover continuous combs together. Entrance spout peripheral, curved upward (Richards, 1978; Wenzel, 1998: 16–17).

A new species was deposited at Muséum National d'Histoire Naturelle in Paris, France, and was recognized by the first author during his visit to that institution. The terminology employed follows Richards (1978), Cooper (1999) and Andena and Carpenter (2011)

Metapolybia araujoi Somavilla & Andena, new species
(Fig. 1 A–E)

Diagnosis: Body color reddish-brown, resembling *M. suffusa*, *M. rufata* and *M. encantata*. Differing from the previously mentioned species by the blackish scutum, contrasting with the rest of the body; punctures on vertex and clypeus larger and deeper, contiguous, separated by approximately 1.0× their own diameter or less; propodeum with a well-defined concavity and evident striae; first metasomal tergum is filiform and with a vestigial groove apically, in lateral view.

Female: Size: 10.0 mm, forewing 7.5 mm in length.

Color: Reddish-brown species, scutum blackish; margin of pronotum in dorsal view, yellow; scape of antenna brownish, flagellomeres becoming darker, blackish; clypeus, front and vertex blackish, opaque, ventral margin of clypeus yellow; mandible reddish-brown with a yellow spot; tergum II–IV with evanescent yellow apical bands; all sterna with evanescent yellow bands; legs reddish-brown; wings hyaline, venation brown.

* Corresponding author.
E-mail: alexandresomavilla@gmail.com (A. Somavilla).

https://doi.org/10.1016/j.rbe.2018.02.001

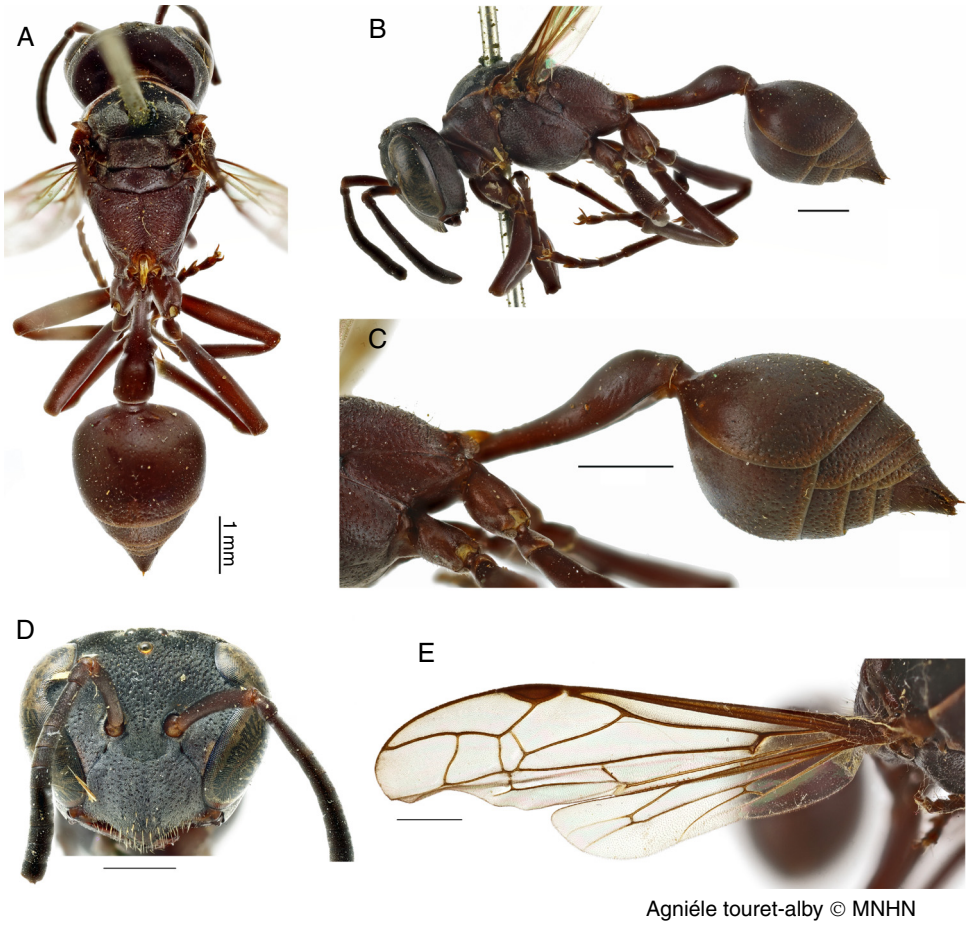

Fig. 1. *Metapolybia araujoi* Somavilla & Andena new species: (A) dorsal view; (B) lateral view; (C) metasoma in lateral view; (D) head front view; (E) anterior and posterior wings. Scale bar = 01 mm. Figures by Agnièle Touret-Alby © MNHN.

Head: (1) clypeus 1.5 times wider than long, punctures strong, large and deep, separated by approximately 1.0× their own diameter or less; short pubescence covering most of the clypeus, except the tip, clypeus bristles long at apex, being bare on medial and upper region; upper margin separated by less than the width of the antennal socket; lateral margin touching the eyes by more than the antennal socket; (2) interantennal prominence raised, subacute, with a weak medial furrow; (3) frons and vertex covered with yellowish pubescence, punctures large and deep, contiguous, separated by less than 1.0 diameter, giving a rugose aspect; (4) gena 0.80 width of eye, narrowing to mandibular condyle abruptly, covered with yellowish pubescence; punctures large and deep, spaced, separated by about 2.0 diameter; occipital carina present (5) tempora narrowing to vertex; (6) posterior region of head excavated, very strongly emarginate.

Mesosoma: (1) anterior pronotal carina little raised, acute, extending to ventral corner; (2) humeri slightly projected forward, rounded; (3) pretegular carina projecting on upper region, acute, curved, not interrupted; (4) pronotum with punctures large and deep, separated by about 1.0 diameter (5) scutum 1.5 times wider than long; punctures large and deep, separated by 1.0 diameter; (6) mesopleura convex with deep punctures separated by 1.0 diameter, becoming sparser laterally; upper plate about twice longer than wide, dorsal mesepisternal groove very shallow; (7) scutellum slightly concave posteriorly, medial line raised anteriorly, vanishing posteriorly, punctures separated by 1.0 diameter; (8) metanotum moderately concave, punctures scattered; (9) propodeum with few erect hairs and distinct punctures laterally; (10) propodeal concavity deep and well defined, striation evident, extending laterally; (11) opening of propodeal muscle large, rounded; (12) prestigma of the forewing as long as wide, with the tip truncate; sub-marginal cell II narrow.

Metasoma: (1) Tergum I filiform, slightly widened after the prominent spiracles in dorsal view, posteriorly convex in lateral view, angle very produced, punctures very weak, spaced; vestigial groove in apical part, in lateral view; (2) tergum II 1.2 times wider than long; punctures more distinct and strong on posterior fifth; yellowish pubescence; (3) terga III–VI more densely punctured than tergum I; (4) punctures on sterna II–V more evident on posterior apical region.

Male: unknown.

Nest: unknown.

Holotype: female ♀, Brazil, Pará, Adolph Ducke leg., 28.02.1902, Museum Paris, France – Muséum National d'Histoire Naturelle (MNHN, Paris EY25602). There is no information of a specific locality, only the state and country.

Distribution: Brazil: Pará.

Etymology: We are naming this species according to a label found attached to the specimen by the late O.W. Richards – "*M. araujoi* Rich./paratype" (Fig. 2).

Comparative remarks

The reddish-brown color is similar to *M. suffusa*, *M. rufata* and *M. encantata*; however, *M. araujoi* does not present extensive yellow marks and large yellow spots on the mandible, inner orbits, scape and propodeum (see Figs. 1 and 3A and 3B). Only yellow evanescent pale apical bands in terga II–VI are present. Unlike the new

Fig. 2. Labels found attached to the specimen.

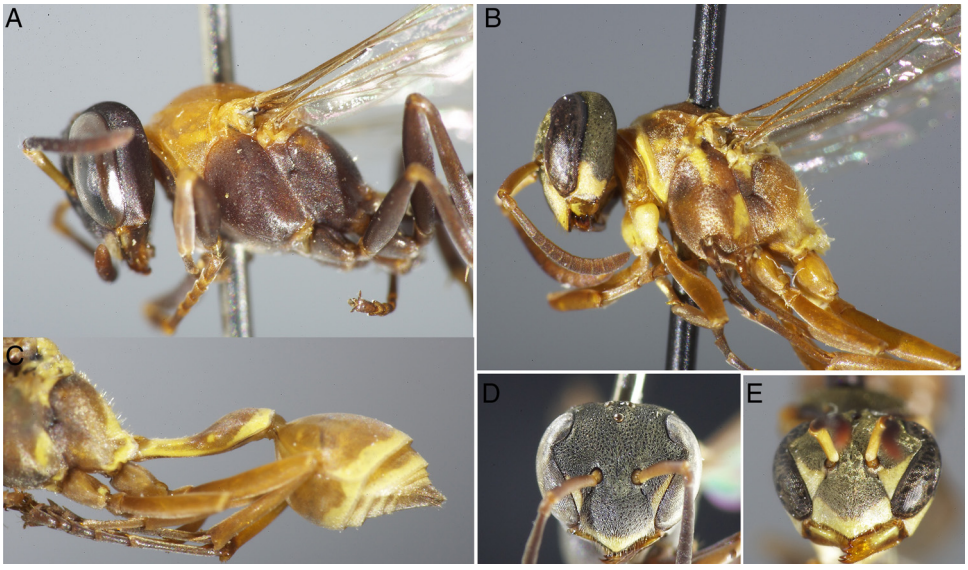

Fig. 3. (A) *M. encantata* – head and mesosoma in lateral view; (B) *M. suffusa* – head and mesosoma in lateral view; (C) *M. suffusa* – metasoma in lateral view; (D) *M. rufata* – head in frontal view; (E) *M. suffusa* – head in frontal view.

species, *M. suffusa, M. rufata* and *M. encantata* have, in general, the punctures smaller, shallower and sparser. Among these species *M. araujoi* is the only one that have the most evident punctation, specially on clypeus (see Figs 1D and 3D and 3E). *Metapolybia rufata* has the punctures on clypeus little less dense than in *M. araujoi* (Fig. 3D), although the pubescence is more evident. *Metapolybia suffusa* shares with the new species long bristles on apex of clypeus, which are smaller in *M. rufata* and *M. encantata*, and shares with *M. rufata* a more evident punctation on frons. In *M. suffusa*, the gena is less narrowed to mandibular condyle, a feature not shared with the other species.

M. suffusa and *M. encantata* do not have the humeri projecting forward (Richards, 1978; Cooper, 1999), which is a feature present in *M. araujoi*.

As described above, the propodeal concavity is one of the diagnostic features of the new species. *Metapolybia suffusa* and *M. encantata* have the propodeal concavity as deep as in *M. araujoi*, but it is not striate in *M. suffusa* (see also Araujo, 1945: 77) and in *M. encantata* the striation is weak (Cooper, 1999: 107). *Metapolybia rufata* differs from the other three species in having the angles of propodeum not striate and posterior concavity very feeble (Richards, 1978: 190).

Tergum I is very convex in *M. araujoi*, in *M. encantata* and in *M. rufata* (Cooper, 1999: 107, Figs. 1 and 2). The spiracle in *M. araujoi* is very produced, although, Cooper (1999: 107) describe the spiracle of *M. encantata* as “very weak to prominent”, what may be a polymorphism; in opposite, in *M. rufata* the spiracles are scarcely at all projecting (Richards, 1978: 190). Metapolybia suffusa has the

tergum I less convex and the spiracles little projected (see Fig. 3C and Araujo, 1945: 75 Fig. 3).

Also, the new species resembles the reddish form of *M. docilis*, but can be easily distinguished by the propodeal concavity deeper and strongly striated; wings with venation brown and clypeus narrower and lacking yellow spots.

Despite noted in the label as "paratype" (Richards handwriting) the species was not described by him. The other two labels – red label and MNHN label – were placed later by the museum's staff. We believe that more specimens were analyzed by Richards, including a possible "holotype" designated by him, however, the first author visited the Natural History Museum (London, UK) and Museu Paraense Emilio Goeldi (Belém, Brazil), institutions which holds many species described by Richards and Ducke, respectively, and did not find any other specimen belonging to *M. araujoi*.

Conflicts of interest

The authors declare no conflicts of interest.

Acknowledgements

To Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the posdoctoral scholarship (PDJ – # 150029/2017-9) to AS. To REFAUNA Program and José Albertino Rafael (INPA) for financial support. We would like to thank Agnièle Touret-Alby, Dr. Claire Villemant and Muséum National d'Histoire Naturelle for support. Also, we would like to thank Dr. James M. Carpenter for comparison with other *Metapolybia* species deposited at AMNH and confirmation of the new species.

References

Andena, S.R., Carpenter, J.M., 2011. A new species of *Metapolybia* (Hymenoptera: Vespidae; Polistinae, Epiponini). Entomol. Am. 117, 117–120.

Araujo, R.L., 1945. Contribuição para o conhecimento do gênero *Metapolybia* Ducke, 1905 (Hym Vespidae). Arqu. Inst. Biol. 16, 65–82.

Carpenter, J.M., 1991. Phylogenetic relationships and the origin of social behavior in the Vespidae. In: Ross, K.G., Matthews, R.W. (Eds.), The Social Biology of Wasps. Cornel University Press, Ithaca, New York, pp. 7–32.

Cooper, M., 1999. New species of *Metapolybia* Ducke (Hym., Vespidae, Polistinae). Entomol. Monthly Mag. 135, 107–110.

Ducke, A., 1905. Nouvelles contributions à la connaissance des Vespides sociales de l'Amerique du Sud. Rev. Entomol. (Caen) 24, 5–24.

Noll, F.B., Wenzel, J.W., Zucchi, R., 2004. Evolution of caste in Neotropical swarming founding wasps (Hymenoptera: Vespidae; Epiponini). Am. Mus. Nov. 3467, 1–24.

Richards, O.W., 1978. The Social Wasps of the Americas Excluding the Vespidae. Br. Mus. Nat. Hist., London, pp. 580.

Smethurst, M.E., Carpenter, J.M., 1998. A new species of *Metapolybia* Ducke from Central America (Hymenoptera: Vespidae: Polistinae). J. N. Y. Entomol. Soc. 105, 180–185.

Wenzel, J.W., 1993. Application of the biogenetic law to behavioral ontogeny: a test using nest architecture in paper wasps. J. Evol. Biol. 6, 229–247.

Wenzel, J.W., 1998. A generic key to the nests of hornets, yellowjackets, and paper wasps worldwide (Vespidae: Vespinae, Polistinae). Am. Mus. Nov. 3224, 1–39.