

SHORT COMMUNICATION

Synonymic note on *Epicharis* (*Triepicharis*) Moure 1945 (Hymenoptera: Apidae)

Danny Vélez^{1,2} & Fernando A. Silveira^{1,3}

¹ Laboratório de Sistemática e Ecologia de Abelhas, Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Caixa postal 486, 30.123-970 Belo Horizonte, Minas Gerais, Brasil.

² E-mail: dannyvelezv@gmail.com

³ Corresponding author. E-mail: fernando@icb.ufmg.br

Abstract

The characters distinguishing the two species currently recognized in the subgenus *Triepicharis* Moure, 1945 are re-evaluated on specimens collected across their ranges. As a result, *Epicharis* (*Triepicharis*) *schrottkyi* Friese, 1900 is proposed to be a junior synonym of *E. (T.) analis* Lepeletier, 1841, making the subgenus monospecific.

Key words: Centridini, Neotropics, Oil bee, Specific variation, Taxonomy, Wild bee.

Among the several genera described by Moure (1945) to accommodate species previously included in *Epicharis* Klug, 1807 (later considered as subgenera of *Epicharis* — Michener, 1954; Snelling, 1984; Ayala, 1998; Silveira et al., 2002), *Triepicharis* contained only two species — *Epicharis schrottkyi*, described by Friese (1900), and *E. analis*, described by Lepeletier (1841), based on bees from Jundiá, São Paulo, and from an uncertain locality, respectively.

Moure (1945), when describing *Triepicharis*, called attention to the fact that *E. schrottkyi* and *E. analis*, which present almost exactly the same known geographic distributions in Brazil (e.g. Silveira et al., 2002), differed only for the coloration of the last abdominal terga, which varies from light ferruginous to brown in *E. analis* and is entirely black in *E. schrottkyi*. Despite this, no doubt has been raised in the literature so far, regarding the identity of these species. Two facts erected the suspicion that they belonged to the same species: *a*) color is commonly a variable character in bees and *b*) no other consistent characters distinguishing the two forms was found among many specimens examined along many years. This suspicion was further strengthened by the fact that both forms are frequently collected together, suggesting that they may belong to the same populations in given localities.

Here, characters of the external morphology of both sexes and of male genitalia and terminal sterna of specimens of *E. analis* and *E. schrottkyi* were studied, in search of a better definition of these taxa. The specimens with ferruginous or black terminal terga are referred below as “*analis*” and “*schrottkyi*,”

respectively. Descriptive terms referring to male genitalia are those used by Michener (1944).

The examined specimens (Appendix 1) represent almost the entire geographic ranges of the two forms in Brazil (from the state of Paraná, in the south, northward to the state of Amazonas and from Espírito Santo in the east to Mato Grosso in the west). Out of Brazil, *E. analis* has been recorded also in Uruguay and *E. schrottkyi* in Bolivia and Paraguay (Friese, 1901; Schrottky, 1913; Gaglianone, 2001).

Variation of the characters observed did not have any correlation neither to color of terminal terga, nor between themselves. These variable characters were: *a*) color of thoracic pilosity in both sexes (which varies from entirely black to predominantly white – more so on males); *b*) color of the short, dense pilosity on terga 3-5 (which varies from white to black – when the tomentum is yellow, specimens of “*schrottkyi*” may appear superficially as “*analis*” — Figs. 1b, 2e) and *c*) size, shape and intensity of clypeal, supra-clypeal and parocular maculae on males. Moreover, we found a complete color gradient on the integument of terga 3-5, with several almost-entirely black terga with reddish hues and almost-entirely yellow ones with blackish tint, as shown in Figs. 1 and 2.

No variation in structural characters was found in or between the two forms, except in a few features of the male genitalia. The anterior margin of the bridge of the penis valves, which was shown to be evenly convex by Ayala (1998 – fig. 328) presented a median process of variable length in all specimens examined. Hairs on the ventral surface of the gonocoxite also varied in length. Those variations, however, were found in both forms. On the other hand, genitalia of specimens belonging to “*analis*” and “*schrottkyi*,” collected in the same localities (Tefé, Amazonas state, and Três Marias and Varginha, Minas Gerais state) were identical.

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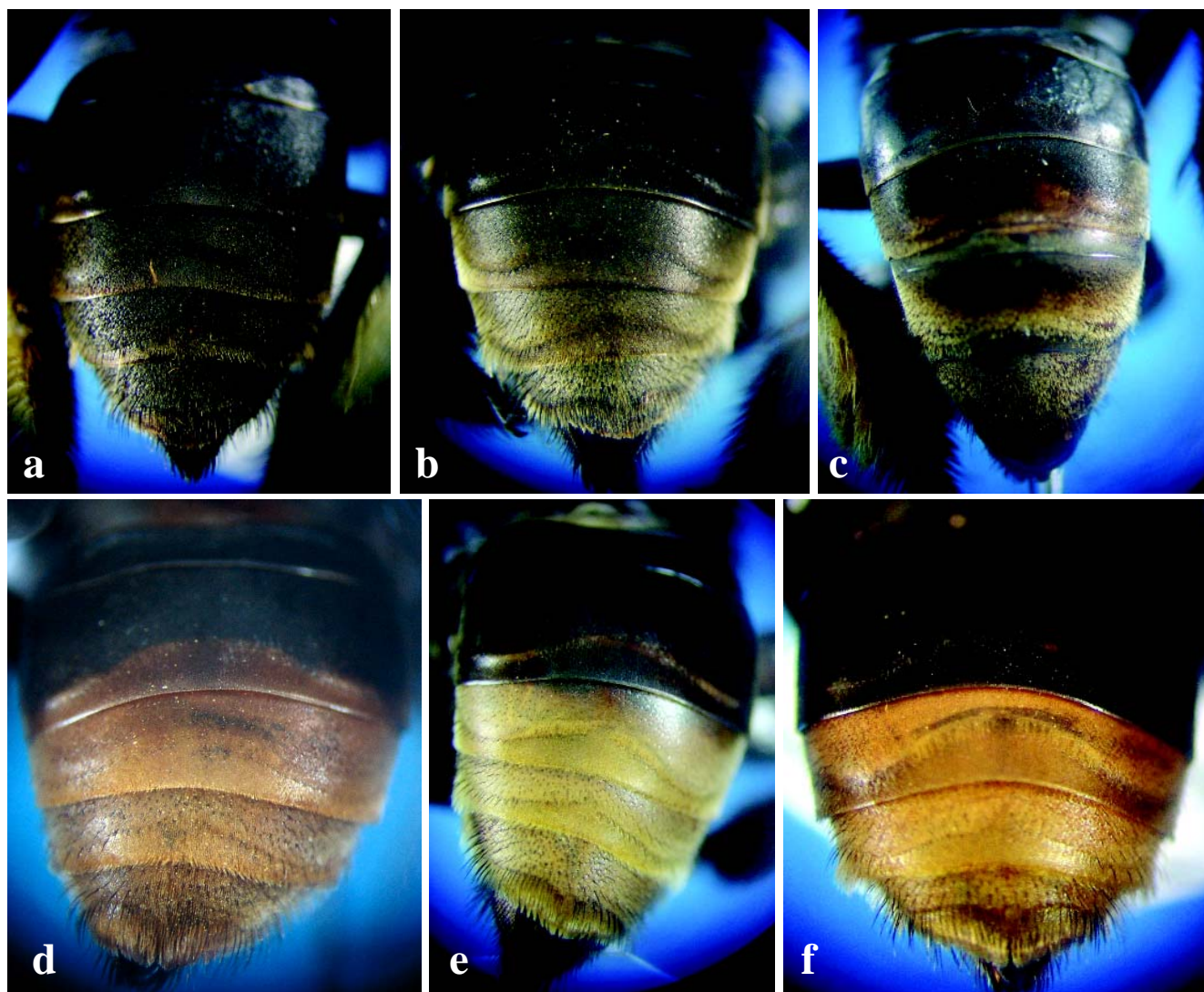


Figure 1 - Variation from the “schrottkyi” to the “analis” pilosity-pattern in *Epicharis (Triepicharis) analis* Lepeletier. Females from a) Marliéria; b) Belo Horizonte; c) Três Marias; d) Brasilândia de Minas; e) Três Marias; and f) Brasilândia de Minas, all in Minas Gerais state, Brazil.

Considering all the evidence above, we propose that *E. schrottkyi* Friese is a junior synonym of *E. analis* Lepeletier.

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References

- Ayala, R. (1998) **Sistemática de los Taxa Supraespecíficos de las Abejas de la Tribu Centridini**. Doctoral thesis, Ciudad de México, Universidad Nacional Autónoma de México. iv + 280 pp.
- Friese, H. 1900. Neue Arten der Bienengattungen *Epicharis* Klug und *Centris* Fabr. **Természetrájsi Füzetek**, **23**: 39-48.
- Friese, H. 1901. Monographie der Bienengattung *Centris* (s. lat.). **Annalen des K.K. Naturhistorischen Hofmuseums**, **15**: 237-350.
- Gaglianone, M. C. 2001. **Bionomia de *Epicharis*, Associações com Malpighiaceae e uma Análise Filogenética e Biogeográfica das Espécies dos Subgêneros *Epicharis* e *Epicha-***

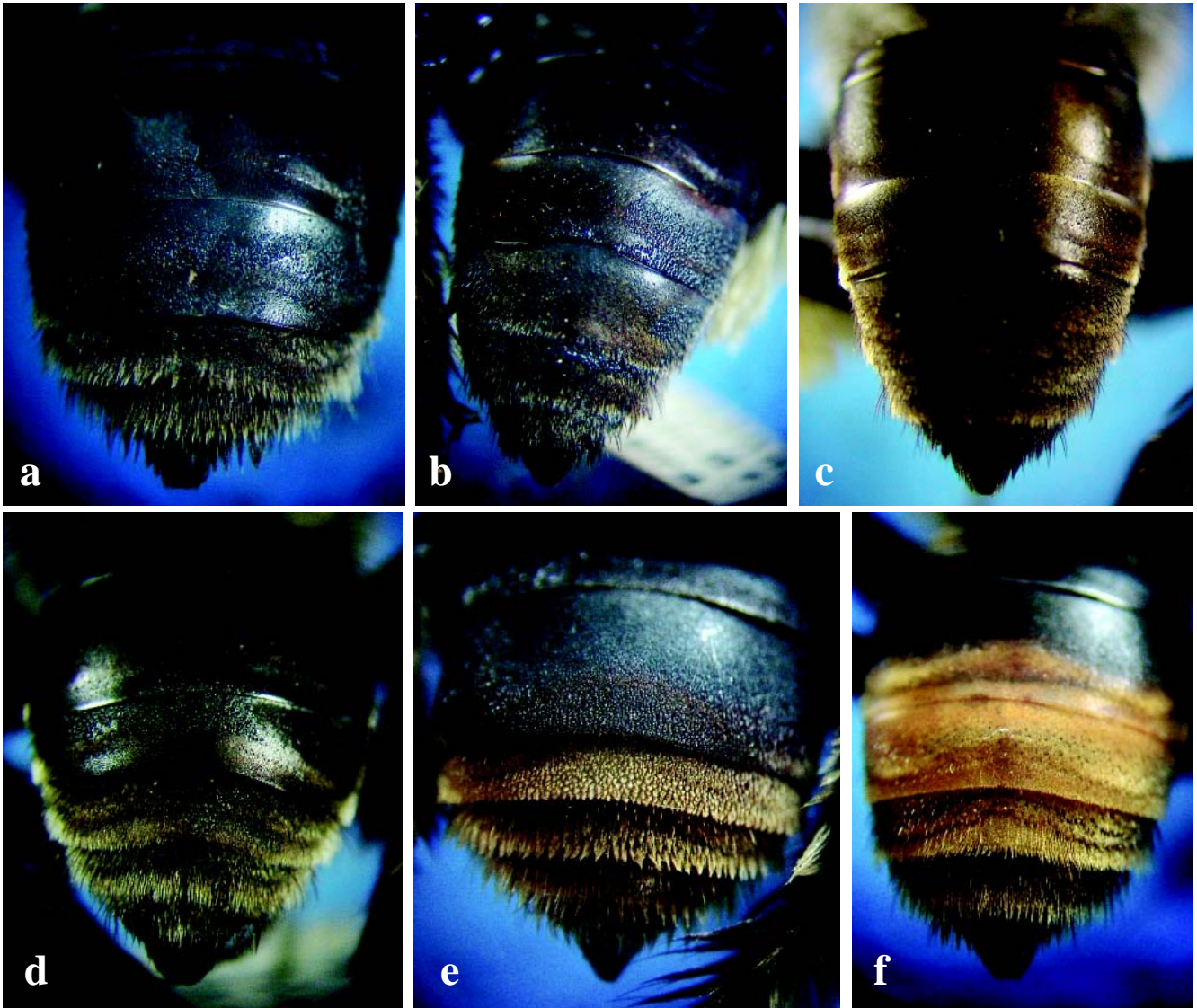


Figure 2 - Variation from the “schrottkyi” to the “analis” pilosity-pattern in *Epicharis* (*Triepicharis*) *analis* Lepelletier. Males from *a*) Brasilândia de Minas; *b*) Tefé; *c*) Três Marias; *d*) Vila Velha; *e*) Brasilândia de Minas; and *f*) Brasilândia de Minas, all in the state of Minas Gerais, except *b* and *d*, in the states of Amazonas and Paraná, respectively.

rana (Hymenoptera, Apidae, Centridini). Tese de Doutorado. Ribeirão Preto, Universidade de São Paulo. 188 p.

Lepelletier de Saint-Fargeau, A. L. M. 1841. **Histoire naturelle des insectes. Hyménoptères.** Encyclopedique de Roret, Paris. Vol. 2:1-680 p.

Michener, C. D. 1944. Comparative external morphology, phylogeny, and a classification of the bees. **Bulletin of the American Museum of Natural History**, **82**: 151-326.

Michener, C.D. 1954. Bees of Panama. **Bulletin of the American Museum of Natural History**, **104**: 1-176.

Moure J. S. 1945. Notas sobre os Epicharitina (Hymenop., Apoidea). **Revista de Entomologia**, **16**: 293-314.

Schrottky, C. 1913. La distribución geográfica de los himenópteros argentinos. **Anales de la Sociedad Científica Argentina**, **75**:115-144, 180-286.

Silveira F. A., Melo G. A. R., Almeida E. A. B. 2002. **Abelhas Brasileiras. Sistemática e identificação.** Belo Horizonte, edição do autor. 254 pp.

Snelling, R. R. 1984. Studies on the taxonomy and distribution of American centridine bees (Hymenoptera: Anthophoridae). **Contributions in Science**, **347**:1-69.

Appendix Specimens examined for this study

Acronyms between brackets indicate the depositary institutions, which are: Museu de Entomologia da Universidade Federal de Viçosa (Viçosa, Minas Gerais – UFV); Coleção de Entomologia Pe. J. S. Moure da Universidade Federal de Paraná (Curitiba, Paraná – UFPR) and the Entomological Collection of the Taxonomic Collections of the Universidade Federal de Minas Gerais (Belo Horizonte, Minas Gerais – UFMG) — all in Brazil.

Color patterns of terminal terga are indicated as “A” and “S” for “*analis*” and “*schrottkyi*”, respectively; specimens marked as “A/S” are those with mixed color patterns. Specimens marked with [G] are those males which genitalias were examined.

Material Examined

Amazonas: Tefé, AM, Brasil, xii,1961, F. M. Oliveira [UFPR]: A, ♂ [G]. Tefé, AM, Brasil, xii,1961, F. M. Oliveira [UFPR]: S, ♂ [G]. **Espírito Santo:** Colatina - Itapína, ES, Brasil, 13.xii.1967, C. T. Elias [UFPR]: S, ♂ [G]. **Mato Grosso:** Chapada, MT, Brasil, 27.x.1971, F. M. Oliveira *leg.* [UFPR]: A, ♂ [G]. Chapada, MT, Brasil, 27.x.1971, F. M. Oliveira *leg.* [UFPR]: S, ♂ [G]. Cuiabá, MT, Brasil, 1963, M. Alvarenga [UFPR]: A, ♀. **Minas Gerais:** Araxá, MG, Brasil, 05.v.1965, [UFPR]: A/S, ♂. Belo Horizonte, MG, Brasil, 04.ii.1997, D. A. Yanega [UFMG]: S, ♀. Belo Horizonte, MG, Brasil, 30.iii.1996, J. C. R. Fontenelle [UFMG]: S, ♀. Brasilândia [de Minas], MG, Brasil, 11.x.1996, A. G. Damasceno [UFMG]: A/S, ♀. Brasilândia [de Minas], MG, Brasil, 14.x.1996, A. G. Damasceno [UFMG]: A, ♂ [G]. Brasilândia [de Minas], MG, Brasil, 14.x.1996, A. G. Damasceno [UFMG]: S, ♂ [G]. Brasilândia [de Minas], MG, Brasil, 14.x.1996, A. G. Damasceno [UFMG]: A, ♀. Brasilândia [de Minas], MG, Brasil, 17.x.1996, A. G. Damasceno [UFMG]: A/S, ♀ [G]. Brasilândia [de Minas], MG, Brasil, 17.x.1996, A. G. Damasceno [UFMG]: S, ♂ [G].

Brasilândia [de Minas], MG, Brasil, 21.x.1996, A. G. Damasceno [UFMG]: A, ♂ [G]. Brasilândia de Minas, MG, Brasil, 02.xi.1999, V. Silva [UFMG]: A/S, ♂ [G]. Brasilândia de Minas, MG, Brasil, 10.x.2001, C. F. Cardoso [UFMG]: A, ♂ [G]. Divinópolis, MG, Brasil, 05.iv.1985, G. Melo [UFV]: S, ♀. Felixândia, MG, Brasil, 17.xi.1999, A. A. Azevedo [UFMG]: S, ♀. Igarapé, MG, Brasil, 23.ii.1986, G. Melo [UFV]: S, 4♀ 1♂. Marliéria, MG, Brasil, 26.i.2001, Almeida & Guimarães [UFMG]: A, ♀. Minas Novas, MG, Brasil, 11.ii.1988, G. Melo - A. Soares [UFV]: S, 2♂. S. J. Barreiro, MG, Brasil, 12-13.i.1992. Moure, Camargo e Serguei [UFPR]: A, ♂♀. S. J. Barreiro, MG, Brasil, 12-13.i.1992. Moure, Camargo e Serguei [UFPR]: S, ♂. S. J. Barreiro, MG, Brasil, 12-13.i.1992. Moure, Camargo e Serguei [UFPR]: A/S, 2♀ 2♂. Três Marias, MG, Brasil, 09.xi.1996, D. A. Yanega [UFMG]: S, ♀. Três Marias, MG, Brasil, 09.xi.1996, D. A. Yanega [UFMG]: A, ♂ [G]. Três Marias, MG, Brasil, 10.xi.1996, D. A. Yanega [UFMG]: A, ♂ [G]. Três Marias, MG, Brasil, 10.xi.1996, D. A. Yanega [UFMG]: A, ♀. Três Marias, MG, Brasil, 22.xi.1997, D. A. Yanega [UFMG]: A, ♂ [G]. Três Marias, MG, Brasil, 23.xi.1997, D. A. Yanega [UFMG]: A/S, ♀. Uberlândia, MG, Brasil, 29.x.2005, A. M. Carvalho [UFMG]: S, ♀. Uberlândia, MG, Brasil, 12.xi.2005, A. M. Carvalho [UFMG]: A, ♀. Varginha, MG, Brasil, ii,1995, F. M. Oliveira [UFPR]: A/S, 2 ♂ [G]. **Paraná:** Vila Velha, PR, 14.ii.1965, Mitchell - Moure - Toro [UFPR]: S, ♂ [1G]. **São Paulo:** Campinas, SP, Brasil, 03.ii.1985, F. A. Silveira [UFV]: A/S, ♀. Corumbataí, SP, Brasil, 27.xii.1984, M. J. O. Campos [UFV]: A, ♀. Cosmópolis, SP, Brasil, 9-13.ii.1960, Usina Ester [UFPR]: A/S, ♀. Cosmópolis, SP, Brasil, 9-13.ii.1960, Moure, Hurd e Nogueira [UFPR]: A/S, ♂. Rio Claro, SP, Brasil, xi.1943, P. Fiamenghi [UFPR]: A/S, ♂. São Vicente, SP, Brasil, i.1947 [UFPR]: A/S, ♀.