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A new species of *Zethus* (*Zethusculus*) de Saussure (Hymenoptera, Vespidae, Eumeninae) from southern Brazil



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ABSTRACT

Zethus (*Zethusculus*) *paschoali*, a new species from Piraquara, Paraná, Brazil, is described and pictures comparing it to similar species are presented.

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Introduction

Eumeninae is the largest subfamily of Vespidae, having *Zethus* (Fabricius, 1804) as its largest genus with 255 species world-wide, of which 220 are Neotropical (Lopes and Noll, 2014). The species of the Western Hemisphere were divided in three subgenera in the last revision: *Z.* (*Zethus*) (Fabricius, 1804), *Z.* (*Zethoides*) Fox, 1899 and *Z.* (*Zethusculus*) de Saussure, 1855, each further divided into eighteen, eight and three species groups, respectively (Bohart and Stange, 1965). These groups were considered natural phylogenetic groups, although no kind of phylogenetic analysis was carried out. After Bohart and Stange's (1965) study, no wide revision was made, but works describing new species, synonyms and revalidation of species were published (listed in Lopes and Noll, 2014).

Zethus (*Zethusculus*) is the smallest New World subgenus with 26 valid species, of which only two were described (Stange, 1997) after Bohart and Stange (1965). In this study, a new species belonging to this subgenus is described and illustrated.

Material and methods

One specimen of *Zethus*, deposited in the Universidade Federal de Lavras (UFLA), was examined. The morphological nomenclature adopted follows Carpenter and Garcete-Barrett (2002), while more specific terms follow Bohart and Stange (1965) and Lopes and Noll

(2014). Tergum and sternum will be, respectively, abbreviated as T and S. Pictures were taken with a Leica MZ16 stereoscope and images later edited in CombineZP and in Photoshop CS6.

Results

According to Bohart and Stange's (1965) keys, the examined female is placed within *Z.* (*Zethusculus*) due to its microstriate clypeus. It also fits into the *Z.* *arietis* group because of the stem of T-II with length subequal to that of T-I, T-I not coarsely and closely micropunctate, and gastral segments III–VI without yellow maculation. Species in this group are remarkably similar, but in the key to species, this specimen runs down to couplet 16, where the macropunctuation density of T-II is the key feature to follow through the next couplet. However, this wasp has no such punctuation, with obsolete punctures at most, when compared to similar species, making it impossible to advance in the key. This feature, along with other characters mentioned in the diagnosis, ensures that this specimen belongs to a new distinct species.

***Zethus* (*Zethusculus*) *paschoali* Lopes & Hermes, sp. n.** (Figs. 1–3, 7 and 10).

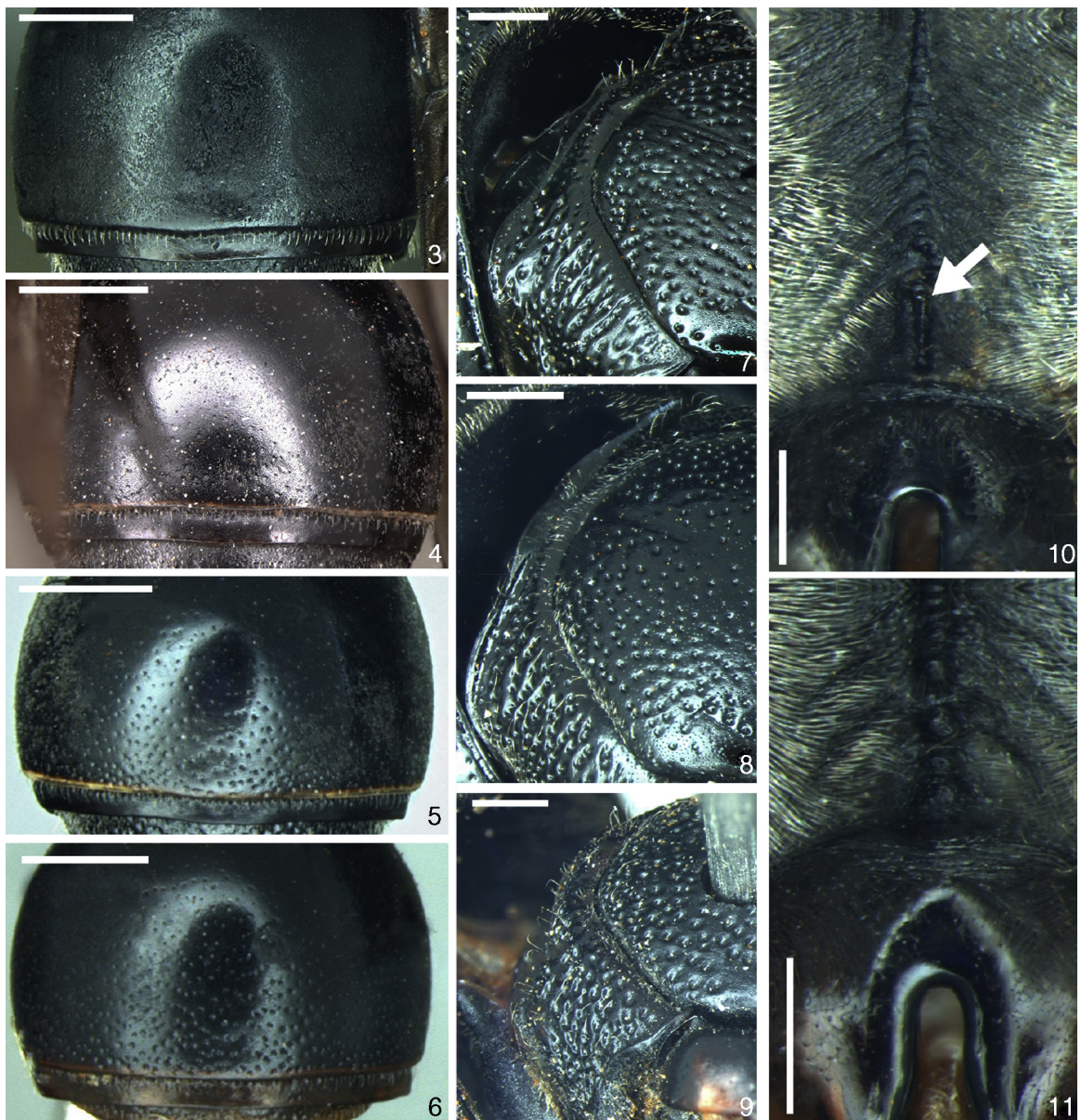
Diagnosis – The absence of evident macropunctuation in the second tergum (Fig. 3) is distinct in this taxon since the other known species present this feature, which even vary in its density (Figs. 4–6). The pronotal carina, that is mostly short and lamellar only medially (Fig. 7), readily separates it from the remainder of the group, whose carina is lamellar across its entire extension (Fig. 8) or entirely low (Fig. 9). Finally, the short median carina of the propodeum (Fig. 10), although harder to notice, also seems to

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Figs. 1–2. *Zethus (Zethusculus) paschoali* sp. n., holotype female – scale: 1 mm. 1. Head, frontal view. 2. Habitus.



Figs. 3–11. Diagnostic features of *Zethus paschoali* compared to related taxa. 3–6. Second metasomal tergum, dorsal view – scale: 1 mm. 3. *Z. paschoali*. 4. *Z. shroettkyanus*. 5. *Z. romandinus*. 6. *Z. fraternus*. 7–8. Pronotal carina, oblique dorsal view – scale: 0.5 mm. 7. *Z. paschoali*. 8. *Z. romandinus*. 9. *Z. arietis*. 10–11. Propodeum, posterior view – scale: 0.25 mm. 10. *Z. paschoali*, median carina pointed by arrow. 11. *Z. romandinus*.

distinguish this species from others in the group, since specimens from other related taxa lack this feature (Fig. 11).

Description – **Coloration:** Black. Only two spots above antennal sockets and a subapical band on T-I (interrupted medially) are yellow. **Structure:** Clypeus wider than long, with apical margin weakly tridentate; humeri rounded with angles slightly projected; pronotal carina extremely low, but raising and becoming lamellar in central portion; outer margin of tegula slightly bowed in posterior third; mid tibiae with only one developed spur; propodeal aperture absent; stem of T-II subequal to that of T-I; apical lamella of T-III regular, not trilobate. Fore wing length: 12.3 mm. **Sculpture:** Clypeus and lower part of frons microstriate with moderate macropunctuation; remainder of frons with denser macropunctuation interspersed by dense micropunctuation; dorsum of pronotum striatopunctate; mesoscutum without discoid puncture and moderately macropunctate with dense micropunctuation; propodeum with lateral carina extending two-thirds from wing base to submarginal carina and with weakly developed, but evident median carina apically; T-I moderately punctate, without narrow strip basad of spiracle; T-II with dense micropunctuation but without any evident macropunctures. **Pilosity:** Golden; head, pronotum and scutellum nearly bare; short and dense in the underside of mesosoma, coxae and trochanters, anterior and posterior portions of mesepisternum and sides of propodeum; long and thin in metanotum and propodeum; tomentum in T-I and T-II; long and thick setae in T-II.

Type Material – Holotype, female [UFLA], BRAZIL: Brasil, Paraná, Piraquara/xi.2005/P. C. Grossi col.

Etymology – The species is named after Paschoal Grossi, a dear friend and an exceptional insect collector. Despite being a coleopterologist, Dr. Grossi has been kindly donating specimens and hence contributing to the knowledge of the eumenine Brazilian fauna.

Conflicts of interest

The authors declare no conflicts of interest.

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References

- Bohart, R.M., Stange, L.A., 1965. *A revision of the genus Zethus Fabricius in the Western Hemisphere (Hymenoptera: Eumenidae)*, vol. 40. University of California Publications in Entomology, California University Press.
- Carpenter, J.M., Garcete-Barrett, B.R., 2002. *A key to the Neotropical genera of Eumeninae (Hymenoptera: Vespidae)*. Bol. MNHNPY 14, 52–73.
- Lopes, R.B., Noll, F.B., 2014. *Notes on the Neotropical Zethus Fabricius, 1804 (Hymenoptera, Vespidae, Eumeninae) with the description of two new species from Brazil*. Zootaxa 3784, 179–186.
- Stange, L.A., 1997. *The Zethus of Venezuela (Hymenoptera: Eumenidae)*. Insecta Mundi 11, 311–324.