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First record of intersexual phenotype in Calliopsini bees (Hymenoptera, Apidae, Andreninae): an unusual specimen of *Acamptopoeum submetallicum* (Spinola)

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Sex anomalies are one of the best-known cases of teratology among wild bees with different terms used to differentiate among such abnormalities. Gynandromorphs are individuals with genetically distinct male and female tissues while intersexes are genetically uniform individuals with expression of sexual features of the opposite sex. Among the three commonly accepted gynandromorph categories—bilateral symmetry, transverse and mixed (or mosaic)—the relative proportion of each gynanders category described in the literature shows the transverse and mosaic as the most frequently observed cases among wild bees (Michez *et al.* 2009; Hinojosa-Díaz *et al.* 2012). In bees, gynandromorphs are recorded from 117 species in 30 genera of all families being mostly recorded from the long-tongued bees in Apinae and Megachilinae (Wcislo *et al.* 2004; Michez *et al.* 2009; Hinojosa-Díaz *et al.* 2012, Lucia *et al.* 2012).

Andreninae constitute a diverse group of short-tongued bees, with approximately 2600 described species present on all continents except Australia and Antarctica (Michener 2007). Contrary to this large diversity and distribution, cases of gynandromorphism in Andreninae is restricted to Holarctic *Andrena*. According to Hinojosa-Díaz *et al.* (2012), efforts needs to be made to document and illustrate deviant individuals in order to understand how such patterns happens and how these individuals behave. Also, the study of intersexual specimens is important to clarify questions about the formation of sexual features, cleptoparasitic traits, and even homologies (Wcislo *et al.* 2004; Engel 2007; Michez *et al.* 2009; Yang & Abouheif 2011; Hinojosa-Díaz *et al.* 2012). In this work we describe the first record of intersexual phenotype in Calliopsini bees based in an unusual specimen of *Acamptopoeum submetallicum* (Spinola) from northern Chile.

Material and methods

The terminology adopted follows Michener (2007); antennal flagellomeres are indicated as F1, F2, F3, etc; metasomal terga and sterna are cited as T1-T7, and S1-S8, respectively. With the purpose of comparison of the morphological variability, normal male and female of *Acamptopoeum submetallicum* was studied from specimens deposited in Coleção Entomológica Pe. J. S. Moure, Universidade Federal do Paraná, Curitiba, Brazil (G. A. R. Melo); Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZSP) (C. R. F. Brandão); and Pontificia Universidad Católica de Valparaíso, Chile (L. Ruz). The terminalia (genitalia and associated sterna) of normal male and female from the MZSP collection were also studied. The terminalia were detached from the metasoma, cleared in a 10% KOH solution for 24h, neutralized in acetic acid and stored in a vial with glycerin.

GYNANDROMORPH?

Acamptopoeum submetallicum

(Figures 1–10)

Material. One specimen, labeled as follows ‘Chile: III Región, Ruta para Freirina, C-46, 28°32’8.2”S, 71°02’40”W, 159m, 28.ix.2011, K. Ramos & R. Kawada col.’, deposited in the Laboratory of Hymenoptera, Museu de Zoologia, Universidade de São Paulo (MZSP). We added a second label with the following information ‘*Acamptopoeum*