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Taxonomic revision of the genus *Chaetocnemistoptera* Borgmeier (Diptera: Phoridae), with the description of five new species

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Abstract

The Neotropical genus *Chaetocnemistoptera* is herein revised. Five new species are described—*C. lobata*, **sp. nov.**, *C. magdalena*, **sp. nov.**, *C. phaeonota*, **sp. nov.**, *C. pityropyga*, **sp. nov.**, *C. trichopoda*, **sp. nov.** The hypopygia of the previously described *Chaetocnemistoptera palpalis* (Borgmeier) and *C. formosa* (Borgmeier) are illustrated. The female holotype of *Chaetocnemistoptera semifurcata* (Borgmeier) could not be associated with any male specimen. A species identification key is provided and comments on the homology of structures and on species relationships are made.

Key words: Systematics, Neotropical, Phorinae

Introduction

The Neotropical genus *Chaetocnemistoptera* Borgmeier comprises four species: *C. semifurcata* (Borgmeier), *C. formosa* (Borgmeier), *C. palpalis* (Borgmeier) and *C. nigroscutellata* (Borgmeier). According to Brown's phylogeny of phorid genera (1992a, 1992b), the genus belongs in the subfamily Phorinae being sister group of the clade composed by *Rhynchomicropterum* Annandale, *Plethysmochaeta* Schmitz and *Coniceromyia* Borgmeier. The clade including *Chaetocnemistoptera* and these three other genera is supported by a proposed synapomorphic shift of the fused surstyli to the left side of the epandrium.

The characterization and delimitation of *Chaetocnemistoptera* in the literature has been confusing and its generic status has been questioned several times. The recently proposed synapomorphies of the genus (Brown 1992a) are the six scutellar setae and the transverse rows of enlarged setulae in the mid and hind tibia (the latter also present in the *Chaetopleurophora erythronota* species group). The biology of the *Chaetocnemistoptera* species is unknown.

Chaetocnemistoptera taxonomic history

Chaetocnemistoptera semifurcata was described in 1923 and initially allocated in the genus *Hypocera* Lioy (Borgmeier 1923a). In the same year, Borgmeier created the genus *Chaetocnemistoptera* with *C. semifurcata* designated as holotype by monotypy, separating it from the rest of *Hypocera* based on the presence of two dorsal setae on the midtibia (Borgmeier 1923b). In 1927, Schmitz included *C. scutellata* (Brues), *C. furcamperdens* Schmitz, *C. multiseriata* (Aldrich) and *C. jamaicensis* (Brues) in *Chaetocnemistoptera*, still following Borgmeier's criteria of characterizing the genus by two dorsal setae on midtibia. Borgmeier (1961) argued that the generic characters of *Chaetocnemistoptera* are not sufficient to maintain a distinct genus, considering it a junior synonym of *Chaetopleurophora* Schmitz as part of the *erythronota*-group of species. In the same paper, Borgmeier synonymized *Chaetopleurophora furcamperdens* with *Chaetopleurophora semifurcata* and described *Chaetopleurophora formosa*, *Chaetopleurophora palpalis* and the male of *Chaetopleurophora semifurcata*. Thereafter, Borgmeier (1969) described *Chaetopleurophora nigroscutellata* and the male of *Chaetopleurophora*

Discussion

The lack of morphological variation of *Chaetocnemistoptera* species, besides making their identification difficult, makes it hard to infer relationship within the genus. The only species group inferred herein is the one composed of *C. formosa*, *C. palpalis* and *C. nigroscutellata* that shares the apomorphies indicated in *C. formosa* comments.

Chaetocnemistoptera has some peculiarities in relation to the other Neotropical Phorinae genera *Coniceromyia* and *Neopleurophora*. In *Chaetocnemistoptera*, the low level of morphological diversity, large geographical distributions of species and low number of species, in comparison to these other genera, seems to indicate that the genus diversity may not be very well understood yet and that there may be cryptic species or other important taxonomic characteristics yet to be recognized.

As already pointed out in this paper and illustrated in fig. 71, there are two main arrangements of frontal chaetotaxy in *Chaetocnemistoptera*. Both of these, curiously, differ considerably from the chaetotaxy of other Phorinae genera. This makes even naming the components of the frontal ventral row of setae in *Chaetocnemistoptera* an interesting homology problem. Two possibilities of hierarchic homology hypotheses were preferred based on setae position in the frons and relative position among them. The hypotheses have conflicting implications regarding which setae would be the ventral interfrontals (VIF) and which would be the ventral fronto-orbitals (VFO) of all *Chaetocnemistoptera* species.

In the homology hypothesis 1, all *Chaetocnemistoptera* species have the VFO shifted ventrally, close to the frons ventral apex, as a synapomorphy of the genus. The VIF are shifted dorso-laterally, close to the eye margin, in the species with *C. nigroscutellata* type of chaetotaxy suggesting a less inclusive group of species within the genus. In the homology hypothesis 2, all *Chaetocnemistoptera* species have the VIF shifted ventro-laterally, as a synapomorphy of the genus. The VFO are shifted medially in the species with *C. lobata* type of chaetotaxy suggesting a less inclusive group of species within the genus. Both hypotheses seem to be equally supported based on the criteria used and, although this paper follows the terminology of homology hypothesis 1, no hypothesis is preferred herein.

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