



<http://dx.doi.org/10.11646/zootaxa.3946.3.10>

<http://zoobank.org/urn:lsid:zoobank.org:pub:40937530-D82F-45F5-A7FC-6E976B1C6878>

## ***Serromyia diabolica*, a new biting midge species from Lebanon (Diptera: Ceratopogonidae)**

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### **Abstract**

A new darkly-pigmented species of *Serromyia*, closely related to *S. subinermis* Kieffer, is described from both sexes based on morphological characters and COI gene sequence analyses.

**Key words:** Ceratopogonidae, *Serromyia*, new species, COI gene sequence, Lebanon

### **Introduction**

The genus *Serromyia* Meigen, 1818, with 35 extant and 7 fossil species (Borkent 2015), can not be placed among the most species-rich genera of the tribe Ceratopogonini, but certainly it is one of the easiest to recognize because of the enlarged and spiny hind femora present in adults of both sexes. Members of this rather quite recently evolved genus are nearly worldwide distributed, but are not known from the Neotropical region (Szadziewski 1988). Although most of the extant species are reported from the Afrotropics and the Palaearctic, de Meillon & Wirth (1983) suggested that the number of species actually occurred in the latter region is lower than the number of species described from there. Afterwards, Borkent & Bissett (1990) proposed nine new junior synonyms for the *Serromyia* midges from Europe, gave detailed information on the diagnostic features and provided the keys to the Holarctic species. Nevertheless, identification of some Palaearctic species remains problematic, especially when only females are available for study. On the contrary to the Afrotropical fauna represented by relatively easily distinguishable species (de Meillon & Wirth 1983), an intraspecific diversity within *Serromyia* from the Palearctic region seems to be high, causing difficulties for accurate identification. However, among valid species there are still those which look very much alike, and differ only in few characters. The most accurate example are males of *S. morio* (Fabricius) and *S. atra* (Meigen), with the same armature of genitalia but showing differences in a distribution of the strong spines on fore femora, general coloration of legs and in the length of antennal flagellomeres 10<sup>th</sup> and 11<sup>th</sup>. Molecular studies can be helpful in such very similar morphology between species, and in particular DNA barcoding approach (Hebert *et al.* 2003) had been increasingly used since the last decade. Within the family Ceratopogonidae, studies combining morphological and molecular approaches had been mostly implemented to redefine the taxonomy of several species of the genus *Culicoides* (Ander *et al.* 2013, Bellis *et al.* 2013, Pagès *et al.* 2009, Sarvašová *et al.* 2014). Outside this latter genus, Beckenbach & Borkent (2003) used the Cytochrome oxidase subunit 2 to investigate the phylogeny of Ceratopogonidae. Recently, Stur & Borkent (2014) combined morphology and DNA barcoding to accurately describe the Norwegian Ceratopogonidae fauna. Within *Serromyia*, only two studies had provided molecular data, from *S. femorata* (Meigen) (Stur & Borkent 2014) and from an unidentified species (Wenk *et al.* 2012).

In the Middle East the biting midges of the genus *Serromyia* are poorly studied. To date, only two species were reported from here, both pale-colored, and these are *S. mangrovi* Delécolle & Braverman (Delécolle & Braverman 1987) described from Egypt and *S. arabica* Szadziewski, Gwizdalska-Kentzer & Gilka (Szadziewski *et al.* 2011)