Zootaxa 4007 (1): 029–046
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.4007.1.2
http://zoobank.org/urn:lsid:zoobank.org:pub:55DA17A2-8467-48E3-A703-73A3F6EA4EEC

Morphological and molecular characteristics of *Milandanielia intermedia* (Feider, 1950) (Trombidiformes: Microtrombidiidae) with data on its biology and ecology

MAGDALENA FELSKA[1] & JOANNA MĄKOL[1, 2]

[1]*Department of Invertebrate Systematics and Ecology, Institute of Biology, Wrocław University of Environmental and Life Sciences, Kożuchowska 5B, 51-631 Wrocław, Poland. E-mail: magdalena.felska@up.wroc.pl, joanna.makol@up.wroc.pl*
[2]*Corresponding author*

Abstract

Milandanielia intermedia (Feider, 1950) is re-described. A female from which larvae were obtained by experimental rearing is designated as neotype. Verified diagnoses of active life instars are supplemented with data on habitat preferences, phenology and life cycle. Molecular identification of the species based on its COI sequence is provided.

Key words: Parasitengona, Microtrombidiinae, active instars, life cycle, phenology, experimental rearing, COI sequence

Introduction

Milandanielia Gabryś, 1999 comprises *Milandanielia intermedia* (Feider, 1950) and *Milandanielia sardoa* (Berlese, 1912). Of those, only *M. intermedia* is known from larvae, deutonymphs and adults, whereas the knowledge of *M. sardoa* is limited to postlarval forms. Feider (1950) provided a brief characterization of postlarval forms of *M. intermedia* and referred also to the presence of larvae in the examined material. The description was based on specimens which, according to the Article 72.1.1 of the International Code of Zoological Nomenclature (ICZN 1999), should be regarded as syntypes. The diagnosis of postlarval forms was provided also by Feider (1952) and Feider (1955), however it was not until Feider (1956) that the drawing of the larval instar supplemented the species characteristics. Neither the reference to the species, made by Feider (1952, 1955) nor one provided by subsequent authors (Gabryś 1996, 1999; Gabryś & Mąkol 1991, 1994, 1996) was accompanied by designation of a lectotype.

The occurrence of *M. intermedia* was hitherto reported from a few localities in Hungary, Poland and Romania (Feider 1950; Gabryś 1996; Gabryś & Mąkol 1991, 1994, 1996), whereas the records on *M. sardoa* are limited to its type locality (Sardinia, Italy).

The present work contains the characteristics of all active instars of *M. intermedia,* along with the description of larvae obtained for the first time from field-collected females. Re-appraised diagnoses, knowledge of intraspecific variation of morphometric characters of *M. intermedia*, molecular identification (COI barcode sequences) and data on biology and ecology of the species are provided. As prior efforts indicate that the syntypes of *M. intermedia* are lost (W.C. Welbourn, personal communication), a neotype has been designated.

Material and methods

The material was collected in 2011–2014 (51°09’83.93”N, 17°09’42.28”E, Wrocław University of Environmental and Life Sciences campus, tree and bushes stand with thick substrate, Wrocław, Poland, leg. J. Mąkol, M. Felska). The representatives of active postlarval instars (49 adults and three deutonymphs) were extracted either directly or in Tullgren funnels from sifted samples containing the litter and upper soil layer. Larvae were obtained at laboratory conditions from field-collected, ovigerous females (n=12). Experimental rearing was carried out in an

Accepted by O. Seeman: 28 Jul. 2015; published: 26 Aug. 2015