



Redescription of *Entomobrya quinquelineata* Börner, 1901 (Collembola: Entomobryidae) and description of three new species

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Abstract

A study of all available specimens of *E. quinquelineata* Börner, 1901 from different museums and private collections, revealed that more than one species was involved. We reached this conclusion by using conventional taxonomical characters and patterns of macrochaetotaxy. We redescribe here the specimens most probably identical to Börner's original material, and describe three new species, one from Spain, one from Morocco and one from England. As with other species of *Entomobrya*, identification of any specimen belonging to this genus should not be made using only the colour pattern.

Key words: morphological characters, chaetotaxy, colour pattern variations, *Entomobrya fimbaensis* n. sp., *Entomobrya maroccana* n. sp., *Entomobrya lawrencei* n. sp.

Introduction

Entomobrya Rondani, 1861 is a scaleless genus of Entomobryinae, up to 1–2 mm length, with the body covered with ciliated setae of different sizes. The dense 'mane' of macrosetae on the anterior border of thoracic tergite II is very characteristic of the genus. The genus has a worldwide distribution and is represented by more than 200 described species. Most species are found in the North Hemisphere. *Entomobrya* species live in broad variety of biotopes, soil, shrubs, annual plants, bark and canopy of trees and feed on microorganisms and amorphous plant organic matter. Some species disperse fungus spores (Jordana and Baquero 1999). Earlier descriptions used colour pattern and relative length of antennal and body segments to distinguish species. Consequently it is often difficult to recognise a species from the original description.

Descriptions of *Entomobrya* published before 1963 (Stach 1963) are similar except for colour pattern and a small number of morphological details: labral papillae, apical vesicle, relative length of antennae and/or the ratio of abdominal tergite III to IV. Our critical analysis of the characters typically used for *Entomobrya* considered the same characters as well as many more. These characters were: retractile bulb or apical vesicle of the fourth antennal segment, form of setae «type five» (following Christiansen 1958, plate 14), relative size, length and width of the head, length of the external setae of the labial appendage, mesonotum length, morphology of the male genital plate, shape of the labral papillae, antennal length, and presence of longitudinal or transversal colour stripes. It was observed that some morphological characters used at the species level vary between specimens of the same species and with development. Colour patterns have been demonstrated to be highly variable between cultured specimens of the same species (South 1961), and within a single species population (Jordana and Baquero 1999). We found that some morphological characters are constant. Among them are the labial setae triangle and length of the fourth antennal segment (although it is frequently missing).