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Phylogeny of infraorder Sejina (Acari: Mesostigmata)

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Abstract

Phylogenetic relationships among the families in the infraorder Sejina and the position of Sejina relative to other infraorders of Mesostigmata are re-examined based on molecular and morphological data. Data sets included DNA sequence data for complete 18S, EF-1α, partial CO1genes, and 69 morphological characters. The two families of Heterozerconina consistently group within Sejina, and we propose to synonymize Heterozerconina with Sejina (Sejina s.l). Microgyniina is not the closest relative of Sejina. Rather, Sejina s.l. most often groups with Gamasina. Uropodellidae and Ichthyostomatogasteridae are sister groups and this lineage forms the sister group to Discozerconidae plus Heterozerconidae. Overall, we recognize 5 families within Sejina: Uropodellidae, Ichthyostomatogasteridae, Sejidae, Discozerconidae, and Heterozerconidae.

Key words: Sejina, Sejidae, Heterozerconina, morphology, phylogeny, molecular

Introduction

The infraorder Sejina is an unusual group because it has both a combination of cosmopolitan distribution and a relatively small number of species. About 60 species have been described, many of which have a disjunct distribution. Other widely distributed mesostigmatid infraorders, such as Uropodina and Dermanyssina, are very species rich, while most small infraorders, such as Epicriina and Zerconina, have more restricted distributions. There are no obvious clues in the life history of Sejina. They have been recovered from tree holes, under bark (Hirschmann *et al.*, 1991; Lekveishvili and Klompen, in press), termite nests (Trägårdh, 1906), litter (Balogh, 1963; Athias-Henriot, 1972), bird nests (Hirschmann *et al.*, 1991; Fain and Galloway, 1993), a bat cave (Womersley and Domrow, 1959), and rat nests (Fox, 1947; Athias-Henriot, 1977). Most Sejina are free living although deutonymphs of Sejidae and Uropodellidae are phoretic on beetles, especially on Cerambycidae.

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