

Taxonomy of Dicyrtomidae (Collembola: Symphypleona) of Taiwan

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Dicyrtomidae (Collembola: Symphypleona) are globular springtails with the fourth antenna segment shorter than the third one. Due to lack research, our knowledge about Dicyrtomidae of Taiwan has not seen much update for decades. Only a few articles focused on morphological descriptions, while there is no molecular data for comparative studies. So far, seven dicyrtomid species were recorded in Taiwan. This study aims to explore the diversity of Dicyrtomidae in Taiwan using both morphology and DNA (cytochrome *c* oxidase subunit 1, COI). Samples were collected using beating, searching and aspirating, Berlese Funnel after sifting leaf litter, Malaise trap, and Flight intercept trap throughout Taiwan. Specimens were either made into slides or used for DNA extraction. We compared the morphological and molecular data to uncover cryptic diversity within previously recognized morphospecies, and compared distinct intraspecific biogeographic patterns among different species.

A total of more than 2000 specimens belonging to 11 species were collected. Four of them are either new records or potential new species. DNA barcode analysis shows that most species we analyzed are monophyletic. Additionally, *Papirioides jacobsoni*, *Ptenothrix denticulata*, and *Ptenothrix corynophora* have relatively high intraspecific genetic variation. Among them, *Papirioides jacobsoni* shows differentiation among population around 8% for COI. In addition, we re-examined the morphological descriptions of *Ptenothrix denticulata* Folsom, 1899 in the literature and found morphological variations among different descriptions, suggesting the existence of multiple forms or even cryptic species. Future work will focus on exploring the diversity of Collembola of Taiwan and investigating the potential mechanisms leading to intraspecific genetic variations in Dicyrtomidae.

Keywords : Collembola) 、 Dicyrtomidae 、 *Ptenothrix denticulata*