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BOOK OF ABSTRACTS

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SESSION III

III - BIODIVERSITY, SYSTEMATICS AND PHYLOGENY

ORAL

Integrative study of European species of *Forficula* Linnaeus, 1758: cryptic species and complex phylogenetic patterns (Dermaptera)

Alessandra Riccieri^{1,2}, Fabrizio Freda^{1,2}, Marco A. Bologna^{1,2}, Paolo Fontana^{3,4}

¹Roma Tre University; ²NBFC; ³Edmund Mach Foundation; ⁴World Biodiversity Association

Earwigs (Dermaptera) belong to one of the smallest yet ancient insect orders, comprising approximately 2,000 species distributed worldwide. Extensive research has focused on earwig morphology, particularly on wing and genitalia structures, but their phylogenetic relationships remain poorly understood. In Europe, Dermaptera includes about 90 species across five families (Anisolabididae, Forficulidae, Labiduridae, Pygidicranidae, and Spongiphoridae), with Forficulidae being the most diverse, encompassing nine genera. Within Forficulidae, the genus *Forficula* is currently represented by 19 species, predominantly found in the Mediterranean region. However, its systematic classification has never been thoroughly investigated. Given that morphological traits in this genus have proven misleading, an integrative approach combining morphological and molecular data is necessary to clarify the taxonomy and the phylogenetic relationships among its species. This study aims to investigate the European *Forficula* species, with a particular focus on Italian taxa, by integrating morphometric measurements and molecular markers (mitochondrial COI, 16S, CYTB and nuclear 28S, ITS2). Our molecular analyses revealed a complex and intriguing phylogenetic structure, identifying two main clades: one (A) including species closely related to *Forficula auricularia*, and another (B) that also encompasses species currently assigned to different Forficulidae genera (e.g., *Apterygida*, *Guanchia*). Regarding Italian taxa, our results confirmed the taxonomic value of the endemic *F. silana* and *F. apennina*, that, despite sharing some morphological traits, belong to two different clades (A and B respectively). We discovered the presence in Pantelleria, Sardinia, and Linosa of *F. mediterranea*, a recently identified species cryptic with *F. auricularia*, previously known only from Spain and Morocco. Additionally, the two Italian endemic species, *Pseudochelidura orsinii* and *P. galvagnii*, were found to be nested within *Forficula* (group B), leading us to propose a new taxonomic arrangement. We also examined the phylogenetic position of *Guanchia pubescens* and *G. obtusangula*, previously classified under *Forficula*, which likely require reclassification. Ongoing morphometric analyses will determine whether morphological characteristics support these molecular findings.

KEYWORDS: Molecular Taxonomy, Systematic Endemic Species