



A new species of *Philophylla* Rondani (Diptera: Tephritidae: Trypetini) from New Caledonia, recognized based on female postabdominal structure and molecular sequence data

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Abstract

Philophylla millei, n. sp., from New Caledonia is described and its relationship analyzed. This species was recorded previously as *Anastrephoides* sp. based on a single female, which closely resembles the eastern Palearctic species *Anastrephoides matsumurai* Shiraki. Whether this similarity reflects the close relationship of these species or a case of convergent evolution was examined using morphology and molecular data. We examined both male and female specimens of the New Caledonian trypetine species and sequenced the mitochondrial 16S ribosomal RNA gene of this species and related trypetine species. This new species is a member of the genus *Philophylla* Rondani based both on the female postabdominal structure as well as DNA sequence data.

Key words: Diptera, Tephritidae, Trypetini, *Philophylla millei*, New Caledonia, 16S

Introduction

The fruit fly fauna of New Caledonia was reviewed by Norrbom and Hancock (2004) who listed 25 species including three new species and six species newly reported from the island. Almost half the listed species are known only from New Caledonia, showing a high level of endemism.

Norrbom and Hancock (2004) reported the only New Caledonian species of the tribe Trypetini as *Anastrephoides* sp. based on a single female, which closely resembles the eastern Palearctic species *Anastrephoides matsumurai* Shiraki. We investigated whether this similarity reflects the close relationship of these two species or a case of convergent evolution. We clarify its generic classification, provide a detailed new species description, and discuss its phylogenetic position based both on morphological and molecular data.

Materials and methods

The terminology and morphological interpretations used in this paper follow the glossary of White et al. (1999) and Han and Norrbom (2005). The type specimens of *Philophylla millei* are deposited in the Museum National d'Histoire Naturelle, National Collection of Insects, Paris, France. Voucher specimens of other species used in this study are deposited in Department of Life Science, Yonsei University, Wonju Campus, Korea.

Molecular methods follow Han (2000) and Han and Ro (2005). We added the sequences of *Anastrephoides matsumurai* and five *Philophylla* species to the original 16S rDNA data set of Han (2000) to test the