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Review of *Otites* Latreille (Diptera: Ulidiidae) from Israel with two new species and notes on biology and behavior

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Abstract

The genus *Otites* Latreille was recorded for the first time from Israel during the study of Ulidiidae in the local fauna in 2009–2012, with three species occurring here: *O. grata* Loew, *O. nox* **n. sp.** and *O. vitalyi* **n. sp.** The three species are described and illustrated, and a key for their identification is provided. Laboratory behavioral observations on live *O. grata* individuals revealed a new mating trophallaxis behavior: a transfer of substance, during copulation, through the genital tracts of the male to the female, which the female expels and consumes after copulation.

Key words: Tephritoidea, Ulidiidae, *Otites*, taxonomy, mating trophallaxis, nuptial feeding

Introduction

Otites Latreille (Diptera: Tephritoidea: Ulidiidae) is a large holarctic genus comprising 33 described species of small to medium size flies that are mostly gray or black (Steyskal 1965; Soós 1984; Gheorghiu 1987; Carles-Tolrá 1998; Kameneva 2012). Based on morphological characters, *Otites* appears to be closely related to *Dorycera* Meigen, but the exact phylogenetic and taxonomic relationships between the two genera are not well understood (Kameneva E. P., personal communication). Until 2009, the ulidiid fauna of Israel was poorly studied and no *Otites* species were recorded from it. A study of the local ulidiid fauna in the national collection of insects at Tel Aviv University (TAUI) revealed three *Otites* species, two of which are undescribed (Mogulis 2012). An additional species from Israel may belong to *Otites* (Morgulis, unpublished data) but this is yet to be verified. While the life history of several ulidiid species was documented (Ferrar 1987), nothing has been known about the life history of any *Otites* species prior to the present study. Mating trophallaxis behavior (MT, feeding connected to mating, see definition by Freidberg (1982) below) was recorded in many insect taxa (reviewed by Vahed 1998). In Diptera this behavior is especially diverse, including transfer of prey (Alcock 1973), oral (Freidberg 1982; Sivinski et al 1999) and anal (Svensson and Petersson 1987) secretions. In the superfamily Tephritoidea this behavior was documented for Tephritidae (Novak and Foote 1975; Freidberg 1982; Sivinski et al. 1999) and Platystomatidae (Piersol 1907; Morgulis personal observation), but this is the first time that MT has been observed in the Ulidiidae. In addition, the specific form of MT described here has not been known previously for any insect taxa.

Material and methods

The morphological study is based on specimens collected in Israel during and prior to the present research and deposited in Tel Aviv University (TAUI). Collecting was carried out in the Mediterranean regions of Israel throughout the year using a sweeping net. For the biological observations, flies were transferred in glass vials from the field to the laboratory, where they were placed in plastic cages (30×40×25 cm) with ventilation openings (18×18) covered by a fine stainless steel net (60 mesh). The flies were given honey as food and moist cotton-wool as a source of water. Plant material (branches, leaves etc.) and cardboard were placed in the cages as potential substrates for oviposition.

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