



## The gall midges (Diptera: Cecidomyiidae) of Apiaceae in Israel

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### Abstract

The Israeli fauna of gall midges (Diptera: Cecidomyiidae) associated with plants of the family Apiaceae consists of three species of *Lasioptera* and two species of *Schizomyia* that all appear to be monophagous and univoltine. *Lasioptera foeniculi* n. sp. and *Schizomyia botellus* n. sp. are described as new to science. *Lasioptera carophila*, *Lasioptera umbelliferarum* and *Schizomyia buboniae* are redescribed, and a neotype is designated for *L. umbelliferarum*. The genera *Paraschizomyia* Möhn and *Microlasioptera* Skuhravá and Skuhravý are synonymized under *Schizomyia* Kieffer and *Lasioptera* Meigen, respectively. The two Israeli *Schizomyia* species develop in complex bud galls on the desert plants *Deverra tortuosa* and *Deverra triradiata* and are the only known *Schizomyia* species that pupate inside their galls. The three *Lasioptera* species develop in stem or fruit galls on *Foeniculum vulgare* and *Bilacunaria boissieri* in the Mediterranean region of Israel. Larvae, pupae and adults of these gall midges are described and information is provided about their biology, distribution and taxonomic relations.

**Key words:** *Bilacunaria*, *Deverra*, *Foeniculum*, neotype, new species, taxonomy

### Introduction

The Israeli fauna of gall midges (Cecidomyiidae) is relatively poorly known. Its knowledge is based mainly on an unverified checklist of species assembled by Bodenheimer (1937), a few studies on species of economic significance (e.g., Rivnai 1960, Avidov 1961, Gerling and Kugler 1973), and a handful of taxonomic studies that focused on specific host plants or cecidomyiid genera (Möhn 1966–1971, Sternlicht 1968, Dorchin 2001, Dorchin and Freidberg 2008). An ongoing survey of this family we have been conducting in Israel since 1995 has so far revealed 135 phytophagous species from 19 plant families (N. Dorchin, unpublished data). Among the host plants, the family Chenopodiaceae is the dominant by far, supporting approximately 80 gall midge species, the majority of which are still undescribed (Dorchin 1998). In the present paper we summarize the knowledge on the five cecidomyiid species associated with plants of the family Apiaceae in Israel. Two of these are described as new to science, and for the remaining three we provide the first full description of larvae, pupae and adults, including a neotype designation for *Lasioptera umbelliferarum* Kieffer.

Given the diversity, cosmopolitan distribution and abundance of the Apiaceae, it is surprising that only 33 cecidomyiid species are known to be associated with these plants (Gagné 2010). Apiaceae-associated gall midges are found in 14 cecidomyiid genera from various tribes, the dominant of which are *Contarinia* Rondani, *Lasioptera* Meigen and *Macrolabis* Kieffer (Gagné 2010). The great majority of the species develop in simple flower, fruit, or leaf galls, but all *Lasioptera* and *Neolasioptera* Felt species (7 and 2 species, respectively) develop in stem or flower stalks (umbels). While some species appear to be strictly monophagous, others, such as *Kiefferia pericarpicola* (Loew) and *Lasioptera carophila* Löw were recorded from many Apiaceae species and genera (Barnes 1946, Möhn 1968). The five species described in the present paper belong to the genera *Lasioptera* and *Schizomyia* Kieffer. The three *Lasioptera* species are found on plants of Mediterranean distribution, whereas the two *Schizomyia* species develop in desert plants of Saharo-Arabian distribution. The latter are the only *Schizomyia* species known to pupate inside their galls rather than in the soil, which is probably related to the arid habitat of their host plants. It