



## Morphology of preimaginal stages of *Minettia longipennis* Fabricius (Diptera: Lauxaniidae)

MAREK SEMELBAUER & MILAN KOZÁNEK

*Institute of Zoology, Slovak Academy of Sciences, Dúbravská cesta 9, SK – 845 06 Bratislava, Slovakia.*

*E-mail address: marek.semelbauer@savba.sk*

### Abstract

Scanning electron microscopy documentation of all preimaginal stages of the lauxaniid species *Minettia longipennis* (Fabricius) is presented for the first time. Images of the following morphological structures of all larval instars are provided: pseudocephalon, antenna, maxillary palpus, facial mask, cirri, mouth hooks, ambulatory lobes, anterior and posterior spiracles. Illustrations of the cephalopharyngeal skeleton for all three instars in lateral, ventral and dorsal views are provided. All instars are clearly separable by morphological features. The first instar has unique modification of the facial mask and structure of the cephalopharyngeal skeleton. Second and third instars are similar in overall form and differ in details in structure of the mouthhooks and anterior spiracles, and by the number of pharyngeal ridges.

**Key words:** Diptera, Lauxaniidae, *Minettia longipennis*, egg, larva, puparium, morphology

### Introduction

Immature stages of flies are generally poorly known, e.g. fewer than 5% species of Nearctic Cyclorrhapha have known larvae (Teskey 1981a). Several contemporary studies have shown that especially first larval instars of Cyclorrhapha are morphologically very variable, and can provide valuable data for reconstruction of phylogeny (Pape 2001, Szpila & Pape 2007, 2008).

Lauxaniidae is one of the most numerous families of acalyptrate flies. There are currently nearly two thousands described valid species (Gaimari, personal communication). Despite the remarkable morphological diversity, common occurrence and ease to catch, lauxaniids remain poorly studied flies, partly because of no or little economic importance (Stuckenberg 1971). The first description of any immature stages of European lauxaniid species was published by Meijere (1909). His study included biological observations and description of the third instars of five common European species, but without distinctive characters. Hennig (1952) supplemented Meijere's description by illustrating larval body parts of *Meisimyza rorida* (Fallén 1820). Later, Miller & Foote (1976) published a morphological study of all immature stages for eight North American lauxaniid species. Sasakawa & Ikeuchi (1982) provided brief descriptions of the preimaginal stages of the Palearctic species *Homoneura euaresta* (Coquillett) and *H. unguiculata* (Kertész). Sasakawa & Ikeuchi (1983) also provided a brief description of the preimaginal stages of the Palearctic species *Homoneura mediospinosa* Merz 2003 (as *H. interstincta* (Fallén 1820), see Merz 2003). To date, only one species representing the European fauna, *Minettia lupulina* (Fabricius 1787), has been described in-depth for all immature stages (Miller & Foote 1976). Related species to *M. longipennis* (Fabricius, 1794), *M. lyraformis* Shewell 1938 is described in detail for all immature stages (Miller & Foote 1976). Recent summary of larval morphology and biology was given by Gaimari & Silva (2010).

*Minettia longipennis* (Fabricius 1794) is a common lauxaniid species with a Holarctic distribution (Merz 2011) placed in the subgenus *Frendelia* Collin 1948. There are twenty two valid species worldwide of this subgenus (Gaimari, personal communication) characterised by dull–dark coloration and yellowish wings (Shatalkin 2000). Adults of *M. longipennis* can be found sitting on leaves (vegetation) of broad-leaved trees, bushes etc., and larvae are known to occur in bird's nests, and other vegetable debris (Miller 1977a). The aim of this study is to provide detailed descriptions of all immature stages for *M. longipennis*.