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Detailed morphological description of the mature larva of *Anthrenus latefasciatus* Reitter, 1892 (Dermestidae: Megatominae: Anthrenini) with comparisons to related species

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Abstract

A description of the last larval instar (based on exuvium) of *Anthrenus latefasciatus* Reitter, 1892 (Coleoptera: Dermestidae) is presented. New morphological characters of *A. latefasciatus* larvae such as general morphology of antenna, epipharynx, mandibula, maxilla, ligula with labial palpi, hastisetae, legs, terga and condition of antecostal suture are documented and discussed. General morphological differences among mature larvae of the following *Anthrenus* species are compared and summarized: *A. coloratus* Reitter, 1881, *A. flavipes flavipes* LeConte, 1854, *A. fuscus* Olivier, 1789, *A. latefasciatus* Reitter, 1892, *A. museorum* (Linnaeus, 1761) *A. oceanicus* Fauvel, 1903, *A. olgae* Kalík, 1946, *A. pimpinellae pimpinellae* (Fabricius, 1775), *A. sarnicus* Mroczkowski, 1963, *A. scrophulariae scrophulariae* (Linnaeus, 1758), and *A. verbasci* (Linnaeus, 1767).

Key words: Dermestidae, *Anthrenus*, immature stages, setae, exuviae

Introduction

The genus *Anthrenus* Geoffroy, 1762 has a worldwide distribution and currently includes approximately 220 species (Háva 2011). Larvae of synanthropic species such as *A. verbasci* (Linnaeus, 1767) and *A. museorum* (Linnaeus, 1761) have been recognized as serious pests of stored products as well as of museum collections (mainly entomological and ornithological) (Bousquet 1990; Beal 1991; Hinton 1945; Mroczkowski 1975). Knowledge of the morphology of immature stages of most Dermestidae species is still incomplete and limited.

A formal diagnosis of the larval stages was provided for *Anthrenus* by Rees (1943). Larval morphological characteristics that distinguish *Anthrenus* from related genera, along with keys to some species, were given by Rees (1943), Korschefsky (1944b), Hinton (1945), Zhantiev (1976), Beal (1991) and Peacock (1993). The phylogeny of the genus was also discussed by Kiselyova & McHugh (2006) in their extensive work on the phylogenetic relationships of Dermestidae based on larval and pupal morphology [four species within genus *Anthrenus* were included in the analysis: *A. verbasci*, *A. lepidus* LeConte, 1854, *A. scrophulariae scrophulariae* (Linnaeus, 1758) and *A. flavipes flavipes* LeConte, 1854].

Morphological descriptions of the larval stages of *Anthrenus* exist for only 18 (Table 1) of the 220 known species worldwide (Háva 2011; Kadej 2011). Most of these descriptions are brief and limited in detail with only schematic drawings. Thus, they are virtually useless for comparisons between taxa. Few papers exist that contain a broad treatment of morphology (Veer *et al*. 1991) or biology (Yokoyama 1929; Greenwald 1941; Armes 1990, 1991; Veer *et al*. 1991; Menier & Villemant 1993) of immature stages of *Anthrenus* species. Due to the lack of detailed knowledge about *Anthrenus* immature stages, new and detailed descriptions are required.

The current paper provides a detailed morphological description of the mature larva of *Anthrenus latefasciatus* Reitter, 1892. The following set of larval characters are described and illustrated: antenna, epipharynx, mandibula, maxilla, ligula with labial palpi, hastisetae, legs, terga and condition of antecostal suture. These characters have not been previously described and discussed for *A. latefasciatus*. This work also proposes a standard format for the morphological description of *Anthrenus* immature stages.

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