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The larvae of *Altica koreana* (Ogloblin) and *A. viridicyanea* (Baly) (Coleoptera: Chrysomelidae: Galerucinae: Alticini)

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Abstract

The first instar and mature larvae of *Altica koreana* (Ogloblin) and *A. viridicyanea* (Baly) are described and illustrated for the first time and compared with larvae of *Altica caerulescens* (Baly), *A. cirsiicola* Ohno, and *A. fragariae* (Nakane). A key to the five related *Altica* species is also given.

Key words: Larval description, morphology, leaf beetles, China

Introduction

Altica Geoffroy is one of the largest flea beetle genera with over 300 described species worldwide (Konstantinov & Vandenberg 1996). Among them, 28 species occur in China and six of them are endemic. Classification of the genus is impeded by the great similarity of the species in coloration and uniform general adult morphology.

Chinese species of *Altica* were studied by Ogloblin (1921, 1925), Chen (1936), Ohno (1960), Gressitt and Kimoto (1963), Scherer (1969), Lopatin (1977), Chen and Wang (1981), Wang (1992, 1996), and Gruev and Döberl (1997).

Despite these contributions, detailed information on the larval morphology of *Altica* is limited. Most studies are focused on the life-history, or damage caused by the larvae. Larvae of the following species of *Altica* are fully illustrated and described: *A. bicarinata* (Kutschera) (Lee & Furth 2000), *A. caerulescens* (Baly) (Lee 1992), *A. chalybea* Illiger (Lesage & Zumdzińska-Krzesińska 2004), *A. cirsiicola* Ohno (Lee 1992), *A. corni* Woods (Lesage & Denis 1999), *A. deserticola* (Weise) (Bieńkowski 2010), *A. engstroemi* (Bieńkowski 2010), *A. fragariae* (Nakane) (Zhang *et al.* 2007), *A. marevagans* Horn (Lee & Furth 2000), and *A. woodsi* Isely (Lesage & Zumdzińska-Krzesińska 2004).

Detailed descriptions of the mature larvae of *Altica koreana* (Ogloblin) and *A. viridicyanea* (Baly) are provided here. Three more closely related species (*A. caerulescens*, *A. cirsiicola* and *A. fragariae*) were examined and a key to these five species is provided.

Material and methods

Specimens and terminology. All specimens of *Altica* were collected in Beijing (China). *Altica koreana* in June–July, 2004, *A. caerulescens*, *A. fragariae* and *A. cirsiicola* in June–July, 2005, and *A. viridicyanea* in June–July, 2010. All of them were reared in glass jars (size of 12 x 11.5 cm) with sand on the bottom and a sufficient supply of the host plants. Fresh host plant leaves were provided and wilted leaves were removed on a daily basis. The containers were kept closed except when leaves were added and waste removed. The temperature was constantly