



Notes on *Malthinus mucoreus* (Coleoptera: Cantharidae), with descriptions of two new related species from the Ryukyus, Southwest Japan

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Abstract

Malthinus mucoreus Kiesenwetter, 1879, is redescribed based on material collected from various localities in Japan, and variations in morphological features are investigated. Additionally, two species from the Ryukyus in the southwestern part of Japan, *M. serrulatus* **sp. nov.** and *M. orbiculatus* **sp. nov.**, are described and illustrated.

Key words: taxonomy, Malthininae, redescription, infraspecific variation, new species

Introduction

Soldier beetles of the cantharid genus *Malthinus* Latreille, 1806 are known in all zoogeographical regions other than the Australian Region, and a small number of species are distributed in the Oriental and Neotropical Regions (Delkeskamp, 1977; Švihla, 2009). Nine described species are known to occur at present in Japan (Takahashi, 2006; Kazantsev & Brancucci, 2007), and only three of them are distributed in the Ryukyu Islands lying around the boundary of the Palaeartic and Oriental Regions, from which a few known and undescribed species have been referenced in the literature (Satô, 1985; Imasaka & Yamaji, 1989). Most of them seem to have similar appearances, having a yellowish body with blackish maculations.

In this study, *Malthinus mucoreus* Kiesenwetter, 1879, having such body coloration and mainly distributed in the western part of the mainland of Japan, was re-examined in detail based on material collected from various localities to determine variations of its morphological features. Two species are newly described and illustrated, one is closely allied and another corresponds to the above-mentioned undescribed species found in the Ryukyus.

Material and methods

Most materials used in this study were dried specimens. Some wet specimens fixed and stored in 80% ethanol were also observed, and some were dried using the method of Sabrosky (1966), which was seldom used for a description of body coloration since they were frequently faded in this study. For detailed observation of the terminalia, the abdomen was removed from a specimen after macerating, and placed in a solution of 7% KOH heated for several minutes depending on size. It was then washed with distilled water, dehydrated through an ethanol series, and then transferred into pure glycerol for dissection to examine the terminalia under a stereoscopic microscope.

Body length was represented by the length from the anterior margin of the clypeus to the apices of the elytra because the length of abdomen was variable depending on the condition of specimens, and the radius of an eye was measured from the inner to the outer margin at the widest part of the head in dorsal view. Terminology concerning morphological features mainly follows Wittmer (1969) and Brancucci (1980), and