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Two new species of *Leptobatopsis* Ashmead (Hymenoptera: Ichneumonidae: Banchinae) from South Korea and gynandromorphy in *L. nigricapitis*

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Abstract

Four species of *Leptobatopsis* Ashmead are recorded for the first time from South Korea. Among them, *L. koreana* **sp. nov**. and *L. daedeokensis* **sp. nov**. are newly described. We also report two newly recorded species, *L. nigricapitis* Chandra & Gupta and *L. appendiculata* Momoi, from South Korea. In addition, we describe a case of gynandromorphy of *L. nigricapitis* in a single specimen from South Korea. This specimen presents bilateral asymmetry, with the left half of its habitus displaying male characters and the right half displaying female characters. We also provide a key to Eastern Palaearctic species of *Leptobatopsis.*

Key words: Sexual dimorphism, mtCOI, taxonomy

Introduction

The subfamily Banchinae includes more than 1,700 species worldwide. This subfamily is divided into three tribes: Atrophini, Banchini, and Glyptini. As the largest tribe, Atrophini is very easily separated from the other tribes by all tergites without an oblique groove and nervellus intercepted at the middle. Within this tribe, *Leptobatopsis* Ashmead 1900 is a moderately large genus consisting of 28 species (Yu *et al*., 2012). Chandra & Gupta (1977) reviewed the Oriental species with nine new species and Kasparyan (2007) reviewed the Eastern Palaearctic species with one new species. Almost all species are known from the Oriental region, of which four species (*L. appendiculata* Momoi, *L. lepida* (Cameron), *L. nigra* Cushman and *L. nigricapitis* Chandra & Gupta) also occur in the Eastern Palaearctic. Additionally, *L. annularis* Kasparyan and *L. mongolica* Meyer are only known from the Eastern Palaearctic. However, the validity of *L. mongolca* remains questionable (Townes *et al*., 1965), and type specimens of this species are lost. Therefore, we exclude this species from the key to Eastern Palaearctic *Leptobatopsis*.

Gynandromorphs have been found in many taxonomic groups, but they are normally rare or very rare in nature (Stern, 1968; Turrisi & Foucart, 2008; Mariano *et al*., 2009). In the case of Hymenoptera, gynandromorphism has been most frequently documented in Formicidae but less frequently within Ichneumonidae (Tarasco, 1996; Witmond *et al*., 2011; Alvarez *et al*., 2014). Fortunately, we discovered a gynandromorphic specimen of *L. nigricapitis*.

In this study, two new species (*Leptobatopsis koreana* **sp. nov.** and *L. daedeokensis* **sp. nov.**) are described. We also report two species (*L. nigricapitis* and *L. appendiculata*) in the South Korean fauna for the first time. Furthermore, we describe mixed gynandromorphy of *L. nigricapitis* in a single specimen, including result of DNA barcoding (mitocondrial DNA (COI)). We also provide descriptions with photographs of new species and key to Eastern Palaearctic species of *Leptobatopsis* except *L. mongolica*.

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