

A New Species of *Indotipula* (Diptera: Tipulidae) from Korea

Hak Myeong Baek and Yeon Jae Bae*

Department of Environmental Science and Ecological Engineering, Graduate School, Korea University, Seoul, Korea

*Correspondence

Yeon Jae Bae, Division of Environmental Science and Ecological Engineering, College of Life Sciences and Biotechnology, Korea University, Seoul 02841, Republic of Korea
E-mail: yjbae@korea.ac.kr

Received 20 October 2016
Accepted 5 November 2016

Abstract

A new species of the crane fly genus *Indotipula* (Diptera: Tipulidae) is described from Korea. *Indotipula koreana*, n. sp., can be distinguished from congeners by the shape of male hypopygium 9th tergite, oval and flattened outer gonostylus, and quite complex inner gonostylus.

Key words: *Indotipula koreana*, Tipulidae, new species, Korea

Introduction

The crane fly genus *Indotipula* was first proposed by Edwards (1931) as a subgenus of the genus *Tipula* Linnaeus with the type species *Tipula walkeri* Brunetti, 1911. Edwards characterized *Indotipula* by the following morphological characters: spur formula 0-0-2 or 0-1-2; mid-tibial spur minute when present; outer spur on the hindtibia shorter than inner spur; vein Rs short, often shorter than m-cu; cell R2 narrow; wings without distinct anal angle; axillary area much reduced in size; vein 2A running parallel and close to hind margin; veins beyond cord usually devoid of macrotrichia; claws of male toothed; pleurae bare. Some of these characters are no longer diagnostic for *Indotipula* because of variations among species subsequently transferred to the subgenus. Alexander (1935) published a tentative key to the subgenera of *Tipula* in central and eastern Asia, and additional morphological characters, including external sexual characters, were incorporated into a diagnosis for recognizing the subgenus *Indotipula*. The combined diagnostic characteristics that separate *Indotipula* from other subgenera are as follows: nasus elongate, length 1.5 times that of rostrum; foretibiae without spurs; antennae 12-segmented; squama without strong setae.

Savchenko (1983) reported *Indotipula yamata yamata* from Korea, but no additional species of *Indotipula* have been recorded from the country. The purpose of this study is to describe a new species of *Indotipula* from Korea.

Adult crane flies were collected by an insect net. They were preserved in 95% ethanol and deposited in the Korea University Entomological Museum (KU) in Seoul and National Institute of Biological Resources (NIBR) in Incheon, Korea.

Taxonomic accounts

Order Diptera

Family Tipulidae Latreille, 1802

Genus *Indotipula* Edwards, 1931

Tipula (*Indotipula*) Edwards, 1931: 81. (Type-species: *Tipula walkeri* Brunetti, 1911, by original designation)

***Indotipula koreana*, n. sp.** 고려각다귀 (신칭) (Figs 1-4)

Male (Holotype). Body (Fig. 1) length 14 mm; wing length 16 mm. Head mostly black. Antennae light brown, with



Figure 1. *Indotipula koreana*, n. sp., male adult.

cylindrical flagellomere, with several verticils. Vertex and occiput dark brown, with yellow area on gena. Frontal prolongation of head short, pale yellow. Palpi pale yellow, with elongate 4th segment. Thorax blackish; anterior half of pleura dark brown; Pronotum, mesonotum, and scutellum dark brown, without distinct stripes. Wings with pale brown suffusion; costal border dark brown; stigma brown, with light brown pattern on margin of cell R. Vein Rs as long as

bs-cu. A₂ vein almost parallel and very close to margin; A₂ cell very shallow (Fig. 2). Halteres long, slender, pale brown. Legs long, stout, dark brown. Abdominal tergites 1–4 yellow; tergites 5–6 yellow, with median brown stripe; tergites 7–9 dark brown. Sternite 1–6 yellow; sternites 7–9 dark brown. Male hypopygium 9th tergite (Figs 3A, B) with a wide median protuberance; caudal margin with bundle of setae on tiny lateral notch (Fig. 4A). Ninth sternite flattened, without lobes or notch, with only small bundle of short setae on median margin. Outer gonostylus oval and flattened, with minute setae (Fig. 4B). Inner gonostylus quite complex, with long and strong setae on wider part, with a long and sharp beak; median lobe with small chitinized teeth (Figs 4C, D).

Material examined. Holotype: male, Gyeongsangbuk-do, Changwon-gun, Unmun-myeon (N35°38'42.8", E128°58'34.4"), 14.v.2016, HM Baek, [KU]. Paratype: 1 male,

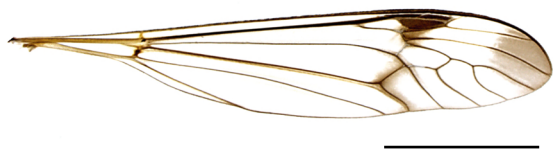


Figure 2. *Indotipula koreana*, n. sp., male wing. Scale bar = 5 mm.

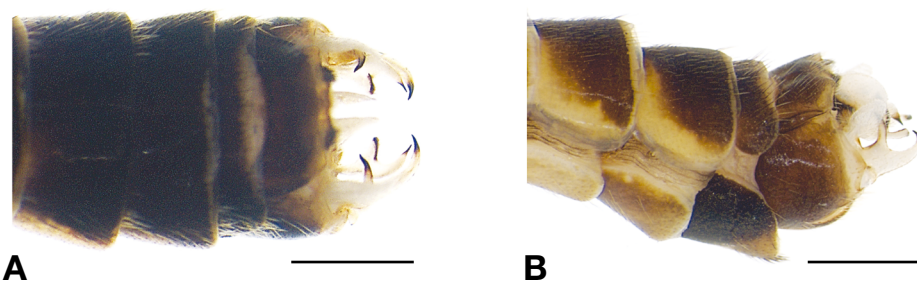


Figure 3. *Indotipula koreana*, n. sp., male hypopygium. A. ventral view; B. lateral view. Scale bars = 1 mm.

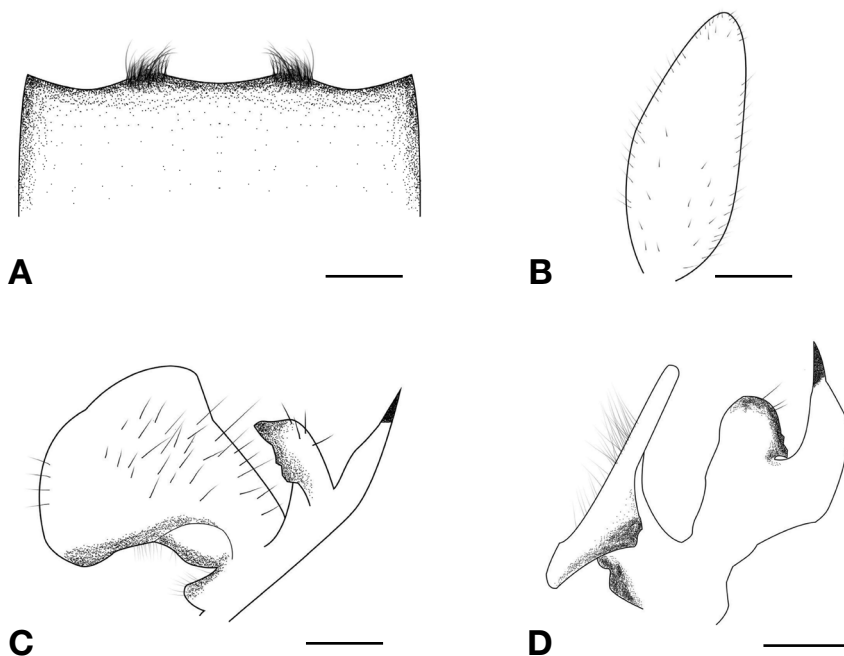


Figure 4. *Indotipula koreana*, n. sp., male hypopygium. A. 9th tergite; B. Inner gonostylus; C. Lateral view of outer gonostylus; D. Anterior view of outer gonostylus. Scale bars = 0.2 mm.

same data as holotype, [NIBR].

Etymology. The specific epithet *koreana* refers to the country name Korea.

Acknowledgments

This work was supported by a Graduate Program for the Undiscovered Taxa of Korea (NIBR201624202).

References

- Alexander CP (1935) New or little-known Tipulidae from eastern Asia (Diptera). XXII. *Philippine Journal of Science* **55**: 133–164.
- Edwards FW (1931) Some suggestions on the classification of the genus *Tipula* (Diptera, Tipulidae). *Annals and Magazine of Natural History* **8** (10): 73–82.
- Savchenko EN (1983) Crane-flies (Fam. Tipulidae), Introduction, Subfam. Dolichopezinae, Subfam. Tipulinae (start). *Fauna USSR, N.S. 127, Nasekomye Dvukrylye [Diptera]* **2** (1–2): 1–585. (in Russian)