



New species of the genus *Epiphragma* Osten Sacken from Yunnan, Southwest China (Diptera, Limoniidae)

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Abstract

The subgenus *Epiphragma* (*Epiphragma*) Osten Sacken, 1860 is recorded from Yunnan (Southwest China) for the first time. The following five species with two dark rings on the femora are described as new to science: *E. mediale* **sp. nov.**, *E. yunnanense* **sp. nov.**, *E. ancistrum* **sp. nov.**, *E. breve* **sp. nov.** and *E. elongatum* **sp. nov.** Their relationships with closely related species are discussed. A key to the species of the subgenus *Epiphragma* from China is presented for the first time.

Key words. Diptera, Limoniidae, *Epiphragma*, new species, Yunnan, Southwest China

Introduction

The *Epiphragma* is a large subgenus of the genus *Epiphragma*. It is characterized by the following characters: flagellum with two or more basal segments fused; wing broad, variegated with brown bands, spots, ocelli; a single supernumerary cross-vein in cell C; posterior margin of tergite 9 with subtrigonal lobe on each side of median notch (Osten Sacken, 1860; Dienske, 1987). Its monophyly was discussed by Ribeiro (2008). It is distributed worldwide with 110 known species, of which 9 species are from the East Palaearctic, 22 species from the Oriental Region, 4 species from the Nearctic Region, 63 species from the Neotropic Region and 14 species from Australasian/Oceanian Region (Oosterbroek, 2009). The following seven species were known to occur in China: Sichuan: *E. bicinctiferum* Alexander, 1935, *E. subobsoletum* Alexander, 1936, *E. sultanum* Alexander, 1938; Zhejiang: *E. evanescens* Alexander, 1940; Taiwan: *E. divisum* Alexander, 1923, *E. kempii* Brunetti, 1913, *E. nymphicum* Alexander, 1928.

Yunnan is one of the biodiversity hotspots in the world, which has a subtropical to tropical climate and dramatic variations in topography. In the present paper, the subgenus *Epiphragma* is newly recorded from Yunnan. Five new species are described. Most of the known Chinese species of the subgenus *Epiphragma* have only one dark ring on the femora. The five new species from Yunnan are characterized by femora with two dark rings. A key to the species of the subgenus from China is presented for the first time.

Material and methods

The specimens were studied and illustrated with ZEISS Stemi 2000-c. Genitalic preparations were made by macerating the apical portion of the abdomen in cold 10% NaOH for 12–15 h. After examination it was transferred to fresh glycerine and stored in a microvial pinned below the specimen. The type specimens of the new species are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing.

Terminology of morphological features generally follows that of McAlpine (1981) except wing veins following Dienske (1987).