



<http://dx.doi.org/10.11646/zootaxa.3841.3.8>

<http://zoobank.org/urn:lsid:zoobank.org:pub:E3AFCAD4-E414-4F56-9F37-CD7F9677EC93>

The genus *Dolichocephala* newly found in Shaanxi Province (China), with descriptions of three new species (Diptera: Empididae)

XIAOYAN LIU^{1,2}, MENGQING WANG^{1,3,4} & DING YANG^{1,4}

¹Department of Entomology, College of Agronomy and Biotechnology, China Agricultural University, Beijing 100193

²Hubei Insect Resources Utilization and Sustainable Pest Management Key Laboratory, College of Plant Science and Technology, Huazhong Agricultural University, Wuhan 430070, China

³Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100081, China

⁴Corresponding authors: Mengqing Wang (mqwang@ippcaas.cn; mengqingsw@163.com); Ding Yang (dyangcau@126.com; dyangcau@aliyun.com)

Abstract

The genus *Dolichocephala* is recorded from Shaanxi Province (China) for the first time. The following three new species are described: *Dolichocephala brevis* sp. nov., *D. longa* sp. nov., and *D. qinlingensis* sp. nov. Their relationships with related species are discussed. An updated key to the species of *Dolichocephala* from China is presented.

Key words: Diptera, Empididae, *Dolichocephala*, new species, Shaanxi, China

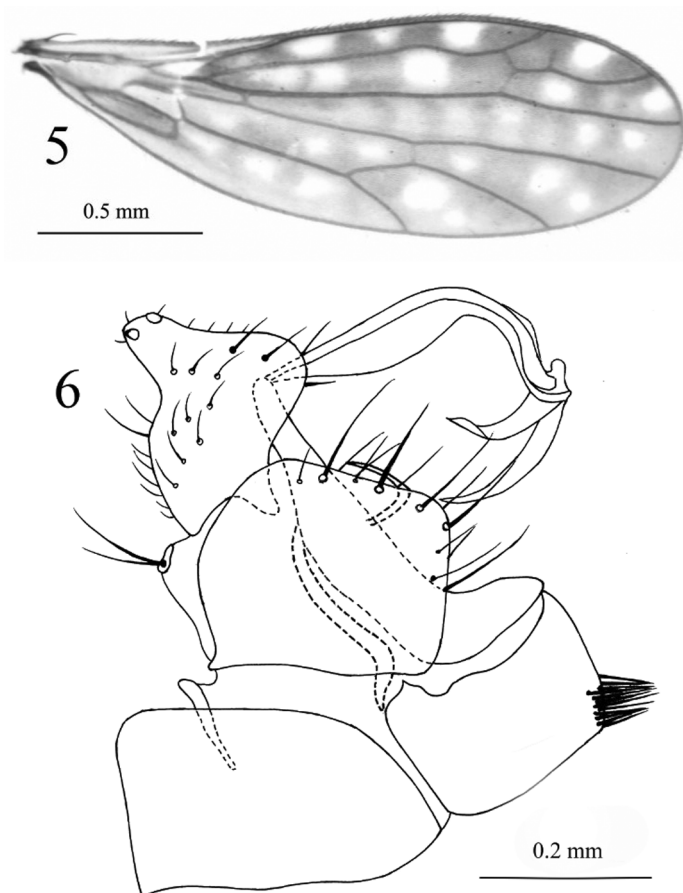
Introduction

The genus *Dolichocephala* Macquart is a small genus in the subfamily Clinocerinae with 47 known species, of which 11 species are distributed in the Afrotropical Region, 19 in the Palaearctic, 9 in the Oriental, 2 in the Australasian and 7 in the Nearctic (Yang *et al.* 2007; Sinclair & MacDonald 2012; Yang 2008). The genus is characterized by the following features: neck arising high on occiput; head often extending obliquely forward with distinct clypeus and gena; wing infusate often with clear spots; fore tarsomere 2 much longer than tarsomeres 3 or 4; and subepandrial sclerite extended beyond base of claspings cercus (Sinclair 1995; Yang *et al.* 2004). See Collin (1961) and Sinclair (1995) for detailed descriptions of the genus *Dolichocephala*.

The major references dealing with the Palaearctic and Oriental *Dolichocephala* are as follows: Horvat (1994); Wagner (1995); Wagner *et al.* (2004); Yang *et al.* (2004); Yang (2008). Six species were previously known to occur in China. Shaanxi Province is part of the Northwest China region. It includes portions of the Loess Plateau on the middle reaches of the Yellow River in addition to the Qinling Mountains across the southern part of this province. Only one species of the subfamily Clinocerinae was known from Shaanxi Province (Sinclair & Saigusa 2005). Here the genus *Dolichocephala* is newly recorded from Shaanxi Province. An updated key to the species of *Dolichocephala* from China is presented.

Material and methods

Type specimens are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. Morphological terminology generally follows McAlpine (1981) and Cumming & Wood (2009), except male terminalia which follows Sinclair (1995). The following abbreviations are used for bristles: acr—acrostichal, dc—dorsocentral, h—humeral, npl—notopleural, oc—ocellar, ph—posthumeral, psa—postalar, sa—supraalar, sc—scutellar, vt—vertical.



FIGURES 5–6. *Dolichocephala qinlingensis* sp. nov. (male). 5. Wing; 6. genitalia, lateral view.

Acknowledgements

We are very grateful to Mr. Yuqiang Xi, Ms. Yan Yan and Ms. Yuyu Wang (Beijing) for collecting specimens and to Mr. Xiao Zhang for his help during the study. One anonymous reviewer is thanked for providing useful comments on an earlier draft of this paper. The research was funded by the National Natural Science Foundation of China (31272354) and the Ministry of Science and Technology of the Republic of China (MOST Grant 2012FY111100, 2011FY120200).

References

- Collin, J.E. (1961) Empididae. In: Verrall, G.H. (Ed.), *British flies*. Vol. 6. Cambridge University Press, London, pp. 1–782.
- Cumming, J.M. & Wood, D.M. (2009) Adult morphology and terminology. In: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera*. Vol. 1. NRC Research Press, Ottawa, pp. 9–50.
- Horvat, B. (1994) *Dolichocephala sinica* sp. n. (Diptera, Empididae: Clinocerinae) from Sichuan (China). *Aquatic Insects*, 16 (4), 201–203.
<http://dx.doi.org/10.1080/01650429409361556>
- McAlpine, J.F. (1981) Morphology and terminology - adults. In: McAlpine, J.F., Peterson, B.V., Shewell, G.E., Teskey, H.J., Vockeroth, J.R. & Wood, D.M. (Coords.), *Manual of Nearctic Diptera*. Vol. 1. *Agriculture Canada Monograph*, 27, 9–63.
- Sinclair, B.J. (1995) Generic revision of the Clinocerinae (Empididae), and description and phylogenetic relationships of the Trichopezinae, new status (Diptera: Empidoidea). *The Canadian Entomologist*, 127, 665–752.
<http://dx.doi.org/10.4039/ent127665-5>
- Sinclair, B.J. & MacDonald, J.F. (2012) Revision of *Dolichocephala* of America, north of Mexico (Diptera: Empididae: Clinocerinae). *The Canadian Entomologist*, 144, 62–80.

<http://dx.doi.org/10.4039/tce.2012.8>

- Sinclair, B.J. & Saigusa, T. (2005) Revision of the *Trichoclinocera dasyscutellum* group from East Asia (Diptera: Empididae: Clinocerinae). *Bonner zoologische Beiträge*, 53 (2004), 193–209.
- Wagner, R. (1995) Empididen aus dem Mittelmeerraum (Diptera, Empididae: Hemerodromiinae und Clinocerinae). *Acta Entomologica Slovenica*, 3 (1), 5–23.
- Wagner, R., Leese, F. & Panesar, A.R. (2004) Aquatic dance flies from a small Himalayan Mountain stream (Diptera: Empididae: Hemerodromiinae, Trichopezinae and Clinocerinae). *Bonner zoologische Beiträge*, 52, 3–32.
- Yang, D. (2008) A new species of *Dolichocephala* from Hainan Island, with a key to the Chinese species (Diptera: Empididae). *Aquatic Insects*, 30, 281–284.
<http://dx.doi.org/10.1080/01650420802334061>
- Yang, D., Grootaert, P. & Horvat, B. (2004) A new species of *Dolichocephala*, with a key to the species from China (Insect: Diptera, Empididae). *Aquatic Insects*, 26, 215–219.
<http://dx.doi.org/10.1080/01650420412331327303>
- Yang D., Zhang, K.Y., Yao, G. & Zhang, J.H. (2007) *World catalog of Empididae (Insecta: Diptera)*. China Agricultural University Press, Beijing, 599 pp.