



## Review of *Empoasca* (*Matsumurasca*) Anufriev (Hemiptera: Cicadellidae: Typhlocybinae: Empoascini), with description of three new species from China

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### Abstract

The subgenus *Matsumurasca* of genus *Empoasca* Anufriev (Hemiptera: Cicadellidae: Typhlocybinae: Empoascini) is revised with three new species described and illustrated: *E. (M.) biprocessa* Qin and Liu **sp. nov.** (southwest China: Yunnan), *E. (M.) dentalis* Qin and Liu **sp. nov.** (central southern China: Hunan) and *E. (M.) spinalis* Qin and Liu **sp. nov.** (central southern China: Henan). *E. (M.) diversa* Vilbaste, 1968, and *E. (M.) parvifacia* Dworakowska, 1994, are recorded for the first time from China. Additionally, two replacement names are proposed, *E. (M.) clypealata* nom. nov. for *E. (M.) clypeata* Qin & Zhang, 2008 (preoccupied by *E. clypeata* Gillette & Baker, 1895) and *E. (M.) quadrialata* nom. nov. for *E. (M.) quadrifida* Qin & Zhang, 2008 (preoccupied by *E. quadrifida* Southern, 1982). A key to all species of the subgenus is also provided.

**Key words:** Homoptera, Cicadomorpha, new species, nom. nov., China

### Introduction

The leafhopper subgenus *Matsumurasca* Anufriev (type species *Empoasca diversa* Vilbaste, 1968), is a small group within the genus *Empoasca* and can most readily be identified by the stalked or triangular third apical cell of the forewing, the presence of an angulate lateral projection at the base of the subgenital plate and the aedeagus often with paired processes (Anufriev 1973, Qin & Zhang 2008). It is known to occur in the Oriental, Palaearctic and Afrotropical Regions with 12 species recorded worldwide (Paoli 1930, Matsumura 1931, Matsuda 1952, Vilbaste 1968, Thapa 1985, Dworakowska 1994, Qin & Zhang 2008), including four species in China, *E. (M.) biloba* Qin & Zhang, 2008, *E. (M.) clypeata* Qin & Zhang, 2008, *E. (M.) onukii* Matsuda, 1952, and *E. (M.) quadrifida*, Qin & Zhang, 2008.

In this paper, three new species, *E. (M.) biprocessa* Qin & Liu, *E. (M.) dentalis* Qin & Liu and *E. (M.) spinalis* Qin & Liu, **spp. nov.**, are described and illustrated. *E. (M.) diversa* Vilbaste, 1968, and *Empoasca (M.) parvifacia* Dworakowska, 1994, are recorded from China for the first time. Two replacement names are proposed for primary junior homonyms created by Qin & Zhang (2008) in the subgenus. A key to males of all 15 species of the subgenus is also provided.

### Material and methods

The specimens examined in this study are deposited in the Entomological Museum, Northwest A&F University (NWAUFU) or Nankai University (NKU). Habitus photos were taken using a Scientific Digital micrography system equipped with an Auto-montage<sup>®</sup> imaging system and a high resolution QIMAGING Retiga 4000R digital camera (CCD). Multiple photographs were compressed into final images. The body measurements are from apex of vertex to tip of forewing in folded position. The morphological terminology used in this description follows Zhang (1990) except for the nomenclature of the wing, for which we follow Dworakowska (1993).