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Three new species in the leafhopper genus *Angustuma* (Hemiptera: Cicadellidae: Evacanthinae) from Thailand

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Abstract

The genus *Angustuma* Xing & Li, 2013 of the subfamily Evacanthinae is recorded from Thailand for the first time. Three new species, *Angustuma basinigra* sp. nov., *Angustuma flavinigra* sp. nov. and *Angustuma flavimacula* sp. nov., are described and illustrated. Their diagnostic characteristics are compared with close relatives. A key to all known species of *Angustuma* is provided.

Key words: Homoptera, Auchenorrhyncha, Evacanthini, taxonomy, morphology, distribution

Introduction

The leafhopper subfamily Evacanthinae is a relatively small subfamily previously often considered to be a tribe in the subfamily Cicadellinae (Oman *et al.*, 1990). Evacanthinae was redefined by Dietrich (2004), who included the tribes Evacanthini, Nirvanini, Balbillini and Pagaroniini in this subfamily. Species of Evacanthini are distributed worldwide, but the tribe is most diverse in the Oriental region, with many endemic genera and species. In the past two years, four new genera of Evacanthini were reported from China, Thailand and elsewhere in the Indo-Malayan region (Wang *et al.*, 2013; Li & Li, 2014; Wei *et al.*, 2014; Wang & Zhang, 2014).

The evacanthine genus *Angustella* was established by Li (1986) with *Angustella nigricarina* Li, 1986 as its type species. Xing & Li (2013) found that *Angustella* Li is a junior homonym of the subgenus *Gervillia* (*Angustella*) Waagen, 1907, and proposed the replacement name *Angustuma* Xing & Li, 2013 for the former. This genus previously contained thirteen species only known from China. Recently, three new species were found in loaned leafhopper material from Thailand. Herein, *A. basinigra* sp. nov., *A. flavinigra* sp. nov. and *A. flavimacula* sp. nov., are described and illustrated. A key to all known species of *Angustuma* is also provided.

Material and methods

All specimens were previously preserved in alcohol and subsequently air dried and point mounted. External morphology was observed using a Motic SMZ 168-BL microscope. The male genitalia were treated with 10% NaOH solution at 100°C for several minutes, rinsed with water, immersed in a droplet of glycerol and dissected following standard procedures. They were observed under a compound light microscope (Nikon Eclipse 50i). Photos were taken using a Scientific Digital Micrography System equipped with an Auto-montage imaging system and a QIMAGING Retiga 4000R digital camera (CCD). Morphological terminology follows Dietrich (2004, 2005). Material examined is deposited in the following institutions and abbreviations used in the text are as follows:

Angustuma flavimacula sp. nov.

(Figs 21–31)

Description. Body length (including forewing): ♂, 7.2 mm; ♀, 7.9 mm. Dorsum (Fig. 21) blackish ochreous, marked with off-white and yellow spots. Crown (Figs 21, 23) with four irregular off-white spots on lateral, anterior and posterior margin. Face (Fig. 24) with median longitudinal carina blackish ochreous, gradually narrowing from apex to base, with pair of narrow blackish ochreous maculae just mesad of eyes. Lorum (Fig. 4) blackish ochreous. Gena (Fig. 24) with blackish ochreous stripes on the middle portion. Pronotum (Figs 21, 23) blackish ochreous, marked with off-white on middle lateral margin. Forewing (Figs 21, 22) with large yellow spots on clavus and lateral margin respectively.

Aedeagal (Fig. 28) ventral apophysis in lateral view finlike, apex pointed. Style (Fig. 29) apophysis in ventral view elongate and acuminate. Connective (Fig. 27) stem broadened near apex with pair of short retrorse preapical spines. Subgenital plate (Fig. 30) knifelike, broad in middle portion, macrosetae in single row through most of length, row of elongate setae near interior submargin.

Female and male (Fig. 25) are slightly dimorphic in coloration and shape of marks. Female seventh sternite (Fig. 31) longer than the sixth sternite, posterior margin well produced laterally and almost flat medially.

Type material. Holotype: ♂ (QSBG), THAILAND: Chiang Mai Doi Phahompok NP Doi phaluang, 20°1.06'N 99°9.581'E, 1449 m, Malaise trap, 20–27.VII.2007, Wongchai P. Paratype: 1♀ (NWFU), same data as holotype.

Remarks. This species is easily distinguished from other species of *Angustuma* Xing & Li, 2013 by the dorsal coloration and marks. Its male genitalia are very similar to those of *Angustuma nigricarina* (Li, 1986), but the shapes of the aedeagal shaft and ventral apophysis (Fig. 28) in lateral view are different.

Etymology. The specific epithet, a combination of “flavus”, meaning yellow, and “macula”, meaning spot, refers to the forewing having a large yellow spot on the lateral margin.

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