



## One Genus and Two Species of Thripinae Newly Recorded from China (Thysanoptera: Thripidae)

Ya-Yin Li, Zheng-Yue Li, Hong-Rui Zhang\*

*1*Plant Protection College, Yunnan Agricultural University, Kunming, P.R. China

*2*State Key Laboratory for Conservation and Utilization of Bio-Resources in Yunnan, Kunming, P.R. China

### ABSTRACT

*In this paper, Biltothrips minutus (Bhatti) and Taeniothrips tigris Bhatti are newly recorded from China and illustrations of these two species are provided.*

**KEYWORDS** New record, Thripidae, Thysanoptera, China

### INTRODUCTION

Mound and Palmer recognized six genus-groups of Thripinae based on several appraisal characters, including Dorcadothrips (Trichrothrips) genus-group, Frankliniella genus-group, Megalurothrips genus-group, Mycetothrips genus-group, Taeniothrips genus-group and Thrips genus-group [1]. Mound and Masumoto recognized Anaphothrips genus-group and described 33 new species of Anaphothrips genus [2]. Marullo and Mound discussed Rhamphothrips genus-group and Nexothrips genus from flowers in Colombia and Brazil [3]. Masumoto and Okajima recognized 10 genera in the Scirtothrips genus-group and discussed their relationships [4]. Now 9 genus-groups are recorded in Thripinae, representing about 50% genera except the non-fossil genera. In this paper, a member of Scirtothrips genus-group Biltothrips genus was newly recorded from China, together with an Indian species *Taeniothrips tigris* Bhatti. The specimens were deposited in Yunnan Agricultural University, Kunming, China.

### MATERIALS AND METHODS

Preserved slide specimens were used in this study. Collecting and slide preparation methods were followed by Zhang et al. [5]. All measurements described in this paper are in micrometers ( $\mu\text{m}$ ). Specimens were observed under a Carl Zeiss-Axiostar plus microscope. Figures were made using a Q-Imaging CCD with an Image-Pro Plus software.

#### *Taxonomy*

##### **Genus Biltothrips Bhatti, 1973 new record to China**

Notes: The genus of Biltothrips was erected by Bhatti with *minutus* as type species from *Sericothrips* genus in India [6]. Ng and Mound discussed the characters of the genus and described the second species *B. perakensis* from Malaysia [7].

**Figures (1-7):** *Biltothrips minutus*, new record to China.

Female *macroptera*: Body pale brown including legs (Figure 1); head with brown markings between compound eyes (Figure 5); fore wing shaded including clavus, apex slightly lighter (Figure 2).

Head wider than long, ocellar setae I absent, setae III situated within ocellar triangle; 4 pairs of postocular setae, setae I just behind post ocelli (Figure 5). Antenna 8-segmented, segment I without dorsal-apical setae, III & IV with forked sensorial (Figure 3).

Pronotum wider than long, sculptured with transverse striate, with about 10 discal setae; 3 pairs of postomarginal setae, inner setae I the longest (Figure 5); Mesonotum smooth on anterior half, posterior area with transverse striation, median setae in front of poster margin; CPS absent; Metanotum with transverse striation near anterior margin but irregular longitudinal reticulations posteriorly (Figure 4). Both meso- and meta-sternal furca with spinula (Figure 7). Fore wing first vein with about 4 setae on basal half and about 3 setae on distal half, second vein without setae; clavus with 4 marginal setae and one discal seta; marginal cilia straight (Figure 2).

Abdominal tergites II–VIII with closely spaced rows of microtrichia on lateral thirds; Tergites II–VI setal pair S1 small, wide apart, and closer to setae S2, CPS arising between S1; tergites VII–VIII with setal pair S1 long, subequal to and arising close to setae S2; posteromarginal comb on tergite VII–VIII complete with long, fine microtrichia (Figure 6); IX without discal microtrichia and CPS absent (Figure 4 and Figure 7). Sternites II–VII with many rows of microtrichia medially; VIII with microtrichia rows absent medially; II with 2 pairs of posteromarginal setae, III–VII with 3 pairs (Figure 7). The median pair posteromarginal setae on sternite VII are situated in front of posterior margin.

#### Material examined

1, Yunnan Province, Dehong City, Yingjiang County, *Dichondra repens*, 19-VI-2007. Coll. Yonghui XIE, in collection of Yunnan Agricultural University, Kunming.

#### Host plant

*Manihot esculenta*, *Pithecolobium dulce*.

#### Distribution

China (Yunnan), India, the Pacific Ocean (Society Islands), Thailand (Bangkok), Malaysia.

#### Genus *Taeniothrips*

#### Diagnosis

Female macroptera: Body brown to dark brown; the head is relatively elongate, ocellar setae pair I absent; pair III arise within the ocellar triangle. Antenna 8-segmented, segment I without dorso-apical setae, segments III & IV with long and forked sensoria. Fore wing first vein with a long gap in the setal row, usually with 2 or 3 apical setae, second vein with complete setae. Pronotum usually with 3 pairs of posteromarginal setae and 2 pairs of posteroangular setae; Mesofurca with spinula, metafurca without spinula. Metanotum with median pair of setae arising at or close to the anterior margin, CPS present. Abdominal tergites V–VIII without ctenidia; tergite VIII with posteromarginal comb long and complete; sternites without discal setae, sternite VII with S1 and S2 arising in front of the margin (except *arbuti* and *inconsequens*). Male similar to female, with a long and regular comb of microtrichia on the posterior margin of tergite VIII and sternites III–VII each with a wide transverse pore plates.

#### *Taeniothrips tigris* [7] (Figures 8-14), New record to China

Female macroptera: Body dark brown including legs, tarsi yellow brown (Figure 8); antenna segments I–II dark brown, III and the base of segments IV & V yellow, apex of IV & V and VI–VIII brown (Figure 9); fore wing brown including clavus, with sub-basal and media areas paler, apex of wing dark (Figure 10).

Head longer than wide, slightly elongated, with a small anteocular process and transverse striate sculptured behind eyes; dorsal facets smaller than ventral facets; ocellar setae I absent, setae III situated near the anterior margin of post ocelli (Figure 13); Antenna 8-segmented, segment I without dorso-apical setae, segments III & IV with long and forked sensoria, III with pedicel, VIII longer than VII (Figure 9).

Pronotum wider than long, with tergite smooth; three pairs of posteromarginal setae, inner setae I the longest; outer posteroangular setae longer than inner pair (Figure 12). Mesonotum with transverse striation; anterior median CPS absent; median pair of setae arising in front of posterior margin (Figure 11). Metanotum sculptured with irregular reticulate striations, and longitudinal striations sculptured laterally, CPS present; median pair of setae arising at anterior margin (Figure 11). Mesofurca with spinula, metafurca without spinula. Fore wing first vein with 9+2 setae; second vein with complete setae; posteromarginal fringe cilia wavy; clavus with 5-6 marginal setae and 1 discal seta (Figure 10).

Abdominal tergites sculptured with irregular transverse striations (Figure 12); tergite II with 3 lateral marginal setae; tergites VI–VIII without ctenidia; tergite VIII with a patch of microtrichia anterior to the spiracle, posteromarginal comb long and complete (Figure 14); IX with two pairs of CPS; tergite X with median longitudinal split incomplete (Figure 14); CPS close to posterior margin. Both tergites and sternites without craspedum; pleurotergites and sternites without discal setae; sternite II with two pairs of posteromarginal setae; sternites III–VII with three pairs of posteromarginal setae; S1 and S2 setae on sternite VII situated in front of posterior margin (Figure 5).



**Figures (8-14):** *Taeniothrips tigris*, new record to China (8. adult; 9. Antenna; 10. Fore wing; 11. Mesonotum and metanotum; 12. Pronotum; 13. Head; 14. Abdominal VIII–X).

#### Material examine

2♀♀Zhaotong City, Yiliang County, Xiaocaoba Villagebamboo30-III-2015Coll. Yajin LI, in collection of Yunnan Agricultural University, Kunming.

#### Host plant

Bamboo.

#### Distribution

China (Yunnan), India.

#### COMMENTS

According to the key of non-fossil species of the *Taeniothrips* genus Mound et al provided, it runs to *T. tigris* [8]. Bhatti collected 26 males and 2 females of this species from Bamboo in India and with a male specimen as holotype; coincidentally we also found 2 females from bamboo in Yunnan Province and without male specimens collected [9].

#### ACKNOWLEDGEMENT

Thanks to Dr. Laurence Mound for his help and advice. We thank Dr. Xie Yonghui for helping us collecting *B. minutus* specimen. Our thanks are also due to anonymous referees for their very valuable comments on the manuscript.

#### FUNDING

This study was supported by the National Natural Science Foundation of China (No.31460574), Personnel Training Program of Academic and Technical Leaders of Yunnan Province (No.2015HB036), Yunnan Agricultural University Innovation Foundation for Postgraduate (No.2016ykc15).

#### REFERENCES

- [1] Mound, L.A. and Palmer, J.M., *Entomologica Scandinavica*, **1981**. 15: p. 153-170.
- [2] Mound, L.A. and Masumoto, M., *Zootaxa*, **2009**. 2042: p. 1-76.
- [3] Marullo, R. and Mound, L.A., *Journal of the New York Entomological Society*, **2000**. 108: p. 231-236.
- [4] Masumoto, M. and Okajima, S., *Zootaxa*, **2007**. 1552: p. 1-33.
- [5] Zhang, H.R., Okajima, S. and Mound, L.A., *Chinese Bulletin of Entomology*, **2006**. 43: p. 725-728.
- [6] Bhatti, J.S., *Oriental Insects*, **1973**, 7: p. 403-449.
- [7] Ng, Y.F. and Mound, L.A., *Zootaxa*, **2016**. 4088: p. 141-145.
- [8] Mound, L.A., Azidah, A.A. and Ng, Y.F., *Zootaxa*, **2012**. 3414: p. 33-42.
- [9] Bhatti, J.S., *Zoology*, **1995**. 5: p. 73-95.