

**A NEW SPECIES OF *Platylomia* Stål, 1870 (Hemiptera: Cicadidae)
FROM VIETNAM, WITH A KEY TO SPECIES**

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ABSTRACT

One new species of the *Platylomia radha* species group, *Platylomia minhi* **sp. nov.**, from Sapa, Hoang Lien National Park, Lao Cai province, north Vietnam is described. Synonymic lists for the five species of the *Platylomia* genus from Vietnam are provided. A key to five species of *Platylomia* genus: *Platylomia bocki*, *Platylomia duffelsi*, *Platylomia malickyi*, *Platylomia operculata*, and new species from Vietnam is provided. Photos of the adult, illustrations of the male genitalia, a distribution map of the new species are also given.

Keywords: *Platylomia*, Auchenorrhyncha, cicada, morphology, distribution, Sapa.

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INTRODUCTION

The genus *Platylomia* belongs to the tribe Dundubiini Distant in the subfamily Cicadinae (Hemiptera: Cicadidae) (Marshall et al., 2018). Beuk (1998) proposed the *Platylomia radha* species group with six species: *Platylomia rahda*, *Platylomia bocki*, *Platylomia malickyi*, *Platylomia bivocalis*, *Platylomia ficulnea*, *Platylomia pendleburyi* and providing a key to the species. Pham & Constant (2014) described one new species *Platylomia duffelsi*. The *P. radha* species group is characterized by the abdomen 1.2–1.5 times as long as head and thorax together. Sternite VII with very shallow to rather deep posteromedial emargination. Operculum rather variable in length and shape, reaching from anterior margin of fifth to just beyond posterior margin of seventh abdominal segment. Uncus lobes short and gradually narrowing distally or first narrowing and then somewhat broadening distally, distal margin ranging from smooth and sinuous to adorned with lobule or triangular projections; lateral margin distally sometimes adorned with dorsal (inner) flange or with one or more small triangular projections (Beuk, 1998). This species group at present comprises seven species: *Platylomia operculata*, *P. bocki*, *P. malickyi*, *P. bivocalis*, *P. ficulnea*, *P. duffelsi* and *P. pendleburyi* distributed in India, Bhutan, Nepal, Myanmar, Thailand, Laos, Cambodia, Vietnam, China and Taiwan (Distant, 1913; Duffels & Van, 1985; Pham & Constant, 2014). This paper presents the description of one new species: *Platylomia minhi* **sp.nov.** that belongs to the *P. radha* species group.

MATERIALS AND METHODS

Four males of a new species were collected from the Sapa, Hoang Lien National Park, Lao Cai province, in northern Vietnam. The type specimens of this new species are deposited in the Vietnam National Museum of Nature, Vietnam Forest Museum, Ha Noi, Vietnam, and Naturalis Biodiversity Center, Leiden, Netherlands.

Morphological terminology follows that of Moulds (2005). The genitalia of all the male specimens have been examined. The male genitalia of the holotype was examined and photographed using a dissecting microscope (Leica MZ 75). Images of the genitalia were enhanced using Photoshop 7.0 software to increase the depth of field. The habitus photos are provided.



Figure 1. Distribution of *Platylomia minhi* **sp. nov.** in Vietnam

Specimens examined are listed by provinces (given in bold). Abbreviations used in this paper are as follows: VNMN (Vietnam National Museum of Nature), VFM (Vietnam Forest Museum), NBC (Naturalis Biodiversity Center, Leiden, Netherlands).

RESULTS

Taxonomy

Family Cicadidae

Subfamily Cicadinae

Tribe Dundubiini Distant

Genus *Platylomia* Stål, 1870

Platylomia Stål, 1870: 708 (as a subgenus of *Cosmopsaltria*). Type species: *Cicada flavida* Guérin-Méneville, 1834 (Java and Sumatra).

Diagnosis. Large-sized; eyes much prominent laterally; head including eyes wider than the base of mesonotum; frontoclypeus substantially prominent anteriorly, longer than vertex in middorsal length; pronotum distinctly shorter than mesonotum excluding cruciform elevation; outer dilatation of pronotum not developed, anterolateral margin dentate; tymbal mostly concealed with tymbal covering; male abdomen cylindrical, distinctly longer than the distance from head to cruciform elevation; ovipositor extending beyond pygofer; fore femur with two big and small spines on under surface; male operculum generally much elongated, with apex rounded or acuminate.

Distribution. Oriental and Australian regions.

***Platylomia malickyi* Beuk, 1998** (Figs. 4A, 5C)

Platylomia malickyi Beuk, 1998: 164 [TL: Thailand; Vietnam; Laos; Myanmar]; Boulard, 2003: 185; Sanborn et al., 2007: 23; Lee, 2008: 17; Pham & Yang, 2009: 15.

Material examined. **Gia Lai:** 1♂, headquarters of Kon Ka Kinh NP, 820 m, Ho.2.0113, light trap, 3.vi.2011, coll. Hoang Vu Tru; 1♂, the same locality, Ho.2.0105, light trap, 4.vi.2011, coll. Ta Huy Thinh; 3♂, 1♀, AYun, Mang Yang, 880 m, Ho.2.0094-Ho.2.0097, light trap, 5.vi.2011, coll. Hoang Vu Tru; 1♂, Kon Loc 1, Dak Roong, Kbang, 1060m, Ho.2.0003, light trap, 6.vi.2011, coll. Hoang Vu Tru; 1♂, Dak Roong, Kbang, Ho.2.0063, light trap, 8.vi.2011, coll. Tran Thieu Du; 1♀, Dak Jo Ta, Mang Yang, Ho.2.0014, 9.vi.2011, coll. Hoang Vu Tru.

Distribution. Vietnam (Gia Lai, Lam Dong) (Distant, 1913; Duffels & Van, 1985;

Lee, 2008; Moulds, 2005; Wang, 2014), South China (Yunnan), Myanmar, Laos, Thailand.

***Platylomia bocki* (Distant, 1882)** (Figs. 4B, 5B)

Dundubia bocki Distant, 1882: 159 [TL: Indochina].

Platylomia bocki: Beuk, 1998: 159; Pham, 2004: 64; Sanborn et al., 2007: 23; Lee, 2008: 17; Pham & Yang, 2009: 15.

Material examined. **Dien Bien:** 1♂ Muong Nhe; 1,000–1,600 m, viii 2017, coll Bui Thu Quynh; **Lai Chau:** 1♂ Muong Te; 1,000–1,600 m, vi 2017, coll. Luu Hoang Yen; **Lao Cai:** 2♂ Hoang Lien Son; 1,600 m, vi 2016, coll. Luu Hoang Yen; **Phu Tho:** 1♀, Lap, Xuan Son NP, 300–500 m, Cic0624, 15.vi.2004, coll. Dang Duc Khuong; **Vinh Phuc:** 1♂, Tam Dao NP; 1,000 m, 25–28.vii.2011, coll. Pham Hong Thai; **Ninh Binh:** 3♂, Cuc Phuong NP, 250 m, 30.iv.2004, vi.2004, v.2006; **Thanh Hoa:** 2♂, Xuan Hoa, Nhu Xuan, 150–200 m, Ho.1.0177, Ho.1.0237, light trap, 29.v.2008, coll. Hoang Vu Tru; **Quang Tri:** 1♂, 1♀, Peke pass, ABung, Dakrong, 620 m, Ho.1314, Ho.1315, light trap, 5.v.2005; **Quang Nam:** 1♂, Lo Xo pass, Phuoc My, Phuoc Son; 1,025 m, Ho.0981, 1.v.2005; **Kon Tum:** 1♂, Ngoc Linh NR, vi.2006; **Gia Lai:** 1♀, headquarters of Kon Ka Kinh NP, 820 m, Ho.2.0085, light trap, 31.v.2011, coll. Hoang Vu Tru; 1♀, AYun, Mang Yang; 1,013 m, Ho.2.0012, light trap, 2.vi.2011, coll. Hoang Vu Tru; **Lam Dong:** 5♂, Dambri, 800 m, v.2003, coll. Ta Huy Thinh.

Distribution. Vietnam (Dien Bien, Lai Chau, Lao Cai, Phu Tho, Vinh Phuc, Ninh Binh, Thanh Hoa, Quang Tri, Quang Nam, Gia Lai, Kon Tum, Lam Dong) (Beuk, 1998; Distant, 1882; Pham, 2004; Sanborn, 2007; Lee, 2008; Pham & Yang, 2009), South China, Laos, Cambodia, Thailand.

***Platylomia operculata* Distant, 1913** (Figs. 4C, 5D)

Platylomia operculata Distant, 1913: 559 [TL: Indochina]; Distant, 1917: 101; Metcalf, 1963: 623; Boulard, 2005: 36; Sanborn et al.,

2007: 23; Lee, 2008: 17; Pham & Yang, 2009: 15.

Platylomia radha: Distant, 1917: 101; Metcalf, 1963: 623; Chou et al., 1997: 255; Beuk, 1997: 152; Pham, 2004: 64 (nec Distant, 1881).

Material examined. **Lao Cai:** 3♂ Hoang Lien Son; 1,400 m, vi.2016; 2♂; 1,800 m, ix.2016; **Hoa Binh:** 2♂, Ngo Luong - Ngoc Son, 600–1,000 m, vi.2015.coll. Luu Hoang Yen; **Dien Bien:** 2♂1♀ Muong Nhe; 1000–1,600 m, viii.2017, coll.Luu Hoang Yen; **Vinh Phuc:** 2♂, 1♀, Tay Thien, Dai Dinh, Tam Dao, 500 m, 8.v.2004, coll. Hoang Vu Tru; 1♂, Me Linh, 350 m, 13.i.2000, coll. Hoang Vu Tru, 3♀, same locality, ML2220, ML2243, ML2286, 4.vi.2010, 13.vi.2010; 1♀, Tam Dao NP; 1,000 m, 25–28.vii.2011, coll. Pham Hong Thai; **Thanh Hoa:** 1♂, Lam Son, 2.v.1966 (DZM); **Thua Thien Hue:** 3♂, Bach Ma NP; 1,200 m, 9.vi.2002, coll. Ta Huy Thinh; 4♀, same locality, 16.vii.2011, coll. Pham Hong Thai; **Quang Nam:** 2♂, Lo Xo

pass, Phuoc My, Phuoc Son; 1,025 m, Ho.0974, Ho.0975, 1.v.2005; **Gia Lai:** 1♂, Dak Roong, Kbang; 1,088 m, Ho.2.0049, light trap, 8.vi.2011. coll. Hoang Vu Tru.

Distribution. Vietnam (Lao Cai, Hoa Binh, Dien Bien, Vinh Phuc, Thanh Hoa, Thua Thien Hue, and Gia Lai) (Distant, 1913; Boulard, 2005; Sanborn, 2007; Lee, 2008; Pham & Yang, 2009), China (Yunnan, Guangxi, Jiangxi and Hainan), India, Myanmar, Laos, Cambodia, Thailand.

***Platylomia duffelsi* Pham & Constant, 2014** (Figs. 4D, 5E)

Platylomia duffelsi Pham & Constant, 2014: 417.

Material examined. **Cao Bang:** 3♂ Phia Oac-Phia Den Nature Reserve, Nguyen Binh, 10.ix.2013, coll. Pham Hong Thai (VNMN).

Distribution. Vietnam (Cao Bang) (Pham & Constant, 2014)

***Platylomia minhi* sp. nov.** (Figs. 2A, 2B, 3A, 3B, 3C, 4E, 5A)

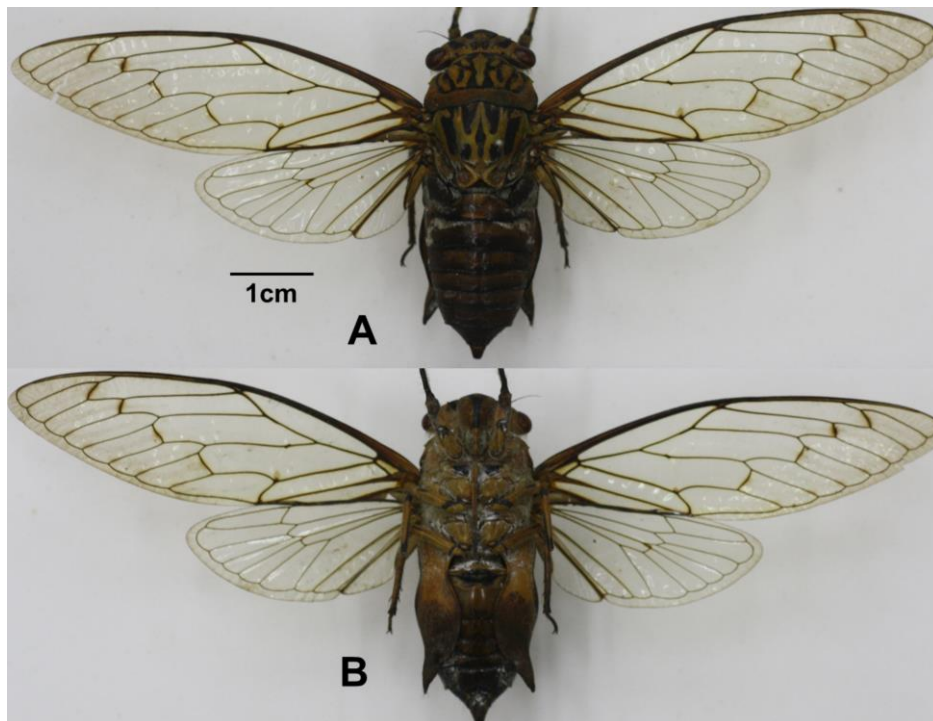


Figure 2. *Platylomia minhi* sp. nov. (holotype): (A) Dorsal view of male; (B) Ventral view of male

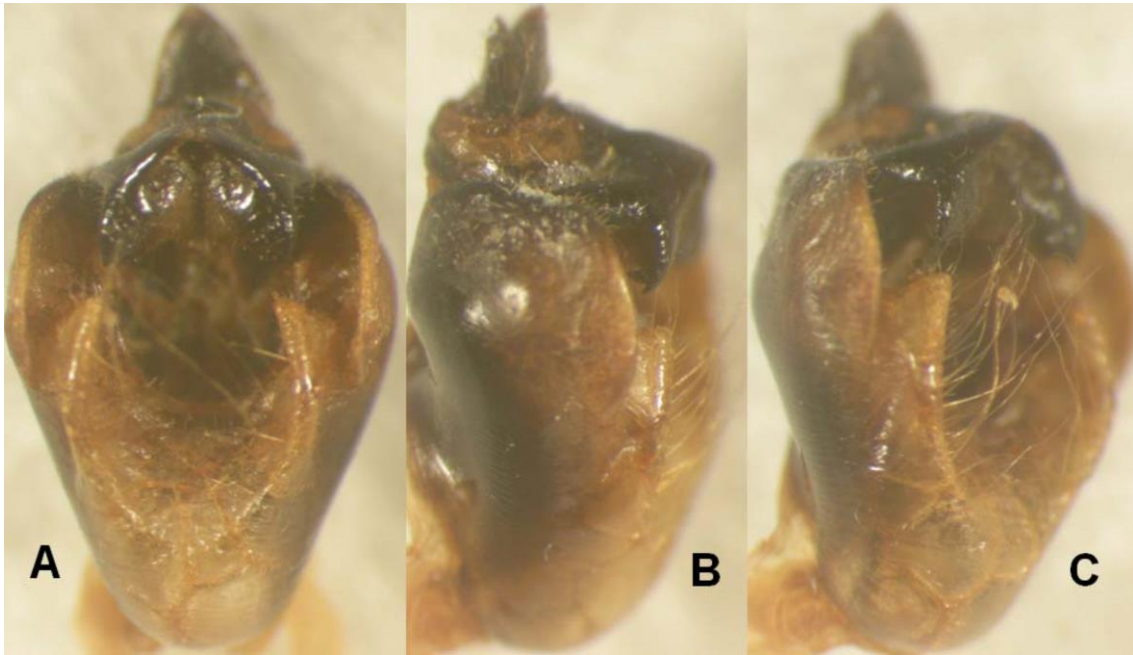


Figure 3. *Platylomia minhi* sp. nov. (holotype) A. male genitalia in ventral view; B. male genitalia in lateral view; C. male genitalia lateroventral in view

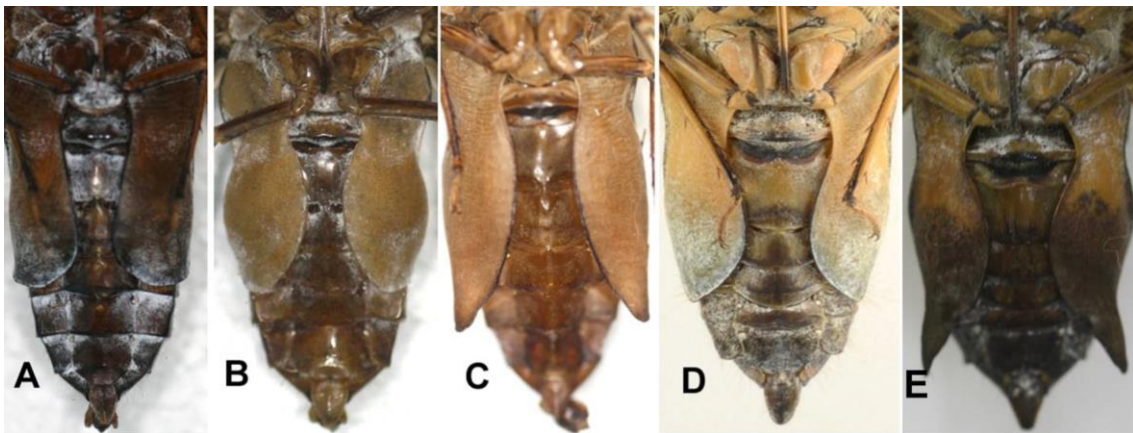


Figure 4. Abdomen and operculum of *Platylomia* species from Vietnam in ventral view: (A) *Platylomia malickyi*; (B) *Platylomia bocki*; (C) *Platylomia operculata*; (D) *Platylomia duffelsi*; (E) *Platylomia minhi* sp. nov.

Etymology. The species is dedicated to Prof. Dr. Nguyen Trung Minh in acknowledgement for his help to the first author.

Material examined. Holotype (♂): Vietnam: Hoang Lien National Park, Sapa, Lao Cai, 9.x.2004; 1,500 m; coll. Pham Hong Thai (VNMN)[F1].

Paratype (2 ♂): Hoang Lien National Park, Sapa, Lao Cai, 8.x.2016, 1800; coll. Luu Hoang Yen (VFM); [NW Vietnam: Tonkin, Hoang Lien N.R., 10 km SW Sapa; 1,500 m, 24.x.1999, coll. C.v. Achterberg, RMNH'99] (NBC).

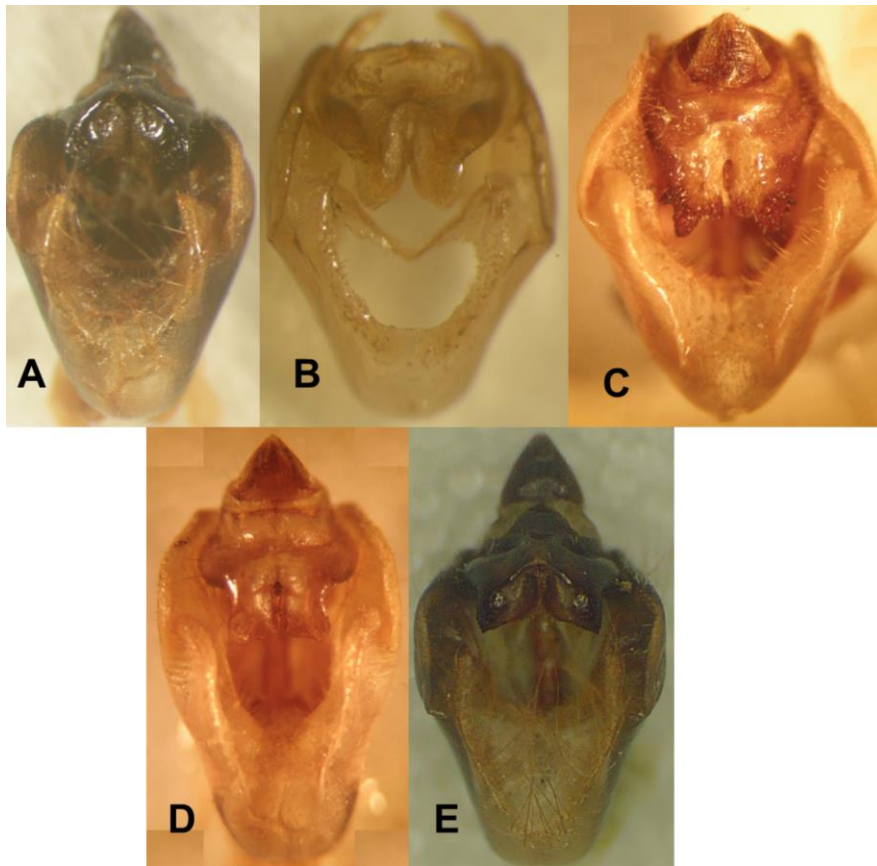


Figure 5. Male genitalia of *Platylomia* species from Vietnam in ventral view: (A) *Platylomia minhi* sp. nov.; (B) *Platylomia bocki*; (C) *Platylomia malickyi*; (D) *Platylomia operculata*; (E) *Platylomia duffelsi*

Description

Measurements in mm: (♂): Body length male: 40–41; fore wing length male: 50.3–50.5; fore wing width male: 15.8–16.2; head width male: 14–14.1; head length: 3.9–4.1; pronotum width male: 14.4–14.6; pronotum length: 6.6–6.8; mesonotum width: 12.2–12.4; mesonotum length: 9–9.1.

Head: Including eyes wider than mesonotum at base; vertex width broader than length, pale yellow-brown, with a broad pair of oblique black spots between eyes and anterior arm of epicranial, fascia on posterior margin eyes against anterior margin of pronotum, two oblique large fasciae around ocelli black; supra-antennal plate slightly curved; frons black; postclypeus with two large black spots in

dorsal view; gena pale yellow-brown; lorum pale yellow with dense white lanugo, area against anteclypeus black; postclypeus prominent, greenish-yellow, with black longitudinal fascia in centre, and bifurcate towards apex of head; rostrum pale brown, reaching posterior coxae, longitudinal lines centre darker, apical rostrum brown-black.

Thorax: Pronotum pale yellow-brown, with pair of central longitudinal fasciae, two oblique small fasciae between paramedian fissure and lateral fissure, surround of paramedian fissure and lateral fissure black; pronotal collar slightly tinged with green, with small, distinct, tooth on lateral margin pronotal collar, posterior margin black; mesonotum pale yellow-brown, with five black fasciae, median fascia anteriorly fairly

narrow, not reaching anterior margin of mesonotum, two longitudinal fascia on parapsidal suture with apex hook-like, two fasciae slightly curved close to inner margin of lateral sigilla, scutal depression with black point, two black markings on anterior margin; cruciform elevation pale yellow-brown with anterior branches of cruciform elevation with apical black, posterior margin black; thorax in ventral view pale yellow-brown, with dense lanugo and white waxy, basisternum 2, 3 with black marking.

Wings: Fore and hind wings hyaline, with veins dark brown, fore wings slightly tinged and spotted with infuscations on m, r-m and m-cu, on RA2, RP, M1, M2, M3, M4, and CuA1 brown-black.

Legs: All legs yellow-brown, with markings as follows: fore leg with base of trochanter, two longitudinal fascia on femur in dorsal and ventral view, apex and base of femur, tibiae and tarsus black, primary spine of fore femur the same size; middle leg with base trochanter, base and apex of femur, a longitudinal fascia in lateral view of femur, base and one third towards apex of tibia, and tarsus black; hind leg with base femur and tibia, a longitudinal of tibia in ventral view black; pretarsal claw of all leg black.

Abdomen: Longer than distance from head to cruciform elevation, pale yellow-brown in dorsal view, tergite I black, anterior and posterior margin of tergites II, III black; posterior margin of tergites IV–VIII black, tergite VIII brownish-black; timbal cover large, black, and covering timbal completely; grey with white waxy in ventral view, posterior margin sternites III–VI brown-black, sternites VII, VIII brown-black.

Operculum: Pale green-yellow with black margin surround except inner margin at haft base, reaching pass posterior margin of abdominal segment 7th, 4 times as long as maximum width distal of constriction; medial margin distal of constriction convex near apex, apex of operculum lateral of midline gully-shaped with surface concave along both medial and lateral margin and then divergent

from abdomen. Operculum close to abdomen but distal half well removed from abdomen when apex gully shaped; surface only weakly convex in longitudinal direction or concave along margins on distal third, surface more strongly convex in transverse direction, especially on distal third.

Genitalia ♂: Pygofer yellow-brown, with long as longer than broad, lateral margin at one second parallel in ventral view; uncus bifurcate, pale brown, apex brown-black, lateral margin of uncus lobe slightly convex basally and weakly concave at first third, upper lobe of pygofer apically rounded without protrusion, basal lobe of pygofer with converging parallel ridges, apical distinct prominent, rounded.

Remarks. This species was collected by light trapping at the high mountain in the secondary forest at an altitude between 1,500 m and 1,800 m.

Distribution. North Vietnam (Lao Cai province).

Discussion

The *Platylomia* is similar to the genus *Macrosemia*, but it can be distinguished from the latter by the following characteristics: head including eyes wider than the base of mesonotum (head including eyes about as wide as or narrower than the base of mesonotum in *Macrosemia*); eyes much prominent laterally (eyes not prominent laterally in *Macrosemia*); pronotal collar normal, weakly developed longitudinally (pronotal collar well developed longitudinally in *Macrosemia*); mid lateral tooth of pronotal collar produced anterolaterally (mid lateral tooth of pronotal collar produced laterally or posterolaterally in *Macrosemia*); male abdomen usually distinctly longer than the distance from head to cruciform elevation (male abdomen nearly as long as or slightly longer than the distance from head to cruciform elevation in *Macrosemia*).

The new species differs from all species of the *Platylomia radha* species group from Vietnam in the length and shape of operculum

that reaches posterior margin sternite VII and acute apex.

Platylomia minhi is distinguishable from *P. operculata*, *P. bocki* and *P. malickyi* by the structure of the pygofer, with basal lobes of the

pygofer well developed and distinctly prominent in *P. minhi*, and basal lobe of the pygofer not well developed and distinctly prominent in *P. operculata*, *P. bocki* and *P. malickyi*.

Key to the Vietnamese species of the genus *Platylomia*

- 1. Male operculum reaching posterior margin sternite VII.....*P. minhi* sp. nov.
- Male operculum not reaching posterior margin sternite VII.....2
- 2. Male operculum reaching posterior margin sternite V, apex rounded.....3
- Male operculum extending passing sternite V, apex acute angled; lobe pygofer prominent clearly and acute angled.....*P. operculata*
- 3. Basal lobes of pygofer well developed and distinctly prominent.....*P. duffelsi*
- Basal lobe of pygofer not well developed and distinctly prominent.....4
- 4. Apical lobe uncus not prominent, only with small node in exterior margin.....*P. bocki*
- Apical lobe uncus prominent clearly, with two small nodes in exterior margin..... *P. malickyi*

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