

CORRESPONDENCE

Anthrax, newly recorded from Vietnam (Diptera: Bombyliidae)

Gang Yao¹, Ding Yang²

¹Jinhua Polytechnic, Jinhua 321007, China; E-mail: likygang@gmail.com

²Department of Entomology, China Agricultural University, Beijing 100193, China; E-mail: dyangcau@yahoo.com.cn

Abstract The genus *Anthrax* Scopoli, 1763 is newly recorded from Vietnam. Previously, there were just two genera, *Systropus* and *Heteralonia*, in Bombyliidae recorded from Vietnam. Genus *Anthrax* with 248 known species, has a worldwide distribution, of which 25 species are from the Oriental Region. One species *A. dentata* Becker, 1906 from Vietnam is redescribed. A key to the genera of Bombyliidae from Vietnam is presented.

Key words Bombyliidae, *Anthrax*, new record, Vietnam.

The genus *Anthrax* Scopoli, 1763 belongs to the tribe Anthracini of the subfamily Anthracinae (Evenhuis & Greathead, 1999). It is easily identified by the following characters: antennae remarkably compacted, flagellum terminating in a circlet of hairs, onion-shaped; wing usually with a more or less extensive brown or black infuscated, seldom almost completely hyaline, rarely completely infuscated; mediotergite and laterotergite bare; body usually broad with an ovate abdomen; usually with coarse hair and scales not adpressed, usually mostly black, white or silvery and dull ochreous to brown (Hull, 1973; Greathead & Evenhuis, 1997). *Anthrax* includes 248 known species, with a worldwide distribution: 83 species from the Palearctic Region, 25 species from the Oriental Region, 42 species from the Nearctic Region, 44 species from the Neotropical Region, 57 species from the Afrotropical Region and 23 species from the Australasian/Oceanian Region (Evenhuis & Greathead, 2015). In the present paper, one species *Anthrax dentata* Becker, 1906 from Vietnam is described and illustrated. A key to the genera of Bombyliidae from Vietnam is presented.

The specimens were studied and illustrated with an Olympus SZ61 microscope. Genitalic preparations were made by macerating the apical portion of the abdomen in cold 10% NaOH for 12–15 hours, rinsed in distilled water, the kept in fresh glycerine. After examination, the genitalia were transferred to fresh glycerine and stored in a microvial pinned below the specimen. The wing photographs were taken with a digital camera (Canon 450D). Specimens of the species are deposited in the Entomological Museum of China Agricultural University, Beijing (CAU).

Abbreviations for type depositories:

CNC—Canadian National Collection, Ottawa, Ontario, Canada;

PPDD—Ministry of Agriculture, Cairo, Egypt;

ZMHB—Museum für Naturkunde, Humboldt-Universität, Berlin, Germany.

The following abbreviations are used:

ad—anterodorsal;

av—anteroventral;

pd—posterodorsal;

pv—posteroventral.

Key to genera of Bombyliidae from Vietnam.

1. Postcranium flat or tumid, without a concavity surrounding a single occipital foramen; abdomen long, slender, swollen apically in males; wasp mimics *Systropus* Wiedemann, 1820

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- Postcranium with a deep or shallow concavity surrounding a divided occipital foramen; abdomen conical, elongate ovate or broad and flattened..... 2
2. Antennae with scape and pedicel quadrate and of similar width, flagellum elongate; wing tending to have unstable venation, frequently with appendices and divided cells; cell r_5 sometimes closed; wing pattern often with veins bordered with a different color to centres of cells, frequently with isolated spots; hair and scales black, brown and yellow to white, often mixed or arranged in ill-defined bands ***Heteralonia Rondani, 1863***
- Antennae remarkably compacted, flagellum terminating in a circlet of hairs, onion-shaped; wing usually with a more or less extensive brown or black infuscated, veins in R_s often with recurrent appendices; mediotergite and laterotergite bare; body usually broad with an ovate abdomen; usually with coarse hair and scales not adpressed, usually mostly black, white or silvery and dull ochreous to brown ***Anthrax Scopoli, 1763***

***Anthrax dentata* Becker, 1906** (Figs 1–7)

Argyro-moeba dentata Becker, 1906: 148. Type locality: Tunisia (1 syntype in ZMHB).

Anthrax efflatouni Paramonov, 1935: 7, 22 (key only); 1936: 90. Type locality: Egypt (Holotype (destroyed) in PPDD).

Diagnosis. Occiput with sparse black hairs and white scales, densely covered erect brown hairs on margin; mesonotum with long dense white hairs at anterior margin; thorax with anepisternum and katepisternum with long brown hairs and white pollen, wing with join of vein R_4 and R_5 and join of vein dm-cu and CuA with brown spots; tergites 5–7 of abdomen with dense white scales laterally.

Redescription. Male. Body length 7 mm, wing length 9 mm.

Head black with white pollen except mid frons with brown pollen. Hairs on head mostly black, scales white; ocellar tubercle reddish with sparse black hairs, frons narrowing directed apically, with black erect hairs and white recumbent scales, face with black erect hairs and white recumbent scales; occiput with sparse black hairs and white scales, and with dense erect brown hairs on edge. Antenna black with white pollen; scape thick with long black hairs; pedicel slightly wider than long, with short black hairs; first flagellomere onion-shaped, bare, tip with tufty brown hairs. Antennal ratio: 2:1:2. Proboscis brown with yellow hairs.

Thorax black with pale pollen, scales black and white. Hairs on thorax black and white; postpronotal lobe with long dense black hairs, mesonotum with long dense white hairs at anterior margin; thorax with sparse black and white scales on back, anepisternum and katepisternum with long brown hairs and white pollen. Scutellum black with pale pollen, with six scutellar bristles on posterior edge. Legs brown except fore tarsi black. Hairs on legs mostly black, bristles black, scales yellow. Femora with dense yellow scales; tibiae and tarsi with short sparse black hairs. Mid femur with six *av*; hind femur nine *av*. Mid tibia with seven *ad*, 11 *pd*, seven *av*, and seven *pv*; hind tibia with nine *ad*, nine *pd*, seven *av*, and six *pv*. Wing (Fig. 1) half brown half hyaline, joint of vein R_4 and R_5 and joint of vein dm-cu and CuA with brown spots. Bend of vein R_4 with appendix, vein r-m nearly at middle of cell dm. Base of vein C with brush-like long black bristles. Halteres brown.

Abdomen black with white pollen. Hairs on abdomen white. Tergite 1 with white erect hairs and white recumbent scales; tergites 2–4 bare, tergites 5–7 with dense white scales laterally. Sternites brown with black erect hairs and white recumbent scales.

Male genitalia (Figs 2–7). Epandrium subtriangular, distinctly higher than long, cercus well exposed in lateral view; epandrium trapezoidal, with lateral extension at base in dorsal view; gonocoxite sharply narrowing at middle in ventral view, extended apically; gonostylus elongate, its obtuse tip slightly curved in lateral view; epiphallus turritiform, tip mushroom shaped in dorsal view, with an acute tip in lateral view.

Female. Body length 11 mm, wing length 14 mm. Similar to male, but mesonotum with long white and black hairs at

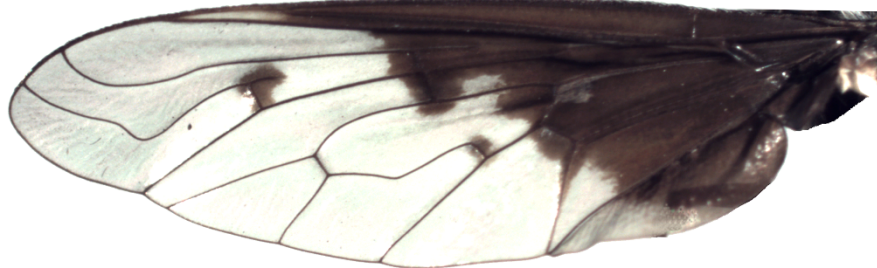


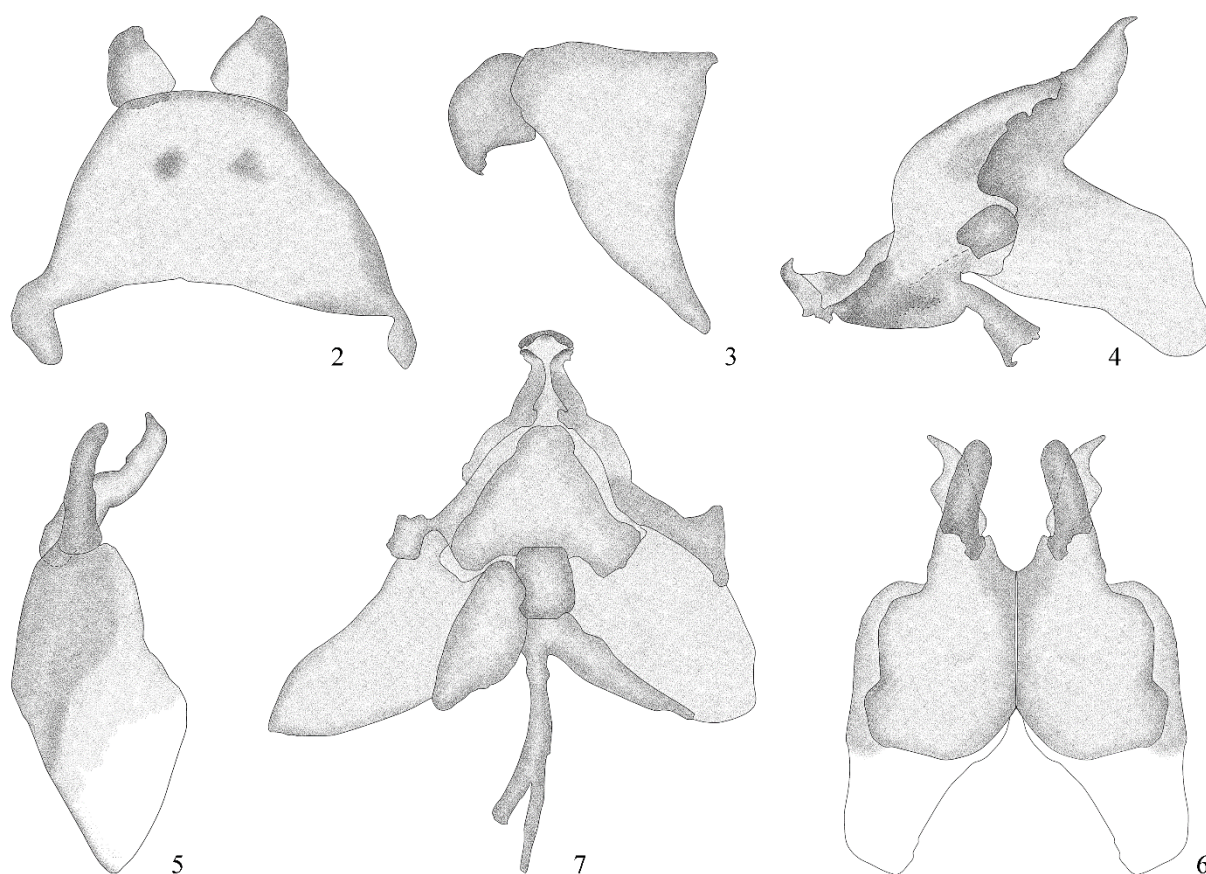
Figure 1. *Anthrax dentata* Becker, 1906, wing.

anterior margin; tergites 5–7 bare.

Material examined. 1 male, Vietnam, Dak LaK, Yok Don National Park, 8.V.2012, Xingyue Liu; 1 female, Vietnam, Bac kan, Ba Be National Park, 21.V.2012, Xingyue Liu.

Distribution. Vietnam (Dak LaK).

Remarks. The species identified as *A. dentata*, is belongs to *Anthrax dentata* complex, similar to *Anthrax trifasciatus* complex, In the *A. trifasciatus* complex, the wing is partly infuscated, with the infuscated part no more that the basal half of the anal and axillary cells, and there is a broad clear area basal to the r-m cross-vein often extending forward to R_1 and the basal cells often have extensive clear areas in the middle; In the *A. dentata* complex, the wing is partly infuscated, the infuscated part tends to be more extensive and uniform, and reaching to at least the middle of the anal and axillary cells, without or with only a narrow clear area basal to the r-m crossvein and without extensive clear areas in the centres of the basal cells.



Figures 2–7. *Anthrax dentata* Becker, male genitalia. 2. Epandrium and cercus, dorsal view. 3. Epandrium and cercus, lateral view. 4. Phallus, lateral view. 5. Gonocoxa and gonostylus, lateral view. 6. Gonocoxa and gonostylus, ventral view. 7. Phallus, dorsal view.

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