

**PHAONIA OXYSTOMA-GROUP (DIPTERA, MUSCIDAE):
DIAGNOSIS, KEY TO IDENTIFICATION, DESCRIPTION
OF TWO NEW SPECIES AND SYNONYMIC NOTES**

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The paper deals with the diagnosis, distribution and identification of species of the *Phaonia oxystoma*-group from China; describes two new species, namely, *Phaonia bacillirostris* XUE et WANG sp. n. and *Phaonia sublatilamella* XUE et ZHAO sp. n.; and revises the status of *Phaonia subhebeta* MA et DENG, 2002.

Key words: Diptera, Muscidae, *Phaonia*, new species, synonymy

INTRODUCTION

The *Phaonia oxystoma* species group was originally proposed by MA and XUE (1998), Most of species of *Phaonia oxystoma*-group of China are distributed in Oriental region, seldom in Palaearctic region. As far as we known 22 species exists in China at present, including 2 new ones described in this paper, namely *Phaonia bacillirostris* XUE et WANG sp. n. and *Phaonia sublatilamella* XUE et ZHAO sp. n.. In addition, during the research of this species-group, we firmly considered that *Phaonia hebetoida* MA et DENG, 2002 and *Phaonia subhebeta* MA et DENG, 2002 as synonym. The specimens of the two new species described herein are deposited in the Diptera collection of Institute of Entomology, Shenyang Normal University (IESNU).

MATERIALS AND METHODS

The morphological terminology follows that of MCALPINE (1981) Abbreviations for morphological terms used in this study are: *acr*, acrostichal setae; *ad*, anterodorsal setae; *av*, anteroventral setae; *dc*, dorsocentral setae; *ial*, intra-alar setae; *M*, media; *p*, posterior setae; *pd*, posterodorsal setae; *pra*, prealar setae; *post dc*, postsutural dorsocentral setae; *pv*, posteroventral setae; R_{4+5} , branch of radius.

DIAGNOSIS OF *PHAONIA OXYSTOMA*-GROUP
AND DISTRIBUTION

Mid tibia with a row of medium *p*; scutellum black, not tinged with yellow; *Pre acr* well developed; *post dc* 3; lower facial margin projecting in profile; legs largely yellow.

The species of *Phaonia oxystoma*-group are mainly distributed in Qingzang Plateau (Tibet) and its marginal areas, for instance Sichuan province (Dayi: Xiling, Maowen county: Sanlong, Yingjing, Ya'an: Mt. Erlang, Hanyuan: Mt. Jiaoding, Mt. Emei, Luding: Yanzigou), Tibet (Medog: Galongla, Mt. Duoxiongla), Yunnan province (Lushui: Pianma).

KEY TO THE SPECIES OF *PHAONIA OXYSTOMA*-GROUP
FROM CHINA (MALES)

- | | | |
|---|--|---|
| 1 | Basicosta brownish or black | 2 |
| – | Basicosta yellow | 6 |
| 2 | Mid and hind femora without <i>pv</i> ; legs yellow, only black on apical femora and basal tibiae as well as tarsi; cerci with one pair of long setae on pre-apical part, the distal surstyli with 2–3 thorn-shaped setae
<i>P. buplicispina</i> DENG et MA, 2002 | |
| – | Mid and hind femora with <i>pv</i> | 3 |
| 3 | Notopleuron haired | 4 |
| – | Notopleuron bare | 5 |
| 4 | Fore tibia without <i>p</i> ; mid femur without <i>av</i> ; parafacial about 2/3 of 1st flagellomere in width; calypteres white, halteres dark reddish-brown
<i>P. helvitibia</i> FENG, 2002 | |
| – | Fore tibia with <i>p</i> ; mid femur with <i>av</i> ; parafacial wider than 1st flagellomere obviously; calypteres yellow, halteres brownish-yellow
<i>P. setisternita</i> MA et DENG, 2002 | |
| 5 | Frons wider than anterior ocellus slightly; trochanters dark brown; palpi black, longer than prementum obviously; spiracles dark brown; surstyli strong and short
<i>P. fuscibasicosta</i> MA et DENG, 2002 | |

- Frons 2.0 times as wide as anterior ocellus; trochanters yellowish-brown; palpi dark brown, equal to prementum in length; spiracles dark reddish-brown; surstyli slender *P. subfuscibasicosta* MA et DENG, 2002
- 6 Hind tibia with *av* 1 7
- Hind tibia with *av* 2 16
- 7 Antenna with arista pubescent, the longest hair longer than its diameter; parafacial rather wide, 1.5 times of 1st flagellomere in width; palpi black, short extremely *P. brevipalpata* FANG et FAN, 1988
- Antennae with arista short plumose or plumose; parafacial at most equal to 1st flagellomere in width 8
- 8 Frons rather narrow, at least equal to anterior ocellus in width 9
- Frons rather wide, slightly less than or equal to the distance between posterior ocelli in width 14
- 9 Parafacial narrow, subequal to 1/2 of 1st flagellomere in width 10
- Parafacial rather wide, slightly less than or equal to 1st flagellomere in width 11
- 10 Frontal setae 3; prementum short, 2.5 times as long as wide; genal height 1/6 of eye height; palpi black; cerci slender in profile, which inner lobe subequal to outer lobe in length in posterior view
P. axinoides FENG, 1995
- Frontal setae 5–6; prementum long, 4.0 times as long as wide; genal height 1/3 of eye height; palpi dark brown; cerci rather wide in profile, which inner lobe longer than outer lobe obviously in length in posterior view
P. dayiensis MA et DENG, 2002
- 11 Hind femur without *pv*; calypteres brownish-yellow; anterior spiracle yellowish-brown, posterior one brown *P. hanyuanensis* FENG et MA, 2002
- Hind femur with *pv* 12
- 12 Tergites 3 and 4 with wide posterior marginal straps; palpi dark brown, which apex become wider; the width of lateral lobe of sternite 5 equal to its length; antennae black; frons equal to anterior ocellus in width
P. latilamella FENG et MA, 2002
- Tergites 3 and 4 without posterior marginal straps 13

- 13 Eyes bare, the upper and medium parts of ommatibia not expanded; palpi black; spiracles dark brown; cerci with distinct outer lobe; the length of sternite 5 longer than its width distinctly
P. sublatilamella XUE et ZHAO sp. n.
- Eyes covered with short and sparse ciliated, the upper part of ommatibia extremely large, which 2.0 times or more than the lower ones; palpi yellowish-brown on basal half, black on apical half; anterior spiracle reddish-brown, posterior one coffee; cerci without outer lobe; the width of sternite 5 longer than its length distinctly
P. subalpicoloida MA et DENG, 2002
- 14 Fore femur dark black in dorsal part; hind tibia with 2–3 *av*; parafacial slightly less than or equal to 1st flagellomere in width; mid femur with a *av* row
P. subalpicoloida MA et DENG, 2002
- Fore femur yellow or yellowish-brown entirely 15
- 15 Tergites of abdomen with versicolor marginal straps; arista of antennae short plumose, the longest hair subequal to 1/2 of 1st flagellomere in width; parafacial subequal to 1st flagellomere width; anterior spiracle yellow, posterior one brownish; coxae yellow; the inner lobe of cerci shorter or equal to outer lobe in length in posterior view
P. deformicauda XUE et LI, 2001
- Tergites of abdomen without versicolor marginal straps; arista of antennae plumose, the longest hair slightly less than 1st flagellomere in width; parafacial subequal to 1/2 of 1st flagellomere width; spiracles dark brown; coxae dark brown; the inner lobe of cerci longer than outer lobe distinctly in length in posterior view
P. subalpicola XUE, 1998
- 16 Frons at most wider than the anterior ocellus slightly 17
- Frons wider than 2.0 times of the anterior ocellus width distinctly 21
- 17 Hind femur without *pv* 18
- Hind femur with *pv* 19
- 18 Parafacial about 1/2 of 1st flagellomere in width; frons about 1/2 of the anterior ocellus in width; the inner lobe of cerci longer than outer lobe in length in posterior view
P. hebata FANG et FAN, 1987

- Parafacial subequal to 1st flagellomere width; frons slightly wider or equal to the anterior ocellus in width; the inner lobe of cerci equal to or shorter than outer lobe in length in posterior view
P. hebetoida MA et DENG, 2002
- 19 Arista of antennae plumose, the longest hair slightly less than 1st flagellomere in width; frons subequal to 1.5 times of the anterior ocellus; parafacial about 1/3 of 1st flagellomere in width; the inner lobe of cerci longer than outer lobe in length in posterior view
P. subfuscitrochanter MA et DENG, 2002
- Arista of antennae short plumose, the longest hair subequal to 1/2 of 1st flagellomere in width 20
- 20 Palpi black; frons subequal to 1.5 times as wide as anterior ocellus; frons subequal to 1.5 times as wide as anterior ocellus; parafacial subequal to 1.5 times as wide as 1st flagellomere; anterior spiracle yellow, posterior one brown; calypteres brownish; halteres yellow
P. bacillirostris XUE et WANG, sp. n.
- Palpi yellowish-brown, dark brown on apical half; frons slightly narrower than anterior ocellus in width; parafacial subequal to 1st flagellomere in width; anterior spiracle reddish-brown, posterior one dark brown; calypteres and the apical halteres yellowish
P. parahebeta MA et DENG, 2002
- 21 Palpi with brown color; genal height about 1/5 of eye height; coxae and trochanters brownish-black or dark brown; cerci with distinct outer lobe
P. fuscitrochanter MA et DENG, 2002
- Palpi black at apex; genal height subequal to 1/3 of eye height; coxae and trochanters brownish-yellow; cerci without outer lobe
P. amica MA et DENG, 2002

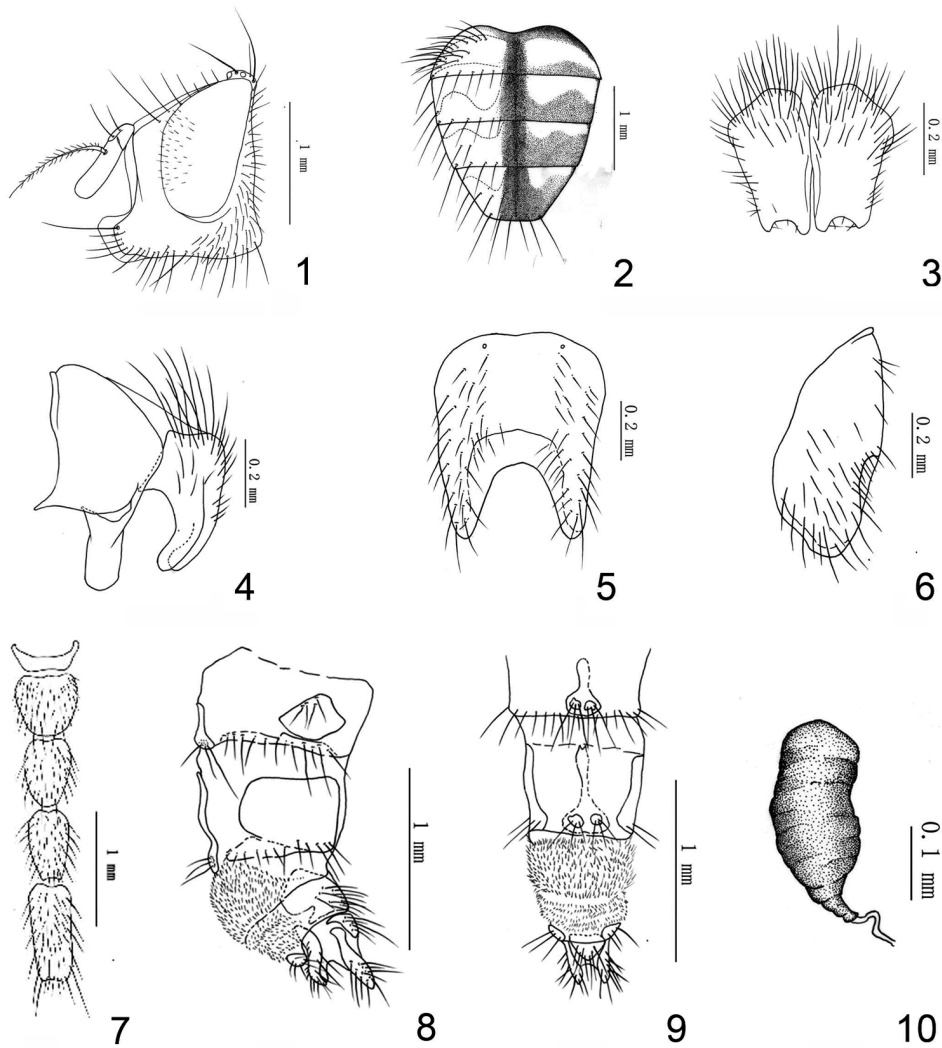
DESCRIPTION OF THE NEW SPECIES

Phaonia bacillirostris XUE et WANG, sp. n.
(Figs 1–10)

Description: *Male*. Body length 6.0 mm.

Head. Eyes covered with short and sparse ciliated; ommatidia expanded on upper inner side; frons subequal to 1.5 times as wide as anterior ocellus; frontal vitta black, subequal to width of

fronto-orbital plate, 7–8 frontal setae reaching to the front part of anterior ocellus, which the upper 3 ones rather short, upper orbital setae absent; fronto-orbital plate, parafacial and gena with grayish pruinosity, parafacial about 1.5 times as wide as 1st flagellomere; antennae black, slender, 1st flagellomere 2.5 times as long as wide, arista short plumose, the longest hair about 1/2 of 1st flagellomere in width; facial carina projected reaching to the anterior margin of lower facial margin; lower facial margin projected extremely, which become right angle with facial carina; vibrissal angle projecting



Figs 1–10. *Phaonia bacillirostris* XUE et WANG, sp. n., male: 1 = head in profile, 2 = abdomen in dorsal view, 3 = cerci in posterior view, 4 = terminalia in profile, 5 = sternite 5 in ventral view, 6 = sternite 5 in profile. Female: 7 = sternites 1 to 5, 8 = dorsal ovipositor in profile, 9 = ovipositor in ventral view, 10 = spermatheca

over frontal angle obviously; genal height about $2/9$ of eye height; genal and postgenal hairs all black; proboscis slender, rostrum longer than haustellum; prementum with gray pruinosity and thin hairs, 7 times as long as wide; palpi black and small, only $1/3$ of width of prementum; labellum small.

Thorax. Black in ground color with blue-grayish pruinosity; scutum with 4 black vittae; scutellum black; *acr* 2+2, *dc* 2+3, *ial* 0+2, *pra* rather long, equal to 2.0 times of posterior postpronotal seta; notopleuron, the lower and flank of scutellum, basisternum of prosternum, meron and katepimeron all bare; the anterior spiracle yellow, the posterior one brown; katepisternal setae 1+2; wings slightly hyaline; veins brown; basicosta yellow; subcostal sclerite brown; costal spine short and small; radial node bare; R_{4+5} and M veins slightly straight on apical part; the surrounding of r-m and dm-cu crossveins uncloud; calypteres brownish; halteres yellow; legs all yellow except dark on tarsuses; fore tibia with 1–2 medium *p*; mid femur with complete *av* and *pv* rows, which become longer hair-shaped apically, *av* 1 on preapical part, *pd* 2–3, mid tibia *p* 2; hind femur with a sparsely *av* row, *pv* 1–2 on medial part, hind tibia *av* 5, *ad* 2, *pv* 1 on apical fifth, without apical *pv*; the length of tarsuses longer than tibiae; the length of claws and pulvilli short and small.

Abdomen. Ovate-shaped, with blue-grayish pruinosity; tergites with ovate-shaped black patches, which latter parts joined with lateral patches become mountain-shaped patches; the latter marginal setae of tergites 4 and 5 slightly long and strong; sternite 1 bare.

Female. Body length 6.8–7.2 mm.

Ommatidia not expanded; frons about 0.4 time as wide as head, frontal vitta about 3.0 times as wide as fronto-orbital plate, frontal setae 3–4, with a pair of orbital setae, outinclined; parafacial about 2.0 times of 1st flagellomere; genal height about $2/5$ of eye height; *acr* 0+1; fore tibia with 1 black medium *p*; mid femur without *av* row, with 5 slender *pv* on basal half; hind tibia *ad* 1; abdominal tergites with medium black vittae. Other characters same as the male.

Holotype: male, P. R. China: Tibet: Mt. Duoxiongla, 3600–4200 m, 8, VIII, 2003, Coll. Mingfu Wang.

Paratypes: 1 male, same data as holotype; 2 females, same data as holotype.

Etymology – The specific name is from the Latin words *bacill-* means stick, *rostr-* means proboscis, referring to rostrum longer than haustellum as well as prementum pole-shaped, 7 times as long as wide.

Remarks – This species belongs to *Phaonia oxystoma*-group, and resembles *Phaonia hebetoida* MA et DENG, 2002, but it differs from the latter in frons subequal to 1.5 times of width of anterior ocellus; parafacial about 1.5 times as wide as 1st flagellomere; genal height about $2/9$ of eye height; palpi black and small, only $1/3$ of width of prementum; the anterior spiracle yellow; hind femur with *pv* 1–2 on medial part.

***Phaonia sublatilamella* XUE et ZHAO sp. n.**

(Figs 11–14)

Description: *Male*: Body length: 7.0 mm

Head: Eyes bare, ommatidia not expanded on upper medium part; frons subequal to width of anterior ocellus, frontal vitta black, linear-shaped, 4 pairs of frontal setae, situated $2/5$ of the lower

part of frons, with 2–4 extremely small hairs on the upper side, which subequal to 1.5 times as long as diameter of ommatidia, without upper orbital setae; fronto-orbital plate and parafacial with hoar pruinosity; parafacial equal to or less than 1st flagellomere in width; antennae dark brown, 1st flagellomere about 3.0 times as long as broad, arista short plumose, the longest hair about 4/5 time as wide as 1st flagellomere; lower facial margin projecting in profile, vibrissal angle situated before frontal angle; anterior margin of gena with 1 row of upcurved subvibrissal setae, genal height about 1/5 of eye height; dorsal area of occiput haired; both genal and postgena hairs black; proboscis slender; prementum with pruinosity, about 4.0–4.5 times as long as broad; palpi black, subequal to 2/3 of prementum.

Thorax: Black in ground color, slightly shining, with few gray pruinosity; scutum with 4 obvious black vittae; *acr* 1+1, *dc* 2+3, *ial* 0+2, *pra* about 2.0–2.5 times as long as posterior postpronotal seta; notopleuron, the lower and flank of scutellum, basisternum of prosternum, anepimeron, meron and katepimeron all bare; spiracles dark brown; katepisternal setae 1+2; wings hyaline slightly, veins brown; basicosta yellow; costal spine unobvious; costa haired on ventral surface; radical node bare; R_{4+5} and M veins straight, and deviated apically; m-m crossvein rather straight; calypteres and halteres yellow; legs: femora, tibiae and trochanters yellow, coxae dark brown, tarsuses black; fore tibia with 1 medium *pv*; mid femur with a complete *pv* row, which become short distinctly towards apical part, mid tibia with 2 *p*; hind femur with sparse a *av* row, *pv* 5–6 on basal half, hind tibia with *av* 4, *ad* 1, 1 long *pd* in distal 1/4, without apical *pv*; tarsi longer than tibiae, claws and pulvilli shorter than tarsomere 5.

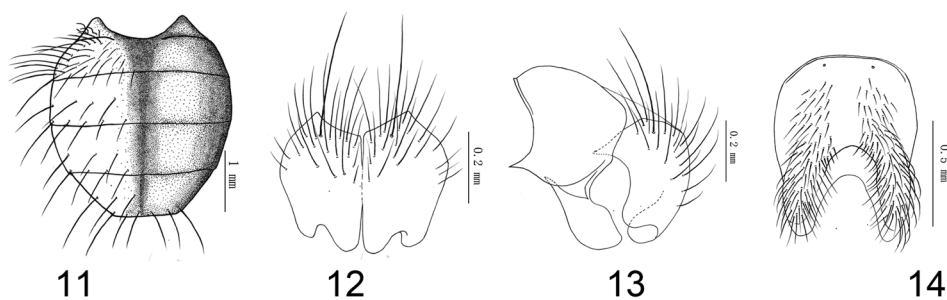
Abdomen: Black, roundish, with sparse gray pruinosity, tergites 4 and 5 slightly shining; tergites with median black vittae, without glittery patch, setae sparse and long; body hairs dense; the dorsal surface of tergites with 5–7 rows hairs; sternite 1 bare; sternites 2 to 4 with 1 pair of strong setae respectively.

Female: Unknown.

Holotype: male, P. R. China: Sichuan Province: Luding: Yanzigou, 2000–2600 m, 7. VII. 2006, Coll. JIAYU LIU.

Paratype: 2 males, same data as holotype; 2 males, P. R. China: Sichuan Province: Luding: Yanzigou, 2000–2600 m, 7. VII. 2006, Coll. LIYONG FENG.

Etymology – According to the specific name of the resemble species, *latilamella*, we named the new taxon name as “*sublatilamella*”, the Latin word *sub-* refer to likeness.



Figs 11–14. *Phaonia sublatilamella* XUE et ZHAO sp. n. (male): 11 = abdomen in dorsal view, 12 = cerci in posterior view, 13 = terminalia in profile, 14 = sternite 5 in ventral view

Remarks – This species belongs to *Phaonia oxystoma*-group, and resembles *Phaonia latilamella* FENG et MA, 2002, but it differs from the latter in eyes bare, ommatidia not expanded on upper medium part; genal height about 1/5 of eye height; *acr* 1+1; spiracles dark brown; coxae of legs dark brown; the inner lobe of cerci of male wide and long, surstyli rather wide on apical part, the length of sternite 5 longer than its width.

NEW SYNONYMS

Phaonia hebetoida MA et DENG, 2002 In MA, XUE et FENG (eds): *Fauna Sinica. Insecta. Vol. 26. Diptera Muscidae (II) Phaoniinae (I)*: 172, figs 307–308.
Phaonia subhebeta MA et DENG, 2002 In MA, XUE et FENG (eds): *Fauna Sinica. Insecta. Vol. 26. Diptera Muscidae (II) Phaoniinae (I)*: 172–173, figs 309–310. **syn. nov.**

There are no obvious differences between *Phaonia hebetoida* MA et DENG, 2002 and *Phaonia subhebeta* MA et DENG, 2002 on terminalia. The only external morphological differences between them are the expansile extension of ommatidia (the former one with extremely large ommatidia on middle part, about 2.0 times or more of the lower ones, the latter one ommatidia slightly large on upper part) as well as the coloration of palpi (the former one dark brown, the latter one black) and spiracles (the former one reddish-brown, the latter one yellowish-brown). Besides, *Phaonia subhebeta* MA et DENG, 2002 was described only according to one male specimen, which could not reflect its variable range. Therefore the above mentioned differences are not enough to separate the two species.

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