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# SPECIES OF *SYNECHES* FROM TIBET BELONGING TO *S. SIGNATUS* SPECIES GROUP (DIPTERA: EMPIDIDAE)

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ABSTRACT

The *Syneches signatus* species-group (Diptera: Empidoidea: Hybotidae) characterized with the flattened abdomen and modified hind leg is a small and unique group in *Syneches*. Here we report that this species group is newly found in Tibet with 2 species, *Syneches bigoti* Bezzi and *S. nigrescens* **sp. nov.** *Syneches bigoti* Bezzi is reported from the Chinese mainland for the first time. A key to the known species of this group from Asia is presented.

Key Words: dance fly, *Syneches nigrescens*, Tibet

RESUMEN

Las especies dentro el grupo *Syneches signatus* (Diptera: Empidoidea: Hybotidae) que tienen el abdomen aplanado y la pata trasera modificada pertenecen a un grupo pequeño y único dentro de *Syneches*. Se encontró 2 especies de este grupo recientemente en el Tíbet, *Syneches bigoti* Bezzi y *S. nigrescens* **sp. nov..** *Syneches bigoti* Bezzi es infomrado por primera vez de la parte continental de China. Se presenta una clave de las especies conocidas de este grupo en Asia.

Palabras Clave: moscas de baile, *Syneches nigrescens*, Tíbet

The *Syneches signatus* species-group is characterized by the following features: abdomen broad and flattened dorsoventrally; hind femur with finger-like ventral tubercles (which are shorter in females), and hind tibia in both sexes curved with thickened apex and usually thin ventral tubercles (Melander 1928; Yang & Yang 2004; Liu et al. 2012). It was considered as the separate genus *Harpamerus* (Melander 1928; Yang & Yang 2004; Liu et al. 2007). This species group is distributed in the Oriental and Australasian regions with 11 known species (Yang et al. 2007; Liu et al. 2012). The major references dealing with species of the *S. signatus* species-group are as follows: Bezzi (1904, 1912); Brunetti (1920); Frey (1938); Liu et al. (2012); Melander (1928); Saigusa (1964); Yang & Yang (2004). Only 2 species were known to occur on the Chinese mainland (Yang & Yang 2004). Here we report that the *S. signatus* species-group is newly found in Tibet with *Syneches bigoti* Bezzi and *S. nigrescens* **sp. nov.** The male genitalia of *Syneches bigoti* are illustrated and described for the first time. A key to the known species of this group from Asia is presented. Types are deposited in the Entomological Museum of China Agricultural University, Beijing (CAU). Terms used for adult structures and male genitalia follow those of McAlpine (1981). The following abbreviations are used: acr = acrostichal seta(e), ad = anterodorsal seta(e), av = anteroventral seta(e), mv = midventral seta(e), npl = notopleural seta(e), oc = ocellar seta(e), pd = posterodorsal seta(e), ppn = postpronotal seta(e), psa = postalar seta(e), pv = posteroventral seta(e), sc = scutellar seta(e).

## KEY TO SPECIES OF *SYNECHES SIGNATUS* SPECIES-GROUP FROM ASIA

[Modified from Frey (1938) and Liu et al. (2012)]

1. $R_{4+5}$ and $M_1$ distinctly convergent apically; pterostigma elongate except *S. signatus*, about 1/3 as long as cell $r_1$ . . . . . 2

—. $R_{4+5}$ and $M_1$ not distinctly convergent apically; pterostigma short, about 1/5 as long as cell $r_1$ . . . . 10

2. Thorax entirely brownish yellow or brown with three dark stripes . . . . . 3

—. Thorax black . . . . . 7

3. Thorax entirely brownish yellow . . . . . 4

—. Thorax brown with three dark stripes; pterostigma short, hemispherical . . . . . *S. signatus* Bigot

4. Antenna yellow or dark yellow with first flagellomere brown or dark brown. . . . . 5

—. Antenna brownish with first flagellomere dark brown . . . . . *S. daqingshanensis* Yang & Yang

5. Hind leg brown except coxa and tarsus yellow with tarsomere 5 brown . . . . . 6

—. Hind leg yellow except basal 1/2 of femur dark brown, apical 1/3 of tibia brown and tarsomere 5 dark brown . . . . . *S. basalis* Liu, Zhang & Yang

6. Hind leg brown except coxa and tarsus yellow with tarsomere 5 brown . . . . . *S. xishuangbannaensis* Yang & Yang

—. Hind leg brownish black except only tip of hind femur yellow dorsally . . . . . *S. boettcheri* Frey

7. Antenna blackish to black; hind femur not as below . . . . . 8

—. Antennal two basal segments yellowish; hind femur with 5 long thick ventral spines . . . . . *S. bakeri* Melander

8. All femora mainly blackish or black; wing darker . . . . . 9

—. All femora yellow except hind femur black apically; wing hyaline . . . . . *S. dinoscelis* Bezzi

9. Fore and mid femora blackish with yellow tips, hind femur entirely black . . . . . *Syneches nigrescens* **sp. nov.**

—. All femora black with yellow apex . . . . . *S. velutius* de Meijiere

10. Pterostigma filling entire apex of cell $R_1$; thorax blackish except scutellum dark yellow . . . . . *S. apicalis* Liu, Zhang & Yang

—. Pterostigma not filling entire apex of cell $R_1$; thorax brownish yellow . . . . . *S. bigoti* Bezzi

## *Syneches Bigoti* Bezzi (Figs. 1-3)

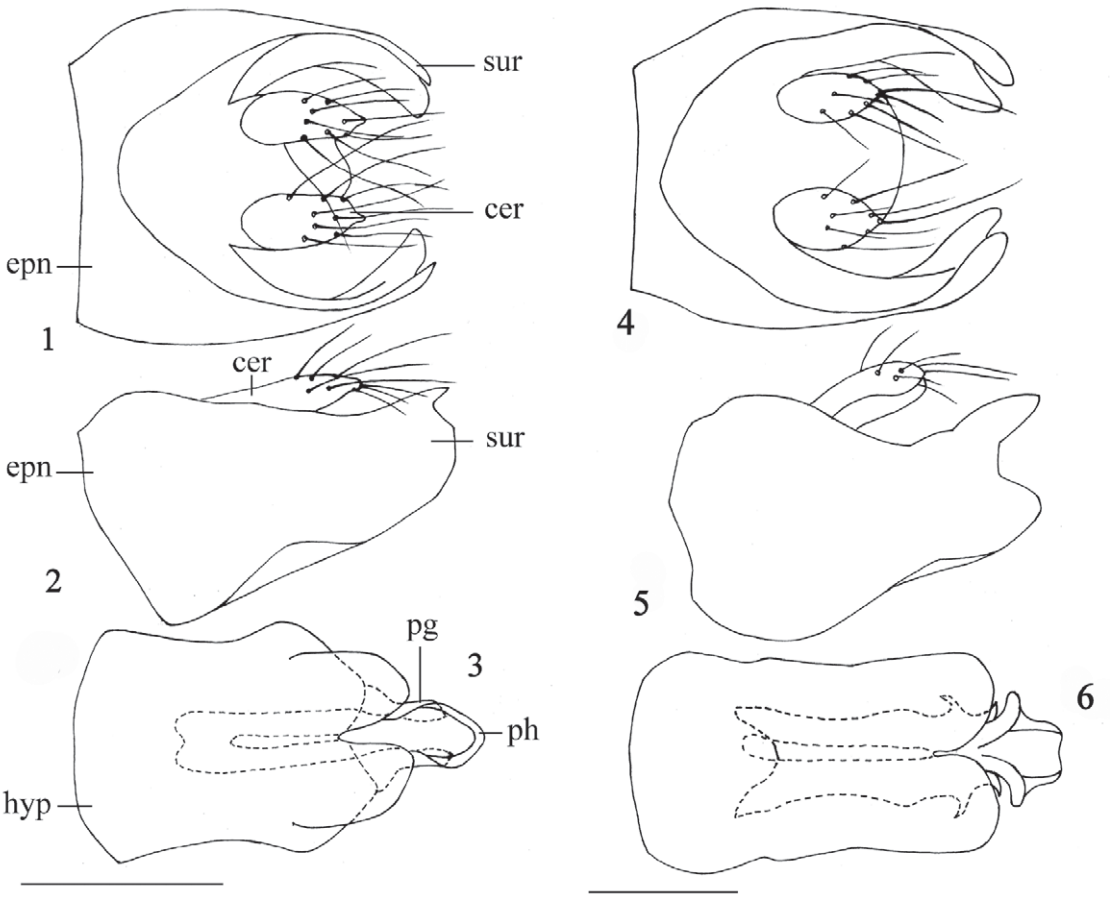
### Diagnosis

Thorax brownish yellow. Fore and mid legs mostly yellow and hind leg mostly blackish. Wings with brown spot at fork of Rs; stigma dark brown, short, not filling apex of cell $r_1$. $R_{4+5}$ and $M_1$ parallel apically.

### Male

Body length 6.1 mm, wing length 6.6 mm. Head blackish brown with gray pollen. Eyes contiguous on frons, pale reddish brown with enlarged upper facets. Setulae and setae on head black. Ocellar tubercle weak with 2 oc and 4 posterior setulae, oc slightly longer than posterior setulae. Antenna dark brownish yellow except first flagellomere brownish yellow; first flagellomere about 1.5 × longer than wide, with 1 dorsal seta; arista dark brown, very long (about 3.5 × as long as three basal antennal segments), bare. Proboscis nearly as long as head, brownish yellow; palpus brownish yellow with black setulae, 1 ventral seta at base, 1 ventral seta at middle and 1 ventral seta at tip.

Thorax brownish yellow with gray pollen except mesopleuron and pteropleuron darker. Setulae and setae on thorax black. Setulae on mesonotum sparse; ppn absent; 5 irregularly biseriate acr short and hair-like, 2 npl, 1 psa; scutellum with 10 marginal setulae and 2 long sc. Fore and mid legs yellow except coxae and tarsomere 5 brownish yellow; hind leg dark brown except tibia and tarsus yellow with base of tibia and entire tarsomere 5 brownish. Hind femur distinctly thickened, 2.5 × as wide as hind tibia. Setulae and setae on legs blackish to black except apical setae of fore and hind tibia partly and apical setae of mid tibia entirely brownish yellow; tarsi with ventral setulae and setae mostly brownish yellow.




Figs. 1-3. *Syneches bigoti* Bezzi (male), 4-6. *Syneches nigrescens* **sp. nov.** (male). 1, 4. Epandrium and cerci, dorsal view; 2, 5. Epandrium and cercus, lateral view; 3, 6. Hypandrium and phallus, ventral view. Abbreviations: cer = cercus; epn = epandrium; hyp = hypandrium; pg = postgonite; ph = phallus; sur = surstylus. Scale bar 0.2 mm.

Fore femur with row of long hair-like av and pv slightly longer than femur thickness; mid femur with row of very long av and pv distinctly longer than femur thickness. Hind femur with 6 weak ad, one row of 8 long av on weak tubercles except basal tubercles weak, 10–11 slightly short mv on distinct tubercles and 6 short pv on distinct tubercles. Fore tibia with row of 6 long thin ad including 1 subapical ad very long. Mid tibia with 1 very long ad at base and 1 long av at middle; apically with 1 long av and 1 very long pv brownish yellow. Wing nearly hyaline, tinged grayish, with a brown spot at fork of Rs; short pterostigma dark brown, about ⅕ of cell $r_1$ and not filling apex of cell $r_1$; veins dark brown; $R_{4+5}$ and $M_1$ parallel apically. Halter dark brown with dark yellow base.

Abdomen dark brown with gray pollen, but tergite 1 dark yellow except narrow base and tergites 2–3 brownish yellow at base; sternites 1–3 brownish yellow, sternites 4–5 brown. Setulae and setae on abdomen blackish.

Male genitalia (Figs. 1-3). Epandrium slightly longer than wide and with U-shaped mid-basal incision in dorsal view; surstylus with dorsal process short and acute apically, ventral process wide and obtuse apically in lateral view; hypandrium distinctly longer than wide, slightly narrowing toward tip, with V-shaped middle incision apically; phallus narrowed and obtuse apically, subapically without distinct lateral process; postgonite apically nearly straight and acute, directed backwards.

Female

Body length 5.7 mm, wing length 6.9 mm. Similar to male.

Unknown.

Material Examined

1 ♂, CHINA, Tibet, Bomi (N 29° 51' 42.57" E 95° 46' 1.59"), Pailong, 2013.IX.7, G. Yao (CAU); 2 ♂, CHINA, Taiwan, Hualian (N 23° 58' 20.00" E 121° 36' 23.00"), Bilv, 1050 m, 2012.VI. 29, L.H. Wang (CAU); 1', Tibet, Medog (29°19'41.38"N 95°19' 55.55" E), Dayandong, 2005.VIII.11, D.K. Zhou (CAU).

Distribution

China (Tibet, Taiwan), India.

Remarks

This species is newly recorded from the Chinese mainland. Its male genitalia are illustrated and described for the first time.

*SYNECHES NIGRESCENS* **SP. NOV.** (FIGS. 4-6)

Diagnosis

Thorax black. Antenna blackish. Fore and mid femora blackish with yellow tips, hind femur entirely black. Pterostigma elongate, about 1/3 as long as cell $R_1$. $R_{4+5}$ and $M_1$ distinctly convergent apically.

Male

Body length 4.8–5.6 mm, wing length 4.8–5.4 mm. Head blackish brown with gray pollen. Eyes contiguous on frons, brownish with enlarged upper facets brownish yellow. Setulae and setae on head black. Ocellar tubercle weak with 2 long oc and 2 very short posterior setulae. Antenna blackish; first flagellomere about 2 × longer than wide, with 1 dorsal seta; arista dark brown, very long (about 3 × as long as 3 basal antennal segments), bare. Proboscis nearly as long as head, brownish yellow; palpus brown with black setulae, 1 ventral seta at middle and 1 ventral seta near extreme tip.

Thorax black with gray pollen except postalar callus, pteropleuron mostly and postero-upper corner of mesopleuron brownish yellow. Setulae and setae on thorax black. Setulae on mesonotum short, but mid-posterior area with some longer setulae; ppn absent; about 10 irregularly uniseriate acr short and hair-like, 1 npl, 1 psa; scutellum with 16 marginal setulae and setae. Fore and mid legs yellow except coxae and trochanters black, femora blackish with yellow tips, and tarsomere 5 brown; hind leg black except tarsus dark yellow with tarsomere 5 dark brown. Hind femur distinctly thickened, 2.2X as wide as hind tibia. Setulae and setae on legs black except some setulae and setae on all tarsi and mid and hind tibiae brownish yellow. Fore femur with row of long pv slightly longer than femur thickness; mid femur with row of very long av and pv distinctly longer than femur thickness. Fore tibia with 5 pv (2 pv at middle very long), apically with 1 preapical ad. Mid tibia with 1 very long thick black ad and 1 very long thin black pd at middle, 2 very long brownish yellow av and 1 very long brownish yellow pv; apically with 6 strong setae mostly brownish yellow. Hind femur without preapical ad, but with one row of 11 strong av on tubercles (of which basal tubercles weak and 2–3 apical tubercles long, finger-like), apically with 7 short dense pv (4 basal pv on weak tubercles and 3 apical pv on distinct tubercles); hind tibia weakly curved, with one row of ventral setulae on weak denticles, apically with 1 long ad and 2 brownish av. Wing grayish; long pterostigma brown, about 1/3 as long as cell $R_1$; veins dark brown; $R_{4+5}$ weakly bent, $M_1$ distinctly bent, apically convergent. Halter brownish yellow except middle portion brown.

Abdomen blackish brown with gray pollen. Setulae and setae on abdomen black except those on lateral portions of tergites 1–3 dark yellow; sternites 1–6 with dark yellow setulae and setae.

Male genitalia. Epandrium slightly longer than wide and with U-shaped mid-basal incision in dorsal view; surstylus with slightly long dorsal process acute apically and short wide ventral process obtuse apically; hypandrium distinctly longer than wide, nearly uniformly wide, apically with V-shaped middle incision; phallus apically wide and obuse, subapically with short lateral process; postgonite apically acute and directed outwards.

Female

Body length 5.2–5.7 mm, wing length 5.4–5.5 mm. Similar to male, but hind knee brownish yellow; hind femur with 1 preapical ad, apical av on weak tubercles.

Type Material

HOLOTYPE ♂, CHINA: Tibet, Medog (N 29° 19' 41.38" E 95° 19' 55.55"), Beibeng, 700 m, 2012. VII.30, X. K. Li (CAU). Paratypes: 2 ♂, 1 ♀, same data as holotype; 2 ♀, CHINA: Tibet, Medog (N 29° 19' 41.38" E 95° 19' 55.55"), Beibeng, 700 m, 2012.VII.30, W. L. Li (CAU).

Distribution

China (Tibet).

Remarks

The species is similar to *H. xishuangbannaensis* Yang et Yang from China, but can be

separated from the latter by the thorax black, hind coxa black and antenna blackish. In *H. xishuangbannaensis*, the thorax is brownish yellow, the hind coxa is yellow and the antenna is dark yellow except the first flagellomere black (Yang & Yang 2004).

Etymology

The specific name refers to the black thorax.

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