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New species of *Hilara* (Diptera, Empididae) from Guangdong province in China

by Patrick GROOTAERT, Ding YANG & Lili ZHANG

Abstract

During early spring 2003, 5 species of *Hilara* were observed in Guangdong province. Four species are described as new to science: *Hilara xui, H. heixu, H. huangxu, H. huangjijie.* A fifth species, known from 8 females, is not described, but diagnosed only. 19 species of *Hilara* are now known from China.

Key words: Empididae, *Hilara*, new species, Guangdong China.

Introduction

Near the end of March 2003, the authors collected empidoids in Nanling National Nature reserve and Shimentai National forest Park in Guangdong province. Since the period of collecting coincided with early spring, few empidoids were found. Only five *Hilara* species were observed. They all belonged to new species for science. However, only four species are described here. A fifth species was represented by 8 females and it is therefore not described, although a diagnosis is given.

Some 250 *Hilara* species are known in the Palaearctic region so far. In the Oriental region, only some 53 species are known: 27 species have been described from Burma (FREY, 1952), 4 from India and Pakistan (BRUNETTI, 1920), 3 from Nepal (SMITH, 1965), 3 species from Taiwan (BEZZI, 1912, 1914), and more recently 5 from Northeast Thailand (GROOTAERT & VERAPONG, 2001). Hitherto only 15 species are known from China (Bezzi, 1912, 1914; Yang et Yang, 1997; Yang et Wang, 1998; Yang et Li, 2001; Yang et Zhang, 2003), and they all represent ''Oriental'' species as well. The present paper raises the described species for China to 19. In comparison with the rest of the Palaearctic fauna, it seems obvious that still a large number of *Hilara* await description.

Holotypes and paratypes are conserved in the collections of the China Agricultural University (CAU, Beijing), in addition voucher specimens are present in the collections of the Royal Belgian Institute of Natural Sciences (RBINS, Brussels).

Taxonomic account

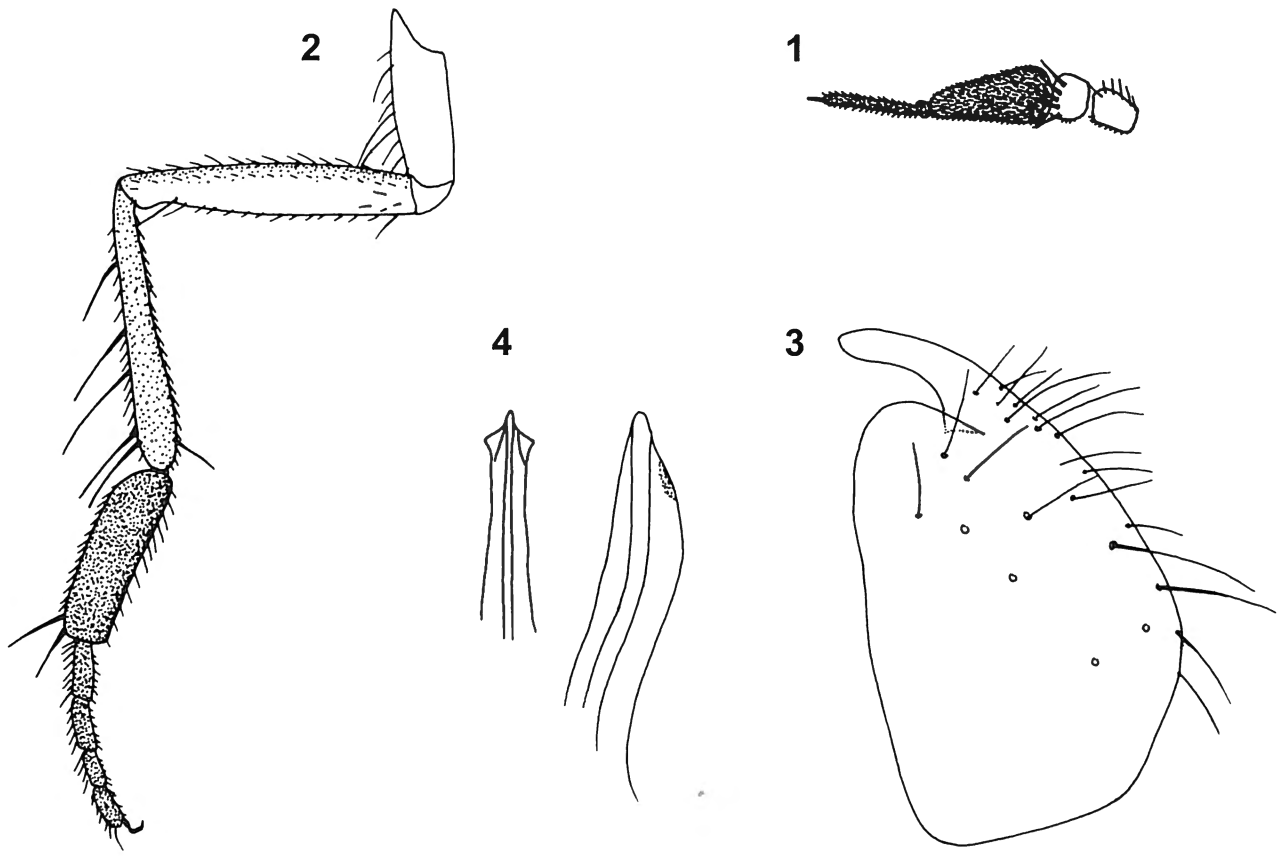
Hilara xui sp. nov.
(Figs 1-4)

Material examined: Holotype male, China, Guangdong province, Yingde, Shimentai National Forest Park, 28.III.2003, swept from the surface of a small mountain stream (leg. P. Grootaert, sample n° 23017). Paratypes: 15 males, 1 female of same provenance (sample n° 23017); 4 males, 5 females, Ruyuan, Nanling National Nature Reserve, small stream in forest near entrance of the park, alt. 500 m, 26.III.2003 (sample n° 23010, leg. P. Grootaert); 4 males, 1 female, Yingde, Shimentai National Forest Park, 28.III.2003, leg. Ding Yang; 2 males, 29.III.2003, leg. Ding Yang (CAU).

Diagnosis: A medium-sized black species with basal two antennal segments brown and third segment black. Palpi yellow. Halters dark. Acr quadriseriate. All coxae yellow to brownish; all tarsi black. First tarsomere of fore leg thickened, bearing a pair of apical bristles. Apical anteroventral bristles of hind femur long but shorter than femur is wide.

Male
Body length: 3.4 mm, wing: 3.5 mm.

Head black in ground-colour; frons dull black at sides, a grey dusted triangle in front of ocellar triangle; frons in front a little wider than base of third antennal segment. 6 pairs of short fronto-orbital bristles and 1 pair long, as long as ocellars. Face above as wide as frons in front but widening below; grey dusted but clypeus shining black. Occiput grey dusted, with a black postoculars, irregularly biseriate above, uniseriate below with some long black bristles near the neck. Antennae black (Fig. 1), but basal two segments brown (almost yellowish-brown). Third segment about 2.5 times as long as wide; arista a little shorter than third segment. Palpi yellow, with short black hairs and with a long black bristle in apical third, nearly as long as palpus. Labrum shining brownish-black, as long as head is high; with a black tip. Labella pale brown.



Figs. 1-4 — *Hilara xui* sp. nov. holotype male. 1. Antenna. 2. Fore leg. 3. Epandrial lamella. 4. Tip of hypandrium.

Mesonotum uniformly fine grey dusted, a little subshining brownish, but outer side of humeri and parts of pleurae yellowish brown. Acr fairly long, 4-serial; dc uniserial, twice as long as acr, longer posteriorly. A long humeral with some shorter hairs, 1 long posthumeral, 2 notopleurals, 1 supra-alar, 1 postalar, 4 scutellars (outer pair a little shorter than inner pair). Prosternum with very short hairs. Prothoracic collar with a black bristle at each side. Prothoracic episterna with a black bristle. Pleura further bare.

Wing brown tinged, with brown veins. A very long costal bristle; some long hairs between costal bristle and wing base. Stigma brown. Halters brownish grey; squamae brown with a brown fringe.

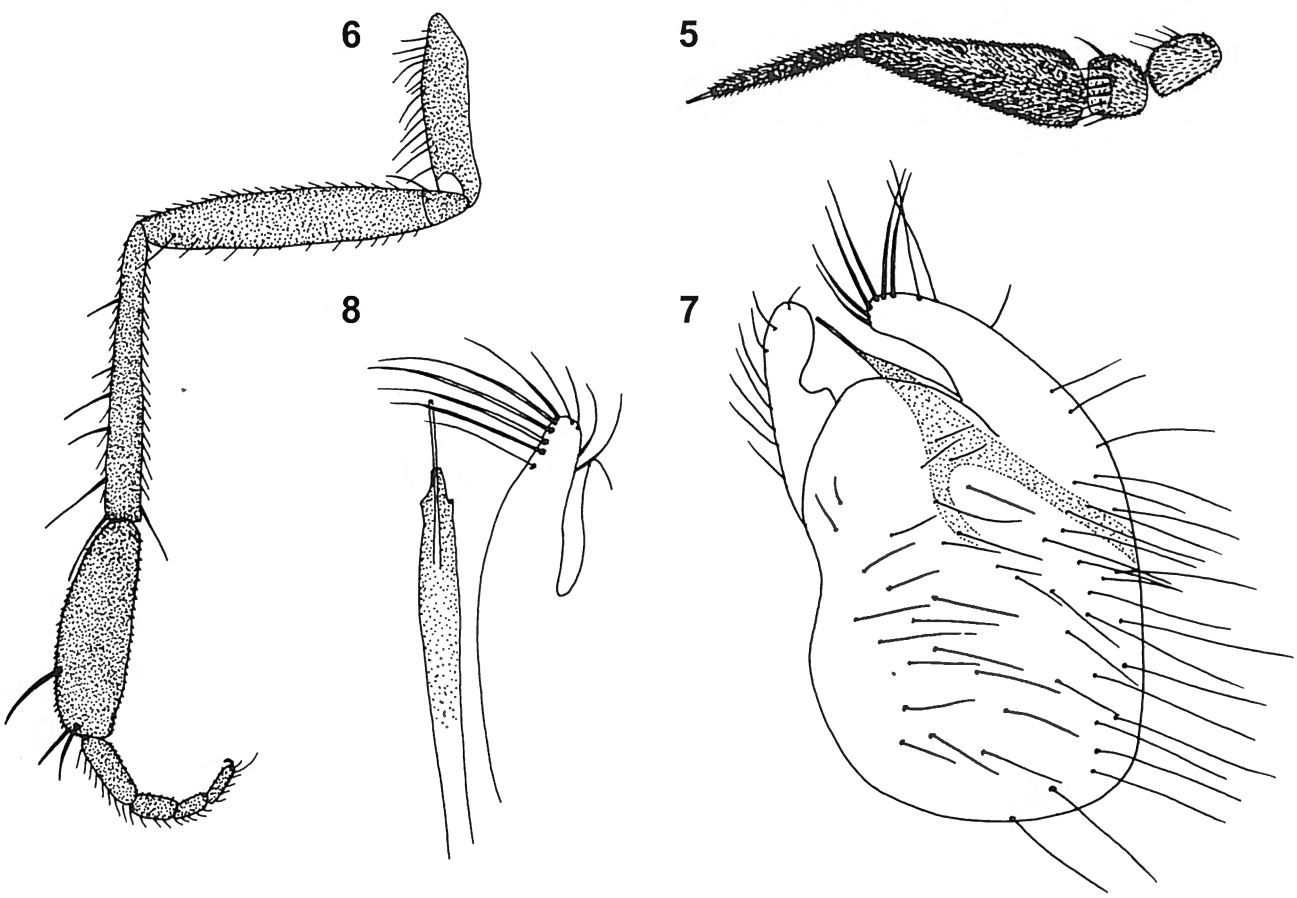
Legs with all coxae yellowish brown, fore and mid femora brownish, hind femora and all tibiae brown; all tarsi black. Bristling on legs black. Fore coxa with a row of long bristles at outside, at the inside shorter and more scattered bristles; a row of long apical bristles (8). Mid coxa with numerous bristles and a row of long apicals. Hind coxa with some short bristles and 2 long exterior bristles. Fore femur with a row of minute ventrals (a little posteroventral) ending in a long preapical. Mid femur more slender than fore femur, ventral bristles minute and a row of 5 long erect bristles anteriorly. Hind femur longer and stouter than mid femur; dorsally in basal half with erect bristles; a row of fine anteroventrals with the 6 most apical ones nearly as long as femur is wide; no anterior preapical present. Fore tibia as long as fore femur, with a row of 4 long bristles (Fig. 2) and a pair of apicals (dorsal and posterodorsal). Mid tibia with 3 ad and 1 strong anterior in apical quarter. Hind tibia (tubular) with 3 dorsals, and 3 posteroventral bristles; no preapical anteroventral "spur"; hair in comb present. Fore tarsus with first tarsal segment swollen, a little more than half as long as fore tibia (62%); with 2 long apical bristles. Following tarsal segments together a little longer than first tarsal segment. Hind tarsal segments without sensory patches.

Abdomen with basal 5 tergites pale brown sclerotised. Tergite 6 and genitals darker (in alcohol specimens; the colour difference is not distinct in a dried specimen). All segments finely grey dusted and subshining. Tergite 1 with multiseriate rows of long bristles (including hindmarginals). Following segments with short bristles, but hindmarginals long. Hypopygium not very large. Epandrial lamella (Fig. 3) with short hairs, extension digitiform without hairs at tip. Tip of hypandrium with small wings (Fig. 4).

Female

Body length: 7 mm, wing: 7.7 mm.

Identical to male in most aspects except for the slender



Figs. 5-8 — *Hilara heixu* sp. nov. holotype male. 5. Antenna. 6. Fore leg. 7. Epandrial lamella. 8. Tip of hypandrium.

first tarsal segment. Abdominal segments darker and uniformly sclerotised than in male.

Derivatio nominis.
The present species is dedicated to Prof. Dr. Xu Zaifu of South China Agricultural University. He is a very dynamic entomologist who guided us in Guangdong.

Differential diagnosis
Hilara xui looks very similar to the following unnamed species that is represented by 8 females only. The latter species has some anteroventral bristles on the hind femora that are much longer than the femur is wide. In *H. xui* these bristles are a little shorter than the femur is wide. Apart from that there are differences in the colouration of the legs (not all tarsal segments dark brown) and the rows of acrostichals are quadriserial in *H. xui* whereas biseriate in the unnamed species.

Hilara spec.

Material examined: 8 females, China, Guangdong province, Yingde, Shimentai National Forest Park, 28.III.2003, swept from river surface (leg. P. Grootaert, sample n° 23017).

Diagnosis: A medium-sized black species with two basal antennal segments yellow and third segment black. Palpi yellow. Halters white with yellow stem. Acr irregularly biserial. All coxae and femora yellow to brownish; tibiae faintly brownish tinged; tarsi brownish but only apical 2 segments dark brown. Hind femur apically with long anteroventral bristles (much longer than femur is wide). Hind tibiae with a row of 8 dorsals (as long as tibia is wide) and 8 anteroventrals, shorter than the dorsals.

Further very similar to *Hilara xui* sp. nov. Wing paler than in *H. xui*.

Discussion: The species is not named here because we did not find males that could be associated with them. Moreover, it was found together with *Hilara xui* sp. nov. and seems closely related to it, though distinctly different.

Hilara heixu sp. nov.
Figs 5-8.

Material examined: Holotype male, China, Guangdong province, Ruyuan, Nanling National Nature Reserve, 26.III.2003 (sample n° 23008, leg. P. Grootaert). Paratypes: 3 females same provenance as holotype; 1 male, 2

females, Ruyuan, Nanling National Nature Reserve, 26.III.2003, leg. Lili Zhang.

Diagnosis:
A large black species with dark brownish black wings and black legs. First flagellomere black, scape and pedicel brown-black. Palpi black, but extreme tip yellow. Halters black with base of stalk yellow. Fore leg with swollen basal tarsomere bearing a dorsal bristle on apical third.

Male
Body length: 7 mm, wing: 7.7 mm.

Head black in ground-colour. Frons wide, grey dusted but a large shining black triangle in front of ocellar triangle. A row of short fronto-orbital bristles and one pair of long fine bristles. Ocelli prominent; ocellar bristles broken. Occiput uniformely covered with grey dusting. Postocellar bristles very long and rather fine, biseriate above, uniseriate near middle and multiseriate with scattered bristles below. Proboscis about as long as head is high. Labrum shining black. Labellae black. Face wide, above as wide as frons, below widening; covered with a silvery-grey dusting, but clypeus shining black. Antennae black (Fig. 5), although the basal segments are brownish-black. Third antennal segment triangular, 3.5 times as long as wide. Arista a little shorter than third segment. Palpi black but extreme tip yellow; palpus covered with fine black bristles and 2 long bristles (one near base, one near tip).

Thorax black in ground-colour covered with an ash grey dusting. Outside border of humeri yellowish brown. Acr biseriate, the rows are a little irregular, the rows widen behind. Dc uniseriate, rather long and getting longer behind. A long humeral, a posthumeral, 3 long notopleurals with some scattered bristles; a long supra-alar and a long postalar; three pairs of long marginal scutellars and some additional hairs. Prosternum with black hairs, long at outside, shorter at inside. Prothoracic collar well developed with a long black bristle at each side and a few bristly hairs dorsally (4-5); prothoracic episterna with about 4 fine black bristles. Halters with black knob, base of stalk yellowish. Squamae black with numerous short, black hairs. Wing brownish black with brownish black veins; anterior wing border with a dark brown stripe along the costa so that the costal area is darker than rest of wing (stigma brown). A long costal bristle present with a number of long hairs between the costal bristle and the wing base.

Legs completely black; coxae and femora covered with a grey dust. Fore femur without conspicuous bristles except for a long preapical posterior and a distinct preapical anteroventral. Mid femur a little more slender than fore femur; with a row of about 10 long, erect anterior bristles, a long basal ventral bristle. Hind femur stoutest with two long preapical anteroventrals, remaining bristling inconspicuous; without a distinct anterior preapical. Fore tibia as long as fore femur; with a row of long dorsal (4) and a row of anterodorsal bristles (3), a set of long apical bristles (4). Fore basal tarsomere swollen (Fig. 6), about 3/4 of length of tibia; with anterodorsal and dorsal apical bristle and a long dorsal at apical third. Following tarsal segment together as long as first tarsal segment. Mid tibia with a dorsal and anterodorsal near base, 2 anteroventrals and a set of long apicals (5). Hind tibia with a row of long dorsal bristles (6) getting longer towards tip, a row of long anterodorsals (4) and a row of anteroventrals (5); no distinct preapical anteroventral spur. Middle hairs of comb lengthened with a long hair in comb. Sensory patches on hind tarsi, if present, than very narrow.

Abdomen brownish black in ground-colour but from some point of view covered with a grey dusting. First tergite completely covered with numerous long bristles; hindmarginal bristles longest. Following segments covered with short hairs, but hindmarginal bristles long (longest on sixth segment). Genitalia covered with a grey dust except for the tip of epandrial lamella which is shining black. Hypandrium with yellowish brown patches. Epandrial lamella with a digitiform extension bearing long black bristles at tip (Figs 7-8). Tip of hypandrium with a tiny denticle at each side.

Female
Body length: 4.9-6.3 mm, wing: 6.3-7 mm.

A little smaller that male but further identical except for the slender basal tarsomere of fore leg and the laterally flattened hind tibia.

Derivatio nominis.
The specific name ''heixu'' in Chinese means ''black palpus''.

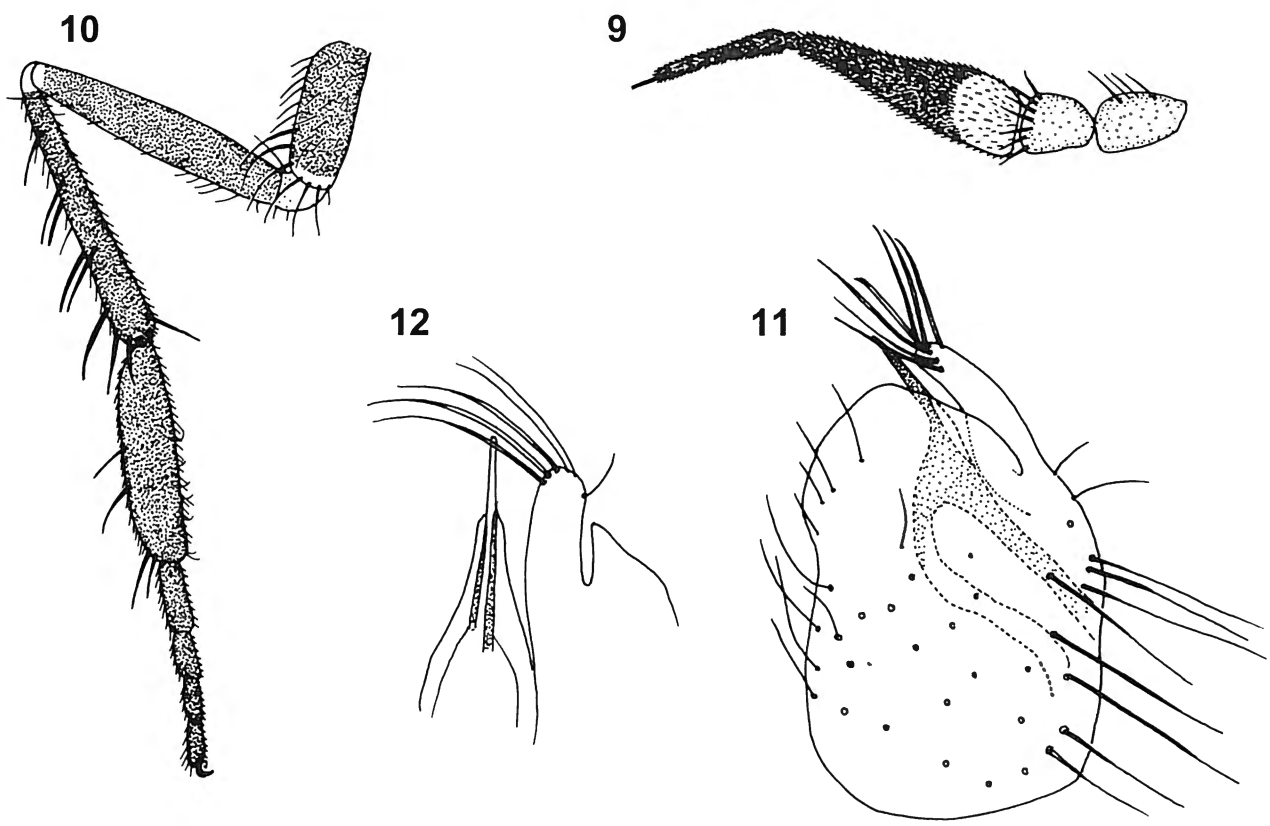
Hilara huangxu sp. nov.
Figs 9-12

Material examined: Holotype male, China, Guangdong province, Ruyuan, Nanling National Nature Reserve, 26.III.2003 (sample n° 23010, leg. P. Grootaert). Paratype: 1 male, Ruyuan, Nanling National Nature Reserve, 26.III.2003, leg. Lili Zhang (CAU).

Diagnosis:
A large black species with basal antennal segments and base of third segment yellow. Palpi yellow. Halter with black stalk and yellowish knob. Wings brown. First segment of fore tarsi, a little swollen. Legs mainly black. Fore basal tarsomere swollen with 2 dorsal bristles and a pair of apicals.

Male
Body length: 7 mm, wing: 7.7 mm.

Head black in ground-colour. Frons wide, grey dusted but a larger black shining triangle in front of the ocellar triangle. A row of short fronto-orbital bristles and a long fine bristle at each side of frons. Ocelli prominent; ocellar bristles long. Occiput uniformly covered with grey dusting. Postocellar bristles long, uniseriate throughout, but with numerous scattered bristles outside the row. Proboscis about as long as head is high. Labrum shining black.



Figs. 9-12 — *Hilara huangxu* sp. nov. paratype male. 9. Antenna. 10. Fore leg. 11. Epandrial lamella. 12. Tip of hypandrium.

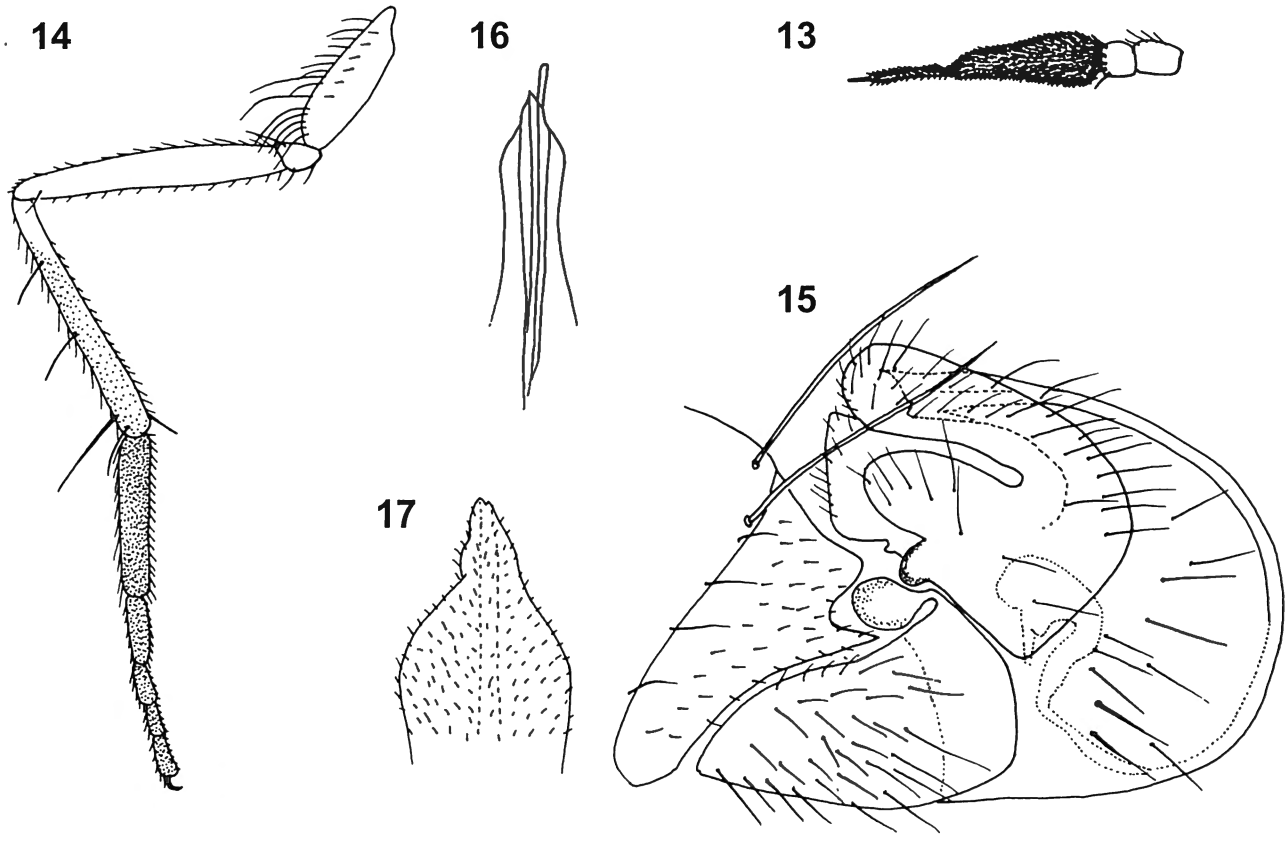
Labellae black. Face wide, above as wide as frons, widening below; covered with a slivery-grey dusting, including the clypeus shining black. Antennae (Fig. 9) with basal two segments and base of third segment yellowish brown. Third antennal segment triangular, elongate, 3 times as long as wide. Arista about 3/4 of third segment. Palpi yellowish brown and extreme tip yellow; palpus covered with fine black bristles and 2 very long bristles (one near base, one near tip).

Thorax black in ground-colour, covered with a grey dusting. Posterior tip of humeri yellow. A weakly visible brownish subshining stripe between the row of acr and dc. Acr fine (most rubbed off) irregularly triseriate. Dc uniseriate ending in some longer prescutellars. A humeral, a posthumeral, 4 long notopleurals with some short hairs, a supra-alar, a postalar and scutellum with 4 long marginals. Prothoracic collar well developed with a long black bristle at each side; prothoracic episterna with about 5 black bristles.

Wing brown with dark brown veins. Stigma brown and a brown stripe running between the costa and vein r3+4 from base till tip of wing. Squamae yellowish brown with a brown margin and densely set with hairs that are about as long as squama is deep. Halter with a black stalk and a yellowish knob.

All legs completely black but trochanters and all knees yellowish-brown. Fore coxa with long bristles on outside and on apical margin. Mid coxa with a row of long apical bristles. Hind coxa with 2 long exterior bristles. Fore femur with a long posterior and anterior preapical bristle. Mid femur with 8 to 9 long erect anterior bristles, a long but fine ventral in basal fifth, a row of posteroventrals ending in a long preapical and a long posterior preapical. Hind femur with a strong anteroventral in apical third and a long antero- and posteroventral preapical bristle. Fore tibia as long as fore femur and widened at tip (Fig. 10) bearing a row of 3 long dorsal, 4 long posterodorsal bristles, and 4 long apicals. Mid tibia with 2 dorsals in basal half, 2 anteriors at same level, 2 ventrals in third quarter and 4 strong apicals. Hind tibia with 4 anteriors, 6 very long dorsals, 2 anterodorsals near base and 4 strong apicals. No preapical anteroventral spur and middle hairs of comb lengthened with a long hair in comb. First tarsal segment of fore legs at least 3/4 as long as tibia, thickened and bearing a strong (postero)dorsal in basal third, a strong (postero)dorsal near apical third and a pair of apicals (one posterodorsal and one anterodorsal). Following tarsal segments together a little shorter than first tarsal segment.

Abdomen brown in ground-colour with a very fine, not dense grey dusting so that in fact the abdomen is rather shining. Basal tergite with long bristles on dorsum and very long hindmarginals. All following segments with very short bristles dorsally and long hindmarginals. Hy-



Figs. 13-17 — *Hilara huangjijie* sp. nov. paratype male. 13. Antenna. 14. Fore leg. 15. Epandrial lamella. 16. Tip of hypandrium. 17. detail of tip of hypandrium.

popygium as in Fig. 11. Epandrial lamella with a digitiform extension bearing a number of black bristles at its tip (Fig. 12), like in *X. heixu* sp. nov.

Derivatio nominis.
The specific name "huangxu" in Chinese means "yellow palpus".

Differential diagnosis
This species is closely related to *X. heixu* sp. nov. and looks like its sister-species. The male genitalia are very similar as well. In particular, both have long bristles on the tip of the digitiform extension of the epandrial lamella. We consider both species as distinct because of the clear differences in bristling of the legs, the colouration of antennae and palpi. In species *X. huangxu* sp. nov., the thickened first tarsal segment of the fore leg bears 2 strong dorsal bristles, while in *H. heixu* there is only one strong dorsal bristle in apical third.

Hilara huangjijie sp. nov.
Figs 13-17

Material examined: Holotype male, China, Guangdong province, Ruyuan, Nanling National Nature Reserve, alt. 1000 m, 24.III.2003 (sample n° 23002, leg. P. Grootaert). Paratypes: 4 males, 5 females same provenance as holotype; 1 male, Ruyuan, Nanling National Nature Reserve, 24.III.2003, leg. Ding Yang; 2 females, 26.III.2003, leg. Ding Yang (CAU).

Diagnosis
A small species with yellow legs, yellow halters, yellowish-brown palpi, black first flagellomere and yellowish brown scape and pedicel. Male genitalia with a protuberance at each side of tergite 8 that fits into a cavity formed by the hind margin of tergite 7. In addition there is a protuberance on the hind margin of the epandrial lamella.

Male
Body length: 3.36 mm, wing 4.2 mm.

Head black in ground-colour; frons brownish grey dusted, a yellowish grey dusted triangle in front of ocellar triangle; frons in front wider than base of third antennal segment. Each side of frons with about 6 short fronto-orbital bristles and one long bristle, about 3/4 of an ocellar. Ocellars long; postocellars also long. Face above narrower than front of frons, widening below; grey dusted. Occiput grey dusted, with a long, black postoculars. Antennae black (Fig. 13), but basal two segments yellowish-brown. Third segment about 2.5 times as long

as wide; arista a little shorter than third segment. Palpi yellowish brown, with short black hairs and with a long black bristle in apical third, nearly as long as palpus. Labrum shining brownish-black, a little longer than head is high; with a black tip. Labella pale brown.

Thorax yellowish-brown in ground-colour; humeri and postalar calli yellow; pleura yellowish-brown. Mesonotum and pleura thinly grey dusted. Acr irregularly triquadriseriate, half as long as dc. Dc uniseriate, nearly as long as third antennal segment, growing longer behind. A long humeral, a posthumeral, 3 notopleurals, a supra-alar and a postalar; 4 scutellar bristles (apical pair the longest). Prosternum with short yellowish hairs. Prothoracic collar with a long black bristle at each side and some minute hairs between them. Prothoracic episterna with a few pale bristles and a longer black hair in front of spiracle.

Wing membrane yellowish brown. Veins pale brown. Stigma pale brownish. A long black costal bristle present; the hairs basad of it not very long. Halters pale yellowish. Squamae and base of wing almost white. Squamae with short pale hairs.

Legs yellow including all coxae and femora; but fore and hind tibiae yellowish brown; all tarsi brown. Fore coxae with a row of long black exterior bristles in apical half; tip with a row of long apicals. Mid coxa with long apicals. Hind coxa with at least two long exterior bristles. Fore femur slightly thickened, without peculiar bristles. Mid femur almost as deep as fore femur; ventrally at base with a long, black bristle longer than femur is deep and 6 long erect anterior bristles. Hind femur a little wider than mid femur, with a row of anteroventrals, short near base, in apical third nearly as long as femur is deep; no anterior preapcial present. Fore tibia narrow at base, but gradually thickening towards tip; with 3 long dorsals (Fig. 14) and some apicals. Fore leg with basal tarsomere hardly swollen, 3/4 length of tibia. Following tarsomeres together slightly longer than metatarsus. Mid tibia with a distinct, but short dorsal bristle in basal quarter; an anterior in apical third and some long apicals. Hind tibia with 6 short dorsals, two short anterior and some long apicals; no anteroventral spur; the hairs in the comb are a little lengthened in middle but no hair in comb present. Tarsomeres of hind leg without sensory patches.

Abdomen pale brown in ground-colour. Tergite 2 paler than the others. All tergites with long hindmarginals. Tergite 7 with an excavation at each side, articulating with an extension on sternite 8 that on its turn probably articulates with a protuberance on hind margin of epandrial lamella (Fig. 15). Apical extension of epandrial lamella very broad and truncate. Tip of hypandrium pointed and covered with microtrichia (Fig. 17).

Female

Body length: 3.5 mm, wing 4.0 mm.

Identical to male except for the slender basal tarsomere of fore leg. Hind tibia laterally compressed and somewhat bent near middle; anteriorly devoid of hairs in the middle of the compressed area.

Derivatio nominis

The specific name "huangjijie" in Chinese means "yellow coxa".

Discussion

This species stands quite alone from the other 4 species reported here in Guangdong. There is no hair in comb on the hind tibia. The basal tarsomere of the fore leg is hardly swollen, but it seems not to belong to the *flavipes* group, because in that group the tarsomere is not swollen at all.

Key to the *Hilara* of Guangdong

1. All legs, including all coxae, black 2
– Legs with at least femora yellowish 3
2. Palpi black; third antennal segment completely black, though scape and pedicel maybe dark brown.; swollen basal tarsomere of fore leg with a strong dorsal bristle in apical third and a pair of apicals . . . . . *Hilara heixu* sp. nov.
– Palpi yellow; base of first flagellomere, scape and pedicel yellow. Swollen basal tarsomere of fore leg with 2 strong dorsal bristles and a pair of apicals . . . . . *Hilara huangxu* sp. nov.
3. All coxae brown 4
– All coxae yellowish white. Halters with stalk and knob white. Fore leg with first tarsomere not very thickened . . . . . *Hilara huangjijie* sp. nov.
4. Acr irregularly quadriseriate; hind femora with anteroventral bristles near tip shorter than femur is wide . . . . . *Hilara xui* sp. nov.
– Acr biseriate: hind femora with anteroventral bristles near tip longer than femur is wide . . . . . *Hilara* sp.

Discussion

It is interesting to see which species groups of Collin (1961) are present in the southern Oriental or at least in the tropical and subtropical areas of southern China. We have to note however that our specimens were collected at elevations ranging from 500 m up to 1500 m altitude and this during early spring.

Collin (1961) distinguishes 5 species groups in the genus *Hilara*. All species in the present study seem to fall into his fifth group: *chorica – litorea – flavipes*. This group is not considered as an ancestral group, but rather derived. It is also the largest group that possesses several smaller subgroups like *chorica* and *flavipes* and several others. However, the small sample we have now in space and time is not significant to conclude that the *Hilara* fauna of Guangdong, belonging to the Oriental realm with a tropical and subtropical climate, is a derived fauna.

Acknowledgements

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References

BEZZI, M., 1912. Rhagionidae et Empididae ex insula Formosa a Clar. Sauter missae. *Ann. Hist.-Nat. Mus. Natl. Hung.* 10: 442-495.

BEZZI, M., 1914. H. SAUTER's Formosa Ausbeute. Rhagionidae et Empididae (Dipt.). *Supplementa Entomologica* 3: 65-78.

BRUNETTI, E., 1920. *The Fauna of British India, including Ceylon and Birma. Diptera Brachycera* Vol. I. London.

EVENHUIS, N.L. 1989. *Catalog of the Diptera of the Australasian and Oceanian Regions*, Bishop Museum Press and E.J. Brill, 1155 pp.

FREY, R., 1952. Studien über ostasiatische *Hilara* Arten (Diptera, Empididae). *Notulae Entomologicae* 32: 119-143.

GROOTAERT, P. 1994. Biodiversity in insects - Speciation and behaviour in Diptera. Proceedings Congress on Biodiversity. In: HOFFMANN, M. & P. VAN DER VEKEN (eds), Proceedings of the Symposium on "Biodiversity: Study, Exploration, Conservation", Ghent, 18 November 1992: 121-141.

GROOTAERT, P. & VERAPONG KIATSOONTHORN (2001) First records of the dance fly genus *Hilara* in Thailand with the description of five new species. *Natural History Bulletin of the Siam Society* 49: 17-27.

YANG DING & CHIKUN YANG, 1997. Diptera: Empididae. *Insects of the three gorge reservoir area of Yangtze river.* 1469-1476.

YANG DING & XIAO-DONG WANG, 1998. *Diptera Empididae. Insects of Longwangshan.* 311-317.

YANG DING & YISHU LI, 2001. Diptera: Empididae. *Insects of Tianmushan National Reserve.* 424-428.

YANG DING & LILI ZHANG, 2003 (in press). *Insects from Fanjingshan landscape.*

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