On the status of species of the genus *Cheilosia* Mg. (Diptera: Syrphidae) described by Hervé-Bazin

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Type material of *Cheilosia antennalis* Hervé-Bazin, 1929, *C. difficilis* Hervé-Bazin, 1930, *C. kulinensis* Hervé-Bazin, 1930, *C. lucens* Hervé-Bazin, 1930, *C. parachloris* Hervé-Bazin, 1929 and *C. victoria* Hervé-Bazin, 1930 (Diptera, Syrphidae) was studied. Three synonyms were discovered: *Cheilosia mupinensis* Barkalov, 1999 = *C. kulinensis* Hervé-Bazin, 1930 syn. nov.; *Cheilosia lucens* Hervé-Bazin, 1930 and *C. ussuriana* Barkalov, 1980 = *C. antennalis* Hervé-Bazin, 1929 syn. nov. Lectotypes were designated for *Cheilosia difficilis* Hervé-Bazin, 1930, *C. kulinensis* Hervé-Bazin, 1930, *C. parachloris* Hervé-Bazin, 1929 and *C. victoria* Hervé-Bazin, 1930. The species were re-described, with figures of male terminalia.

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1. Introduction

The genus *Cheilosia* Meigen is among the most diverse and speciose genera of Syrphidae (Diptera). The genus is predominantly Holarctic, but also a fair number of species have been described from the Oriental region, although this region remains poorly studied. During a study of material of the genus *Cheilosia* Mg. (Diptera: Syrphidae) from China and Russian Far East, we found some taxa that agreed with species described by Hervé-Bazin (1929, 1930). Hervé-Bazin’s descriptions were incomplete, and some important characters now used in taxonomy of the genus *Cheilosia* were not described. We studied all Hervé-Bazin’s type material that is deposited in Musée National d’Histoire Naturelle, Paris. Following this, we re-described *Cheilosia* taxa published by Hervé-Bazin (1929, 1930), except for *Chilosia dispar* Hervé-Bazin, 1930 that we placed in the genus *Portevinia*.

We took into account all taxonomic characters that are currently used in taxonomic work on the genus *Cheilosia*. We designated lectotype specimens as appropriate. All material was from the lower Yangtse valley, China; original French spellings of geographic names were transliterated.
2. Taxonomy

Cheilosia (s. str.) antennalis Hervé-Bazin, 1929


Description. Male. Head: face comparatively narrow, with almost parallel sides, black with fine grey dusting, covered with rather dense, long, black hairs (Fig. 1a); eye-margins moderate in width, in broadest part broader than half width of basoflagellomere, covered with dense grey dusting and comparatively short white hairs. Frons slightly swollen, broad, dusted near eye otherwise shining; covered with black hairs; anterior angle of approximation of eye equal to or slightly less than 90°; frontal lunule black or dark-brown; antennal pits separated. Antenna: scape black, pedicel brown, basoflagellomere brownish-yellow with dark middle part (Fig. 1b-c), arista brownish with very short hairs. Eye completely covered with short dark-brown hairs; length of eye contiguity approximately equal to length of frons without frontal lunule. Vertex swollen, covered with black hairs, ocellar triangle isosceles.

Thorax: postpronotal callus brownish. Mesoscutum black, finely punctured, in anterior half and laterally with brownish dusting, covered with comparatively short black hairs; scutellum black with brown dusting on rim, its hind margin with fine but distinct black bristles. Pleura with dense brownish dusting and black hairs. Legs: procoxa and trochanter brown, meso- and metacoxae and trochanters black; femora black with narrow yellow tips; tibiae yellow with broad black ring closer to apical part than to basal; tarsi black, except apical partly yellow on the 1–2 basal tarsomeres; long hairs on femora black. Wings brownish, inner anterior angle between M1 and R4+5 acute (Fig. 1d).

Abdomen narrow, almost parallel-sided, covered with comparatively long, erect, yellow hairs on sides, and with depressed, short, black hairs on medial part. Tergites IV and V also with some black semi-erect hairs laterally. Genitalia as in Fig. 1e–g.

Female. Face and cheek as in male, but face more shining and with light hairs, frons comparatively broad (Fig. 1h), almost parallel sided, shining, covered with comparatively short, erect white hairs, mixed with some black hairs near ocellar triangle. Ocellar triangle equi-lateral. Antenna as in male, but basoflagellomere bigger (Fig. 1j). Eye with short and rather scattered light hairs. Postpronotum brownish with grey dusting; mesoscutum and scutellum shining, black with bluish reflexion and erect yellowish pilosity; hind margin of scutellum with four rather distinct black bristles. Pleurae slightly dusted, covered with yellowish hairs. Legs as in male, but long hairs on hind femur yellowish mixed with some black. Abdomen oval, shining, black, with erect, white hairs on lateral parts of tergites and short semi-erect black hairs on medial parts of tergites II–IV. Tergite V with some erect black hairs also laterally.

Size 6.1–8.0 mm.

Notes. Cheilosia antennalis was described by Hervé-Bazin in 1929 based on a single female, the holotype of C. antennalis. One year later, Hervé-Bazin described another species, C. lucens, based only on male specimens, and the male mentioned by Hervé-Bazin as “Type” is the holotype (labelled “Zi-Ka-Wei, 21.5.1919”). The latter species is characterized by completely black pilosity on thorax, whereas the type (a female) of C. antennalis has light-yellow hairs on thorax. This difference apparently was the cause why Hervé-Bazin described these two taxa as separate species. In 1980, Barkalov described C. ussuriana based on males as well as on females. This species has white pilosity of thorax and its
paratype-female is almost identical with type of *C. antennalis* (compare Fig. 1h with 1i, and j with k). Thus *C. ussuriana* Barkalov, 1980 is the junior synonym of *C. antennalis* Hervé-Bazin, 1929 syn. nov. After comparing males of *C. antennalis* with the type of *C. lucens* Hervé-Bazin, it appeared that they differ only in the colour of the pilosity (compare Fig. 1b with c, and e–g with l–n). In the genus *Cheilosia* such differences usually characterize different species but in this case we consider that it is only colour variation. Similar type of colour variation of body pilosity is described in other genera of Syrphidae, for example taxa of genera *Volucella* and *Eristalis* (e.g. Torp 1994). In collection of the Institute of Animal Systematics and Ecology (Novosibirsk) there are two specimens of the genus *Cheilosia* with black pilosity on thorax. They were collected in the Southern Primorie as specimens of *C. antennalis*, a species we earlier considered as *C. ussuriana*. Male genitalia of all these specimens are practically identical with genitalia of the type specimen of *C. lucens* (Fig. 1e–g). In light of the discussion above, we consider *C. lucens* Hervé-Bazin, 1930 a junior synonym of *C. antennalis* Hervé-Bazin, 1929.

Cheilosia (s. str.) difficilis Hervé-Bazin, 1929

Material examined. Lectotype ♂, Chang-Hai, 4.IV.1917 [Shanghai]; 1 ♀ Zi-Ka-Wei, 1.IV.1918 (labelled cotype); 2 ♀♀ Ou-Si, 24. & 27.V.1917 [Wuxi, province of Jiangsu] (labelled cotypes).

Description. Male. Head: face shining black, except central knob and epistoma with light dusting, covered with comparatively long black hairs in lower half; central knob small (Fig. 2a); eye-margin brownish, moderate in width, in broadest part broader than ½ width of basoflagellomere, covered with fine grey dusting and light pilosity of moderate length; cheeks with light-grey dusting and white hairs. Frons distinctly swollen, shining black with grey dusting near eye, covered with long black hairs, anterior angle of approximation of eye slightly more than 90°, frontal lunule narrow, brown; antennal pits separated. Antennae: scape brownish, pedicel yellow, basoflagellomere yellow with brownish anterior apical part (Fig. 2b), arista black and almost bare. Eye completely covered with long dense yellow hairs, length of eye contiguity approximately equal to length of frons without frontal lunule. Vertex swollen, with long black hairs; vertical triangle equilateral.

Thorax: postpronotal callus black. Meso-scutum and scutellum black with fine grey dusting and comparatively long, erect, yellow hairs; hind margin of scutellum with some long but weak black bristles. Pleurae black with dense grey dusting and long yellow hairs. Legs: procoxa yellow-brown, meso- and metacoxae black; femora blackish with yellow tips; tibiae yellow with blackish rim in apical half; anterior and middle tarsi yellow except apical tarsomere, hind tarsi black with light tips of 1–4 segments. Halter yellow with slightly darker head. Wings slightly brownish, inner angle between M1 and R4+5 acute (Fig. 2c).

Abdomen narrow almost parallel-sided, brown with brown dusting, covered with comparatively long sparse white hairs. Genitalia as in Fig. 2d–f.

Female. Face and cheek as in male, frons comparatively narrow (Fig. 2g), almost parallel-sided, shining, with spots of grey dusting near eye or with additional grey spots above antennal base, covered with comparatively short, scattered, erect blackish or white and blackish hairs. Antenna as in male, but basoflagellomere bigger. Eye with very short and rather scattered light hairs. Postpronotal and postalar callus brownish with fine grey dusting; mesoscutum shining, black with pilosity short, semierect in anterior part and erect in posterior part; postalar callus with one fine black bristle; scutellum black, its hind margin with four strong and long black bristles. Pleurae as in male. Legs as in male, but meso- and metafemora yellowish in basal 1/5. Abdomen oval, shining, black, covered with short, erect, white hairs.

Body size 4.5–8 mm.

Notes. In the original description Hervé-
Bazin indicates male and female types from Chang-Hai, “Nombreux individues des deux sexes...”, an unspecified but big number. We studied four of these syntypes that exist in MNHN, Paris, as listed above. We designated a lectotype male labelled: “Chang-Hai, 4.4.1917; Lectotype Cheilosia difficilis [126x271] Hervé-Bazin, 1929, Barkalov & Ståhls des. 2004”. This species belongs to the nominative subgenus, it is close to Cheilosia antennalis, but differs in males by light colour of hairs on eye, wider anterior angle of approximation of eye, and by structure of genitalia, in females differs by smaller basoflagellomere and by yellow colour of femora base.

Cheilosia (Eucartosyrphus) kulinensis Hervé-Bazin, 1930

Material examined. C. kulinensis: Lectotype ♂ 7.IX.1918, paralectotype ♀ 23.IX.1918 (labelled cototype), both from Kou-ling [Guling, also Lushan, province of Jianxi]. 3 ♂♂ and 1 ♀ “cotypes” exist in MNHN, Paris, but were not studied. C. mupinensis: holotype ♂, China, Sichuan, nr. Mupin, 29.VI.1924, 2,000–8,000 ft (610–2,440 m) a.s.l., D. C. Graham leg., deposited in USNM, Washington, USA. 4 ♂♂ 7 ♀♀, Zhejiang province, Tianmushan, 8.V.1931–17.VII.1936, 23.VII.1936, 17.–31.VII.1937. 2 ♂♂, Jiangxi province, Kuling, 8.–11.IX.1934. Sichuan province, Wenchuan, 15.IX.1983, 1,000m a.s.l.; Luding, 12.VI.1983, 2,000 m a.s.l.; Wanxian, 27.V.1994, 1,200 m a.s.l.; Emei Shan, 4.VIII.1993, 800–1,000 m a.s.l.

Description. Male. Head: face comparatively narrow with parallel sides, black with brown extreme top of central knob and margin of epistoma, shining with fine grey dusting; central knob very broad distributed from side to side of face (Fig. 3a); eye-margins narrow covered with dense silver dusting and short white hairs; cheeks low, black with brown spot near eye covered with fine grey dusting and comparatively short yellow hairs (Fig. 3a). Frons flat, shining black, covered with black hairs; frontal angle <90°; frontal lunule brown, its anterior process almost connected with upper part of face, but not fused with

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**Fig. 3.** – a. Cheilosia kulinensis Hervé-Bazin; male head, antero-lateral view. – b. Cheilosia mupinensis Barkalov; male head, lateral view. – c. Cheilosia mupinensis; male antenna. – d. Cheilosia kulinensis; tip of wing. – e–g. Cheilosia kulinensis; male genitalia (e – cercus and surstylus; f – aedeagus-complex; g – superior lobe). – h. Cheilosia kulinensis; female head, antero-lateral view. – i. Cheilosia kulinensis; female head, dorsal view. – j. Cheilosia mupinensis; female head, dorsal view.
Antennae brownish, basoflagellomere orange with dark upper margin (Fig. 3c); arista long, orange, practically bare. Eye bare, length of eye contiguity distinctly longer than length of frons without frontal lunule. Vertex slightly swollen, vertical triangle equilateral, covered with black hairs.

Thorax: postpronotal callus brownish. Mesoscutum with comparatively coarse puncturation, shining black covered with comparatively short and rare yellow hairs, on sides with distinct black bristles; postalar callus brownish; scutellum shining black with yellow hairs, on hind margin with strong, long, black bristles. Pleurae shining black with sternopleuron slightly brownish, covered with fine grey dusting and yellow hairs. Halter yellow. Legs: procoxa black on basal part and yellow on apical part, meso- and metacoxae brown; trochanters yellow; femora mainly black, profemur basally and apically, and meso- and metafemur apically narrowly yellow; tibiae mainly yellow, pro- and mesotibiae with fine brown spot on medial part, hind tibiae black on middle 1/3; pro- and mesotarsi yellow with black apical segment, metatarsi dorsally blackish with yellow tips of each segment; long hairs on femora yellow. Wings narrow, brownish particularly on upper half, inner anterior angle between M1 and R4+5 distinctly lesser 90° (Fig. 3d).

Abdomen narrow, black covered with brown dusting, pilosity long, erect yellow on sides and depressed, short black on middle. Genitalia as in Fig. 3e–g.

Female. Face with parallel sides, black, brownish in lower part, covered with grey dusting except central knob; central knob comparatively small, distinctly narrower than in male (Fig. 3h); frons narrow (Fig. 3h–i), black, brownish near frontal lunule, shining with triangular spots of grey dusting near eye; hairs short erect and semierect white; frontal lunule yellow. Baso-flagellomere much enlarged, orange, arista long, black, with very short hairs (Fig. 3h–i).

Mesoscutum coarsely punctured, covered with very short, black, depressed hairs, on sides with some erect, white hairs and not very long black bristles. Postpronotal callus black, shining on exterior side. The other characters as in the male.

Body size 8.5–9.5 mm.

Notes. A male “Type” is mentioned in the original description; we designated this specimen as the lectotype. That is labelled “Kou-ling, 7.9.1918; Lectotype Cheilosia kulinensis Hervé-Bazin, 1930, Barkalov & Ståhls des. 2004”. Genitalia were dissected, and stored in a plastic vial on the same pin as the specimen. This species belongs to the subgenus Eucartosyrphus Barkalov, 2002. Comparisons of paratype of C. kulinensis with holotype of C. mupinensis Barkalov, 1999 have shown that they are practically identical. Genitalia of both species are also the same. The intraspecific variation exhibited is small (see Figs. 3a–b, 3i–j). As C. kulinensis Hervé-Bazin, 1930 was described earlier, C. mupinensis Barkalov, 1999 is its junior synonym.

Cheilosia (Nephocheila) parachloris Hervé-Bazin, 1929

Material examined. Lectotype ♂ Tchen-Kiang 13.IV.1918 [Zhenjiang, province of Jiangsu], paralectotype ♀ Tchen-Kiang 13.IV.1918 (labelled cotypes). Existing “cotypes” in MNHN, Paris, were not studied.

Description. Male. Head: face moderate in width, slightly broadened below, black, shining, except central knob and mouth rim with fine grey dusting (Fig. 4a); central knob small; eye-margin narrow, its width in broadest part narrower than half of the width of basoflagellomere, brownish with dense grey dusting and long yellow hairs; cheeks comparatively narrow, with dense grey dusting and long yellow hairs; frons not very swollen, broad, shining with long yellow hairs; frontal angle equal 90°; frontal lunule yellow. Antennae yellow, scape and pedicel slightly darker, basoflagellomere rounded, arista long, black, bare (Fig. 4b); Eye with dense, comparatively long hairs, white in upper half and brown in lower part; eye contiguity distinctly longer than frons length; vertex with long yellow hairs, vertical triangle equilateral.

Thorax: postpronotal callus black with dense grey dusting. Mesoscutum black with brownish postalar callus, shining in the middle and grey pollinose on sides, comparatively fine punctated; pilosity dense, long, waving on ends, yellow with mixture of black hairs on hind half;
scutellum shining with long, waving yellow hairs without bristles. Pleurae with dense grey dusting and yellow hairs. Legs: coxae brown with yellow tips, trochanters yellow, femora black with narrowly yellow tips, tibia mainly yellow with small brownish markings on middle part, tarsi yellow with black apical 4–5 tarsomeres of protarsus and apical tarsomere of meso- and metatarsus; hind femur with long yellow hairs ventrally. Haltere yellow with dark head. Wing yellowish, inner angle between M1 and R4+5 acute (Fig. 4c).

Abdomen oval, distinctly broader than mesoscutum, shining, black with bluish reflection, tergite I with dense, grey dusting, hairs as in male. Otherwise as in male.

Body size 12–14 mm.

Notes. In the original description, Hervé-Bazin indicates male and female types from Tchen-Kiang, and lists a total of five males and seven females. We consider these syntypes. We have studied two of these syntypes, as listed below. As lectotype we designated the male labelled “Tchen-Kiang 13.04.1918”. It was labelled as lectotype Cheilosia parachloris Hervé-Bazin, 1929, Barkalov & Ståhls des. 2004. Genitalia were dissected and stored in a plastic vial on the same pin as the specimen. This species belongs to the subgenus Nephocheila Barkalov, 2002, and within this subgenus it is closest to C. longiptera

Shiraki, 1968 but differs from it by many characters – shorter face, bare arista, yellow pilosity of equal length on mesoscutum and structure of male genitalia (in *C. longiptera* the face is protruded forwards (Fig. 5a–d), arista has long hairs, and scutum with yellow and black hairs of different lengths).

*Cheilosia* (s. str.) *victoria* Hervé-Bazin, 1930 Bull. Soc. Ent. Fr. 1930: 44 (*Chilosia*).

**Material examined.** Lectotype male: Kou-ling, 5.IX.1918; paralectotypes: 1 ♀ 27.VIII.1918 (labelled cotype); 1 ♂ 7.IX.1918 (labelled cotype); 1 ♀ 17.IX.1918 (labelled cotype), all from Kou-ling [Guling, also Lushan, province of Jianxi].

**Description.** Male. Head: face narrow, in frontal view almost parallel sides, black with bluish reflection, with fine grey dusting except top of central knob and sides of epistoma; without hairs; central knob broad (Fig. 6a); eye-margin narrow, in broadest part narrower than half of baso-flagellomere, brown with dense silver dusting and short depressed white hairs; cheeks low, covered with white dusting and white hairs. Frons not very swollen, covered with fine grey dusting and

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**Fig. 5.** *Cheilosia longiptera* Shiraki (a–d) and *Cheilosia tokushimaensis* Shiraki (e–i). – a. Male head, lateral view. – b–d. Male genitalia (b – superior lobe; c – aedeagus complex; d – cercus and surstylus). – e. Male head, lateral view. – f. Male antenna. – g–i. Male genitalia (g – cercus and surstylus; h – aedeagus-complex; i – superior lobe).
black hairs, its medial part near furrow shining without dusting; anterior angle of approximation of eye approximately equal to 90°; frontal lunule dark-brown, antennal pits separated. Antennae mainly yellow, only scape brownish, baso-flagellomere distinctly elongated with long brownish arista; arista with distinct hairs (Fig. 6a). Eye almost bare, only few short white hairs on upper 1/4; length of eye contiguity distinctly longer than length of frons without frontal lunule. Vertex flat, vertical triangle isosceles (in type specimen) or equilateral (in paratype); covered with black and yellow hairs.

Thorax: postpronotal callus brownish with grey dusting. Mesoscutum shining black with bluish reflection, with stripes of grey dusting in anterior half, on sides with long, strong, black bristles. Scutellum black shining, its anterior margin with a narrow stripe of brown dusting, hind margin with long, yellow hairs and strong black bristles. Pleurae black with fine grey dusting and yellow hairs. Legs: mainly yellow, only meso- and metacoxae, apical segments of tarsi and apical 1/5 of metafemur blackish; long hairs black and white on profemur, yellow on mesofemur, yellow on light part of metafemur and black on its dark part; metafemur ventrally with short black hairs. Wing (Fig. 6b) narrow, elongated, slightly brownish with darker veins, inner anterior angle between M1 and R4+5 equal 90°. Haltere yellow.

Abdomen narrow, black with dense, brown dusting, sides of tergite III and all of tergite IV shining with bluish reflection; hairs long, erect, golden-yellow on sides and on anterior ½ of each
tergite and black in other part. Genitalia as in Fig. 6c–e.

Body size 8.5–10 mm.

Female. Face as in male but central knob not so big and broad; basoflagellomere enlarged (Fig. 6f); frons narrow, shining with small spots of grey dusting near eye (Fig. 6g); frontal lunule as in male; eye bare. Vertical triangle equilateral. Mesoscutum black, shining without dusting, covered with short, yellow, semidepressed hairs, on sides with distinct black bristles. Postpronotal callus brownish, without dusting. Scutellum black, shining, on hind margin with long but not very strong black bristles. Pleurae as in male. Legs as in male, but metatarsi dark-brown with yellow tips dorsally and metafemur without black hairs. Wing as in male. Abdomen oval, black with bluish reflection, on middle part of tergites II–III with big spot of brown dusting; covered with light erect yellow hairs on sides and black depressed hairs on middle part. Body size 8.5–9.5 mm.

Notes. In the original description, Hervé-Bazin clearly restricts the male and female syntypes to a single male and female specimen, and call the rest of the series “cotypes”. We designated the male labelled “Kou-Ling, 5.9.1918” as the lectotype. The lectotype is now labelled as “Cheilosia victoria Hervé-Bazin, Barkalov & Ståhls des. 2004”. We studied one male and two females (as listed above) out of the total of 19 male and 15 female “cotypes” that exist in MNHN, Paris. C. victoria belongs to the subgenus Cheilosia s. str., where it is close to C. tokushimaensis Shiraki, 1968, but differs by many characters, especially by male genitalia (Fig. 5e–i).

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