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Cheilosia alba spec. nov. and first description of the female of *C. pini* Becker, 1894 (Diptera, Syrphidae)

Ante Vujić and Claus Claussen

Vujić, A., Claussen, C. (2000): *Cheilosia alba* spec. nov. and first description of the female of *C. pini* Becker, 1894 (Diptera, Syrphidae). – Volucella 5, 51-62. Stuttgart.

Information about two rare, early spring, European *Cheilosia* species is presented. *C. alba* **spec. nov.** is described, based on material from central Europe (Germany, Montenegro and Serbia). *C. pini* Becker, 1894, is recorded from the Balkan Peninsula (Bosnia-Herzegovina, Montenegro) for the first time and the previously unknown female of this species is described, based on material from Durmitor mountain (Montenegro).

Zusammenfassung

Zwei seltene, im zeitigen Frühjahr auftretende Arten der Gattung *Cheilosia* aus Europa werden behandelt. *C. alba* **spec. nov.** wird nach Material aus Montenegro, Serbien und Deutschland beschrieben. *C. pini* Becker, 1894 wird erstmals vom Balkan (Bosnien-Herzegovina, Montenegro) nachgewiesen und das bislang unbekannte Weibchen dieser Art wird nach Material vom Berg Durmitor (Montenegro) beschrieben.

Introduction

Recent faunistic investigation in central Europe has established the presence of some rarely encountered, early spring *Cheilosia* species, closely related to *C. pini* Becker, 1894. *C. pini* was described from the male only (Becker 1894) and redefined by Claussen (1989), together with the male of *C. rodgersi* Wainwright, 1911. Claussen & Vujić (1995) described another species closely similar to *C. pini*, *C. clama* Claussen & Vujić, based on material from the Balkan Peninsula, Germany and France. A further undescribed species related to *C.pini* was found recently at a few localities on the Balkan Peninsula and in Germany. Simultaneously, the unknown female of *C. pini* was captured on the Dinaric mountain Durmitor in Montenegro. In the present text this new species and the female of *C. pini* are described.

The material examined is from the collections of the following institutions and authors: Institute of Biology, Novi Sad, Yugoslavia, (IBNS), Natural History Museum, Belgrade, Yugoslavia (NHMB), Staatliches Museum für Naturkunde, Stuttgart, Germany (SMNS), Mr. Claus Claussen, Flensburg, Germany (CC) and Mr. Ulrich Schmid, Stuttgart, Germany (USC).

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Cheilosia alba **spec. nov.**

Types: Holotype, male: Yugoslavia, Montenegro (Durmitor mountain: Kanjon Sušice, 8-9.05.1998, leg. Vujić A., NHMB: coll. 595773, Inv. No. 39). Allotype, female: Germany (Oberensingen, Bauernwald, 19. April 1992, leg. Schmid U., SMNS). – Paratypes: Yugoslavia, Montenegro (Durmitor mountain: Kanjon Sušice, 8-9.05.1998, 1 ♂ leg. Vujić A., IBNS); Serbia (Fruška gora, Karlovački rit, 22.03.1990, 1 ♀, leg. Vujić A. IBNS: published in Vujić & Glumac, 1994 as *Cheilosia clama*); Germany (Wannweil bei Reutlingen, Echaztal, 10. April 1988, 1 ♀, leg. Schmid U., USC).

Etymology: the name is derived from the Latin adjective *albus*, and relates to the characteristic white pilosity on the mesoscutum.

Diagnosis: Similar in general appearance to *Cheilosia clama*, *C. flavipes* (Panzer, 1798), *C. nebulosa* Verrall, 1871 and *C. uviformis* Becker, 1894, but separable by the following combination of characters: face shining, its sides without long hairs; frons broad; ocular strips broad (figs. 1-7); eyes in males pale haired, in female bare; third antennal segment reddish; arista short, bare (figs. 25, 26); mesonotum covered with short whitish hairs; scutellum without longer marginal hairs or bristles; pleurae pale haired, slightly dusted; femora black, except at the apex; all tibiae completely pale; tarsi predominantly dark (fig. 11); wings unmarked with darkened areas; abdomen (figs. 8, 9) short, oval, covered with pale hairs; sternites slightly dusted; male genitalia as in figs. 13-21.

Description

♂: Head (figs. 1-4, 25): face black, shining, thinly grey dusted below antennae. Facial tubercle moderate, rounded, in profile more extended than mouth-edge. Ocular strips wide (about 3/4 the height of antennal segment 3), shining, covered with short, pale hairs. Frons black with silver-white dusting along ocular strips and dark-grey dusted medially; mid-line somewhat shining. Frontal hairs black. Frontal angle about 95°; eye contiguity as long as the frons in the mid-line. Vertex black and shining, almost undusted, anteriorly covered with black, and posteriorly with pale hairs; ocellar triangle equilateral. Occiput grey dusted, with pale hairs. Eyes covered with short pale hairs of the same length over almost the entire surface. Antennal pits separated; first antennal segment dark, second brown-reddish; antennal segment 3 reddish-yellow, rounded (1,05 x as long as deep). Arista black, bare, thickened in basal third, 2,3 x as long as antennal segment 3 (fig. 25: c/d).

Thorax: completely pale haired. Mesoscutum undusted, moderately strongly punctured, covered with short, whitish-grey hairs of the same length. Pleurae slightly dusted; katepisternum with upper and lower hair patches connected anteriorly by stripe of shorter hairs; metasternum with long hairs. Wing membrane hyaline, unmarked with dark areas, entirely covered with microtrichia; veins yellow-brown. Squamae whitish; halteres yellowish with slightly darker capitulum. Coxae and trochanters black;

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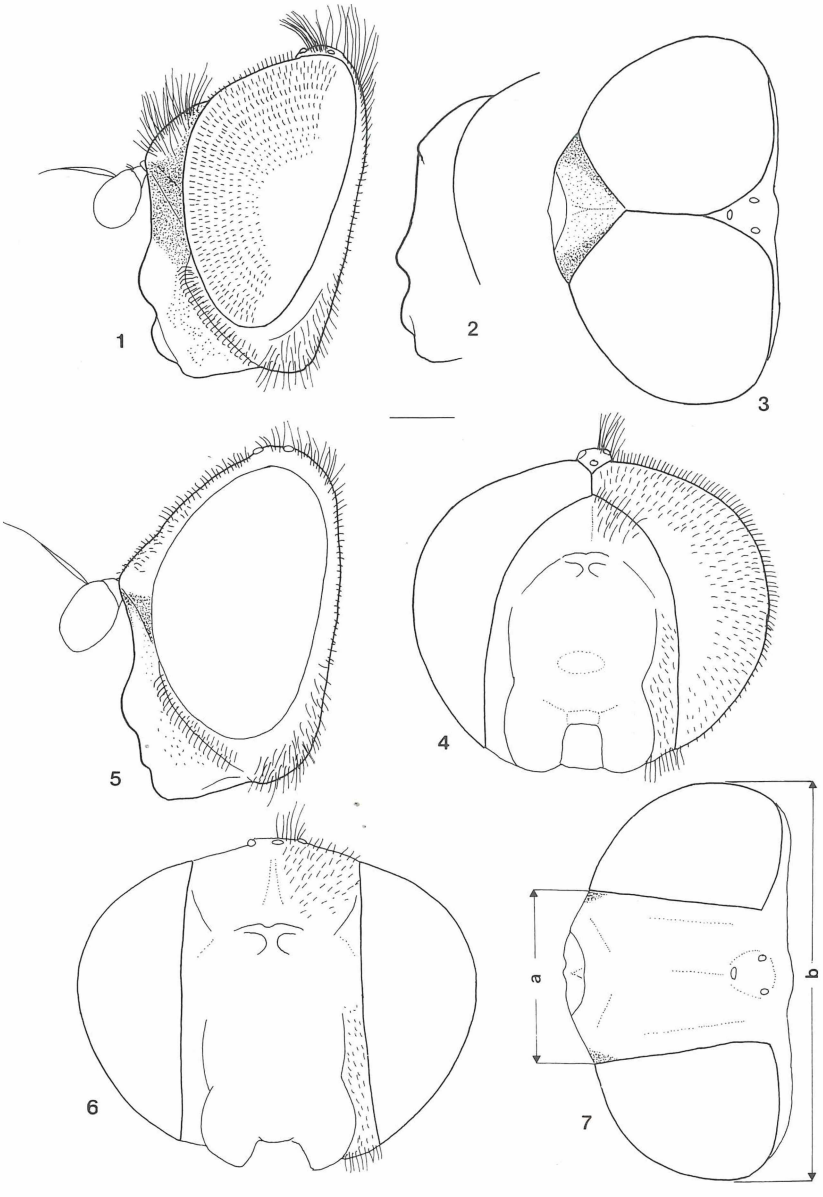

Figs. 1-7: *Cheilosia alba*, head. – 1-4. male; – 5-7. female; – 1, 2, 5. lateral view; – 3, 7. dorsal view; – 4, 6. anterior view. – Scale bare 0.5 mm.

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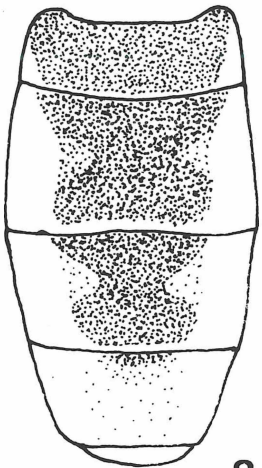

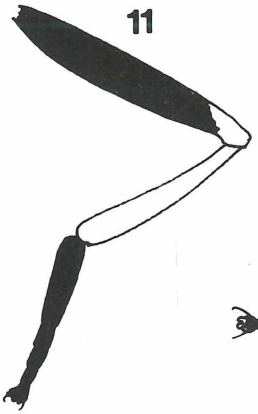

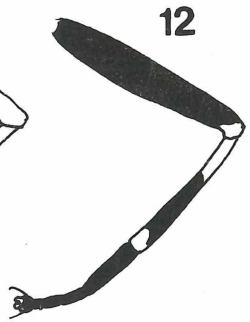

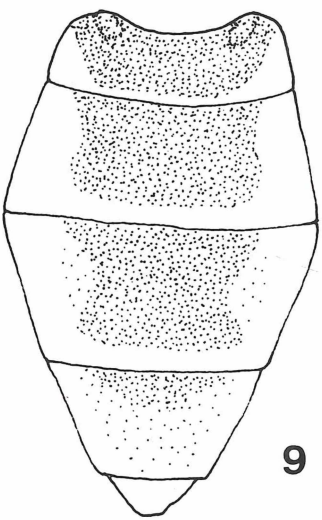

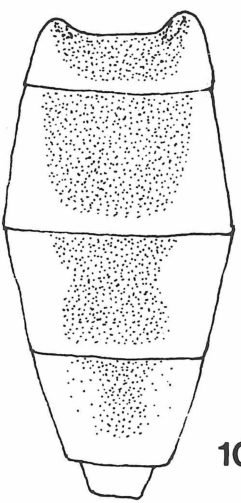

Figs. 8-10: abdomen, dorsal view. – 8. *Cheilosia alba*, male; – 9. *C. alba*, female; – 10. *C. pini*, female. – **Figs. 11-12: hind leg**. – 11. *C. alba*; – 12. *C. pini*. – Scale bare 1 mm.

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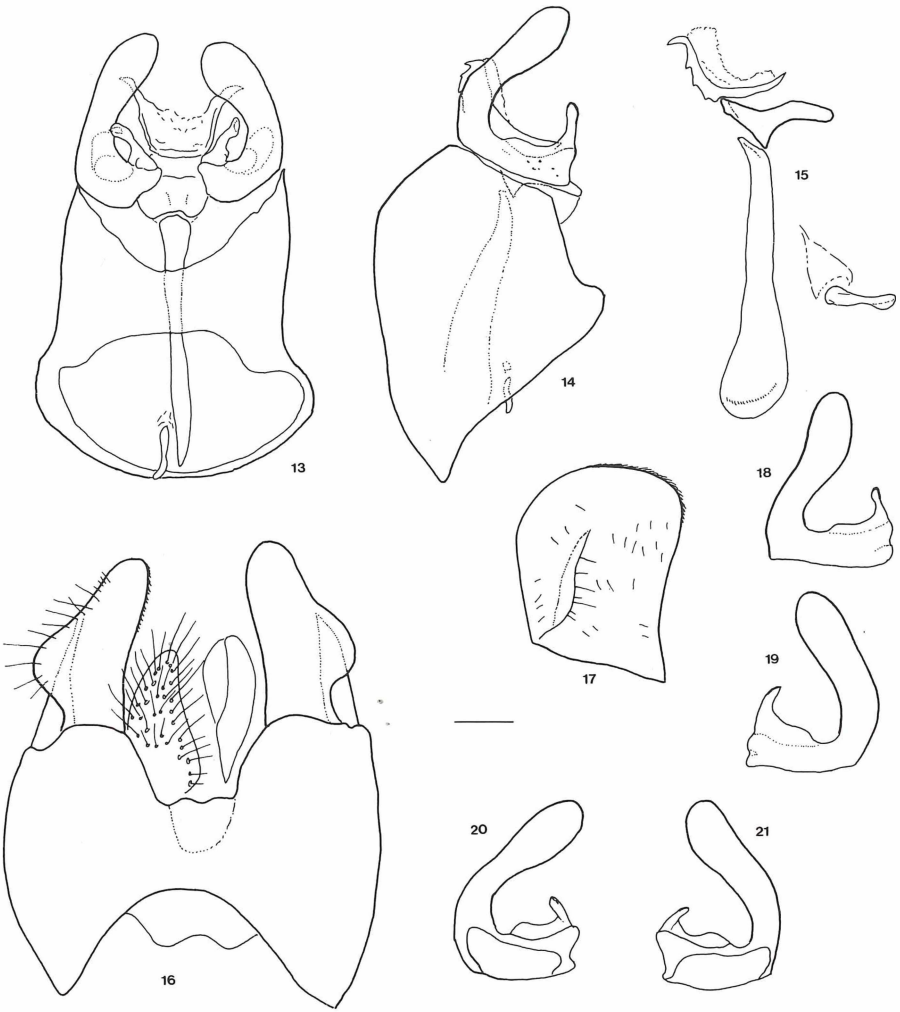

Figs. 13-21: *Cheilosia alba*, male genitalia. – 13. hypandrium, dorsal view; – 14. hypandrium, lateral view; – 15. aedeagus, lateral view; – 16. epandrium, dorsal view; – 17. surstylus, right lateral view; – 18, 21. left gonostylus; – 19, 20. right gonostylus. – Scale bare 0.1 mm.

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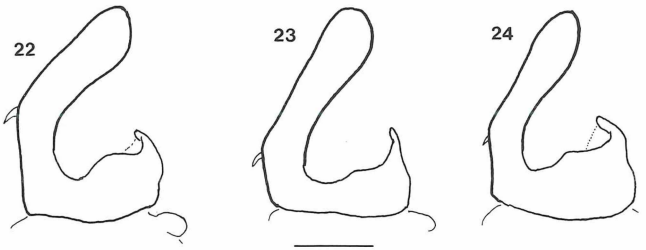
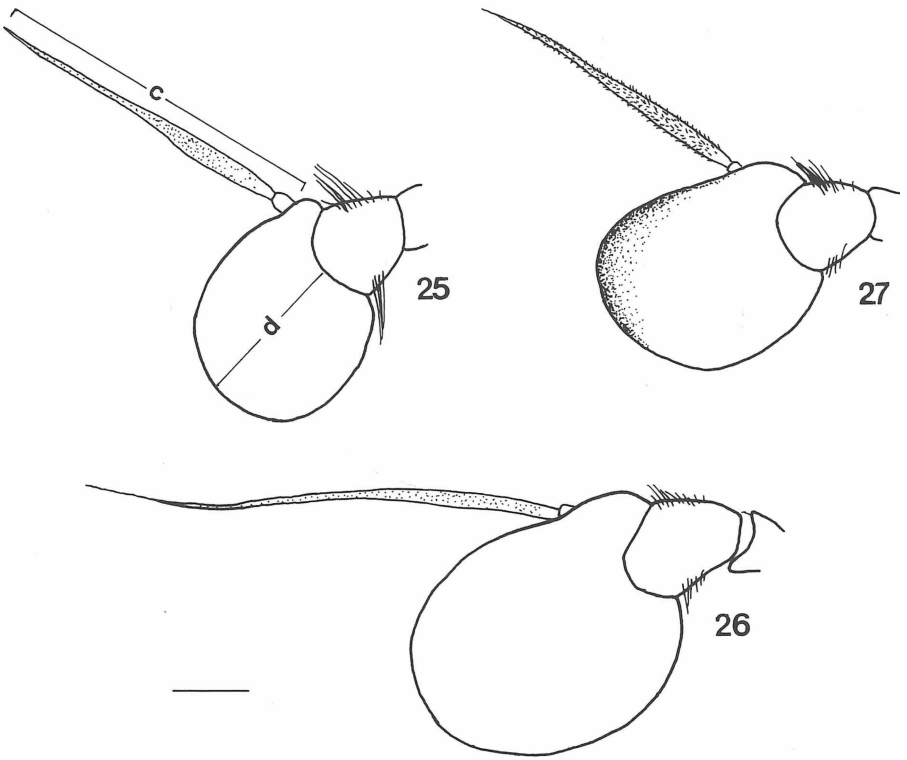


Figs. 22-24: *Cheilosia pini*, left gonostylus, lateral view (Durmitor, Montenegro). – Scale bare 0.1 mm.



Figs. 25-27: right antennae, inner view. – 25. *Cheilosia alba*, male; – 26. *C. alba*, female; – 27. *C. pini*, female. – Scale bare 0.1 mm.

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femora black except apically, where they are narrowly yellow; all tibiae pale, except vague brownish smudge at mid-length; tarsi all black except for brownish base to basitarsus of mid legs and brownish ventral surface to basitarsi of fore and hind legs (fig. 11). Fore femora black haired, mid and hind femora with pale hairs predominating. Tibiae pale haired. All tarsi predominately black haired.

Abdomen (fig. 8): pale haired, except for a few black hairs on pregenital segments. Tergites moderately punctured, shining, except for dull areas on tergites 1-3. Sternites only slightly dusted.

Male genitalia (figs. 13-21): similar to *C. pini* in shape of gonostylus, but differing in longer dorso-apical prong (figs. 14, 23).

Length: Body 7,7-8,0, wing 6,7-6,8 mm.

♀: similar to male, except for normal sexual dimorphism and following characters. Head (figs. 5-7): face less dusted than in male (fig. 5); frons broad (a/b = 0,39-0,41), undusted (fig. 7). Eyes completely bare. Third antennal segment (fig. 26) larger, oval (1,25x as long as deep). Arista less thickened, 2 x as long as third antennal segment) (fig. 26: a/b). Mesonotum covered with short, semi-erect pale hairs; a few black hairs and bristles sometimes present near wing bases and on postalar calli; margin of scutellum with extremely short erect bristles (as long as hairs) in some specimens. Abdomen oval, broad (fig. 9). Sternites slightly dusted.

Length: Body 7,2-8,6 mm, wing 5,9-6,8 mm.

Cheilosia pini Becker, 1894

Material examined (IBNS, CC): Yugoslavia, Montenegro (Durmitor mountain: Kanjon Sušice 9.07.1991, 2 ♀, leg. Vujić A.; Jezerska površ, 21.05.1998, 1 ♂, leg. Milenković D.; Sušičko jezero-Mlinovi, 5-6.05.2000, 2 ♂, leg. Vujić A., 1 ♂ leg. Radenković S.; Sušičko jezero, 6.05.2000, 1 ♂ 1 ♀, leg. Radenković S., 7 ♀, leg. Vujić A.); Bosnia-Herzegovina (Zelengora, 11.04.1989, 1 ♂, leg. Vujić A.).

These are the first records of *C. pini* from the Balkan Peninsula (Bosnia-Herzegovina, Montenegro). The shape of the gonostylus in males collected from this area is slightly variable (figs. 22-24) and can be different from that of the specimen presented by Claussen (1989: p. 287, fig. 14).

Description of female

Head (figs. 27-31): face black, shining, almost undusted, except for triangular grey dusted area below antennae. Facial tubercle rounded, clearly extended (figs. 28, 29). Ocular strips wide (fig. 31), slightly dark-grey dusted, pale haired. Frons broad (a/b = 0,42-0,46, fig. 30), shining, with two lateral furrows and two narrow stripes of dark-grey dusting (fig. 30). Frontal hairs predominantly black, mixed with pale hairs. Ocellar triangle equilateral. Occiput shining, undusted on upper part, predominantly black

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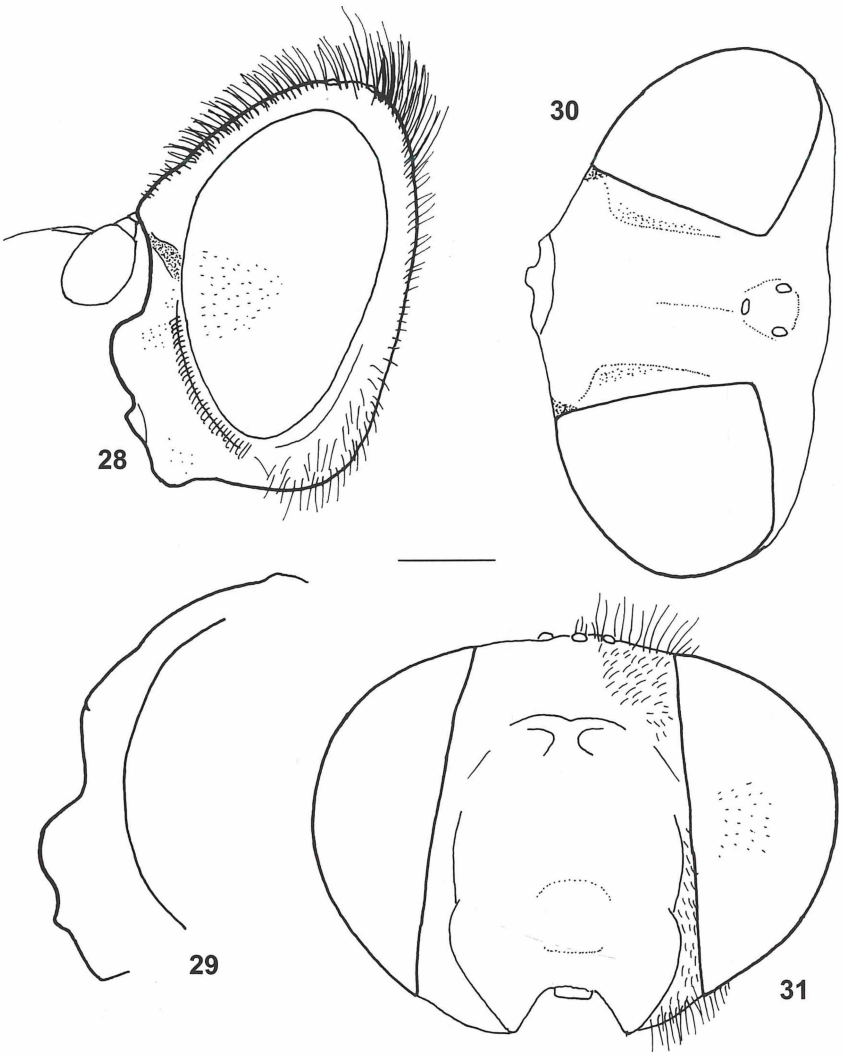

Figs. 28-31: *Cheilosia pini*, female head. – 28-29. lateral view; – 30. dorsal view; – 31. anterior view. – Scale bare 0.5 mm.

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haired, with variable number of pale hairs mixed in. Eyes bare, except for on central part (fig. 28, 31), where there are a few sparse, very short hairs that are absent in some specimens. Antennal pits separated (fig. 31); first and second antennal segments dark-brown; antennal segment 3 rounded, with dorso-apical extremity clearly angled, reddish-yellow, except for dark dorso-apical margin (fig. 27). Arista black, with short pubescence, 1,7-2,0 x as long as antennal segment 3 (fig. 27).

Thorax: mesonotum shining, undusted, completely or predominantly covered with pale, erect, moderately long hairs; lateral parts of mesoscutum with a few black hairs and bristles; scutellar margin with long black hairs (exceptionally without). Pleurae shining, only slightly dusted, pale haired except for a few black hairs on anepisternum; katepisternum with upper and lower hair patches separated; metasternum with long hairs. Wing membrane brownish, hyaline, unmarked with dark areas, entirely covered with microtrichia; veins brown. Squamae brownish-yellow to yellowish; halteres brownish with darker capitulum. Coxae and trochanters black; femora black except for yellow apex; all tibiae with dark ring, basal third and dorsal surface of tibiae pale; tarsi all black, except for ventral surface of basitarsi in a few specimens (fig. 12). Colour of hairs on legs variable, from predominantly black to predominantly pale.

Abdomen: relatively narrow (fig. 10), pale haired. Tergites shining, with slightly dusted areas on tergites 1-4 (fig. 10). Sternites shining, almost entirely undusted.

Length: body 6,6-7,8 mm, wing 6,0-6,8 mm.

Distribution and biological data

C. alba, *C. clama* and *C. pini* occur in central European mountain ranges. All three species have been found at only a few localities, at altitudes between 300 and 1500 m. Their habitats are deciduous and coniferous forests, mostly well preserved and isolated from human activities. It would appear that these species survive only at isolated localities within their previous ranges. Another reason for the few known records of these species is probably their extremely short fly period, which occurs in early spring, immediately after melting of the snow.

C. alba occurs in humid *Fagus/Abies/Picea* forests and alluvial softwood forests with *Salix* spp. in central Europe. Adult habitats are clearings in woodlands beside streams, rivers and lakes or small wet groves and meadows. *C. pini* was found in humid *Fagus/Picea* forests in a deep gorge of Sušica river on Durmitor mountain. Almost all adults of *C. alba* and *C. pini* have been found on male flowers of *Salix*, except for one male of *C. pini* collected on flowers of *Caltha palustris*.

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Discussion

Males of *Cheilosia alba* can be considered as belonging to the"group C" of Sack (1932), based on possession of hairy eyes, a bare face and absence of distinct scutellar marginal bristles. Within this "group", there are 9 European species with the upper and lower hair patch of the katepisternum broadly separated, or exceptionally connected anteriorly by a few short hairs, as in *C. alba* and in most specimens of *C. clama*. The males of these species can be separated as follows:

1 Third antennal segment dark reddish-brown to almost black, not longer than wide 2
– third antennal segment reddish-yellow, longer than wide 3

2 Frons grey dusted; body 7,8-8,5 mm. – northwest Africa, southern Spain .... *Cheilosia rodgersi* Wainwraight, 1911
– frons shining black, narrowly grey dusted along eye margins; body 9,5-11,8 mm. – Greece, Pindos mountains ..... *Cheilosia katara* Claussen & Vujić, 1993

3 The 3 (or 4) basal tarsal segments of fore and mid legs yellow 4
– all tarsi of fore and mid legs at least dorsally predominantly black 7

4 Median sulcus of frons vague or missing, often reduced to a small roundish pit, situated a short distance above lunula ..... *Cheilosia nebulosa* Verrall, 1871
Frons inflated and heavily grey dusted; angle of approximation of eyes 100-110°; ocular strips not much broader than pedicel.
– median sulcus of frons not ending in a pit, if the sulcus is indistinct (single specimens of *C. flavipes*), then the frons is not inflated and frons partly shining 5

5 Ocular strips narrow, nearly as broad as width of pedicel, heavily grey dusted ..... *Cheilosia uviformis* Becker, 1894 (partim)
frons completely grey dusted
– ocular strips broad, about 1,5-2x as broad as width of pedicel 6

6 Angle of approximation of eyes less than 90°; frons not inflated, shining black with strips of grey dusting along the eye margins; hairs on lower 1/3 of eyes often reduced; extreme base of hind femora and up to distal 1/3 of hind femora often pale ..... *Cheilosia flavipes* (Panzer, 1798)
– angle of approximation of eyes 100-110°; frons slightly inflated, often completely grey dusted; eyes completely pale haired; hind femora black with the apex yellow ..... *Cheilosia brunnipennis* Becker, 1894

7 Abdominal sternites 1-4 shining; sides of tergites 1-4 predominantly black haired ..... *Cheilosia pini* Becker, 1894
– abdominal sternites 1-4 at least slightly grey dusted; sides of tergites 1-4 completely pale haired or with only a few black hairs intermingled 8

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8 All tibiae completely pale, exceptionally fore and hind tibiae with vague brownish smudge ..... *Cheilosia alba* spec. nov.
– tibiae with obvious dark ring ..... *Cheilosia clama* Claussen & Vujić, 1995

Females of *Cheilosia alba*, *C. pini* and *C. clama* are all recently described and cannot be satisfactory separated from bare eyed females of *C. flavipes* and *C. uviformis*. The following couplets can be used to separate these species:

1 All femora yellow ..... *Cheilosia flavipes* (Panzer, 1798)
– femora black with pale apices 2

2 Ocular strips narrow, not wider than width of pedicel, heavily grey dusted; at least 3 (or 4) basal segments of fore and mid tarsi predominantly yellow .... *Cheilosia uviformis* Becker, 1894 (partim)
– ocular strips broad, broader than width of pedicel, not completely dusted; all tarsi black 3

3 Tibiae completely pale (fig. 11), or with trace of brownish smudge in central part of anterior and middle tibiae; arista longer (c/d = 2 or more: fig. 26); mesoscutal puncturation denser and stronger; hairs on mesoscutum extremely short .... *Cheilosia alba* spec. nov.
– tibiae with clear dark ring or area, as in fig. 12; arista shorter (c/d less than 2); mesoscutum with finer, sparse punctures; hairs on mesoscutum longer 4

4 Scutellum and mesoscutum without black hairs and bristles; body hairs shorter; katepisternum with upper and lower hair patches connected anteriorly by a few shorter hairs; sternites dusted ..... *Cheilosia clama* Claussen & Vujić, 1995
– Scutellum and mesoscutum with black hairs and bristles; body hairs longer; katepisternum with upper and lower hair patches separated; sternites shining, almost undusted ..... *Cheilosia pini* Becker, 1894

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