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**A new species of *Parhelophilus* GIRSCHNER, 1897
(Diptera, Syrphidae)
from southwestern Europe**

[Eine neue Art von *Parhelophilus* GIRSCHNER, 1897 (Diptera, Syrphidae) aus Südwesteuropa]

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Abstract: *Parhelophilus crococroronatus* spec. nov. is described from Portugal and southern France. The species resembles *P. frutetorum* (FABRICIUS, 1775). A key to the European species of *Parhelophilus* GIRSCHNER, 1897 is provided.

Key words: Diptera, Syrphidae, *Parhelophilus*, new species, key

Zusammenfassung: *Parhelophilus crococroronatus* spec. nov. wird aus Portugal und dem südlichen Frankreich beschrieben. Die Art ähnelt *P. frutetorum* (FABRICIUS, 1775). Ein Bestimmungsschlüssel für die europäischen Arten der Gattung *Parhelophilus* GIRSCHNER, 1897 wird geliefert.

Stichwörter: Diptera, Syrphidae, *Parhelophilus*, neue Art, Bestimmungsschlüssel

Introduction: *Parhelophilus* GIRSCHNER, 1897 is a hoverfly genus closely related to *Anasimyia* SCHINER, 1844 and *Helophilus* MEIGEN, 1822 (ROTHERAY & GILBERT, 1999). PECK (1988) listed six Palaearctic species of *Parhelophilus*. THOMPSON (1997) revised the genus and considered five of a total number of 13 species as Palaearctic. Three of these are known to occur in Europe: *P. consimilis* (MALM, 1863), *P. frutetorum* (FABRICIUS, 1775), and *P. versicolor* (FABRICIUS, 1794). In April 1999, an undescribed species was found in Portugal. The species is similar to *P. frutetorum*. In this paper, the species is described and a key to the European species of *Parhelophilus* is given.

Material and methods: The type specimen of *Parhelophilus frutetorum* is unknown (THOMPSON, 1997). Since *P. frutetorum* is described from Britain ("habitat in Anglia") it is safe to assume that the original description (FABRICIUS, 1775) does not concern the species described in this paper, which does not seem to occur in northern parts of Europe.

LOEW (1846) described the variation *xanthopygus* of *P. frutetorum*, considering it as light coloured specimens of this species. The description was checked, and it does not fit the species described here.

In the following collections, every specimen of *P. frutetorum* was examined: Nationaal Natuurhistorisch Museum Leiden (RMNH), Zoölogisch Museum Amsterdam (ZMAN), Museo Nacional de Ciencias Naturales Madrid (MNCN), J. A. W. Lucas (Rotterdam), M. Reemer (Amsterdam).

The following persons were asked to check their collections for specimens of *P. frutetorum* from southern Europe and northern Africa: B. van Aartsen ('t Harde), A. Barendregt (Boeschoten), C. F. Kassebeer (Kiel), M. A. Marcos García (Alicante), J. T. Smit (Velp), W. van Steenis (Utrecht), B. Wakkie (Amsterdam).

Results:

Parhelophilus crococronatus spec. nov.

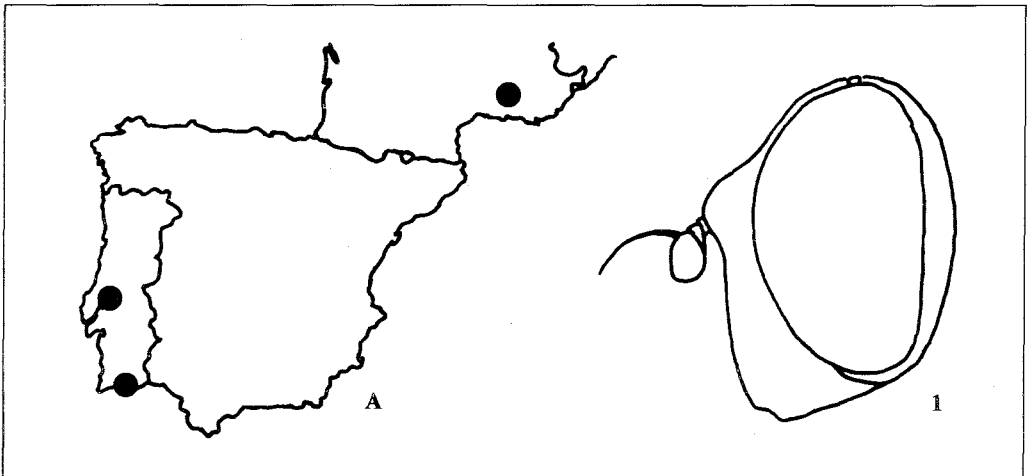
Figures: 1, 2a, 3a, 4a

Holotype: ♂, Portugal, Alpiarça, 19-IV-1999, leg. M. Reemer. Deposited in the collection of the ZMAN.

Paratypes: ♂, France - Vaucl., Carpentras, VI-1953, leg. P. M. F. Verhoeff, coll. RMNH; ♀, Portugal, Algarve, E. of Quarteira, 24-IV-1985, leg. J. A. W. Lucas, coll. ZMAN.

Diagnosis: The species fits the diagnostic features of the genus *Parhelophilus* as mentioned by THOMPSON (1997) and it has the same overall appearance as the other species of the genus. In the keys of GOOT (1981), SACK (1928-1932), SÉGUY (1961) and THOMPSON (1997) the males will key to *P. frutetorum*, because of the tubercle at the base of the hind femur. The females will key to *P. frutetorum* as well, because of the entirely yellow front tibiae and the row of black hairs at the posterior margin of the head. Males can be distinguished from *P. frutetorum* by the shape of the surstyli, the completely yellow hairs on the frons, the less protruding tubercle at the base of the hind femora and the large, connected dust spots on the third abdominal tergite. In the female, the dust spots on the third tergite are narrowly connected and the legs are more extensively yellow than in females *P. frutetorum* (see key for more details).

Etymology: The name "*crococronatus*" means "with a crown of saffron". This name refers to the yellow hairs on the frons of the male, which are black in the male of *P. frutetorum*.



Map A: Distribution of *Parhelophilus crococronatus* spec. nov. Figure 1: *Parhelophilus crococronatus* spec. nov. male, head in lateral view.

Description: ♂: **Head:** Dichoptic. Eyes bare. Face almost flat, without facial knob, slightly concave beneath antennae (figure 1). Face yellow with yellow pruinescence; bare in the middle, but with long yellow hairs at the sides. Mouth edge yellow anteriorly, blackish below the eyes, with a dense, light-coloured pruinescence. Clypeus black. Frons yellow anteriorly, black posteriorly; covered with yellow pruinescence and yellow hairs. Ocelli yellow. Occiput black, densely pruinescent, with yellow hairs and some black hairs on top. Antennae orange-yellow. Third antennal segment almost round. Arista concolorous with antennae, slightly longer than two times the length of the third antennal segment.

Thorax: Mesonotum dull black, with four longitudinal stripes of dense, greyish yellow pruinescence. These stripes together occupy less than half the width of the mesonotum. Mesonotum covered with long, erect, yellow hairs. Antehumeral and postalar calli entirely dusted, also with long yellow hairs. Scutellum yellow, except for the black anterolateral corners; with black hairs in the middle and yellow hairs at the margins.

Pleurae black with dense yellow pruinescence. Whole pleura except anterior part of mesopleuron with long, yellow hairs.

Wings clear, entirely microtrichose. Pterostigma small, yellow to greyish brown. Veins yellow in basal half, gradually darkening towards tip. Halteres yellow.

Coxae and trochanters black with yellow pruinescence and yellow hairs. Front femur black at basal half, yellow at apical half, with yellow hairs; front tibia and tarsus yellow with yellow hairs. Middle femur yellow except for black basal third, with yellow hairs; middle tibia yellow with yellow hairs; middle tarsus yellow with yellow hairs and some bristly black hairs ventrally. Hind femur black except for yellow preapical ring, occupying about one fourth of the length of the femur; near base with a posteroventral tubercle, bearing a fan of black bristles, the longest bristles three times as long as the tubercle (figure 2a). Hairs on hind femur yellow, except for the black ventral bristles; hind tibia yellow, except for black apical fifth; hind tarsus black with yellow hairs and some black bristly hairs laterally on the second to fourth tarsomere.

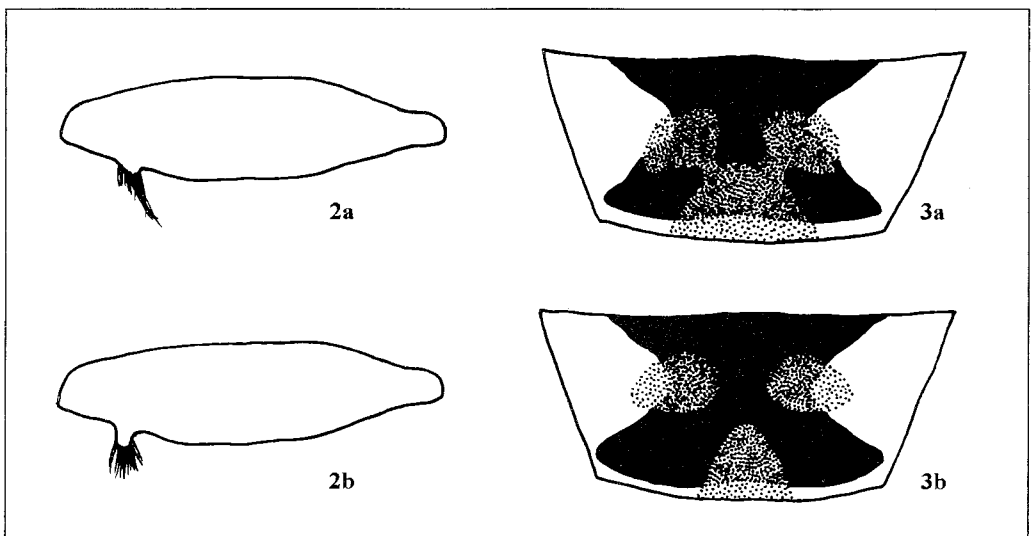
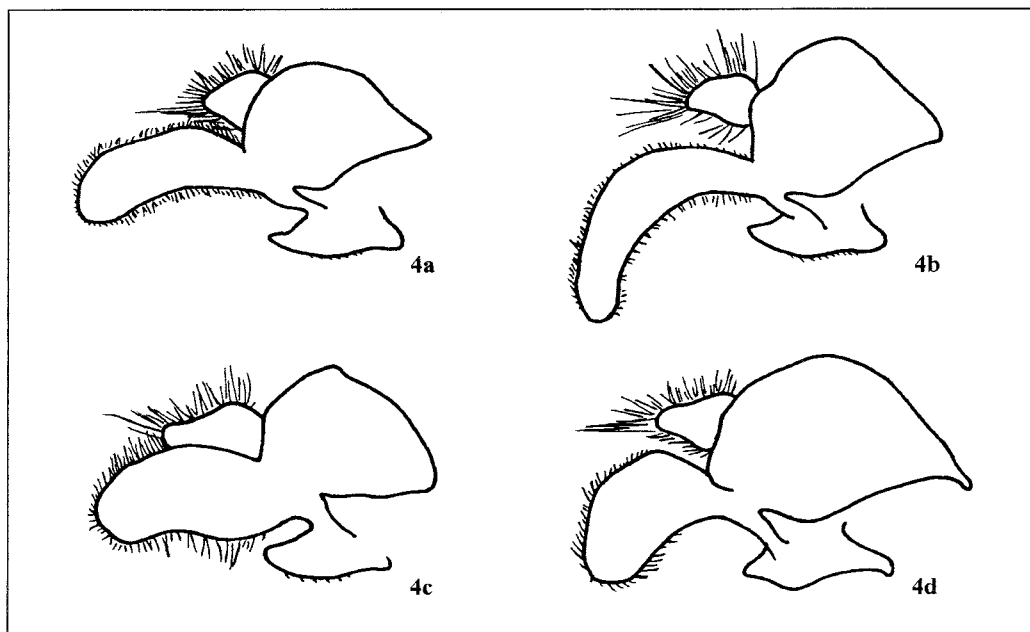


Figure 2a-b, 3a-b: Left hind femur of *Parhelophilus* spp. males in anterior view: a. *P. crococroronatus* **spec. nov.**; b. *P. frutetorum*; 3a-b: Tergite 3 of *Parhelophilus* spp. males: a. *P. crococroronatus* **spec. nov.**; b. *P. frutetorum*.



Figures 4a-d: Surstylus and cercus of *Parhelophilus* spp. in lateral view: a. *P. crocococonatus* spec. nov.; b. *P. frutetorum*; c. *P. consimilis*; d. *P. versicolor*.

Abdomen: Tergite 1 black with dense pruinescence and sparse yellow hairs, either with or without small yellow spots laterally. Tergite 2 and 3 black with large yellow lateral spots and a narrow yellow band posteriorly. Tergite 2 with a small spot of pruinescence at the posterior edge. Tergite 3 with a similar spot of pruinescence, which is narrowly connected to two paramedian spots of pruinescence (figure 3a).

Hypopygium: Surstylus as in figure 4a.

Body length: 10,0-10,5 mm

Width of head: 3,5-3,7 mm

Width of face: 1,4-1,5 mm

Width of vertex: 0,7-0,8 mm

♀: **Head:** As in male, except for the following: frons entirely covered with black hairs; occiput with a row of black hairs on top (as in females *P. frutetorum*).

Thorax: As in male, except for the following. A narrow fifth line of pruinescence is visible medially on the mesonotum. Front femur black at basal third, yellow at apical part. Yellow preapical ring on hind femur occupies about a third of the length of the femur. Hind femur without posteroventral tubercle. Hind tibia yellow, only vaguely darkened at apical fifth. Hind tarsus brownish.

Abdomen: Yellow spots on tergite 2 not connected with yellow posterior band. On tergite 3, a thin lateral line along the side margin connects the spots with the posterior band.

Body length: 10,2 mm

Width of head: 3,4 mm

Width of face: 1,5 mm

Width of vertex: 0,9 mm

Notes on the distribution: *Parhelophilus crococolonatus* **spec. nov.** is now known from two localities in Portugal and one in southern France (map A). More data are needed to determine the exact distribution of the species, but it seems to be restricted to southwestern Europe. Specimens of *P. frutetorum* were examined from Austria, Belgium, Denmark, Germany, France, Italy, the Netherlands, Switzerland and Turkey.

The specimen of *P. frutetorum* mentioned from Portugal by LUCAS (1996) belongs to *P. crococolonatus* **spec. nov.** (the female paratype above). So *P. frutetorum* is still unknown from Portugal. DIRICKX (1994) mentions one record of *P. frutetorum* from Spain, for which he refers to ARIAS (1912). Surprisingly, however, ARIAS (1912) does not mention the species at all. The record is not verifiable and might concern *P. crococolonatus* **spec. nov.** Marcos García (pers. comm.) does not know of other specimens from the Iberian peninsula.

Discussion: Hundreds of specimens of *P. frutetorum* from all over Europe were checked, and the features used to distinguish the species seem to be reliable. Every male has black hairs on the frons, the shape of the surstyli is constant, the tubercle of the hind femora is always as in figure 2b and the dust spots on the third tergite are always widely separated. It is not yet possible to assess the variability of these features in *P. crococolonatus* **spec. nov.**, but it is assumed that they can safely be used for identification.

The description of the female is based on one specimen, collected at another site than the two known males. This specimen is believed to belong to *P. crococolonatus* **spec. nov.** because of the connected dust spots on tergite 3 and the amount of yellow on the legs. None of the examined females of *P. frutetorum* showed these features.

Key to the European species of *Parhelophilus* GIRSCHNER, 1897

- 1. Apical 1/3 of front tibiae black (at least anteriorly). Tergite 1 with two diagonal bands of dusting, leaving an undusted median part and two (more or less triangular) undusted parts laterally. Face in lateral view clearly produced beyond frons. Surstyli and cerci of male as in figure 4c. *P. consimilis*
- Front tibiae entirely yellow. Tergite 1 entirely dusted. Face less produced. 2
- 2. Males. 3
- Females. 5
- 3. Hind femora near base without posteroventral tubercle. Face swollen in profile, clearly convex. Occiput with yellow hairs only. Surstyli and cerci as in figure 4d. *P. versicolor*
- Hind femora near base with posteroventral tubercle, bearing a fan of bristly, black hairs. Face profile almost flat, weakly convex. Occiput dorsally with a row of long black hairs among the yellow hairs. 4
- 4. Frons with a band of black hairs. Posteroventral tubercle of hind femora about as long as the longest bristles on top of it (figure 2b). Dust spot at posterior margin of tergite 3 well separated from the two dust spots in the middle of the tergite (figure 3b). Surstyli and cerci as in figure 4b. *P. frutetorum*
- Frons only with yellow hairs. Posteroventral tubercle of hind femora clearly shorter than the longest bristles on top of it (figure 2a). Dust spot at posterior margin of tergite 3 narrowly connected with the two dust spots in the middle of the tergite (figure 3a). Surstyli and cerci as in figure 4a. *P. crococolonatus* **spec. nov.**

5. Face swollen in profile, clearly convex. Occiput only with yellow hairs. ... *P. versicolor*
 - Face in profile almost flat, weakly convex. Occiput dorsally with a row of long black hairs among the yellow hairs. 6
6. Dust spot at posterior margin of tergite 3 well separated from the two dust spots in the middle of the tergite (as in figure 3b). Front femur black basally over 2/5 to 1/2 of its length. Yellow ring on hind femur occupies about 1/5 of its length. Top 1/4 to 1/3 of hind tibiae black. *P. frutetorum*
 - Dust spot at posterior edge of tergite 3 narrowly connected with the two dust spots in the middle of the tergite (as in figure 3a). Front femur black basally over 1/3 of its length. Yellow ring on hind femur occupies about 1/3 of its length. Hind tibiae yellow, only vaguely darkened near top. *P. crococoronatus spec. nov.*

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