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Redescription and first record from Europe of the North American species

Chaenotetrastichus semiflavus GIRAULT, 1917

(Hymenoptera, Chalcidoidea: Eulophidae)

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Abstract

Chaenotetrastichus semiflavus GIRAULT, 1917, hitherto known only from North America, is recorded from Germany. A redescription of the species, together with notes on its biology are given.

Zusammenfassung

Der erste Nachweis der nordamerikanischen Art *Chaenotetrastichus semiflavus* GIRAULT, 1917 aus Deutschland wird zum Anlaß genommen, eine ausführliche Wiederbeschreibung der Art vorzunehmen. Angaben zur Biologie der Art werden gemacht.

Introduction

Parasitic Hymenoptera are among those taxa which especially contribute to the components of insect diversity (LASALLE & GAULD 1993). However, our knowledge of species numbers and their biology is still far from complete, even in Europe (GAULD & BOLTON 1988). It was only since the last decades, that by the revision of the major taxa within the families of Chalcidoidea, a more precise understanding of generic limits and species numbers emerged. This especially applies for the speciesrich subfamily Tetrastichinae. In his reclassification of the European Tetrastichinae, GRAHAM (1987) described the genus *Chaenotetrastichus* for the single known European species, *Chaenotetrastichus grangeri* (ERDŐS, 1957: *Tetrastichus*). At that time the genus was only known by two females from France. The genus was further discussed by LASALLE & SCHAUFF (1990), who added a North American species, *Chaenotetrastichus semiflavus* (GIRAULT, 1917: *Parachrysocharis*), to the genus. Recently LASALLE (1994) revised the North American species of Tetrastichinae and discussed in detail the relationship of the genus *Chaenotetrastichus* and other genera within the subfamily Tetrastichinae.

Because GIRAULT's description is quite short and the species of this genus are poorly known, a redescription of the North American species is given to make determination of the now two European species of this morphologically somewhat outstanding genus easier. Terminology, abbreviations and measurements follow GRAHAM (1987).

***Chaenotetrastichus semiflavus* Girault, 1917**

Material examined: one female: Rösrath, Im Frankenfeld 15, Terasse, an *Philodromus* (Araneae); HF, KLOID, 22.7.94; deposited in Zoological Museum, Hamburg (ZMH); one female: Spooner, Wisconsin, USA, 6.6.1958, leg J.T. MEDLER, ex *Auplopus*.

Diagnosis: Mandible with long falcate outer tooth; scutellum with three pairs of white, erect setae; mesoscutum with one row of adnotaular setae; face, including gena, scape, pedicellus, legs and gaster beneath pale yellow.

Head (slightly collapsed in dorsoventral axis) in frontal view as long as broad; breadth of head slightly broader than mesothorax. Mandibles with one long falcate outer tooth, and two very small, closely approximated inner teeth (difficult to see); tips of mandibles crossed when closed. Clypeal margin bidentate. Malar sulcus nearly straight. Breadth of oral fossa 0.6 times malar space; the latter 0.7 times the height of an eye. Eyes nearly spherical, maximum height equal to maximum breadth. POL 0.6 OOL. Temples virtually absent. Whole frons distinctly reticulated, with white erect setae, their length longer than diameter of median ocellus.

Antenna (Fig. 1) with antennal toruli situated at level of ventral edge of eyes; scapus only slightly shorter than diameter of an eye, without coarse reticulation, pedicellus about twice as long as broad, first funicle segment a little shorter than pedicellus; funicle segments subequal in length, clava hardly broader than funicle segments, about 3.4 times as long as broad, longer than funicle segments 2 plus 3, with terminal spine short, not longer than distal setae on third segment. Funicle with several long sensilla, in two or three irregular rows, those at base nearly reaching the end of the funicle segment, outstanding at an angle of 30°.

Thorax squat, 1.15 times as long as broad, propodeal slope 50°. Pronotum short, 0.15 length of mesoscutum, with one row of conspicuous, suberect white setae on its hind margin. Mid lobe of mesoscutum about 0.5 times long as broad, weakly convex, without indication of median line, with distinctly raised reticulation, moderately shiny; coloration bright green with some golden reflections. Three adnotaular setae present, length of third pair 0.6 their own distance. Prepectus, meso- and metapleuron distinctly reticulated, mesopleuron with one long bent seta just behind the prepectus.

Scutellum nearly as long as broad; submedian lines very vague, only discernible in special light conditions; with three pairs of erect white setae, length of first and third pair as long as their own distance, length of second pair less than half as long as their own distance; position of first pair of setae one third the length of scutellum.

Dorsellum distinctly reticulated, width of meshes resembling those of median part of scutellum; its length one quarter of scutellum.

Propodeum uniformly reticulated; median length as long as length of dorsellum, with strong median carina throughout, plicae lacking. Spiracles moderate-sized, circular, whole rim exposed, their distance from hind edge of metanotum less than their own diameter; spiracular sulcus broad and shiny, inner aspect accompanied by a paraspiracular carina, which runs outwards distally. Propodeal callus with two setae.

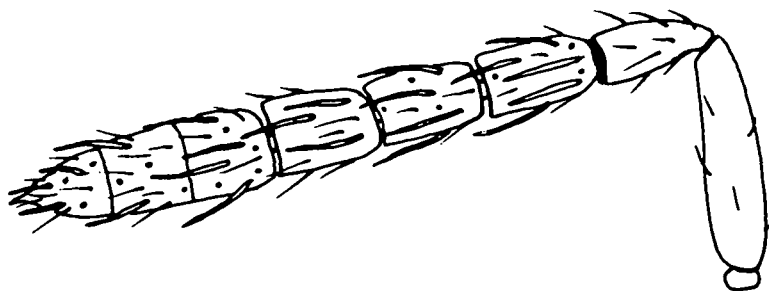


Fig. 1: Left antenna of *Chaenotetrastichus semiflavus* (GIRAULT, 1917).

Legs slender; length of hind and mid tibia 0.35, of fore tibia 0.26 the length of forewing; hind femur four times as long as broad. All coxae pale yellow, hind coxa at base slightly infuscated dorsally with metallic tinge.

Forewing about 1.9 times as long as broad, costal cell 0.9 times as long as marginal vein, the latter 0.3 as long as length of forewing and 3.8 times as long as stigmal vein; postmarginal vein rudimentary. Costal cell slightly shorter than marginal vein. Submarginal vein with only one dorsal seta in its basal third; length of setae on front edge of marginal vein longer than stigmal vein. Speculum closed below, moderate sized, extending beneath of marginal to stigmal vein as a small bare strip. Wing beyond speculum moderately pilose. Length of setae of subcubital line two thirds length of stigmal vein, nearly as long as setae on apical fringe. Hind wing obtusely pointed. Colour of veins light brown.

Gaster: Colour dark brown at base, with weak metallic reflections, becoming light brown towards the tip. First gastral tergite distinctly reticulated; this reticulation increasingly vanishing on following tergites. Length of gaster 1.3 as long as combined length of thorax and propodeum; last gastral tergite with a long kinked seta on each side, its length two times that of the next longest setae on tergite 6.

Length 1 mm.

Male not yet known.

Biology: Found as an adult wasp inspecting a Philodromidae with legs bitten off. This spider was preyed by a Pompilid wasp, which dropped the prey when disturbed (P. KLOID, in litt.). Some Pompilid wasps are known to bite off the legs of their prey when carrying it to the nest, then serving as prey for the larva of the wasp (WOLF 1971). Because the adult and not a larva or an egg was found on the spider, a definite statement on the biology of this species will be premature. However, the observation could indicate that the typical way of parasitism of *C. semiflavus* GIRAULT may be cleptoparasitically, but primary parasitism on adult spiders may occur facultatively. A cleptoparasitoid obligatorily requires the presence of another species of parasitoid, which serves as a "pioneer", though not acting as a typical hyperparasitoid (GODFRAY 1994). In North America, *C. semiflavus* and species of a closely related genus were both reared from Pompilid nests (LASALLE 1994).

Discussion: The two species of the genus *Chaenotetrastichus* may be easily distinguished by the following characters listed in Tab 1.

	<i>C. grangeri</i> ERD.	<i>C. semiflavus</i> GIR.
colouration	entirely green	green dorsally and yellow ventrally
adnotaular setae on mesothorax	two irregular rows	one row
setae on scutellum	five or six pairs	three pairs

Tab. 1

Characters to distinguish the two European species of the genus *Chaenotetrastichus*

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