

Identity of the previously unrecognized *Chetogena flaviceps* and its synonymy with *C. scutellaris* (Diptera: Tachinidae)

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Abstract

The single type specimen of the unrecognized species, *Chetogena flaviceps* (Bigot), was examined and found to be a subjective senior synonym of the well-known New World species of *Chetogena scutellaris* Wulp. The genitalia of the holotype was dissected and illustrated in detail. A redescription of *C. scutellaris*, including the male genitalic characters is provided.

Key words: Tachinidae, *Chetogena*, New World, male genitalia, new synonymy, *Chetogena scutellaris*, *Chetogena flaviceps*, taxonomy

چکیده

نمونه‌ی تایپ ناشناخته‌ی *Chetogena flaviceps* (Bigot) مورد مطالعه و هم‌نامی آن با گونه‌ی *Chetogena scutellaris* Wulp مورد تایید قرار گرفت. دستگاه جنسی نمونه‌ی تایپ ترسیم گردیده و توصیف مجدد گونه‌ی *C. scutellaris* و صفات تشخیص حشره نر از سایر گونه‌ها آورده شده است.

واژگان کلیدی: Tachinidae، *Chetogena*، دنیای جدید، دستگاه جنسی نر، هم‌نامی جدید، *Chetogena scutellaris*، *Chetogena flaviceps*، رده‌بندی

Introduction

The genus *Chetogena* Rondani, 1856 with over 60 described species is rather common and widely distributed in the world. Aldrich & Webber (1924) synonymised *Chetogena* with *Phorocera* R.-D, based on a misidentification of the type species. It was later corrected and led to the redefinition of *Chetogena* by Sabrosky & Arnaud (1965). *Chetogena flaviceps* (Bigot) was designated an unrecognized species by O'Hara & Wood (2004). The present study indicates that *C. flaviceps* is a subjective senior synonym of *Chetogena scutellaris* (Wulp) which is fairly common across the New World where its viability as a biological control agent has been investigated on different pest species (Sourakov & Mitchell, 2002). *C. scutellaris* parasitizes different families of Lepidoptera including Noctuidae, Arctiidae, Sphingidae, Pieridae, Zygaenidae, Geometridae and Saturniidae (Arnaud, 1978).

Materials and methods

The extreme external similarity among *Chetogena* species necessitated the genitalic dissection of the holotype and the specimens of *C. scutellaris*. To avoid any damage to the specimens, the whole abdomen of male or female was carefully detached and cleared in hot 10% KOH and rinsed in glacial acetic acid to neutralize the base. After being dehydrated in

100% alcohol and xylene, the abdomen was glued to its original place on the body, while the genitalia stored in glycerin-contained microvials pinned below the specimens.

Acronyms of depositories

BMNH – The Natural History Museum [formerly British Museum (Natural History)],
London, England, UK

CASC – Department of Entomology, California Academy of Sciences, San Francisco,
California, USA

CNCI – Canadian National Collection of Insects, Ottawa, Ontario, Canada

MZSP – Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil

USNM – National Museum of Natural History, Smithsonian Institution, Washington, DC,
USA

Chetogena scutellaris Wulp, 1890

Chetogena flaviceps (Bigot, 1887). **Syn. n.**

Chetogena scutellaris Wulp, 1890: 141.

Euphorocera floridensis Townsend, 1916.

Material examined – North America: ♂, [Holotype] (*C. flaviceps*), Rocky Mountains (BMNH). Brazil: 1 ♂, 1 ♀, Planaltina, D. F., 1000 m, 15 35S 47 42W, 3.iii.1977, Negreh (MZSP); 1 ♂, Brazilia, D. F., i.1961, H. S. Lopes (MZSP). Costa Rica: 1 ♂, Hacienda Comelco, 24 km NW Canas, Inter-Am H'wy, Guanacaste Pvnce., 50 m., 5.viii.1971, E. R. Heithaus (CASC). Mexico: 1 ♂, Sin. Mazatlan, 6.viii.1964, W. R. M. Mason (CNCI); 2 ♂, Sin. Mazatlan, 6.viii.1964, J. F. McAlpine (CNCI); 1 ♂, Mor. 10 mi W Cuautla, 22.vii.1962, H. E. Milliron (CNCI); 1 ♂, 25 mi. W Durango, Dgo., 13.vii.1964, J. F. McAlpine (CNCI); 1 ♂, Oaxaca, 12.5 km ne. Oaxaca, on HWY. 75, 11-12.viii.1982, J. E. O'Hara (CNCI). Peru: 1 ♀, Lima, 1969, K. Roven (MZSP); 1 ♂, Lima, Tablada de Lurin, x.1970, R. Garcia (MZSP). Suriname: 1 ♂, Toemoek-Hoemak, Temomaizen, 27.vii.1939, Gerskes (MZSP). Uruguay: 2 ♂, 1 ♀, Meneses, iii.1974, S. Pedro (MZSP). U.S.A.: Florida: 1 ♂, Monroe Co., Stock island, 15.i.1972, W. H. Pierce (USNM); 1 ♂, Hillsborough Co., Tampa, xii.1993, N. D. Epsky (USNM); 1 ♂, Gainesville, 20.viii.1928 (USNM); 1 ♀, Monroe Co., Everglades Natl. Park, Flamingo, sea level, 7.xii.1970, P. H. & M. Arnaud (CASC); Mississippi: 1 ♂, Wiggins, 1.x.1929 (USNM); North Carolina: 1 ♂, Wake Co., 2.x.1955, on *Ichthyura inclusa*, R. E. Williams (USNM); Oklahoma: 1 ♂, Marshall Co., 31.viii.1973, R. Wall (USNM); Texas: 1 ♂, Brownsville, iv.1928 (USNM); 1 ♂, Brownsville, 21.x.1927, on *Agapema galbina*

(USNM); 2 ♂, Brownsville, 7.vii.1962 (USNM); 2 ♂, College Station, 21.iv.1938, H. J. Reinhard (CNCI); 1 ♂, College Station, 19.x.1933, H. J. Reinhard (CNCI); 1 ♂, College Station, 7.xii.1920, H. J. Reinhard (CNCI); 1 ♂, College Station, 23.xi.1945, H. J. Reinhard (CNCI); 4 ♂, College Station, 7.xi.1920, H. J. Reinhard (CNCI); 1 ♂, College Station, 10.v.1938, H. J. Reinhard (CNCI); 1 ♂, College Station, 22.x.1951, H. J. Reinhard (CNCI); 1 ♂, College Station, 15.vii.1920, H. J. Reinhard (CNCI); 1 ♂, College Station, 7.v.1938, H. J. Reinhard (CNCI); 1 ♂, College Station, 10.x.1921, H. J. Reinhard (CNCI); 1 ♂, College Station, 2.xi.1930, H. J. Reinhard (CNCI); 1 ♂, College Station, 11.vi.1933, H. J. Reinhard (MZSP); 1 ♂, College Station, 11.vii.1920, H. J. Reinhard (MZSP); 1 ♀, Bexar Co., 26.iv-3.v.1931, H. B. Parks (MZSP); 1 ♀, College Station, 14.x.1929, H. J. Reinhard (MZSP); South Carolina: 1 ♂, Florence, 30.viii.1934 (USNM). Venezuela: 1 ♂, Calabozo, Est. Guarico, Vogelsang (MZSP).

Diagnosis – Although the key in Aldrich & Webber (1924) could help distinguish male *C. scutellaris* from other *Chetogena* species, lack of information on male genitalia leads to confusion with closely related species, *C. tachinomoides* (Townsend), *C. tessellate* (B. & B.) and *C. omissa* (Reinhard). The golden colouration of head and the genitalic characters (fig. 1) of the male, including the shape of cercus and surstylus, are strikingly different from other *Chetogena* species. The females remain almost unidentifiable unless being collected along with the associate male.

Description – Body length 7-14 mm.

Head – Parafacial and fronto-orbital plate golden in male. Eye densely haired, 0.8× head height. Flagellomere 1 black, almost 3.8 times as long as wide, 2.8× pedicel; scape and pedicel brown. Vertex at narrowest point 0.24-0.29× head width. Aristomere 1 short; aristomere 2 about twice as long as wide; aristomere 3 long, almost 1.2 times as long as flagellomere 1, thickened in basal half. Fronto-orbital plate with 8-9 frontal setae, 2 reclinate inner orbital setae. Outer and inner vertical weakly developed. Parafacial bare, in narrowest point almost as wide as flagellomere 1. Epistoma protruding moderately. Maxillary palpus yellow, clavate, about 0.41-0.44× head height. Proboscis nearly 1/2 head height. Postcranium black, with only white silken hairs.

Thorax – Black in ground colour except scutellum reddish in 2/3 apically; scutum with thick pruinosity, when viewed from behind with 4 black longitudinal strips. Three postsutural acrostichal setae. Four postsutural dorsocentral setae. Supra-alar row with 2 strong and 2 short subequal setae. Katepisternum with 3 setae, middle seta close to anterior seta and more

ventrally positioned. Scutellum slightly pruinose with 4 pairs marginal setae. Tarsal claws long, slightly longer than 5th tarsomere. Mid tibia with 2 subequal anterodorsal bristles.

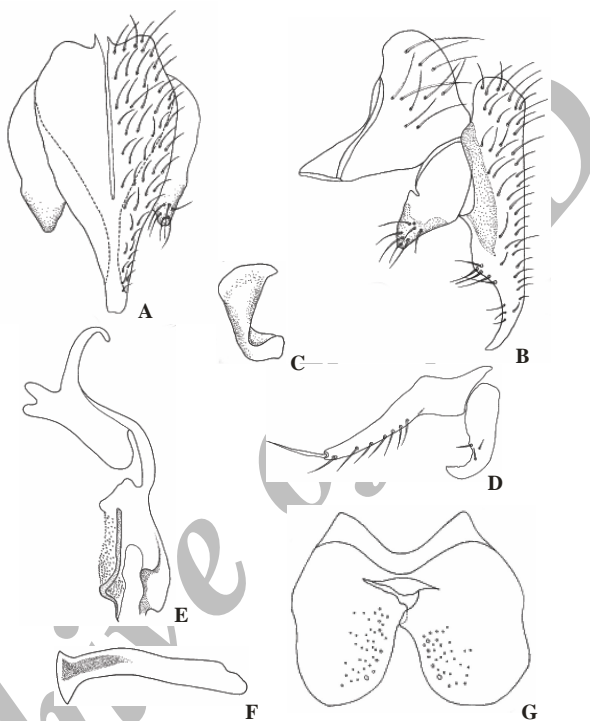


Figure 1. *Chetogena flaviceps* (Bigot, 1887), **syn. n.** of *C. scutellaris*, Holotype (BMNH); male genitalia: A. cerci and surstyli, dorsal view; B. cercus, surstylus and epandrium, lateral view; C. ejaculatory apodeme; D. pregonite and postgonite, lateral view; E. aedeagus; F. hypandrial apodeme; G. sternite 5.

Male abdomen – Reddish brown, T₃-T₅ with white semicircular pruinosity and a longitudinal black strip, broader at base of tergites; pruinosity confined to dorsal, not extending ventrally; T₁₊₂ with 2 median marginal setae; T₃ with 2 marginal bristles; T₄-T₅ with one row of marginal setae. Cercus brown, broadened basally, curved and pointed apically (fig. 1, A-B); surstylus oval (fig. 1, B).

Female abdomen – Tergites with uniform pruinosity extending ventrally; spermathecae elliptic.

Discussion

The name *C. flaviceps* has not been used since 1887 as a valid name; therefore the validity of *C. scutellaris* is retained by invoking the Article 23.9 of the International Code of Zoological Nomenclature (1999). The locality of the holotype of *C. flaviceps* remains unknown as the label only refers to "Rocky Mountains." The females of *C. scutellaris* lack the golden head pruinosity of the males. In some cases, the tip of abdomen of dried specimens of *C. scutellaris* remains orange which provides a good character to associate the males and females, although it usually disappears or fades by time.

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