

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, $0.8 \times$ head height. Flagellomere 1 black, almost 3.8 times as long as wide, $2.8 \times$ pedicel; scape and pedicel brown. Vertex at narrowest point $0.24-0.29 \times$ 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 $0.41-0.44 \times$ 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.

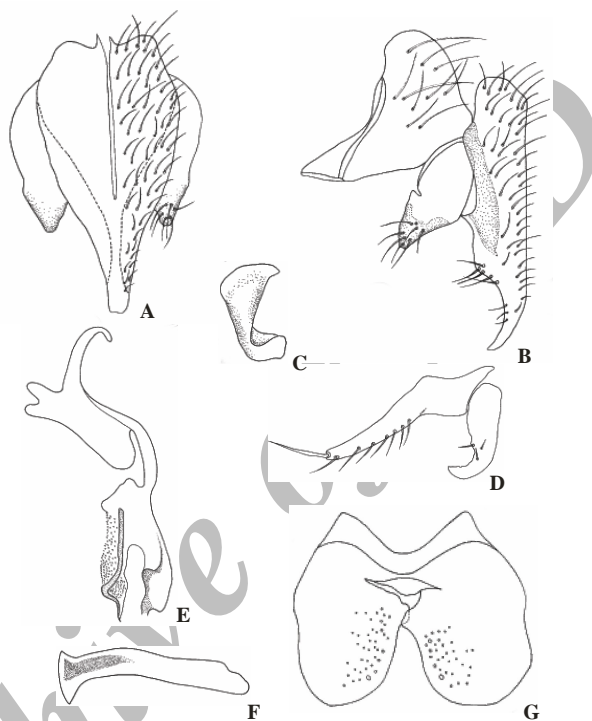


Figure 1. *Chetogena flaviceps* (Bigot, 1887), **syn. n.** of *C. scutellaris*, Holotype (BMNH); male genitalia: A. cerci and surstyli, dorsal view; B. cercus, surstylus and epandrium, lateral view; C. ejaculatory apodeme; D. pregonite and postgonite, lateral view; E. aedeagus; F. hypandrial apodeme;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

Acknowledgements

Drs Jim O'Hara (CNCI) and Steve Marshall (University of Guelph) are thanked for their useful suggestions and support during the course of this study. I also thank the curators of the museums for loaning material under their care.

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Received: 23 October 2007

Accepted: 24 December 2007

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