

## Redescription of *Sciophila nitens* Winnertz (Diptera: Mycetophilidae) with a new synonymization

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A mycetophilid species *Sciophila nitens* (Winnertz) is redescribed and removed from synonymy with *S. geniculata* (Zetterstedt). Diagnostic characters and genital figures are given for both species. *Sciophila lingua* Garrett is found to be a junior synonym of *Sciophila nitens* (Winnertz).

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### 1. Introduction

The genus *Sciophila* Meigen, 1818 belongs to the subfamily Sciophilinae in the family Mycetophilidae, and is the largest in the subfamily, comprising more than one third of the species. The genus is distinguished from the other genera of its subfamily in having the following combination of characters: a setose anepisternum, laterotergite and mediotergite; a wing membrane densely clothed by large, decumbent trichia; a very short median fork; branching of the cubital fork near the wing margin. In male genitalia, the median lobe of gonostylus bears megasetae, usually with heavily forked apices (Søli 1997). Most species appear to be undistinguishable by characters other than those in the structure of male genitalia.

The genus is relatively well studied throughout the world: Holarctic, Oriental and Afrotropical species were revised by Zaitzev (1982) and Søli (1995, 1997), respectively. Several species have been recorded from the Neotropical region. However, according to Papavero (1978), most of them may belong to several genera. No species have been found in the Australasian region, although the allied genus *Austrosciophila*

Tonnoir is represented by one species in Tasmania (Matile 1996). The revision by Zaitzev (1982) includes 39 species from the Palaearctic subregion. Descriptions of 15 new Palaearctic species have been published subsequently by Matile (1983), Bechev (1988), Kurina (1991), Blagoderov (1992), Zaitzev (1994), Zaitzev & Økland (1994), Chandler (1987, 2001), Chandler & Blasco-Zumeta (2001) and Polevoi (2001). The current total number of Palaearctic *Sciophila* species is, after some adjustments by Zaitzev (1994), Økland & Zaitzev (1997), Polevoi (2000) and Chandler (2001), as many as 60.

When studying the fungus-gnat material in the Swedish Museum of Natural History (Stockholm), several problems arose in the identification of the species *S. geniculata* (Zetterstedt, 1838). The study of them allows the validation of *S. nitens* (Winnertz, 1863) that is so far reported as a questionable junior synonym of *S. geniculata*.

Also the synonymization of the Nearctic species *Sciophila lingua* Garrett, 1925 is feasible. As the description of *S. nitens* by Winnertz (1863) is superficial, without any illustrations, the species is redescribed below, whereby *S. geniculata*

is diagnosed, discussed and figured for comparison. Diagnostic characters are based only on those in male genitalia.

The studied material is deposited in the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt (Main) [SMFD], the Swedish Museum of Natural History, Stockholm [NRHS], the Museum für Naturkunde der Humboldt-Universität, Berlin [MNHU] and the Finnish Museum of Natural History, University of Helsinki [FMNH].

## 2. Species

*Sciophila geniculata* Zetterstedt (Fig. 1a–b)

*Sciophila geniculata* Zetterstedt, 1838: 860

*Sciophila geniculata* Zetterstedt, 1838: Edwards (1913): 358–359, figs. 46–47; Landrock (1927): 64, plate 5, fig. 25; Landrock (1940): 49, fig. 73; Hutson *et al.* (1980): 53, fig. 220; Zaitzev (1982): 35–36, plate 8, fig. 1; Zaitzev (1994): 181, plate 61, fig. 3.

*Diagnostic characters.* Ventral appendage of male gonostylus apically rounded, bears 5–6 long apical setae intermingled with smaller ones. Small median appendage of gonostylus with three tube-like megasetae. Large median appendage of gonostylus with about 25–27 dark apically forked megasetae, and with additional basal lobe bearing two black and blunt spines. Dorsal margin of gonocoxite with two blunt megasetae apically on both sides. Gonocoxal apodeme with protruding lobe basally. Parameres short, not protruding from gonocoxite margin. Ninth tergite with narrow apical concavity (about one fifth of its length); ventral surface bears 4–5 apical setae on both sides.

*Comments on type material.* According to Edwards (1925), only fragments have survived from the *S. geniculata* type. According to information of Dr. R. Danielsson from Lund (pers. comm.), the syntype material has only one wing remaining on the pin. The second specimen, without type status, from “Jemtlandia ad Ristanfors 5 Aug. 1840 semel” (Zetterstedt 1852: 4234) has all legs, wings and head with antennae but abdomen is lacking.

*Material studied.* Sweden: 3 ♂♂, Uppl.

Värmdö. 28. VI. 1925, Hedgren leg. [NRHS]. Latvia: 1 ♂, Kurl. Kapsed, 6. VII. 1933, Lack-schwitz [MNHU].

*Remarks.* I have seen two specimens (♂ and ♀) collected by R. Tuomikoski in Kokemäki, Finland, in 1953 and determined by E. Pakarinen as *S. geniculata* (deposited in FMNH). Unfortunately the male specimen has no abdomen and genital preparation has also not survived. Although the coloration is similar to that of *S. geniculata*, I would not confirm the conspecificity of the material without seeing the male genitalia. According to A. Polevoi (pers. comm.) the material from Russian Karelia, despite a small difference in gonostylus, is conspecific to that from Sweden.

*Sciophila nitens* (Winnertz) (Fig. 1c–d)

*Lasiosoma nitens* Winnertz, 1863: 750.

*Sciophila longua* Garrett, 1925: 9. **syn. nov.**

*Sciophila longua* Garrett, 1925; Zaitzev (1982): 47, plate 10, fig. 7.

*Diagnostic characters.* Ventral appendage of male gonostylus apically blunt, bears two long tube-like megasetae apically. Small median appendage of gonostylus with two tube-like megasetae. Large median appendage of gonostylus with 20 dark, apically forked megasetae. Dorsal margin of gonocoxite with two pointed megasetae apically in both sides. Parameres protruding distinctly from gonocoxite margin. Male's ninth tergite with wide apical concavity with three long setae basally.

*Type material.* Lectotype (herewith designated) ♂, St. Moritz, C. v. Heyden leg. [SMFD]

*Comments on type material.* There are only thorax, head with complete left antenna, wings, and right fore and mid legs remaining on pin with labels as given in Fig. 2. Genitalia have been dissected, cleared and slide mounted in Canadian balsam by E. Pakarinen (probably in 1969).

*Description.* Male. Length of wing 4.29 mm. Head black, shining. Antenna dark brown with pale setae, which are about half of flagellomere width. Flagellomers 1.35 times as long as wide. Palpus brown. Clypeus round. Thorax shining brownish black, with lateral parts slightly lighter. Scutum with yellow, bristling, laterally longer

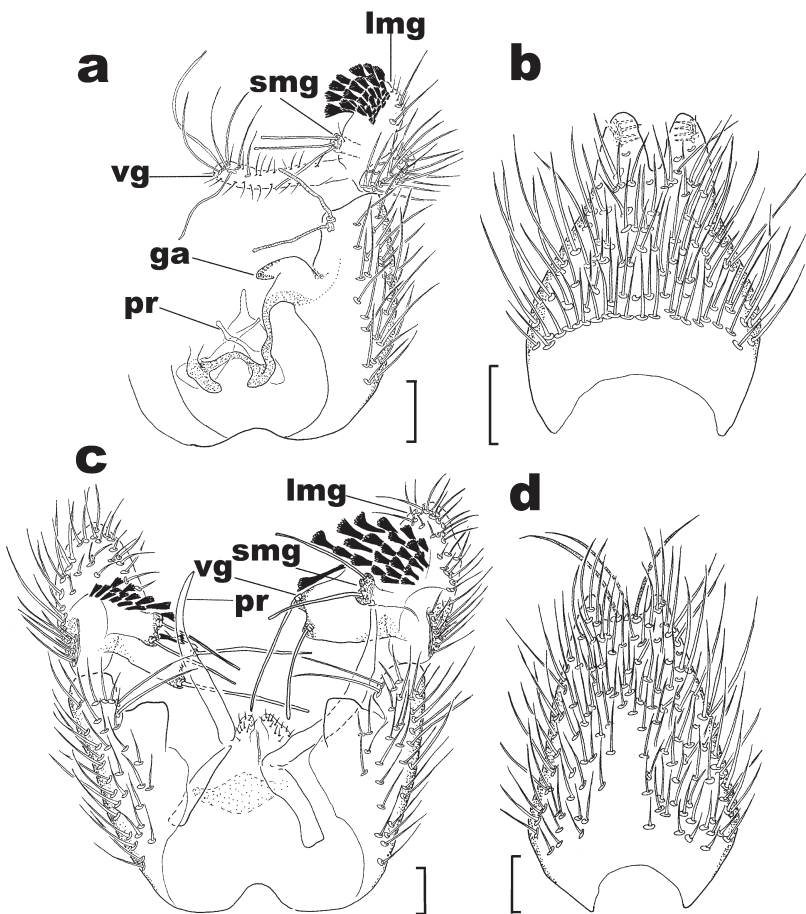


Fig. 1. Male genitalia. – a. *Sciophila geniculata* (Zetterstedt, 1838), hypopygium, dorsal view; tergite IX removed. – b. *S. geniculata*, tergite IX, dorsal view. – c. *Sciophila nitens* (Winnertz, 1863), hypopygium, dorsal view; tergite IX removed. – d. *S. nitens*, tergite IX, dorsal view. Small letters in a and c are as follows: vg = ventral appendage of gonostylus; lmg = large median appendage of gonostylus; smg = small median appendage of gonostylus; pr = paramere; and ga = gonocoxal apodeme. Scale bars 0.1mm.

hairs. Anepisternum with 5 pale hairs situated dorsally, laterotergite posteriorly with 12 hairs, in variable length. Mediotergite with 8 lateral and 6 posterior hairs intermingled with smaller ones.

Legs. Fore and mid coxae brown. Fore femur brown with apical half yellow. Mid femur entirely brown. Fore and mid tibiae yellow. Tarsi brown with mid basitarsus yellowish. Whole anterior surface of fore coxa with pale long hairs. Anterior surface of mid coxa with pale hairs on apical half only. Femora with yellow decumbent hairs ventrally, which are somewhat darkened in apical parts of femora. Fore tibia with three decumbent black ventral setae. Mid tibia with 5 anterior, 3 dorsal, 2 posterodorsal, 1 posterior and 4 posteroventral black setae. Ratio femur to tibia for fore and mid legs: 1.02; 1.00. Ratio tibia to first tarsomere for fore and mid legs: 1.22; 1.45. Ratio spur to fore basitarsus: 0.31. Ratio anterior

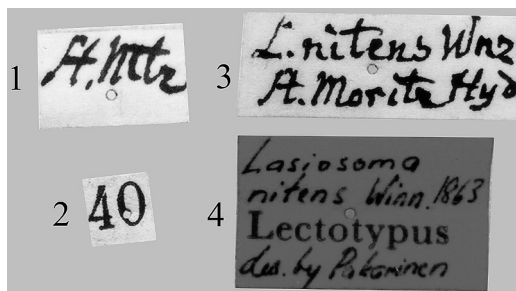


Fig. 2. *Sciophila nitens* (Winnertz, 1863) lectotype labels. Numbers indicate labels on the pin, from above down.

and posterior spurs to mid basitarsus 0.39 and 0.53 respectively.

Wing hyaline, membrane covered uniformly with micro- and macrotrichia. All veins with macrotrichia. Veins pale, except brownish costa. Sc, R<sub>1</sub>, R<sub>5</sub>, tb and crossveins somewhat darker.

Costa exceeds tip of  $R_5$  by nearly a fifth of distance to  $M_1$ .  $Sc_2$  situated before  $R_s$  by half of its length. Furcation point of median fork beyond the level of  $Sc_2$ . Furcation point of posterior fork beyond level of tip of  $Sc_1$ . Crossvein  $rm$  twice as long as stem of median fork. Small radial cell nearly square. Genitalia, see Diagnostic characters.

*Remarks.* Zaitzev (1982) diagnosed and figured the Nearctic species *S. longua* Garrett, 1925, based on study of extensive material including also the holotype. From his figure it appears that *S. longua* is conspecific to *S. nitens* and should, consequently, be considered as a junior synonym. *S. nitens* is related to *S. bicuspidata* A.Zaitzev, 1982 and *S. subbicuspidata* Zaitzev & Økland, 1994, but can be distinguished by the shape of gonocoxite, and tergite IX. Small median appendage of gonostylus of *S. nitens* bears two tube-like megasetae instead of three in case of the other two species.

#### 4. Discussion

As genitalia have not survived in Zetterstedt's material of *S. geniculata*, the name is reserved for the species figured by Edwards (1913). Although some variation appears also in the genital structure of studied *S. geniculata* material (Kurina 2003), the distinguishing of a new species needs more comprehensive material.

*S. nitens* has so far been reported as a questionable junior synonym of *S. geniculata* by Landrock (1927) and subsequently by Zaitzev (1982). There are no references on the species in the Palaearctic Catalogue (Matile 1988). In his revision, Zaitzev (1982) published a comment on the correspondence of E. Plassmann (Germany) and E. Pakarinen (Finland), stating that *S. nitens* is probably not conspecific with *S. geniculata*. Dr. Plassmann kindly sent me a copy of the mentioned correspondence from which it appears that E. Pakarinen designated the lectotype for *S. nitens* in 1969 and also figured the genitalia of the species. Unfortunately, E. Pakarinen has not published any papers on Mycetophilidae and I was not able to locate any manuscripts. Therefore, the data on lectotype are published here for the first time. The Winnertz' main collection was de-

stroyed in the Poppelsdorf Castle near Bonn, Germany, during World War II (Evenhuis 1997). Nevertheless, *S. nitens* was described from the material collected by Senator C. v. Heyden, which survived as it was deposited in SMFD. Other mycetophilids material from Heyden's collection was previously revised by Plassmann (1970, 1974).

*S. nitens* is a Holarctic species: in Palaearctic subregion known from the type locality in the Swiss Alps (St. Moritz) but in the Nearctic subregion recorded from several localities of north and west Canada (Zaitzev 1982). *S. geniculata* is a Western Palaearctic species found in Fennoscandia, Baltic region, Germany, France and British Isles (Matile 1988).

The biology of *S. nitens* and *S. geniculata* is poorly known. Larvae of both are presumably mycetophagous, as in other species of the genus.

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