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# Trichochilus, a new genus of Orthocladiinae

(Diptera, Chironomidae)

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SAETHER, O. A. (1985): *Trichochilus*, a new genus of Orthocladiinae (Diptera, Chironomidae). – Spixiana, Suppl. 11: 31–36.

A generic diagnosis is given for the female imago of *Trichochilus* gen. nov. The genus differs from other orthoclads in having hairy eyes, broad frontal tubercles, very short clypeus without setae, tentorium without sieve pore, short palp, numerous short setae on squama, no acrostichals, sensilla chaetica on all metatarsi including those of front leg, no tibial comb, very large pulvilli, well divided gonapophyses VIII and tergite IX, sphaerical seminal capsules with microtrichia, separate openings of ducts, and distinct microtrichia on labia. The genus superficially appears related to *Rheocricotopus* Thienemann & Harnisch and related genera, but a number of features shows that *Trichochilus* probably is closer to *Dratnalia* Saether & Halvorsen. – *Trichochilus lacteipennis* (Johannsen, 1908) n. comb., is described from the female imago.

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While reviewing some types and species of the genus *Rheocricotopus* Thienemann & Harnisch, 1932 the type of *Trichocladius lacteipennis* Johannsen, 1908 was examined. This female imago is unique among the Orthocladiinae in several features and clearly does not belong in any known genus. Although it may be preferable not to describe a new genus based on a single female imago the unique features makes the genus both easily recognizable and a description highly desirable.

Morphological terminology follows SAETHER (1980).

# Trichochilus gen. nov.

Type species: Trichochilus lacteipennis (Johannsen 1908: 282) n. comb. by present designation.

Diagnostic characters: The wide frontal tubercles, very short clypeus without setae, shape of the tentorium without sieve pore, slender, 4-segmented palp and presence of strong microtrichia on the genital labia all are nearly unique features among the Orthocladiinae. Also the combination of hairy eyes, very short palps, apparent axillary vein, numerous short setae on squama, absence of acrostichals, tarsal pseudospurs and hind tibial comb, presence of sensilla chaetica on all metatarsi including front leg, large empodium and pulvilli, large gonocoxite with numerous setae, tergite IX well divided into two setigerous protrusions, gonapophyses well divided into two principal lobes and distinct apodeme lobe, seminal capsule sphaerical with microtrichia, and spermathecal ducts with distinctly separate openings and no enlargement or bulbs before opening sets the genus distinctly apart from other orthoclads. ©Zoologische Staatssammlung München;download: http://www.biodiversitylibrary.org/; www.biologiezentrum.at

Etymology: From Greek trichos, hair, and cheilos, a margin, lip, referring to the strong microtrichia on the genital labia.

### Description

#### Female imago

Moderately large species. (Wing length about 3.2 mm.)

Antenna. With 5 flagellomeres, 1–4 each with 2 sensilla chaetica, 5 with about 10 sensilla chaetica. Antennal ratio 0.69 (in only known species).

Head. Eye rather strongly exserted on head, conspicuously hairy, without dorsomedian extension. Temporals consisting of few dorsal postorbitals and no verticals. Clypeus conspicuously reduced, less than half as long as wide, without setae. Tentorium characteristic, without sieve pore and only gradually tapering towards posterior tentorial pit, with basal microtrichia. Only 4 palpal segments, third palpal segment no longer than second and barely longer than first, with 2 spine-like sensilla clavata at apex, fourth segment longer than second and third combined. Wide frontal tubercles present. Coronal suture reduced.

Thorax. Antepronotum strongly developed, median lobes narrowed medially, in contact at point or short suture anterior of scutal projection, with several lateral setae. Acrostichals absent; dorsocentrals few, uniserial; prealars several; supraalars absent. Scutellum with few setae in single, transverse row.

Wing. Membrane with fine punctation of microtrichia visible at 250  $\times$ , free of setae. Anal lobe well developed, slightly projecting. Costa moderately extended,  $R_{2+3}$  in the middle between  $R_1$  and  $R_{4+5}$ ,  $R_{4+5}$  ends clearly distal to end of  $M_{3+4}$ , FCu lies clearly distally of FCu, Cu<sub>1</sub> straight, vannal fold and An both ends distally of FCu, apparent axillary vein present. R and  $R_1$  with few setae. Sensilla campaniformia in normal numbers (about 10 at base, 3 below setae and 15 at apex of brachiolum, 2 on subcosta, 1 on FR, and 1 at base of  $R_1$ ). Squama with numerous, relatively short setae.

Legs. Tibial spurs relatively short, straight, with hair-like lateral denticles barely indicated on each spur of hind and mid leg and absent on spur of front tibia. Hind tibial comb absent, or indicated by 2 short spine-like setae. Pseudospurs absent. Sensilla chaetica present in low numbers in basal  $\frac{1}{4}$  of tarsomere 1 of front leg, in moderate numbers in basal  $\frac{1}{3}$  of mid leg and hind leg. Pulvilli and empodium conspicuously large.

Abdomen. Tergites with setae in large, pale spots; primarily in posterior half of tergites VI-VIII, more extensive on V and covering most of tergites I-IV.

Genitalia. Gonocoxite very large and rounded, with numerous setae. Tergite IX strongly divided into two setigerous protrusions with several setae. Gonapophysis VIII divided into large rounded, broadly brush-like ventrolateral lobe; well developed dorsomesal lobe; and distinct apodeme lobe not covered by principal lobes. Labia well developed, with conspicuous microtrichia. Seminal capsules sphaerical, with some microtrichia, well sclerotized, without distinct neck. Spermathecal ducts nearly straight, without bulbs before distinctly separate openings. Postgenital plate large and rounded. Cercus small, trapezoided in outline (according to SUBLETTE [1967: 533], lost in holotype.)

#### Systematics

The female imago shows a number of features rarely found in orthoclads. The hairy eyes and large pulvilli apparently place the genus in the *Rheocricotopus* group of genera. The rather strongly exserted eyes, the placement of the temporals and the presence of the frontal tubercles are found in members of *Nanocladius* Kieffer, 1913 (SAETHER 1977 a). The shape of the frontal tubercles, however, is unique in *Trichochilus*. A clypeus without any setae is mentioned only in *Asclerina* Reiss (1968: 65) from Nepal. He does, however, not mention if the clypeus also is very short. The tentorium without a sieve pore and gradually tapering to posteriodorsal apex is not common among the orthoclads, but resembles that found in some Diamesinae and Telmatogetoninae (SAETHER 1971 fig. 3 A, G). The short slender palp re-

sembles that of *Acricotopus* Kieffer, 1921, which also has hairy eyes and strongly developed antepronotum, but genitalia of *Cricotopus* - *Orthocladius* type (HIRVENOJA 1973 fig. 36, SAETHER 1977b fig. 47). The palp of the holotype of the type species has just four segments without any indication of a lost fifth segment. According to JOHANNSEN (1951: 26) and SUBLETTE (1967: 533) there are 4 palpal segments which normally would mean that there really are five palpal segments (see SAETHER 1969: 2, 1971: 1245). However, the first palpal segment in *Trichochilus* is distinct and may have been taken not as a "palpifer" but as a "true first palpal segment" by Johannsen and Sublette. The presence of sensilla chaetica on all legs including tarsomere 1 of front leg is otherwise found only in *Cricotopus* v. d. Wulp (HIRVENOJA 1973: 77).

Trichochilus shares a number of uncommon features with Dratnalia Saether & Halvorsen (1981: 278), including the absence of acrostichals, presence of a weak axillary vein, numerous short setae on squama, four palpal segments, absence of hind tibial comb, very large rounded gonocoxite with numerous setae, straight spermathecal ducts, and well developed microtrichia on labia. Among other orthoclad genera microtrichia on the labia are present, but weak only in *Heterotrissocladius* Spärck (SAETHER 1975: 3; 1977: 76, 101), *Eukiefferiella* Thienemann (G. A. Halvorsen, pers. comm.) and *Rheocricotopus* (*Rheocricotopus*) tuberculatus Caldwell (1984). 4-segmented palps, absence of hind tibial comb and presence of axillary vein are very uncommon features. The divided gonapophysis VIII and tergite IX resemble those found in *Rheocricotopus*, but the genitalia of *Dratnalia* are of principally the same type and the latter genus apparently forms the sister genus of *Trichochilus*. However, the similarities between the two genera may to a large extent be caused by similar adaptations to phoresis or parasitism by the larva or at least specialized behaviour. A more finalized placement of *Trichochilus* cannot be obtained without the knowledge of the male imago and the immatures.

## Trichochilus lacteipennis (Johannsen) n. comb.

(Fig. 1)

Trichocladius lacteipennis Johannsen, 1908: 282

Description of female

Trichocladius lacteipennis Johannsen; MALLOCH, 1915: 514

Note

Trichocladius lacteipennis Johannsen; JOHANNSEN, 1951: 25, 26

In key, redescription

Hydrobaenus (Trichocladius) lacteipennis (Johannsen); JOHANNSEN in JOHANNSEN & TOWNES; 1952: 22 In key

Rheocricotopus lacteipennis (Johannsen); SUBLETTE 1967: 532

Redescription

Material examined: Holotype, Q, U.S.A., Pennsylvania, Harrisburg, at arcs, 12. v., no. 2348 in Cornell University Insect Collections, Ithaca, N. Y.

Notes on type material: The female paratype could not be located.

Description

Female imago (n = 1)

Total length 5.60 mm. Wing length 3.18 mm. Total length/wing length 1.76. Wing length/length of profemur 4.01.

Coloration of thorax yellow with brown vittae and thoracic markings, postnotum blackish. Coxae, trochanters, femora, basal 1/4 of tibia, tarsomere 5 and apices of tibiae and all tarsomeres dark brown, remainder of legs yellow.

Head (Fig. 1 A). Length of flagellomeres (micrometers): 94, 53, 49, 56, 169. AR 0.69. Temporal setae 5, all postorbitals. Clypeus 98 µm long, 236 µm wide, void of setae. Tentorium 195 µm long, 45 µm

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Fig. 1. *Trichochilus lacteipennis* (Johannsen) n. comb., female imago. – A. Head. – B. Thorax. – C. Wing. – D–F. Genitalia; D. Ventral view; E. Dorsal view; E. Lobes of gonapophysis VIII (VIL, ventrolateral lobe; ApL, apodeme lobe; DmL, dorsomesal lobe).

wide. Stipes 135 μm long, 53 μm wide. Palp lengths/width (micrometers): 47/39, 56/41, 56/39, 98/23. Frontal tubercles 53 μm wide, 26 μm high. Coronal suture 38 μm long.

Thorax (Fig. 1B). Antepronotum with 9 lateral setae. Dorsocentrals 6, prealars 6. Scutellum with 6 setae. Humeral pit small and indistinct, consisting of several circular spots. (Not large and distinct as mentioned by JOHANNSEN [1951: 26].)

Wing (Fig.1 C). VR 1.27. Costal extension 113  $\mu$ m long. Brachiolum with 1 seta, R with 5 setae, R<sub>1</sub> with 1 seta, and costal extension with 3 non-marginal setae. Squama with 44 setae.

Legs. Spur of front tibia 62  $\mu$ m long, spurs of middle tibia 41  $\mu$ m and 38  $\mu$ m long, of hind tibia 60  $\mu$ m and 16  $\mu$ m long. Width at apex of front tibia 66  $\mu$ m, of middle tibia 64  $\mu$ m, of hind tibia 74  $\mu$ m. Hind tibia with 2 apical spiniform setae, both 26  $\mu$ m long. Sensilla chaetica 3 at 0.15–0.21 of ta<sub>1</sub> of front leg, 15 at 0.11–0.24 of ta<sub>1</sub> of middle leg, 10 at 0.17–0.35 of ta<sub>1</sub> of hind leg. Lengths (micrometers) and proportions of legs:

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta4	ta <sub>5</sub>	LR	BV	SV	BR
<b>P</b> 1	794	1087	643	369	246	161	-	0.59	-	2.93	2.3
P2	907	1040	501	284	208	151	95	0.48	3.32	3.89	1.3
Рз	926	1238	662	340	241	142	95	0.53	3.46	3.27	2.3

Abdomen. Number of setae on T I–VIII as: 85, 125, 133, 101, 84, 54, 30, 35. Number of setae on S I–VIII as: 0, 16, -, 21, 23, 26, 24, 15.

Genitalia (Fig. 1D-E). Gonocoxite IX with 49 setae. Tergite IX with altogether 29 setae. Cercus lost. Seminal capsule 109 µm long, 105 µm wide. Notum 143 µm long.

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#### References

- CALDWELL, B. A. 1984: Two new species and records of other chironomids from Georgia (Diptera: Chironomidae) with some observations on ecology. Georgia J. Sci. 42: 81–96
- HIRVENOJA, M. 1973: Revision der Gattung *Cricotopus* van der Wulp und ihrer Verwandten. Ann. zool. fenn. 10: 1–363
- JOHANNSEN, O. A. 1908: New North American Chironomidae. In: FELT, E. P. (ed.): 23rd report of the State Entomologist on injurious and other insects of the State New York, 1907. – Bull. N. Y. St. Mus. 124: 264–285
- 1951: Revision of the species of the subgenus *Trichocladius* from the Northeastern States (Chironomidae, Diptera). – Bull. Brooklyn ent. Soc. 46: 24–27
- JOHANNSEN, O. A. & H. K. TOWNES, Jr. 1952: Diptera of Connecticut Tendipedidae (Chironomidae). In: TRO-XELL, E. L. (ed.): Guide to the insects of Connecticut VI. – Bull. Conn. St. geol. nat. Hist. Surv. 80: 1–147
- MALLOCH, J. R. 1915: The Chironomidae or midges of Illinois, with particular reference to the species occurring in the Illinois river. Bull. Ill. St. Lab. nat. Hist. 10: 275–543
- REISS, F. 1968: Neue Chironomiden-Arten (Diptera) aus Nepal. Khumbu Himal 3: 55-73
- SAETHER, O. A. 1969: Some Nearctic Podonominae, Diamesinae, and Orthocladiinae (Diptera: Chironomidae). Bull. Fish., Res. Bd Can. 170: 1–154
- — 1971: Notes on general morphology and terminology of the Chironomidae (Diptera). Can. Ent. 103: 1237–1260
- ----- 1975: Nearctic and Palaearctic Heterotrissocladius (Diptera: Chironomidae). Bull. Fish. Res. Bd Can. 193: 1-67

- 1977 a: Taxonomic studies on Chironomidae: Nanocladius, Pseudochironomus and the Harnischia Complex. – Bull. Fish. Res. Bd Can. 196: 1–143
- 1977 b: Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies, keys. Bull.
  Fish. Res. Bd Can. 197: 1–210
- 1980: Glossary of chironomid morphology terminology (Diptera: Chironomidae). Ent. scand. Suppl. 14: 1–51
- SAETHER, O. A. & G. A. HALVORSEN 1981: Diagnoses of Tvetenia Kieff. emend., Dratnalia n. gen., and Eukiefferiella Thien. emend., with a phylogeny of the Cardiocladius group (Diptera: Chironomidae). - Ent. scand. Suppl. 15: 269-285
- SUBLETTE, J. E. 1967: Type specimens of Chironomidae (Diptera) in the Cornell University Collection. J. Kansas ent. Soc. 40: 477–564

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