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NOTE ON THE GENUS *CHAETOLABIS* TOWNES STATUS NOV.,
WITH A REDESCRIPTION OF *C. MACANI* (FREEMAN)
(DIPTERA, CHIRONOMIDAE)*

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Abstract

Chaetolabis Townes is separated from *Chironomus* Meigen and is treated as a distinct genus based on *Chironomus macani* Freeman. Distinguishing characters from its related genera *Chironomus* and *Einfeldia* are discussed. Redescription of *Chaetolabis macani*, which is recorded from Japan for the first time, is also given.

In the course of my recent investigation on the Chironomid fauna of Japan, I could have an opportunity to examine *Chironomus macani* Freeman, 1948 collected by Mr. H. Nishida from Hokkaido. This is the first record of *Chironomus macani* from Japan although this is a Palaearctic species. *Chironomus macani* Freeman has been treated by some authors as a member of the genus *Einfeldia* Kieffer and by others as one of the subgenus *Chaetolabis* Townes of *Chironomus*. Through the systematic study of *Chironomus* and its related genera, however, I recognized that *C. macani* is distinct from the members of the genus *Einfeldia* in the shape of the dorsal appendage and from those of *Chironomus* in having a median suture on the antepnotum. I think that these differences are reasonable to separate *macani* from both *Einfeldia* and *Chironomus*.

In this paper I treat the subgenus *Chaetolabis* of the genus *Chironomus* as an independent genus based on *macani* and redescribe the species in the following lines.

Before going further, I wish to express my hearty thanks to Prof. Y. Hirashima and Assoc. Prof. K. Morimoto of Entomological Laboratory, Kyushu University for their constant guidance and encouragement. My cordial thanks are due to Mr. H. Nishida of Entomological Laboratory, University of Osaka Prefecture for the gift of specimens.

Genus *Chaetolabis* Townes, status nov.

Tendipes subgenus *Chaetolabis* Townes, 1945, *Amer. Midland Nat.* 34 : 114. Type species : *Tendipes (Chaetokzbis) atroviridis* Townes, 1945, by original designation.

Chironomus subgenus *Chaetolabis* : Sublette & Sublette, 1965, *U.S. Dept. Geri. Handbk.* 276 : 164 ; Saether, 1977, *Bull. Fish. Res. Bd. Can.* 197 : 169-170 ; Ashe, 1983, *Ent. scand. Suppl.* 17 : 14, 16-17. The diagnosis of *Chaetolabis* given below is based on *macani* from Japan.

Head : Frontal tubercle present, well developed ; antennal flagellum composed of 11 flagello-

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meres in male, 5 in female ; maxillary palpus long, composed of 5 segments.

Thorax : Antepronotum somewhat narrowed towards the center but medially somewhat produced, almost as in the genus *Chironomus*, and divided by a weak suture in the middle ; scutum shining, with a distinct median tubercle.

Legs: Foretibia with a low, rounded scale at tip ; foretarsus without beard ; tibial combs in middle and hind legs large, broad, fused basally, fused combs with 2 spurs subequal in length ; pulvilli well developed and pad-like.

Wing : Hyaline ; membrane without macrotrichia ; costa not beyond the R_{4+5} ; R_{2+3} nearly parallel with R_1 , ending at basal 1/3 between apices of R_1 and R_{4+5} ; fCu beyond the r-m crossvein ; r-m crossvein not darkened ; squama fringed.

Male genitalia : Anal point slender ; dorsal appendage broad, comparatively short, strongly hooked at tip, with many setae on its ventral surface. Ventral appendage long, slender, spatulate ; gonostylus slender, comparatively long.

Female genitalia : Apodeme of 8th sternum weak, rounded caudally, not joined mesally ; egg-guide divided into large dorsomesal lobe and rather small brush-like ventrolateral lobe ; cercus comparatively large.

Chaetolabis was erected by Townes in 1945 as a subgenus of *Tendipes* Meigen, 1800 for two North American new species, i. e., *T. atroviridis* Townes and *T. ochreatus* Townes. He stated that the subgenus *Chaetolabis* is distinguished from other members of *Tendipes* by having a shining thorax and broad, sclerotized dorsal appendage of male genitalia with many setae on its ventral surface. *Tendipes* was suppressed under *Chironomus* by the Plenary Powers of I. C. Z. N. in 1963. Sublette & Sublette (1965) transferred these two species to the genus *Chironomus*.

Freeman (1948) described the male imago of *Chironomus macani* based on the material collected in the English Lake District, and estimated this species as one of the *Einfeldia* group in the genus *Chironomus* according to Edwards' system. Thieneman (1954), Fittkau et al. (1967) and Pinder (1978) treated this species as a member of the genus *Einfeldia*.

In 1979, Wiederholm redescribed *Chironomus macani* in detail and commented on the taxonomic status of the species. He recognized that *Chironomus macani* shares such characters as shining thorax and peculiarly shaped dorsal appendage of male genitalia which bears numerous setae on its ventral surface in common with two known Nearctic species, *C. atroviridis* Townes and *C. ochreatus* Townes, which have been included in the subgenus *Chaetolabis*. Wiederholm also remarked that *C. ochreatus* Townes, 1945 and *C. macani* Freeman, 1948 are junior synonyms of *C. atroviridis* Townes, 1945, but stated that the specific name of *C. macani* is retained until further analyses including larval karyo-systematics has been made. In regard to the position of *macani*, Wiederholm regarded that this species should be placed in the genus *Chironomus* than in *Einfeldia* based on the following points.

1) The larvae of *macani* are of the *thummi* type with two pairs of ventral abdominal tubules rather than one pair of tubules or no appendices at all as in *Einfeldia*.

2) Dorsal appendage of male genitalia is clearly different from *Einfeldia*.

3) The shape of the lobes of egg-guide in female genitalia are close to that of the subgenus *Chironomus* described and figured by Saether (1977).

Although I agree with Wiederholm in the point that *macani* does not belong to the genus *Einfeldia*, I think the characters mentioned by him are not enough to separate the genus *Chironomus* from *Einfeldia*. In the larvae, *Einfeldia ocellata* Hashimoto, 1985 has two pairs of ventral abdominal tubules, while *Chironomus salinarius* Kieffer has no trace of appendices. Pinder and Reiss (1983) pointed out that *Einfeldia* includes a species group (group C of them) which is not separable from *Chironomus* in larvae. Therefore, it is not so important whether the larval ventral abdominal tubules are present or not in order to separate the *Chironomus* from *Einfeldia*. In regard to the male

hypopygium, the shape of dorsal appendage is so different from those of both *Einfeldia* and *Chironomus* that I think there is no reason to treat *macani* as a member of the genus *Chironomus*. Moreover, I could not find out any differences between *Einfeldia* and *Chironomus* in the basic structure of female genitalia.

Previously Yamamoto (1979) discussed the taxonomic value of the anteprepronotum. In the course of the present study I observed the morphological feature of the anteprepronotum through the genera of Japanese Chironomini. In all members of Japanese *Chironomus* including *C. (Camptochironomus) tentans* the anteprepronotum is completely fused medially, while in other genera of the Chironomini it is distinctly or comparatively weakly divided medially by a suture in dorsal or frontal aspect. The anteprepronotum of *macani* somewhat narrowed towards the center and produced medially in lateral aspect as in other members of the genus *Chironomus*, but is divided medially by a distinct suture in dorsal or frontal aspect. Considering the above mentioned facts, I think that absence of the median suture on the anteprepronotum is the most important key character of the genus *Chironomus* among the tribe Chironomini. In obedience to this thought, I think that *macani* should be treated as a species of independent genus. Wiederholm (1979) stated in his paper as follows : "If the generic position of *Chironomus macani* (also *C. ochreatus* and *C. atroviridis*) should be changed at all, it seems better to separate these as an independent genus under the name of *Chaetolabis*." In this paper I would like to follow his statement.

***Chaetolabis macani* (Freeman), comb. nov.**

Chironomus macani Freeman, 1948, *Ent. mon. Mag.* **84** : 49-50.

Einfeldia macani : Thienemann, 1954, *Binnengewässer* **20** : 526.

Einfeldia mucani : Pinder, 1978, *Freshw. Biol. Assoc. Sci. Publ.* **37**:120.

Chironomus macani : Lindeberg and Wiederholm, 1979, *Ent. scand. Suppl.* **10** : 108.

Chironomus mucani : Wiederholm, 1979, *Ent. scand. Suppl.* **10** : 145-150.

♂. Colouration : Head brown ; frons and occiput brownish green to brown ; clypeus and mouth parts brown ; antennal pedicel dark brown, thinly grey pollinose, flagellum brown. Thorax with anteprepronotum yellowish green; mesonotum subshining pale green to yellowish green in ground colour ; scutum with distinct dark brown vittae, median one of which is each clearly separated by pale brownish yellow longitudinal median line ; scutellum green ; postnotum dark brown, pale orange yellow at anterolateral corner. Thoracic pleura pale yellowish green to green ; medioanepisternum II, apical portion of postanepisternum II and preepisternum II dark brown, thinly grey pollinose ; epimeron II and anepisternum III slightly tinged with brown. Legs including coxae and trochanters predominantly pale brownish yellow, darkened on tarsi; extreme tip of femur and tibia in foreleg, basal part of tibiae of middle and hind legs, apices of 1st to 3rd tarsomeres of all legs, 4th and 5th tarsomeres of all legs dark brown. Wing hyaline, very slightly tinged with grey; costa, subcosta, media and radius pale brown, other veins hyaline. Halter yellowish white, slightly tinged with green on apical 1/2. First abdominal tergite deep green, infuscated on meson ; following terga including genitalia uniformly dark brown, thinly grey pollinose.

Head : Antennal ratio, range 4.12-4.67, mean 4.44. Frontal tubercle, 15.0-32.5 μm in length, 7.7-10.0 μm in width. First to 5th palpal segment lengths (μm): 70-80, mean 75 ; 80-110, mean 98 ; 280-350, mean 325 ; 290-360, mean 340 ; 430-500, mean 475 ; and the palpal segments with 1, 7-9, 43-61, 39-67, 18-25 setae, respectively. Vertex and clypeus with 42-60, 39-49 setae, respectively. Prementum with 2-4 setae.

Thorax : Anteprepronotum without setae, dorsocentrals 32-38, prealars 7-10, both uniserial ; acrostichals 16, scutellars 41-51, both biserial ; supra-alaris 1.

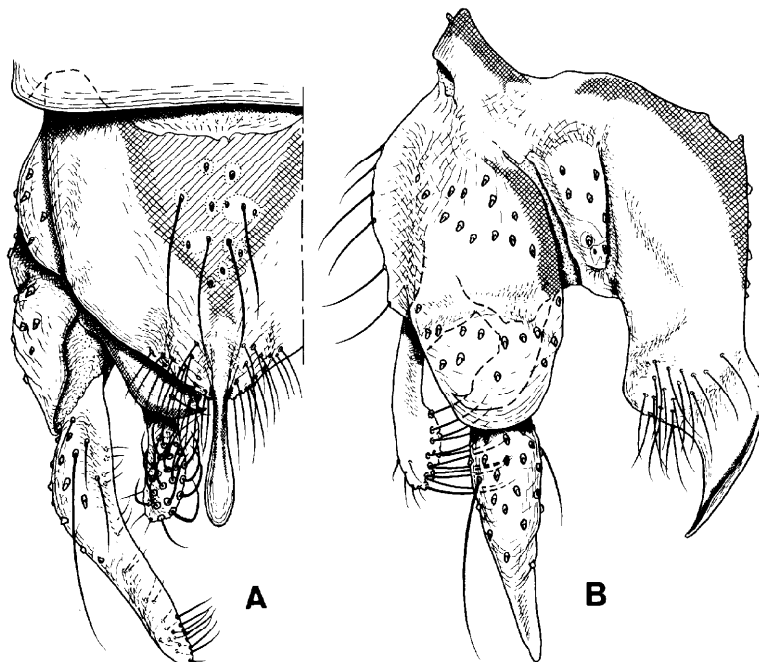


Fig. 1 Male genitalia of *Chaetolabis macani*. A: Dorsal aspect. B: Lateral aspect.

Legs: Fore-, middle and hind coxae with 11-15, 11-12, 6-7 uniserially arranged marginal setae, respectively. Middle coxa with 5 minute sensory hairs on the middle anteriorly. Fore-, middle and hind trochanters with biserially arranged marginal setae, respectively. The ratio of 4th tarsomere length to 3rd tarsomere length in foreleg, range 0X3-0.90, mean 0.89.

Lengths (means, 0.01 mm in unit) and proportions (ranges and means) of legs :

	F	T	Ta1	Ta2	Ta3	Ta4	Ta5	BV	sv	LR
P ₁	206	177	245	130	103	92	43	1.63-1.72, 1.70	1.53-1.59, 1.56	1.36-1.41, 1.39
P ₂	216	196	123	73	54	35	24	2.83-2.93, 2.87	3.30-3.44, 3.35	0.62-0.64, 0.63
P ₃	231	240	171	102	73	44	26	2.59-2.65, 2.63	2.68-2.81, 2.75	0.71-0.72, 0.71

Wing : Length 4.3-4.7 mm, width 1.1-1.3 mm. L/WR, range 3.76-3.93, mean 3.84. VR, range 0.94-0.95, mean 0.95. R, R₁ and apical 1/3-2/3 of R₄₊₅ with 38-46, 34-36, 30-42 suberected short setae, respectively. Radialis with 14-17 annular organs on its basal part, 3 annular organs in the middle anteriorly, 13 annular organs on apical part, and with 4-5 setae near the middle. Squama with bi- or triserially arranged 26-35 fringed setae.

Genitalia : Epandrium with 12-19 long setae on its median field. Anal point long and slender, constricted basally, expanded in distal half in dorsal aspect, and comparatively thickened, and with basal 1/3 of dorsal margin convex and distal 2/3 bent ventrally, with ventral margin slightly concave and with apex strongly pointed in lateral aspect. Gonostylus long and slender, strongly tapered about apical 1/2, and with 6-9 short apical setae. Dorsal appendage long and slender, nearly parallel-sided in dorsal aspect, with apical 1/3 produced dorsally in lateral aspect, and with 26-28 long setae on its apical 1/3.

Length of body : 7.0-8.5 mm

♀. Colouration almost as in male. Antennal pedicel orange yellow to brown, flagellum pale orange yellow but last flagellomere dark brown. Thorax with preepisternum II yellowish brown on apical 1/3. Cercus brown.

Head : Antennal flagellomere lengths (μm): 220-250, mean 232 ; 150-170, mean 158 ; 160-180, mean 168 ; 120-150, mean 140 ; 240-310, mean 288. First to 5th flagellomeres with 14-17, 7-8, 6-7, 6, 1-2 setae, respectively. Fifth flagellomere with 31-41 sensory hairs. Other structures not basically different from that of male.

Thorax : Dorsocentrals 38-54, acrostichals 20-30, both biserial ; prealars 8-10, uniserial ; scutellars 51-88, bi- to tetraserial ; supra-alar 1.

Legs : Lengths (means, 0.01 mm in unit) and proportions (ranges and means) of legs as follows :

	F	T	Ta1	Ta2	Ta3	Ta4	Ta5	BV	s v	LR
P ₁	214	182	260	128	41	97	46	1.73-1.80, 1.76	1.48-1.60, 1.53	1.36-1.46, 1.43
P ₂	223	203	120	67	48	33	24	3.12-3.28, 3.18	3.51-3.59, 3.56	0.58-0.60, 0.59
P ₃	273	244	216	96	69	41	28	2.75-2.84, 2.79	2.76-2.87, 2.82	0.69-0.72, 0.70

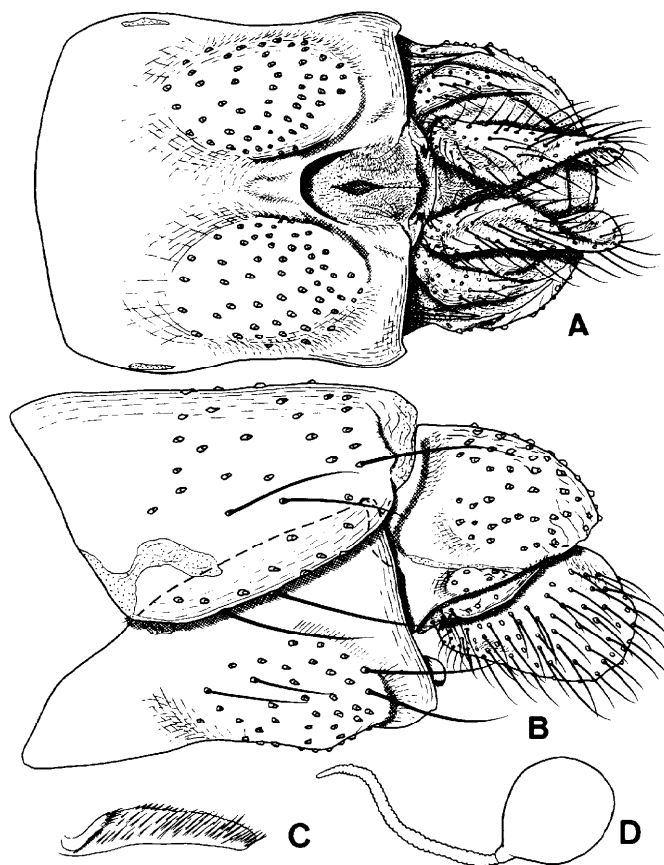


Fig. 2 Female genitalia of *Chaetolabis macani*. A : Ventral aspect. B : Lateral aspect. C : Apodeme lobe. D : Spermatheca.

Wing : Length 4.2-5.1 mm, width 1.3-1.5 mm. L/WR, range 3.13-3.38, mean 3.28. VR, range 0.89-0.91, mean 0.90. R, R₁ and nearly entire length of R₄₊₅ with 50-56, 53-67, 67-82 suberected short setae, respectively. Radialis almost as in male.

Genitalia : Laterostemite deeply cut from 9th tergite by long membranous incision, and with 5-8 setae. Tenth segment with 17-20 setae. Apodeme lobe well developed, slender, and with distinct microtrichia. Seminal capsule oval ; spermathecal duct comparatively short, slightly curved. Postgenital plate well developed, obtriangular in shape. Cercus comparatively large.

Length of body : 6.5-7.5 mm

Distribution : Japan (Hokkaido).

Specimens examined : 4♂♂, 599, Hosooka, Kushiro, Kushiro-county, 9. vii ; 1♂, 5♀♀, Kayanuma, Kawakami, Kushiro-county, 10. vii ; all were collected by H. Nishida from Hokkaido in 1982.

Remarks : Japanese specimens are different from European ones in lacking a tarsal beard of foreleg.

Wiederholm (1979) thought that *ochreatus* (Townes, 1945) and *macani* (Freeman, 1948) are junior synonyms of *atroviridis* (Townes, 1945) but stated that the specific name of *macani* should be retained until further analyses have been made.

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