The genus *Asachironomus* (Diptera: Chironomidae) newly recorded in China, with description of a new species

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Abstract: The genus *Asachironomus* Kikuchi & Sasa, 1990, previously known only from Sumatra, Indonesia, is reported for the first time in China. A new species, *Asachironomus tanyostylus* Zhang & Yang **sp. nov.**, is described and illustrated based on adult male from China. This new species is distinguished from the only previously known species, *A. tobasextus* Kikuchi & Sasa, by the presence of setae along the inner margin of the gonostylus, a more attenuated anal point, and a significantly longer gonostylus. Diagnostic characters for male adults of the genus are provisionally defined.

Key words: midges; Chironomini; taxonomy

中国新记录属亚沙汉摇蚊属一新种记述（双翅目：摇蚊科）

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摘要：亚沙汉摇蚊属 *Asachironomus* Kikuchi & Sasa, 1990 此前仅分布于印度尼西亚苏门答腊岛。本研究首次发现该属在中国也有分布，并依据采自中国的雄成虫，记述该属 1 新种：长尾亚沙汉摇蚊 *Asachironomus tanyostylus* Zhang & Yang **sp. nov.**。本新种与唯一已知种多巴亚沙汉摇蚊 *A. tobasextus* Kikuchi & Sasa 的区别在于新种的抱器端节内缘具刚毛，肛尖更为细长，且抱器端节显著更长。文中还初步界定了该属雄成虫的鉴别特征。

关键词：摇蚊；摇蚊族；分类

Introduction

The genus *Asachironomus* was established by Kikuchi & Sasa in 1990, based on the specimens collected from Lake Toba area, in Sumatra, Indonesia with a monotypic species *A. tobasextus* Kikuchi & Sasa (Kikuchi & Sasa 1990). From that point forward, no additional species of *Asachironomus* has been reported.

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Asachironomus belongs to the *Polypedilum* generic complex within the tribe Chironomini and is closely related to the subgenus *Pentapedilum* of genus *Polypedilum* based on adult males. However, phylogenetic analyses by Tang *et al.* (2022) showed *Asachironomus* nested within the subgenus *Polypedilum s. str*. *Asachironomus* shares several morphological characteristics with subgenus *Pentapedilum*, including the presence of numerous macrotrichiae on the wing, a constricted oral margin in the middle of the eighth abdominal segment, an antenna with 13 flagellomeres, a sickle-shaped superior volsella with one long lateral seta, and an inferior volsella with a long apical seta. However, it differs distinctly from members of the subgenus *Pentapedilum* in the fusion of terminal combs on middle and hind tibiae, which lack spurs, and the absence of the wing vein R_{2+3} before it unites with the costa. In this study, we describe a new species of *Asachironomus* based on male specimens from Guangdong, marking the first record of this genus in China.

Material and methods

Specimens were collected by malaise trap and mounted on slides in Euparal following the procedure outlined by Sæther (1969). Morphological terminology and abbreviations follow Sæther (1980). Digital photographs of slide-mounted specimens were taken using a Nikon Digital Sight DS-Fil camera mounted on a Nikon Eclipse 80i compound microscope. Measurements are presented as ranges followed by means. The types are deposited at the College of Fisheries and Life Sciences, Shanghai Ocean University (SHOU).

Taxonomy

***Asachironomus tanyostylus* Zhang & Yang sp. nov.** (Figs 1, 2)

Description. Male imago (n = 3).

Total length 2.08 (n = 1). Wing length 1.22–1.24, averaging 1.23 mm. Total length/wing length ratio 1.68 (n = 1). Wing length to length of profemur ratio is 2.16–2.25, averaging 2.21.

Colouration. Head brown with yellowish-brown palpomeres. Thorax dark brown. Abdominal segments yellow to yellowish brown. Leg yellowish brown. Wing yellow.

Head. Eye bare, with strong parallel-sided dorsomedial extension. Frontal tubercles absent. AR 0.59–0.60, 0.59. Ultimate flagellomere 261–271, 265 μm long. Temporal setae 7–8, 8 including 2–3 inner verticals, 2–3, 3 outer verticals and 1–3, 2 postorbitals. Clypeus with 11–12, 11 setae. Tentorium 72–95, 82 μm long. Palpal segment 3 with one subapical short sensilla. Palpomere lengths (in μm): 25–28, 27; 30–33, 32; 56–60, 58; 71–80, 75; 142 (n = 1).

Thorax (n = 1). Dc 9, Ac 10, Pa 3, Scutellum with six setae.

Wing (Figs 1C, 2D). Wing membrane densely covered with numerous macrotrichiae, especially on distal margin. R_{2+3} separated from R_1 and R_{4+5}, apically evanescent before uniting with the costa. Anal lobe not developed. VR 1.22–1.28, 1.26. Brachiolum with two setae. R with 19–22, 21 setae; R_1 with 16–21, 18 setae; R_{4+5} with 36–44, 41 setae; M_{1+2} with 45–52 setae; M_{3+4} with 19–26, 23 setae; Cu with 15–16, 15 setae; Cu_1 with 13–18, 15 setae;

PCu with 32–33, 32 setae; Sc with 13–17, 15 setae. Squama with 0–1, 1 seta.

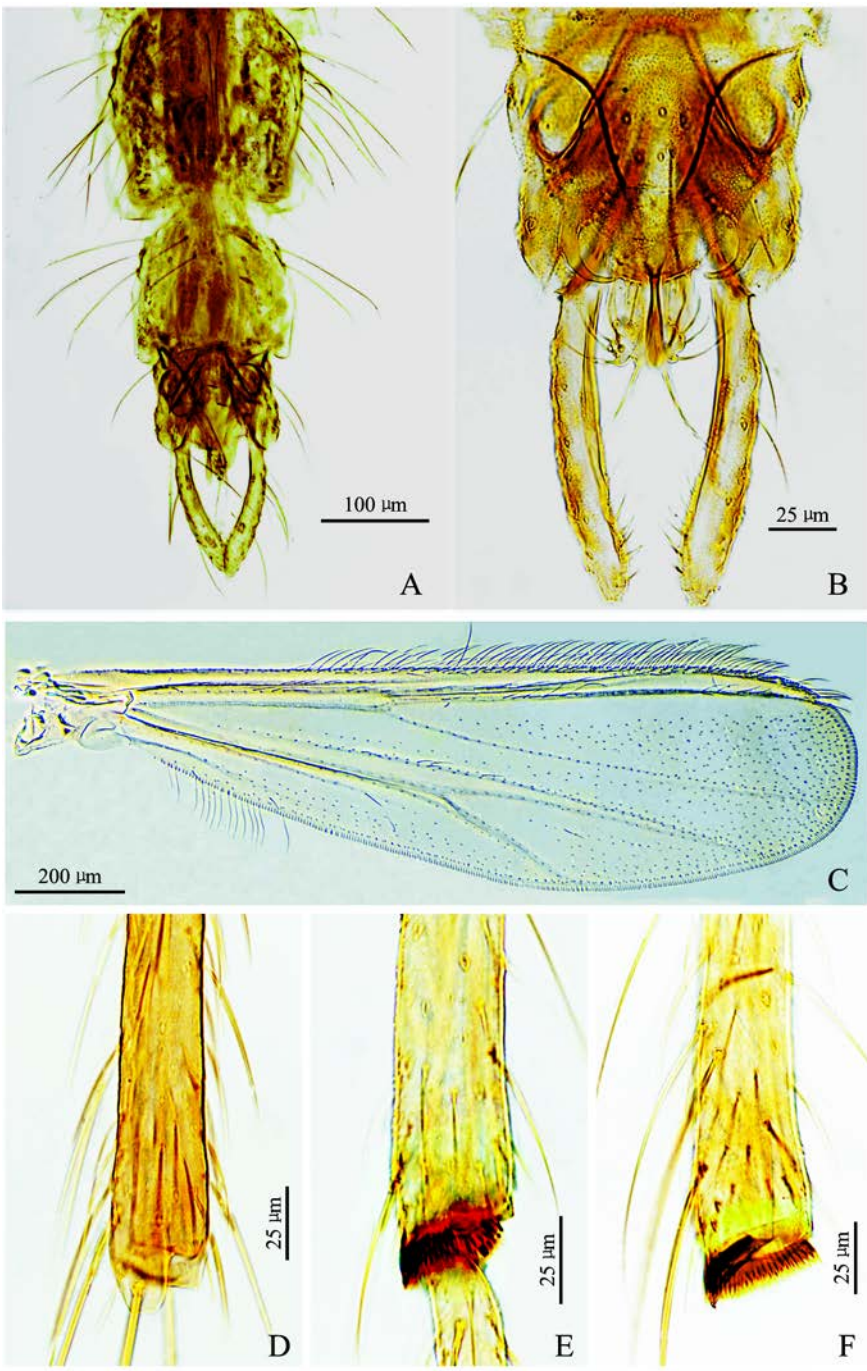

Figure 1. *Asachironomus tanyostylus* Zhang & Yang **sp. nov.** A. Abdominal segment VII–IX; B. Hypopygium. C. Wing; D. Terminal scale of front tibia; E. Terminal scale of middle tibia; F. Terminal scale of hind tibia.

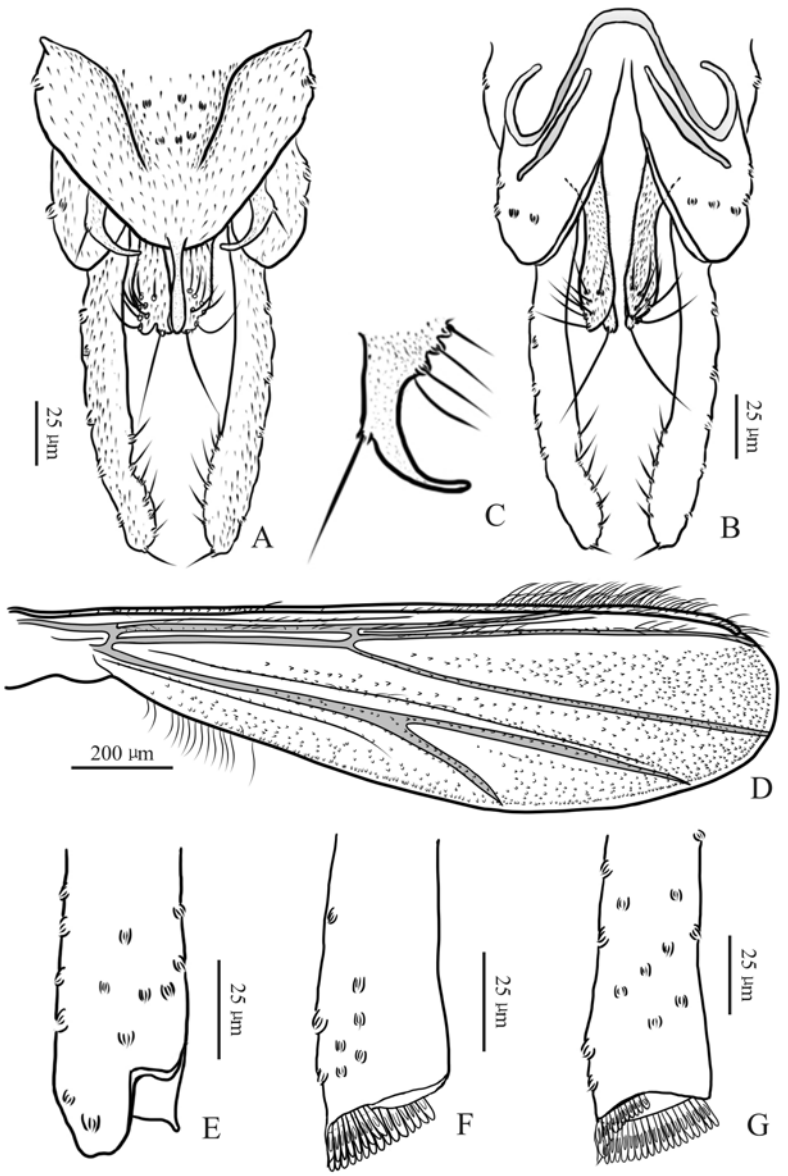

Figure 2. *Asachironomus tanyostylus* Zhang & Yang **sp. nov.** A, B. Hypopygium, dorsal and ventral views; C. Superior volsella; D. Wing; E. Terminal scale of front tibia; F. Terminal scale of middle tibia; G. Terminal scale of hind tibia.

Legs (Figs 1D–F, 2E–G). Terminal scale of front tibia 25–26, 25 μm long, distally rounded (Figures 1D, 2E). Terminal comb scales of mid and hind tibiae (Figs 1E, 1F, 2F, 2G) contiguous, low, broad, and without spur. Width at apex of front tibia 25–26, 25 μm, of middle tibia 27–31, 29 μm, of hind tibia 29–31, 29 μm. Lengths (in μm) and proportions of legs as in Table 1.

Table 1. Lengths (in μm) and proportions of legs of *Asachironomus tanyostylus* Zhang & Yang sp. nov.

	P1	P2	P3
Fe	545–566, 555	572–606, 585	601–636, 614
ti	324–303, 314	427–464, 443	507–541, 520
ta_1		245–259, 250	
ta_2		125–126, 126	
ta_3		67–74, 71	
ta_4		43–44, 43	
ta_5		38–41, 39	
LR		0.56–0.57, 0.56	

Hypopygium (Figs 1A, 1B, 2A–C). Oral margin of 8th tergite constricted and V-shaped in the middle, similar to that of *Polypedilum* species (Fig. 1A). Tergite IX with 4–6 median setae. Laterosternite with two setae. Posterior margin of tergite IX approximately inverted trapezoidal. Anal point slender, 42–45, 43 μm long, constricted at basal 1/3. The tip of the anal point coincides with the end of the inferior volsella. Phallapodeme 42–50, 46 μm long; transverse sternapodeme 20–23, 21 μm long. Gonocoxite 82–87, 83 μm long. Superior volsella (Fig. 2C**)** sickle-shaped, 33–36, 35 μm long, with 4 inner setae at base and one long lateral seta medially. Inferior volsella 61–66, 63 μm long, with 7–8, 7 oral setae and one apical seta. Gonostylus 112–118, 114 μm long, robust distally, with 7–8, 7 setae along inner margin of distal 1/3. HR 0.70–0.76, 0.73. HV 1.83.

Holotype. ♂ (SHOU: ZRL015016), **China**, Guangdong, Fengkai County, He'erkou Town, Heishiding National Nature Reserve, 23°27′38.32″N, 111°52′51.22″E, 22-IV-2021, Malaise trap, leg. HQ Tang. **Paratypes.** 2♂ (SHOU: ZRL015017, ZRL015018), same data as holotype.

Etymology. From the Greek word tanyo meaning "long, stretched out" and stylos meaning "pillar, column", referring to this new species having a longer gonostylus.

Remarks. This new species differs distinctly from *A. tobasextus* Kikuchi & Sasa by the presence of setae along inner margin of gonostylus. Moreover, this new species exhibits a more attenuated anal point and a significantly longer gonostylus.

The genus *Ashachironomus* remains taxonomically understudied, with no comprehensive descriptions of female adults and immature stages. Based on current morphological investigations, the diagnostic characters of male adults can be provisionally defined as follows: (1) antennae comprising 13 flagellomeres; (2) squama sparsely setose (≤5 setae); (3) wing membrane densely covered with macrotrichiae; (4) radial vein R_{2+3} terminating before reaching the costal margin; (5) fused terminal comb scales on mid- and hind tibiae lacking spurs; (6) tergite IX bearing elongate median setal tufts; (7) superior volsella sickle-shaped; and (8) oral margin of eighth segment constricted medially, V-shaped. These traits collectively establish the genus morphological framework pending further systematic revision.

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References

Kikuchi M & Sasa M. 1990. Studies on the chironomid midges (Diptera, Chironomidae) of the Lake Toba area, Sumatra, Indonesia. *Medical Entomology and Zoology*, 41(4): 291–329.

Sæther OA. 1969. Some Nearctic Podonominae, Diamesinae, and Orthocladiinae (Diptera: Chironomidae). *Bulletin of the Fisheries Research Board of Canada*, 170: 1–154.

Sæther OA. 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Entomologica Scandinavica*, 14(supplement): 1–51.

Tang H, Cheng Q, Han W & Cranston PS. 2022. Integrative taxonomy: molecular phylogenetics of *Polypedilum* (*Cerobregma*) and revisited morphology of *Yaethauma* and *Collartomyia* (Diptera: Chironomidae) reveals synonymy and supports new classification. *Zoological Journal of the Linnaean Society*, 194(1): 102–119.