

Rheotanytarsus makarchenkoi Lin et Yao, sp.n. from Hainan Island,
China (Diptera: Chironomidae)

Rheotanytarsus makarchenkoi Lin et Yao, sp.n. с острова Хайнань,
Китай (Diptera: Chironomidae)

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Key words: Diptera, Chironomidae, Chironominae, *Rheotanytarsus*, new species, China.

Ключевые слова: Diptera, Chironomidae, Chironominae, *Rheotanytarsus*, новый вид, Китай.

Abstract. A new species, *Rheotanytarsus makarchenkoi* sp.n., from Hainan Island, China is described and illustrated. An updated key to the known males of the *Rheotanytarsus trivittatus* species group is provided.

Резюме. Приведено иллюстрированное описание по имаго самцу нового вида хирономид *Rheotanytarsus makarchenkoi* sp.n. с острова Хайнань в Китае. Дана обновленная определительная таблица для самцов группы видов *Rheotanytarsus trivittatus*.

Introduction

Genus *Rheotanytarsus* Thienemann et Bause, 1913 is one of the most species-rich genera of the tribe Tanytarsini in the subfamily Chironominae, containing more than 100 described species worldwide [Sæther, Kyerematen 2001; Yao et al., 2022]. Sæther and Kyerematen [2001] erected the *Rheotanytarsus trivittatus* species group by including nine species from Afrotropical, Oriental, Australian and Holarctic regions. Prior to this study, only *Rheotanytarsus brevipalpus* Wang et Guo, 2004 was recorded in China [Wang, Guo, 2004]. In this study, we describe *Rheotanytarsus makarchenkoi* sp.n., a new species within the *Rheotanytarsus trivittatus* species group from China. An updated key to known adult males of the *R. trivittatus* species group is presented.

Materials and Methods

Specimens (two adult males) were collected by using light trap from Wuzhishan City, Hainan Province, China, and stored in 85 % ethanol. They were mounted

on slides following the procedure in Sæther [1969]. The morphological nomenclature follows Sæther [1980]. Color is described as observed in specimens mounted in Euparal on microscopy slides. Digital photographs of slide-mounted specimens were taken with a 300-dpi resolution using a Nikon Digital Sight DS-Fil camera mounted on Nikon Eclipse 80i compound microscope using the software NIS-Elements F v.4.60.00. The voucher specimens are deposited at the College of Life Sciences, Nankai University, Tianjin, China (NKU).

Description

Rheotanytarsus makarchenkoi
Lin et Yao, sp.n.

Figs 1–6.

<http://zoobank.org/NomenclaturalActs/645350FC-E901-4F66-B9EC-903EC28C2C27>

Material. Holotype: male (NKU: WZMY02), China, Hainan, Wuzhishan, Maoyang, 18.93696° N, 109.50604° E, 5.XII.2010, light trap, leg. X. Li. Paratype: ♂ (NKU: WZMY04) as holotype.

Description. *Adult males* (n = 2). Total length 1.83–1.85 mm. Wing length 1.10–1.16 mm. Total length/wing length 1.60–1.66. Wing length/length of profemur 1.89–1.90.

Coloration (Fig. 1). Thorax pale brown with brown spots, legs brown, and abdomen pale yellow.

Head. Antenna with 13 flagellomeres, ultimate flagellomere 184–186 µm long. AR 0.39–0.40. Temporal setae 6–10. Clypeus with 14–21 setae. Tentorium 67–89 µm long, 15–26 µm wide. Palpomere lengths (in µm): 24–26, 19–23, 73, 89–93, 146–148; Pm5/ Pm3 2.00–2.03. Third palpomere with 2 sensilla clavata distally.

Thorax. Dorsocentrals 5–6; acrostichals 9, 10; prealars 1. Scutellum with 5 setae. Halteres with 6–9 setae.



Fig. 1. Adult male of *Rheotanytarsus makarchenkoi* sp.n. (holotype).

Рис. 1. Имаго самец *Rheotanytarsus makarchenkoi* sp.n. (голотип).

Wing (Fig. 2). VR 1.60–1.62. Brachiolum with one seta, Sc bare, R with 15–16 setae, R_1 with 20 setae, R_{4+5} with 41 setae, M_{1+2} with 33–35 setae, M_{3+4} with 26–27 setae, false vein with 83–88 setae, Cu with 12–16 setae, Cu_1 with 15–17 setae, PCu with 42–49 setae, An with 25–27 setae, remaining veins bare. Cell r_{4+5} with c. 150 setae, m with 6–7 setae, m_{1+2} with c. 200 setae, m_{3+4} with c. 100 setae, cu+an with c. 120 setae.

Legs. Fore leg bearing single tibial spur, 20–23 μ m long. Combs of mid tibia 22–23 μ m wide with 18 μ m long spur, and 24–28 μ m wide with 17–20 μ m long spur; combs of hind tibia 24–26 μ m wide with 20 μ m long spur, 28–30 μ m wide with 24–25 μ m long spur. Tarsomere 1 of mid leg of the paratype with six sensilla chaetica. Lengths (in μ m) and proportions of leg segments as in Table 1.

Hypopygium (Figs 3–6). Tergite IX 95–98 μ m long, with 5–6 median setae at the base of anal point and with a small projection to both sides of anal point; anal tergal bands well separated. Anal point 18 μ m long, constricted in the middle and apically swollen, bearing four lateral setae on each side; crests basally fused to form an arc, and the apex opened and nearly reaching the apex of anal point. Transverse sternapodeme 34–39 μ m long, with oral projections. Phallapodeme 54–58 μ m long. Gonocoxite 80 μ m long. Gonostylus 75–77 μ m long, gradually tapered and more tapered apically. Superior volsella (Fig. 5) 39–40 μ m long, oval, with two anteromedian setae and three dorsal setae. Digitus triangular, bearing one seta located on cylindrical tubercle near the apex. Median volsella (Fig. 6), 51–52 μ m long, not reaching the apex of inferior volsella, with an oval plate; the stem covered with simple setae along the inner margin,

especially dense near the apex. Inferior volsella 60–66 μ m long, straight, with microtrichia. HR 1.04–1.07. HV 2.40–2.43.

Female and immatures unknown.

Diagnosis. The adult male can be distinguished from known species of *Rheotanytarsus* by the following combination of characters: antenna with 13 flagellomeres, and AR 0.39–0.40; abdomen not banded; anal tergite bands of well separated and somewhat horizontal; both sides of anal point with a small projection; anal point constricted in the middle and apically swollen; anal crests basally fused to form an arc, and the apex opened and nearly reaching the apex of anal point; digitus triangular, and with one seta placed on the tubercle near the apex; the stem of median volsella straight, covered with simple setae along the inner margin, especially dense near the apex, the apex of median volsella with an oval plate.

Диагноз. Имаго самец отличается от известных видов *Rheotanytarsus* следующей комбинацией признаков: антенна с 13 флагелломерами и AR 0,39–0,40; брюшко не полосатое; анальные полосы разделены и расположены почти горизонтально; обе стороны анального отростка с небольшим выступом; анальный отросток сужен посередине и расширен апикально; кресты срослись в основании, образуя дугу, а их параллельно-сторонние апикальные части почти достигают вершины анального отростка; дигитус треугольный, с одной щетинкой на бугорке у вершины; основание срединного придатка гонококситы прямое, апикально с овальной пластиной, по внутреннему краю покрыто простыми щетинками, особенно густыми в апикальной части.

Etymology. The species is named «*makarchenkoi*» after Prof. Eugenyi A. Makarchenko, for his outstanding contribution to the knowledge of Chironomidae taxonomy; noun in nominative case.

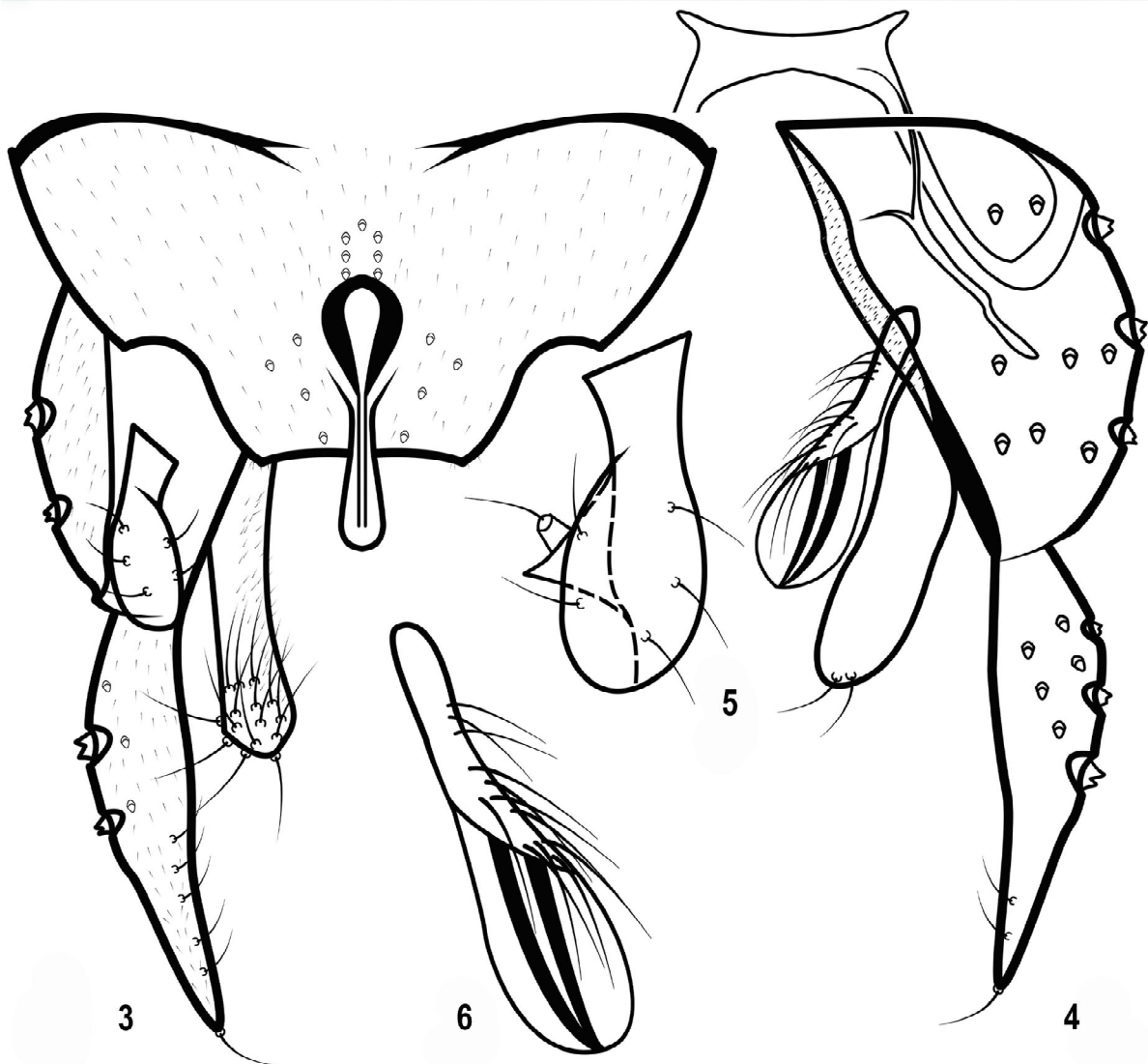
Taxonomic notes. The new species resembles *Rheotanytarsus trivittatus* (Johannsen, 1932) by having similar shapes of anal point, gonostylus and median volsella [Johannsen 1932], but can be separated from the latter species by the following combination characters: abdomen not banded; digitus triangular; the anal tergite bands somewhat horizontal; whereas abdomen banded; digitus thumb-like; the anal tergite bands of V-type in *R. trivittatus*.

KEY TO KNOWN ADULT MALES OF THE *RHEOTANYTARSUS TRIVITTATUS* SPECIES GROUP

1. Tergite IX with shoulders or projections to each side of the anal point 2
- Tergite IX without shoulders or projections to each side of the anal point 7
2. Abdomen obviously banded 3
- Abdomen not banded 4
3. Anal tergite bands fused; anal point gradually tapered ..
..... *R. ceratophylli* (Dejoux)

Table 1. Lengths (in μ m) and proportions of leg segments of *Rheotanytarsus makarchenkoi* sp. n., male (n = 2)
Таблица 1. Длина члеников ног (мкм) и их индексы самца *Rheotanytarsus makarchenkoi* sp.n. (n = 2)

P	f	t	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV
P ₁	581–612	272–274	763–770	347–369	258–267	198–206	92–94	2.81 (1)	1.76–1.82	1.11–1.16
P ₂	593–602	392–409	220 (1)	108 (1)	71 (1)	51 (1)	46 (1)	0.56 (1)	4.37 (1)	4.48 (1)
P ₃	615–635	479–482	310 (1)	179 (1)	172 (1)	99 (1)	65 (1)	0.65 (1)	2.73 (1)	3.53 (1)



Figs 2–6. Adult male of *Rheotanytarsus makarchenkoi* sp.n. 2 — wing; 3 — hypopygium, dorsal view; 4 — hypopygium, ventral view; 5 — superior volsella; 6 — median volsella.

Рис. 2–6. Имаго самец *Rheotanytarsus makarchenkoi* sp.n. 2 — крыло; 3 — гипопигий, вид сверху; 4 — гипопигий, вид снизу; 5 — нижний придаток гоноксита; 6 — срединный придаток гоноксита.

- Anal tergite bands well separated; anal point constricted in the middle *R. trivittatus* (Johannsen)
4. The base of median volsella with a strong and lamelliform seta *R. nuamae* Kyerematen
- The base of median volsella without seta like that 5
5. Anal tergite bands of V-type and fused; crest not visible *R. caputimberus* Hazra, Brahma et Sanyal
- Anal tergite bands horizontal and separated; crest well developed 6
6. The projection of tergite IX well obvious, gonostylus abruptly tapered in the apical portion *R. additus* (Johannsen)
- The projection of tergite IX less pronounced, gonostylus gradually tapered *R. makarchenkoi* Lin et Yao, sp.n.
7. Superior volsellae with posterior projection 8
- Superior volsellae rounded *R. meridionalis* (Johannsen)
8. Basal tergite bands present *R. ramirezae* Kyerematen
- Basal tergite bands absent 9
9. AR about 0.22; gonostylus abruptly tapered in apical portion...*R. scutulatus* Kyerematen et Andersen
- AR about 0.50; gonostylus gradually tapered *R. brevipalpus* Wang et Guo

Acknowledgements

Financial support from National Natural Science Foundation of China (31900344, 32170473, 31801994) and the China Postdoctoral Science Foundation Grant (2018M640227) are acknowledged with thanks.

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Поступила в редакцию 27.5.2022