

Qiniella, a new orthoclad genus from China (Diptera: Chironomidae)

X. H. Wang & O. A. Sæther

Department of Biology, Nankai University, Tianjin, 300071, China; Museum of Zoology, University of Bergen, N-5007 Bergen, Norway

Received 15 April 1997; in revised form 30 September 1997; accepted 19 December 1997

Key words: Chironomidae, *Qiniella* gen. nov., China

Abstract

Qiniella lii gen. nov., sp. nov. from China is described as male imago. The genus share bare eyes, wing and squama and extended costa with most members of the *Parakiefferiella* group sensu Sæther (1983), and the absence of a scutal tubercle, hump or microtrichial tuft and strongly developed virga with *Krenosmittia* Thienemann & Krüger, but is among other distinguished by a unique trifold gonostylus.

Introduction

Sæther & Wang (1993) described *Xiaomyia*, *Shangomyia*, and *Zhouomyia*, the three first genera to be described on material from China. Those three genera belonged basally in the subfamily Chironominae and originated from Oriental China.

This paper describes the fourth chironomid genus to be described, a peculiar Orthoclaadiinae collected in the mountains of the Henan Province of Palaearctic China.

Methods and terminology

The general terminology follows Sæther (1980, 1990). The specimens were mounted on slides in Canada balsam following the procedure outlined in Sæther (1969). In the figures of the male genitalia the dorsal view is shown to the left, the ventral aspect and apodeme to the right. The holotype and four paratypes are deposited in the Department of Biology, Nankai University, Tianjin, China (BDN), two paratypes are deposited in the Museum of Zoology, University of Bergen Norway (ZMBN).

Qiniella gen. nov.

Type species: Qiniella lii sp. nov. by monotype and present designation.

Diagnostic characters: The male imagines are separable from other Orthoclaadiinae except *Krenosmittia* Thienemann et Krüger by having bare eyes, wing and squama; extended costa; absence of a scutal tubercle, hump or microtrichial tuft; and strongly developed virga. It differs from *Krenosmittia* in having a completely divided gonostylus with one part deeply bifid, making the whole gonostylus trifold; antenna with apical seta; and anal point broadly triangular and well developed. *Etymology:* From *Qin*, the fourth dynasty of China, and the Latin diminutive *-ella*, commonly used in the Orthoclaadiinae.

Male imago

Small species, wing length about 1 mm. Brachiolum with 1 setae; all veins and cells bare. Squama bare.

Eye bare, relatively small, reniform, without dorsomedian elongation, somewhat protruding. Antenna with 13 flagellomeres; fully plumed; groove beginning at flagellomere 3; sensilla chaetica present on flagellomere 2, 3 and 13; apex with apical seta; AR lower than 1.0. Palpomeres normal; palpomere 3 with lanceolate sensilla clavata. Temporals few, inner verticals weak and short, outer verticals long and strong, pos-

torbitals apparently absent. Tentorium and stipes normally developed. Cibarial pump with anterior margin concave. Clypeus with few setae.

Anteprenotal lobes narrowed medially, apparently without lateral anteprenotals. without scutal tubercle, hump or microtrichial tuft. Acrostichals absent, dorsocentrals and prealar few, supraalars absent. Scutellum with few setae. Preepisternum bare.

Wing membrane without setae, with very fine punctation. Anal lobe undeveloped. Costa strongly extended; R_{2+3} running medially between R_1 and R_{4+5} ; R_{4+5} ending proximally to end of M_{3+4} ; Cu_1 strongly sinuous; postcubitus and anal vein both ending distal to FCu; FCu far distal to RM. Brachiolum with 1 seta, other veins bare. Squama bare. Sensilla campaniformia about 8 both basally and apically on brachiolum, 3 below seta on brachiolum; 1 present basally on subcosta, on RM and basally on R_1 .

Tibial combs and spurs normal; tarsal pseudospurs, sensilla chaeticae and pulvilli absent.

Tergites and sternites with very few setae.

Anal point broadly triangular, microtrichiose, with 3–4 setae on each side. Sternapodeme nearly straight with very weak oral projections. Phallapodeme and aedeagal lobe well developed with apex of aedeagal lobe conspicuously sclerotized. Virga strongly developed, with median spine and lateral lamellae. Gonocoxite well developed; inferior volsella rectangular, low, with sclerotized apical corner; apparently no superior. Gonostylus consisting of two separate lobes; basal lobe strongly sclerotized with two apical teeth and a few microtrichia; apical lobe deeply divided, with a sclerotized hook between division, inner lobe strongly sclerotized with toothed outer margin, bare except for a few basal microtrichia; outer lobe less sclerotized, ending in posteriomediaally pointing projection, with long microtrichia directed medially on basal part and shorter microtrichia on projection; megaseta apparently absent.

Female and immatures unknown.

Systematics

In the key to Holarctic male Orthocladiinae (Cranston et al., 1989) will key to *Krenosmittia* if the apical seta is regarded as weak and the trifurcate gonostylus disregarded. A strong and straight subapical antennal setae is present not only in the two genera mentioned in the key, *Semiocladius* Sublette et Wirth and *Smittia* Holmgren, but also in all or some of *Neobril-*

lia Kawai, *Pludsonia* Sæther, *Chaetocladius* Kieffer, *Paralimnophyes* Brundin, *Seoatheriella* Halvorsen, *Thienemannia* Kieffer, *Gymnometriocnemus* Goetghebuer, *Parachaetocladius* Wülker, *Georthocladius* Strenzke, *Pseudorthocladius* Goetghebuer, *Tavastia* Tuiskunen, *Parasmittia* Strenzke, *Smittia* Holmgren, and *Comptosmittia* Sæther; i.e. all genera of the *Pseudorthocladius* group, some plesiomorphic genera, genera near *Chaetocladius*, some genera of the *Parakiefferiella* group, and some of the *Smittia* group. The strongly sinuous Cu_1 combined with the extended costa and the bare squama exclude most of the above genera for further consideration leaving the *Parakiefferiella* group.

However, no genera of this group is known to have a divided gonostylus. Double gonostyli with each part articulating separately with the gonocoxite are among the chironomids found only in the Buchonomyiinae and apparently in some *Diplosmittia* Sæther (Sæther, 1980; Andersen, 1996), while in some *Prodiamesa* Kieffer, *Prosilocerus* Kieffer, *Brilia* Kieffer, *Stictocladius* Edwards, *Diplocladius* Kieffer, some *Cricotopus* subgen. *Pseudocricotopus*, and *Chaetocladius* subgen. *Amblycladius* Kieffer the gonostylus is divided to the base, and a number of other genera may have bifid gonostylus not divided to base. None of these have a gonostylus remotely resembling that of *Quiniella* although *Chaetocladius* (*Amblycladius*) and *Cricotopus* (*Pseudocricotopus*) could both be said to have a trifid gonostylus and their megasetae are weak or absent.

Sæther (1983) give a phylogeny of the *Parakiefferiella* group. The male imago of *Quiniella* show trends leading to *Krenosmittia*. However, most of the trends in the phylogeny are based on immatures making the placement uncertain. Nevertheless, the placement in the *Parakiefferiella* group appear relatively certain since the genus also show other characteristics of some members of the group such as the triangular anal point and the small slightly protruding eyes.

Quiniella lii sp. nov.

Type locality: CHINA, Henan Province: Song County (34.08° N 112.05° E).

Type material Holotype ♂, CHINA: Henan Province: Song County, Baiyunshan Forestry Farm 17. VII. 1996, leg. Jun Li (BDN no. 010284). Paratypes: 6 ♂, as holotype.

Etymology Named in honour of Mr. Jun Li, the collector of the examined material.

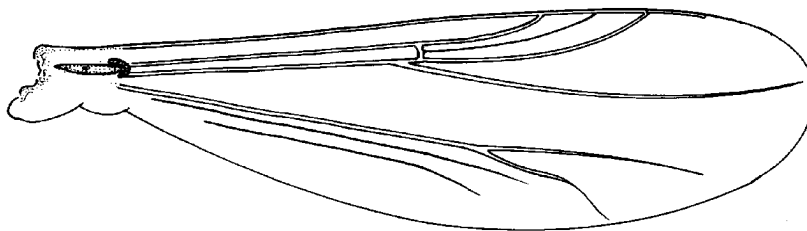


Figure 1. *Qiniella lii* sp. nov. Wing.

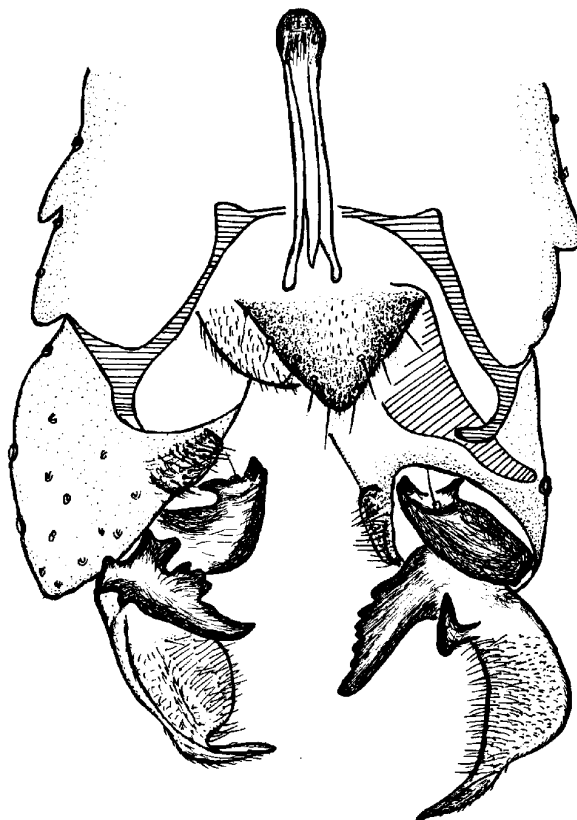


Figure 2. *Qiniella lii* sp. nov. Hypopygium.

Male imago ($n=7$)

Small species, total length 1.44–1.60, 1.50 mm. Wing length 0.96–0.99, 0.98 mm. Total length/wing length 1.53. Wing length/length of profemur 2.38. Coloration pale green.

Head. AR 0.41–0.47, 0.44. Ultimate flagellomere 177–193, 183 μm long. Temporal setae 5–7, 6 including 4–5, 5 short and weak inner verticals and 1–2, 2 strong outer verticals. Clypeus with 4–6, 5 long setae. Tentorium 90–105, 95 μm long. Palpomere lengths (μm): 26–28, 27; 18–28, 23; 46–64, 53; 46–59, 51; 81–102, 90. Third palpomere with 4 sensilla clavata.

Thorax. Antepronotum bare. Dorsocentrals 6–7, 7; prealars 2. Scutellum with 2 setae.

Wing (Figure 1). VR 1.14–1.45, 1.28. C extension 74–84, 79 μm long.

Legs. Spur of front tibia 29–33, 31 μm long; spurs of middle tibia 10–12, 11 and 8–11, 9 μm long; of hind tibia 27–29, 28 and 13–15, 14 μm long. Comb with 8 setae. Length (in μm) and proportions of legs (see Table 1).

Abdomen. Each tergite bears about 8 long setae in 2 irregular rows.

Table 1.

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR
P ₁	298–344 (322)	380–420 (395)	164–176 (172)	109–123 (115)	82–84 (83)	41–50 (43)	31–42 (39)	0.42–0.46 (0.44)
P ₂	359–412 (380)	344–431 (384)	151–154 (153)	92–103 (98)	62–92 (73)	41–62 (47)	31–41 (39)	0.36–0.44 (0.41)
P ₃	339–378 (356)	388–412 (395)	174–185 (177)	103–113 (108)	103–113 (109)	31–42 (39)	31–41 (39)	0.45–0.49 (0.46)

Hypopygium (Figure 2). Tergite IX with 8–12, 10 weak setae, all lateral on anal point; laterosternite IX with 2 long setae. Phallapodeme 69–82, 78 μm long; transverse sternapodeme 54–69, 61 μm long. Gonocoxite 102–110, 106 μm long. Longer lobe of gonostylus 82–86, 84 μm long; shorter lobe 38–53, 45 μm long. Virga 84–90, 87 μm long. HR 2.36; HV 3.33.

Distribution

The present species was collected by sweep net from a mountainous landscape, with an elevation of 1400 M above sea level, in the middle of China (Henan Province).

Acknowledgements

We are grateful to Mr Jun Li, Department of Biology, Nankai University, Tianjin, China for the material. Sincere thanks to the National Natural Science Foundation of China (NSFC) for financial support.

References

- Andersen, T. 1996. New species of *Diplosmittia* Sæther, 1981 from Costa Rica (Chironomidae, Orthoclaadiinae). Acta Zool. Acad Sci. Hung. 42: 123–132.
- Cranston, P. S., Oliver, D. R. & O. A. Sæther, 1989. The adult males of Orthoclaadiinae (Diptera: Chironomidae) of the Holarctic region – Keys and diagnoses. In Wiederholm (ed.), Chironomidae of the Holarctic Region. Keys and Diagnoses. Part 3. Adult Males. Ent. scand. Suppl. 34: 165–352.
- Sæther, O. A., 1980. Glossary of chironomid morphology terminology (Diptera: Chironomidae). Ent. scand. Suppl. 14: 1–51.
- Sæther, O. A. 1981. Orthoclaadiinae (Diptera: Chironomidae) from the British West Indies, with descriptions of *Antillocladius* n. gen., *Lipurometriocnemus* n. gen., *Comptosmittia* n. gen. and *Diplosmittia* n. gen. Ent. scand. Suppl. 16: 1–46.
- Sæther, O. A., 1983. Three new species of *Lopescladius* Oliveira, 1967 (syn. '*Cordites*' Brundin 1966. n. syn) with a phylogeny of the *Parakiefferiella* group. Mem. Am. ent. Soc. 34: 279–298.
- Sæther, O. A. & X. Wang, 1993. *Xiaomyia*, *Shangomyia*, and *Zhouomyia*, three new and unusual genera of Chironomini from Oriental China (Diptera: Chironomidae). Ent. scand 24: 185–195.
- Wang, X. & O. A. Sæther, 1993. First Palaearctic and Oriental records of the genus *Antillocladius* Sæther (Diptera: Chironomidae). Ent. scand. 24: 227–230.